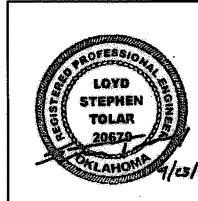
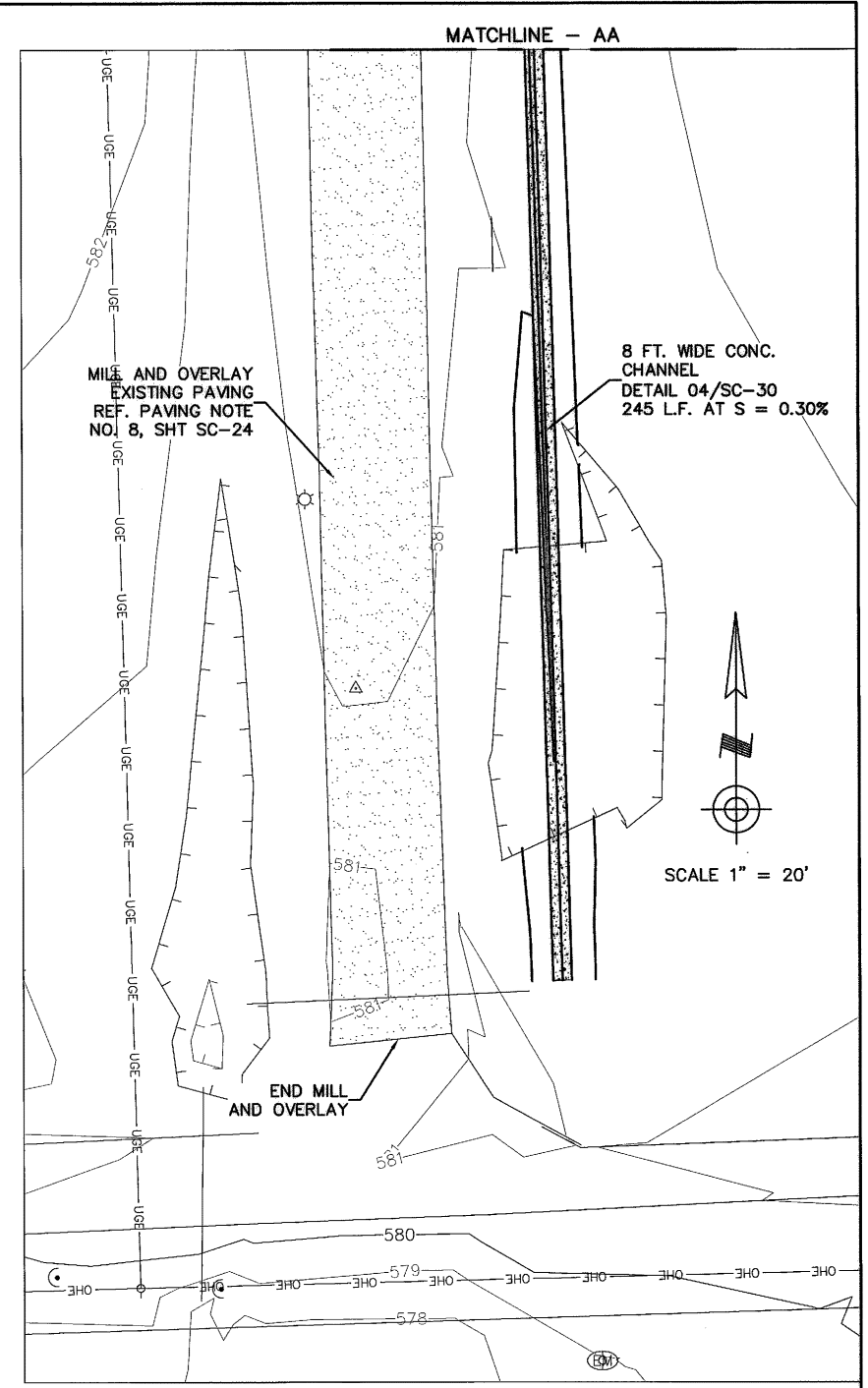
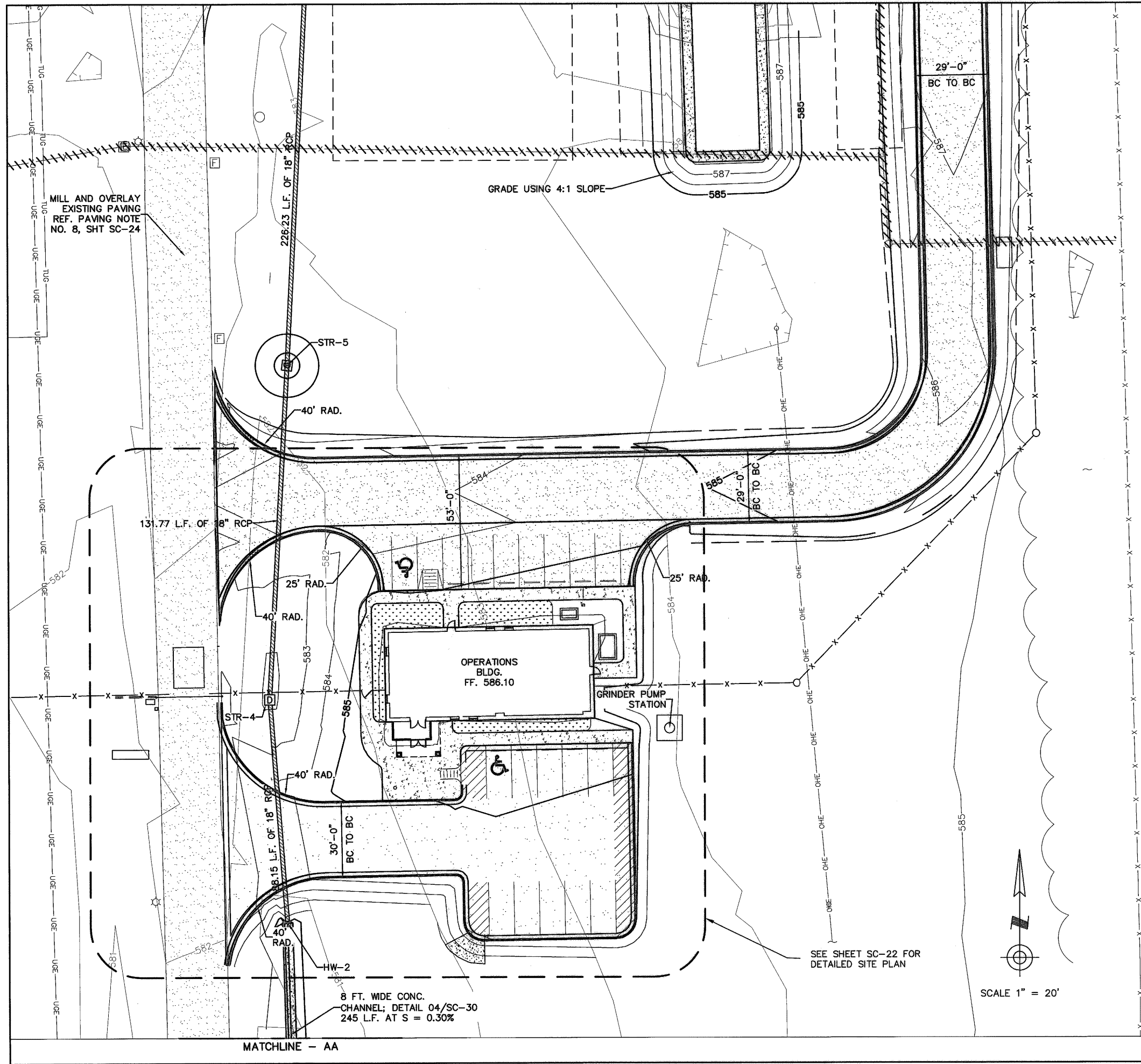


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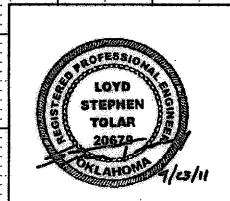
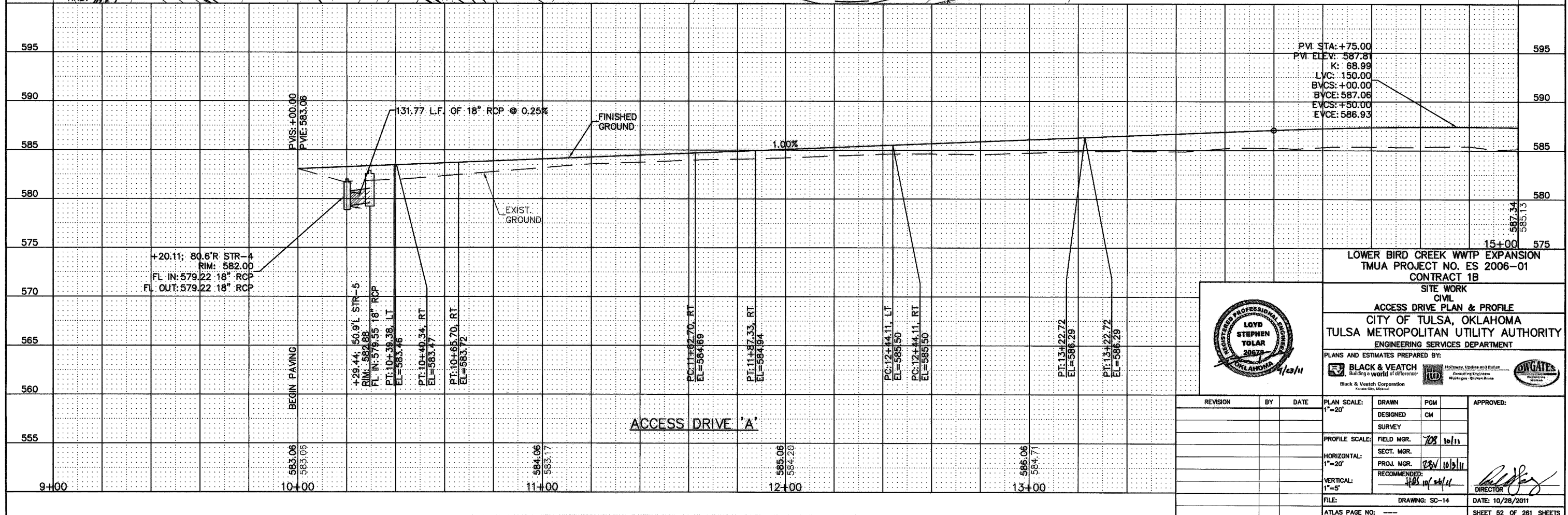
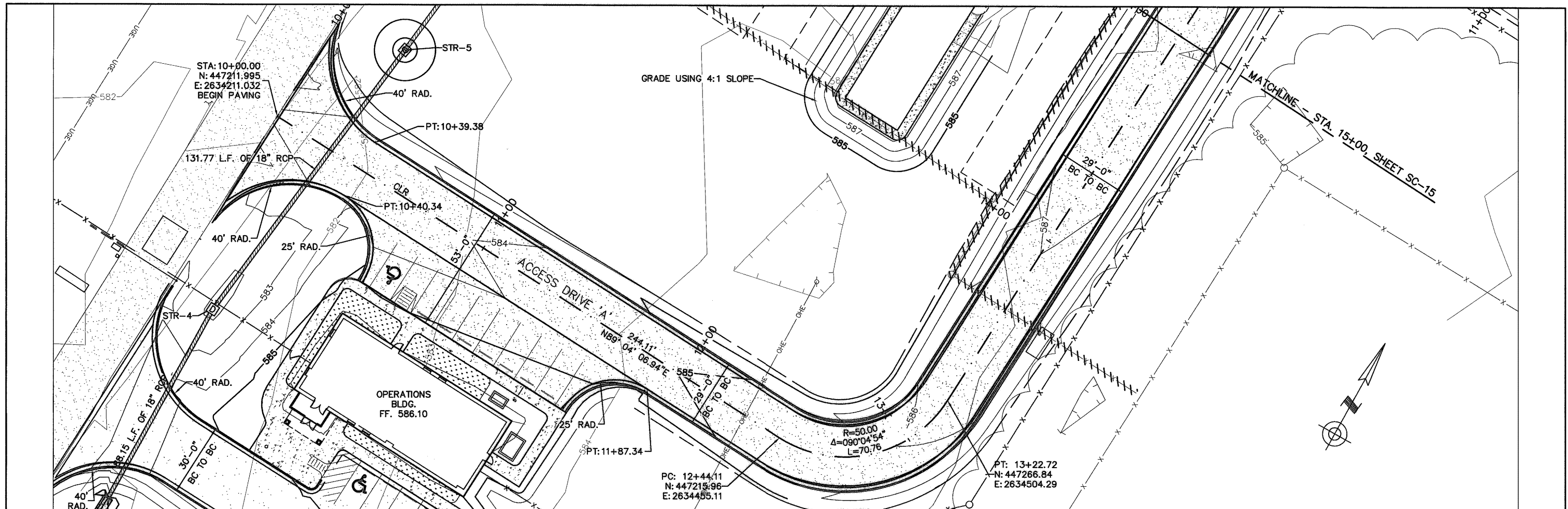
LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B

SITE WORK  
 CIVIL  
 PARTIAL GRADING & PAVING PLAN  
 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	PLAN SCALE: 1"=20'	DRAWN	PGM	APPROVED:
				DESIGNED	CM	
				SURVEY		
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			VERTICAL:	RECOMMENDED:	HAS 10/24/11	
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			ATLAS PAGE NO. ---			DATE: 10/28/2011

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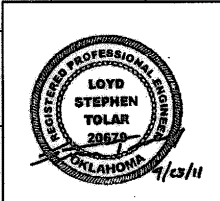
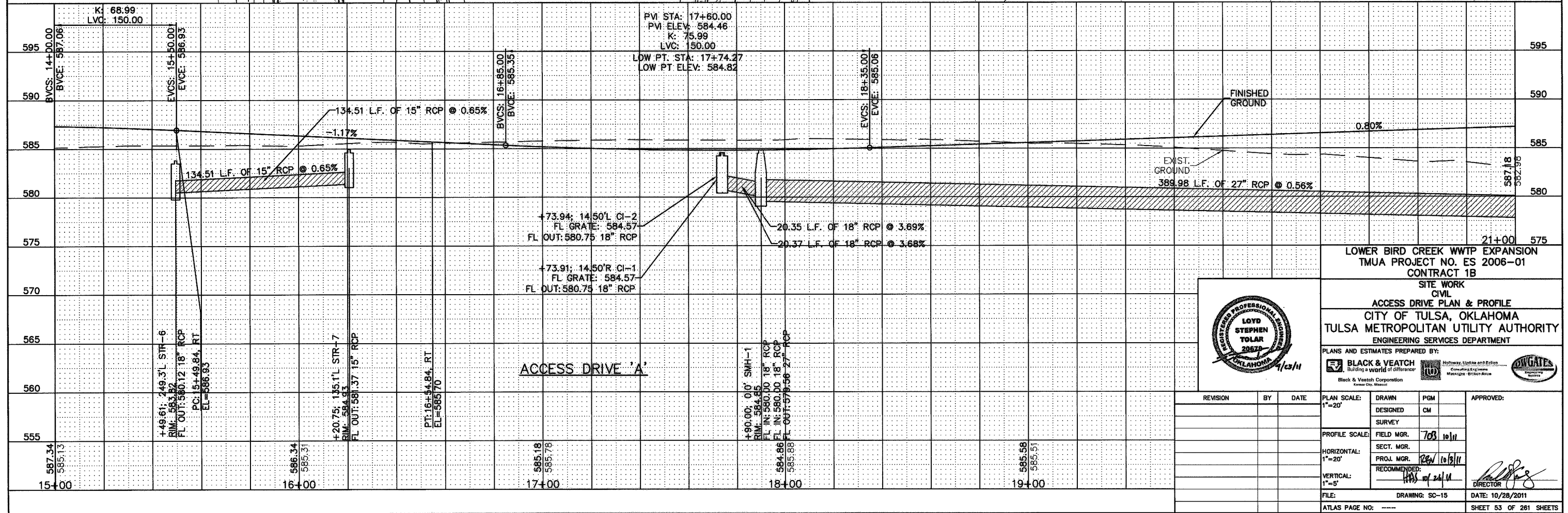
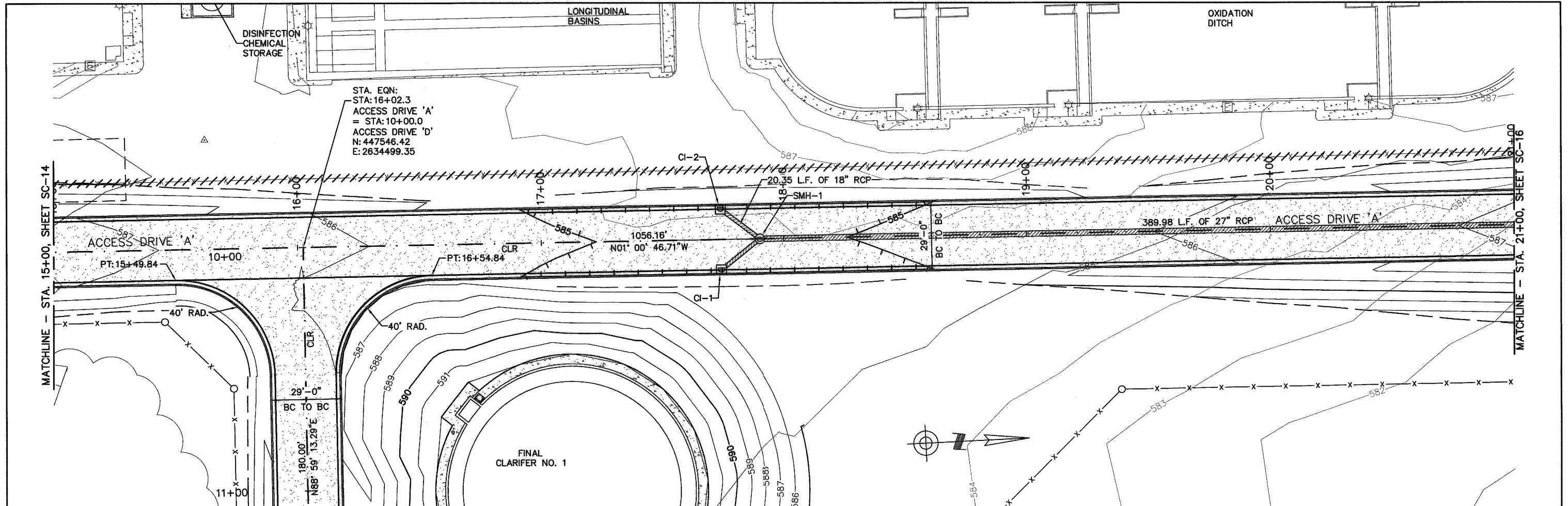


LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 CIVIL  
 ACCESS DRIVE PLAN & PROFILE  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

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REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
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			ATLAS PAGE NO.:			SHEET 52 OF 261 SHEETS





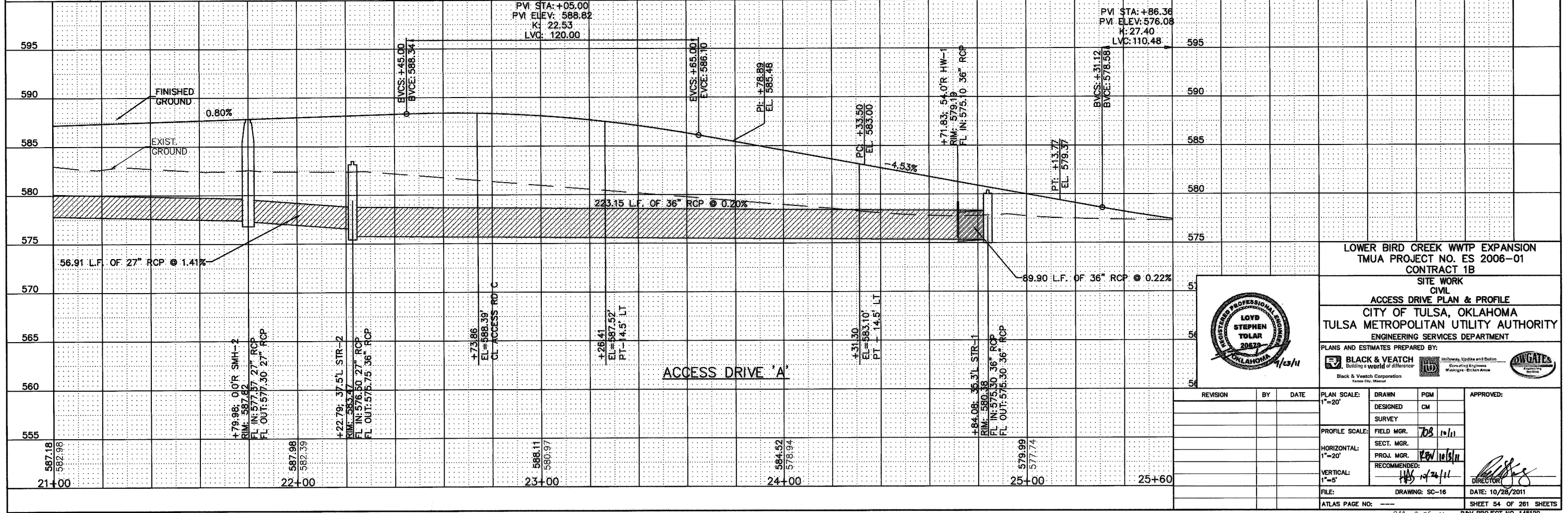
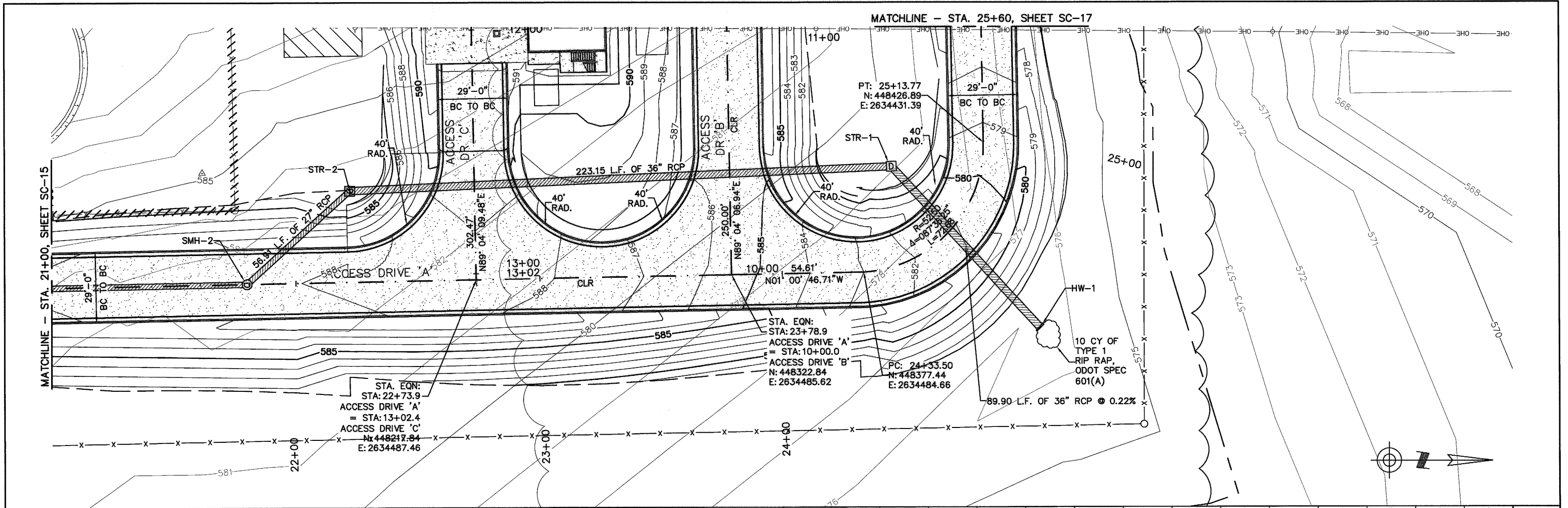
LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B

SITE WORK  
 CIVIL  
 ACCESS DRIVE PLAN & PROFILE  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
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REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=20'	DESIGNED	CM	 DIRECTOR DATE: 10/28/2011 SHEET 53 OF 261 SHEETS
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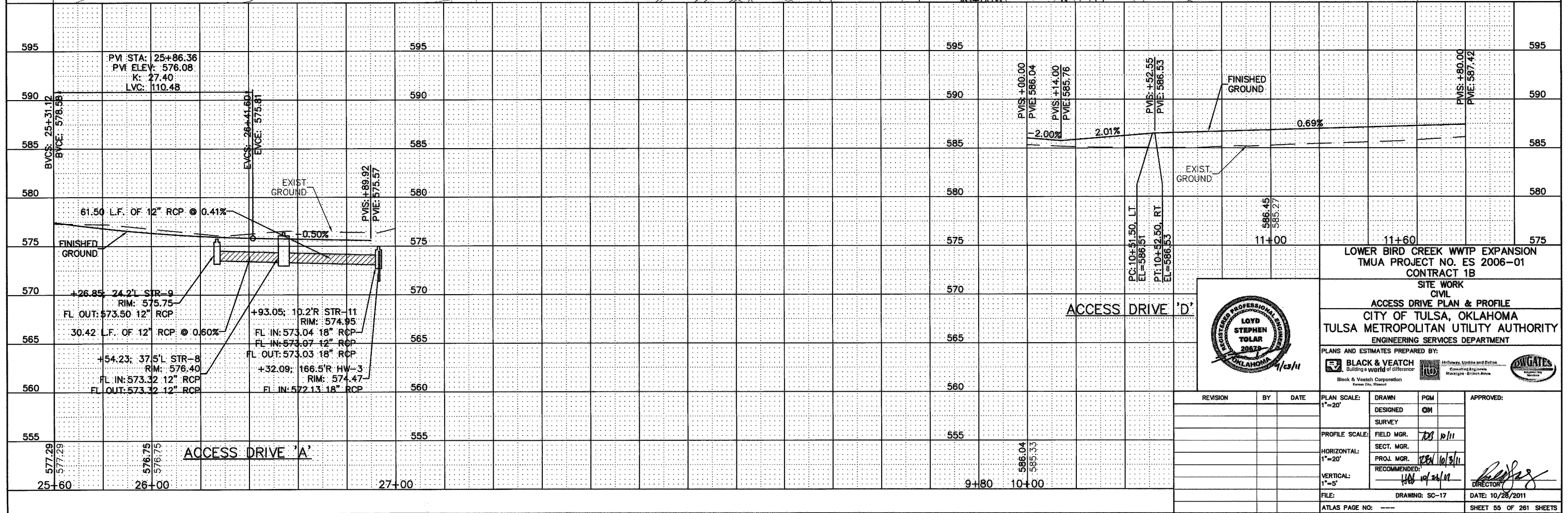
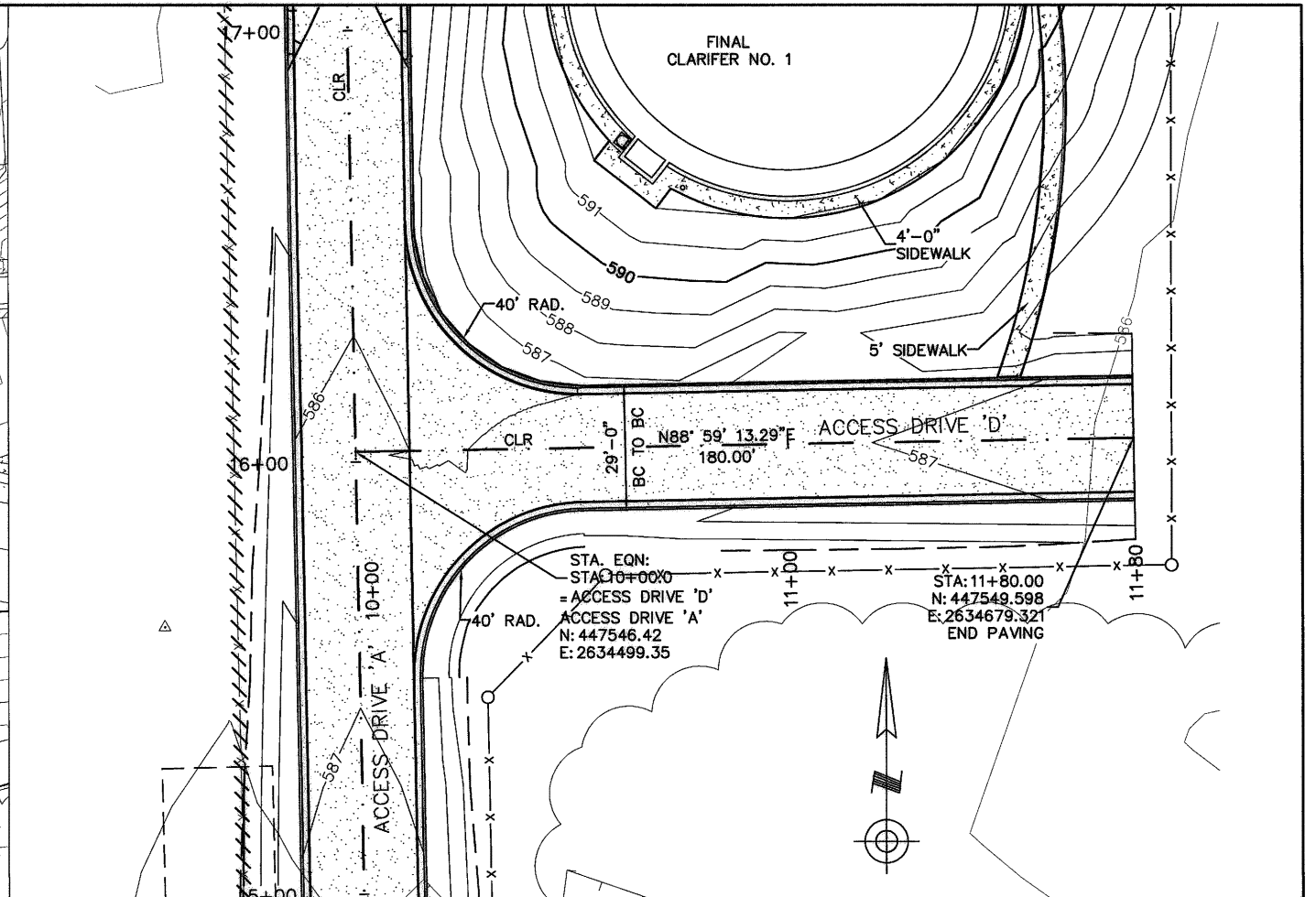
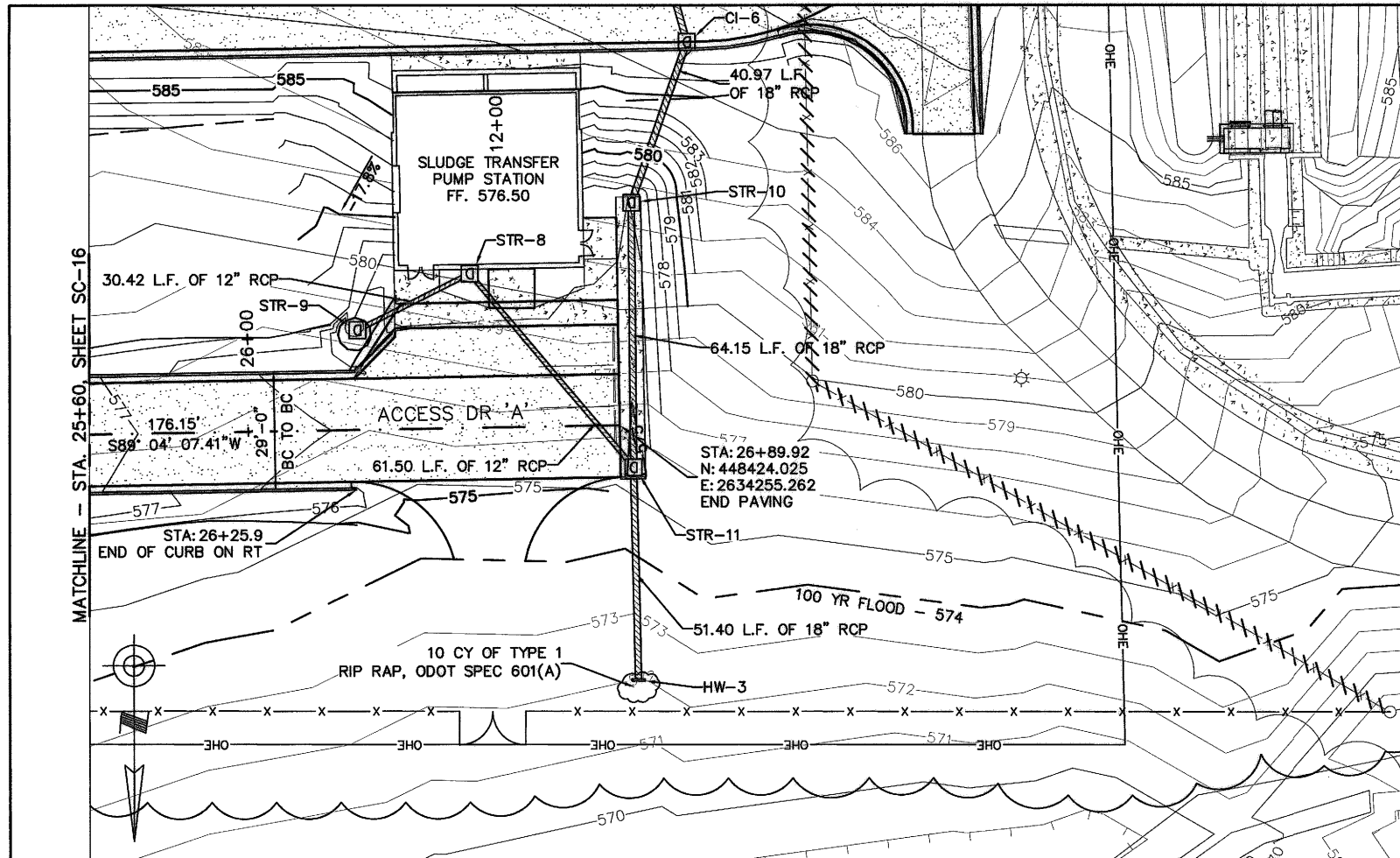


LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 CIVIL  
 ACCESS DRIVE PLAN & PROFILE  
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 TULSA METROPOLITAN UTILITY AUTHORITY  
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 Kansas City, Missouri

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=20'	DESIGNED	CM	
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			ATLAS PAGE NO.:			



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

SITE WORK  
 CIVIL  
 ACCESS DRIVE PLAN & PROFILE  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

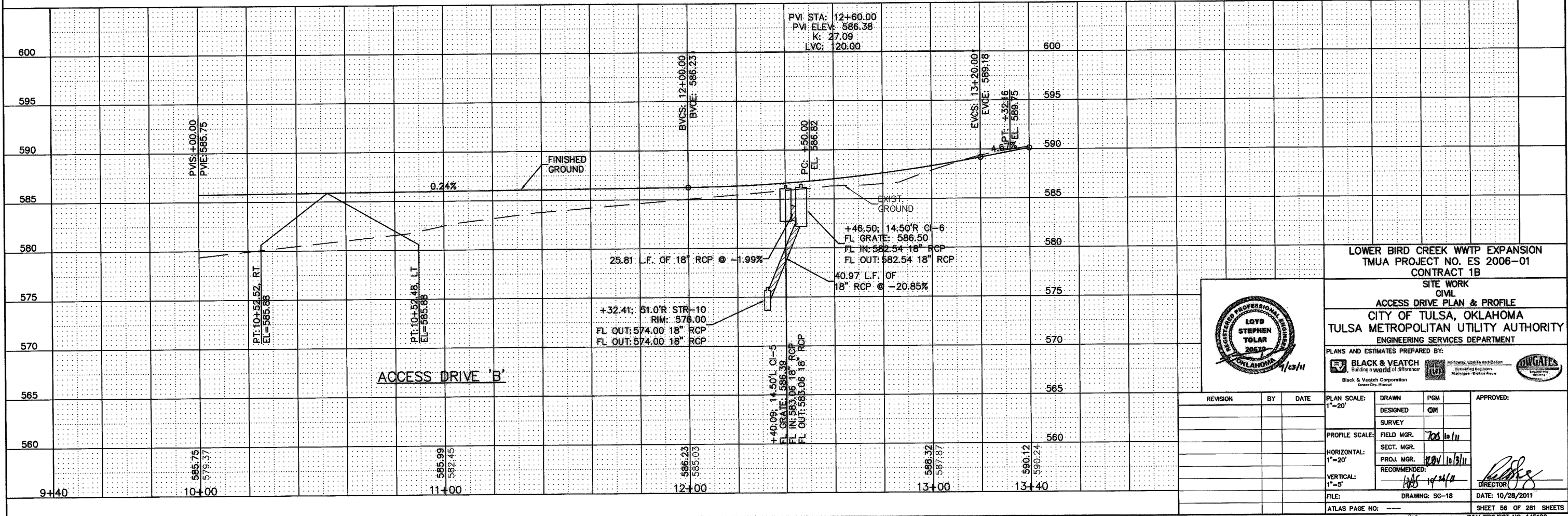
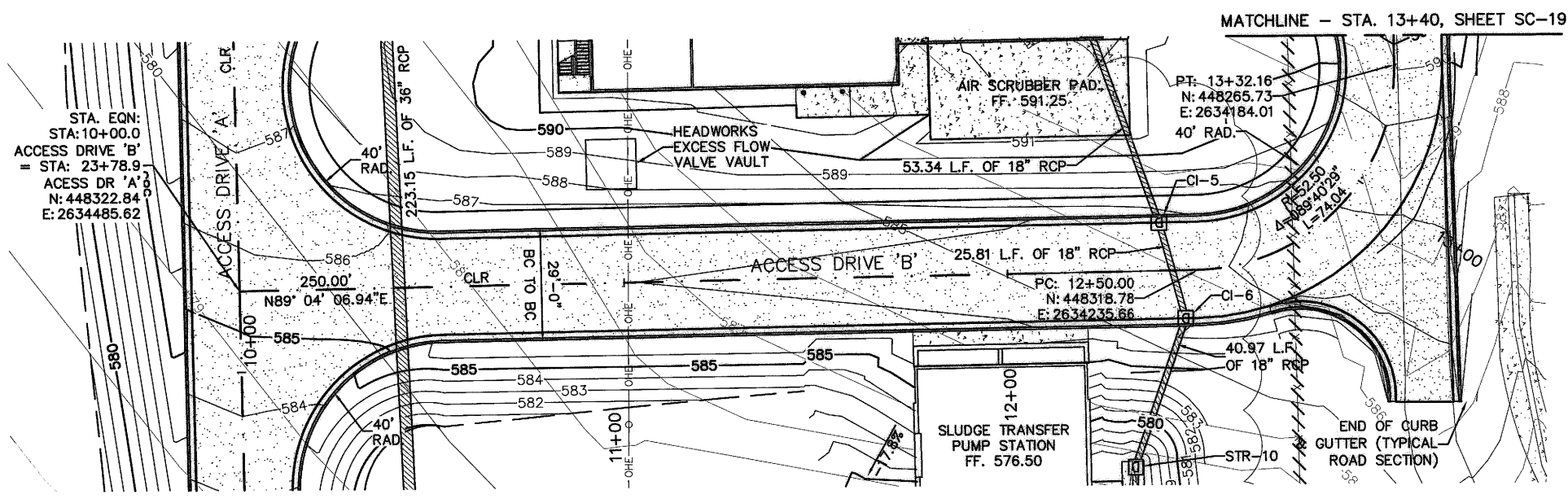


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 Black & Veatch Corporation  
 Kansas City, Missouri

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
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			ATLAS PAGE NO: ---			SHEET 55 OF 261 SHEETS



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

SITE WORK  
 CIVIL  
 ACCESS DRIVE PLAN & PROFILE  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

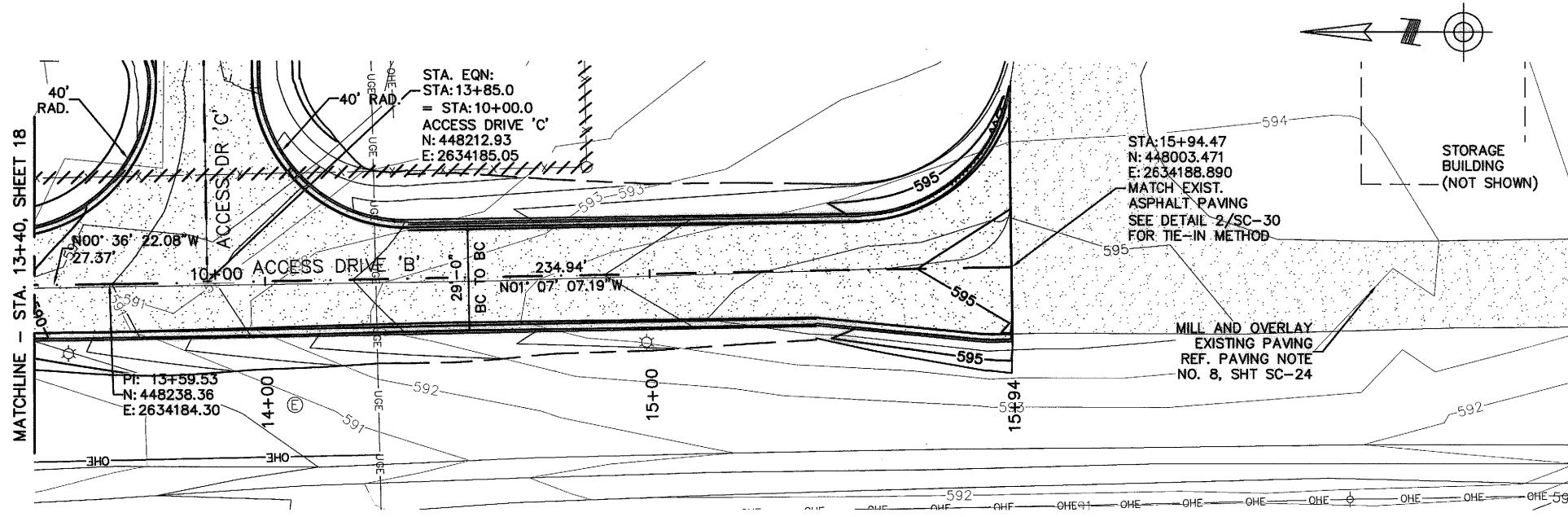


PLANS AND ESTIMATES PREPARED BY:  
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 Oklahoma City, Oklahoma

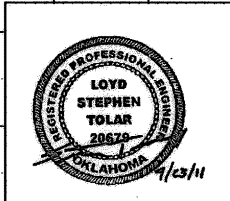
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						SHEET 56 OF 261 SHEETS



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STATION	ELEVATION	DESCRIPTION	EXIST. GROUND	FINISHED GROUND
13+40	590.12	BVCS: 13+40.00 BVCE: 590.12		
14+00	592.40	PI: 13+59.53 N: 448238.36 E: 2634184.30		
14+00	591.79	CL ACCESS RD 'C' EL=591.93		
14+00	594.14	PC: 14+37.52, LT EL=593.31		
14+60	593.65	EYCS: 14+60.00 EYCE: 593.65		
15+00	594.49			
15+00	594.67	PC: 15+33.03, RT EL=594.67		
15+00	594.82	PC: 15+58.00, LT EL=594.82		
15+94	595.30	PVS: 15+94.47 PVE: 595.30		
16+40	595.30			

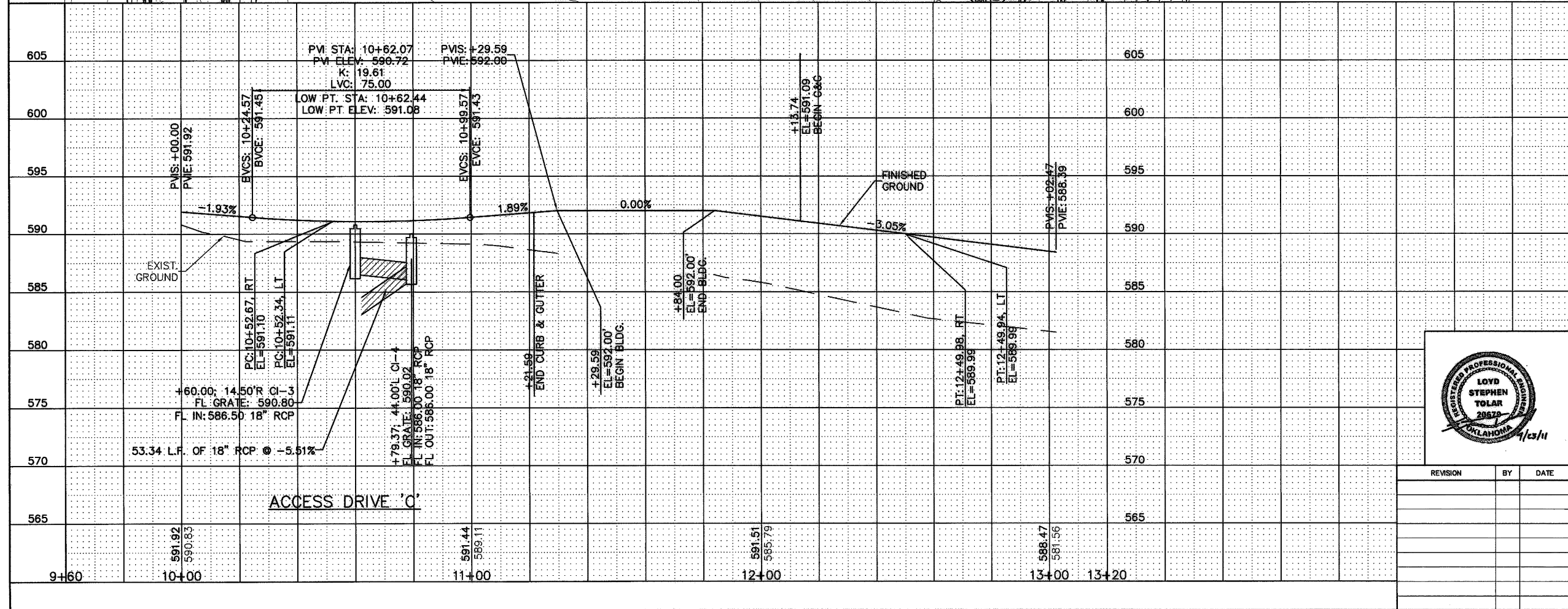
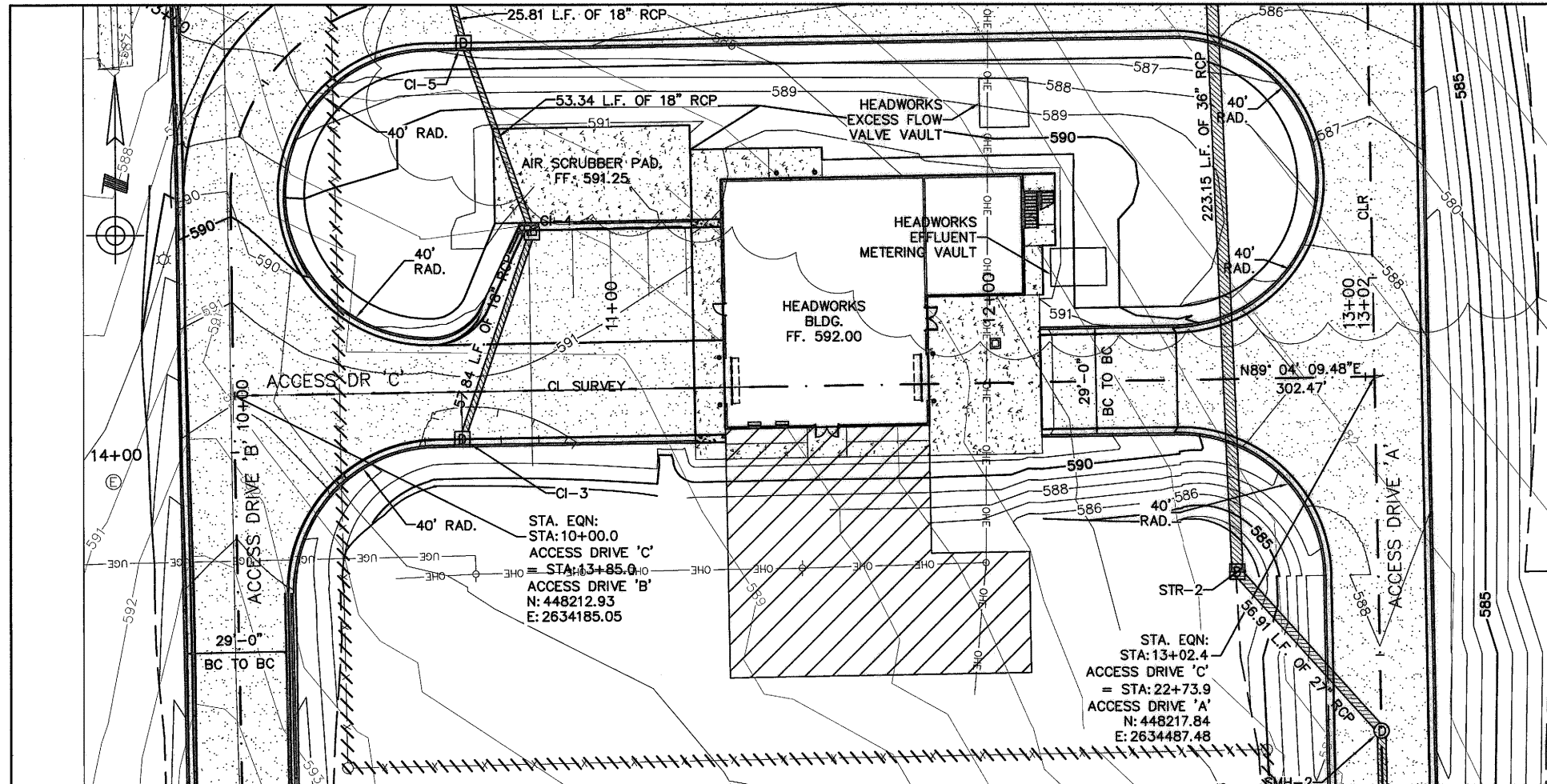


LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 CIVIL  
 ACCESS DRIVE PLAN & PROFILE  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:  
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REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=20'	DESIGNED	CM	
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	TOS	10/11
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			1"=20'	PROJ. MGR.	REN	10/11
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			ATLAS PAGE NO:			SHEET 57 OF 261 SHEETS

