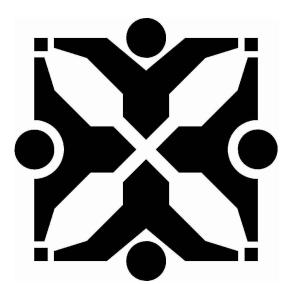


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## City of Columbia, Missouri Water & Light Department



## Columbia Municipal Power Plant More's Lake Restoration

October 2016 93647

**INDEX OF SHEETS** 

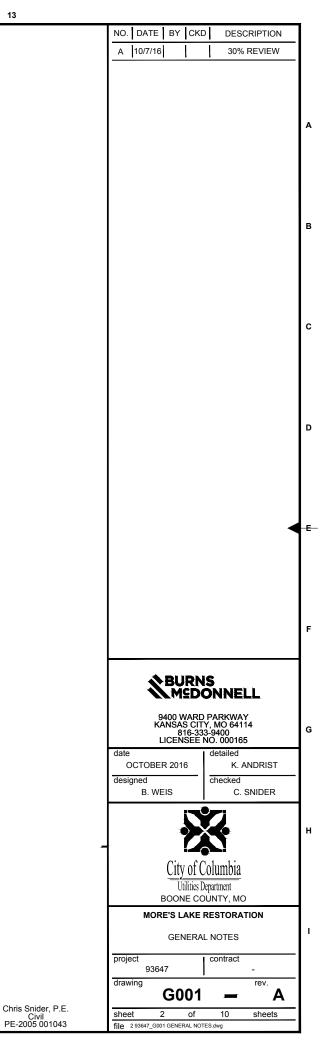
SHEET #	SHEET TITLE
G000	COVER SHEET
G001	GENERAL NOTES
G002	LEGEND & ABBREVIATIONS
C001	EXISTING CONDITIONS
C002	REMEDIATION PLAN (EXCAVATION GRADES)
C003	RESTORATION GRADING PLAN
C004	RESTORATION PLAN
C005	RESTORATION EROSION CONTROL PLAN
C006	CROSS SECTIONS
C007	DETAILS

Brian C. Weis, P.E. Civil License No. PE-2011000962

<b>S</b> BURNS M⊆DONNELL									
			9400 WARD PARKWAY KANSAS CITY, MO 64114 816-333-9400 LICENSEE NO. 000165						
		Ci	ty of Columbia, Missouri						
			Water & Light Department						
No. Date By			Revision						
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File No.			Des. B. WEIS Sheet						
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Date	e: 9/3	50/16	Chk. C. SNIDER						
			MORE'S LAKE						
			RESTORATION						
			Approved By						
D	irector of	Publi	c Works Date						

