

**WEIR DISCHARGE \* IN CUBIC FEET PER SECOND**

WEIR HEIGHT IN FEET	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
DISCHARGE (CFS)	0.0	0.4	1.1	2.1	3.5	5.2	7.2	9.5	12.0	1.34	1.54
DISCHARGE (CFS)	1.75	1.97	2.20	2.44	2.70	2.96	3.24	3.52	3.81	4.11	4.41
DISCHARGE (CFS)	4.72	5.04	5.38	5.81	6.38	6.73	7.10	7.47	7.85	8.23	8.61
DISCHARGE (CFS)	9.41	9.82	10.20	10.60	11.0	11.50	11.90	12.40	12.80	13.30	13.70
DISCHARGE (CFS)	14.20	14.70	15.10	15.60	16.10	16.60	17.10	17.60	18.10	18.60	19.10
DISCHARGE (CFS)	19.60	20.10	20.60	21.10	21.60	22.10	22.60	23.10	23.60	24.10	24.60
DISCHARGE (CFS)	25.10	25.60	26.10	26.60	27.10	27.60	28.10	28.60	29.10	29.60	30.10
DISCHARGE (CFS)	30.60	31.10	31.60	32.10	32.60	33.10	33.60	34.10	34.60	35.10	35.60
DISCHARGE (CFS)	36.10	36.60	37.10	37.60	38.10	38.60	39.10	39.60	40.10	40.60	41.10
DISCHARGE (CFS)	41.60	42.10	42.60	43.10	43.60	44.10	44.60	45.10	45.60	46.10	46.60

\* 4'-8" DIAMETER

**BENT BAR LIST TYPE A SPILLWAYS**

BAR MARK	NO.	BENDING DIMENSIONS			
REOD	a	b	c	d	
4L-3	10	4-4	EX		
4T20-5	1	5-0	5-0	EX	
4U14-9	1	5-0	5-0	EX	
4L2-6	4	1-3	EX		

**BENT BAR LIST TYPE B SPILLWAYS**

BAR MARK	NO.	BENDING DIMENSIONS			
REOD	a	b	c	d	
4L-3	18	4-4	EX		
4T20-5	1	5-0	5-0	EX	
4U14-9	3	5-0	5-0	EX	

**BILL OF MATERIAL**

ITEM	DESCRIPTION	NO. OF SPILLS	PER SPILL	TOTAL REOD
402	CLASS X CONCRETE	5	CL. YD.	170 LB.
418	REINFORCING STEEL			
	18" D REINFORCED CONCRETE PIPE-CLASS II			
	36" D REINFORCED CONCRETE PIPE-CLASS III			
603	48" D REINFORCED CONCRETE PIPE-CLASS IV			

**BILL OF MATERIAL**

ITEM	DESCRIPTION	NO. OF SPILLS	PER SPILL	TOTAL REOD
	WEIR			
	8 x 8 x 3/4 x 0'-6" WITH NUT	3		
	1/4 x 3/8 x 1'-2" TYPE 304 STAINLESS BY FIELD	1		
	SKIMMER			
	120"x12" GAGE CORRUGATED METAL PIPE (NOTE 4)	5	FT.	12
	1/2" METAL COVER (BY FIELD SEE DETAILS)	1		
	2 1/2" x 2 1/2" x 3/8	23	FT.	1
	3 x 3 x 3/8	64	FT.	8
	4 x 4 x 3/8	8	FT.	