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

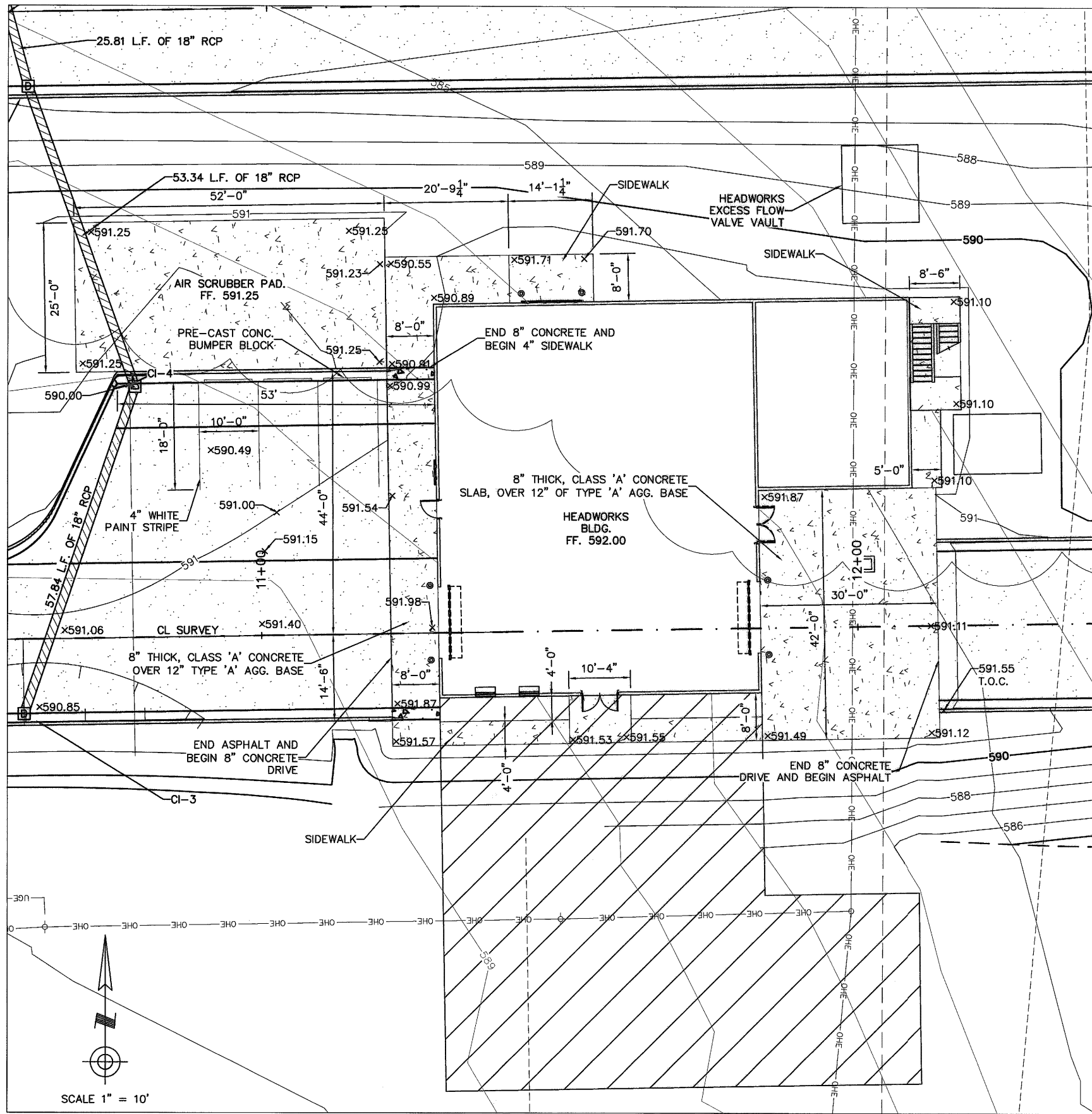


SITE WORK  
CIVIL  
ACCESS DRIVE PLAN & PROFILE  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

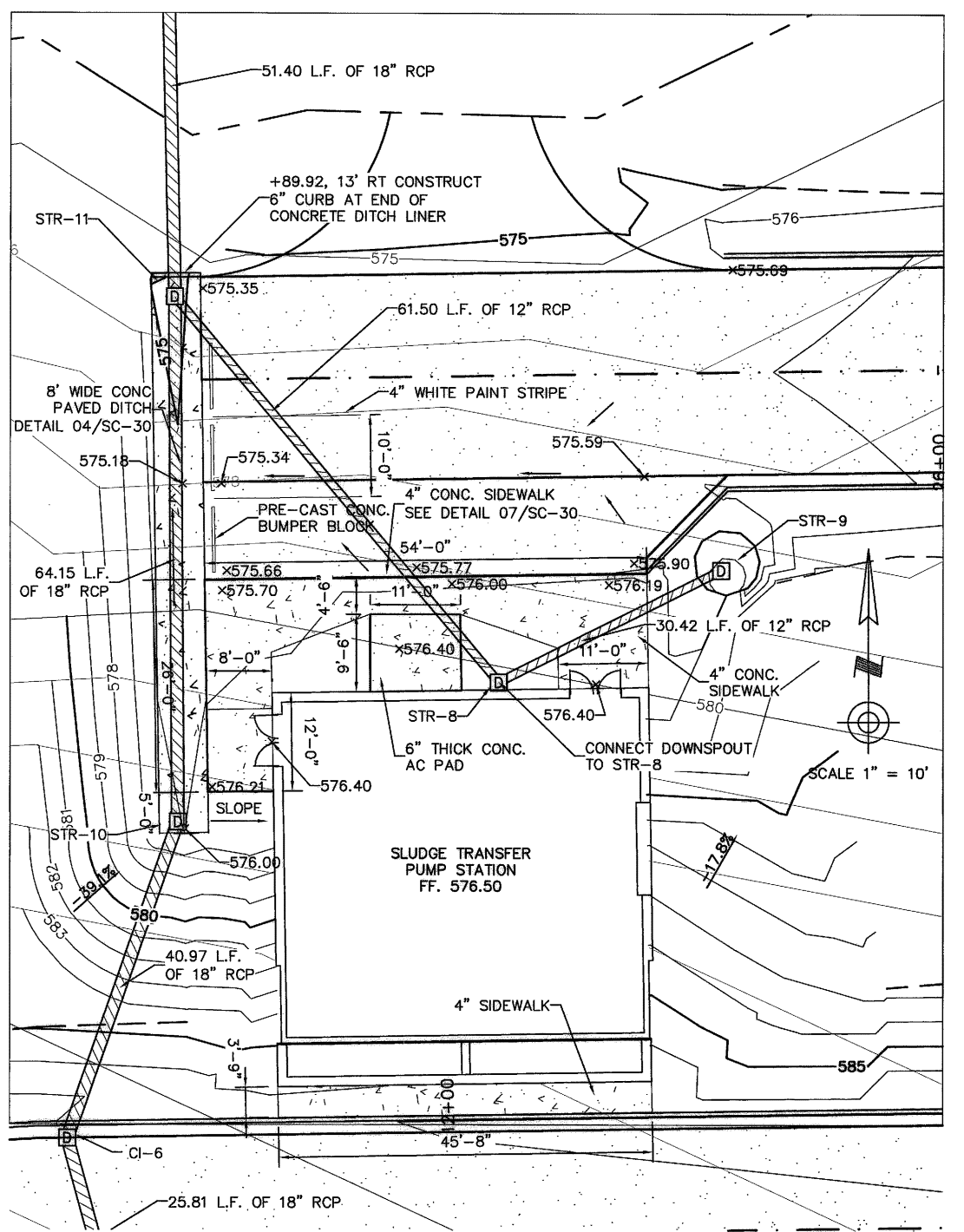
PLANS AND ESTIMATES PREPARED BY:  
BLACK & VEATCH  
McWaters, Updeave and Betton  
Black & Veatch Corporation

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
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			ATLAS PAGE NO: ---			SHEET 58 OF 261 SHEETS

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HEADWORKS BUILDING  
DETAILED SITE PLAN



SLUDGE TRANSFER PUMP STATION  
DETAILED SITE PLAN

NOTE:  
SOD ALL SLOPED AREAS AROUND  
SLUDGE TRANSFER PUMP STATION



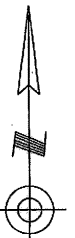
LOWER BIRD CREEK WWTP EXPANSION  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B  
SITE WORK  
CIVIL  
HEADWORKS & STP STATION SITE DETAIL PLAN  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:  
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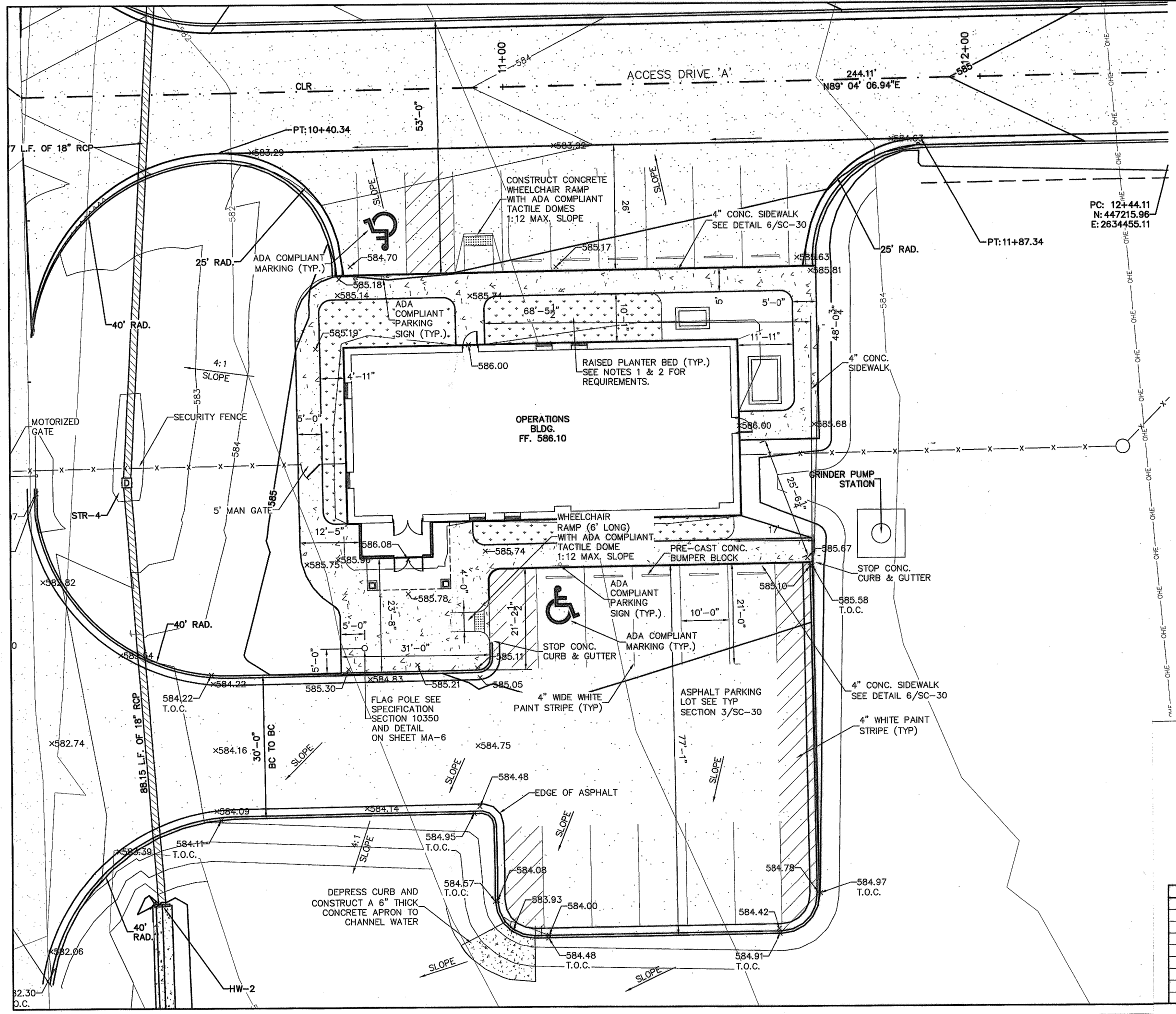
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			RECOMMENDED:	HAS 10/26/11		
			FILE:	DRAWING: SC-21	DATE: 10/26/2011	
			ATLAS PAGE NO.:			SHEET 59 OF 261 SHEETS

SCALE 1" = 10'

SCALE 1" = 10'



SCALE 1" = 10'  
OPERATIONS BUILDING  
DETAILED SITE PLAN



LANDSCAPE SCHEDULE			
COMMON NAME	SIZE	QTY.	NOTES
AUSTRIAN PINE	5'-6" TALL	6	2, 4, 5
LACEBARK ELM	1.75" DIA.	6	2, 4, 5
OKLAHOMA REDBUD	10' TALL	6	2, 4
BOXWOOD SHRUB	6-QUART	20	2
PERENNIAL	2 1/2" POT	50	2, 3

- NOTES:
1. CONSTRUCT RAISED PLANTER BED WHERE INDICATED. PROVIDE WEED BARRIER FABRIC, 8" TOP SOIL, AND 3" MULCH.
  2. PROVIDE AND INSTALL PLANTS AND TREES IN ACCORDANCE WITH THE LANDSCAPING SCHEDULE. LOCATION AND PLANTING ARRANGEMENTS WILL BE DIRECTED BY THE OWNER.
  3. COLOR, TYPE AND VARIATION OF PERENNIALS WILL BE SELECTED BY OWNER.
  4. PROVIDE A MIN. OF 1 CY OF PLANTING MIXTURE FOR ALL TREES. PLANTING DEPTH SHALL BEAR SAME RELATION TO FINAL GRADE AS NURSERY.
  5. PROVIDE SUPPORT STAKES AND PROTECTED GUY WIRES (3 MIN. EACH) FOR ALL TREES.

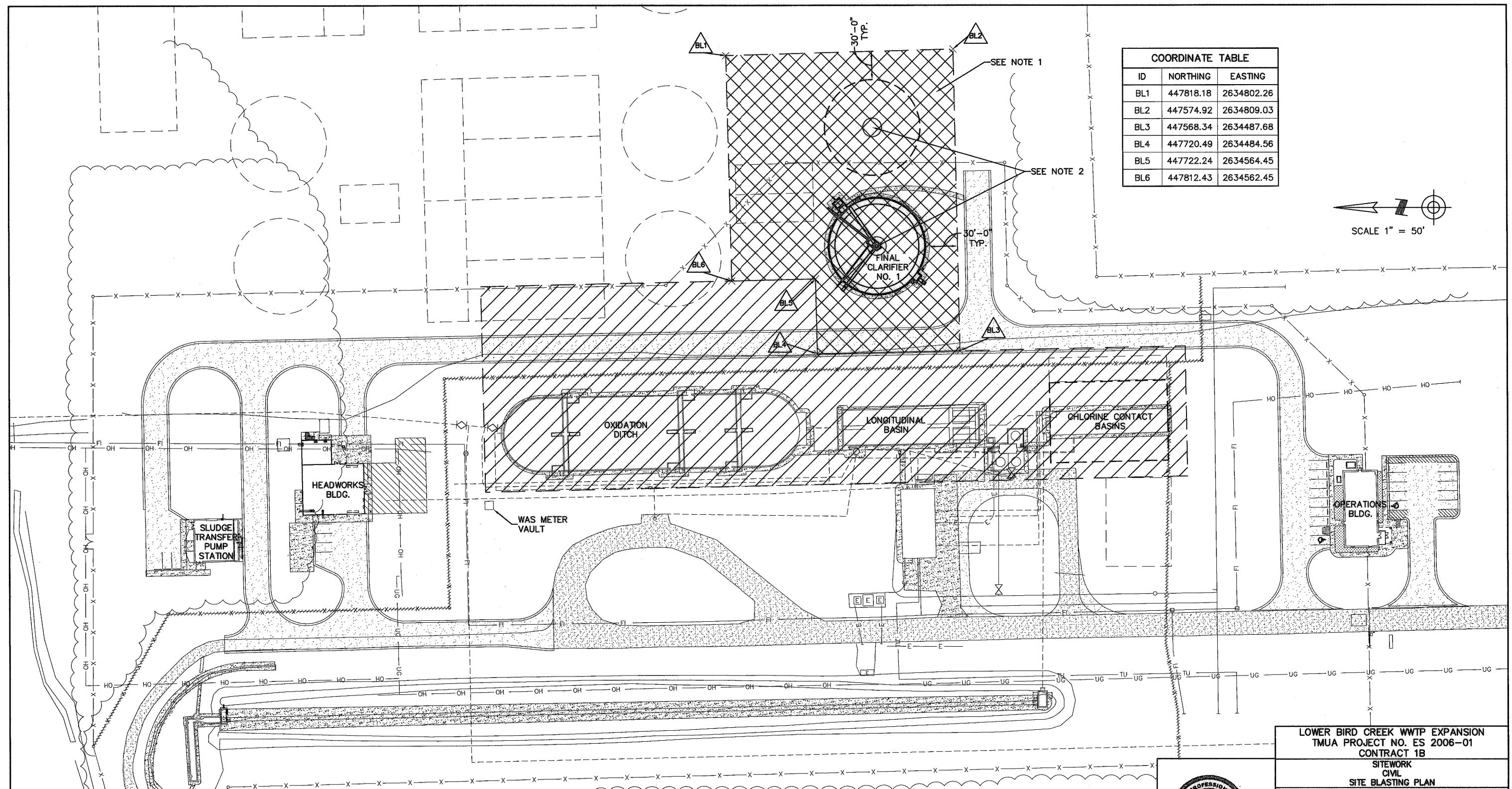
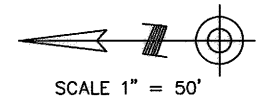
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			LOWER BIRD CREEK WWTP EXPANSION TMUA PROJECT NO. ES 2006-01 CONTRACT 1B					
			SITE WORK CIVIL OPERATIONS BUILDING SITE DETAIL PLAN					
			CITY OF TULSA, OKLAHOMA TULSA METROPOLITAN UTILITY AUTHORITY ENGINEERING SERVICES DEPARTMENT					
PLANS AND ESTIMATES PREPARED BY:			BLACK & VEATCH Building a world of difference					
REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:		
			DESIGNED	LST				
			SURVEY					
			FIELD MGR.	TCB	10/11			
			SECT. MGR.			DIRECTOR		
			PROJ. MGR.	EGV	10/11			
			RECOMMENDED:	LST	10/21/11	DATE: 10/28/2011		
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			ATLAS PAGE NO.:					
						9/28 9-25-11		



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COORDINATE TABLE		
ID	NORTHING	EASTING
BL1	447818.18	2634802.26
BL2	447574.92	2634809.03
BL3	447568.34	2634487.68
BL4	447720.49	2634484.56
BL5	447722.24	2634564.45
BL6	447812.43	2634562.45



LEGEND	
	APPROXIMATE AREA OF PRE-BLASTING PERFORMED DURING ORIGINAL CONSTRUCTION (1996)
	LIMITS OF BLASTING TO BE PERFORMED IN THIS CONTRACT.

- NOTES:
1. GENERAL BLASTING AREA BLASTING TO BE PERFORMED DOWN TO EL. 574.5
  2. CIRCULAR BLASTING AREA AT CENTER OF CLARIFIERS IS 20 FT. IN DIAMETER TO BE BLASTED DOWN TO EL. 564.5. SEE DWG EC-4 FOR ADDITIONAL REFERENCE.
  3. AFTER THE BLASTING OPERATIONS HAVE BEEN COMPLETED, (4) TEST PITS SHALL BE DUG AT LOCATIONS DETERMINED BY THE RESIDENT ENGINEER TO VERIFY THAT THE BLASTING HAS BEEN COMPLETED TO SATISFACTORY DEPTH(S) AS INDICATED ON THIS SHEET.



LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITEWORK  
 CIVIL  
 SITE BLASTING PLAN  
 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  
 Tulsa, Oklahoma

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=50'	DESIGNED	LST	 DIRECTOR DATE: 10/28/2011 SHEET 61 OF 261 SHEETS
				SURVEY		
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DRAINAGE STRUCTURE TABLE									
STRUCTURE NAME	STATION	DESCRIPTION	NORTHING	EASTING	PIPE IN	FL IN	PIPE OUT	FL OUT	RIM/FL GRATE
CI-1	17+73.9, 14.50, R	INLET CI DES 2(2B)	447718.18	2634508.81		580.75	18"	580.75	584.57
CI-2	17+73.9, 14.50, L	INLET CI DES 2(2B)	447717.76	2634483.82		580.75	18"	580.75	584.57
CI-3	10+60.0, 14.50, R	INLET, CI DES. 2 STD	448201.40	2634245.25	18"	586.50		586.50	590.80
CI-4	10+79.4, 44.00, L	INLET, CI DES. 2 STD	448256.21	2634263.73	18"	586.00	18"	586.00	590.02
CI-5	12+40.1, 14.50, L	INLET, CI DES. 2 STD	448306.44	2634245.76	18"	583.06	18"	583.06	586.39
CI-6	12+46.5, 14.50, R	INLET, CI DES. 2 STD	448331.33	2634238.95	18"	582.54	18"	582.54	586.50

DRAINAGE STRUCTURE TABLE									
STRUCTURE NAME	STATION	DESCRIPTION	NORTHING	EASTING	PIPE IN	FL IN	PIPE OUT	FL OUT	RIM/FL GRATE
HW-1	24+71.8, 54, R	36" PREFABRICATED RCP END SECTION	448449.93	2634507.35	36"	575.10		575.10	
HW-2	10+25.4, 169, R	18" PREFABRICATED RCP END SECTION	447043.87	2634239.22	18"	579.00		579.00	
HW-3	12+32.1, 167, R	18" PREFABRICATED RCP END SECTION	448485.56	2634250.86	18"	572.13		572.13	
SMH-1	17+90.0, 0,	48" DIA. MANHOLE W/MFC	447734.04	2634496.03	18" 18"	579.56	27"	579.56	584.85
SMH-2	21+80.0, 0, R	48" DIA. MANHOLE W/MFC	448123.97	2634489.18	27"	577.37	27"	577.37	587.82
STR-1	24+84.1, -35, L	ODOT, SMD-TYPE 1	448389.04	2634441.21	36"	575.30	36"	575.30	580.38
STR-2	22+22.8, -37, L	ODOT, SMD-TYPE 1	448166.10	2634450.93	27"	576.50	36"	576.50	583.47
STR-4	10+20.1, 81, R	RECTANGULAR STRUCTURE SLAB TOP RECTANGULAR FRAME	447131.76	2634232.45	18"	579.22	18"	579.22	582.00
STR-5	10+29.4, -51, L	ODOT, SMD-TYPE 1	447263.34	2634239.64	18"	579.55		579.55	582.88
STR-6	15+49.6, -249, L	ODOT, CDI 30SK RCP DES. 1	447489.28	2634251.03		580.12	18"	580.12	583.82
STR-7	16+20.8, -135, L	ODOT, SMD-TYPE 1	447562.43	2634363.90		581.37	15"	581.37	584.93
STR-8	26+54.2, -37, L	ODOT, SMD-TYPE 1	448387.12	2634291.56	12"	573.32	12"	573.32	576.40
STR-9	26+26.8, -24, L	RECTANGULAR STRUCTURE SLAB TOP RECTANGULAR FRAME	448400.81	2634318.72		573.50	12"	573.50	575.75
STR-10	12+32.4, 51, R	RECTANGULAR STRUCTURE SLAB TOP RECTANGULAR FRAME	448370.03	2634252.41		574.00	18" 18"	574.00	576.00
STR-11	26+93.1, 10, R	RECTANGULAR STRUCTURE SLAB TOP RECTANGULAR FRAME	448434.17	2634251.97	18" 12"	573.04	18"	573.04	574.95

**STORM SEWER AND DRAINAGE STRUCTURE NOTES:**


- ALL STORM SEWER STRUCTURES SHALL CONFORM TO ODOT STANDARD SPECIFICATION 2009.
- CURB INLETS - ALL CURB INLETS SHALL BE CAST IRON CONFORMING TO ODOT 611(G) AND STANDARD DETAIL CI-1.
- GRATES AND FRAME - ALL GRATES AND FRAMES SHALL BE CAST IRON CONFORMING TO ODOT 611 AND STANDARD DETAIL SSIF-4 AND CIG-3.
- STORM SEWER MANHOLES SHALL BE PRE-CAST CONCRETE STRUCTURES CONFORMING TO ODOT 611(A), THE MANHOLE FRAME AND COVER SHALL CONFORM TO ODOT STANDARD DETAIL MFC-4.
- STANDARD MEDIAN DRAINS SHALL CONFORM TO ODOT 611(G), STANDARD DETAIL SHEET SMD-3, THE GRATE SHALL BE A TYPE 1.
- ALL DISCHARGE PIPE SHALL RECEIVE A PRE-FABRICATED RCP END SECTION CONFORMING TO ODOT 613(L), STANDARD DRAWING PCES-4.
- ALL STORM SEWER PIPE SHALL BE AASHTO DESIGNATED CLASS III (WALL B) REINFORCED CONCRETE PIPE WITH BELL AND SPIGOT JOINT USING OMNI-FLEX GASKETS.
- BEDDING REQUIREMENTS - ALL PIPE SHALL BE BEDDED USING CLASS B BEDDING AS SPECIFIED IN ODOT SECTION 613 AND STANDARD DRAWING SPI-4.

**PAVING NOTES:**


- ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO 2009 ODOT STANDARD SPECIFICATIONS.
- THE AGGREGATE USED TO CONSTRUCT THE BASE SHALL CONFORM TO ODOT STANDARD SECTION 703.01, TYPE A. THE AGGREGATE SHALL BE COMPACTED TO 98% MODIFIED PROCTOR DENSITY (AASHTO-T-180, METHOD A). MAXIMUM DRY DENSITY SHALL BE WITHIN 2% OF THE OPTIMUM WATER CONTENT.
- THE SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF 6" AND RECOMPACTED TO AT LEAST 95% OF THE MAXIMUM STD. PROCTOR DENSITY.
- ALL INLETS SHALL BE CAST-IN-PLACE CONCRETE. NO BRICK INLETS WILL BE ALLOWED. ADDITIONAL DEPTH OF AN INLET SHALL BE INCLUDED IN THE COST OF THE INLETS.
- PROJECT SHALL BE CONSTRUCTED WITH A CONTINUOUS FLOW OF MATERIAL SUPPLIED TO THE PROJECT SITE, SUCH THAT THE LAY DOWN MACHINE SHALL REMAIN IN MOTION. ANY DELAY IN FORWARD PROGRESS OF LAY DOWN MACHINE WILL REQUIRE TRANSVERSE JOINT AS DIRECTED BY THE ENGINEER.
- WHERE MATERIALS ARE TRANSPORTED IN THE PROSECUTION OF WORK, VEHICLES SHALL NOT BE LOADED BEYOND CAPACITY RECOMMENDED BY THE MANUFACTURER OF THE VEHICLE OR PRESCRIBED BY ANY FEDERAL, STATE, OR LOCAL AGENCY.
- CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PREVENT EXCESS MOISTURE FROM INCLEMENT WEATHER OR OTHER SOURCES FROM ENTERING ANY STREET EXCAVATION. IF EXCESS MOISTURE DOES ENTER THE EXCAVATION THROUGH THE NEGLIGENCE OF THE CONTRACTOR AND THE ADJOINING PAVEMENT IS ADVERSELY AFFECTED BY THE EXCESS MOISTURE, THE CONTRACTOR SHALL REPLACE THE ADJOINING PAVEMENT AND SUB-BASE AT HIS SOLE EXPENSE.
- SPECIAL NOTE:** ALL EXISTING PAVED SURFACES SHALL RECEIVE A 2" MILL AND ASPHALT OVERLAY USING 2" OF TYPE 'B' ASPHALT (PG 64-22). WORK SHALL BE DONE AFTER HEAVY HAULING OF MATERIALS AND USE OF HEAVY EQUIPMENT HAS CEASED, THE ENTRANCE ROAD SHALL BE MILLED BEGINNING AT THE ENTRANCE DRIVE FROM THE SECTION LINE ROAD.

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

**SITE WORK**  
**CIVIL**  
**DRAINAGE STRUCTURE TABLE & NOTES**  
**CITY OF TULSA, OKLAHOMA**  
**TULSA METROPOLITAN UTILITY AUTHORITY**  
**ENGINEERING SERVICES DEPARTMENT**




LOYD  
STEPHEN  
TOLAR  
20679  
OKLAHOMA  
9/23/11

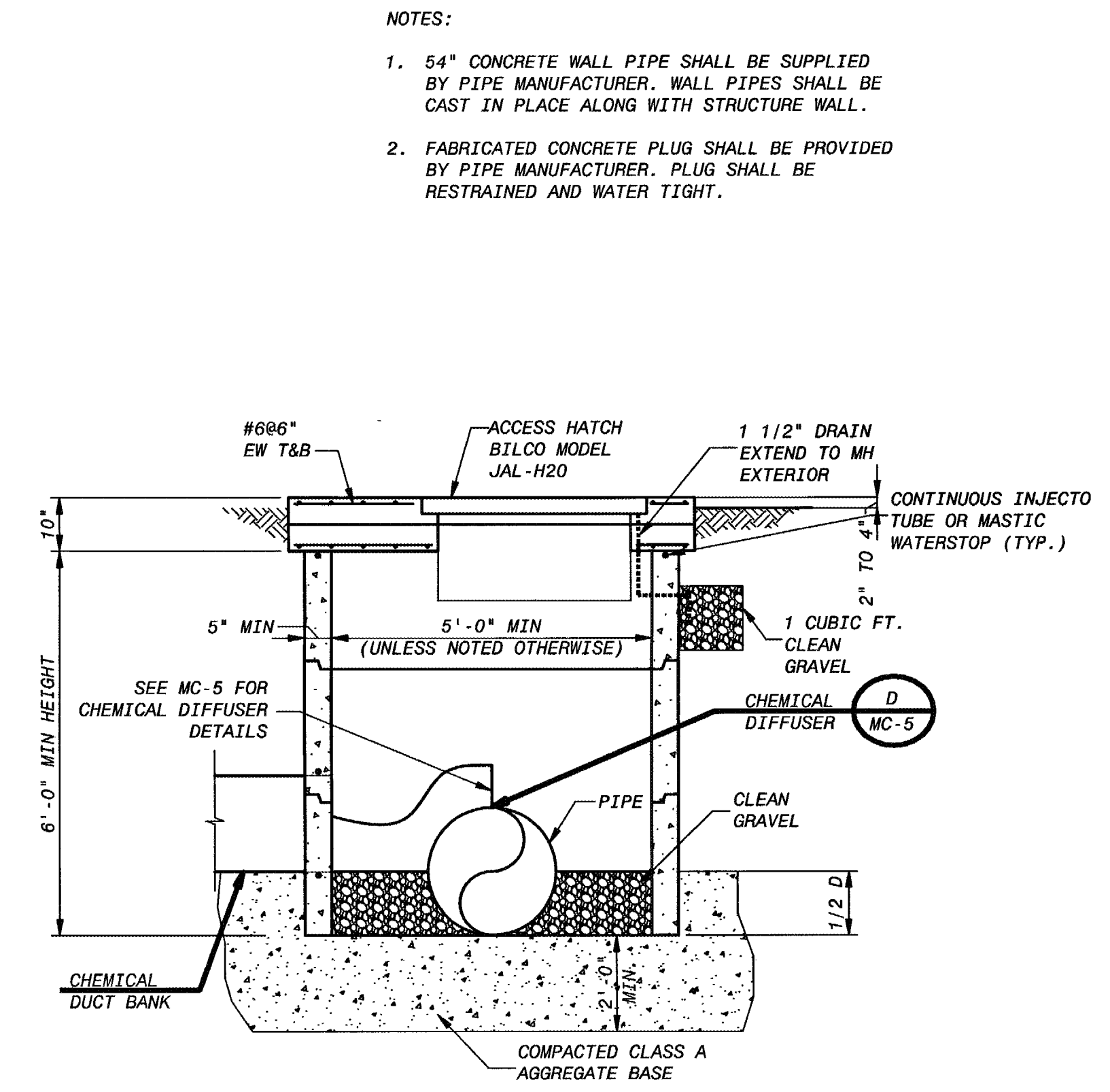
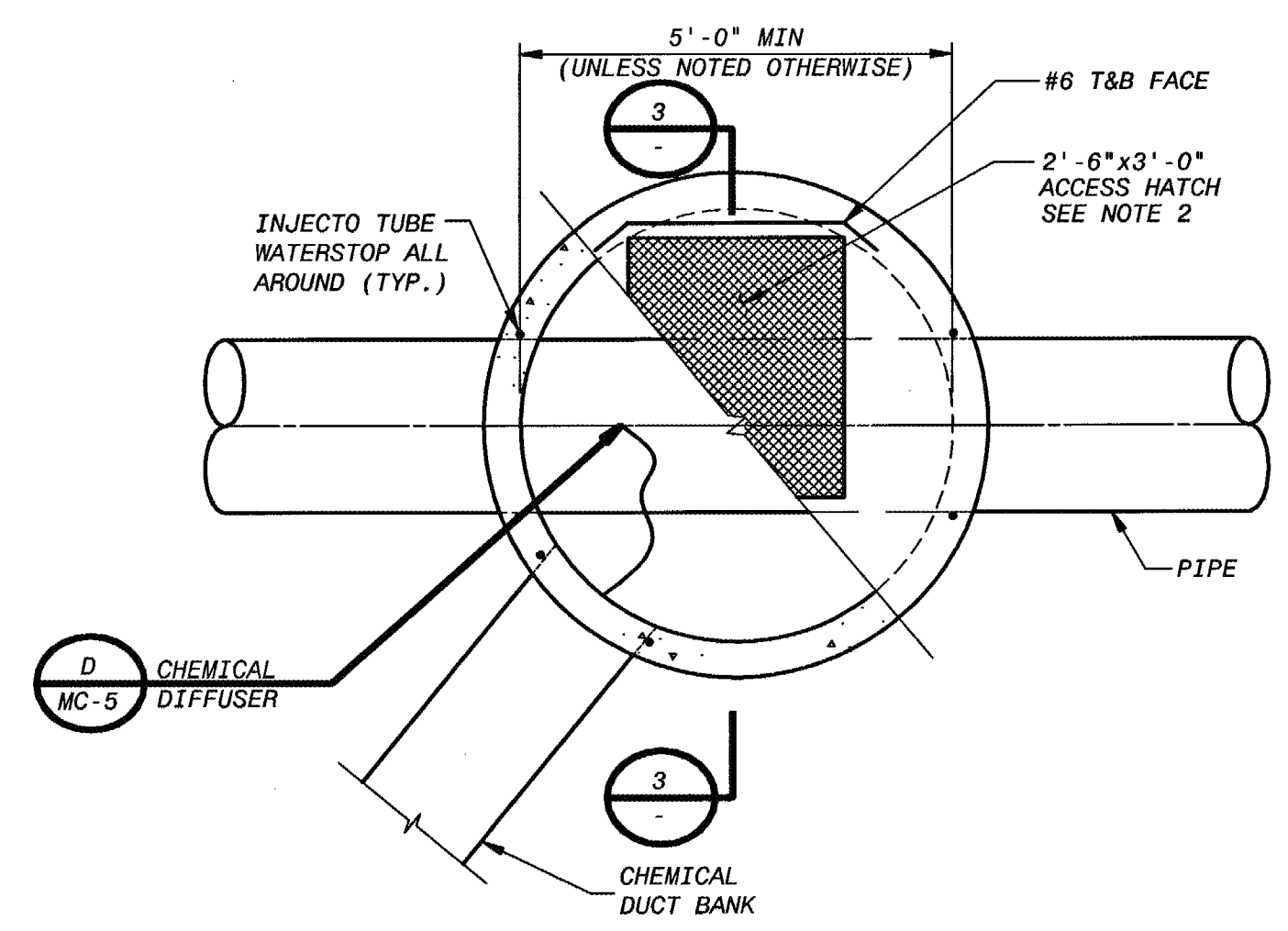
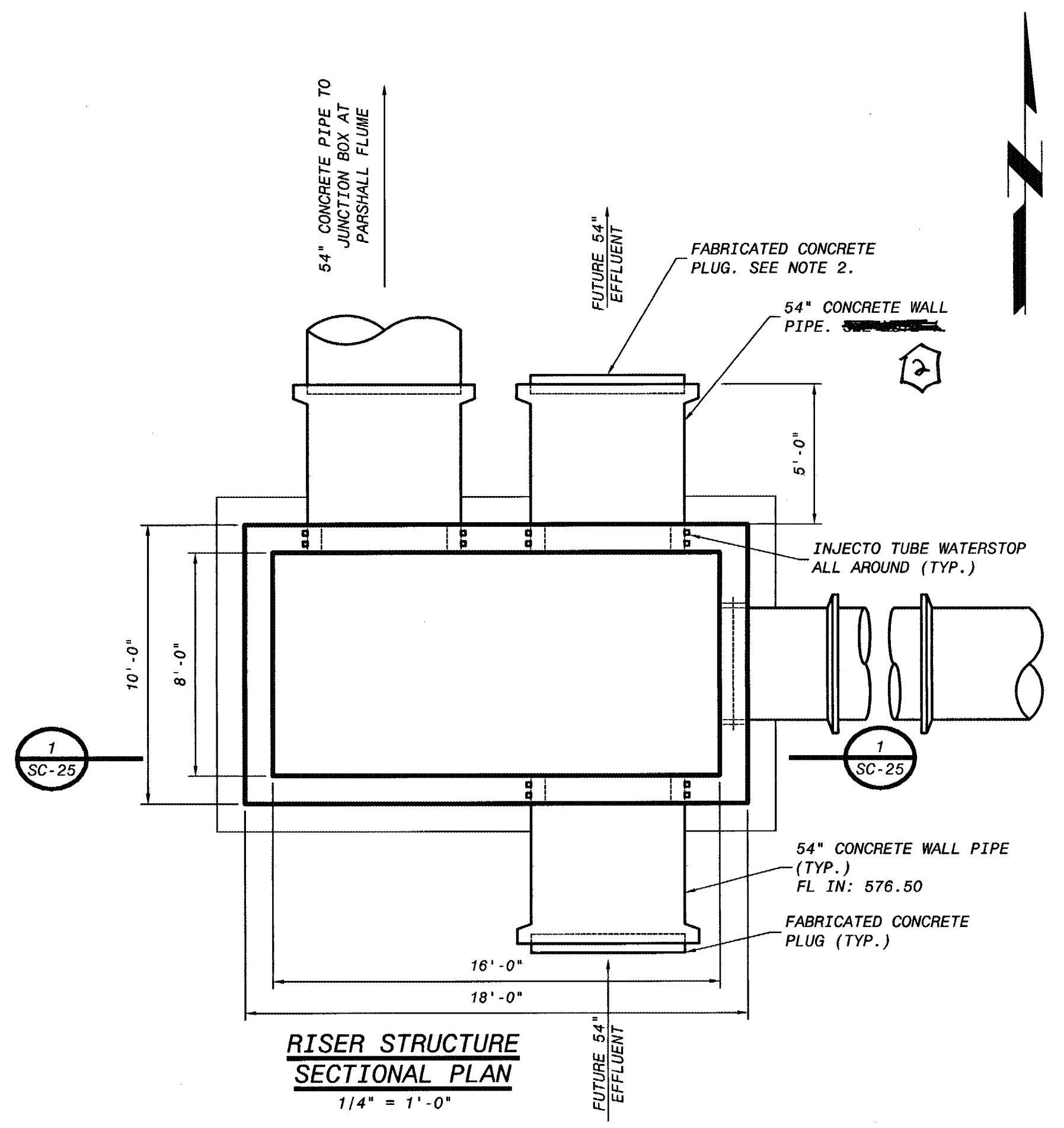


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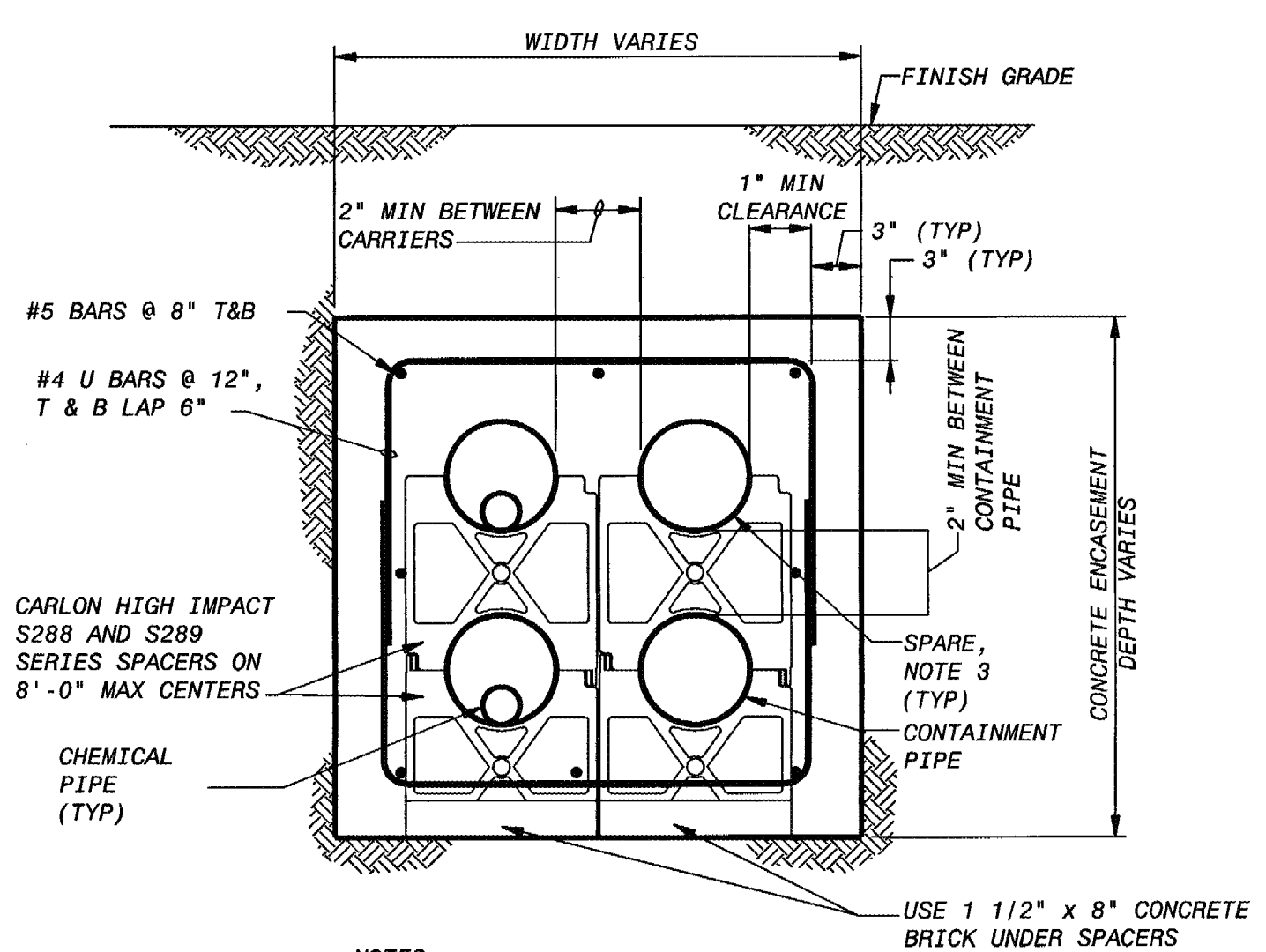
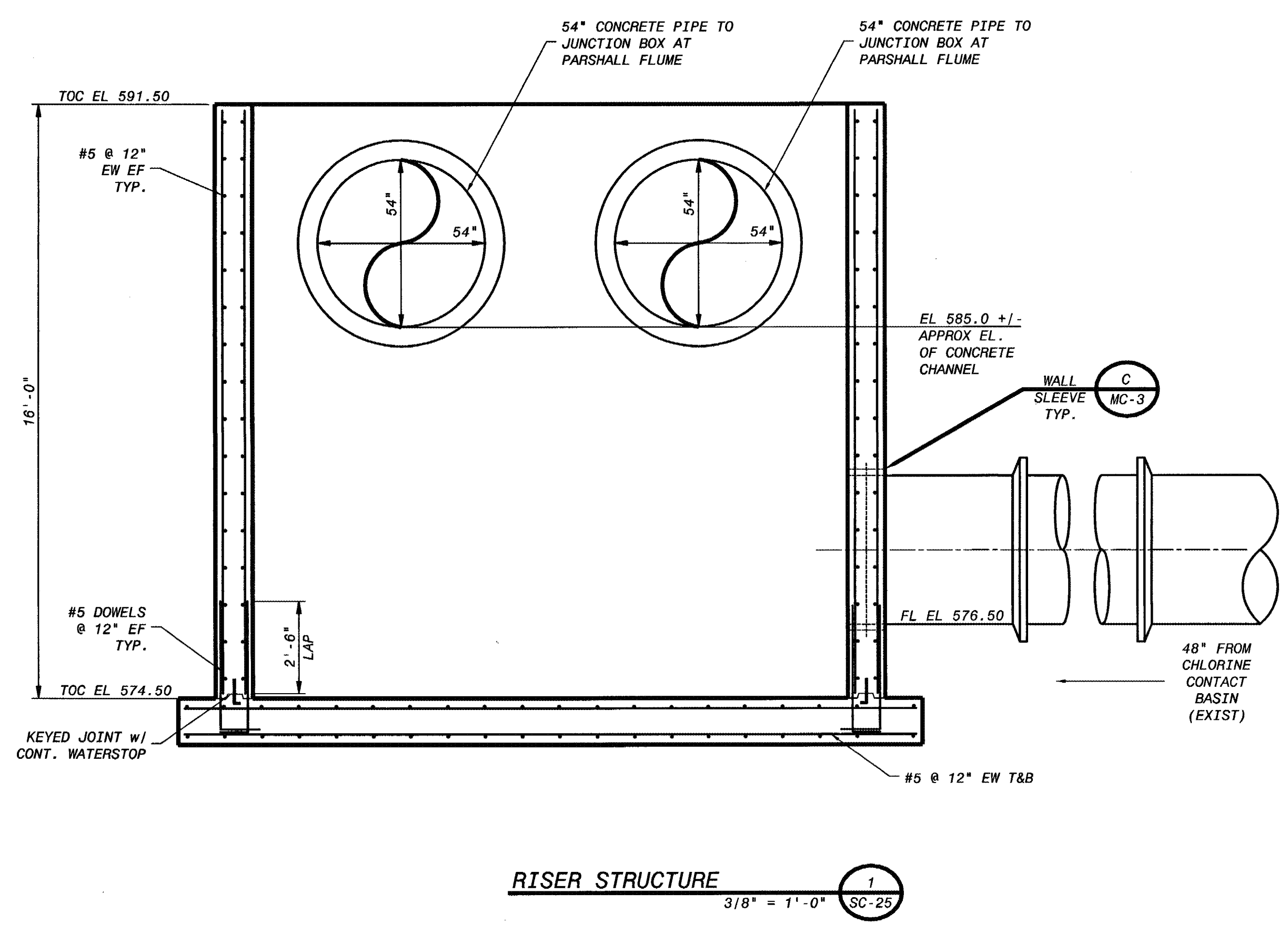
**OWSGATES**  
Highway, Streets and Etc.

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				SURVEY		
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			ATLAS PAGE NO: ---		SHEET 62 OF 261 SHEETS	

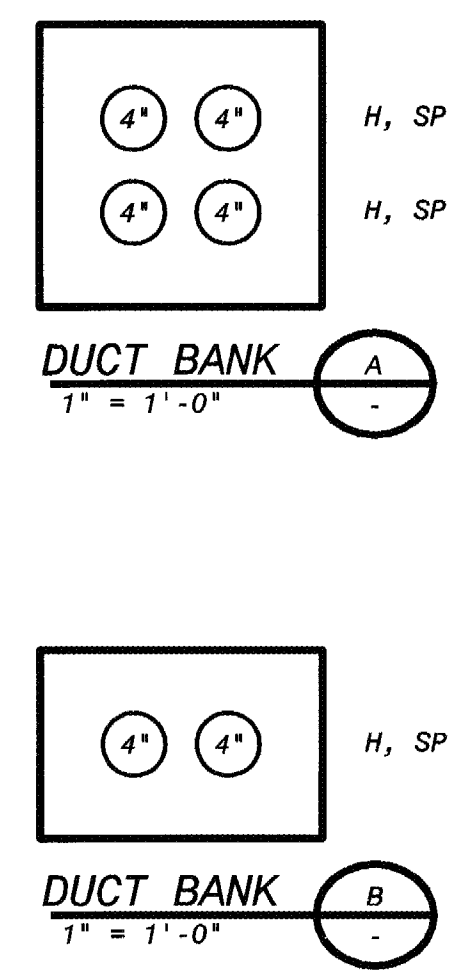
9-28-11 B&V PROJECT NO. 145120



- NOTES:**
- 54" CONCRETE WALL PIPE SHALL BE SUPPLIED BY PIPE MANUFACTURER. WALL PIPES SHALL BE CAST IN PLACE ALONG WITH STRUCTURE WALL.
  - FABRICATED CONCRETE PLUG SHALL BE PROVIDED BY PIPE MANUFACTURER. PLUG SHALL BE RESTRAINED AND WATER TIGHT.



- NOTES:**
- REINFORCEMENT OF DUCT BANK ONLY REQUIRED UNDER ROADS AND DRIVES.
  - ALL CONTAINMENT PIPES TO BE SCHED 40 PVC.
  - CAP SPARE CONTAINMENT PIPES WITH PVC CAP AT BOTH ENDS.



LINE DESIGNATION	SERVICE	CHEMICAL PIPE MATERIAL IN DUCT
H	SODIUM HYPOCHLORITE	SECTION 15067 - TEFL
SP	SPARE	

- CHEMICAL DUCT BANK NOTES:**
- DUCT BANK DIMENSIONS VARY THROUGHOUT THE PLANT. CONTRACTOR SHALL COORDINATE DUCT BANK DIMENSIONS WITH ENCASED CHEMICAL FEED CONDUIT SCHEDULE THIS SHEET.
  - CHEMICAL PIPING MANHOLES TO BE CAST IN PLACE CONCRETE.
  - AT CONFLICTS WITH ELECTRICAL DUCT BANKS, CHEMICAL DUCT BANK SHALL BE INSTALLED AT HIGHER ELEVATION.
  - ALL PIPING INSIDE CHEMICAL PIPING MANHOLE SHALL BE SUPPORTED AND SECURED WITH SS SUPPORTS AS SPECIFIED IN SECTION 15140.
  - CONTAINMENT PIPE TO BE SCH 40 PVC PER SPEC SECTION 15067 TYPE PVC-1.
  - CONCRETE USED FOR ENCASEMENT SHALL CONFORM TO ODOT CLASS A MIX REQUIREMENTS.