## GENERAL NOTES: GENERAL NOTES (CONT.): ONCE THE WORK HAS BEEN STARTED, THE CONTRACTOR SHALL COMPLETE THE THE PROJECT SITE IS LOCATED AT 1313 LAKEVIEW AVE, COLUMBIA, BOONE COUNTY, 19. INSTALLATION WITHOUT ANY INTERRUPTIONS THE LOCATIONS OF UTILITIES SHOWN HAVE BEEN DETERMINED FROM AVAILABLE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POTABLE WATER AND TEMPORARY 2 20. INFORMATION IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL SANITARY FACILITIES FOR CONTRACTOR'S PERSONNEL. CONTRACTOR SHALL ALSO BE EXISTING UTILITIES WHETHER OR NOT SHOWN ON THE DRAWINGS AND TO PROTECT THEM RESPONSIBLE FOR INSTALLING AND REMOVING ANY REQUIRED TEMPORARY UTILITY FROM DAMAGE. WHERE A UTILITY IS ABANDONED OR REQUIRES TO BE PROTECTED THE CONNECTIONS CONTRACTOR SHALL PROVIDE PROTECTION OF THE UTILITY THAT AT LEAST MEETS THE REQUIREMENTS OF THE UTILITY COMPANY. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF 21. CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL, MANAGEMENT, STORAGE, LOADING, AND REPAIR, REPLACEMENT OR ANY OTHER CHARGES RELATED TO EXISTING UTILITIES IN DISPOSAL OF CONSTRUCTION DEBRIS. CONTRACTOR SHALL DISPOSE OF PER APPLICABLE CONJUNCTION WITH THE EXECUTION OF THIS WORK. PRIOR TO ANY EXCAVATION THE LOCAL, STATE, AND FEDERAL REGULATIONS. CONTRACTOR SHALL CALL MISSOURI ONE CALL SYSTEM AT 1-800-DIG-RITE (1-800-344-7483) WITH SUITABLE NOTICE FOR THEIR LOCATING AND MARKING OF UTILITIES 22. SUBSTITUTIONS: EQUIPMENT OF GREATER OR LARGER POWER, DIMENSIONS, CAPACITIES, AND RATINGS MAY BE FURNISHED PROVIDED SUCH PROPOSED EQUIPMENT IS APPROVED BY THE CITY OF COLUMBIA, MISSOURI AND BURNS AND MCDONNELL ENGINEERING COMPANY, ENGINEER IN WRITING AND CONNECTING ELECTRICAL AND MECHANICAL SERVICES, CIRCUIT 3 BREAKERS, CONDUITS, MOTORS AND EQUIPMENT SPACES SHALL BE INCREASED AS INC. (ENGINEER) SHALL BE LISTED AS ADDITIONAL NAMED INSURED BY THE CONTRACTOR. REQUIRED. NO ADDITIONAL COSTS WILL BE APPROVED FOR THESE INCREASES IF LARGER THE CONTRACT DRAWINGS REPRESENT THE FINISHED WORK. CONTRACTOR SHALL BE EQUIPMENT IS APPROVED. RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION. CONTRACTOR SHALL FURNISH ALL LABOR FOUIPMENT MATERIALS AND TOOLS NECESSARY TO COMPLETELY SUBMITTALS' SUBMIT MATERIAL AND PRODUCT DATA WARRANTIES INSTALLATION AND 23. PERFORM THE WORK IN SAFE, EXPEDITIOUS, AND WORKMAN LIKE MANNER. COORDINATE AS-BUILT CONSTRUCTION DOCUMENTS TO THE ENGINEER. CONTRACTOR SHALL FORWARD SCHEDULE OF THE WORK WITH THE OWNER. CONTRACTOR SHALL INSTALL EQUIPMENT AND MATERIAL MANIFESTS TO THE ENGINEER. CONTRACTOR SHALL PREPARE AND SUBMIT TO MATERIALS PER MANUFACTURERS RECOMMENDATIONS UNLESS NOTED OTHERWISE. THE ENGINEER A DUST CONTROL PLAN TO IDENTIFY AND DOCUMENT STRATEGIES FOR CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR PROPER HANDLING AND INSTALLATION IMPLEMENTING PREVENTATIVE ACTIONS FOR APPROVAL PRIOR TO STARTING WORK OF EQUIPMENT AND MATERIALS. CONTRACTOR SHALL IMPLEMENT DUST CONTROL PROCEDURES IN ACCORDANCE WITH APPROVED PLAN. CONTRACTOR SHALL UNDERTAKE ALL NECESSARY MEASURES TO ENSURE SAFETY OF ALL 5. PERSONS AND STRUCTURES AT THE SITE AND AD JACENT TO THE SITE. CONTRACTOR SHALL 24. TESTING: TEST ALL PIPE MATERIALS AND EQUIPMENT AS SPECIFIED OR PER BE RESPONSIBLE FOR ANY CLAIMS RESULTING FROM HIS/HER ACTIONS AND ACTIVITIES. MANUFACTURER'S RECOMMENDATIONS IN THE PRESENCE OF THE ENGINEER VISITS TO THE SITE BY OWNER OR THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF UPON REQUEST ENGINEER WILL PROVIDE ELECTRONIC DRAWINGS (AUTOCAD VERSION 2014) SUCH RESPONSIBILITY. 