**NOTES:**

- A SECTION OF 120" DIA CORRUGATED METAL PIPE, FULLY COATED, SHALL BE USED FOR THE SKIMMER DEVICE. ALL SEAMS AND JOINTS SHALL BE REVEALED. FABRICATION OF THE PIPE SHALL BE IN ACCORDANCE WITH THE TENSAR GEORGRID SPECIFICATION G29C.
- ONE SECTION OF 48" PIPE SHALL BE INSTALLED DURING INITIAL CONSTRUCTION.
- AS ADDITIONAL SECTIONS OF 48" PIPE ARE ADDED, GROUT THE JOINT TO FORM A STABLE AND WATER TIGHT CONNECTION.
- ALL CONNECTIONS TO BE WELDED.
- FOR SPILLWAY DETAILS SEE STD. DWG. SD-C11-1.
- THE SKIMMER SHALL BE INSTALLED COMPLETELY AROUND THE WEIR AND FOR WATER TIGHT CONNECTIONS.
- WHEN THE WEIR IS INSTALLED THE TOP SHALL BE LEVELLED WITH THE USE OF LEVELING BOLTS.
- ALL WELDS BY TVA FIELD SHALL BE MADE AND INSPECTED IN ACCORDANCE WITH TVA CONSTRUCTION SPECIFICATION G29C.
- ALL WELDS BY TVA SHALL HAVE VISUAL INSPECTION.
- ALL WELDS SHALL BE PAINTED IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION G14, PART XIX.
- DEWATER AREA WHERE WEIRS ARE TO BE INSTALLED BY CONSTRUCTING TRENCHES OR INSTALLING SHEET PILE, AND REMOVING WATER FROM THE DRAINAGE AREA. DESIGN OF ASH Dikes AND/OR SHEET PILE BY TVA FEES.
- PROVIDE ADEQUATE FIRM BASE FOR INSTALLATION OF CONCRETE SPILLWAY BY INSTALLING ROCK BASE OR TENSAR GEORGRID. SELECTION OF TENSAR GEORGRID BY TVA FEES.

**NOTES:**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE T-1 SPECIFICATIONS, UNLESS OTHERWISE NOTED.
- ALL CONCRETE SHALL BE CLASS "X" IN ACCORDANCE WITH SECTION 406.
- ALL REINFORCEMENT SHALL CONFORM TO ASTM SPECIFICATION A615 GRADE 60, DEFORMED.
- DIMENSIONS SHOWN ARE TO THE CENTERLINE OF REINFORCING BARS, UNLESS OTHERWISE NOTED.
- CONCRETE CLEAR COVER DIMENSIONS ARE AS FOLLOWS:  
3 INCHES FOR FACES CAST AGAINST EARTH OR ROCK.  
2 INCHES FOR ALL OTHER FACES.

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

**YARD**

EXCEPT AS NOTED

**KINGSTON FOSSIL PLANT**  
**TENNESSEE VALLEY AUTHORITY**  
**FOSSIL AND HYDRO ENGINEERING**

DESIGNED BY: J.L. HILLES  
CHECKED BY: V.P. TAYLOR, H.L. PERRY, R.E. PURDY, J.E. ADAMS  
APPROVED BY: [Signature]