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

**SITE WORK**  
CIVIL/STRUCTURAL  
EFFLUENT RISER STRUCTURE

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

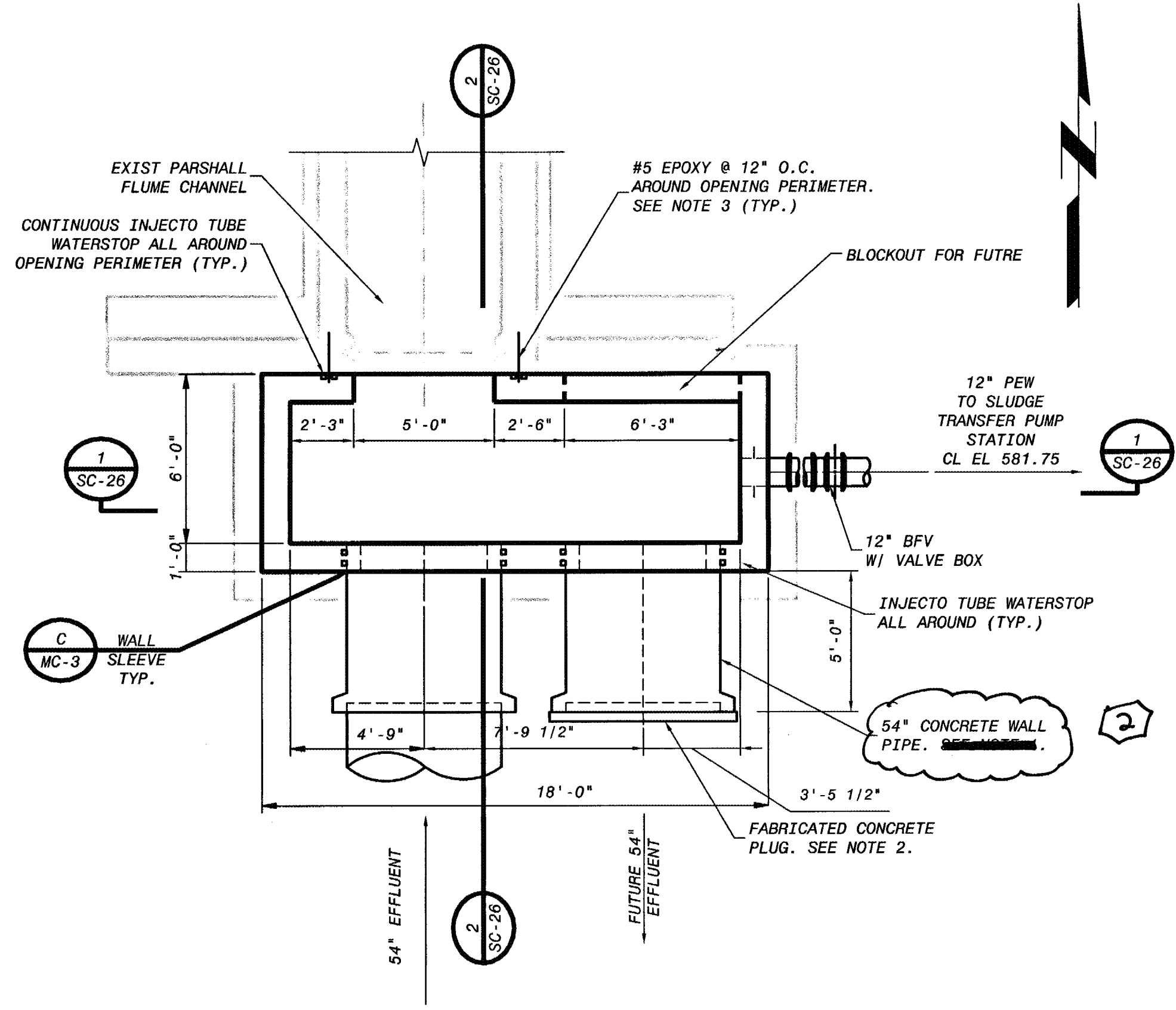
PLANS AND ESTIMATES PREPARED BY:  
**BLACK & VEATCH**  
Building a world of difference

REGISTERED PROFESSIONAL ENGINEER  
**LOYD STEPHEN TOLAR**  
20678  
OKLAHOMA 7/13/11

REVISION	BY	DATE	PLAN SCALE:	DRAWN	DS	APPROVED:
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			ATLAS PAGE NO: ---		SHEET 63 OF 261 SHEETS	

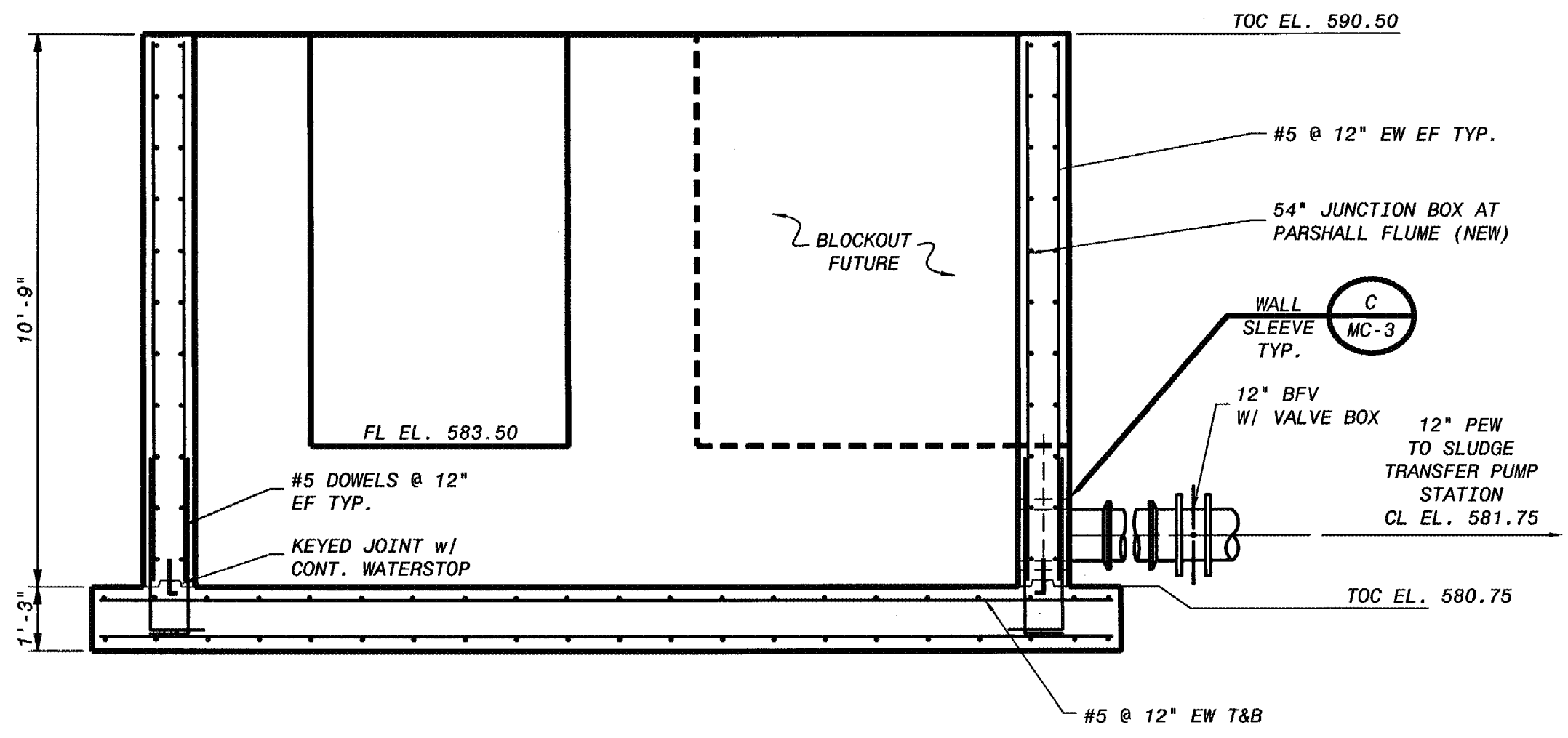
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DIRECTOR

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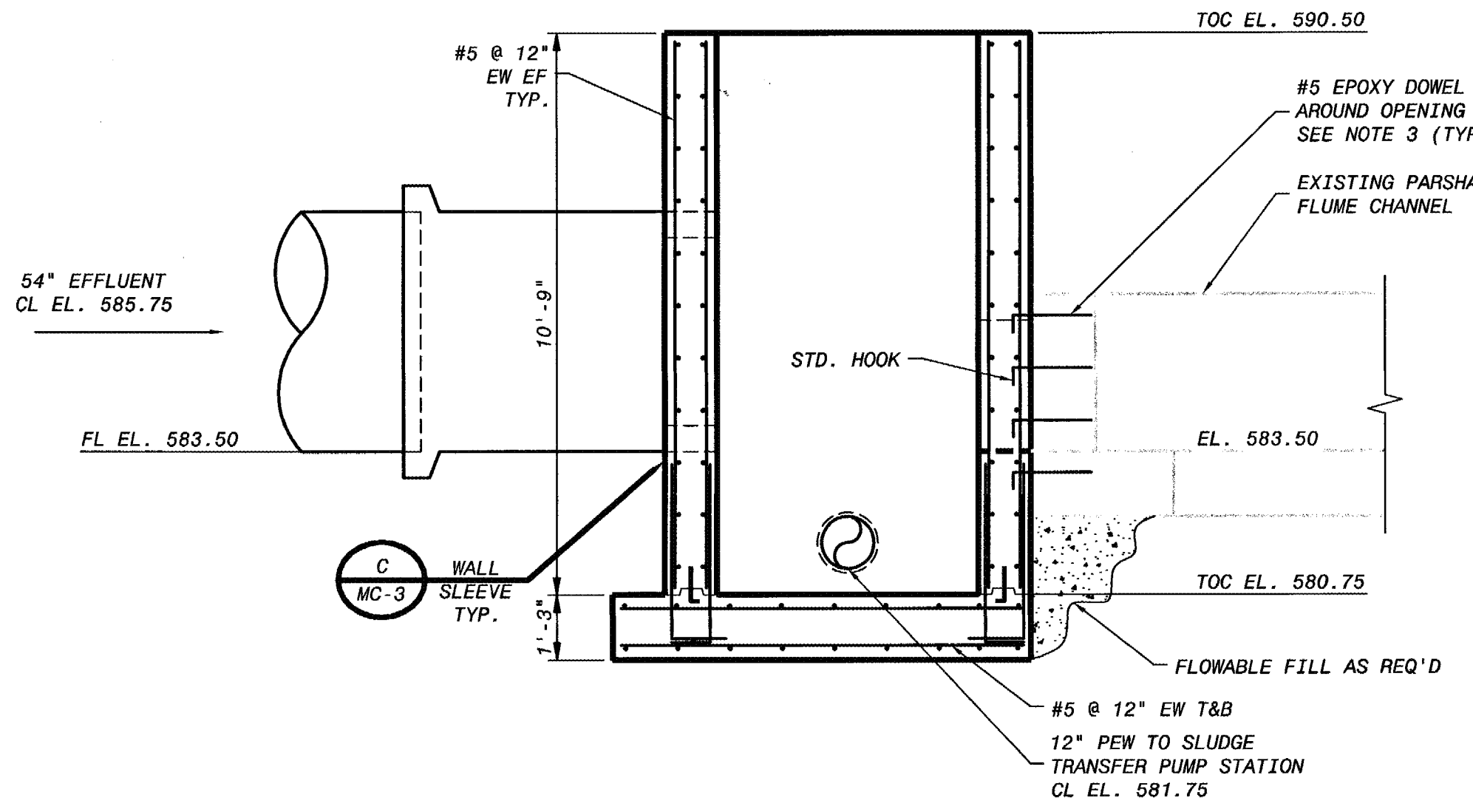


**EFFLUENT JUNCTION BOX**  
SECTIONAL PLAN  
1/4" = 1'-0"

- NOTES:
- ~~CONCRETE WALL PIPE SHALL BE SUPPLIED BY PIPE MANUFACTURER. WALL PIPES SHALL BE RESTRAINED ALONG WITH STRUCTURE.~~ **NOTE DELETED**
  - FABRICATED CONCRETE PLUG SHALL BE PROVIDED BY PIPE MANUFACTURER. PLUG SHALL BE RESTRAINED AND WATER TIGHT.
  - EPOXY DOWELS SHALL BE HILTI HIT-HY150 OR EQUAL. PROVIDE MIN. EMBEDMENT DEPTH AS RECOMMENDED BY MANF. TO DEVELOP 60 KSI TENSILE STRENGTH.



**SECTION 1**  
3/8" = 1'-0"  
SC-26



**SECTION 2**  
3/8" = 1'-0"  
SC-26



LOWER BIRD CREEK WWTP EXPANSION  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B  
SITE WORK  
CIVIL/STRUCTURAL  
EFFLUENT JUNCTION BOX  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

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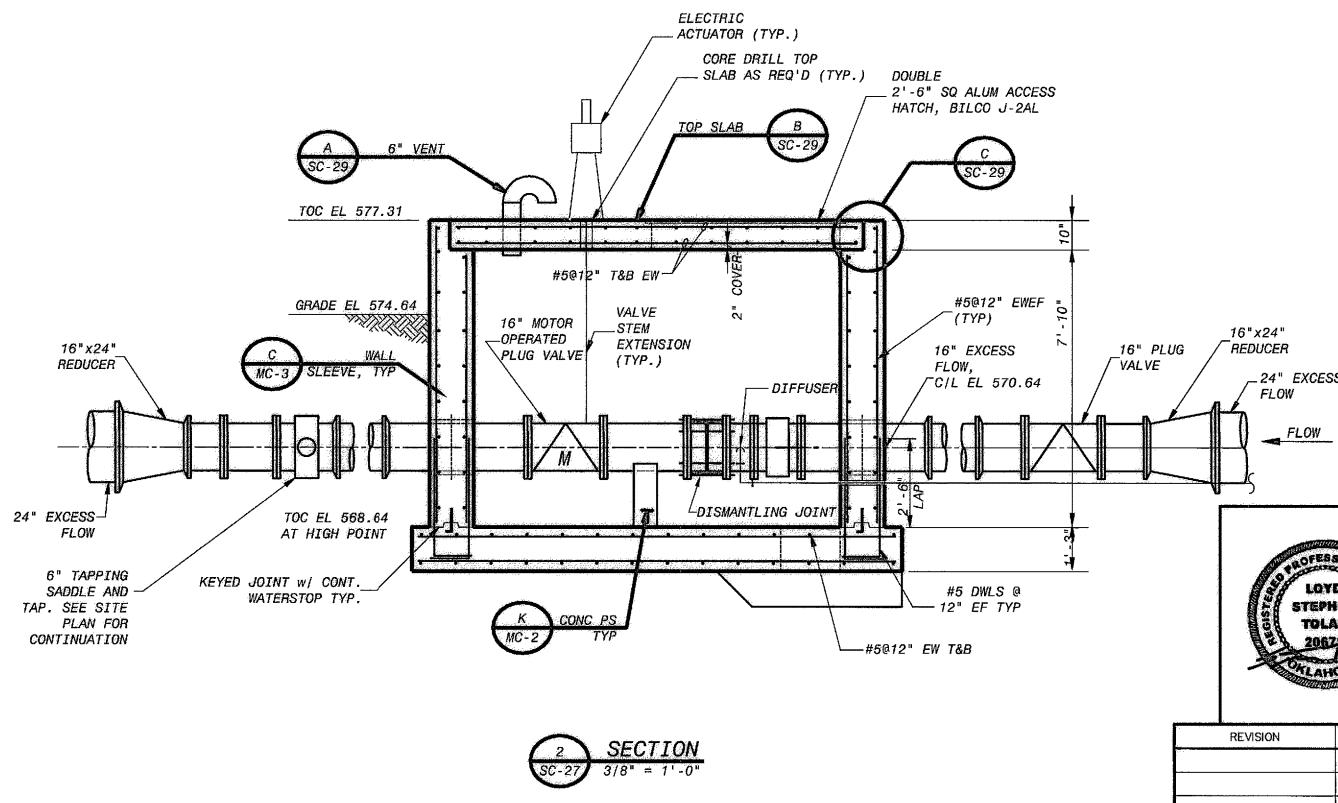
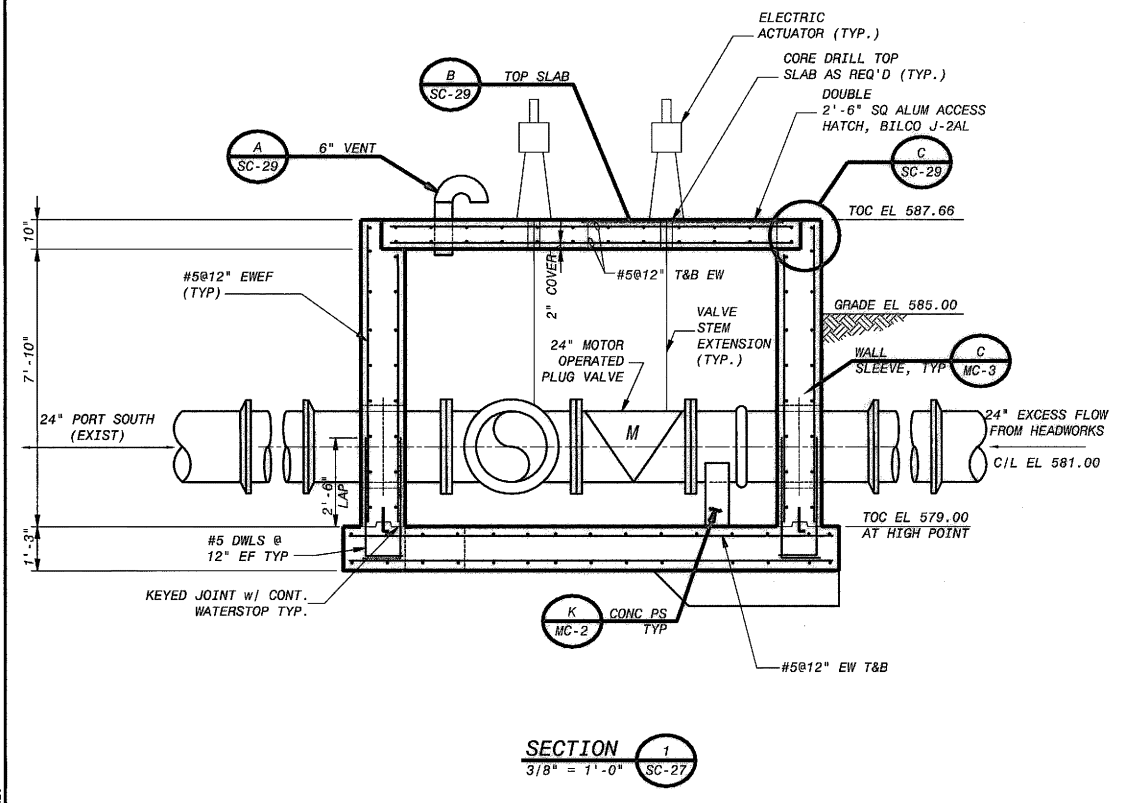
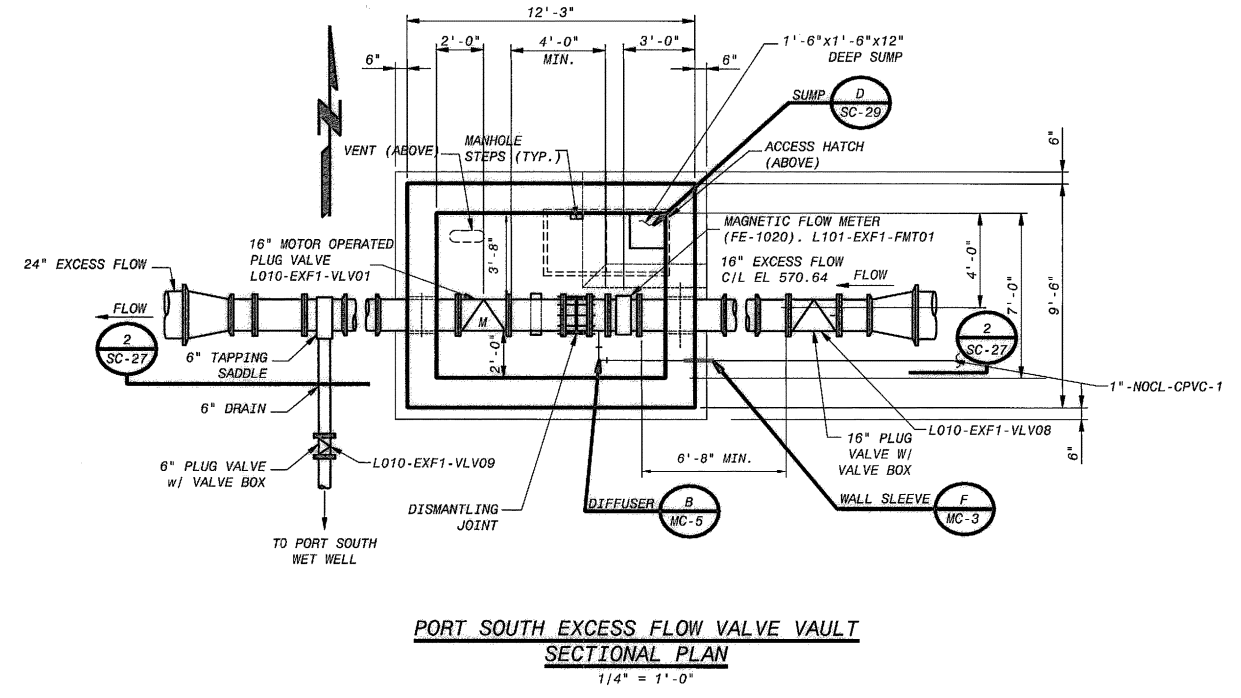
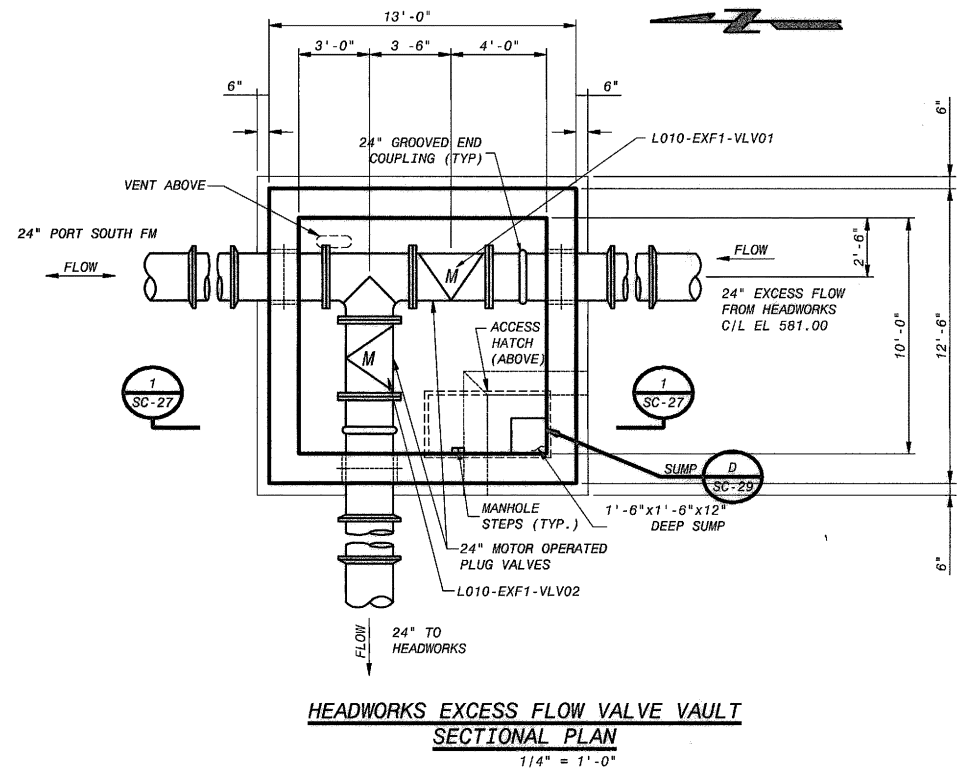
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- NOTES:
1. TERMINATE MANHOLE STEPS 12" ABOVE FF ELEVATION OF VAULT.
  2. ALL METAL INSIDE VAULT SHALL BE 316 S.S. MINIMUM SUITABLE FOR SANITARY APPLICATIONS.

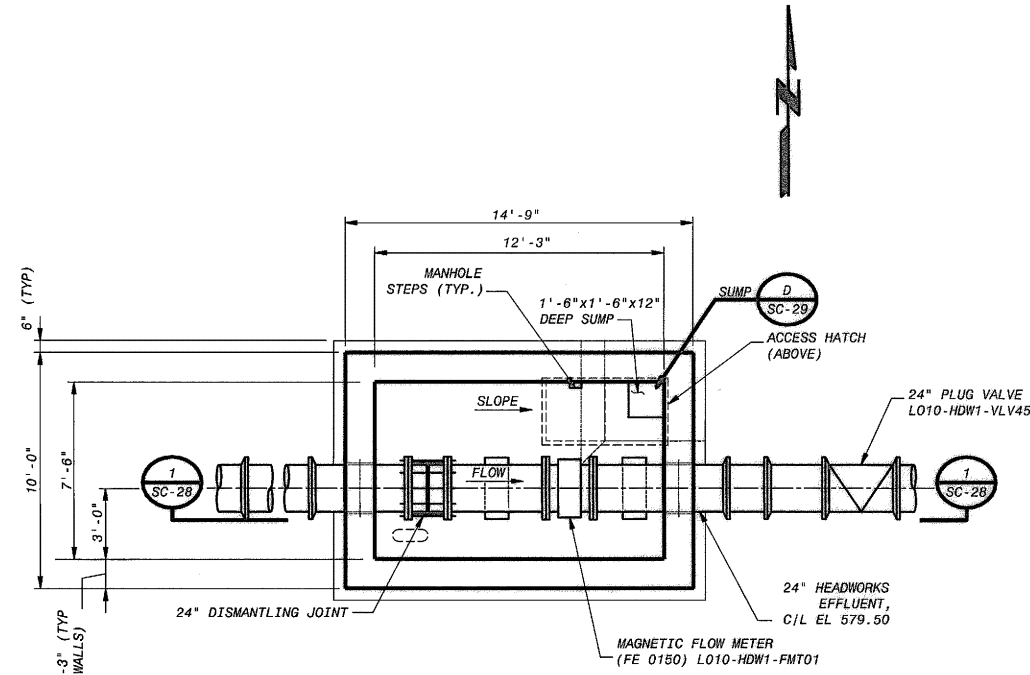


LOWER BIRD CREEK WWTW EXPANSION  
 TMAU PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 CIVIL/STRUCTURAL  
 EXCESS FLOW VAULTS  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

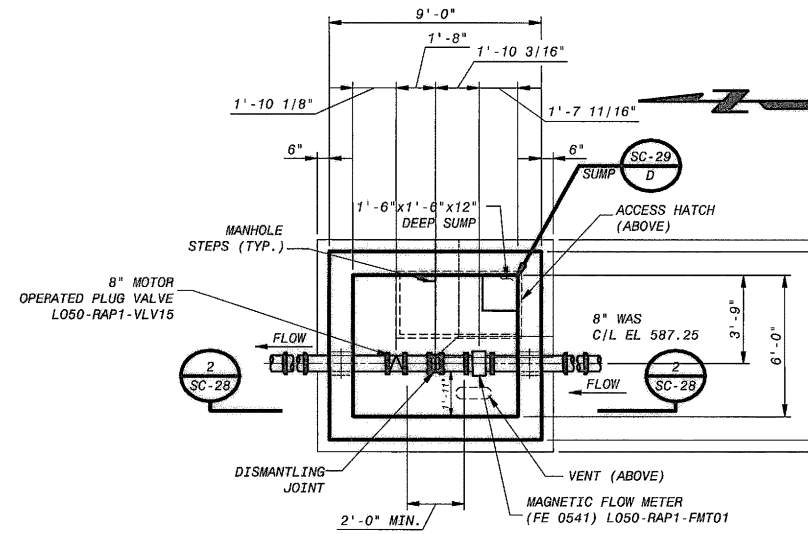
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 10/26/2011

REVISION	BY	DATE	PLAN SCALE:	DRAWN	DS	APPROVED:
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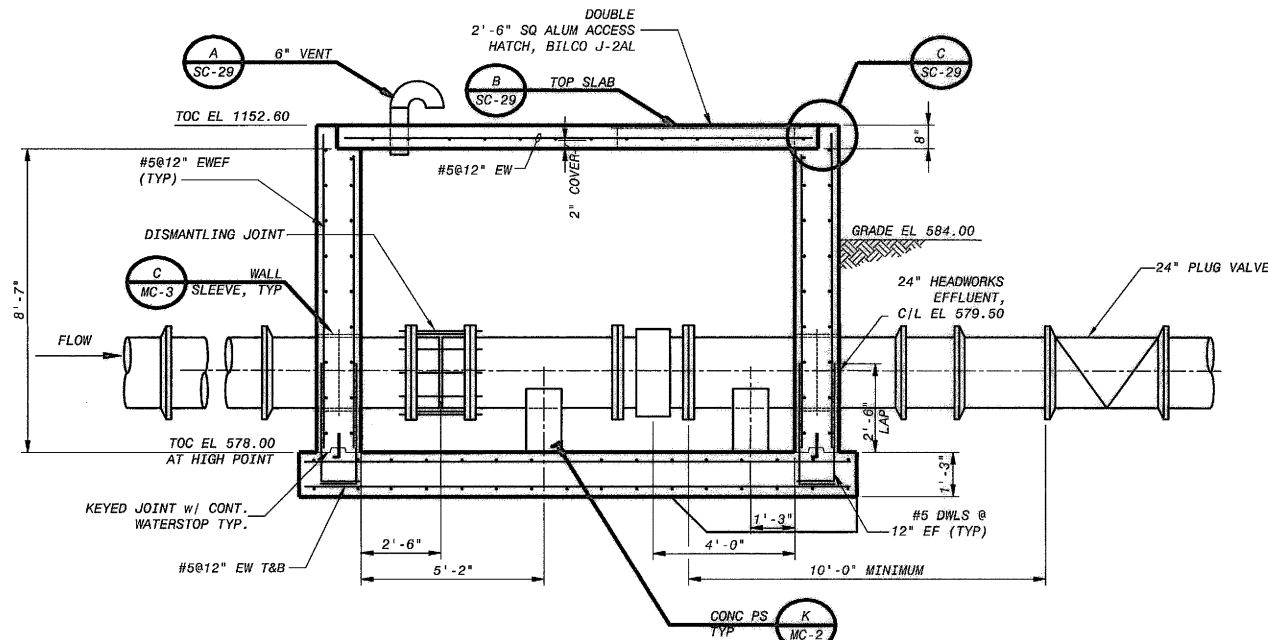
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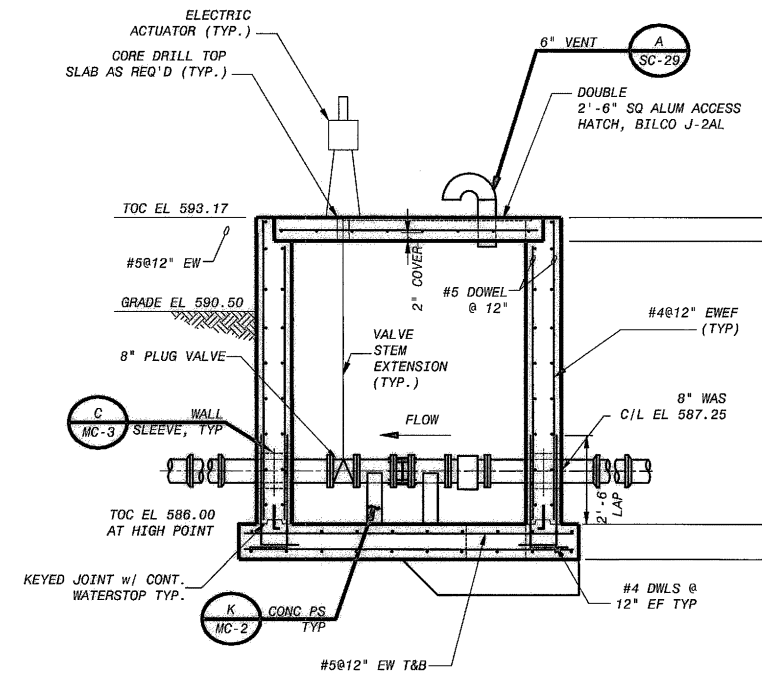
**HEADWORKS EFFLUENT METERING VAULT**  
**SECTIONAL PLAN**  
 1/4" = 1'-0"



**WAS METERING VAULT**  
**SECTIONAL PLAN**  
 1/4" = 1'-0"



**SECTION 1**  
 SC-28 3/8" = 1'-0"



**SECTION 2**  
 SC-28 3/8" = 1'-0"

- NOTES:
1. TERMINATE MANHOLE STEPS 12" ABOVE FF ELEVATION OF VAULT.
  2. ALL METAL INSIDE VAULT SHALL BE 316 S.S. MINIMUM SUITABLE FOR SANITARY APPLICATIONS.

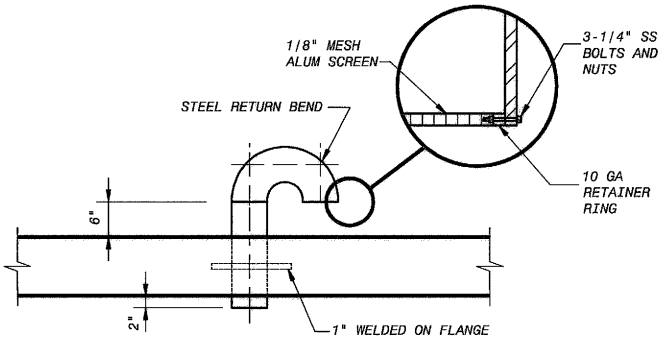


LOWER BIRD CREEK WWTP EXPANSION  
 TMAU PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 CIVIL/STRUCTURAL  
 MISCELLANEOUS YARD STRUCTURES  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

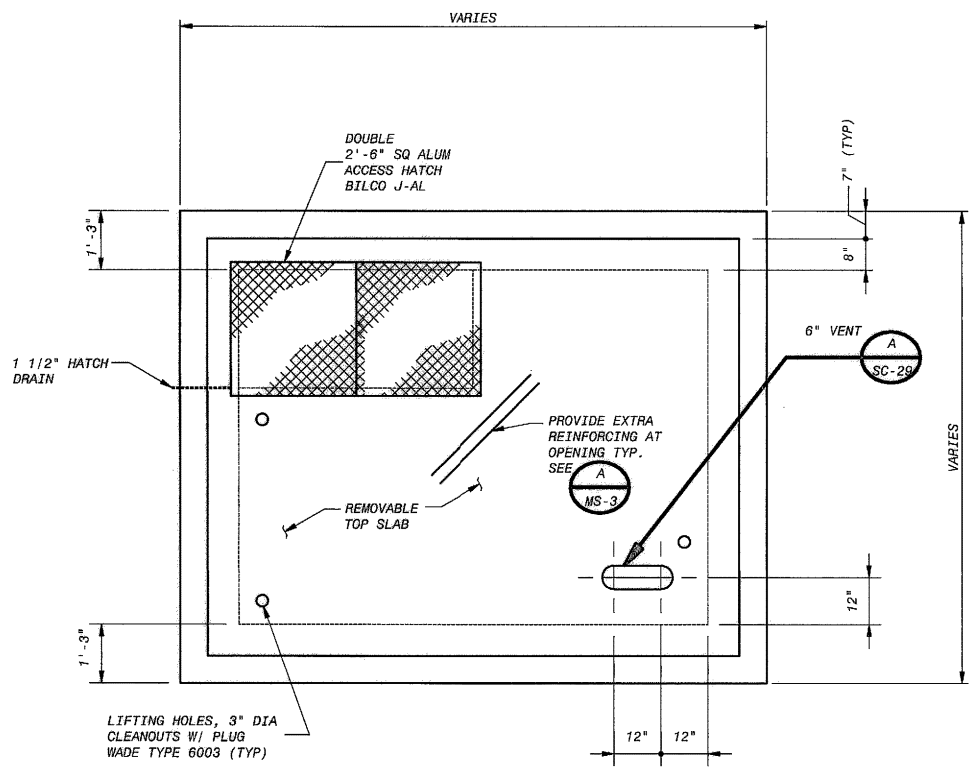
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REVISION	BY	DATE	PLAN SCALE:	DRAWN	DS	APPROVED:
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			SHEET 66 OF 261 SHEETS			

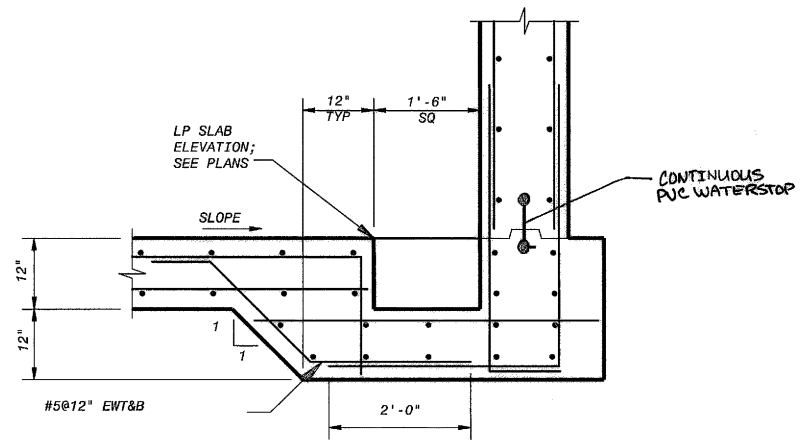
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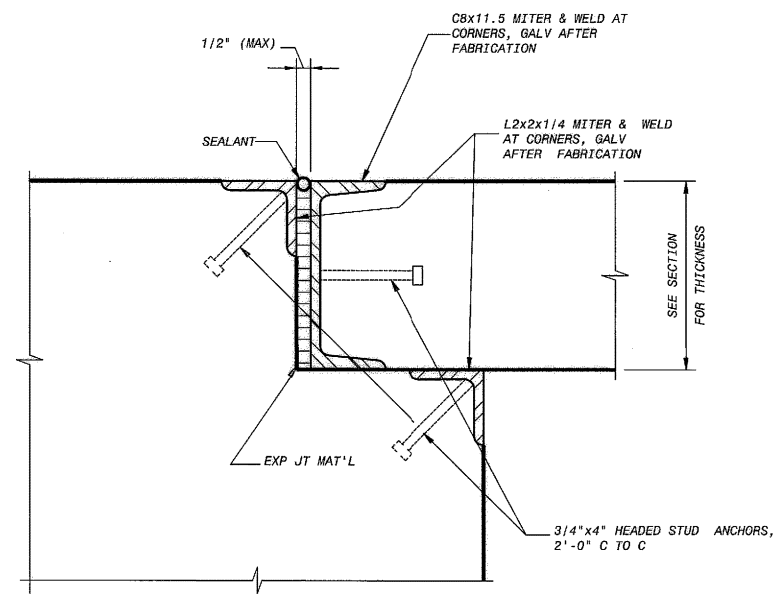
6" VENT A  
 NO SCALE SC-29



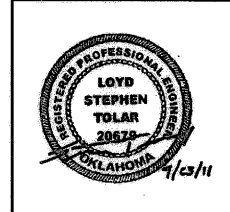
PLAN  
 TYPICAL VAULT TOP SLAB B  
 NO SCALE SC-29



SECTION  
 SUMP D  
 3/8" = 1'-0" SC-29



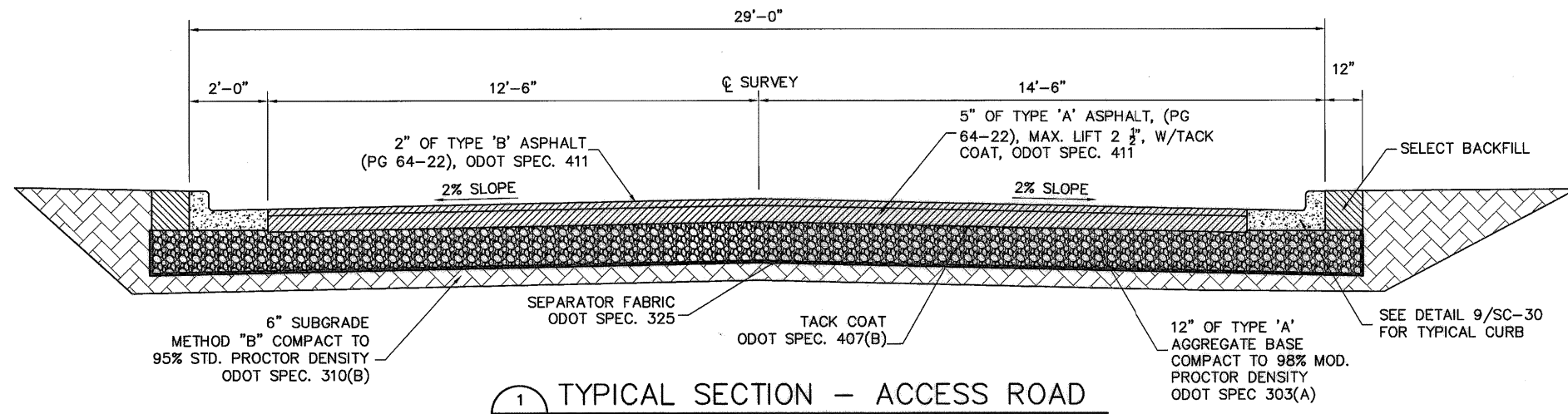
SECTION  
 DETAIL C  
 NO SCALE SC-29



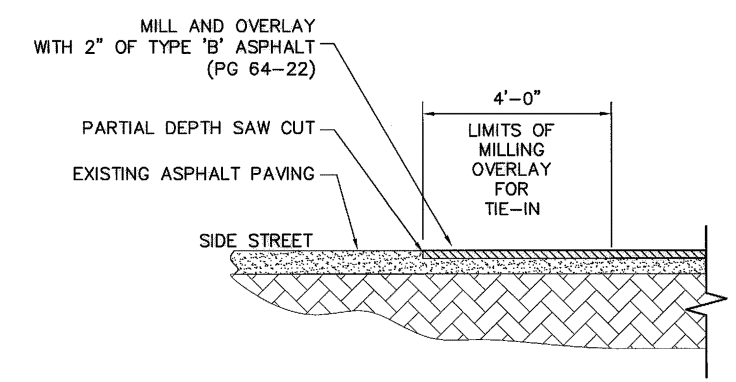
LOWER BIRD CREEK WWTP EXPANSION  
 TMA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 CIVIL/STRUCTURAL  
 MISCELLANEOUS YARD STRUCTURES  
 CITY OF TULSA, OKLAHOMA  
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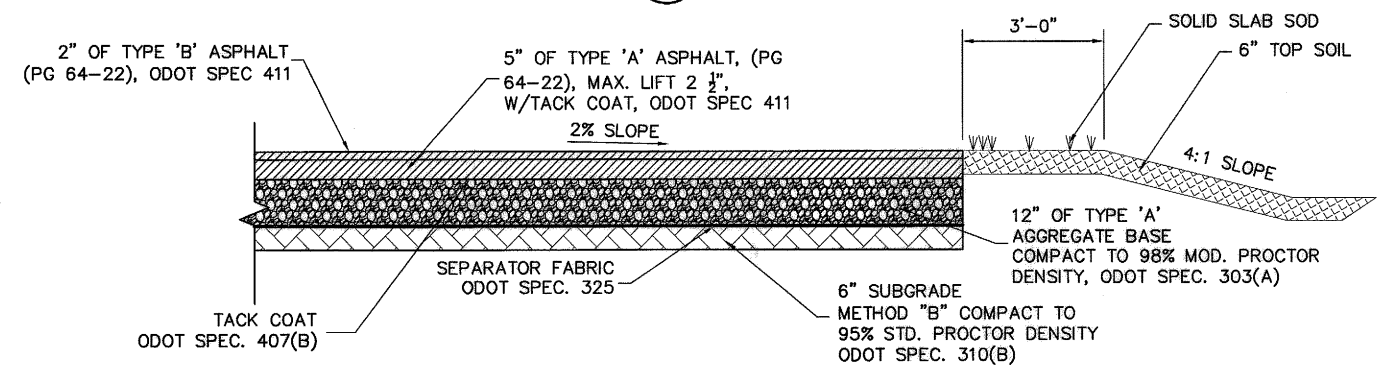
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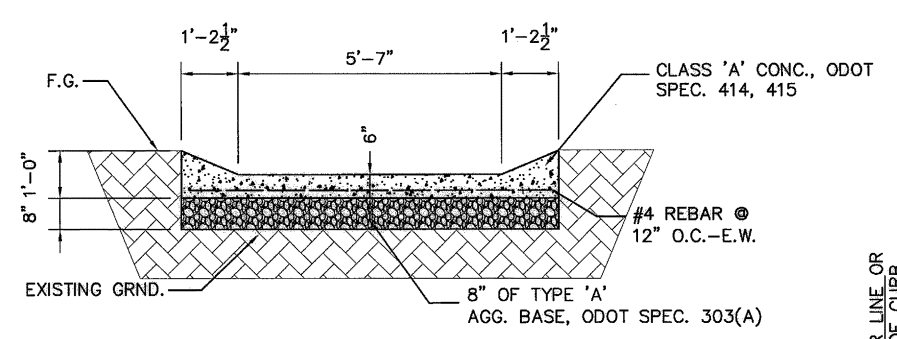
1 TYPICAL SECTION - ACCESS ROAD  
SC-30 SCALE: 1/2" = 1'-0"



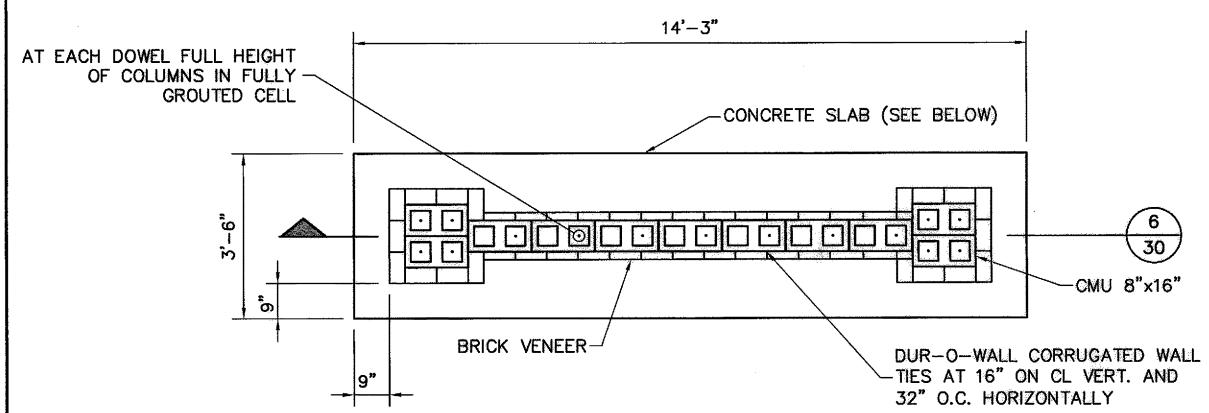
2 SIDE STREET SURFACE TIE-IN  
SC-30 SCALE: 1/2" = 1'-0"



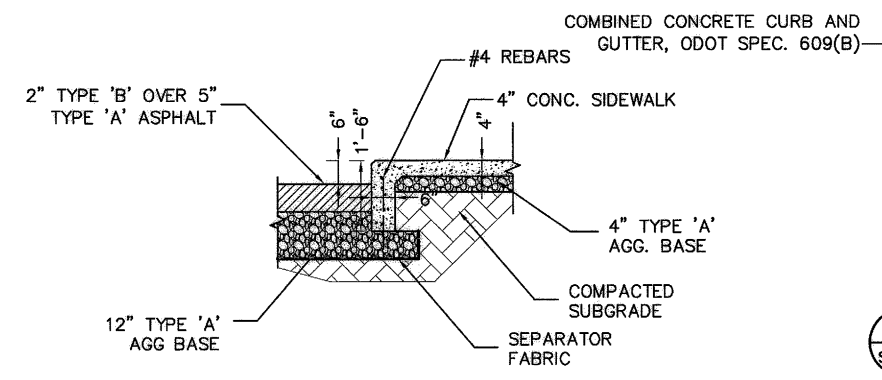
3 TYPICAL SECTION - PARKING LOT  
SC-30 SCALE: 1/2" = 1'-0"



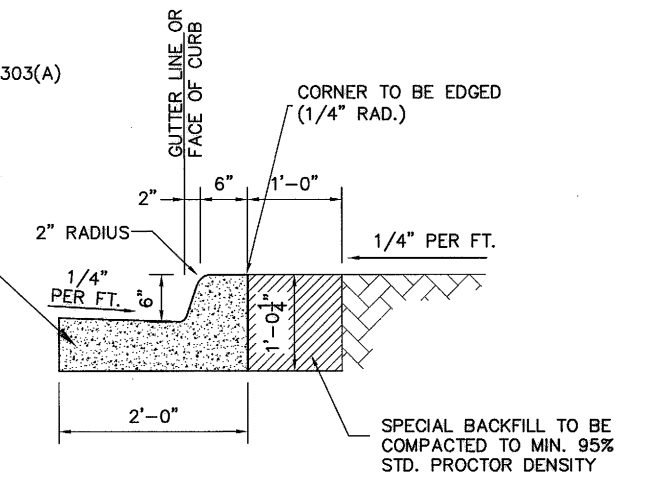
4 CONC. DITCH LINER  
SC-30 SCALE: 1/2" = 1'-0"



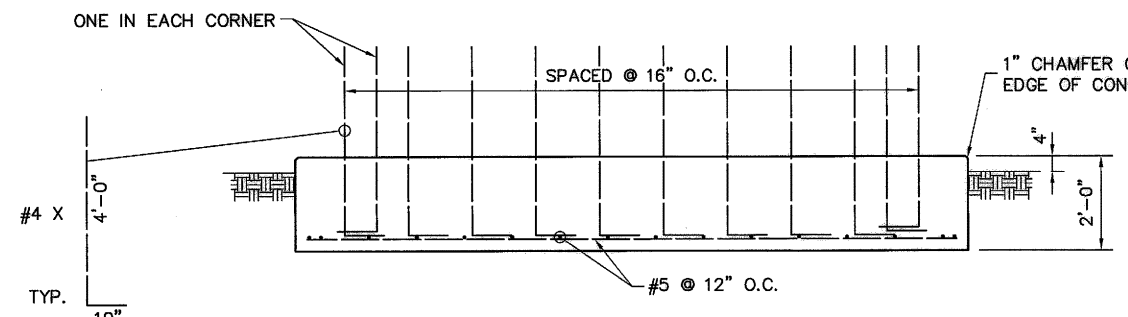
5 ENTRANCE SIGN PLAN VIEW  
SC-30 SCALE: 1/2" = 1'-0"



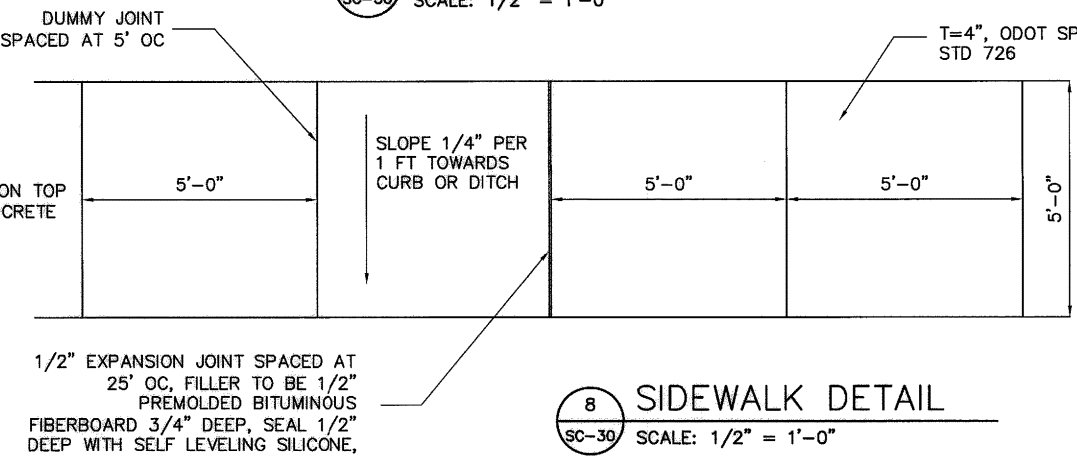
6 ENTRANCE SIGN SECTION  
SC-30 SCALE: 1/2" = 1'-0"