25. TO BIDDING CONTRACTORS AS A SECONDARY REFERENCE FOR BID PREPARATION. THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR EQUIPMENT AND MATERIALS ELECTRONIC DRAWINGS ARE NOT PART OF THE CONTRACT DOCUMENTS. NO QUESTIONS THROUGH PROJECT COMPLETION. CONTRACTOR SHALL STORE EQUIPMENT AND MATERIALS REGARDING ELECTRONIC DRAWINGS WILL BE ALLOWED DURING BIDDING. THE ELECTRONIC DRAWINGS ARE FOR REFERENCE PURPOSES ONLY. USE OF THE ELECTRONIC DRAWINGS IN A SECURE LOCATION (ON OR OFF-SITE). FOR CONSTRUCTION PURPOSES SHALL BE AT THE CONTRACTOR'S RISK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SAFEGUARDING OF THE INSTALLATION AND MATERIALS AND EQUIPMENT STORED ON THE SITE TO PREVENT THEFT, VANDALISM OR DAMAGE CONTRACTOR SHALL MINIMIZE DISTURBANCES TO ADJACENT PROPERTIES THAT ARE NOT CIVIL NOTES: THE PROPERTY OF THE OWNER SURVEY WORK: TO ACCURATELY DETERMINE LOCATIONS AND ELEVATIONS SURVEYING CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS SHALL BE PERFORMED DURING THE COURSE OF CONSTRUCTION BY PROFESSIONAL REQUIRED TO PERFORM THE WORK. CONTACT CITY OF COLUMBIA PUBLIC WORKS LICENSED SURVEYOR REGISTERED IN THE STATE OF MISSOURI. SURVEYOR SHALL PREPARE 573-874-7250. CONTRACTOR TO PROVIDE CERTIFICATES OF INSURANCE AND OTHER AND SUBMIT A BRIEF SURVEY WORK PLAN. SURVEY GRID SHALL ALIGN WITH ESTABLISHED DOCUMENTATION REQUIRED BY THE JURISDICTIONAL AGENCY BEFORE PERFORMING THE SITE COORDINATE SYSTEM. SURVEYOR SHALL BE RETAINED AND COMPENSATED BY CONTRACTOR. CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO COMMENCING SURVEY WORK. CONTRACTOR SHALL ESTABLISH A UNIFORM GRID OVER THE PROJECT AREA NOT TO 10. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSHA. EXCEED 50 FEET BETWEEN GRID POINTS. IN ADDITION, ESTABLISH GRID POINTS, AS A MINIMUM, AT THE TOP, MID-POINT, AND BASE OF ALL SIDE SLOPES WITHIN THE LINER ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL 11 PLACEMENT AREA. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM A SURVEY AND REGULATIONS. DETERMINE VERTICAL ELEVATIONS TO THE NEAREST 0.1 FOOT FOR THE FOLLOWING SURFACES 12. THESE NOTES AND OTHER DRAWING NOTES CONTAINED HEREWITH ARE PROVIDED TO MEET SPECIFIC REQUIREMENTS AND TO SUPPLEMENT THE CONTRACT DOCUMENTS. THESE NOTES EXISTING GRADE BEFORE COMMENCING WORK. NEITHER REPLACE NOR OVERRIDE THE PROVISIONS AND REQUIREMENTS OF THE CONTRACT TOP OF REMEDIATED SURFACE. DOCUMENTS TOP OF PIPING AT 50 FOOT INTERVALS AND END INVERTS CENTERLINE ALIGNMENT OF SIDEWALKS AND FENCING AT A MIN. OF 25 FOOT 13. THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH ANY SHOP DRAWINGS PROVIDED INTERVALS BY SUPPLIERS. ALL SHOP DRAWINGS