AUTOCAD R14 DATE: 36 C 10W425-70

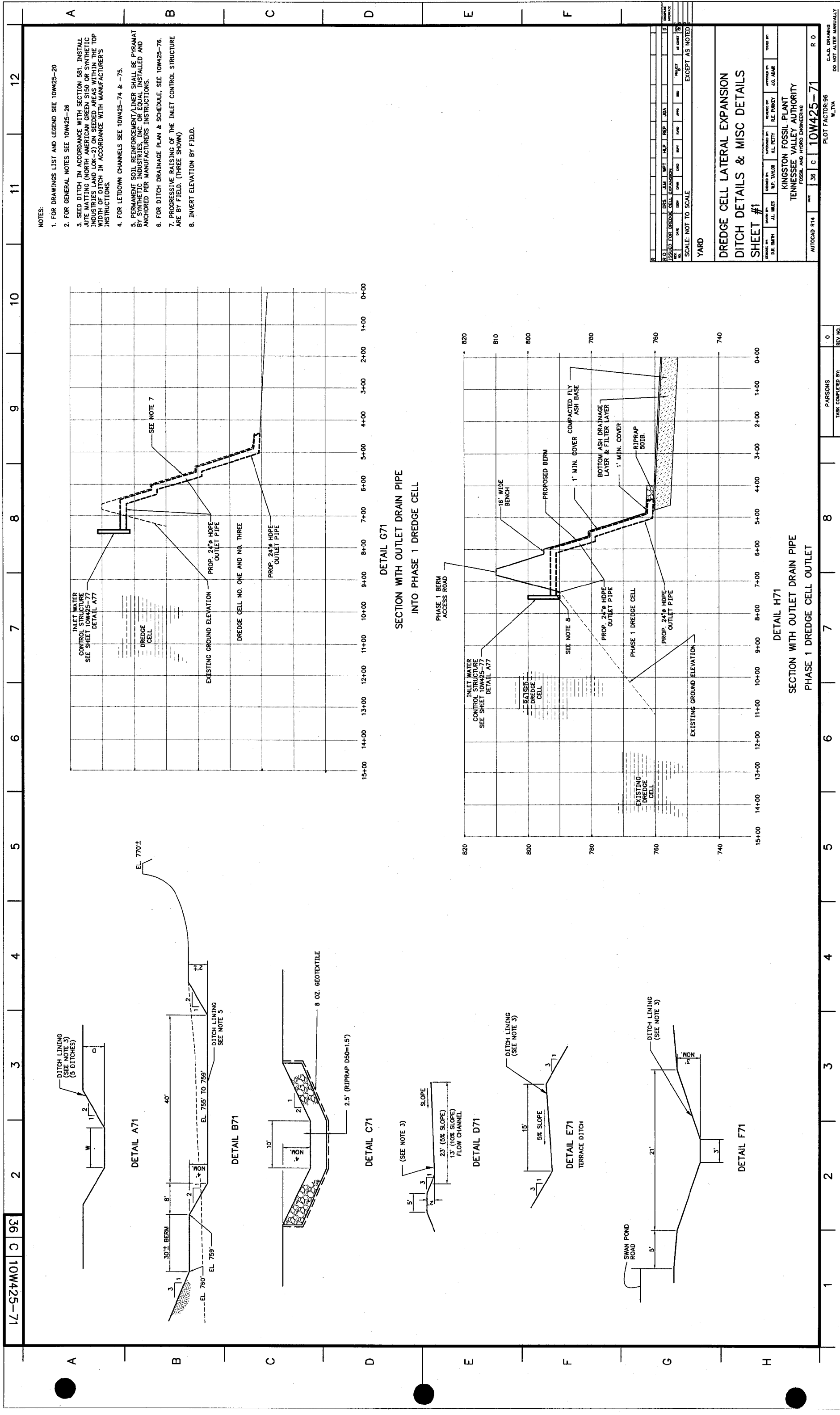
PLOT FACTOR: 1 W\_LVA  
C.A.D. DRAWING DO NOT ALTER MANUALLY

SECTION N70 (TYPE A & B)

SECTION M70

SECTION H70 SECTION L70 (OPPOSITE HAND)

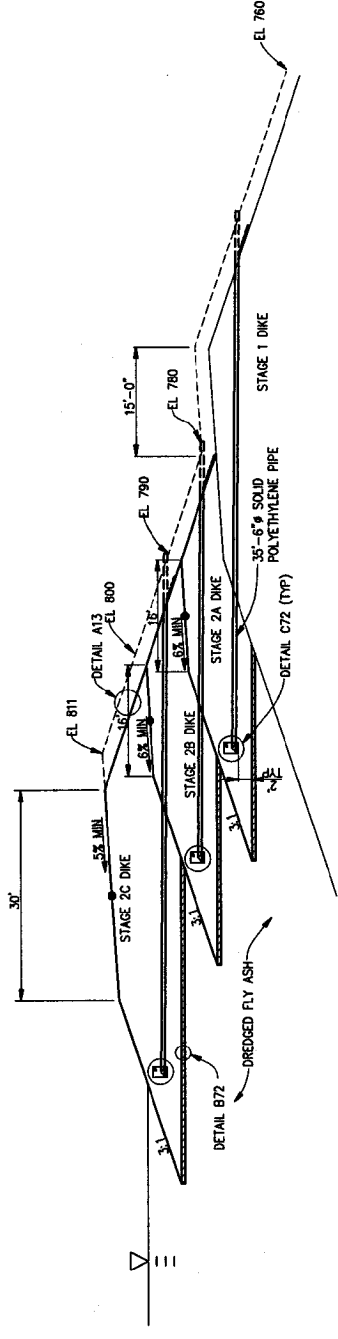
SECTION K70 SECTION J70 (OPPOSITE HAND)