7 SIDEWALK W/CURB  
SC-30 SCALE: 1" = 1'-0"



8 SIDEWALK DETAIL  
SC-30 SCALE: 1/2" = 1'-0"



9 INTEGRAL 6" CURB  
SC-30 SCALE: 1" = 1'-0"



6 ENTRANCE SIGN SECTION  
SC-30 SCALE: 1/2" = 1'-0"

7 SIDEWALK W/CURB  
SC-30 SCALE: 1/2" = 1'-0"



6 ENTRANCE SIGN SECTION  
SC-30 SCALE: 1/2" = 1'-0"

7 SIDEWALK W/CURB  
SC-30 SCALE: 1/2" = 1'-0"



6 ENTRANCE SIGN SECTION  
SC-30 SCALE: 1/2" = 1'-0"

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

SITE WORK  
CIVIL  
TYPICAL SECTIONS

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

PLANS AND ESTIMATES PREPARED BY:  
BLACK & VEATCH

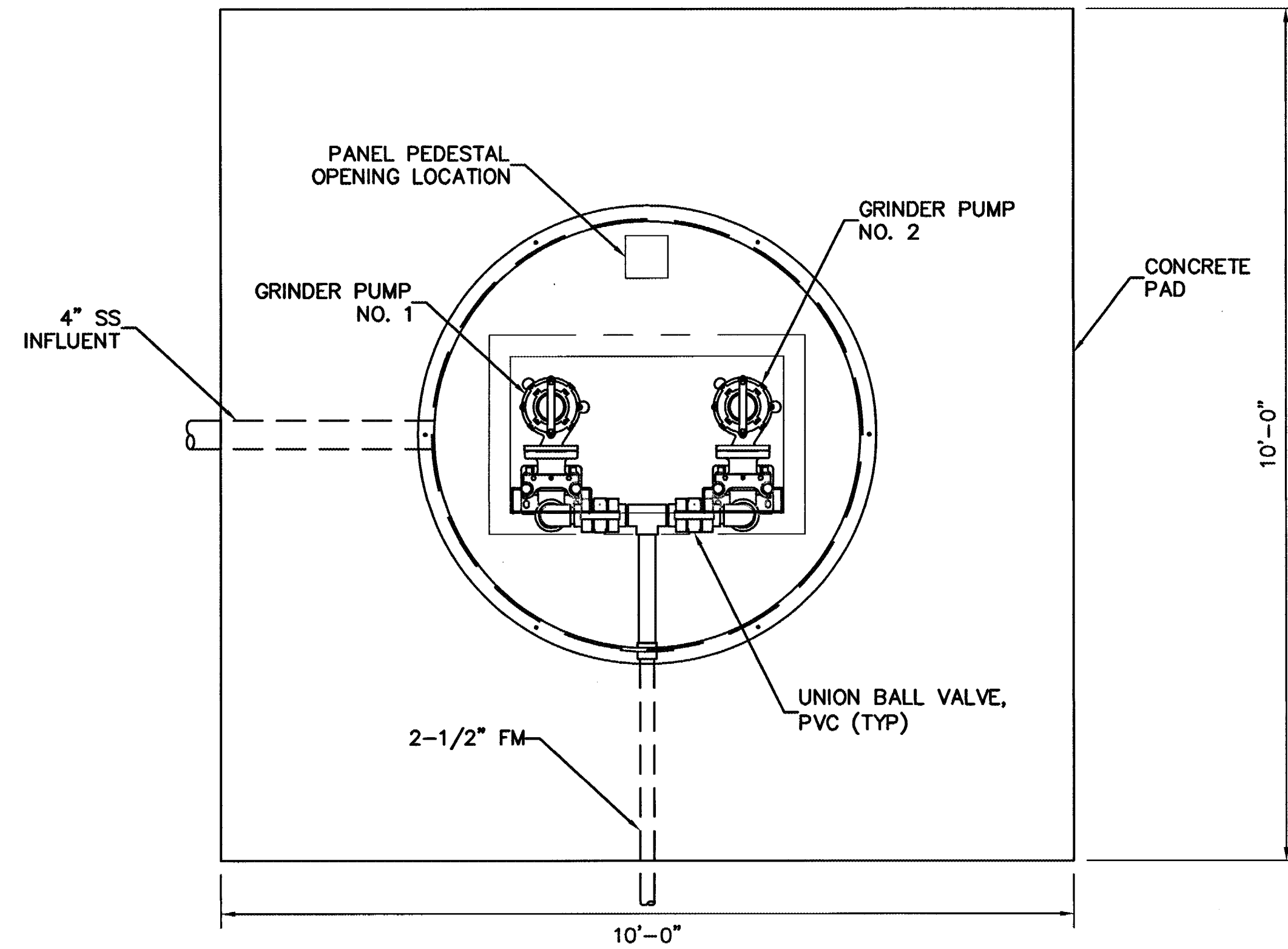
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FIELD MGR. JCS 10/11  
SECT. MGR.  
PROJ. MGR. PAV 10/11  
RECOMMENDED: HBS 10/24/11  
DATE: 10/26/2011  
ATLAS PAGE NO: --- DRAWING: SC-30 SHEET 88 OF 261 SHEETS

REGISTERED PROFESSIONAL ENGINEER  
LOYD STEPHEN TOLAR  
20670  
OKLAHOMA 1/25/11

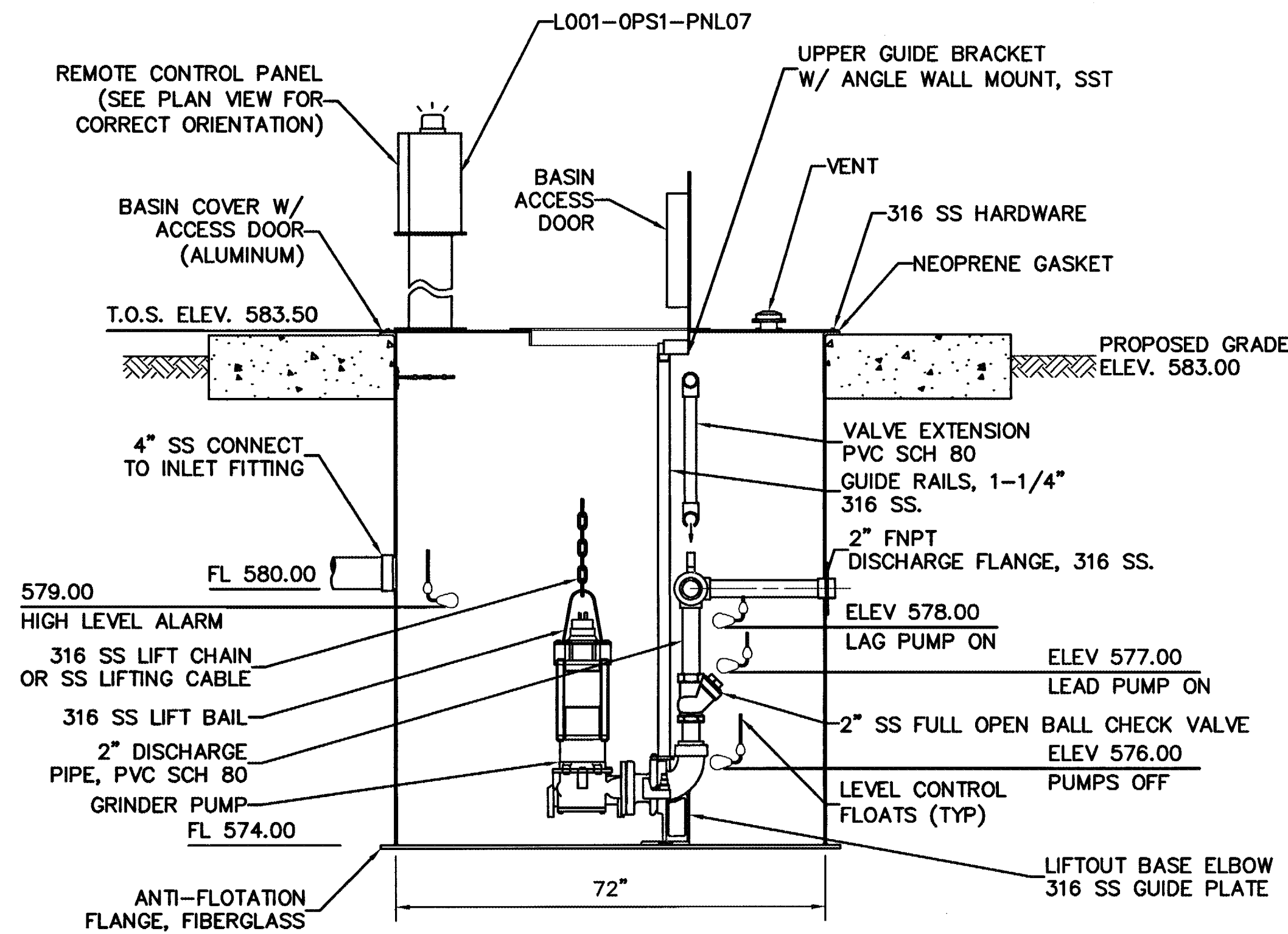
9-28-11 B&V PROJECT NO. 145120

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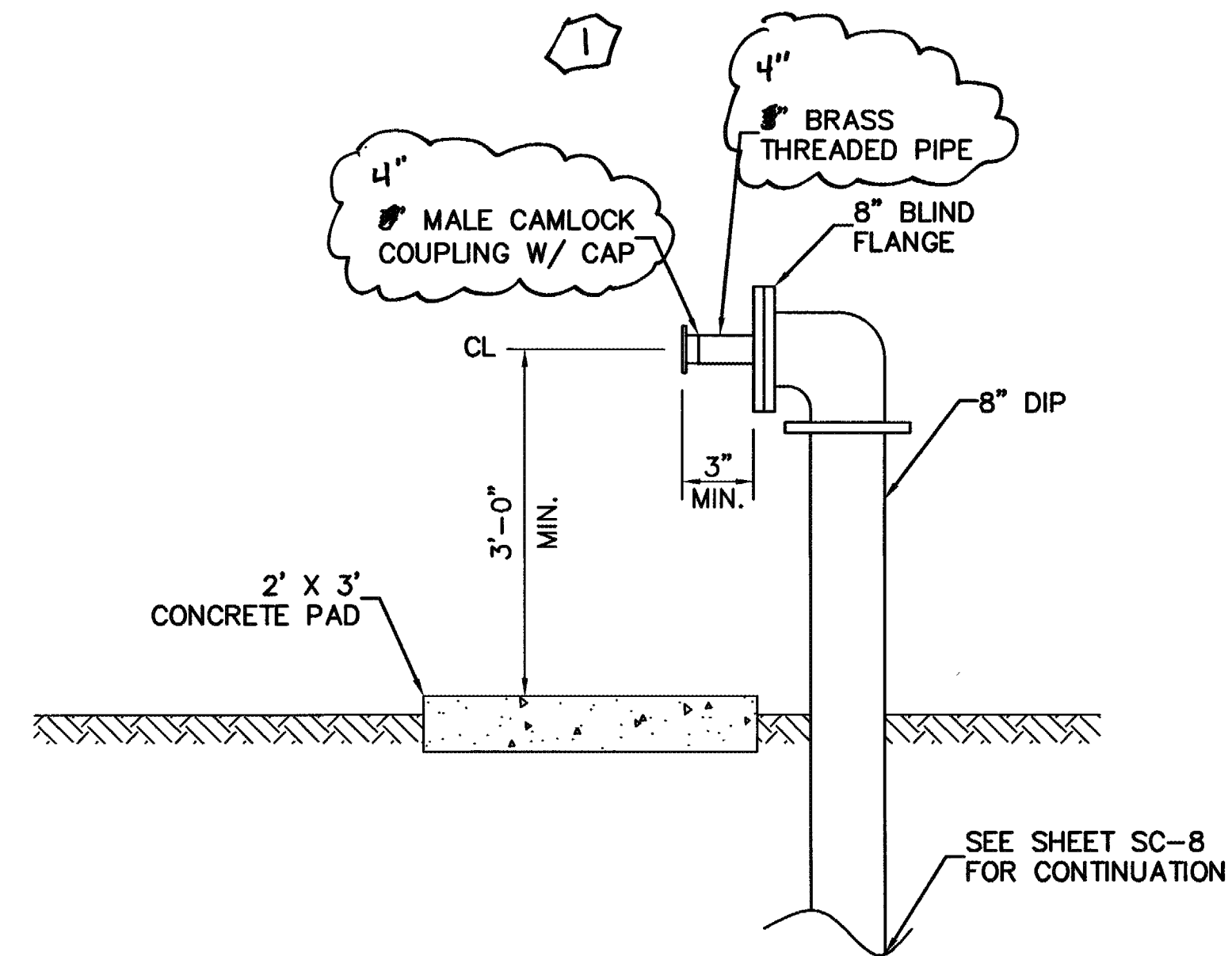
1 GRINDER SUMP PUMP STATION PLAN  
SC-31 SCALE: 3/4" = 1'-0"



2 GRINDER SUMP PUMP STATION SECTION  
SC-31 SCALE: 3/4" = 1'-0"

GRINDER SUMP PUMP SCHEDULE								
PUMP #	DESCRIPTION	TYPE	CAPACITY (GPM)	T.D.H.	HP	VOLTAGE	PHASE	RPM
1	RAW SEWAGE	GRINDER	75	60	3	460V	3	3500
2	RAW SEWAGE	GRINDER	75	60	3	460V	3	3500

- NOTES:
- BASIS OF DESIGN IS THE SERIES 3000 MODEL 3F31 AS MANUFACTURED BY EONE INC. PRODUCTS BY OTHER MANUFACTURERS INCLUDING FLYGT, VAUGHAN AND FEMEYERS OR OTHER APPROVED EQUAL WILL BE CONSIDERED AS LONG AS THEY MEET MINIMUM STANDARDS ESTABLISHED BY THE BASIS OF DESIGN.
  - REFER TO SPECIFICATION SECTION 11185 FOR ADDITIONAL REQUIREMENTS.



3 FINAL CLARIFIER NO. 1 DRAIN  
SC-31 SCALE: NO SCALE

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

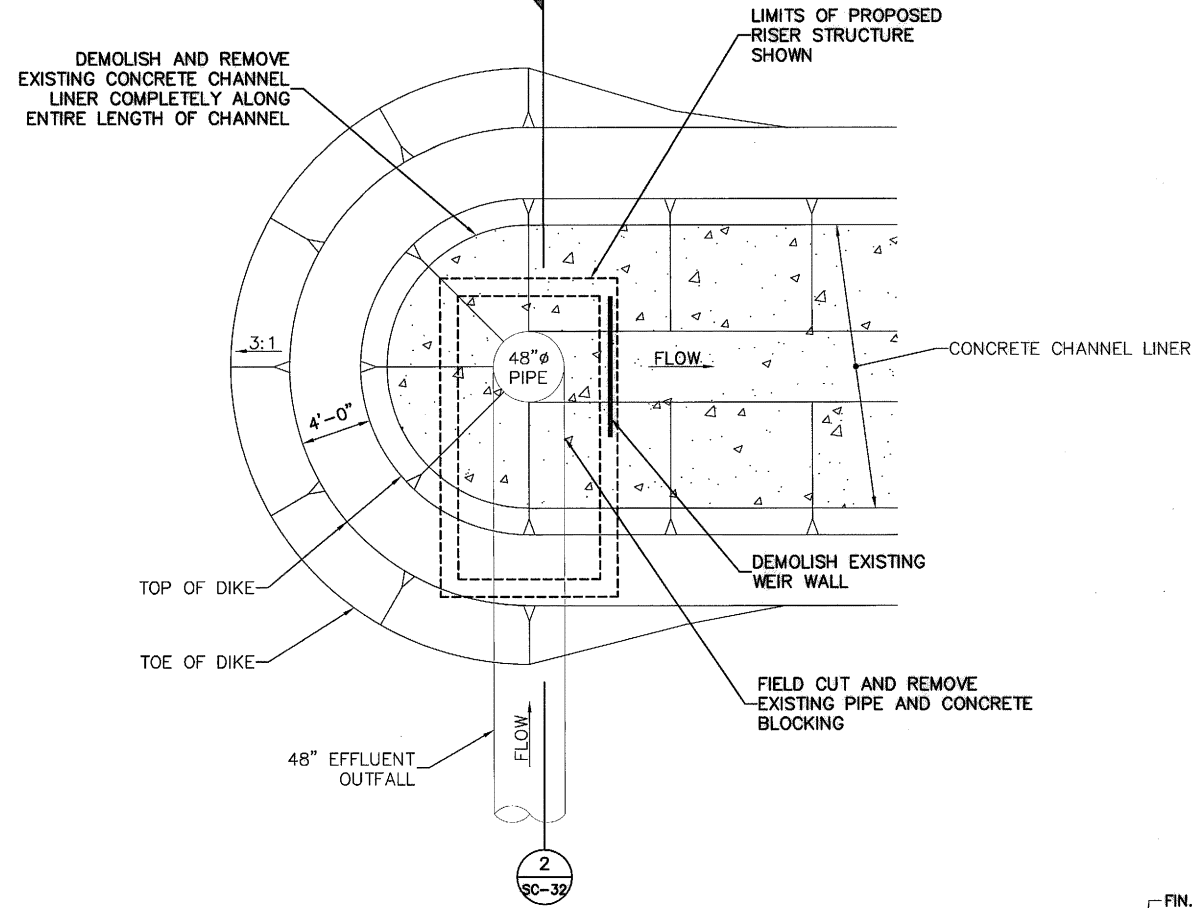
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CIVIL  
GRINDER PUMP STATION AND DETAILS  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:  
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Kansas City, Missouri

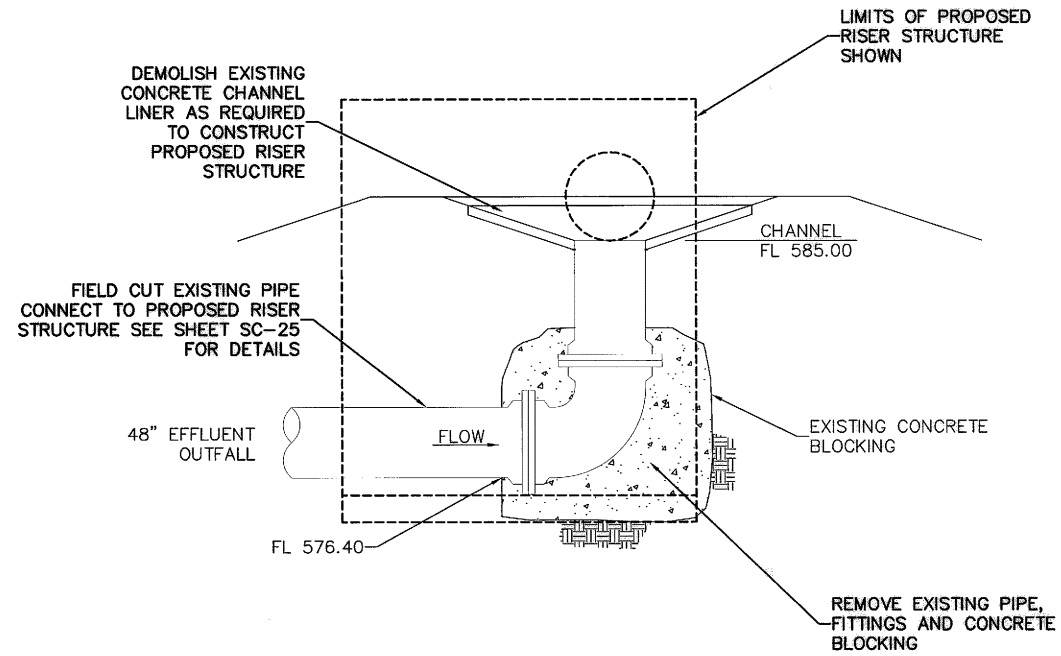
**LOYD STEPHEN TOLAR**  
20572  
OKLAHOMA  
4/23/11  
DIRECTOR

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Addendum No. 1	PSB	1-6-12		DESIGNED	USBT	
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			ATLAS PAGE NO.:			SHEET 69 OF 261 SHEETS

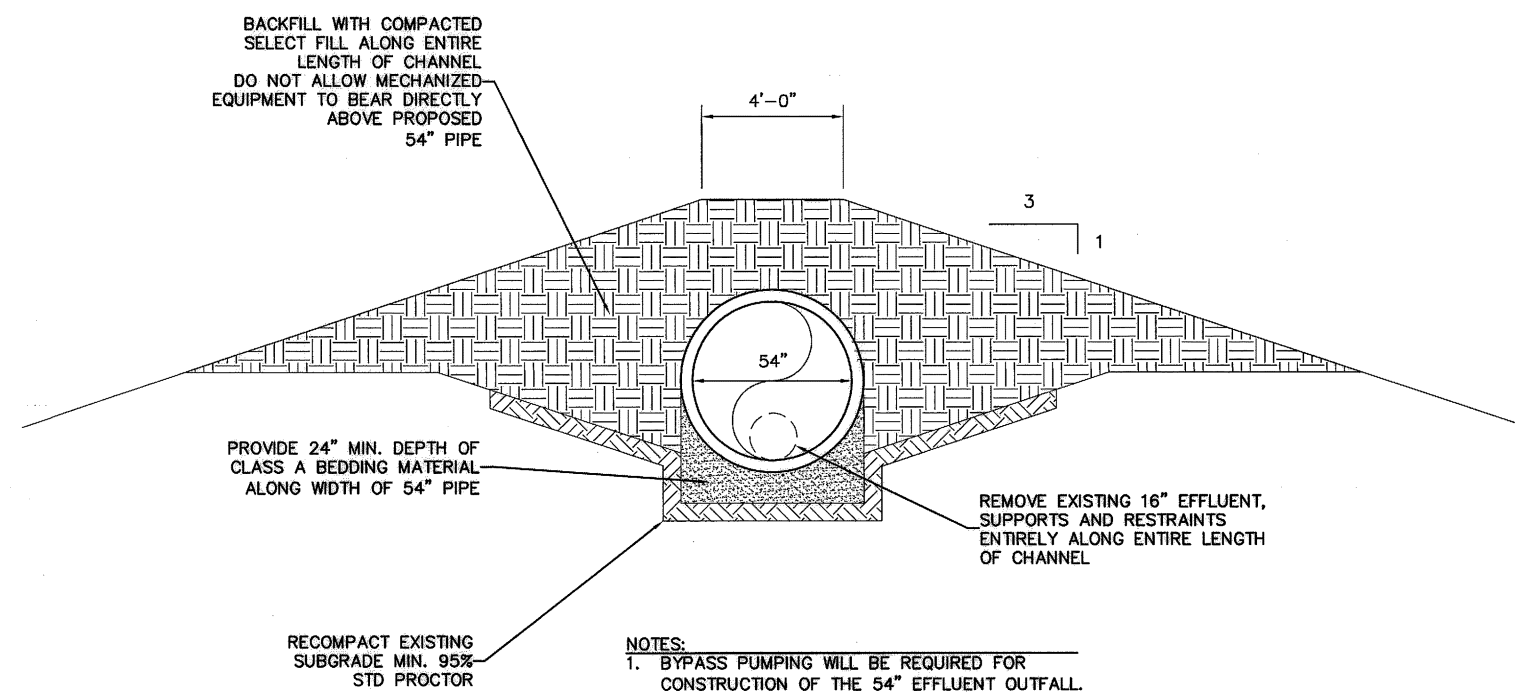
9-28-11 B&V PROJECT NO. 145120



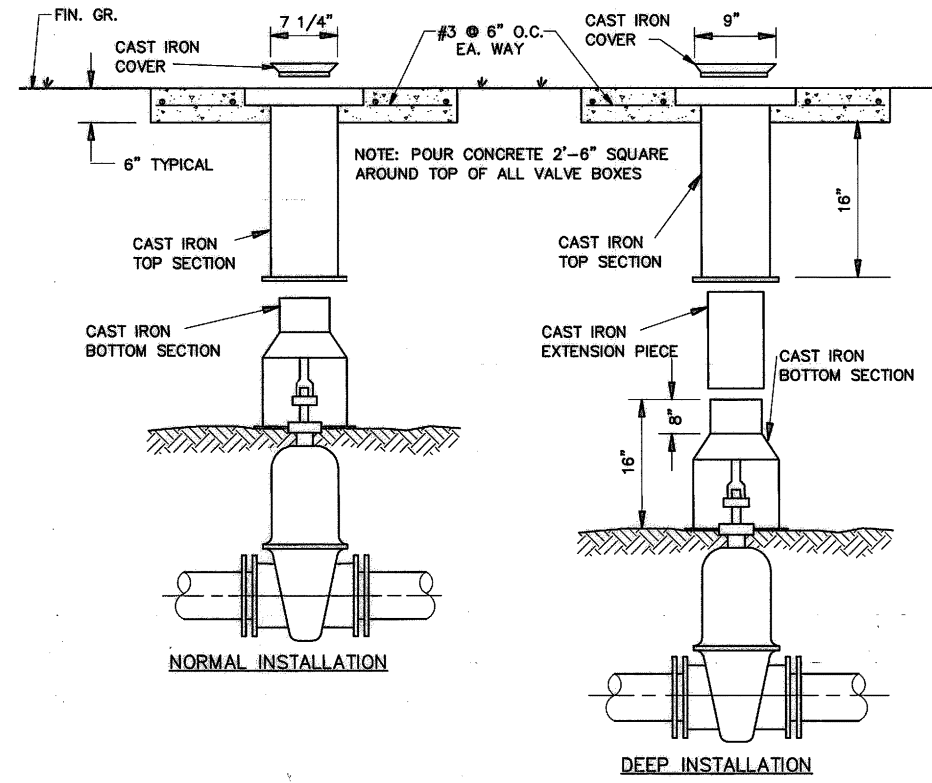
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 SC-32 SCALE: 3/16" = 1'-0"



**2 DEMOLITION SECTION**  
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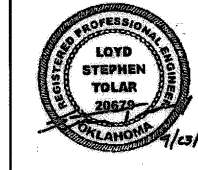


**A SPECIAL BEDDING DETAIL**  
 SC-32 54" EFFLUENT OUTFALL  
 SCALE: 3/8" = 1'-0"



**B CONCRETE COLLAR INSTALLATION**  
 SC-32 NTS

- NOTES:
1. PROVIDE 2"x4"x1/8" THICK 316 SS VALVE ID TAG FOR EVERY BURIED VALVE EQUIPPED w/ A VALVE BOX.
  2. AFFIX ID TAG TO CONCRETE COLLAR w/ 316 SS TAPCON STYLE ANCHORS. MIN. TWO ANCHORS REQUIRED.
  3. ID TAG SHALL BE ENGRAVED w/ VALVE ID NUMBER SHOWN ON P & ID DRAWINGS AND INDICATE CLOSING DIRECTION AND NUMBER OF TURNS TO CLOSE.
  4. REFER TO CITY OF TULSA STANDARD SPECIFICATIONS FOR VALVE BOX REQUIREMENTS.



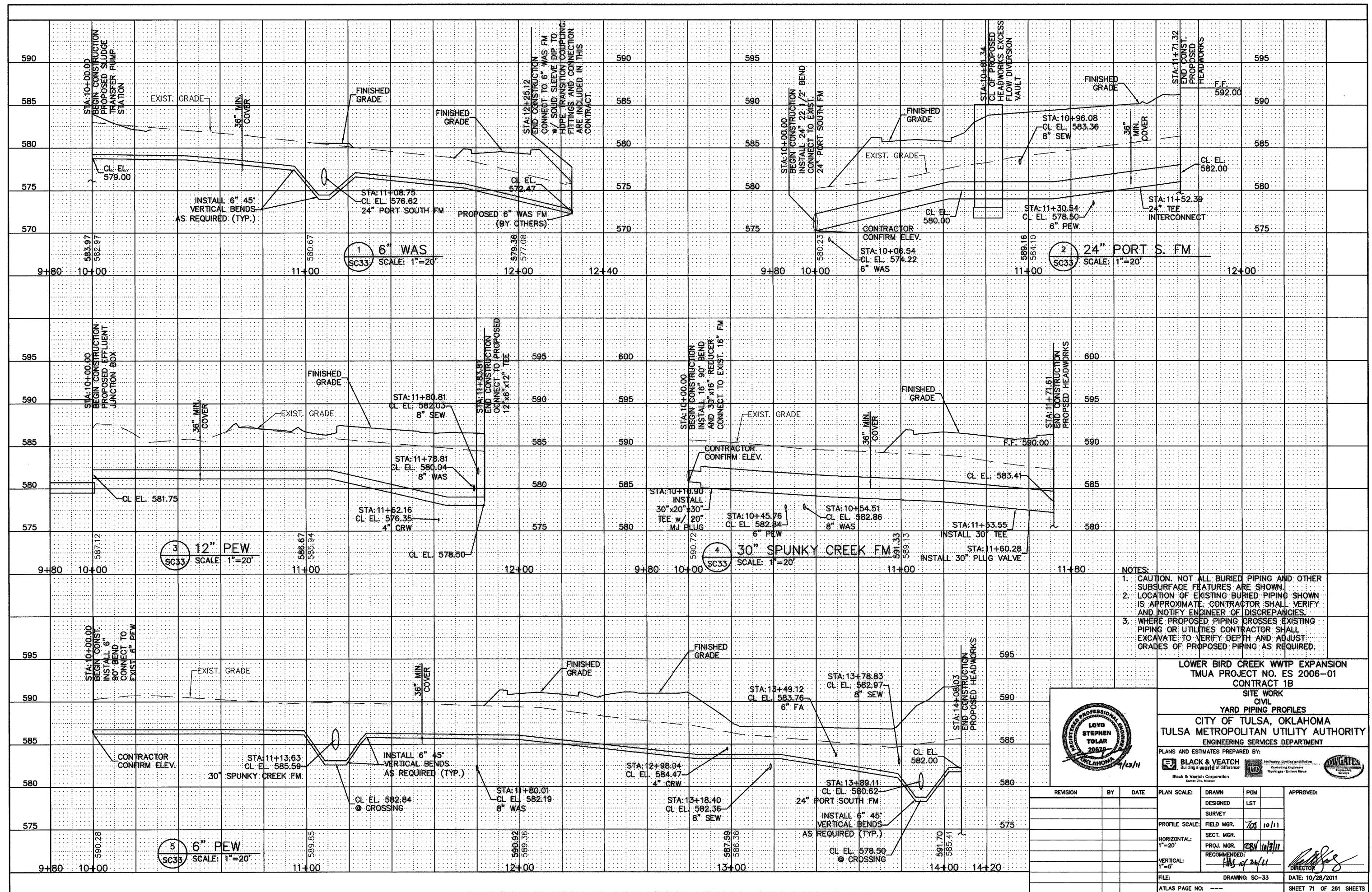
LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B

SITE WORK  
 CIVIL  
 MISCELLANEOUS DETAILS

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

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REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
				DESIGNED	LST	
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	DB	10/11
			HORIZONTAL:	SECT. MGR.		
			VERTICAL:	PROJ. MGR.	EBV	10/11
				RECOMMENDED:		
			FILE:	DRAWING:	SC-32	DATE: 10/26/2011
			ATLAS PAGE NO:			SHEET 70 OF 261 SHEETS



- NOTES:
1. CAUTION. NOT ALL BURIED PIPING AND OTHER SUBSURFACE FEATURES ARE SHOWN.
  2. LOCATION OF EXISTING BURIED PIPING SHOWN IS APPROXIMATE. CONTRACTOR SHALL VERIFY AND NOTIFY ENGINEER OF DISCREPANCIES.
  3. WHERE PROPOSED PIPING CROSSES EXISTING PIPING OR UTILITIES CONTRACTOR SHALL EXCAVATE TO VERIFY DEPTH AND ADJUST GRADES OF PROPOSED PIPING AS REQUIRED.

LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE CIVIL  
 YARD PIPING PROFILES



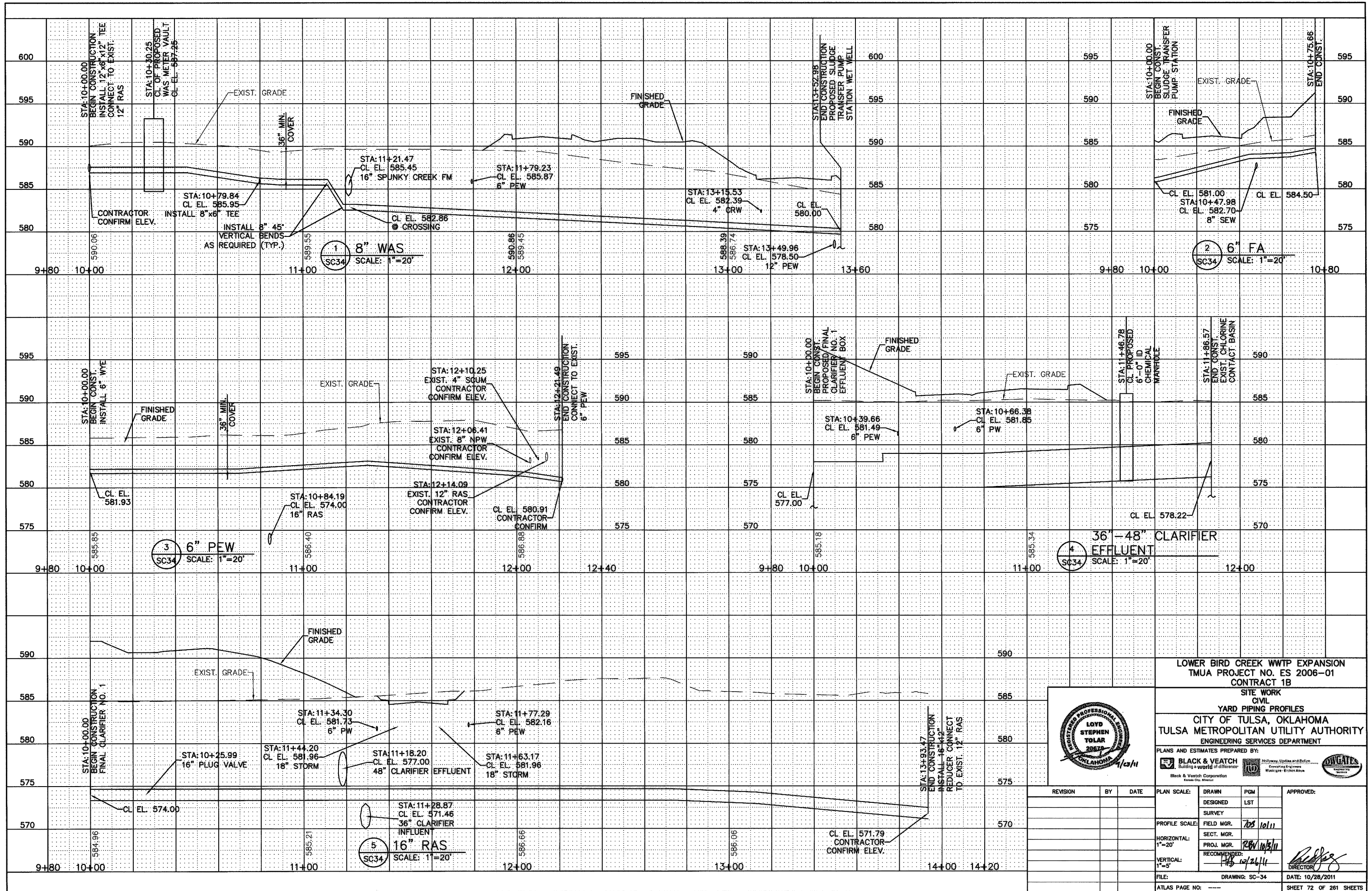
CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

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REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
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			PROFILE SCALE:	SURVEY		
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			HORIZONTAL:	SECT. MGR.		
			1"=20'	PROJ. MGR.	TSV 10/11	
			VERTICAL:	RECOMMENDED:		
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			ATLAS PAGE NO: ---			



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

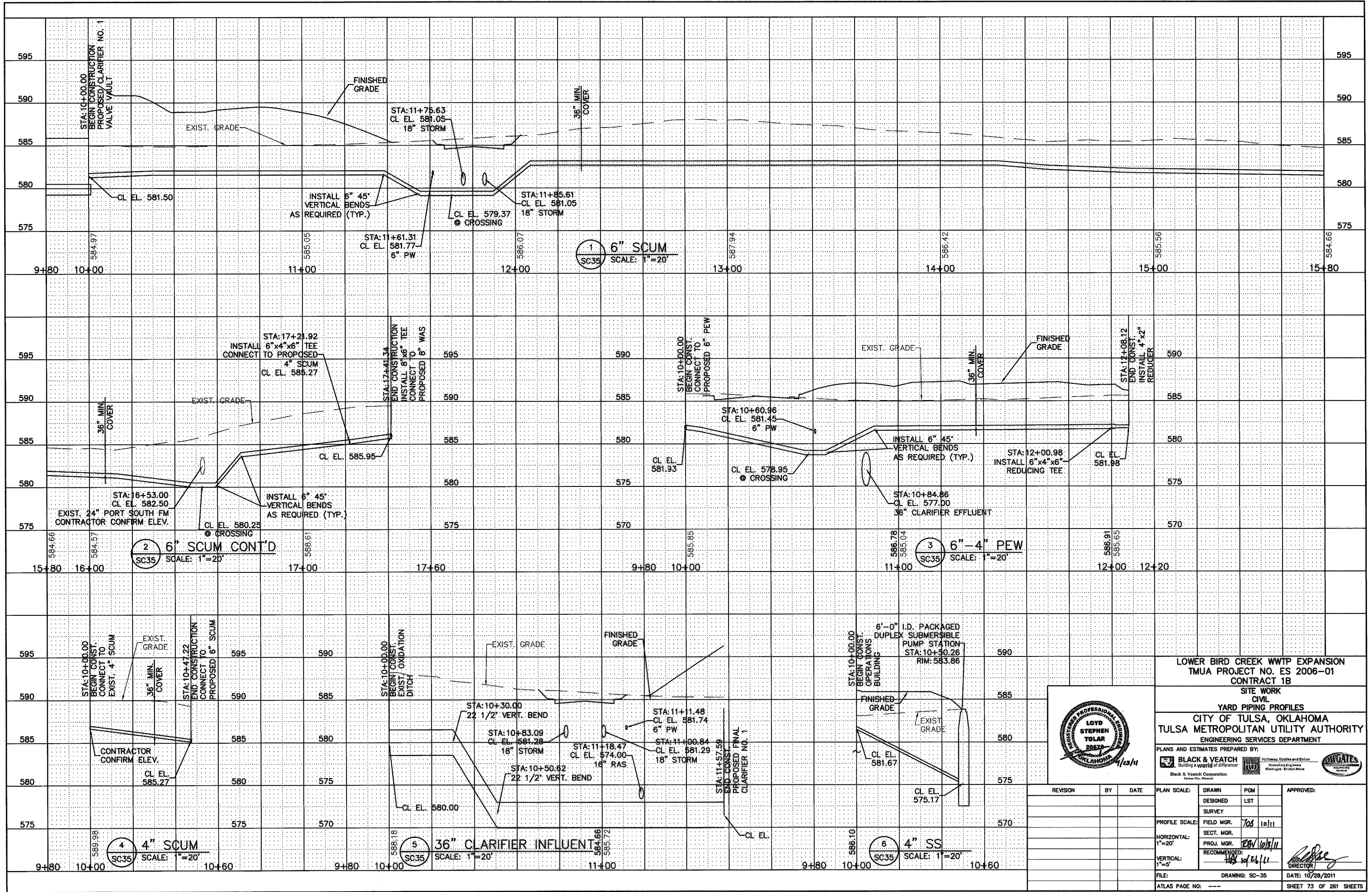


SITE WORK  
 CIVIL  
 YARD PIPING PROFILES  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

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REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
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			PROFILE SCALE:	SURVEY		
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			1"=20'	SECT. MGR.	RBN 10/3/11	
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			FILE:	DIRECTOR		
			DRAWING: SC-34	DATE: 10/28/2011		
			ATLAS PAGE NO: ---	SHEET 72 OF 261 SHEETS		





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

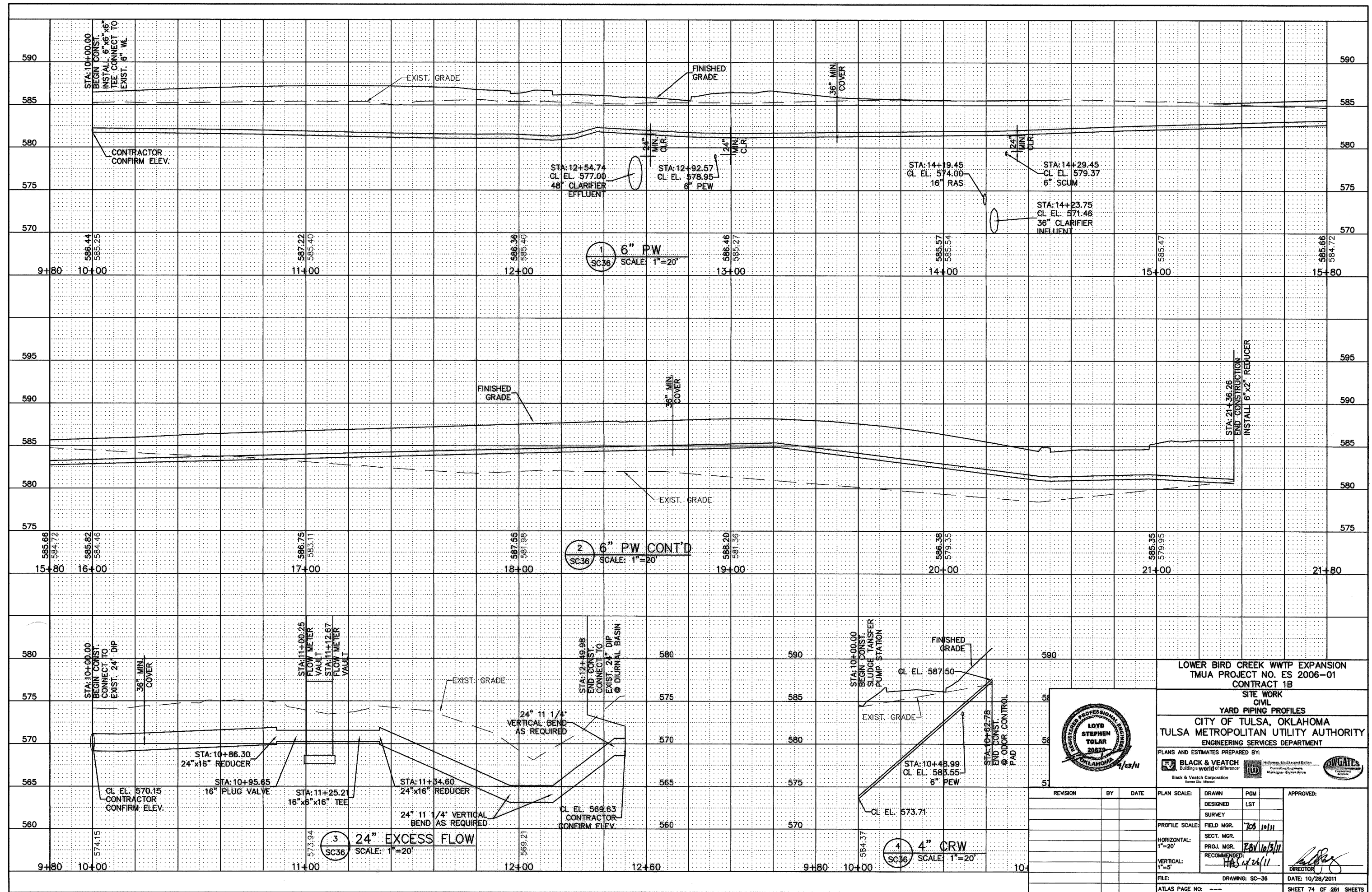
SITE WORK  
 CIVIL  
 YARD PIPING PROFILES  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT



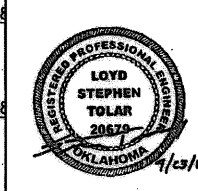
PLANS AND ESTIMATES PREPARED BY:  
**BLACK & VEATCH**  
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 Kansas City, Missouri

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
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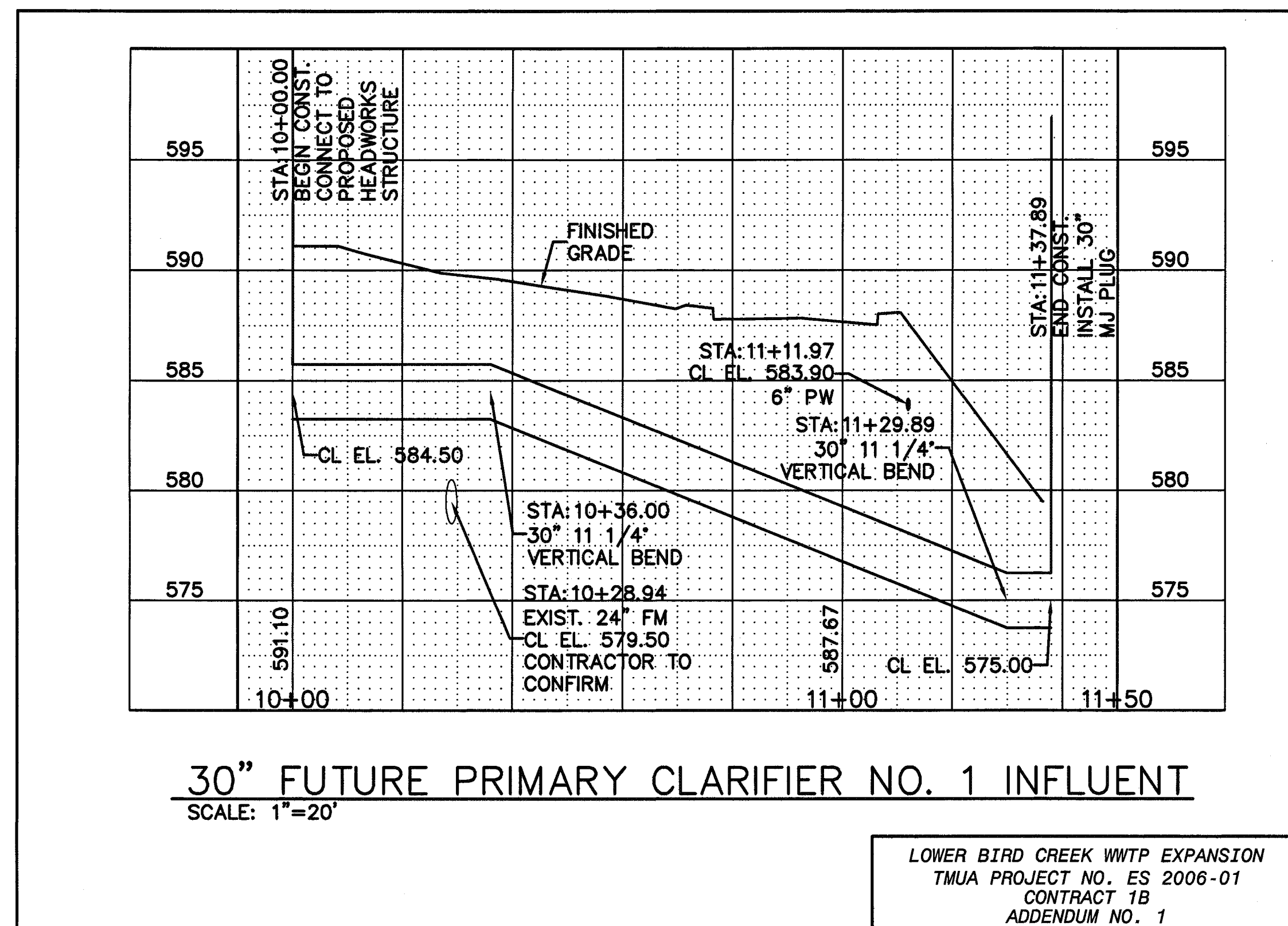


LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 CIVIL  
 YARD PIPING PROFILES  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT



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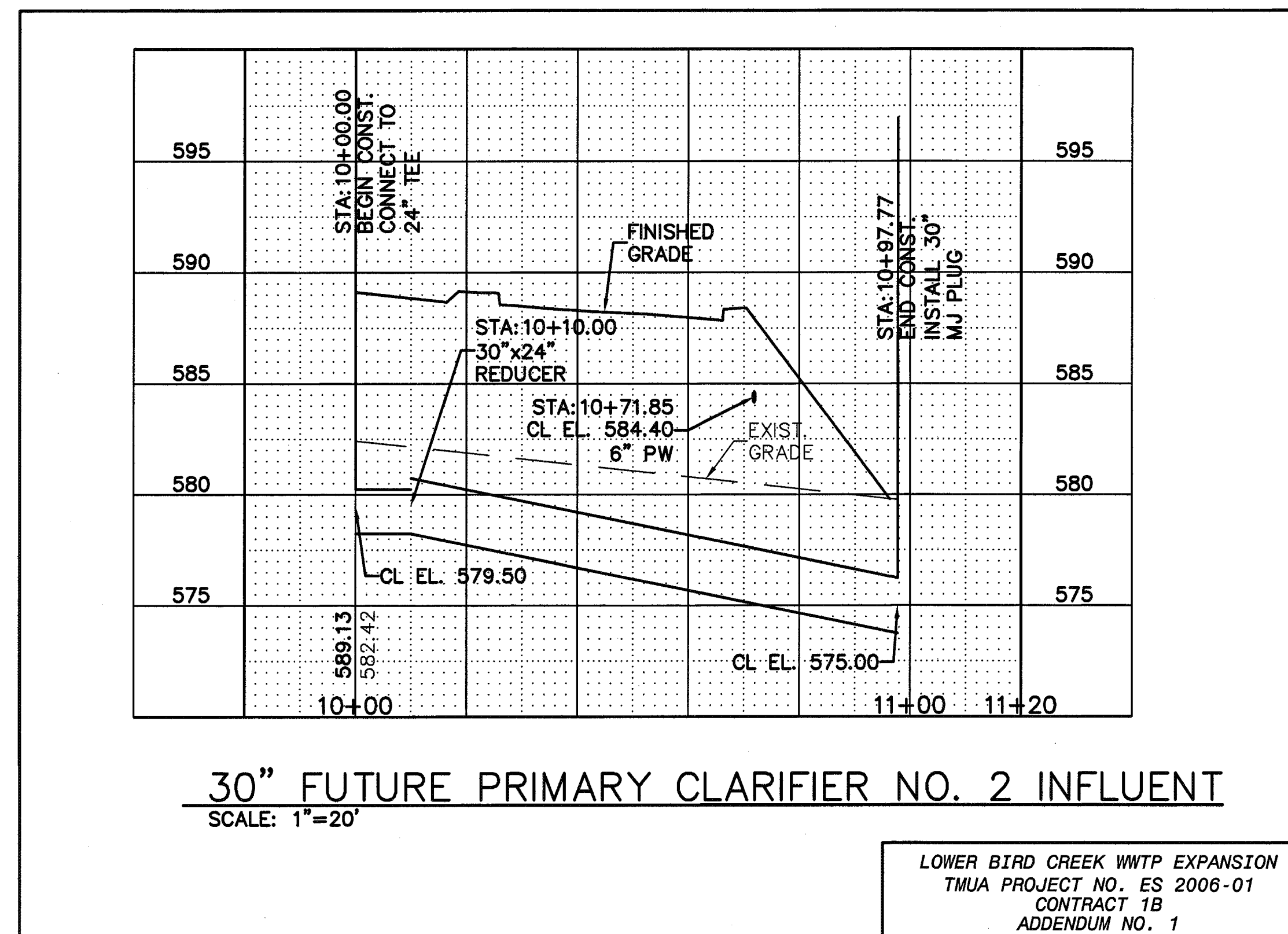
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			ATLAS PAGE NO: ---			SHEET 74 OF 261 SHEETS