PROVIDED BY OTHERS SHALL BE SUBMITTED TO THE CORNERS OF PAVEMENT ENGINEER FOR REVIEW PRIOR TO THE FABRICATION OF MATERIAL OR THE PURCHASE OF TOP OF ALL FINAL GRADES NON-RETURNABLE STOCK. DIMENSIONAL REVIEW IS THE CONTRACTOR'S RESPONSIBILITY ALL BURIED PIPING, STRUCTURES, AND ELECTRICAL CONDUIT. G GROUNDWATER WELLS AT GROUND SURFACE, TOP OF PIPE, AND TOP OF CASING. UNKNOWN SITUATIONS OR CONDITIONS NOT COVERED IN THE CONTRACT DOCUMENTS ARE 14 THE RESPONSIBILITY OF THE CONTRACTOR. ENGINEER AND MANUFACTURERS SPECIALISTS THE SURVEYS SHALL BE THE BASIS FOR PAYMENT FOR NON-LUMP SUM LINE ITEMS AND 2. MAY BE AVAILABLE FOR CONSULTATION. THE PRESENCE OF THE ENGINEER OR THE SHALL BE CONDUCTED BY AN INDEPENDENT THIRD PARTY. SURVEYOR SHALL SEAL ALL MANUFACTURERS REPRESENTATIVE AT THE PROJECT SITE DOES NOT RELIEVE THE WORK PRODUCTS. DIGITAL TERRAIN MODELS USED FOR CALCULATIONS SHALL BE CONTRACTOR OF THE RESPONSIBILITY FOR A PROPER INSTALLATION. SUBMITTED TO ENGINEER FOR QUANTITY VERIFICATION. ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS SHALL BE VERIFIED IN THE FIELD BY THE 15. CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS OR OTHER NECESSARY DOCUMENTATION 3. CONTRACTOR AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE TO ENGINEER INDICATING FINAL VERTICAL ELEVATIONS, HORIZONTAL LOCATIONS, AND ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH THE AFFECTED PART OF WORK. INVERTS OF ALL COMPONENTS OF THE WORK. CONTRACTOR SHALL PROVIDE NEATLY CONTRACTOR SHALL NOT BASE CONSTRUCTION QUANTITIES FROM THE CONTRACT RED-MARKED DRAWINGS IDENTIFYING ANY MODIFICATIONS TO THE CONTRACT DOCUMENTS DRAWINGS AND INDICATING CONFORMANCE TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF/HERSELF WITH THE 16. HORIZONTAL AND VERTICAL CONTROL POINTS SHALL BE ESTABLISHED BY CONTRACTOR 4. EXISTING CONDITIONS BEFORE SUBMITTING HIS/HER BID. SCALING FROM THE DRAWINGS IS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SURVEY PROHIBITED INFORMATION DURING CONSTRUCTION STAKING, COMPARE THESE ELEVATIONS WITH ELEVATIONS SHOWN HEREIN AND REVIEW WITH ENGINEER 17 IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR CALLED FOR ON THE CONTRACT DRAWINGS OR SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER 5. PARKING LOT AND TRAILS SHALL BE PROOFROLLED AS A SINGLE-PASS OPERATION WITH AS FOR SIMILAR CONDITIONS THAT ARE SHOWN OR CALLED FOR, SUBJECT TO THE CONVENTIONAL COMPACTION EQUIPMENT DURING SUBGRADE PREPARATION AND PRIOR TO APPROVAL OF THE ENGINEER. PLACEMENT OF THE AGGREGATE SURFACE COURSE. SOFT SPOTS SHALL BE OVER EXCAVATED. BACKFILLED. AND COMPACTED WITH SUITABLE MATERIAL ALL WORK SHALL BE DONE TO THE LINES, SLOPES, THICKNESS, AND GRADES INDICATED IN 18. THE CONTRACT DRAWINGS ALL ESTABLISHED MONUMENTS BENCHMARKS REFERENCE 6. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS AS SPECIFIED POINTS, STAKES, AND OTHER CENTRAL POINTS SHALL BE CAREFULLY PRESERVED BY THE CONTRACTOR. CONTRACTOR SHALL NOTIFY OWNER IN WRITING OF BENCHMARKS, REFERENCE LINES, OR OTHER CONTROL POINTS WHICH MAY HAVE BEEN DISTURBED OR WHICH APPEAR TO BE OFF LINE OR GRADE.