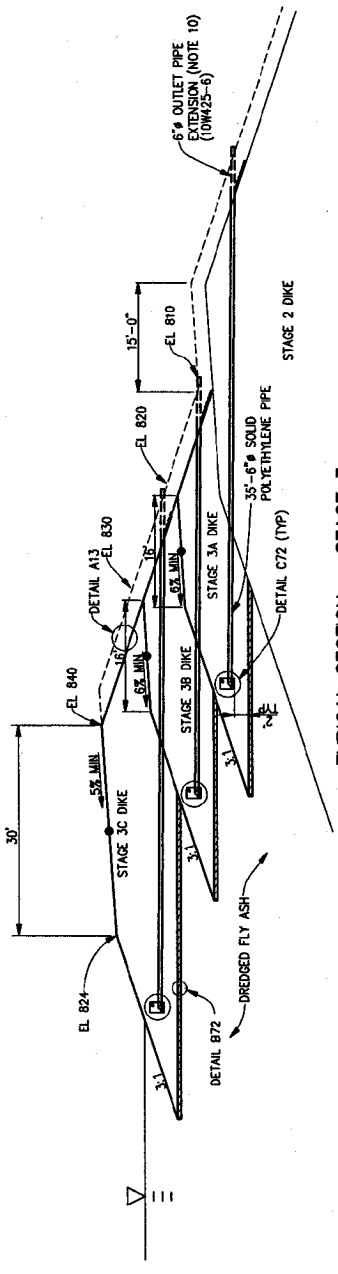
- NOTES:
1. FOR DRAWINGS LIST AND LEGEND SEE 10W425-20
  2. FOR GENERAL NOTES SEE 10W425-26
  3. SEED DITCH IN ACCORDANCE WITH SECTION 581. INSTALL JOIE MATTING (NORTH AMERICAN GREEN S150 OR SYNTHETIC INDUSTRIES LAND LOK-2) ON SEEDED AREAS WITHIN THE TOP 12" OF SOIL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
  4. FOR LETDOWN CHANNELS SEE 10W425-74 & -75.
  5. PERMANENT SOIL REINFORCEMENT/LINER SHALL BE PYRAMAT BY SYNTHETIC INDUSTRIES, INC. OR EQUAL. INSTALLED AND ANCHORED PER MANUFACTURER'S INSTRUCTIONS.
  6. FOR DITCH DRAINAGE PLAN & SCHEDULE, SEE 10W425-76.
  7. PROGRESSIVE RAISING OF THE INLET CONTROL STRUCTURE ARE BY FIELD. (THREE SHOWN)
  8. INVERT ELEVATION BY FIELD.

DESIGNED BY	DRS	JAM	WPT	REP	JSA	D
CHECKED BY	WLD	WLD	WLD	WLD	WLD	WLD
DATE	08/11/06	08/11/06	08/11/06	08/11/06	08/11/06	08/11/06
SCALE	NOT TO SCALE EXCEPT AS NOTED					
YARD						
DREDGE CELL LATERAL EXPANSION						
DITCH DETAILS & MISC DETAILS						
SHEET #1						
DESIGNED BY	J.L. SMITH	CHECKED BY	R.P. TAYLOR	APPROVED BY	J.S. JOHNS	DATE
KINGSTON FOSSIL PLANT			TENNESSEE VALLEY AUTHORITY			
FOSSIL AND HYDRO ENGINEERING						
AUTOCAD R14	DATE	3/8	C	10W425-71	R	O
PLOT FACTOR: 96						
W.T.V.A.						
C.A.D. DRAWING						
DO NOT ALTER MANUALLY						