REFERENCE DRAWING SC-36A

FIGURE AD1-5

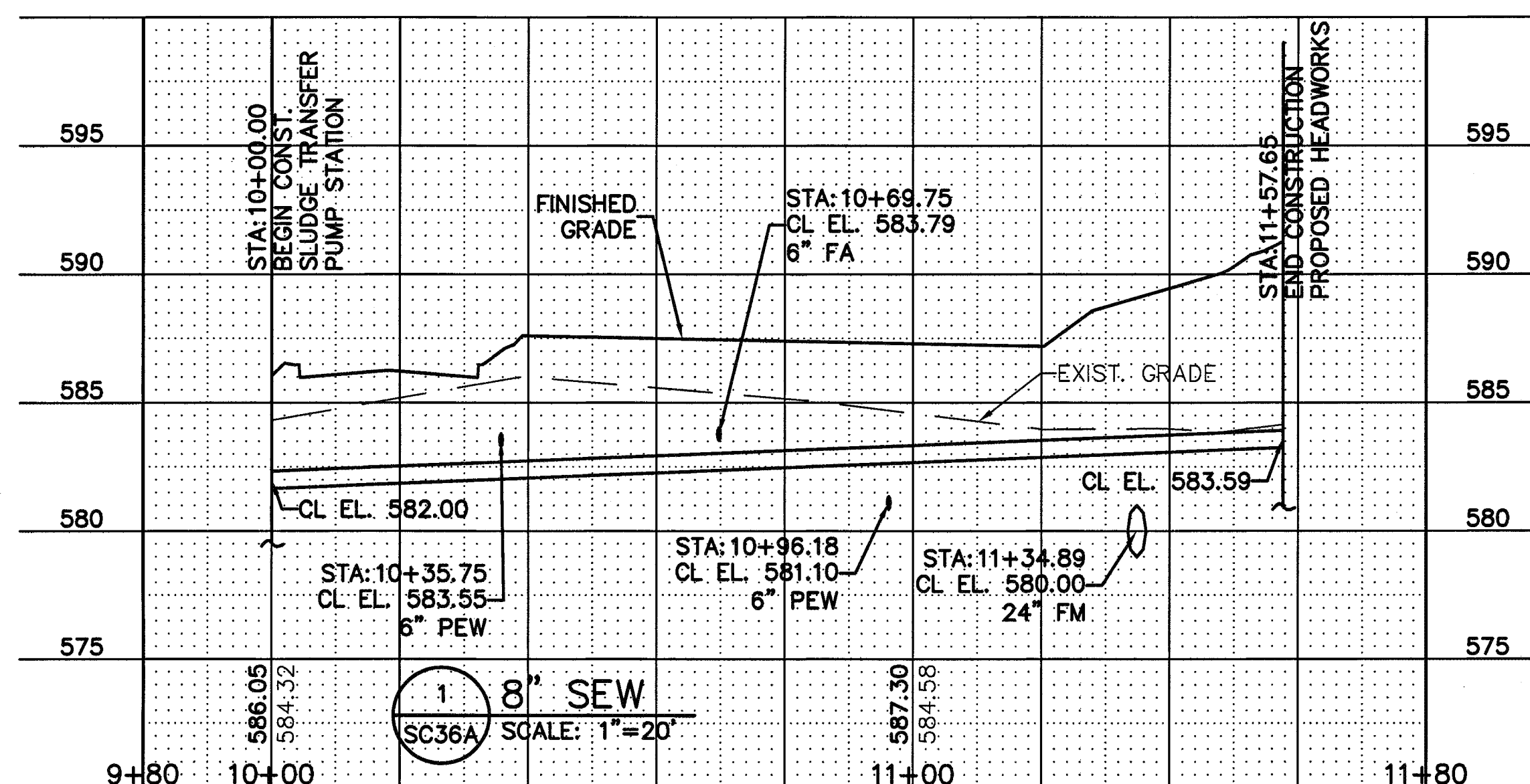
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REFERENCE DRAWING SC-36A

FIGURE AD1-6

①



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

SITE WORK  
CIVIL  
YARD PIPING PROFILES

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

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**BLACK & VEATCH**  
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Black & Veatch Corporation  
Kansas City, Missouri

REGISTERED PROFESSIONAL ENGINEER  
LOYD STEPHEN TOLAR  
20672  
OKLAHOMA  
10/28/11

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
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			ATLAS PAGE NO.:			SHEET 75 OF 281 SHEETS

DATE: 10/28/2011

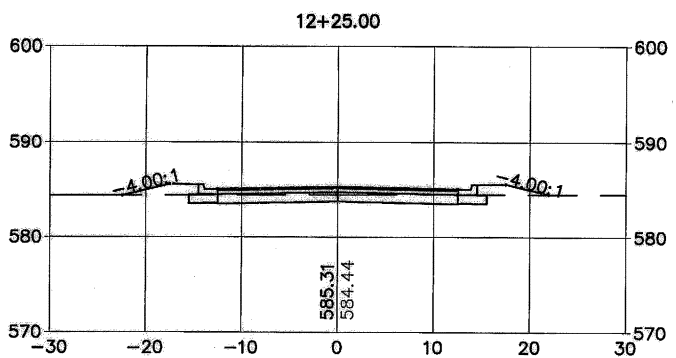
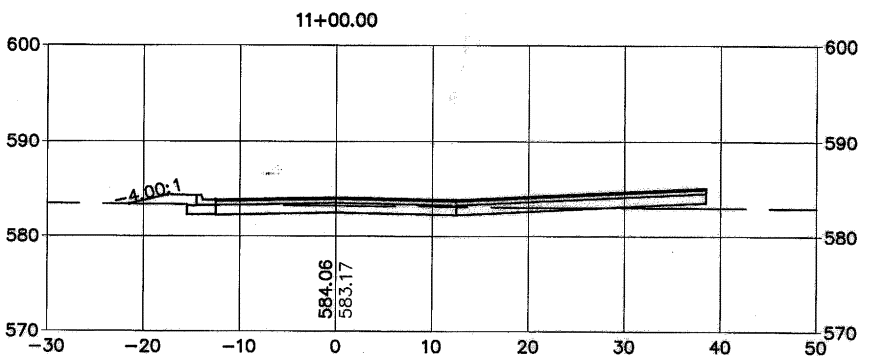
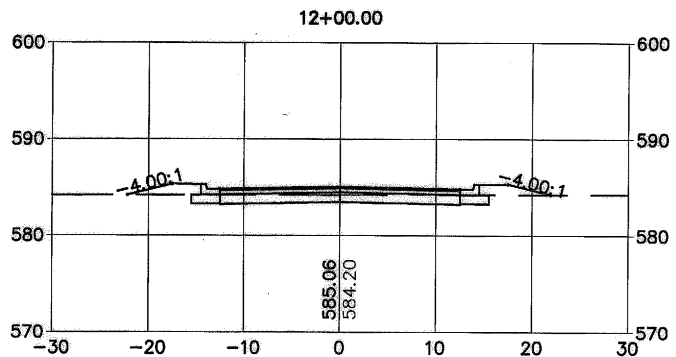
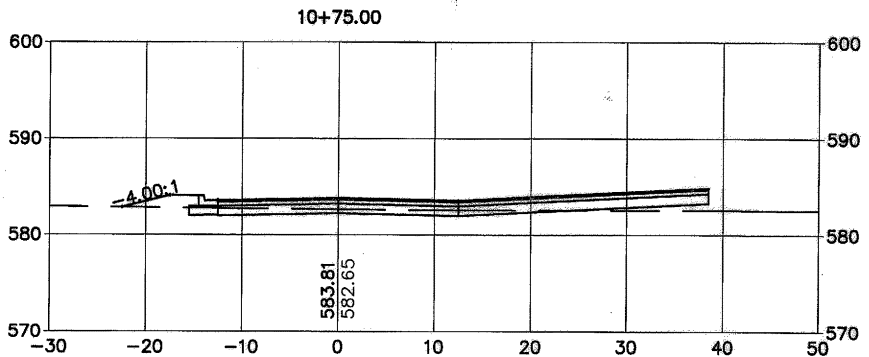
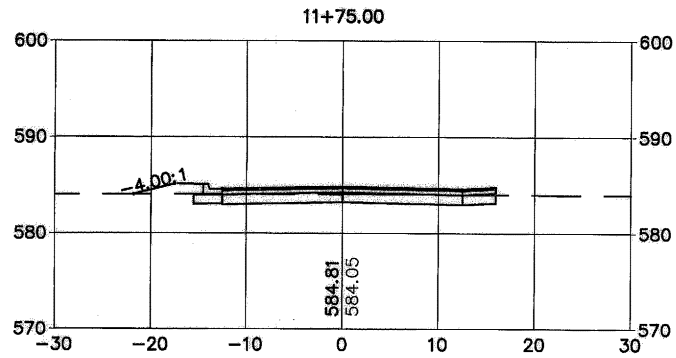
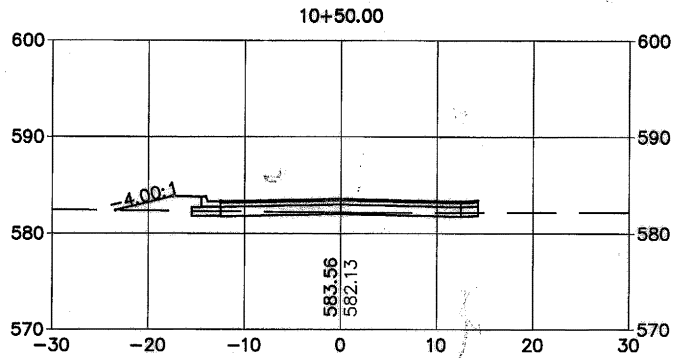
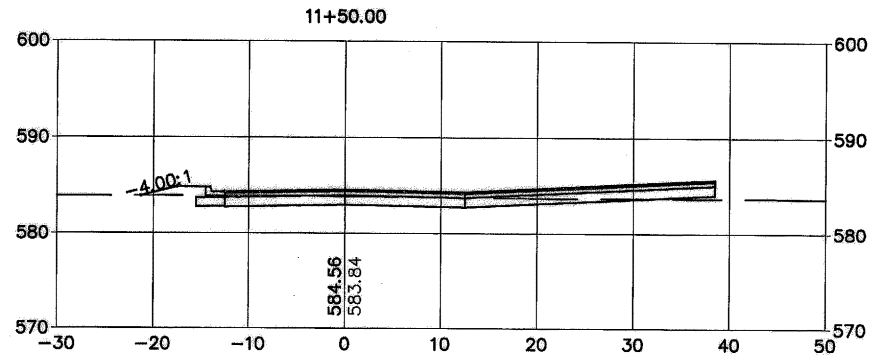
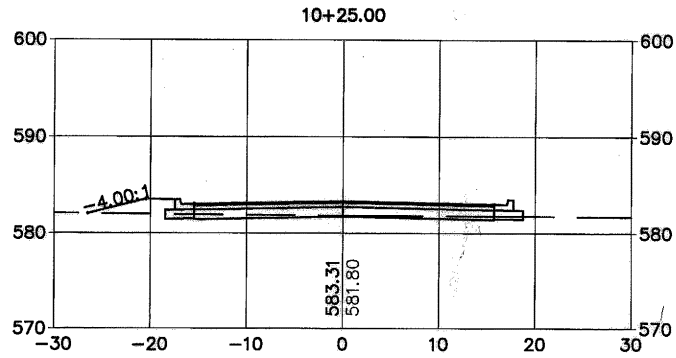
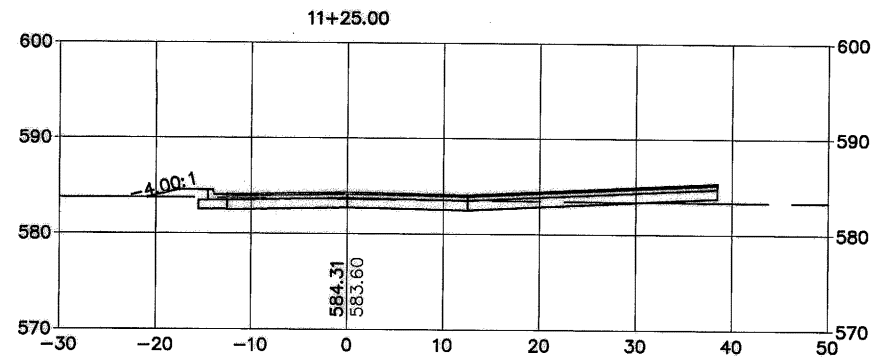
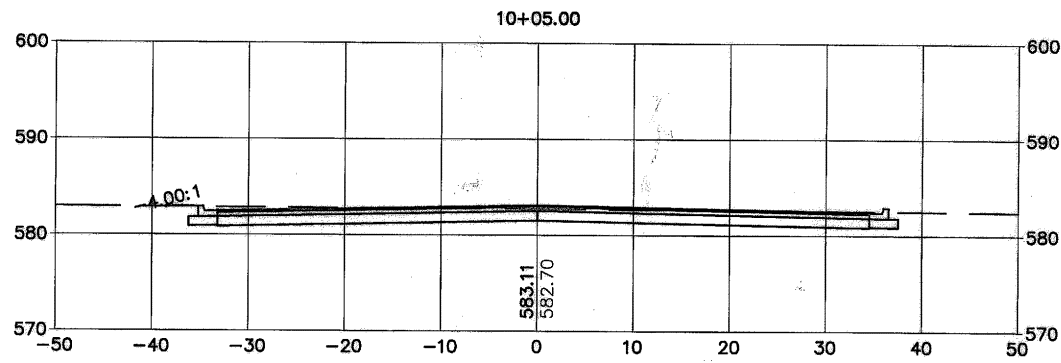
DIRECTOR

SHEET 75 OF 281 SHEETS

B&V PROJECT NO. 145120



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NOTE:  
1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.

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



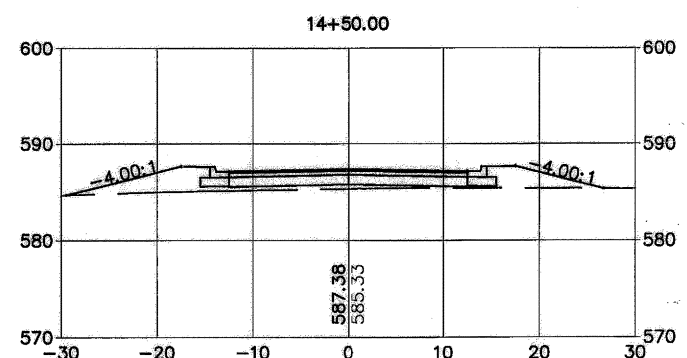
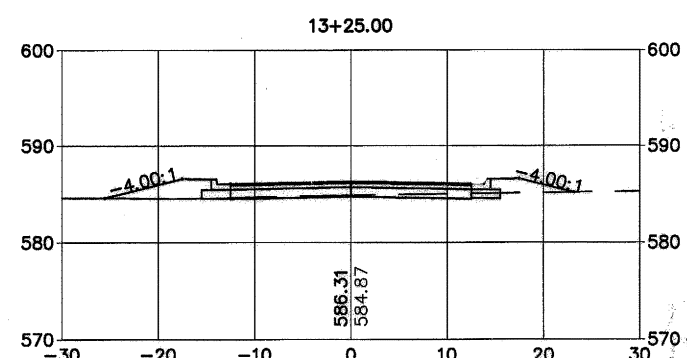
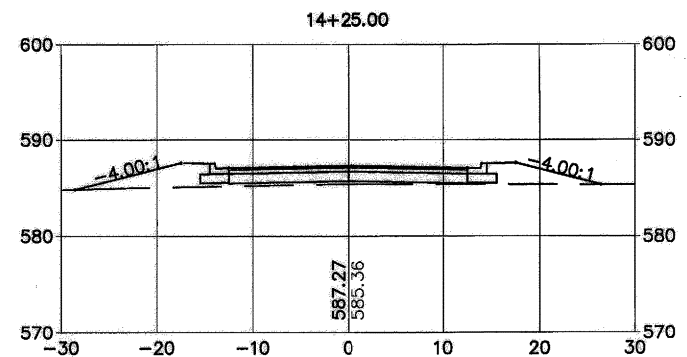
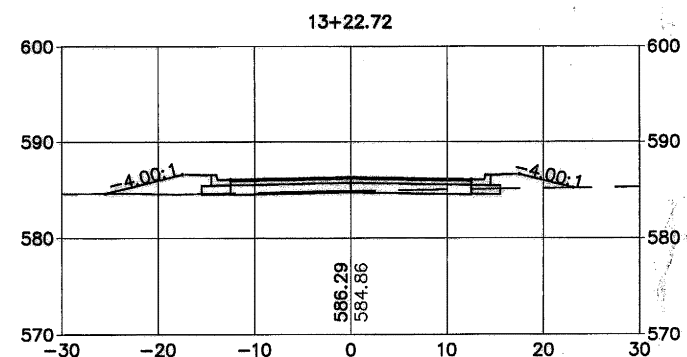
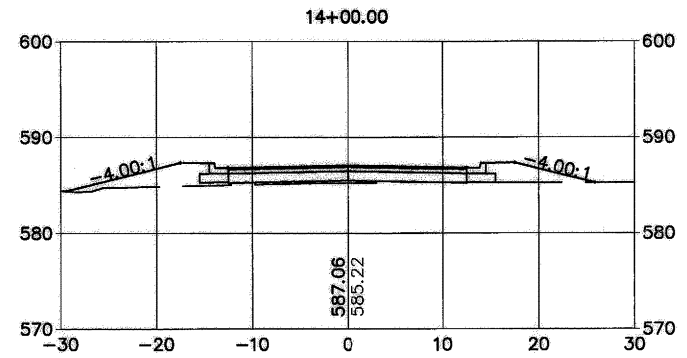
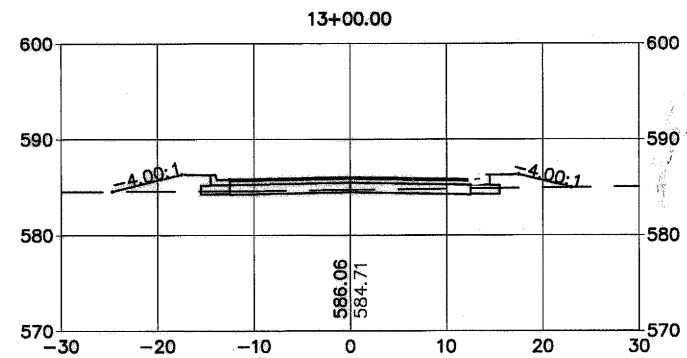
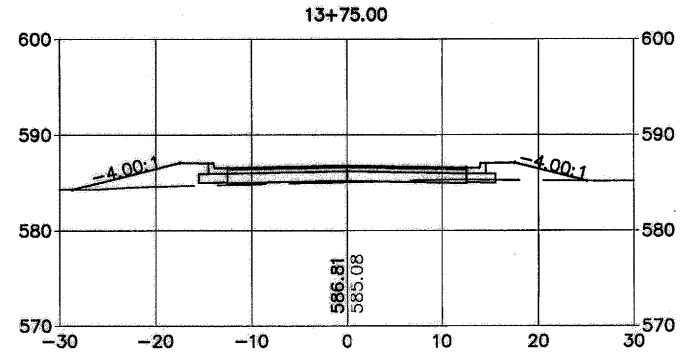
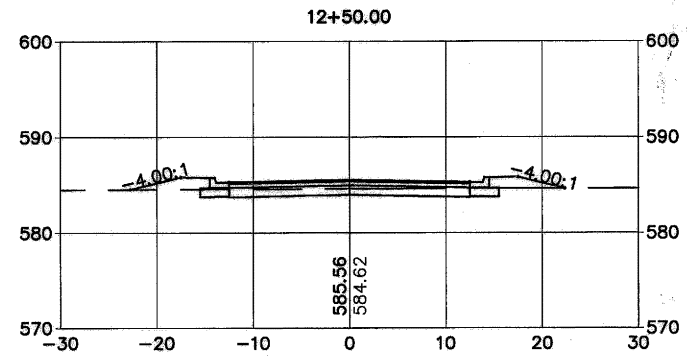
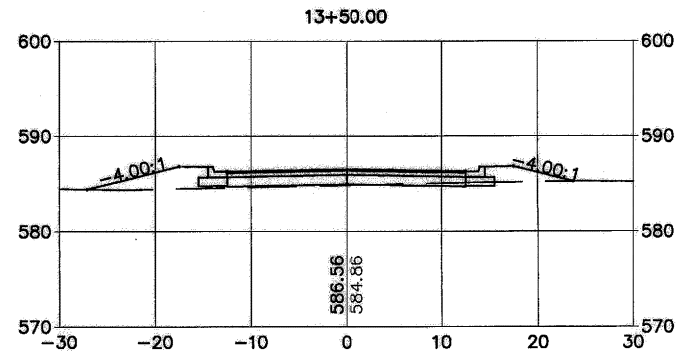
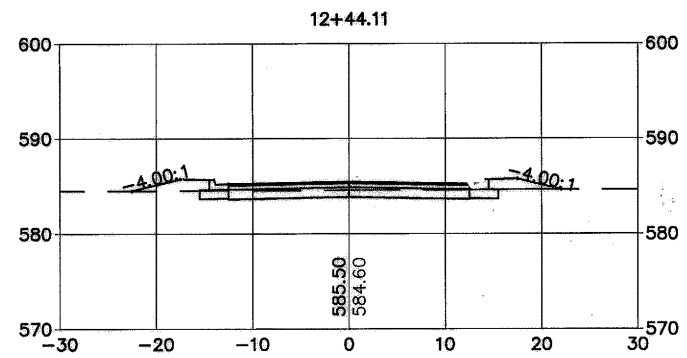
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CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

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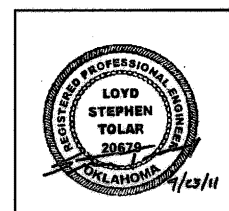
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NOTE:  
1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.

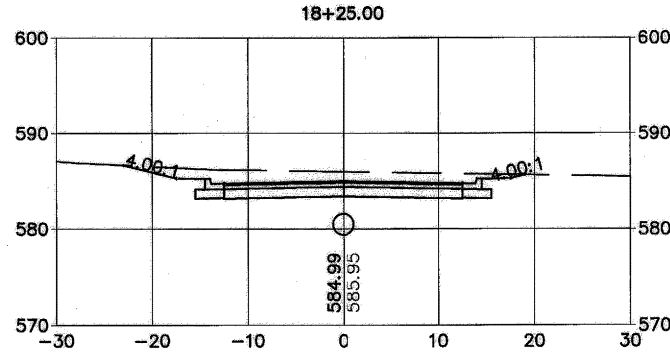
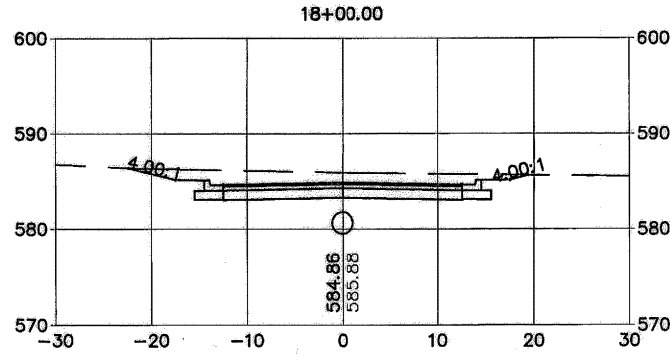
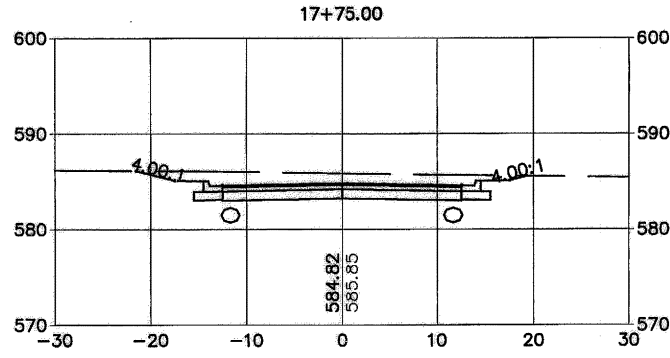
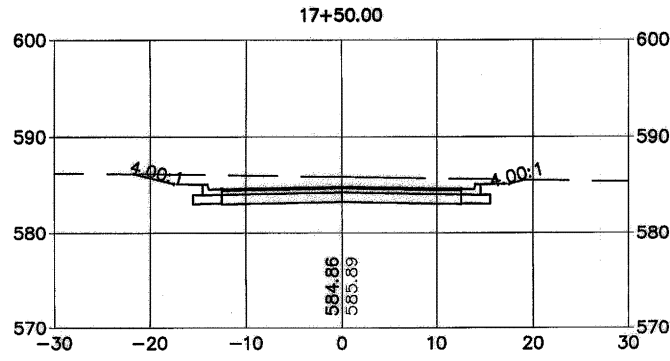
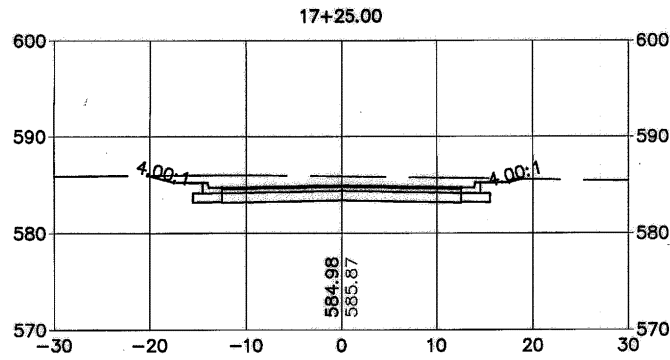
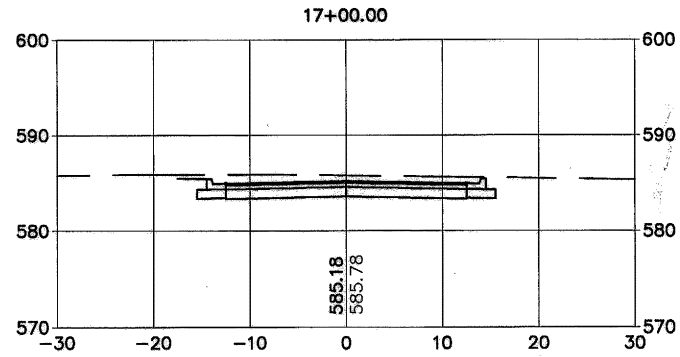
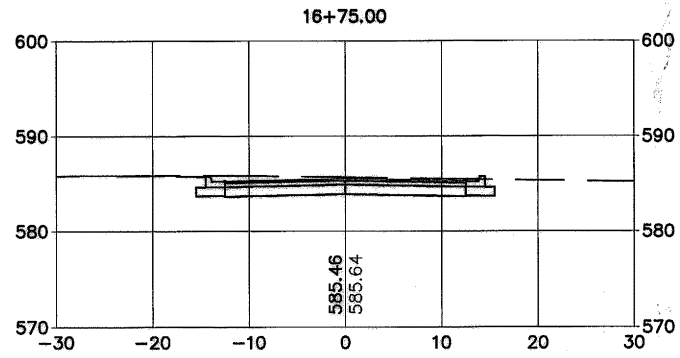
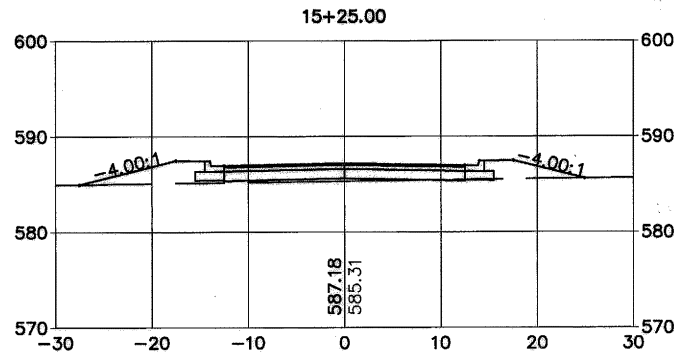
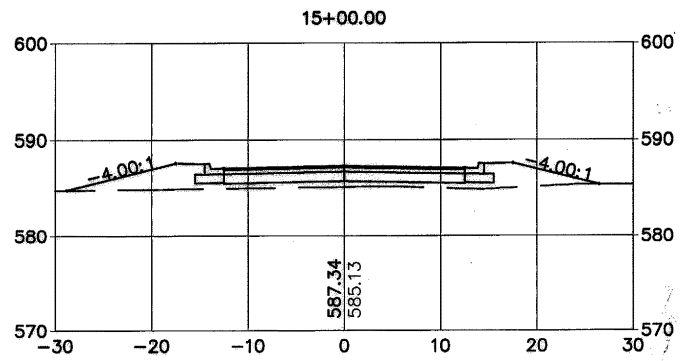
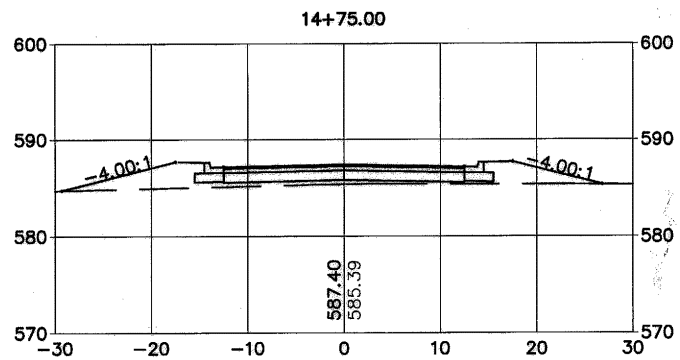


LOWER BIRD CREEK WWTP EXPANSION  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B  
SITE WORK  
PAVING X-SECTIONS ACCESS DRIVE 'A'  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:  
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REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"-10"	DESIGNED	LST	 DIRECTOR DATE: 10/28/2011
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	<i>JM</i> <i>10/11</i>	
			HORIZONTAL:	SECT. MGR.		
				PROJ. MGR.	<i>EBV</i> <i>10/24/11</i>	
			VERTICAL:	RECOMMENDED:	<i>HAS</i> <i>10/24/11</i>	
			FILE:	DRAWING: SC-38		
			ATLAS PAGE NO: ---			SHEET 77 OF 261 SHEETS

Z:\Projects\06TULS03WWTP - Tulsa LBC WWTP DWG\Contract 1B\LBCWWTP Expansion\Production\Grading X-Sections.dwg, 9/26/2011 10:21:35 AM



NOTE:  
1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.

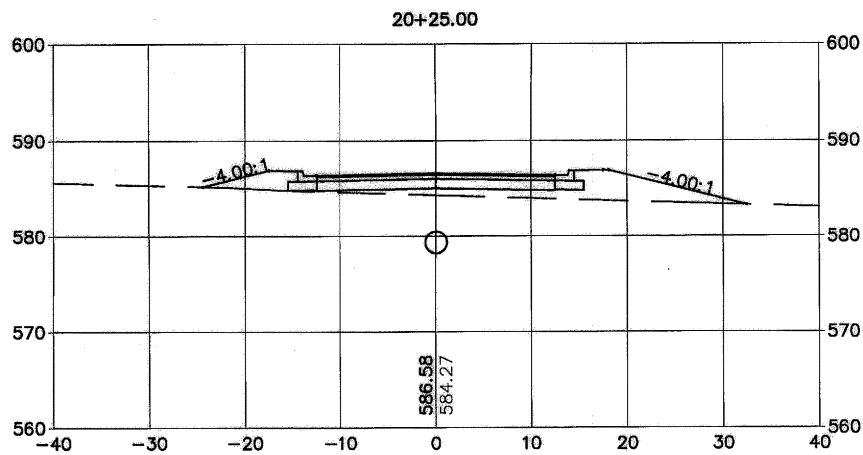
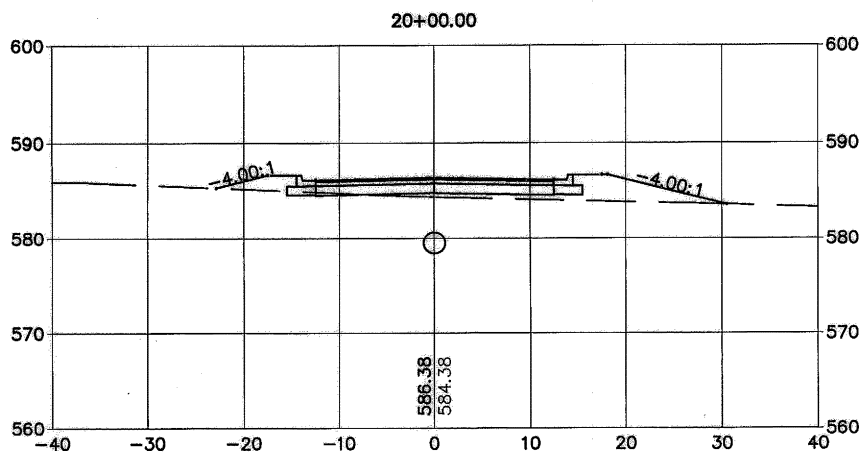
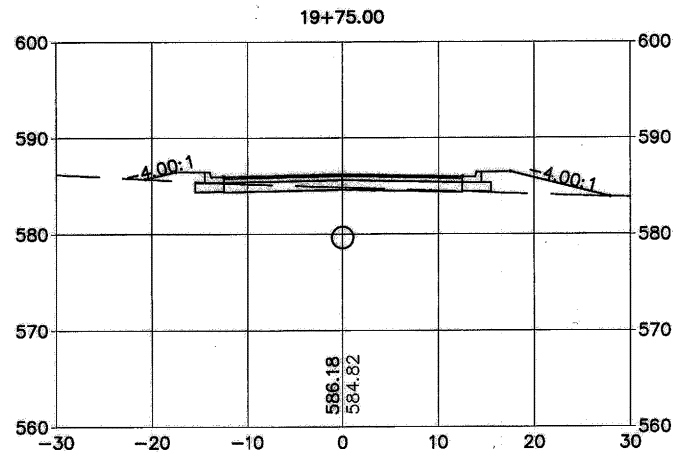
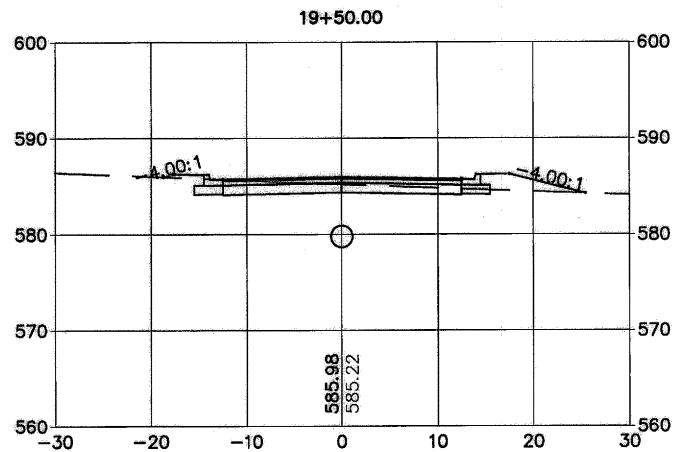
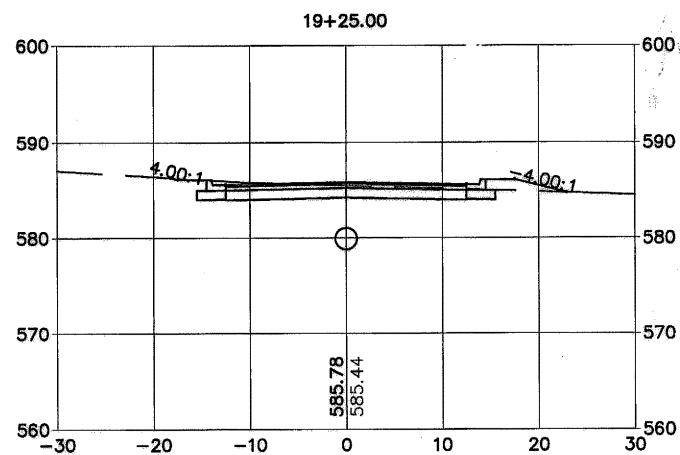
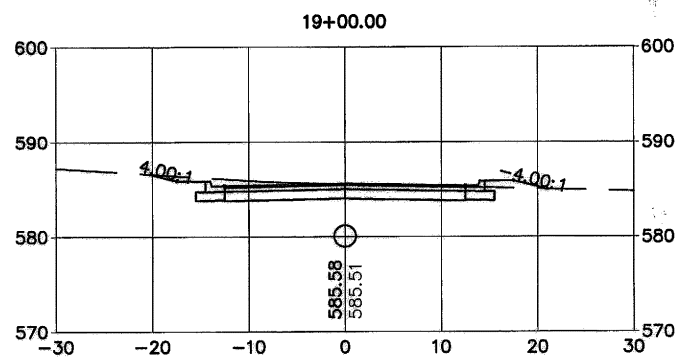
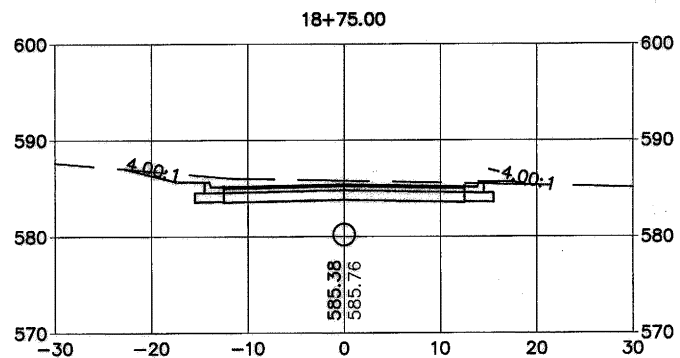
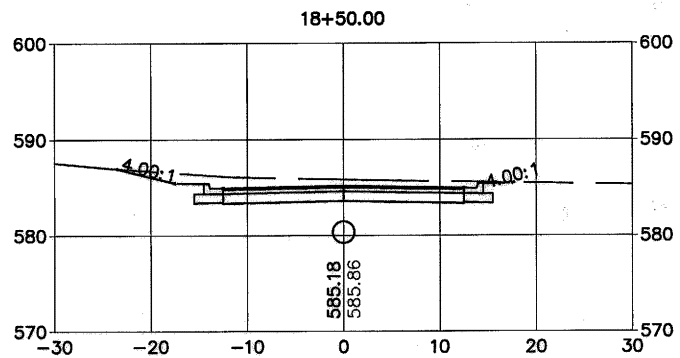
LOWER BIRD CREEK WWTP EXPANSION  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B  
SITE WORK  
CIVIL  
PAVING X-SECTIONS ACCESS DRIVE 'A'  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT



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

REVISION	BY	DATE	PLAN SCALE: 1"=10'	DRAWN	PGM	APPROVED:
				DESIGNED	LST	 DIRECTOR
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	700 wjh	
			HORIZONTAL:	SECT. MGR.	EBV msh	
			VERTICAL:	RECOMMENDED:	AS wjsh	
			FILE:	DRAWING: SC-39	DATE: 10/28/2011	
			ATLAS PAGE NO: ---	SHEET 78 OF 261 SHEETS		

Z:\Projects\06TULSO3\WTFP - Tulsa LBC WWTP\DWG\Contract 1B\LBCWWTP Expansion\Production\Grading X-Sections.dwg, 9/26/2011 10:22:26 AM



NOTE:  
1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.

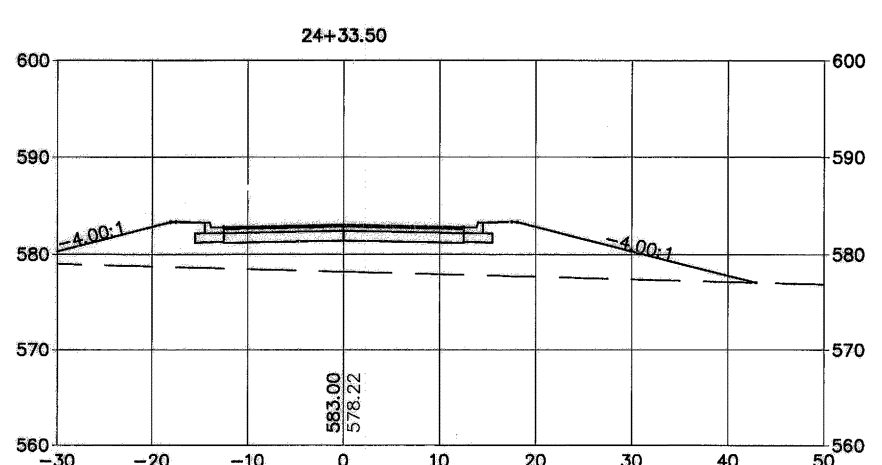
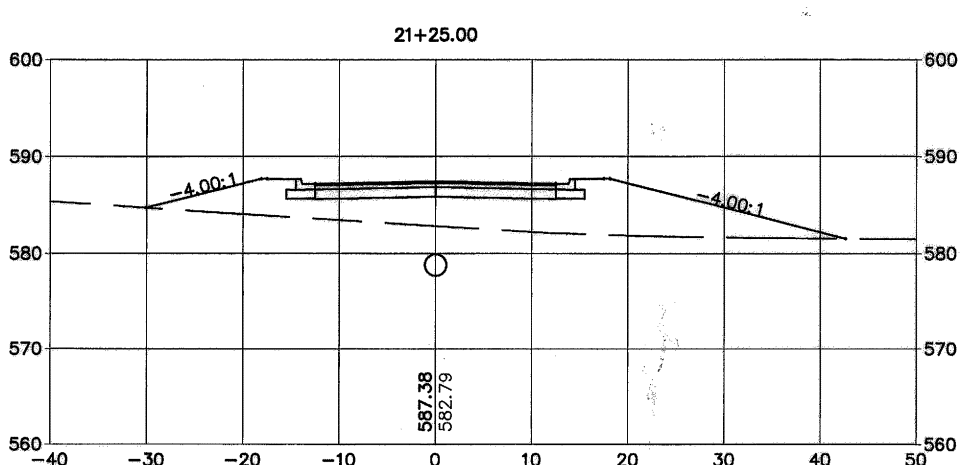
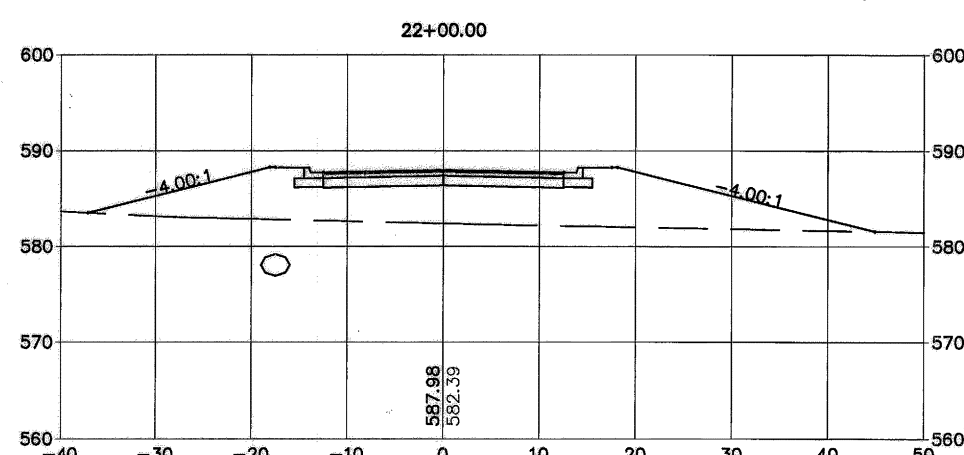
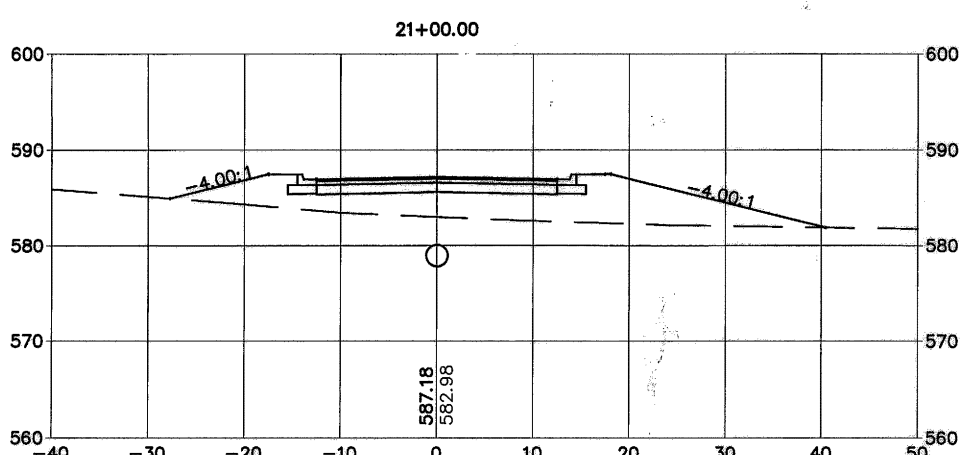
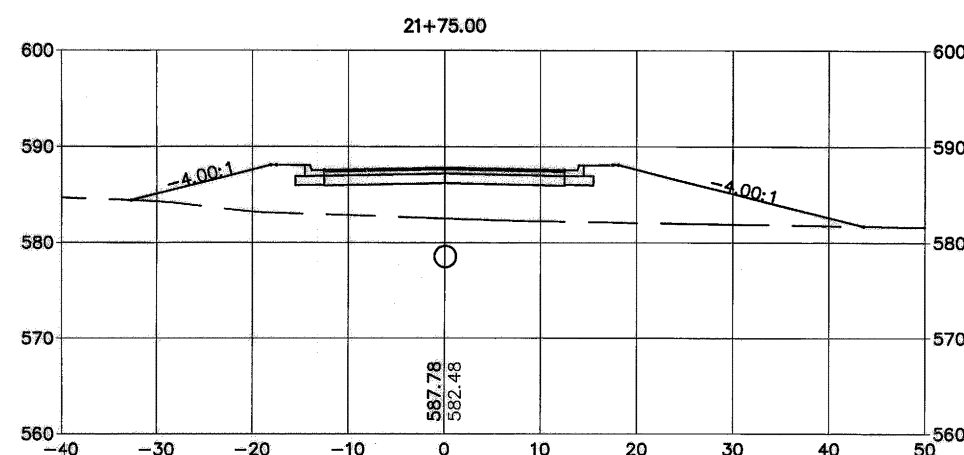
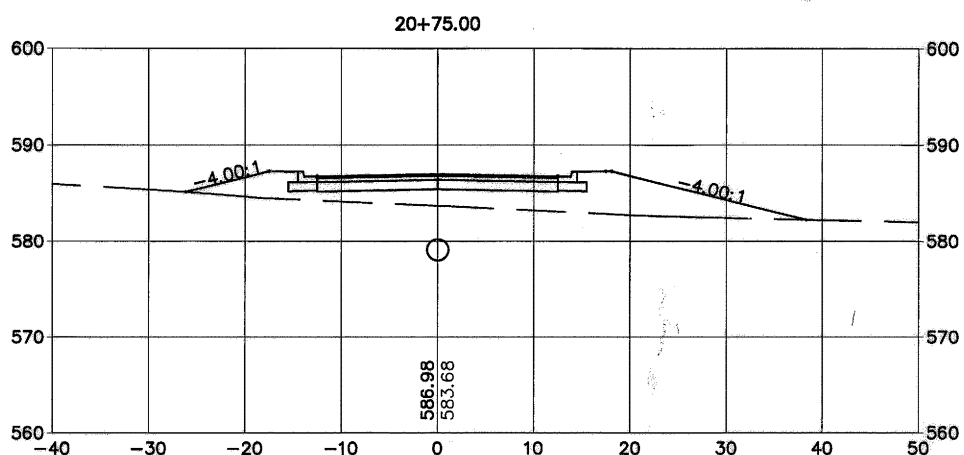
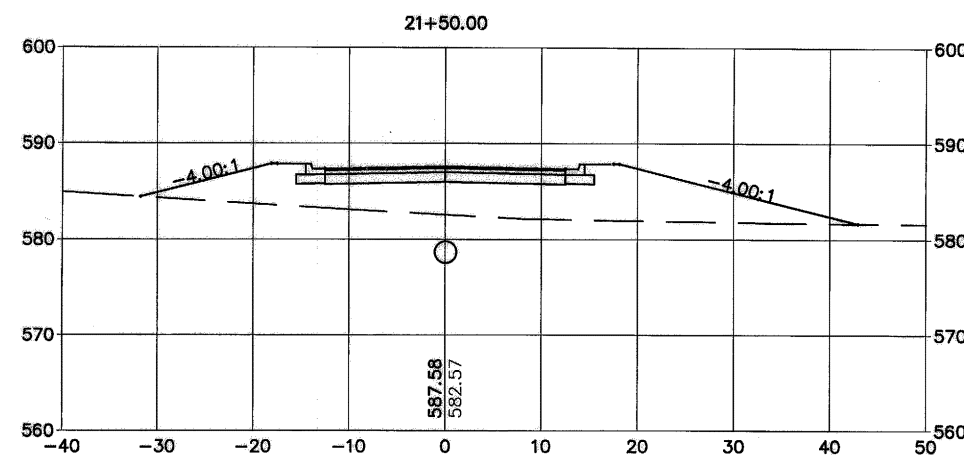
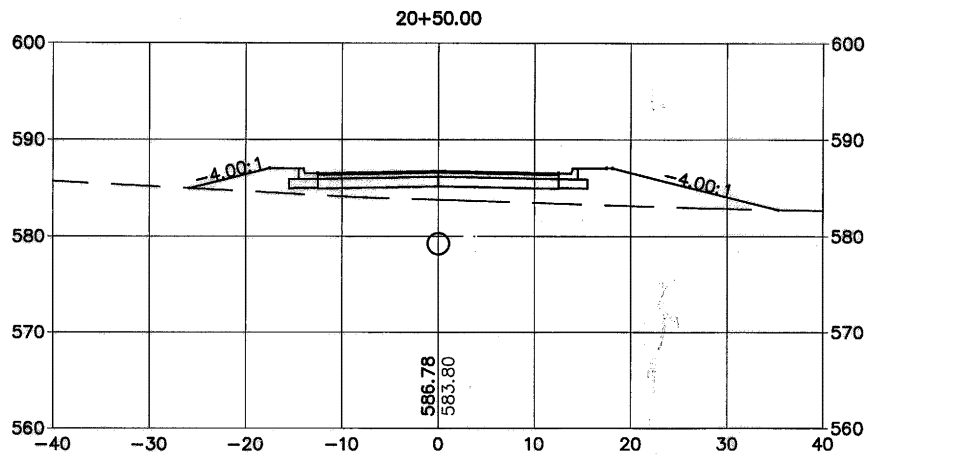


LOWER BIRD CREEK WWTP EXPANSION  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B  
SITE WORK  
CIVIL  
PAVING X-SECTIONS ACCESS DRIVE 'A'  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

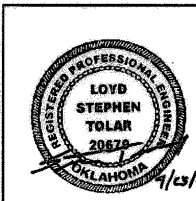
PLANS AND ESTIMATES PREPARED BY:  
BLACK & VEATCH  
Building a world of difference  
Black & Veatch Corporation  
Kansas City, Missouri

REVISION	BY	DATE	PLAN SCALE: 1"=10'	DRAWN	PGM	APPROVED:
				DESIGNED	LST	 DIRECTOR
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	TST/10/11	
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			FILE:	DRAWING: SC-40	DATE: 10/28/2011	
			ATLAS PAGE NO: ---			SHEET 79 OF 261 SHEETS

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NOTE:  
1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.