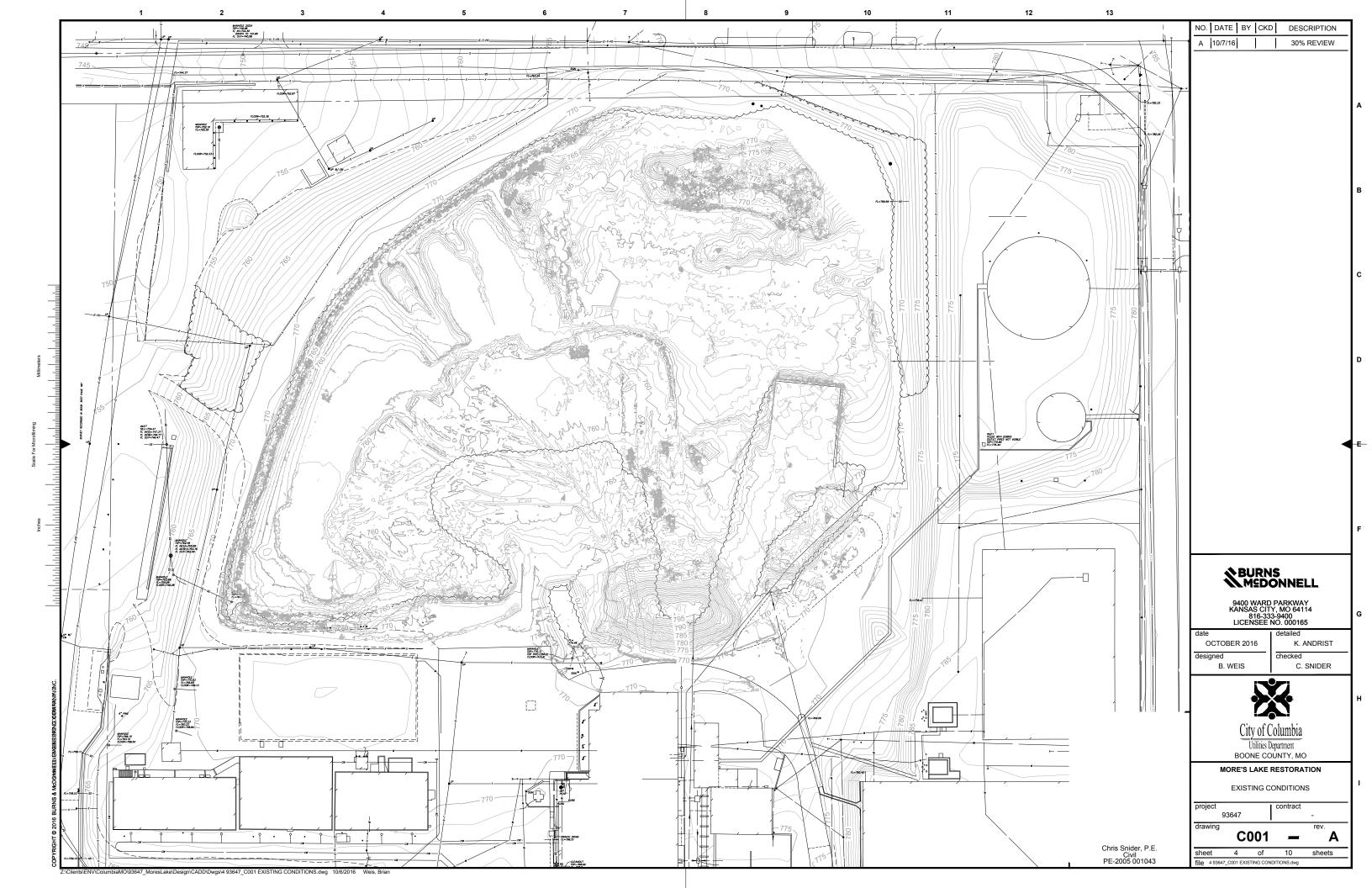
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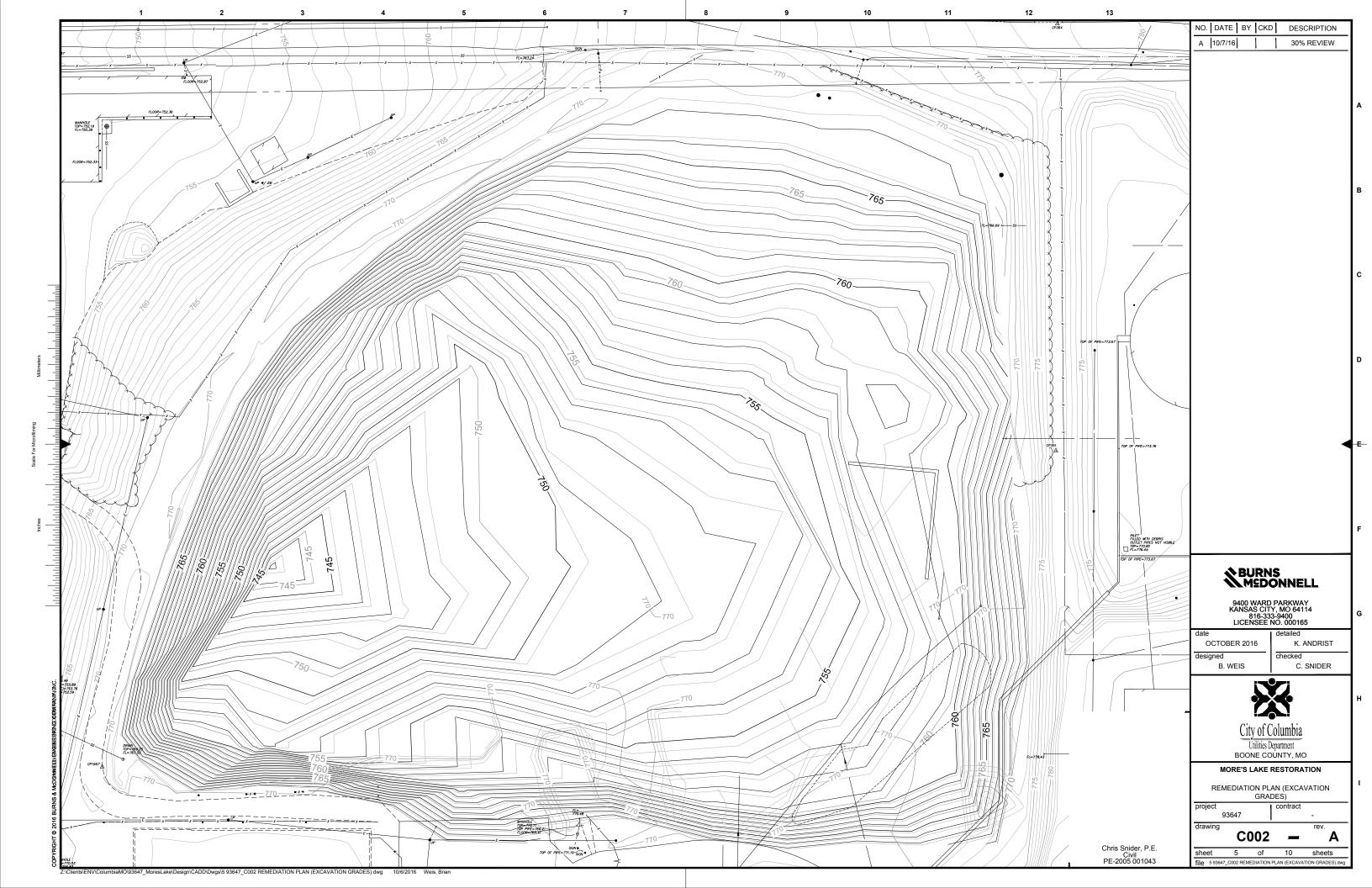