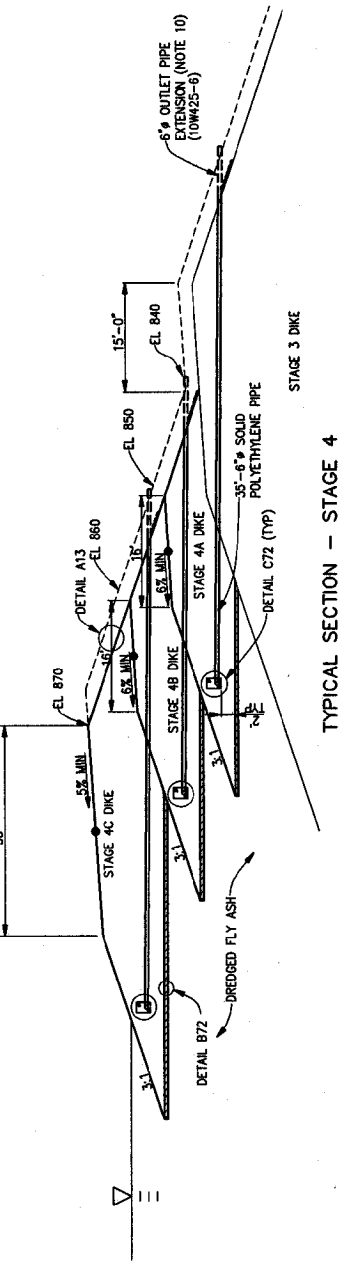
PARSONS	0
TASK COMPLETED BY:	
REV NO.	