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

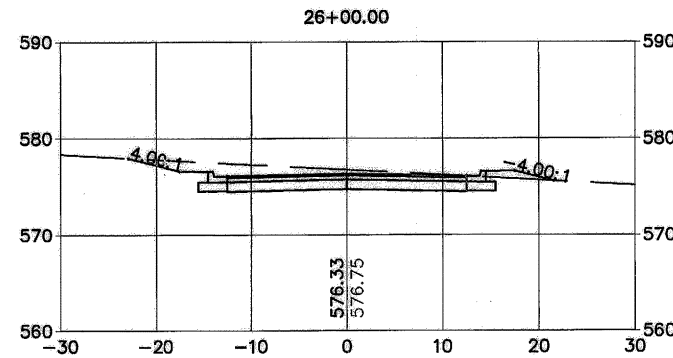
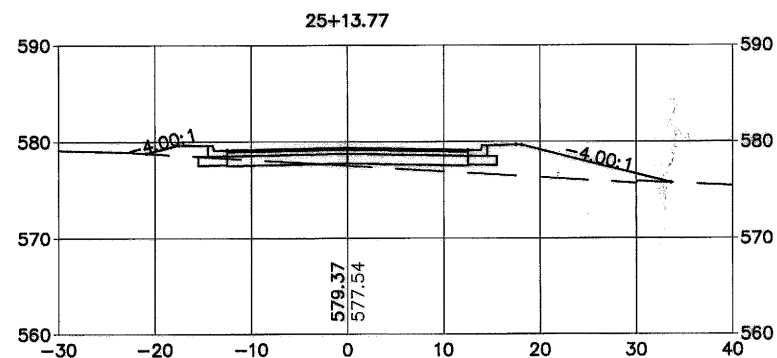
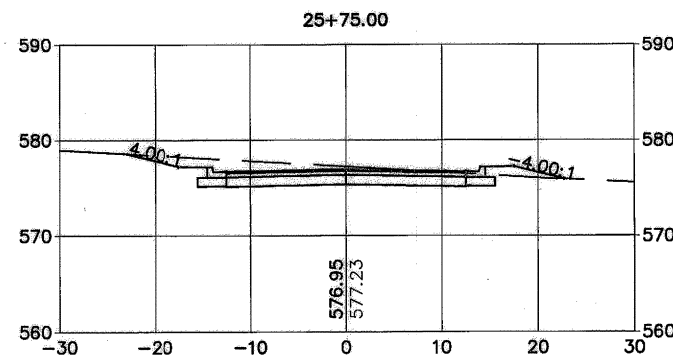
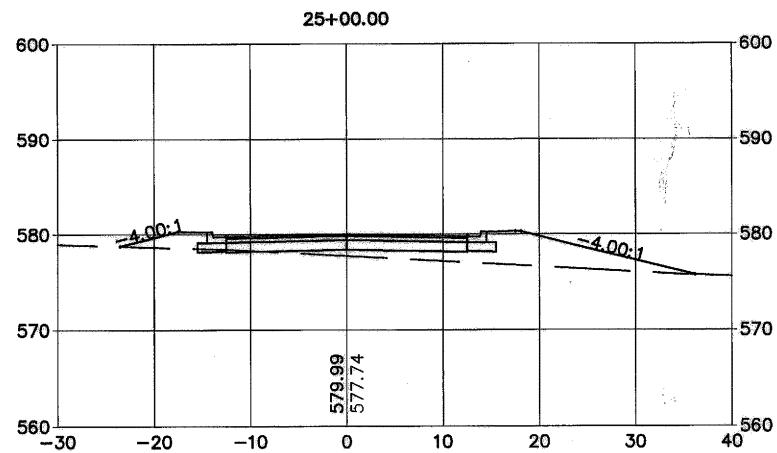
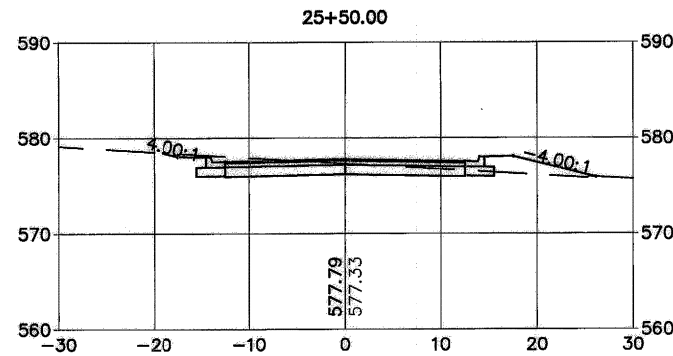
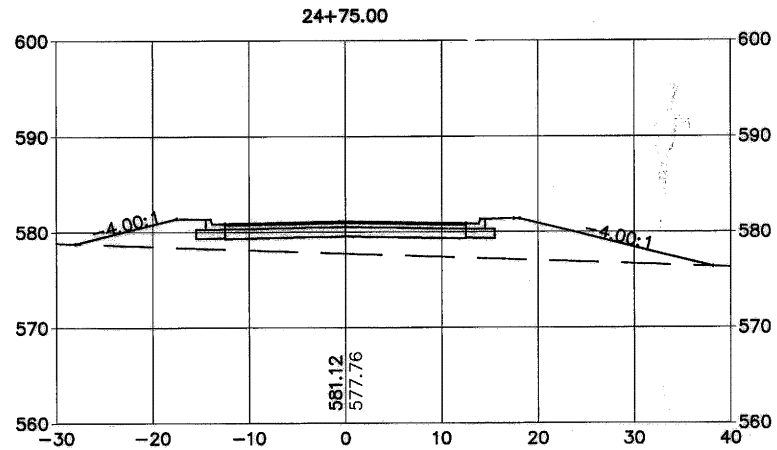
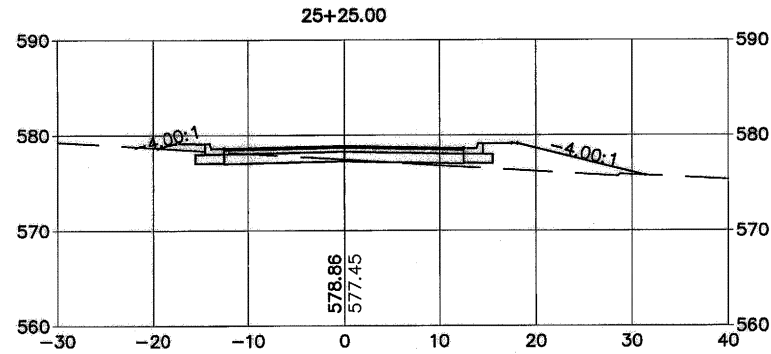
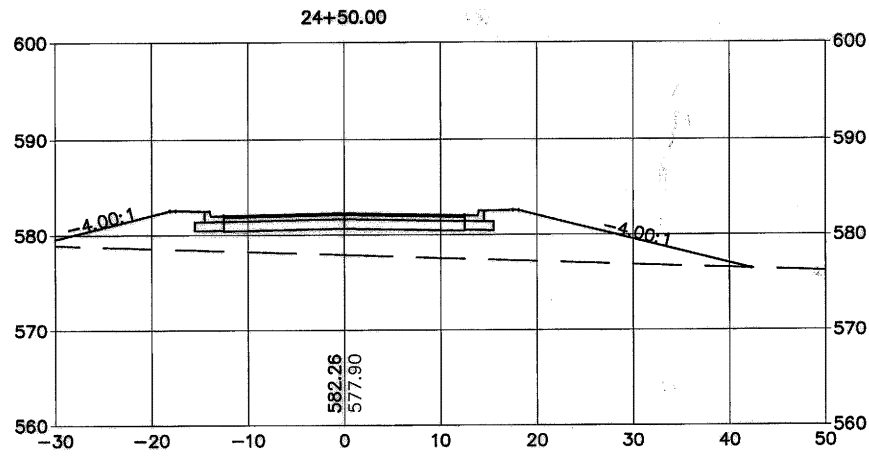
SITE WORK  
CIVIL  
PAVING X-SECTIONS ACCESS DRIVE 'A'  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

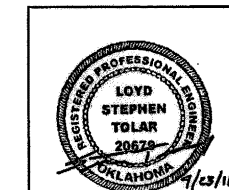
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				SURVEY		
			PROFILE SCALE:	FIELD MGR.	TOS 10/11	
			HORIZONTAL:	SECT. MGR.	EGV 10/11	
			VERTICAL:	PROJ. MGR.	EGV 10/11	
				RECOMMENDED:	LAS 10/11	
			FILE:	DRAWING: SC-41	DATE: 10/28/2011	
			ATLAS PAGE NO:		SHEET 80 OF 261 SHEETS	

9/26 9-28-11 B&V PROJECT NO. 145120





NOTE:  
1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.

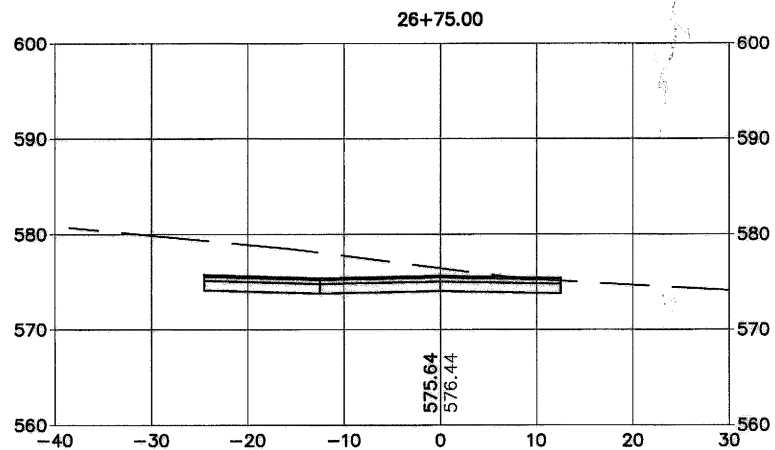
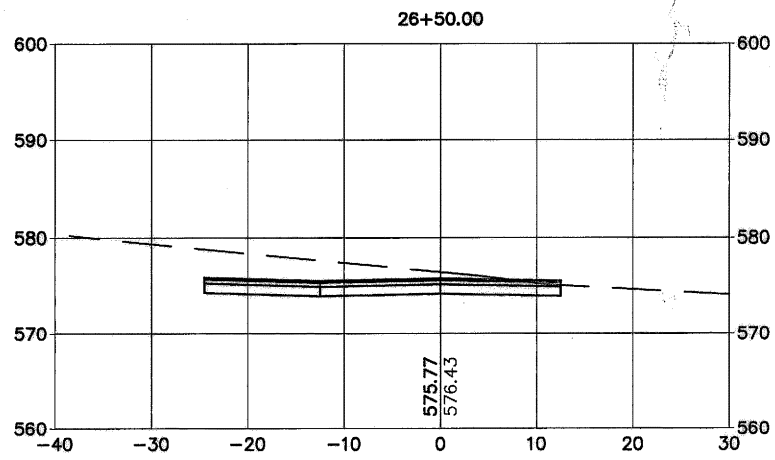
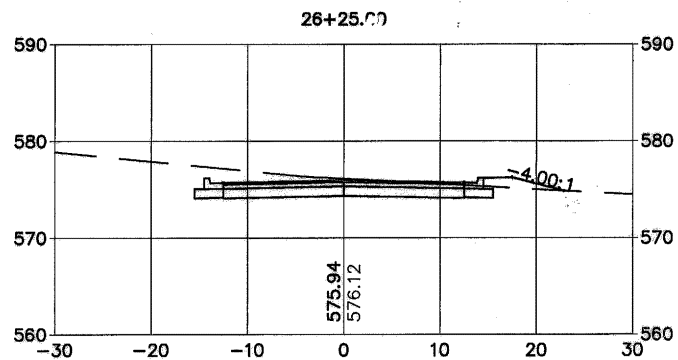


LOWER BIRD CREEK WWTP EXPANSION  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B  
SITE WORK  
CIVIL  
PAVING X-SECTIONS ACCESS DRIVE 'A'  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:  
BLACK & VEATCH  
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REVISION	BY	DATE	PLAN SCALE: 1"=10'	DRAWN	PGM	APPROVED:
				DESIGNED	LST	
				SURVEY		
				PROFILE SCALE:	FIELD MGR. <i>TGS 10/11</i>	
				HORIZONTAL:	SECT. MGR.	
					PROJ. MGR. <i>RBV 10/11</i>	
				VERTICAL:	RECOMMENDED: <i>LST 10/26/11</i>	DIRECTOR <i>[Signature]</i>
				FILE:	DRAWING: SC-42	DATE: 10/28/2011
				ATLAS PAGE NO: ---		SHEET 81 OF 261 SHEETS

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NOTE:  
1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.

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



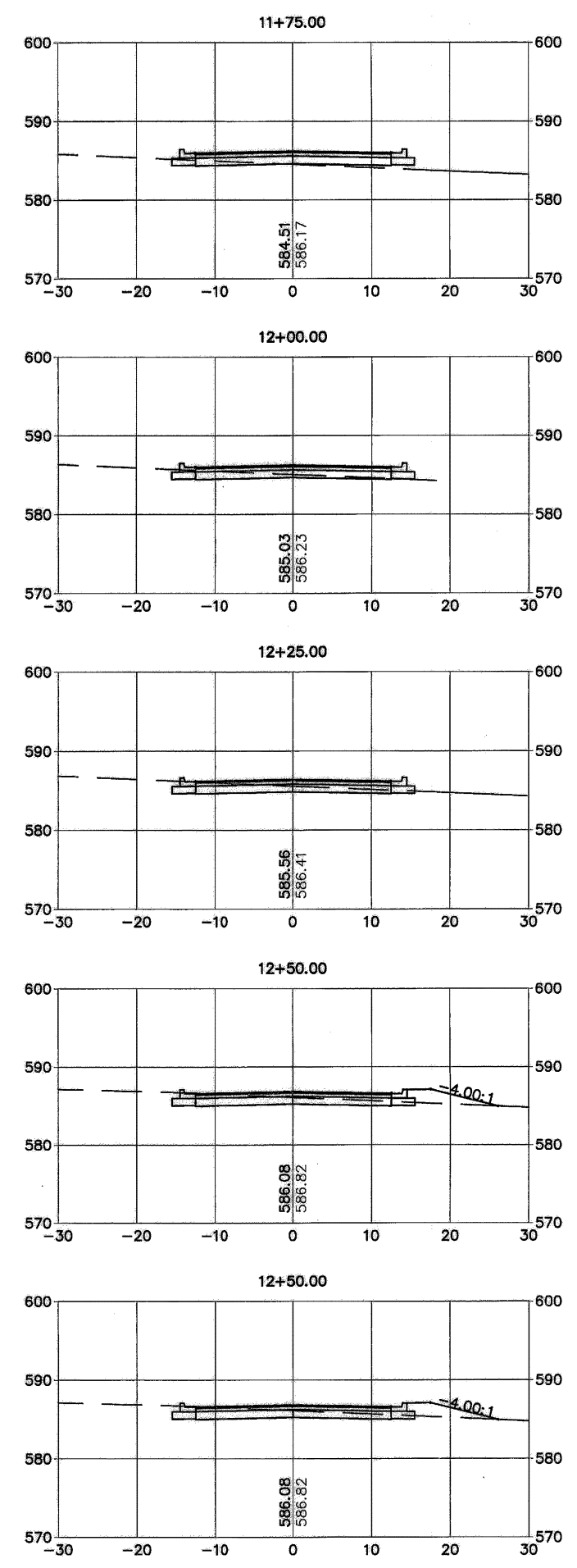
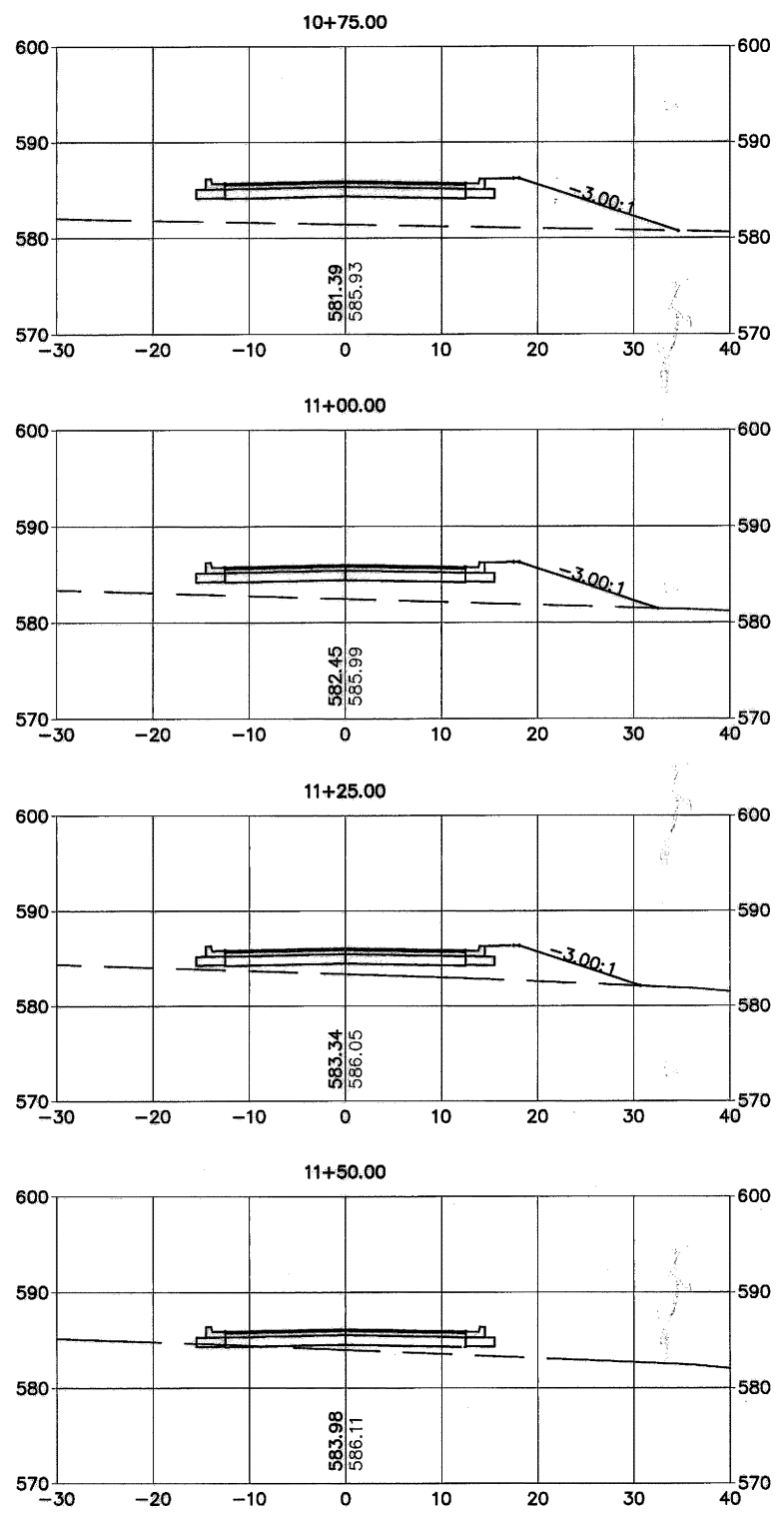
SITE WORK  
CIVIL  
PAVING X-SECTIONS ACCESS DRIVE 'A'  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:



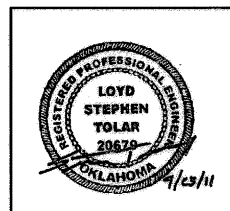
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				PROJ. MGR.	<i>EBV 10/26/11</i>	
			VERTICAL:	RECOMMENDED:	<i>10/26/11</i>	
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			ATLAS PAGE NO: ---		SHEET 82 OF 261 SHEETS	

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NOTE:  
 1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.

LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 CIVIL  
 PAVING X-SECTIONS ACCESS DRIVE 'B'  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT



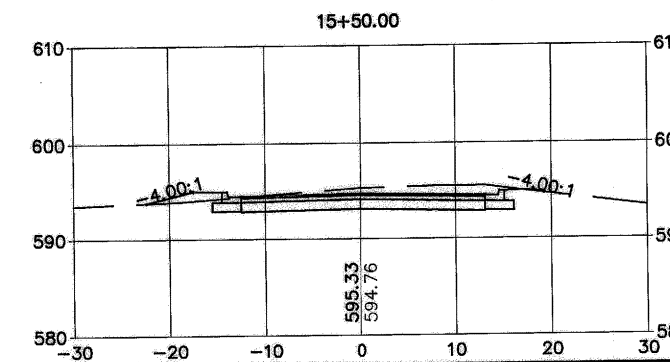
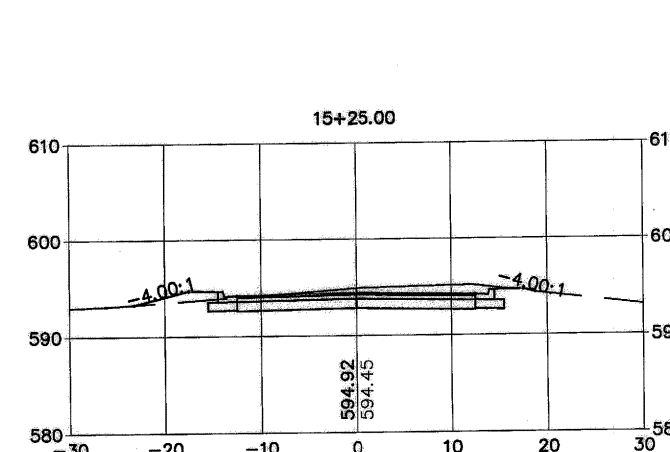
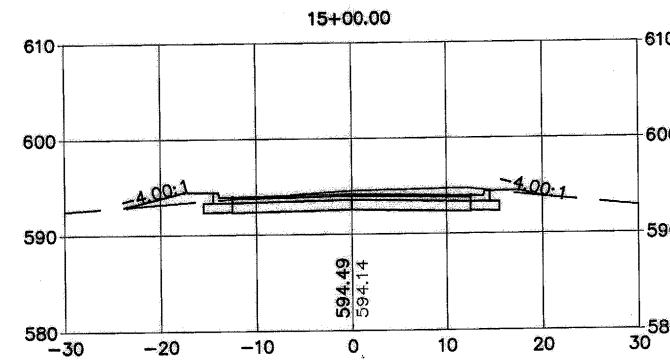
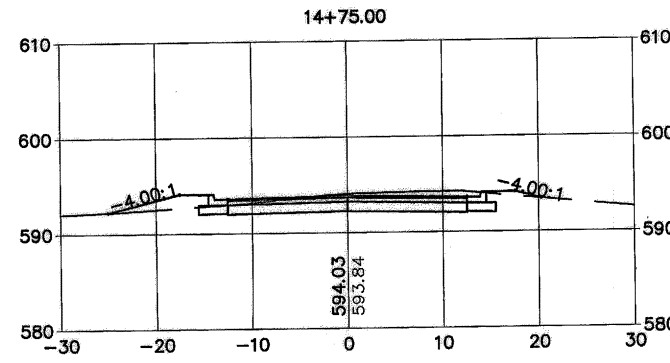
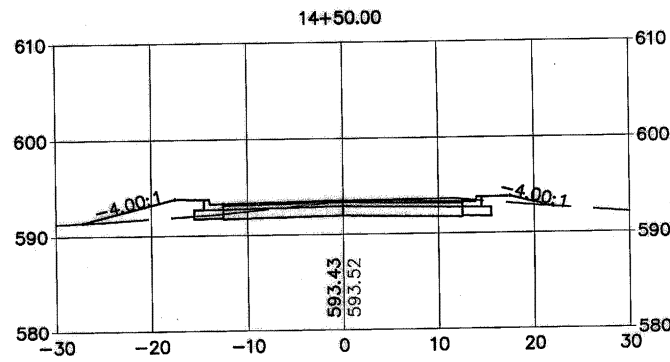
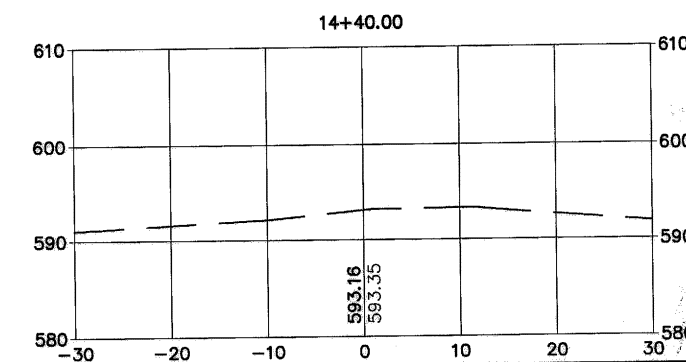
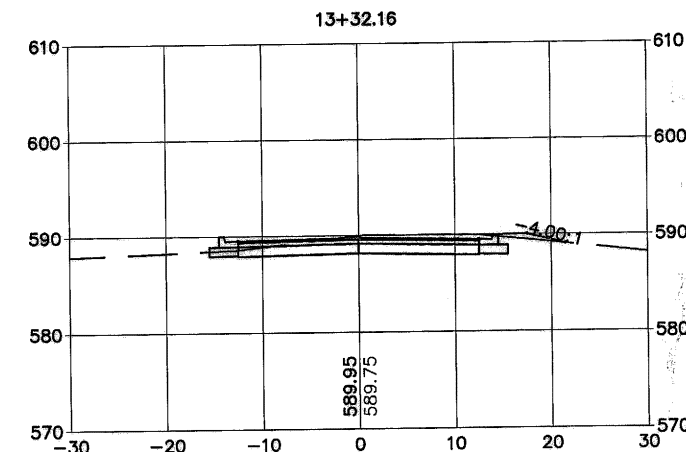
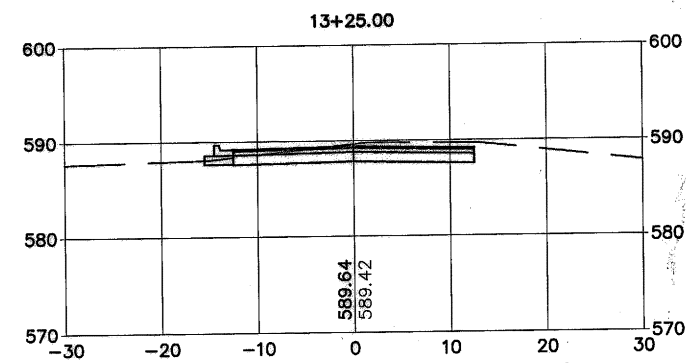
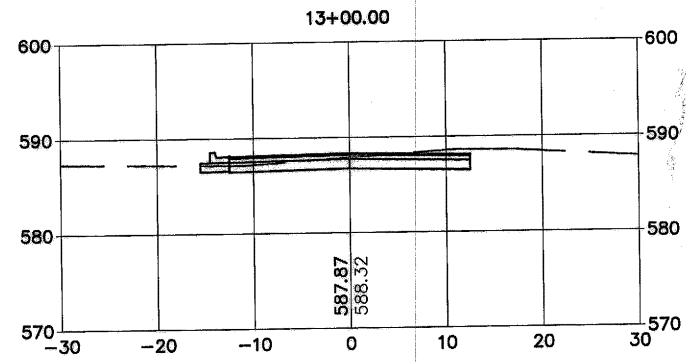
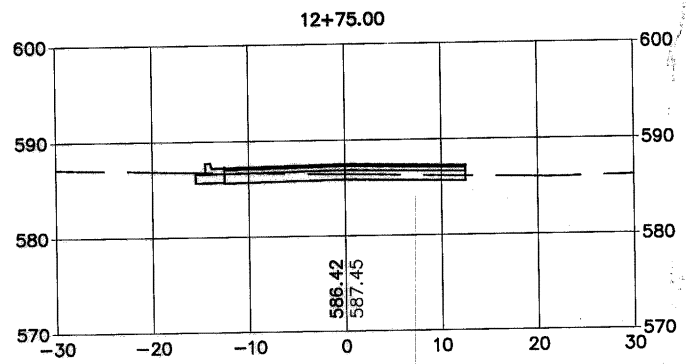
PLANS AND ESTIMATES PREPARED BY:  
**BLACK & VEATCH**  
 Building a world of difference  
 Kansas City, Missouri

**Hickman, Gustin and Katten**  
 Consulting Engineers  
 Mesquite, Broken Arrow

**ORIGATE**  
 Engineering Services

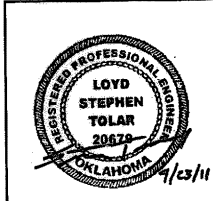
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			HORIZONTAL:	SECT. MGR.		
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			ATLAS PAGE NO: ---			

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NOTE:  
1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.

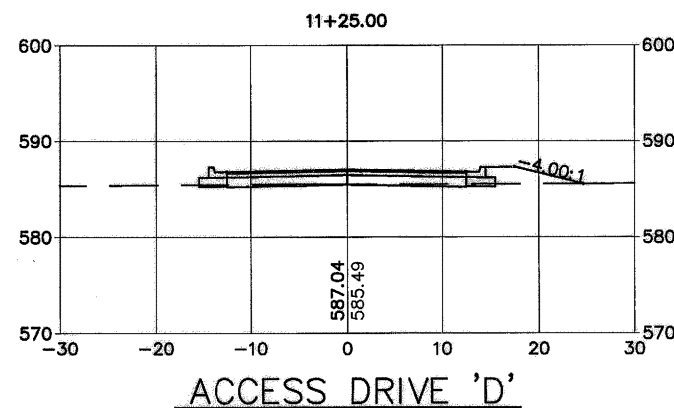
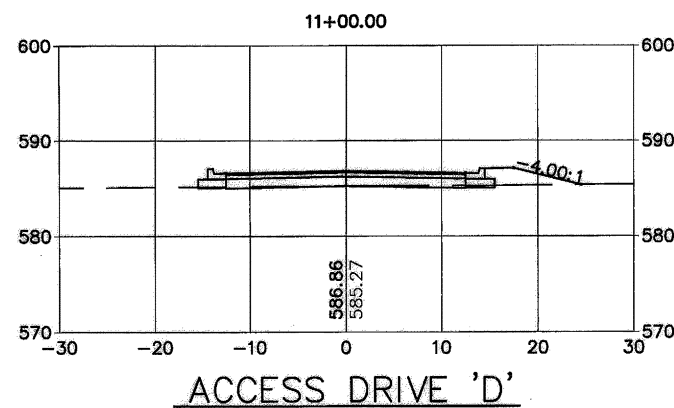
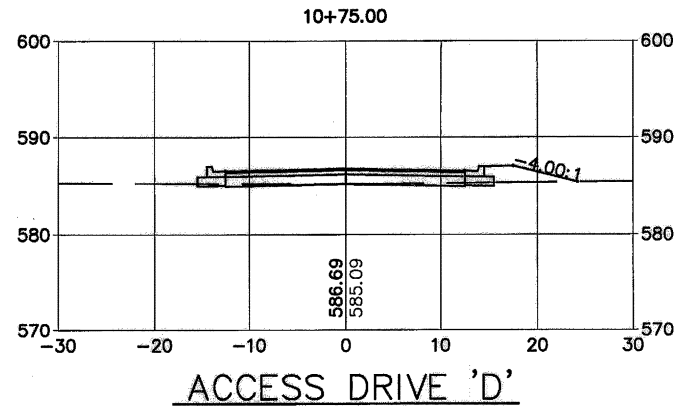
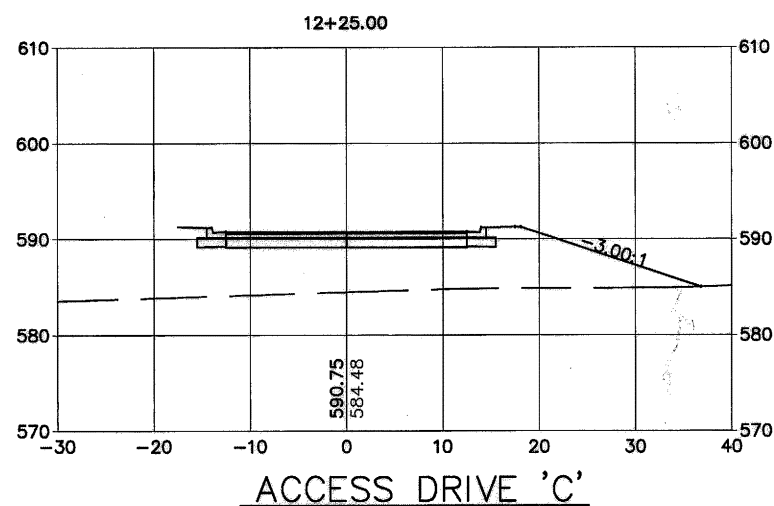
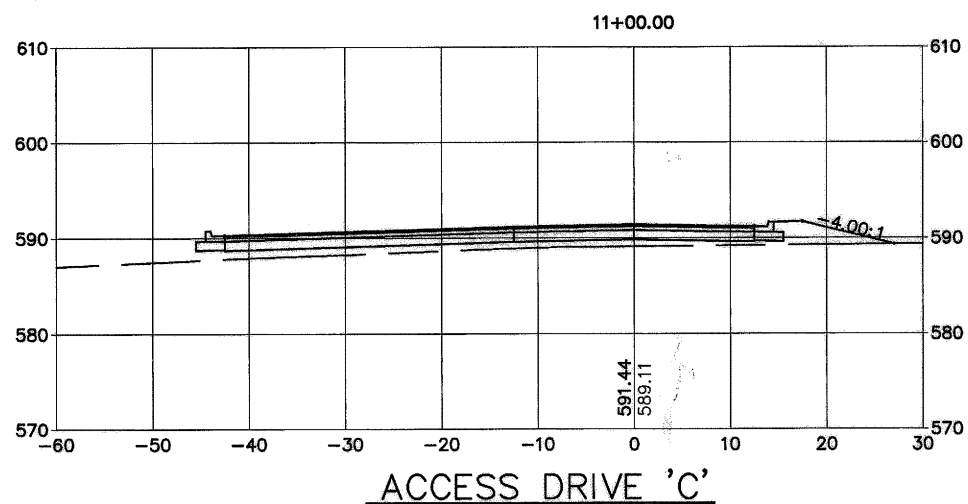
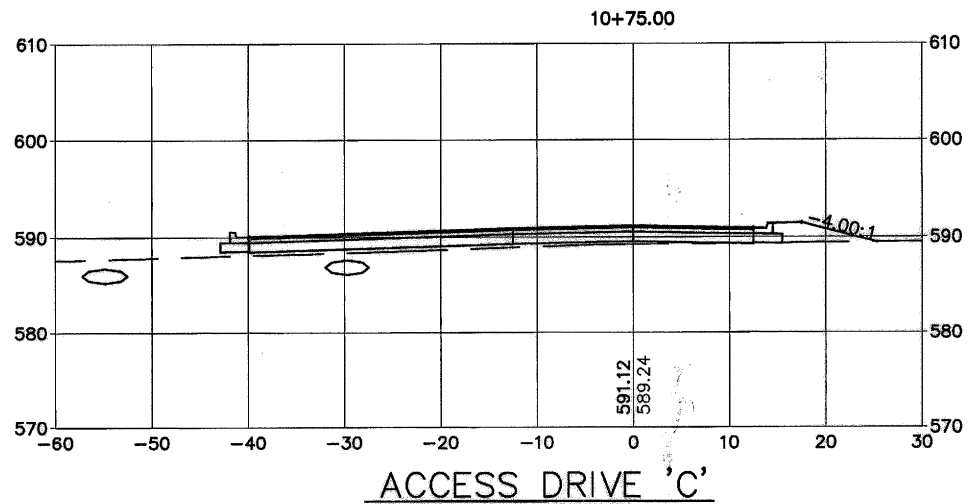
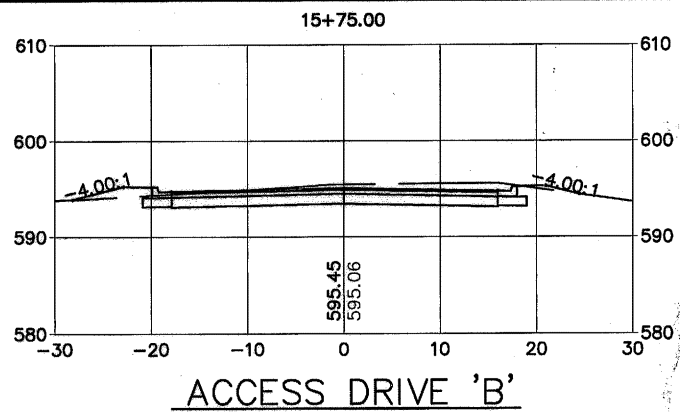
LOWER BIRD CREEK WWTP EXPANSION  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B  
SITE WORK  
CIVIL  
PAVING X-SECTIONS ACCESS DRIVE 'B'  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT



PLANS AND ESTIMATES PREPARED BY:  
BLACK & VEATCH  
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Black & Veatch Corporation  
Kansas City, Missouri

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=10'	DESIGNED	LST	 DIRECTOR
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	TAS (10/11)	
			HORIZONTAL:	SECT. MGR.		
			VERTICAL:	PROJ. MGR.	ZBV (10/11)	
				RECOMMENDED:	TAS (10/11)	
			FILE:	DRAWING: SC-45		DATE: 10/28/2011
			ATLAS PAGE NO.:			SHEET 84 OF 281 SHEETS





NOTE:  
1. PROCESS PIPING NOT SHOWN IN STREET X-SECTIONS FOR CLARITY.



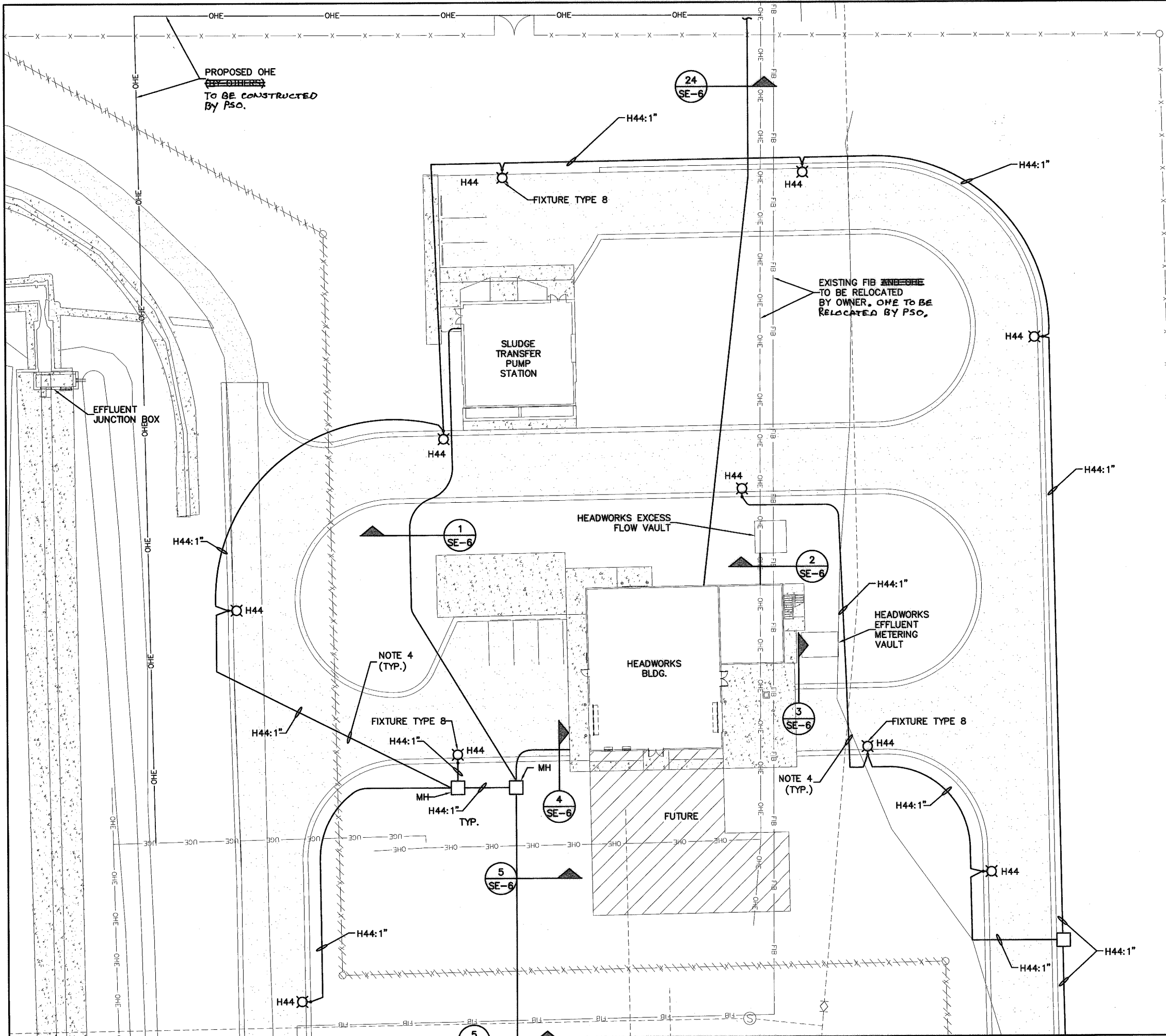
LOWER BIRD CREEK WWTP EXPANSION  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B

SITE WORK  
CIVIL  
PAVING X-SECTIONS ACCESS DRIVES  
CITY OF TULSA, OKLAHOMA  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:  
BLACK & VEATCH  
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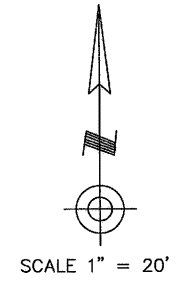
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PROPOSED OHE  
(BY OTHERS)  
TO BE CONSTRUCTED  
BY PSO.

EXISTING FIB AND OHE  
TO BE RELOCATED  
BY OWNER. OHE TO BE  
RELOCATED BY PSO.



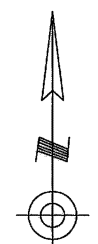
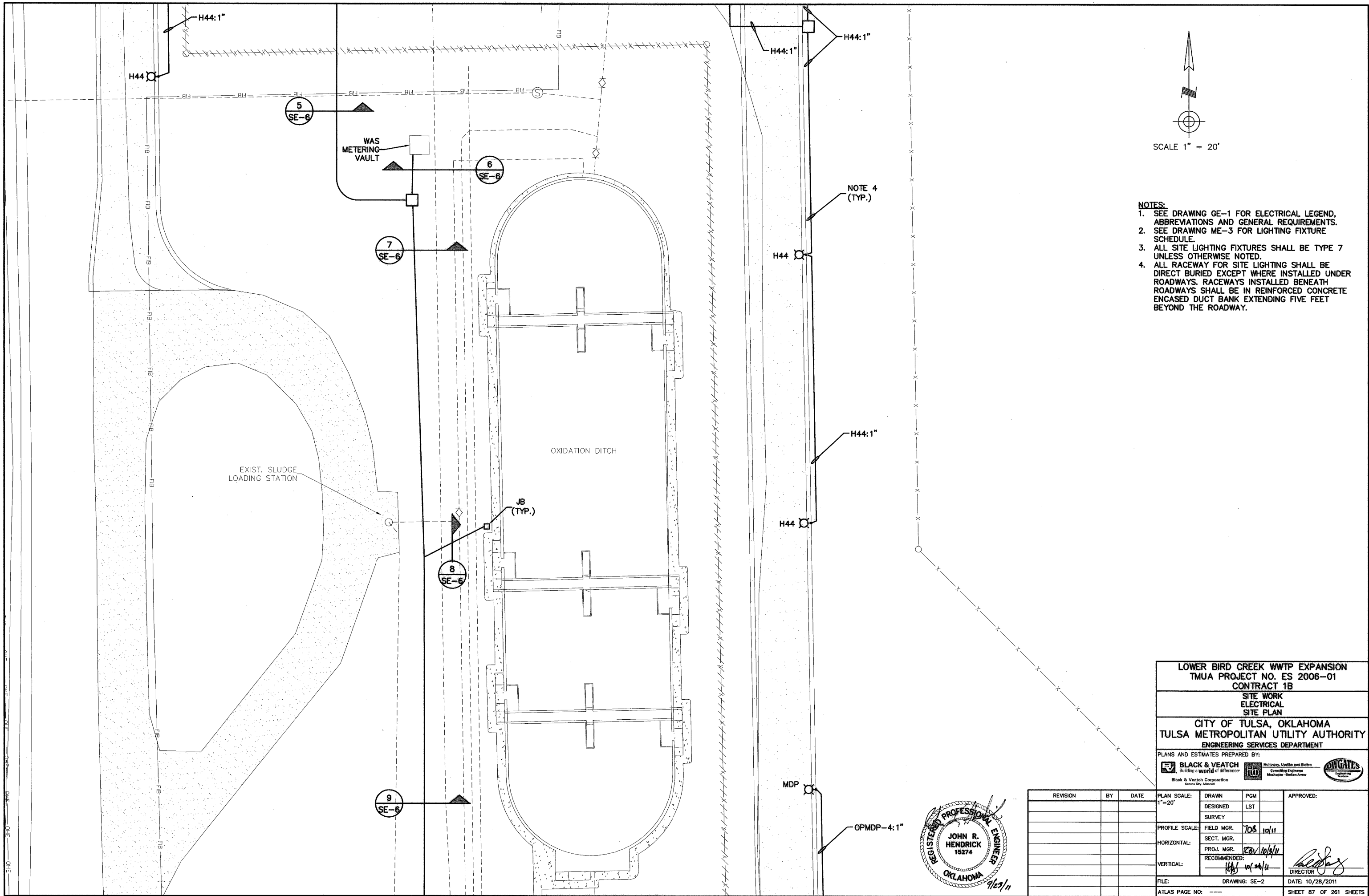
- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS.
  - SEE DRAWING ME-3 FOR LIGHTING FIXTURE SCHEDULE.
  - ALL SITE LIGHTING FIXTURES SHALL BE TYPE 7 UNLESS OTHERWISE NOTED.
  - ALL RACEWAY FOR SITE LIGHTING SHALL BE DIRECT BURIED EXCEPT WHERE INSTALLED UNDER ROADWAYS. RACEWAYS INSTALLED BENEATH ROADWAYS SHALL BE IN REINFORCED CONCRETE ENCASED DUCT BANK EXTENDING FIVE FEET BEYOND THE ROADWAY.
  - FIBER OPTIC DUCT BANK CONTINUES 800 FEET NORTH TO EXISTING FILTER POLL BOX AT WHICH POINT NEW FILTER WILL BE SPLICED WITH EXISTING FIBER TO THE PORT SOUTH LIFT STATION. CONTRACTOR SHALL LOCATE EXISTING PULL BOX AND ROUTE DUCT BANK TO IT AS REQUIRED.



LOWER BIRD CREEK WWTP EXPANSION  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B  
SITE WORK  
ELECTRICAL  
SITE 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, Updegraff and Dallen  
Consulting Engineers  
Wastewater - Urban Storm  
OKGATES

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=20'	DESIGNED	LST	
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	TDS 10/11	
			HORIZONTAL:	SECT. MGR.		
			VERTICAL:	PROJ. MGR.	ZBV 10/11	
				RECOMMENDED:		
			FILE:	DRAWING: SE-1		DIRECTOR
			ATLAS PAGE NO.:			DATE: 10/28/2011



SCALE 1" = 20'

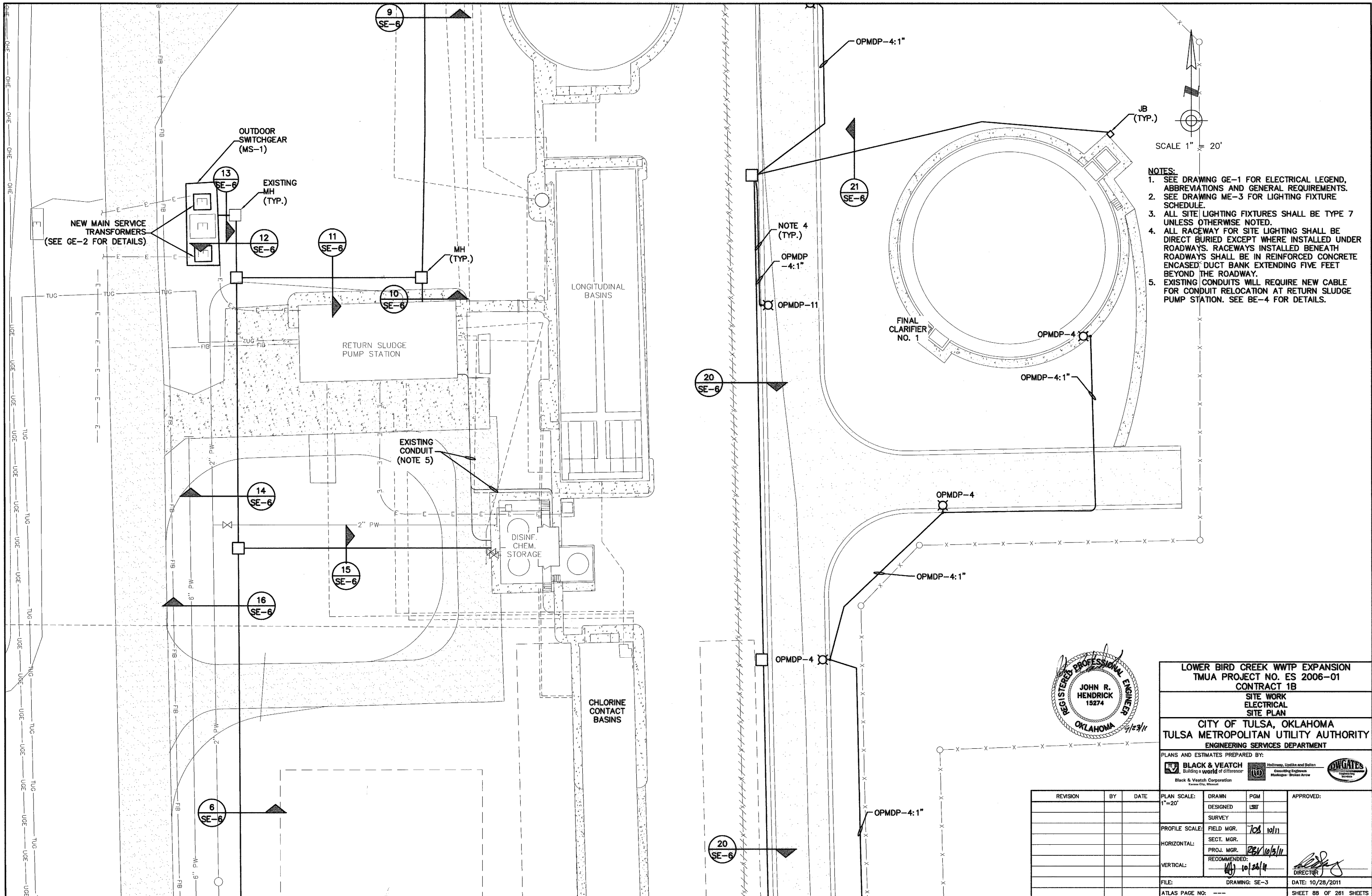
- NOTES:**
1. SEE DRAWING GE-1 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS.
  2. SEE DRAWING ME-3 FOR LIGHTING FIXTURE SCHEDULE.
  3. ALL SITE LIGHTING FIXTURES SHALL BE TYPE 7 UNLESS OTHERWISE NOTED.
  4. ALL RACEWAY FOR SITE LIGHTING SHALL BE DIRECT BURIED EXCEPT WHERE INSTALLED UNDER ROADWAYS. RACEWAYS INSTALLED BENEATH ROADWAYS SHALL BE IN REINFORCED CONCRETE ENCASED DUCT BANK EXTENDING FIVE FEET BEYOND THE ROADWAY.