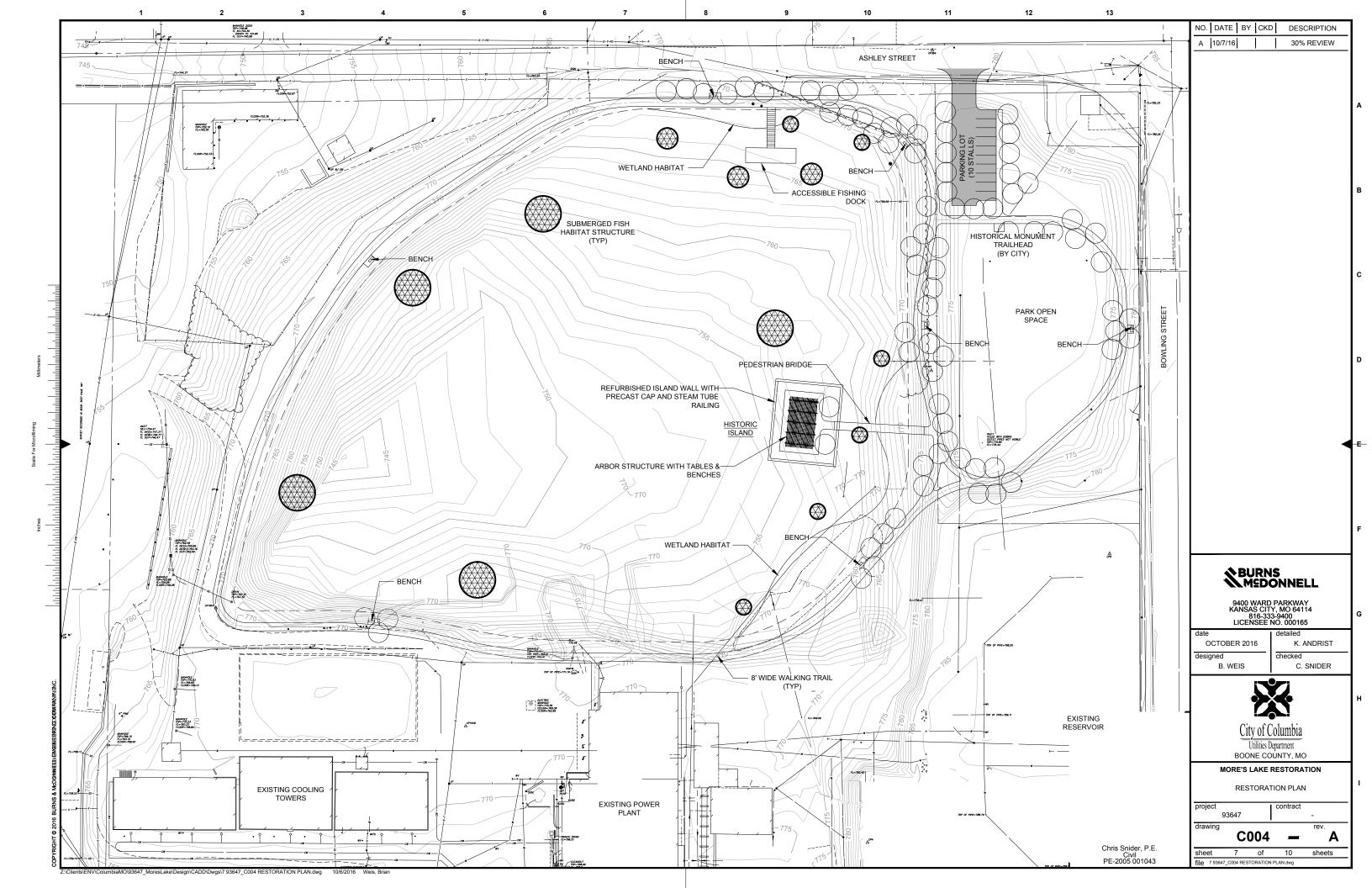
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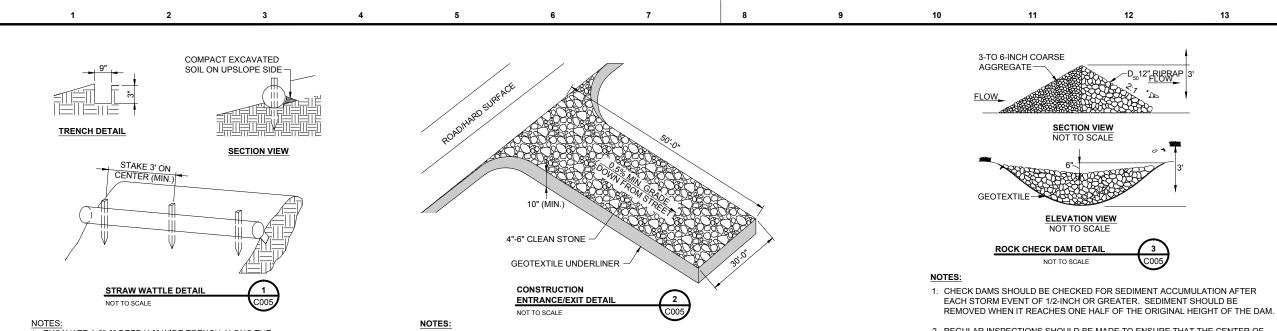
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													NO. DATE BY	CKD DESCRIPTIO	N
													A 10/7/16	30% REVIEW	v
ABBR	EVIATIONS				LEGEND										
ASTM	AMERICAN SOCIETY FOR TESTING AND	NPTF	NATIONAL PIPE THREAD FEM	MALE	•	EXISTING POWER POLE									
	MATERIALS	O.C.	ON CENTER			EXISTING LFG MONITORING P	ROBES								
С	CENTERLINE	oz	OUNCE		•	EXISTING GROUNDWATER MC	ONITORING WELLS								A
CCR	COAL COMBUSTION RESIDUALS	Р	PIEZOMETER		•	EXISTING PIEZOMETERS									
СМ	CENTIMETER	PS	PUMP STATION		$\oplus$	EXISTING LFG EXTRACTION W	/ELLS				LETTER OF DESIGNAT				
CO	CLEANOUT	PSI	POUND PER SQUARE INCH		$\oplus$	PROPOSED LFG EXTRACTION	WELLHEADS			ONE OR TWO CHARACTER DISCIPLINE DESIGNATOR	$\frown$				
COR.	CORNER	PVC	POLYVINYL CHLORIDE		MH-1 °	EXISTING MANHOLE				CALLOUT AND TITLE ARE		G SEQUENCE NUMBER			
CS	CONDENSATE SUMP	R	RANGE		CS-1 •	EXISTING CONDENSATE SUM	P			ON DRAWINGS WITHIN THE SAME DISCIPLINE)		D (MAY NOT BE T IF CALLOUT AND			в
DIA.	DIAMETER	RCP	REINFORCED CONCRETE PIP	PE	$\otimes$	HORIZONTAL LFG WELLHEAD					TITLE AR DRAWING	RE ON THE SAME G)			
DWG.	DRAWING	RD	ROAD		$\bigtriangleup$	SURVEY TRAVERSE POINTS				SECTION, DET					
E	EASTING	S	SOUTH		0	NPDES OUTFALLS					L IDENTIFIER				
EL.	ELEVATION	S.S.	STAINLESS STEEL		۲	LFG LEACHATE SYSTEM GAS	WELLS					—			
EW	EXTRACTION WELL	SDR	STANDARD DIMENSION RATIO	10	CO °	CLEANOUT									с
FML	FLEXIBLE MEMBRANE LINER	STD.	STANDARD		$\boxtimes$	FEED WATER APPLICATION P	ORT								