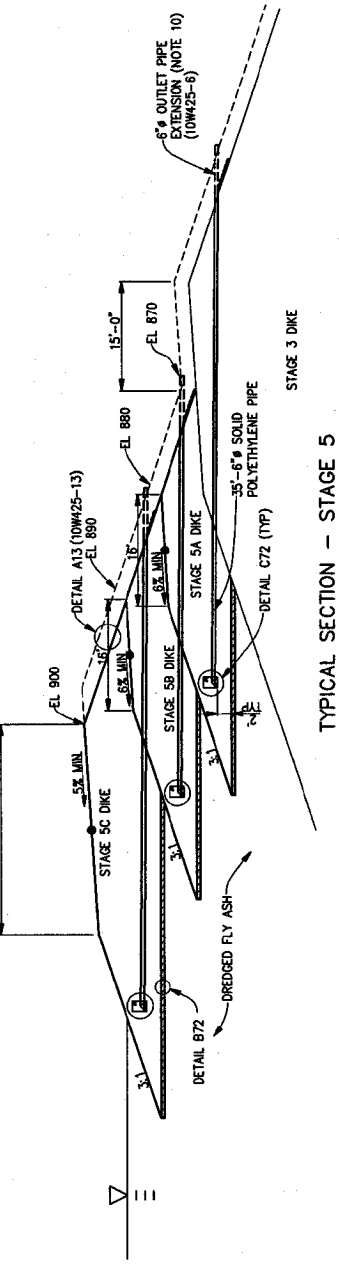
TYPICAL SECTION - STAGES 1&2



TYPICAL SECTION - STAGE 3

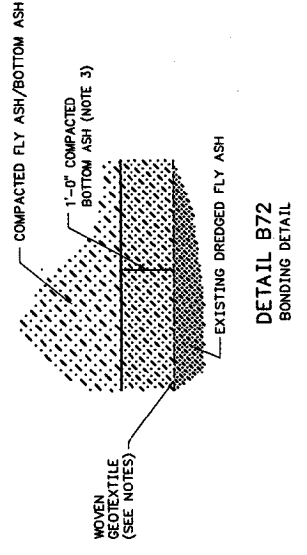


TYPICAL SECTION - STAGE 4

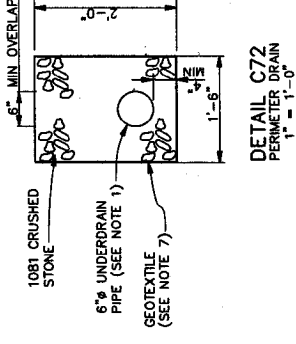


TYPICAL SECTION - STAGE 5

DETAIL A72 - ASH DIKS



DETAIL B72 BONDING DETAIL



DETAIL C72 PERIMETER DRAIN

- NOTES:
- FOR NOTES, SEE 10W425-6.
  - PLATE AND COMPACT ASH DIKS IN ACCORDANCE WITH THE QA/QC PLAN.
  - ELEVATION SHOWN ARE TYPICAL NOMINAL ELEVATIONS. ACTUAL ELEVATIONS WILL VARY AS SHOWN ON FINAL GRADING PLAN ON DRAWING 10W425-XXX.
  - PREPARED DRAIN PIPE SHALL BE NEW MATERIAL & SHALL BE SLOTTED HOPE DRAIN TUBING AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC., COLUMBUS, OHIO (614) 457-5051 OR EQUAL. LATERAL OUTLET PIPE SHALL BE NON-PERFORATED POLYETHYLENE CORRUGATED TUBING AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC., COLUMBUS, OHIO (614) 457-5051 OR EQUAL.
  - LATERAL OUTLET PIPES SHALL BE CLASS C IN ACCORDANCE WITH SECTION 571.
  - OMIT WOVEN GEOTEXTILE IF A SUITABLY FIRM BASE EXISTS.
  - BOTTOM ASH THICKNESS MAY BE INCREASED OR DECREASED AS REQUIRED TO OBTAIN REQUIRED COMPACTION.