LOWER BIRD CREEK WWT EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 ELECTRICAL  
 SITE PLAN  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

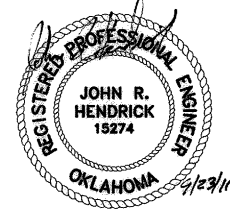
PLANS AND ESTIMATES PREPARED BY:  
**BLACK & VEATCH**   
 Building a world of difference  
 Consulting Engineers  
 Multiple - Broken Arrow  
 Black & Veatch Corporation  
 Kansas City, Missouri

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=20'	DESIGNED	LST	 DIRECTOR DATE: 10/28/2011 SHEET 87 OF 261 SHEETS
				SURVEY		
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			HORIZONTAL:	SECT. MGR.	EBV 10/11	
			VERTICAL:	PROJ. MGR.	EBV 10/11	
			FILE:	RECOMMENDED:	EBV 10/11	
			DRAWING: SE-2			
			ATLAS PAGE NO: ---			





- NOTES:**
1. SEE DRAWING GE-1 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS.
  2. SEE DRAWING ME-3 FOR LIGHTING FIXTURE SCHEDULE.
  3. ALL SITE LIGHTING FIXTURES SHALL BE TYPE 7 UNLESS OTHERWISE NOTED.
  4. ALL RACEWAY FOR SITE LIGHTING SHALL BE DIRECT BURIED EXCEPT WHERE INSTALLED UNDER ROADWAYS. RACEWAYS INSTALLED BENEATH ROADWAYS SHALL BE IN REINFORCED CONCRETE ENCASED DUCT BANK EXTENDING FIVE FEET BEYOND THE ROADWAY.
  5. EXISTING CONDUITS WILL REQUIRE NEW CABLE FOR CONDUIT RELOCATION AT RETURN SLUDGE PUMP STATION. SEE BE-4 FOR DETAILS.

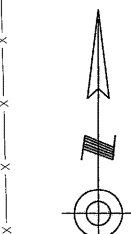
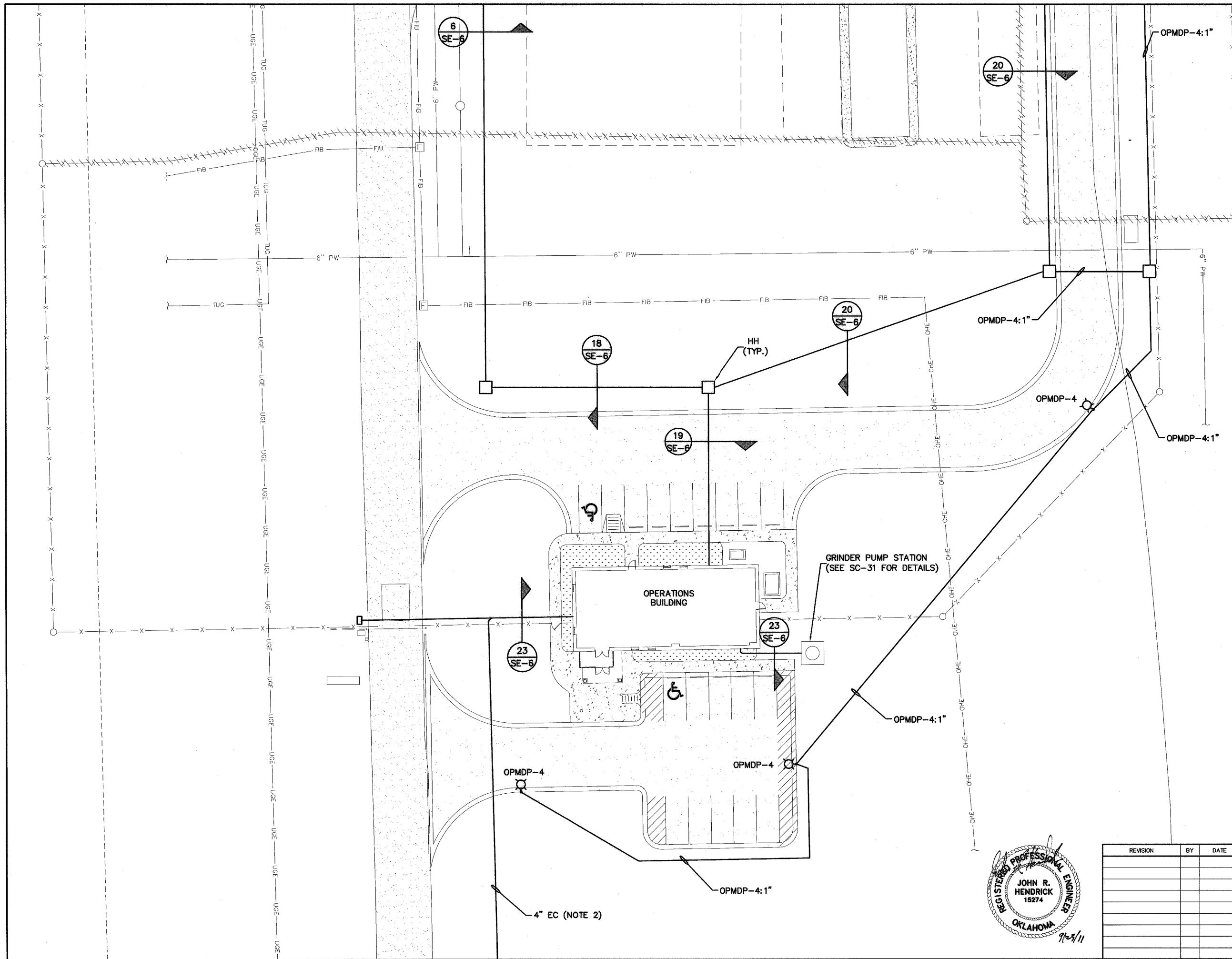


LOWER BIRD CREEK WWT EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 ELECTRICAL  
 SITE PLAN  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

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

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=20'	DESIGNED	LSF	
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	JCS 10/11	
			HORIZONTAL:	SECT. MGR.		
			VERTICAL:	PROJ. MGR.	BSV 10/2/11	
				RECOMMENDED:	10/24/11	
			FILE:	DRAWING: SE-3		DATE: 10/28/2011
			ATLAS PAGE NO. ---			SHEET 88 OF 261 SHEETS





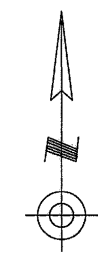
- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS.
  - SEE DRAWING ME-3 FOR LIGHTING FIXTURE SCHEDULE.
  - ALL SITE LIGHTING FIXTURES SHALL BE TYPE 7 UNLESS OTHERWISE NOTED.
  - ALL RACEWAY FOR SITE LIGHTING SHALL BE DIRECT BURIED EXCEPT WHERE INSTALLED UNDER ROADWAYS. RACEWAYS INSTALLED BENEATH ROADWAYS SHALL BE IN REINFORCED CONCRETE ENCASED DUCT BANK EXTENDING FIVE FEET BEYOND THE ROADWAY.
  - CONTRACTOR SHALL PROVIDE A DIRECT BURIED 4" CONDUIT WITH PULL STRING FROM TELEPHONE POLE TO TERMINATION BOARD IN OPERATORS BUILDING.
  - CONTRACTOR SHALL INSTALL A 4" EMPTY CONDUIT WITH PULL STRING DIRECT BURIED AT LEAST 36" BELOW GRADE FOR INCOMING PHONE SERVICE.

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

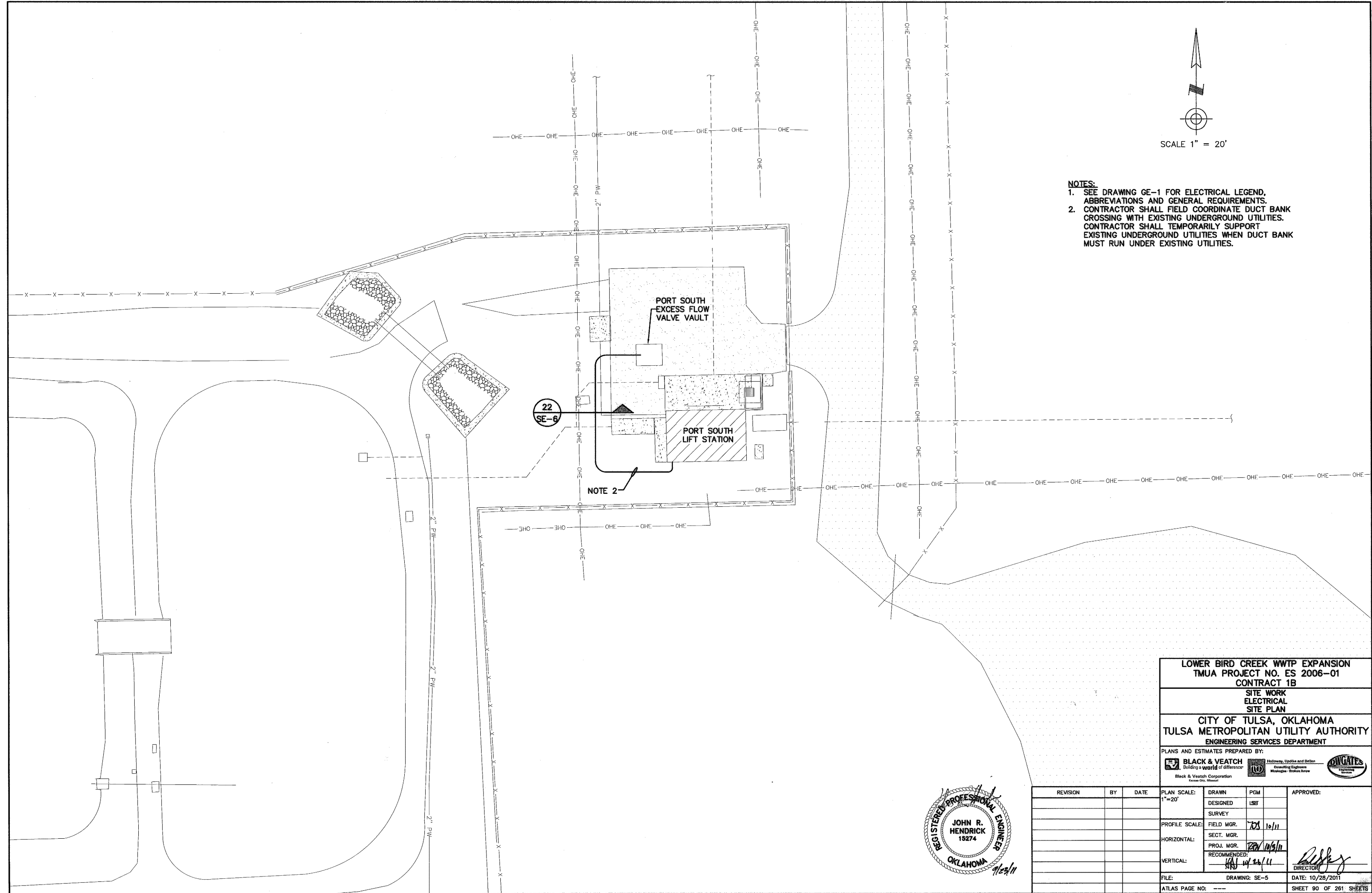


REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=20'	DESIGNED	LSB	 DIRECTOR DATE: 10/28/2011 SHEET 89 OF 261 SHEETS
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			VERTICAL:	SECT. MGR.		
				PROJ. MGR.	EBV 10/11	
				RECOMMENDED:	10/22/11	
			FILE:	DRAWING: SE-4		
			ATLAS PAGE NO. ---			



SCALE 1" = 20'

- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS.
  - CONTRACTOR SHALL FIELD COORDINATE DUCT BANK CROSSING WITH EXISTING UNDERGROUND UTILITIES. CONTRACTOR SHALL TEMPORARILY SUPPORT EXISTING UNDERGROUND UTILITIES WHEN DUCT BANK MUST RUN UNDER EXISTING UTILITIES.

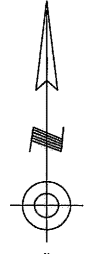
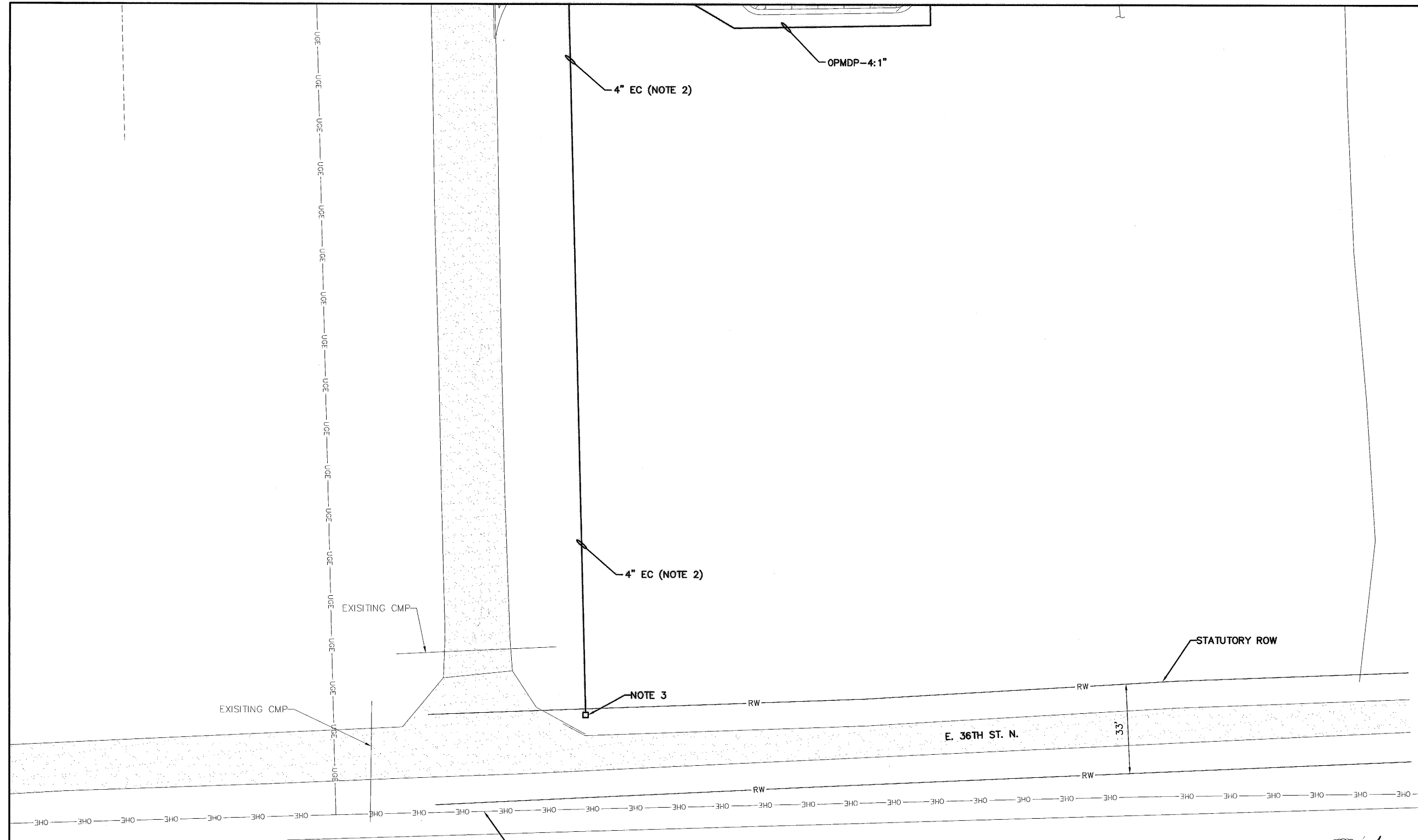


LOWER BIRD CREEK WWTP EXPANSION  
 TMUA PROJECT NO. ES 2006-01  
 CONTRACT 1B  
 SITE WORK  
 ELECTRICAL  
 SITE PLAN  
 CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:  
**BLACK & VEATCH** Consulting Engineers  
 Building a world of difference  
 Black & Veatch Corporation Kansas City, Missouri  
 Holloway, Upshaw and Berlin Consulting Engineers  
 Muskogee - Broken Arrow  
**OWGATES** Engineering Services



REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
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			DESIGNED	LSF		
			SURVEY			
			PROFILE SCALE:	FIELD MGR.	JS 10/11	
			HORIZONTAL:	SECT. MGR.		
				PROJ. MGR.	BN 10/11	
			VERTICAL:	RECOMMENDED:	NS 10/23/11	
			FILE:	DRAWING: SE-5		DIRECTOR
			ATLAS PAGE NO. ---			DATE: 10/28/2011
						SHEET 90 OF 261 SHEETS



SCALE 1" = 20'

- NOTES:**
1. SEE DRAWING GE-1 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS.
  2. CONTRACTOR SHALL INSTALL A 4" EMPTY CONDUIT WITH PULL STRING DIRECT BURIED AT LEAST 36" BELOW GRADE FOR INCOMING PHONE SERVICE.
  3. STUB UP CONDUIT FOR PHONE COMPANY.

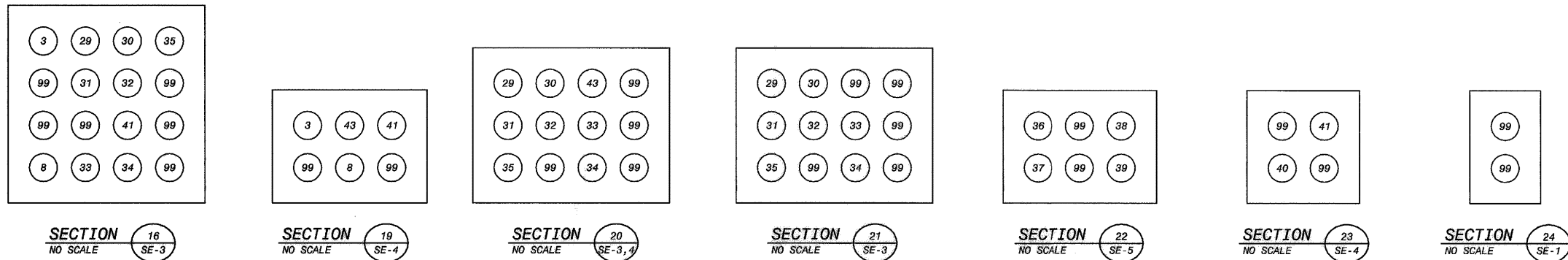
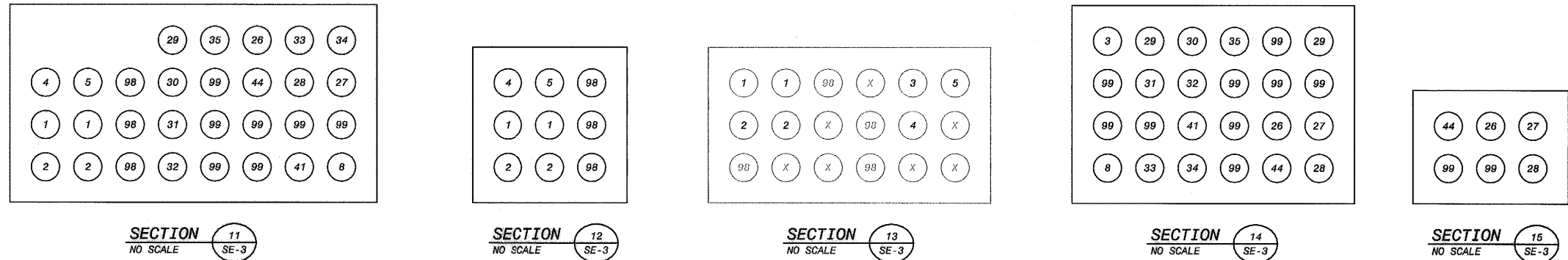
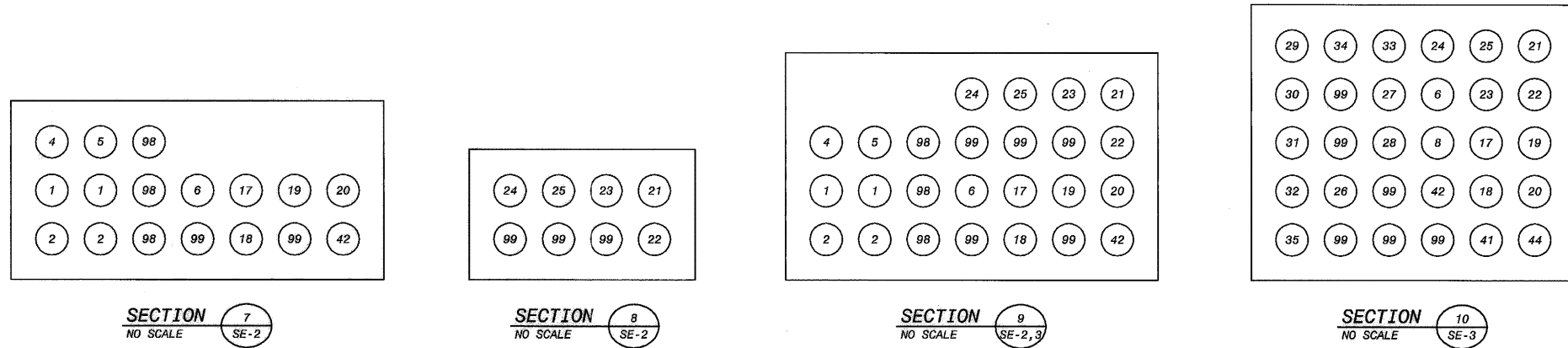
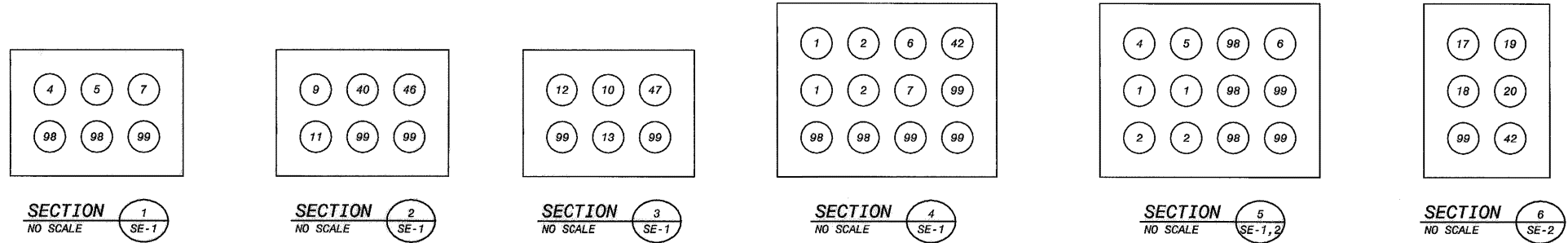


**LOWER BIRD CREEK WWTP EXPANSION**  
**TMUA PROJECT NO. ES 2006-01**  
**CONTRACT 1B**  
**SITE WORK**  
**ELECTRICAL**  
**SITE PLAN**  
**CITY OF TULSA, OKLAHOMA**  
**TULSA METROPOLITAN UTILITY AUTHORITY**  
**ENGINEERING SERVICES DEPARTMENT**

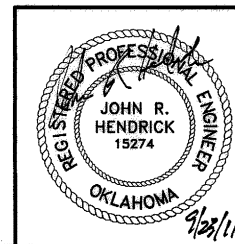
PLANS AND ESTIMATES PREPARED BY:  
**BLACK & VEATCH**  
Building a world of difference  
Black & Veatch Corporation  
Kansas City, Missouri

REVISION	BY	DATE	PLAN SCALE:	DRAWN	PGM	APPROVED:
			1"=20'	DESIGNED	LSF	 DIRECTOR
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			VERTICAL:	RECOMMENDED:	10/24/11	
			FILE:	DRAWING: SE-5A	DATE: 10/28/2011	
			ATLAS PAGE NO.:		SHEET 91 OF 261 SHEETS	

DUCT BANK SCHEDULE			
COND. NO.	SIZE	CIRCUIT NUMBER	REMARKS
1	4"	H1	
2	4"	H42	
3	4"	MST-1	
4	4"	MST-2	
5	4"	MST-3	
6	2"	PLC01-20	
7	2"	PLC01-21	
8	2"	EOPLC-20	
9	2"	H5	
10	2"	HDW1PML 11-23	
11	2"	H5A, H5B	
12	2"	PLC01-15	
13	2"	HDW1PML 13-5	
14	2"	NOT USED	
15	2"	NOT USED	
16	2"	NOT USED	
17	2"	RAP1PML02-2	
18	2"	EOPLC-30, MCCR-4B	
19	2"	MCCR-4A, EOPLC-33	
20	2"	MCC-R4	
21	2"	MCCOB2-1A	
22	2"	MCCOB1-1A	
23	2"	MCCOB1-1B, MCCOB2-1B	
24	2"	RAP1PML02-4	
25	2"	EOPLC-24	
26	2"	MCC-R12	
27	2"	EOPLC-11, -12, -14, -16, -18	
28	2"	EOPLC-13, -15, -17, -19, -25	
29	2"	MCC-R8	
30	2"	MCC-R9	
31	2"	MCC-R10	
32	2"	MCC-R11	
33	2"	MCC-R10A, -R11A, EOPLC-26, -32	
34	2"	EOPLC-23, -31	
35	2"	MCCR-14	
36	2"	HPS-37	
37	2"	LPS-1	
38	2"	PSPLC-2	
39	2"	PSPLC-1	
40	2"	HDW1PML 11-24	
41	2"	EOPLC-21, -22	
42	2"	RAP1PML02-9	
43	2"	OPMD-4	
44	2"	MCC12-16	
45	2"	NOT USED	
46	2"	PLC01-24	
47	2"	PLC01-25	
98	4"	SPARE	
99	2"	SPARE	



NOTES:  
1. SEE DRAWING GE-1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.



REVISION	BY	DATE

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

SITWORK  
ELECTRICAL  
DUCT BANK SCHEDULE, SECTIONS AND SCHEDULE

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

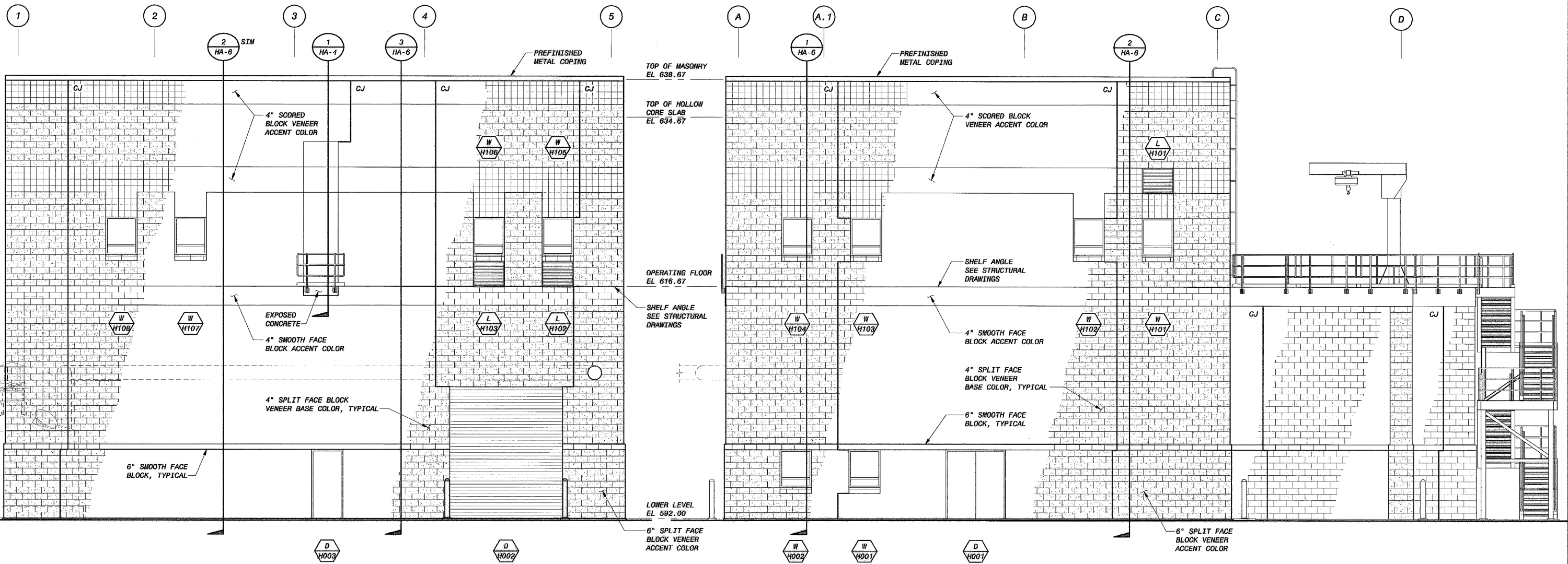
PLANS AND ESTIMATES PREPARED BY:

**BLACK & VEATCH**   
Building a world of difference  
Consulting Engineers  
Muskogee - Broken Arrow

PLAN SCALE:	DRAWN	KMA	APPROVED:
DESIGNED	SDS		
SURVEY			
PROFILE SCALE:	FIELD MGR.	JDS 10/11	
HORIZONTAL:	SECT. MGR.		
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1" =			
FILE:	DRAWING: SE-6		DATE 10/26/2011
ATLAS PAGE NO:			SHEET 92 OF 261 SHEETS

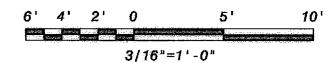
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 FD145120  
 D145120B





**WEST ELEVATION**  
3/16" = 1'-0"

**SOUTH ELEVATION**  
3/16" = 1'-0"



**NOTES:**

1. VENEER FACE BLOCK CONTROL JOINT (CJ).  
SEE STRUCTURAL DRAWINGS  
FOR BACKUP CONCRETE MASONRY UNITS (CMU) WALL  
CONTROL JOINT LOCATIONS.

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

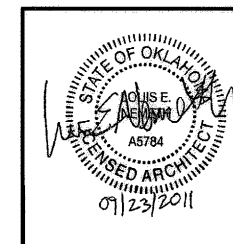
HEADWORKS BUILDING  
ARCHITECTURAL  
SOUTH AND WEST ELEVATIONS

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

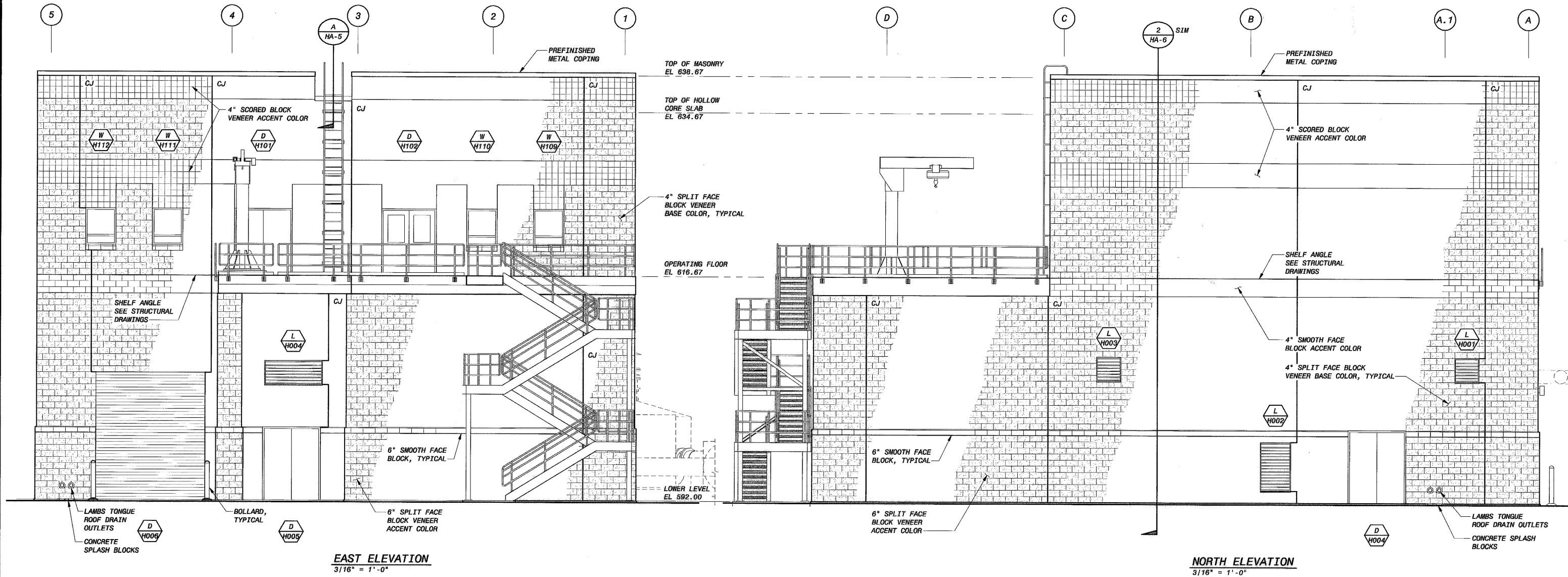
PLANS AND ESTIMATES PREPARED BY:



REVISION	BY	DATE	PLAN SCALE:	DRAWN	MDE	APPROVED:
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			ATLAS PAGE NO:			SHEET 93 OF 261 SHEETS

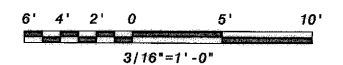


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**EAST ELEVATION**  
3/16" = 1'-0"

**NORTH ELEVATION**  
3/16" = 1'-0"



**NOTES:**  
1. VENEER FACE BLOCK CONTROL JOINT (CJ).  
SEE STRUCTURAL DRAWINGS  
FOR BACKUP CONCRETE MASONRY UNITS (CMU) WALL  
CONTROL JOINT LOCATIONS.

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

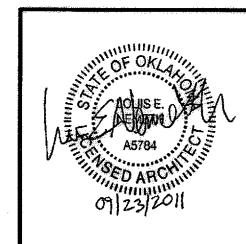
**HEADWORKS BUILDING**  
ARCHITECTURAL  
NORTH AND EAST ELEVATIONS

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

PLANS AND ESTIMATES PREPARED BY:

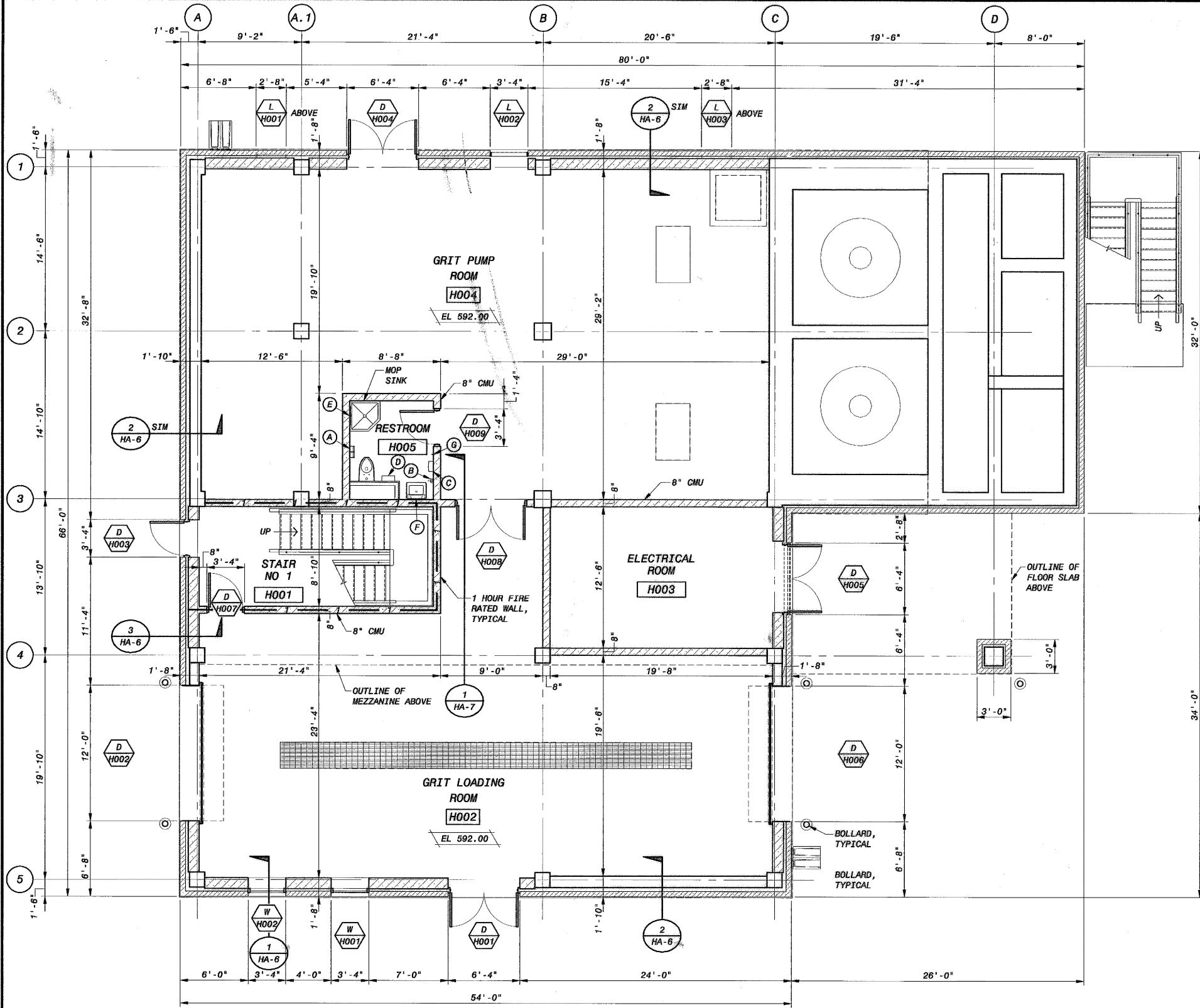
**BLACK & VEATCH**

PLAN SCALE:	DRAWN	TMB	APPROVED:
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HORIZONTAL:	SECT. MGR.		
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VERTICAL	RECOMMENDED:		
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ATLAS PAGE NO:		SHEET 94 OF 261 SHEETS	

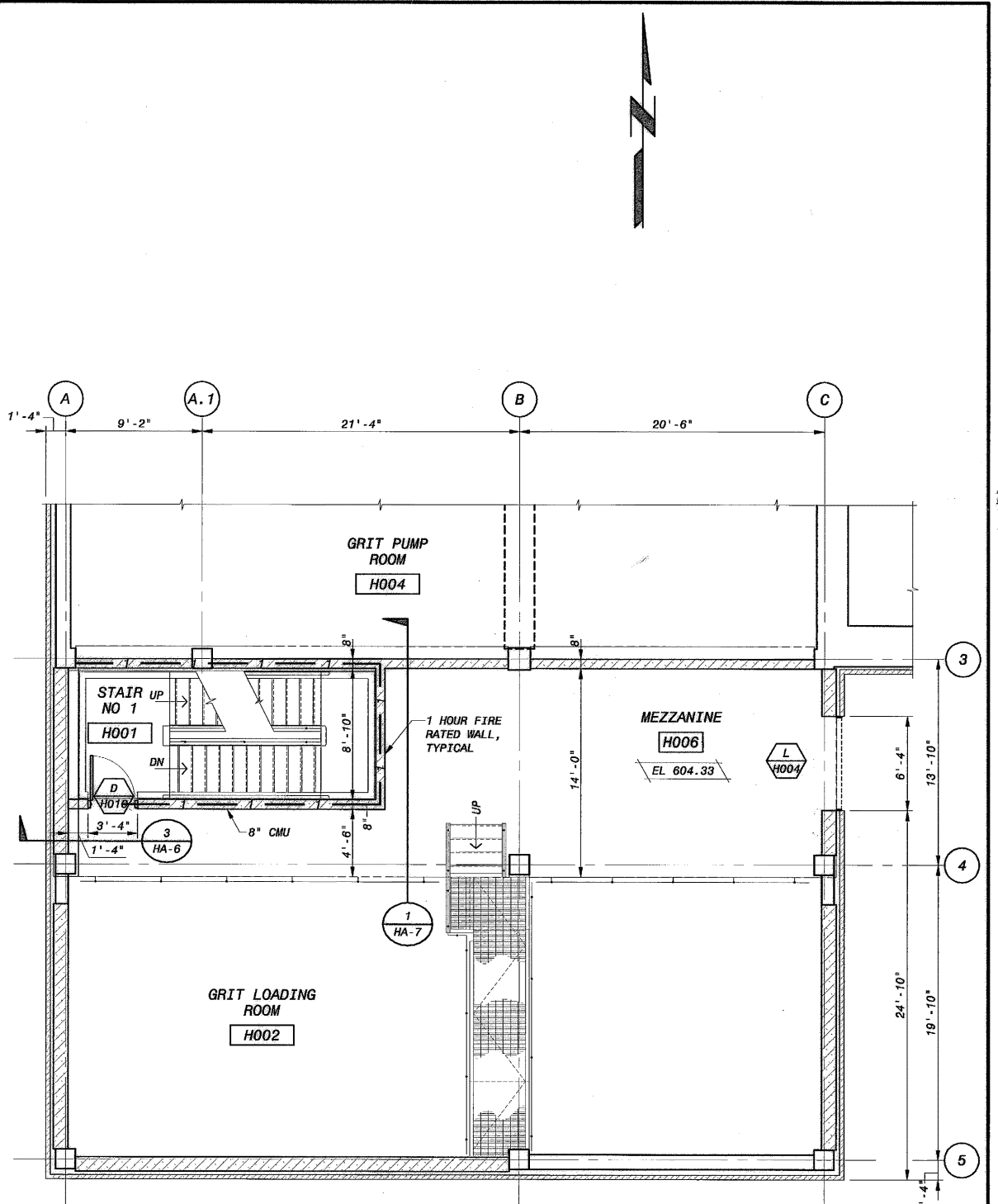


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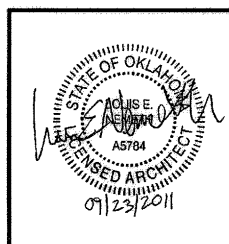
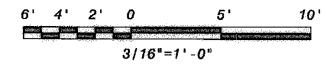


**LOWER FLOOR PLAN**  
3/16" = 1'-0"



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

ACCESSORY SCHEDULE			
QTY	ID	ITEM	MOUNTING HEIGHT
1	A	SURFACE MOUNTED TOILET PAPER HOLDER	2'-4"
1	B	SOAP DISPENSER	3'-4" TO BOTTOM
1	C	TOWEL DISPENSER	4'-0" AFF TO BOTTOM
1	D	TRASH RECEPTACLE	-
1	E	24" MOP AND BROOM HOLDER	6'-0" AFF
1	F	FRAMED MIRROR 24" x 48"	3'-4" TO BOTTOM
1	G	HAT AND COAT HOOK	5'-0" AFF



REVISION	BY	DATE

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

HEADWORKS BUILDING  
ARCHITECTURAL  
LOWER FLOOR PLAN

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

PLANS AND ESTIMATES PREPARED BY:

**BLACK & VEATCH** Holladay, Utah and Dallas, Texas  
Building a world of difference. McKague - Dallas Area

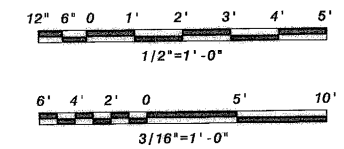
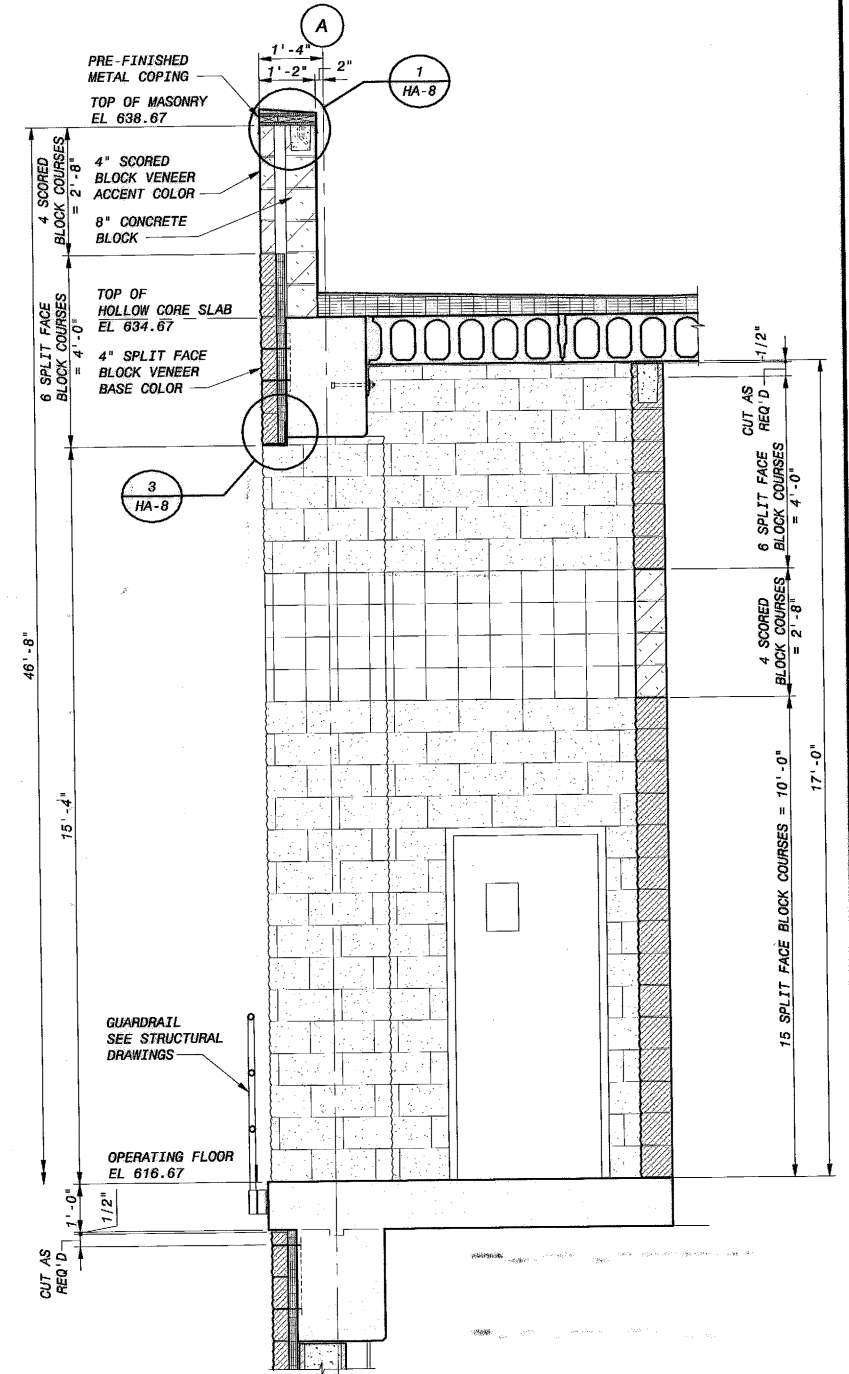
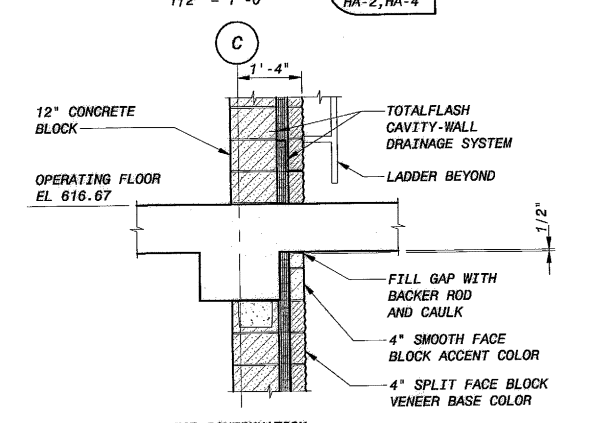
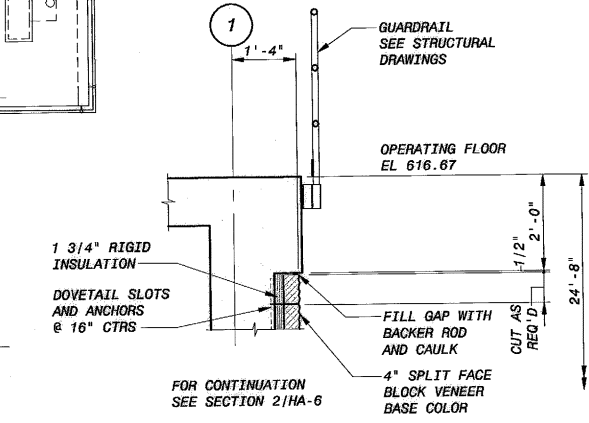
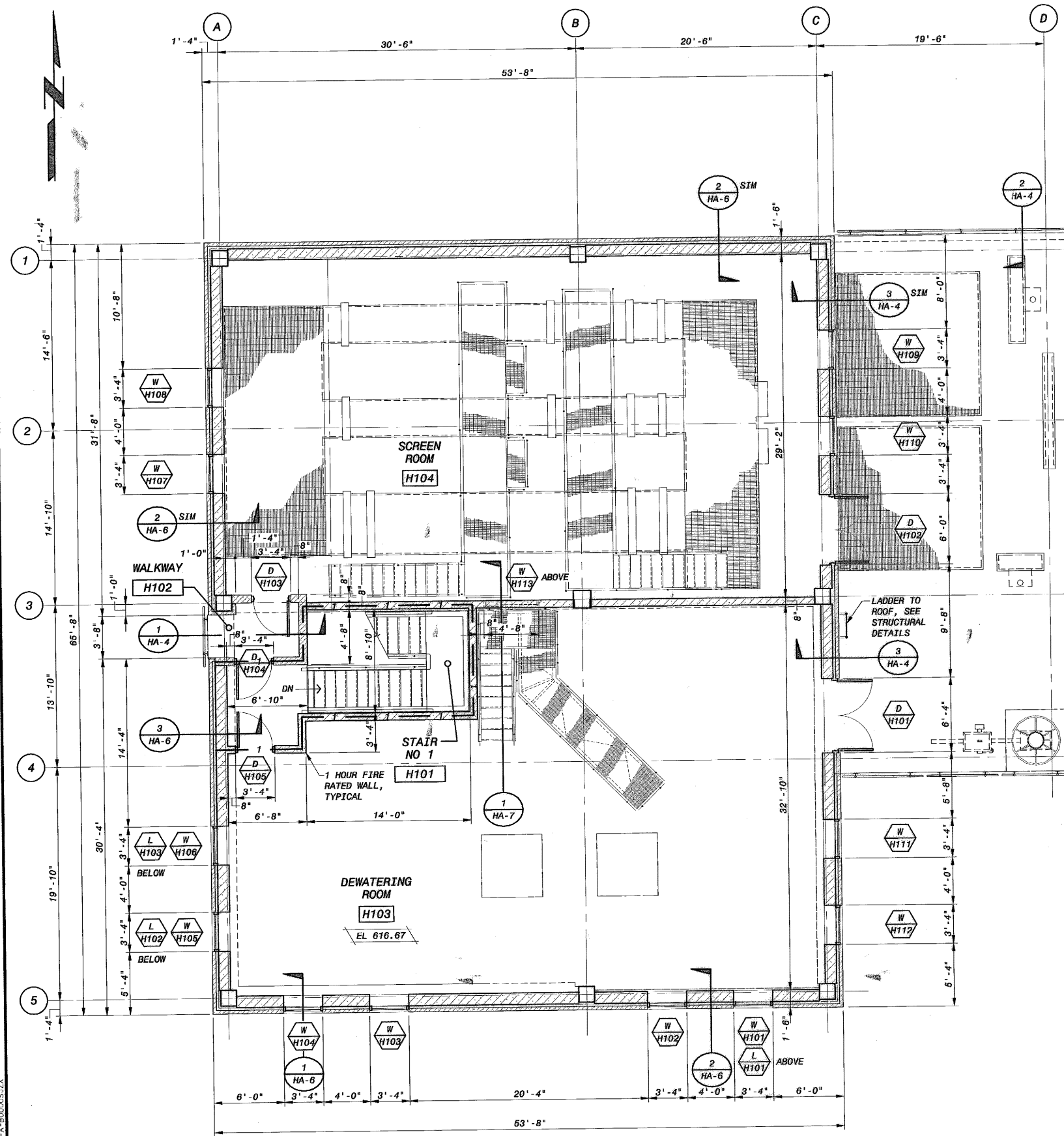
**INGATES** Engineering Services