FT.	FEET	SEC	SECOND			TEMPERATURE AND MOISTUR	RE SENSOR			(A) (C001)		)			
GCL	GEOSYNTHETIC CLAY LINER	SY	SQUARE YARD		_0_	TRAFFIC SIGN				$ $ $\uparrow$	Ϋ́				
GP	GAS PROBE	т	TOWNSHIP		- f f	PROPERTY LINE				SECTION					
GPM	GALLONS PER MINUTE	тс	TERRACE CHANNEL			- CELL BOUNDARY									D
HDPE	HIGH DENSITY POLYETHYLENE	ТР	TRAVERSE POINTS			PERMITTED WASTE BOUNDAF	RY				( )				
HGL	HORIZONTAL GAS LINE	TYP.	TYPICAL		FM FM						L X				
HHWR	HEATING HOT WATER RETURN	W				UNDERGROUND WATER LINE					$\sim \sqrt{7}$	<b>)</b>			
HHWS	HEATING HOT WATER SUPPLY		WEST			GEOMEMBRANE					C001				
HIL	HORIZONTAL INJECTION LINE	W/	WITH			GEOTEXTILE FABRIC				DETAIL	CALLOUT EXAMPLE				- 4₽
HW	HEADWELL					LANDFILL GAS PIPING					В				
HWL	HIGH WATER LEVEL					LEACHATE COLLECTION LINE					C001				
HWY	HIGHWAY					- SANITARY SEWER LINE				ELEVATIO		<u>e</u>			
I.D.	INSIDE DIAMETER					- DRAINAGE TERRACE					WORD "SECTION"				
LB	POUNDS					GEOCOMPOSITE					BE REPLACED WITH VATION" OR "DETAIL"				F
LC	LEACHATE COLLECTION LINE					- ELECTRICAL CONDUIT/CABLE				SECTION	/	A			
LCS	LEACHATE COLLECTION SYSTEM				•0.	EXISTING CONTOURS					(	C001	<b>•</b> - • •		
LD	LETDOWN					PROPOSED CONTOURS				SECTION, DETAIL, O	OR ELEVATION TITLE	EXAMPLE		RNS DONNELL	
LLDPE	LINEAR LOW DENSITY POLYETHYLENE					SAND									
LFG	LANDFILL GAS					SAND				SECTION, DET	CATION SYST		9400 W KANSAS 810	ARD PARKWAY CITY, MO 64114 5-333-9400	G
LG.	LONG					NOMINALLY COMPACTED SOI	I						LICENS	EE NO. 000165	
MIL	MILLI-INCH					GRANULAR ACCESS ROAD	L			L			OCTOBER 2016	K. ANDRIST	r