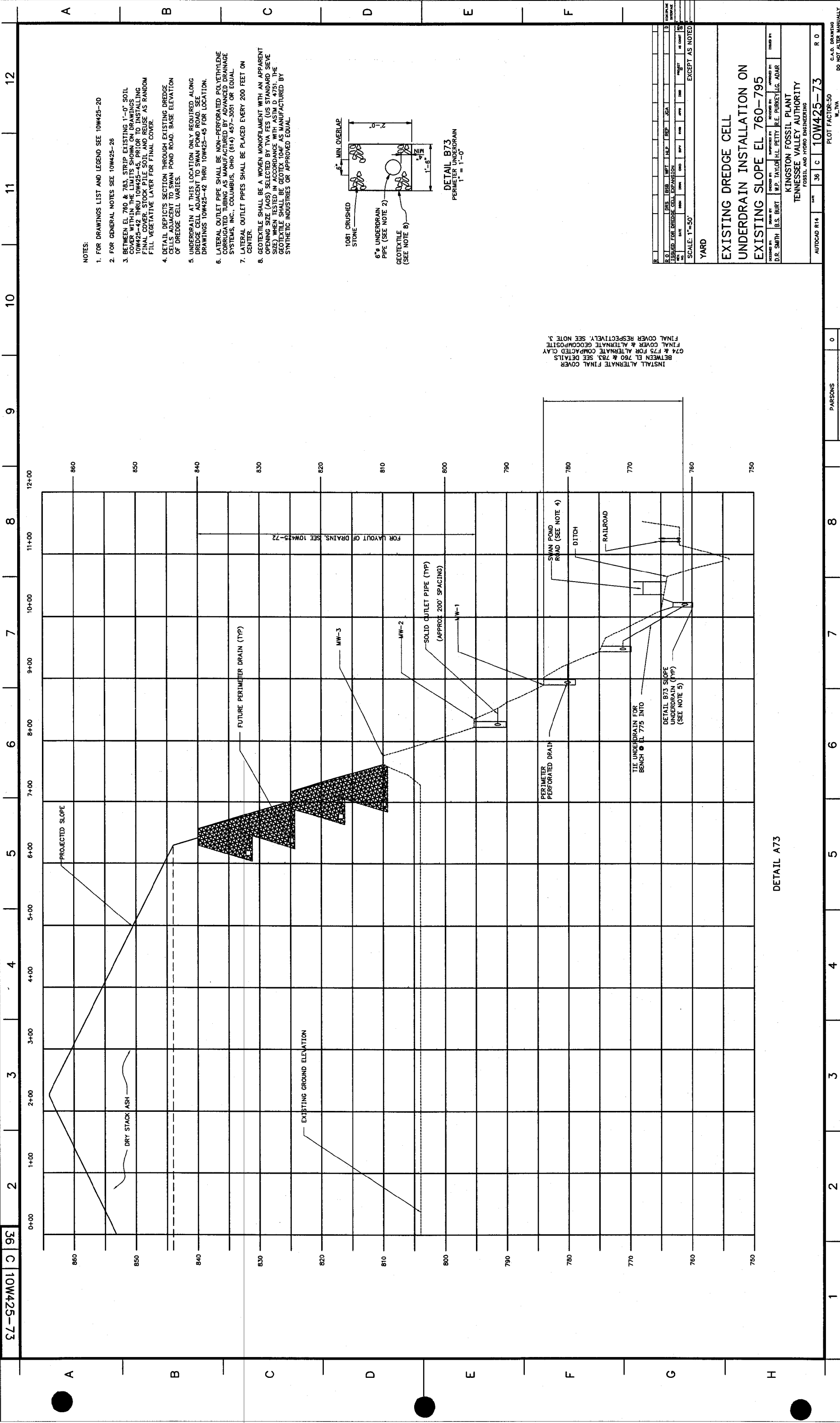
DESIGNED BY	D.R. SMITH	CHECKED BY	W.P. TAYLOR	DATE	08/15/01
DRAWN BY	J.L. MILES	APPROVED BY	R.E. PURNEY, LLC	DATE	08/15/01
SCALE	1" = 10'				
EXCEPT AS NOTED	YARD				

**DREDGE CELL EXPANSION**  
**TYPICAL SECTIONS - FLY ASH OPTION**  
**STAGES 1-5**

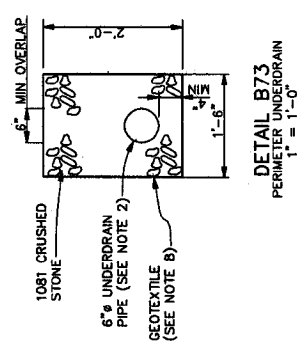
KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 FOSSIL AND HYDRO ENGINEERING