PLAN SCALE:	DRAWN	MDE	APPROVED:
SURVEY	DESIGNED	TPD	
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VERTICAL:	RECOMMENDED:		
1" =			

FILE: HA-03.DWG    DRAWING: HA-3    DATE 10/28/2011  
ATLAS PAGE NO:    SHEET 95 OF 261 SHEETS

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

HEADWORKS BUILDING  
 ARCHITECTURAL  
 OPERATING FLOOR PLAN AND SECTIONS

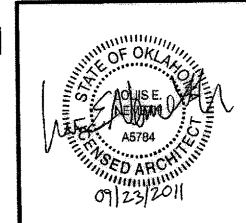
CITY OF TULSA, OKLAHOMA  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

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

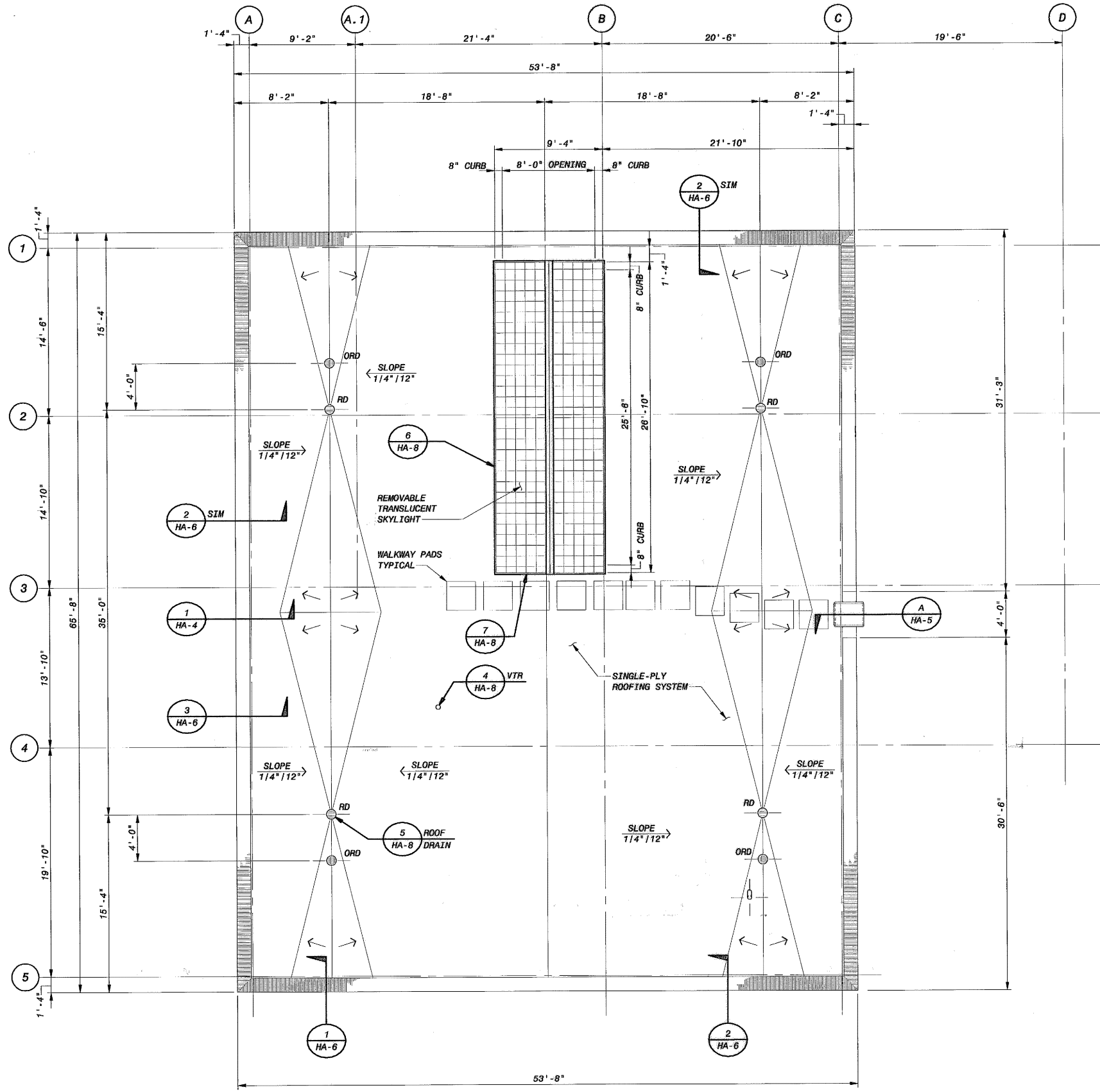
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 SURVEY: [ ]  
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 PROJ. MGR: [ ]  
 RECOMMENDED: [ ]

APPROVED: [Signature]  
 DIRECTOR

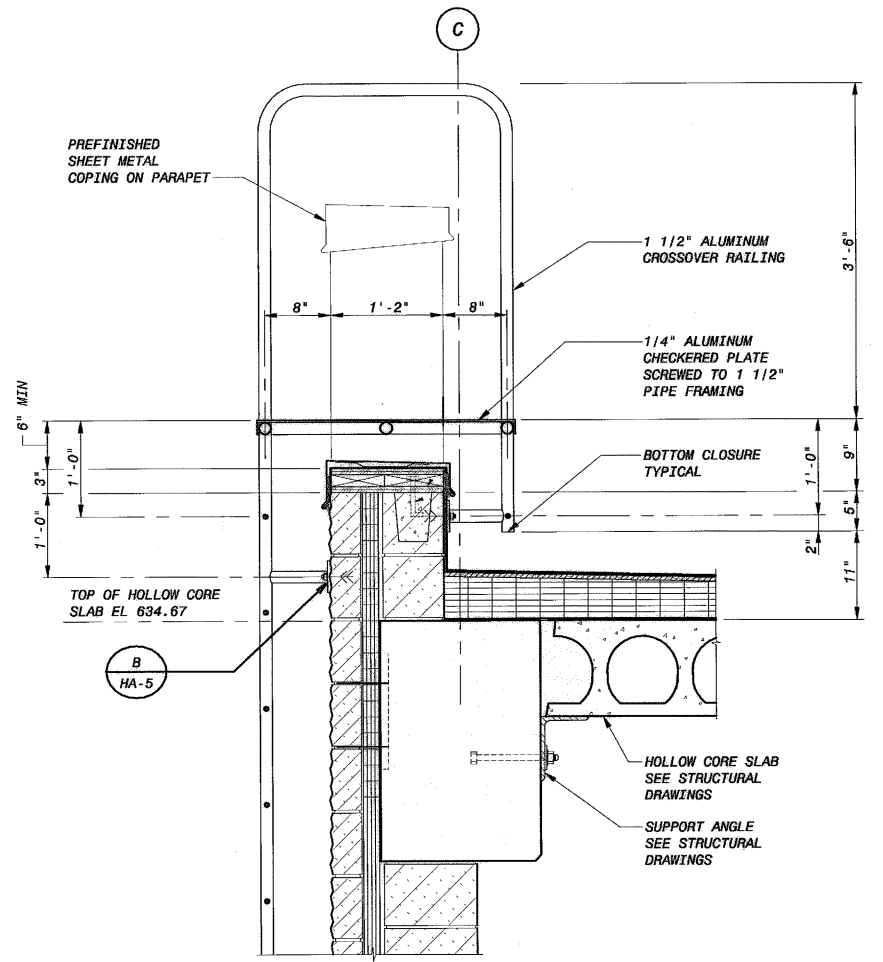
FILE: HA-04.DWG DRAWING: HA-4 DATE: 10/28/2011  
 SHEET 96 OF 261 SHEETS



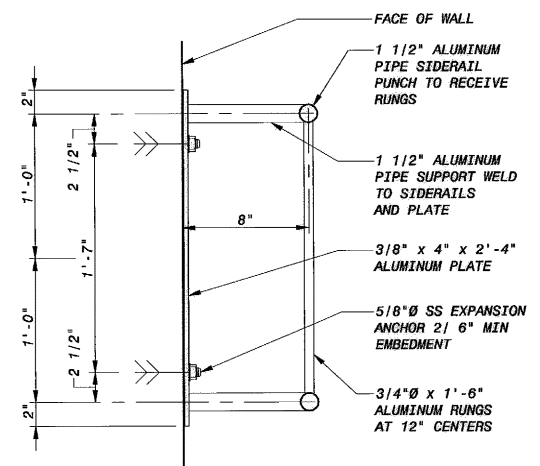




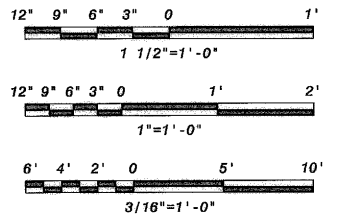
**ROOF PLAN**  
3/16" = 1'-0"



**DETAIL A**  
1" = 1'-0"  
HA-2, HA-5

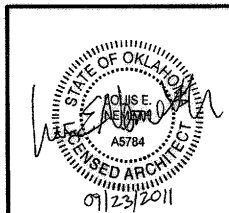


**DETAIL B**  
1 1/2" = 1'-0"  
HA-5



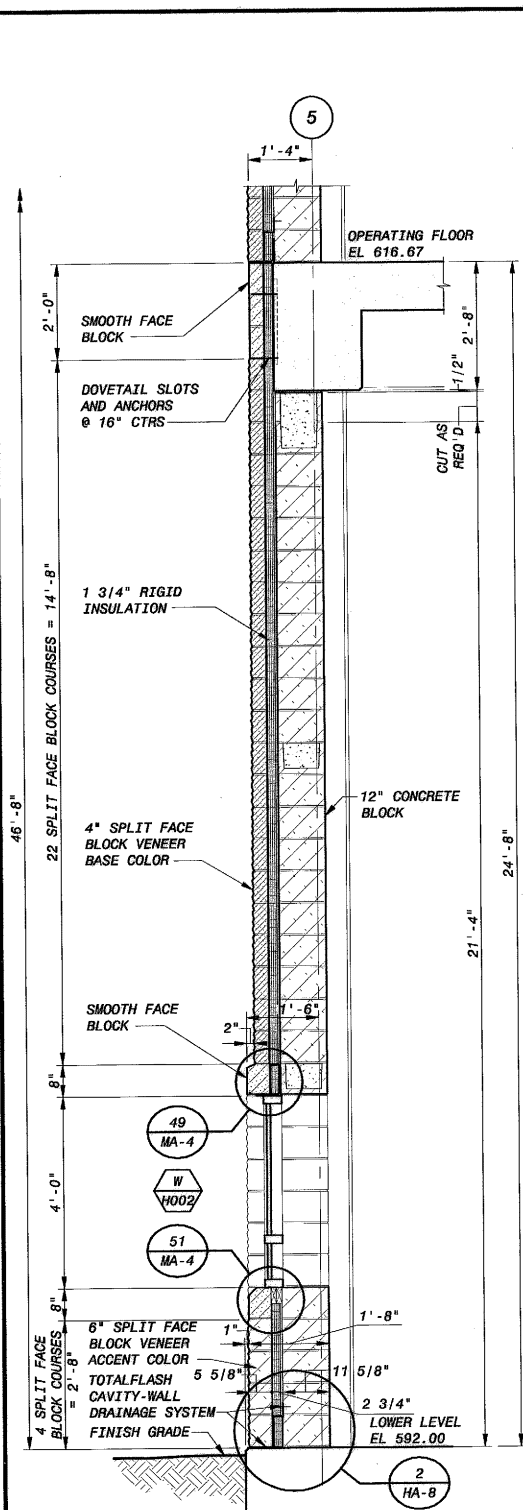
**LOWER BIRD CREEK WWTP EXPANSION**  
TMUA PROJECT NO. ES 2006-01  
CONTRACT 1B  
**HEADWORKS BUILDING**  
ARCHITECTURAL  
ROOF PLAN  
**CITY OF TULSA, OKLAHOMA**  
TULSA METROPOLITAN UTILITY AUTHORITY  
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:  
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Black & Veatch Corporation  
Kansas City, Missouri

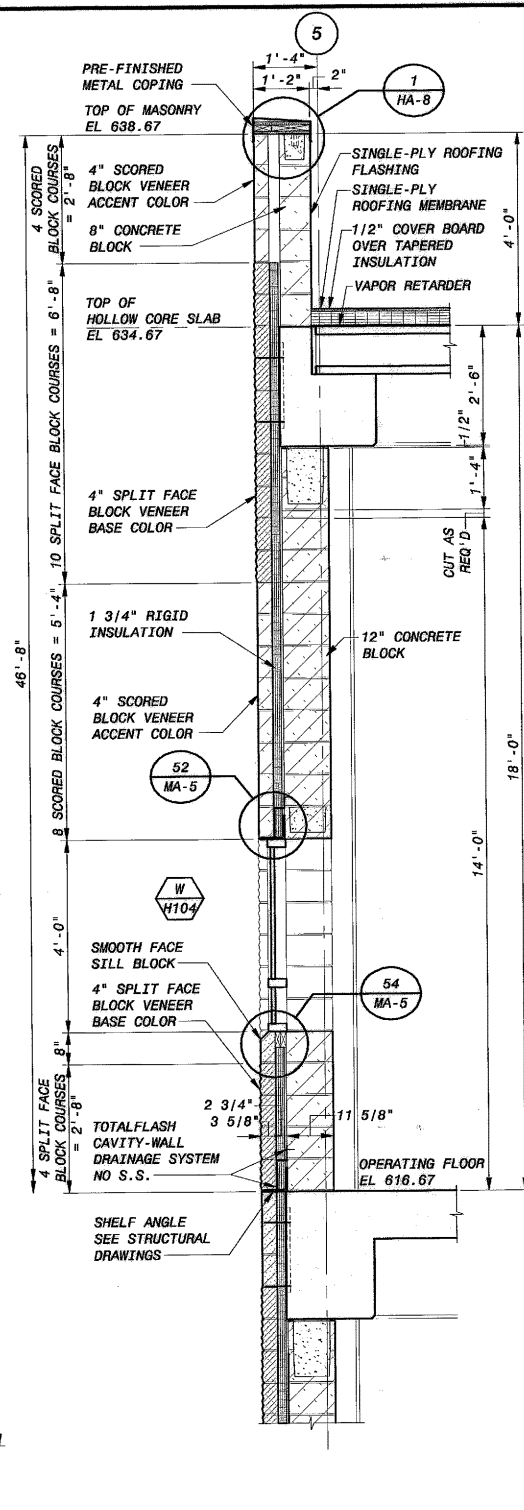


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			ATLAS PAGE NO:			SHEET 97 OF 261 SHEETS

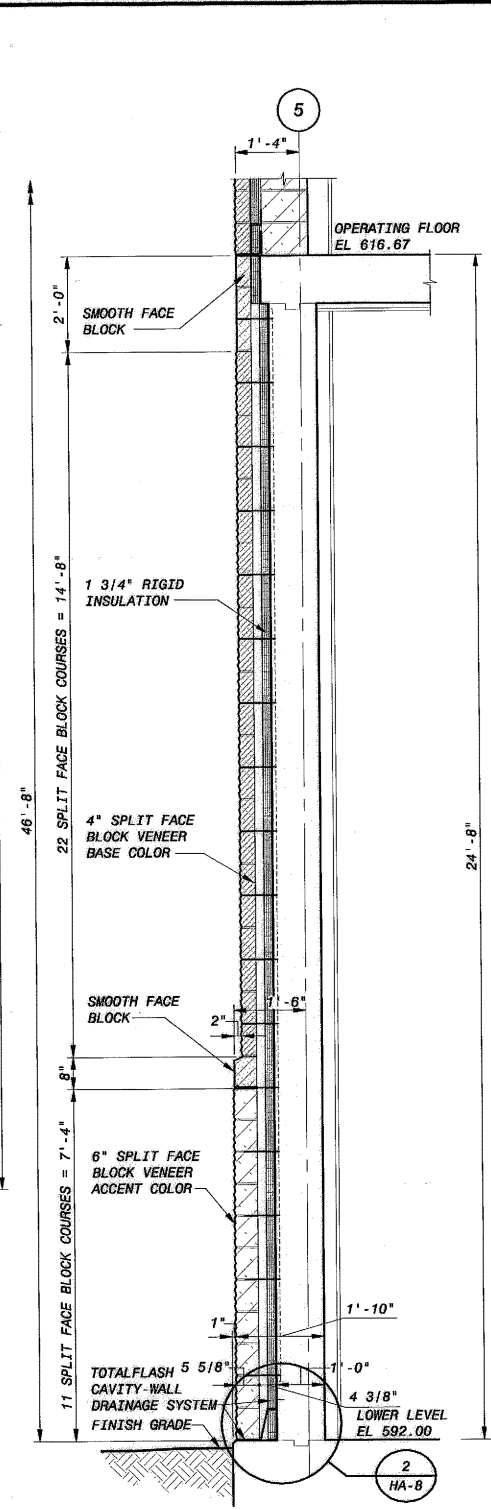
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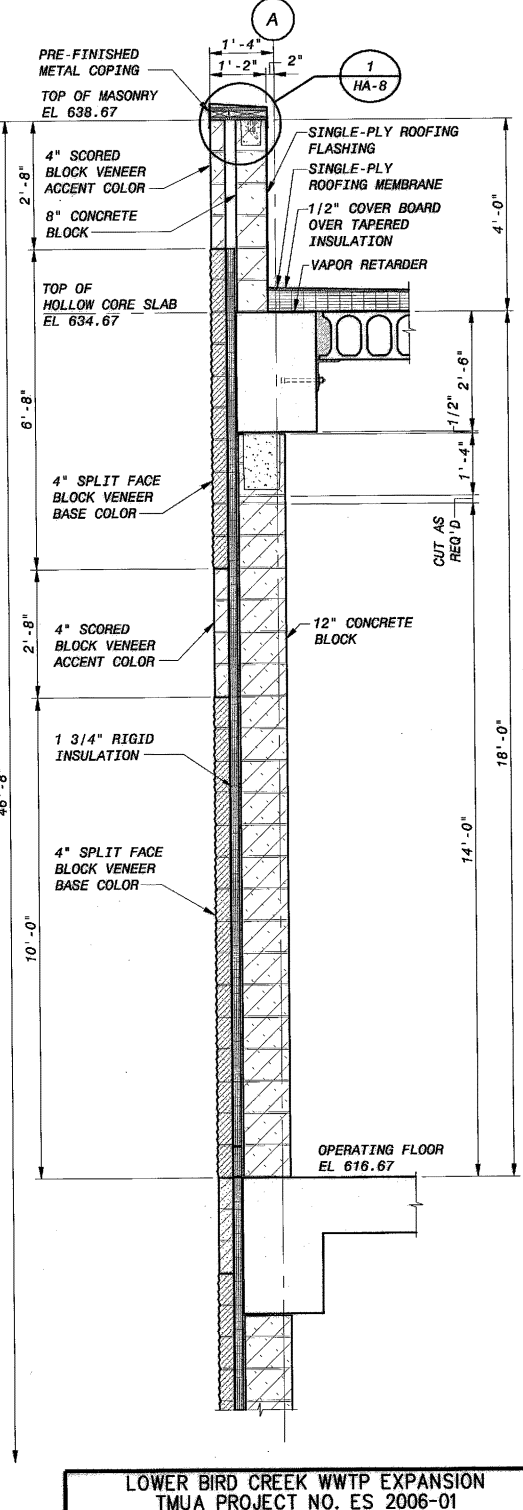
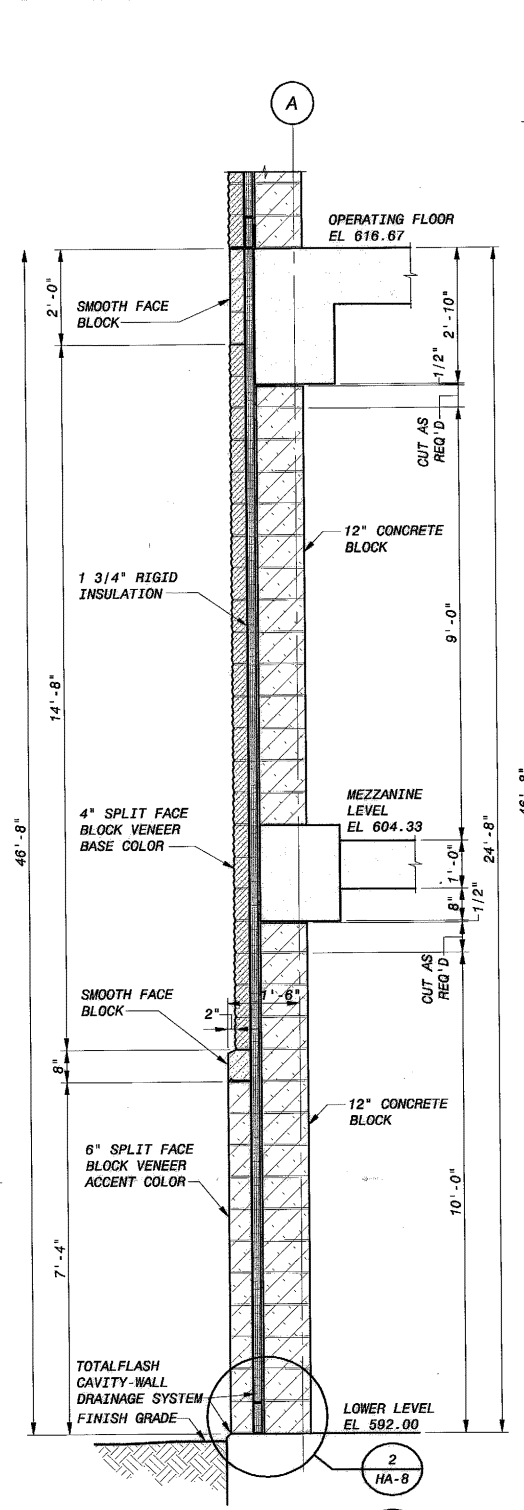
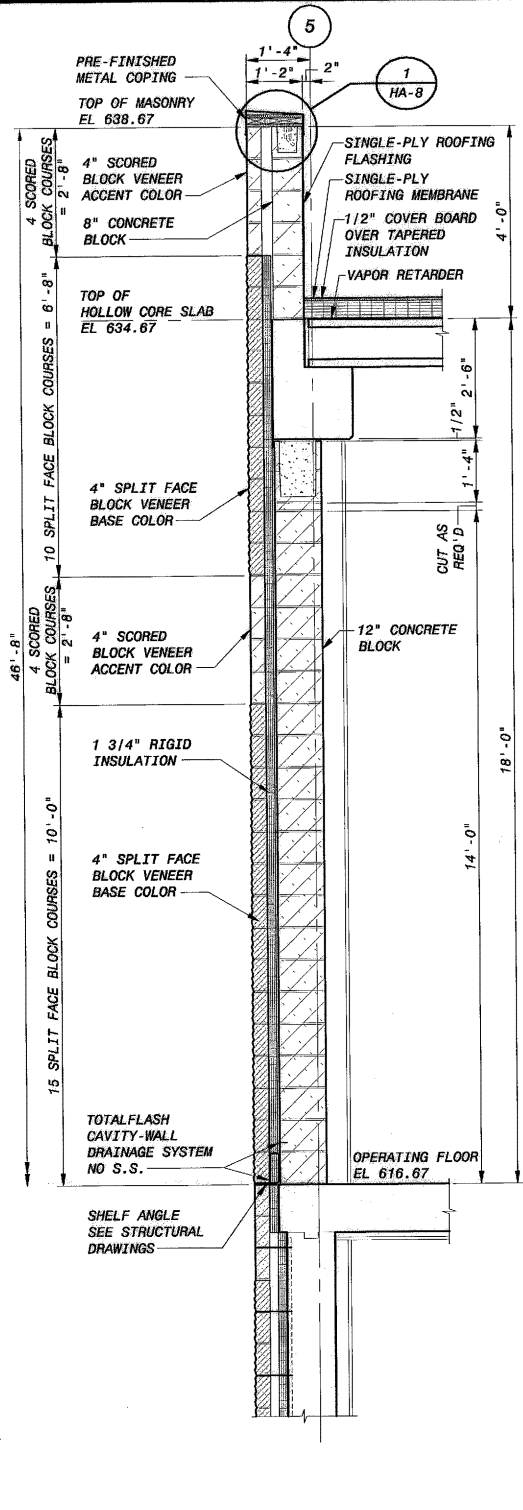
**SECTION 1**  
1/2" = 1'-0"  
HA-1, HA-3, HA-4, HA-5



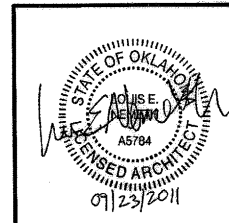
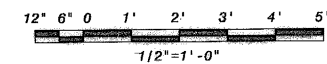
**SECTION 2**  
1/2" = 1'-0"  
HA-1, HA-3, HA-4, HA-5



**SECTION 3**  
1/2" = 1'-0"  
HA-1, HA-3, HA-4, HA-5



NOTE:  
SEE STRUCTURAL DRAWINGS FOR VERTICAL REINFORCING AND BOND BEAM LOCATIONS  
SEE SPECIFICATION SECTION 04200 BUILDING MASONRY FOR HORIZONTAL JOINT REINFORCING



REVISION	BY	DATE

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

**HEADWORKS BUILDING**  
ARCHITECTURAL  
WALL 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

PLAN SCALE: DRAWN TMB  
DESIGNED TPD  
SURVEY

PROFILE SCALE: FIELD MGR. **708** 10/11  
SECT. MGR.  
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VERTICAL: 1" = **100** 10/11

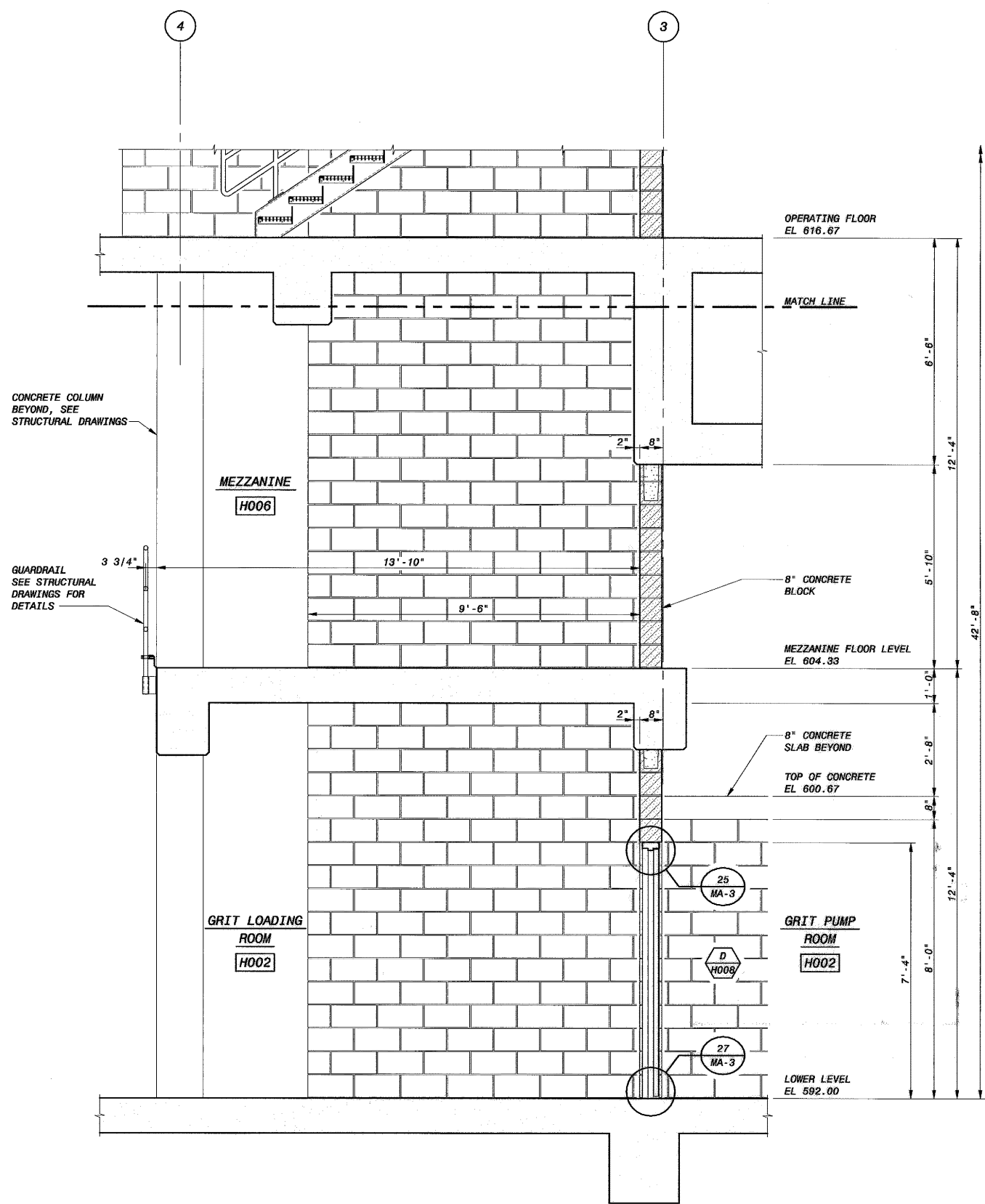
RECOMMENDED: **100** 10/11

APPROVED: **[Signature]**  
DIRECTOR

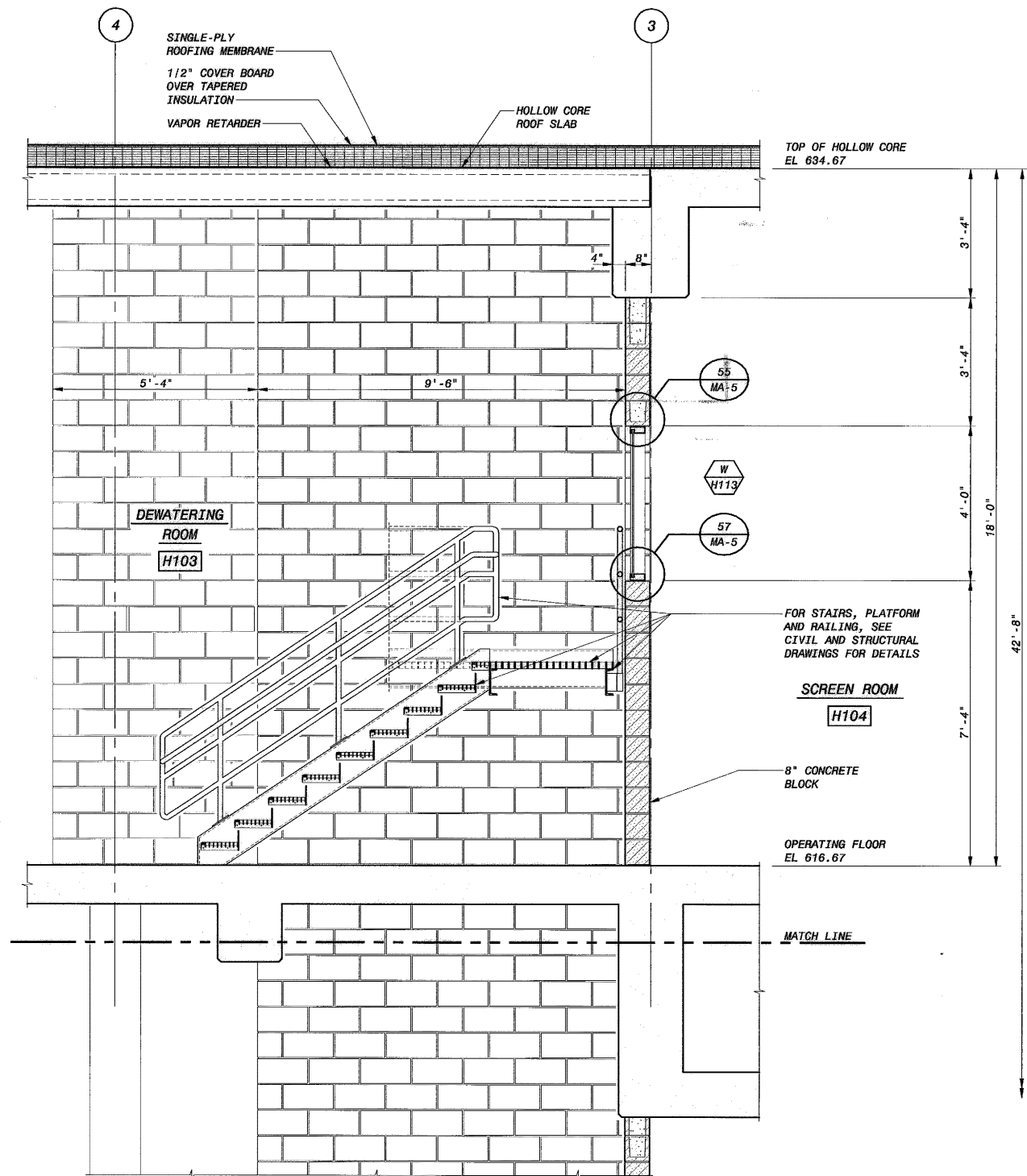
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ATLAS PAGE NO: SHEET 98 OF 261 SHEETS

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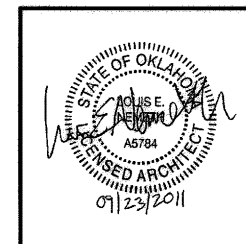
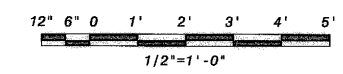
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**SECTION 1**  
 1/2" = 1'-0"  
 HA-3, HA-4



NOTE:  
 SEE STRUCTURAL DRAWINGS FOR VERTICAL REINFORCING AND BOND BEAM LOCATIONS  
 SEE SPECIFICATION SECTION 04200 BUILDING MASONRY FOR HORIZONTAL JOINT REINFORCING



REVISION	BY	DATE

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

**HEADWORKS BUILDING**  
 ARCHITECTURAL  
 WALL SECTIONS

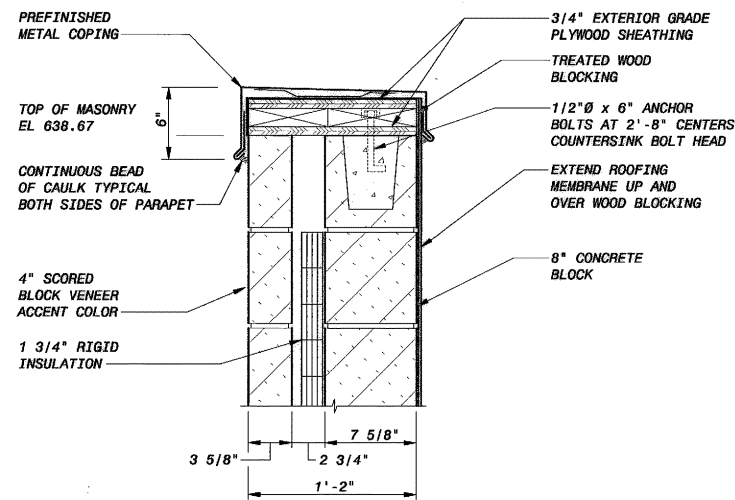
**CITY OF TULSA, OKLAHOMA**  
 TULSA METROPOLITAN UTILITY AUTHORITY  
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

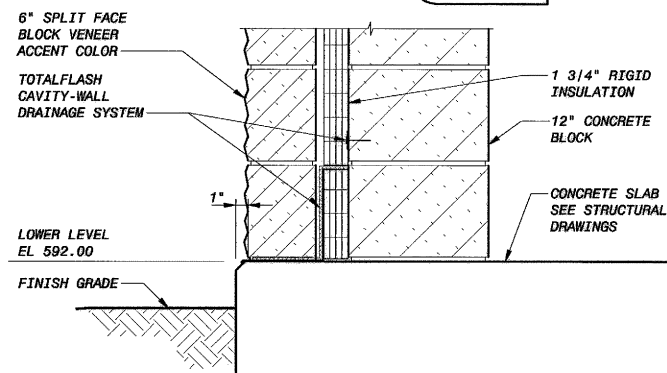
**BLACK & VEATCH**   
 Building a world of difference  
 Consulting Engineers  
 Making - Broken Arrows

Black & Veatch Corporation  
 Kansas City, Missouri

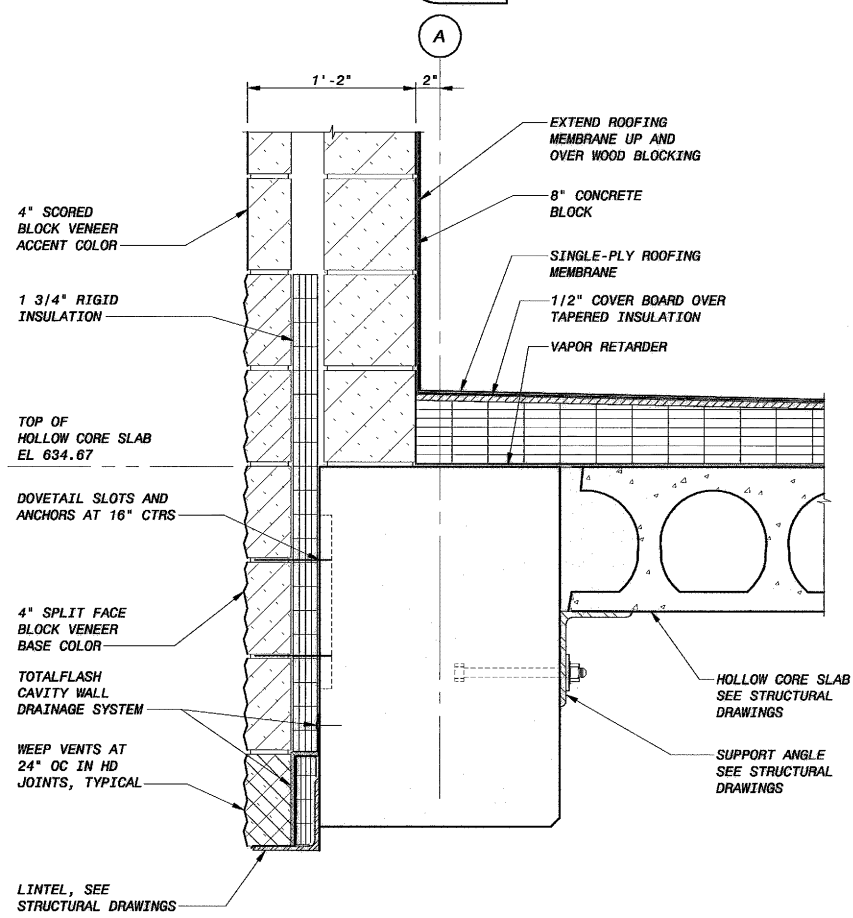
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DESIGNED	PDR		
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	PROJ. MGR.	10/13/11	
VERTICAL	RECOMMENDED:	10/13/11	
1" =			
FILE: HA-07	DRAWING: HA-7	DATE 10/28/2011	DIRECTOR
ATLAS PAGE NO:		SHEET 99 OF 261 SHEETS	



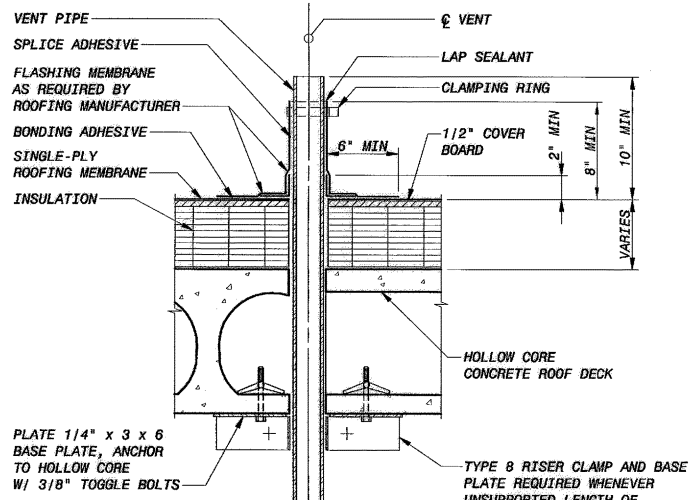
DETAIL 1  
1 1/2" = 1'-0"  
HA-4, HA-6, HA-7



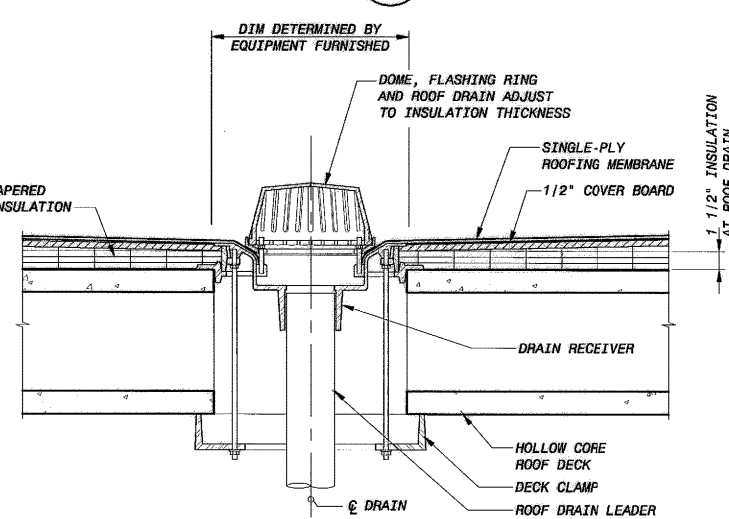
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HA-6, HA-7



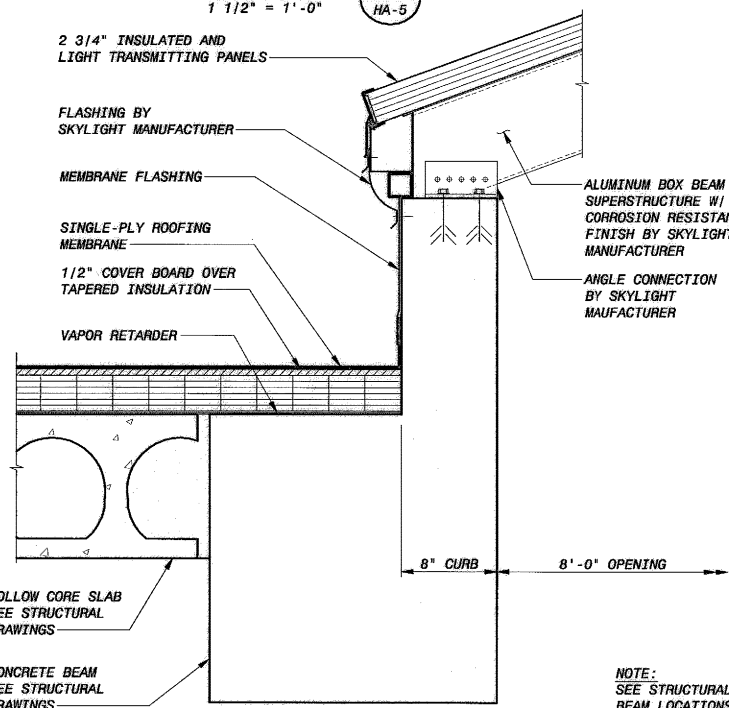
DETAIL 3  
1 1/2" = 1'-0"  
HA-4



DETAIL 4  
1 1/2" = 1'-0"  
HA-5

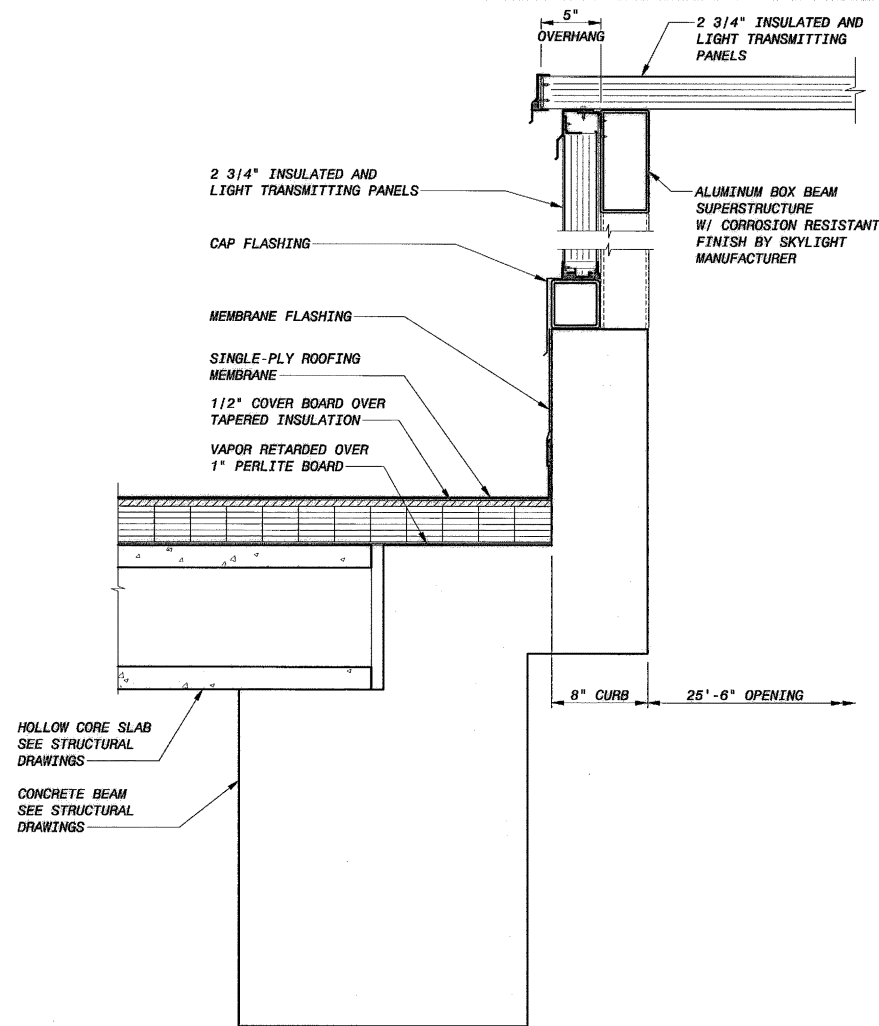


DETAIL 5  
1 1/2" = 1'-0"  
HA-5

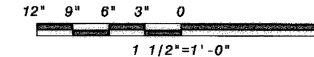


DETAIL 6  
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HA-5

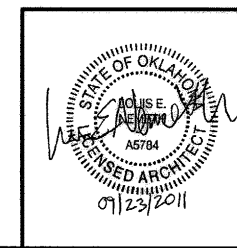
NOTE:  
SEE STRUCTURAL DRAWINGS FOR VERTICAL REINFORCING AND BOND BEAM LOCATIONS  
SEE SPECIFICATION SECTION 04200 BUILDING MASONRY FOR HORIZONTAL JOINT REINFORCING



DETAIL 7  
1 1/2" = 1'-0"  
HA-5



LOWER BIRD CREEK WWTP EXPANSION TMUA PROJECT NO. ES 2006-01 CONTRACT 1B			
HEADWORKS BUILDING ARCHITECTURAL MISCELLANEOUS DETAILS			
CITY OF TULSA, OKLAHOMA TULSA METROPOLITAN UTILITY AUTHORITY ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY:			
PLAN SCALE:	DRAWN	MDE	APPROVED:
	DESIGNED	PDR	
	SURVEY		
PROFILE SCALE:	FIELD MGR.	TD 10/11	
HORIZONTAL:	SECT. MGR.		
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VERTICAL:	RECOMMENDED:		
1" =			
FILE: HA-08	DRAWING: HA-8	DATE 10/28/2011	
ATLAS PAGE NO:		SHEET 100 OF 261 SHEETS	



REVISION	BY	DATE

PLOTTED DATE: EDM7043, 9/21/2011 7:28:13 AM  
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