MIN.	MINIMUM					1" TO 3" DIA. GRANULAR DRAI							designed B. WEIS	checked C. SNIDER	
МО	MISSOURI				000000	1" TO 3" DIA. GRANULAR DRAI OR WASHED STONE									-
MODOT	MISSOURI DEPARTMENT OF					PREPARED SUBGRADE OR SC MATERIAL	DIL BACKFILL								н
	TRANSPORTATION												4		
MSW	MUNICIPAL SOLID WASTE					VEGETATIVE SOIL OR TOPSO	IL						Citv	of Columbia	
Ν	NORTHING, NORTH					RIPRAP							<b>/</b>	ities Department	
NO.	NUMBER				* * * * * * *	MSW									
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM				·	BENTONITE SEAL								KE RESTORATION	Ι,
NPT	NATIONAL PIPE THREAD												LEGEND 8	ABBREVIATIONS	<b> </b> '
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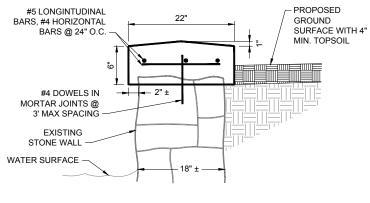








- NOTES: 1. EXCAVATE A 2"-3" DEEP X 9" WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UPSLOPE FROM THE ANCHOR TRENCH.
- 2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
- 3. SECURE THE WATTLE WITH 18"-24" STAKES EVERY 3'-4' AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE LEAVING AT LEAST 2"-3" OF STAKE EXTENDING ABOVE THE WATTLE. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.



ISLAND STONE WALL CAP RESTORATION NOT TO SCALE

- 1. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT TRUCKS LEAVING THE CONSTRUCTION SITE DO NOT TRACK DIRT/MUD ONTO PUBLIC STREET.
- 2. WASHING TIRES PRIOR TO LEAVING SITE MAY BE NECESSARY TO REMOVE DIRT/MUD FROM TRUCKS. THE CONTRACTOR IS RESPONSIBLE FOR IMPOUNDING AND DISPOSING OF ANY WASH WATER USED.
- 3. ALL VEHICLES LEAVING SITE SHALL EXIT USING THE CONSTRUCTION EXIT.

12

13