AUTOCAD R14  
 SHEET NO. 36 C 10W425-72  
 PLOT FACTOR: 1=1  
 W.TVA  
 R.O.  
 C.A.D. DRAWING  
 DO NOT ALTER MANUALLY

TASK COMPLETED BY:	PARSONS
REV NO.	0



- NOTES:
1. FOR DRAWINGS LIST AND LEGEND SEE 10W425-20
  2. FOR GENERAL NOTES SEE 10W425-28
  3. BETWEEN EL 760 & 783, STRIP EXISTING 1'-0" SOIL COVER WITHIN THE LIMITS SHOWN ON DRAWINGS 10W425-42 THRU 10W425-45, PRIOR TO INSTALLING FINAL COVER, STOCK PILE SOIL AND REUSE AS RANDOM FILL VEGETATIVE LAYER FOR FINAL COVER.
  4. DETAIL DEPICTS SECTION THROUGH EXISTING DREDGE CELLS ADJACENT TO SWAN POND ROAD. BASE ELEVATION OF DREDGE CELL VARIES.
  5. UNDERDRAIN AT THIS LOCATION ONLY REQUIRED ALONG DREDGE CELL ADJACENT TO SWAN POND ROAD. SEE DRAWINGS 10W425-42 THRU 10W425-45 FOR LOCATION.
  6. LATERAL OUTLET PIPE SHALL BE NON-PERFORATED, POLYETHYLENE CORRUGATED TUBING AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC., COLUMBUS, OHIO (614) 457-3051 OR EQUAL.
  7. LATERAL OUTLET PIPES SHALL BE PLACED EVERY 200 FEET ON CENTER.
  8. GEOTEXTILE SHALL BE A WOVEN MONOFILAMENT WITH AN APPARENT OPENING SIZE (AOS) SELECTED BY TVA FES (US STANDARD SIEVE SIZE) WHEN TESTED IN ACCORDANCE WITH ASTM D 4751. THE GEOTEXTILE SHALL BE GEOTEX 104F AS MANUFACTURED BY SYNTHETIC INDUSTRIES OR APPROVED EQUAL.



INSTALL ALTERNATE FINAL COVER  
B74 & F75 FOR ALTERNATE COMPOSITE  
CLAY  
B74 & F75 FOR ALTERNATE COMPOSITE  
CLAY  
FINAL COVER & ALTERNATE COMPOSITE  
FINAL COVER RESPECTIVELY. SEE NOTE 3.

NO.	DATE	BY	CHKD.	APP'D.	REV.	DESCRIPTION
1						ISSUED FOR DREDGE CELL EXPANSION
2						REVISION
3						REVISION
4						REVISION
5						REVISION
6						REVISION
7						REVISION
8						REVISION
9						REVISION
10						REVISION
11						REVISION
12						REVISION

SCALE: 1" = 50'

YARD

EXCEPT AS NOTED

**EXISTING DREDGE CELL EXPANSION**

**EXISTING DREDGE CELL**

**UNDERDRAIN INSTALLATION ON EXISTING SLOPE EL 760-795**

DESIGNED BY: D.R. SMITH  
CHECKED BY: M.P. TAYLOR  
DRAWN BY: H.L. PETTY  
APP'D. BY: R.E. PURKEY  
IN CHARGE: G. ADAR

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
FOSSIL AND HYDRO ENGINEERING

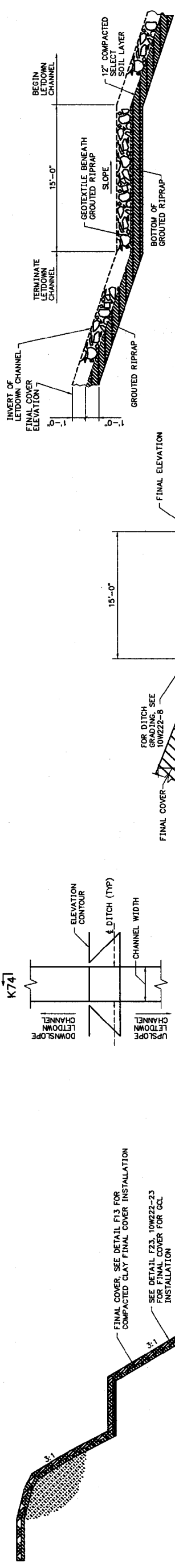
AUTOCAD R14 DATE: 36 C 10W425-73 R 0

PLOT FACTOR: 50 W.TVA

U.S. DRAWING DO NOT ALTER MANUALLY

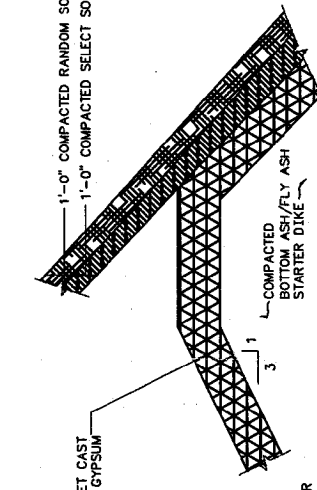
DETAIL A73





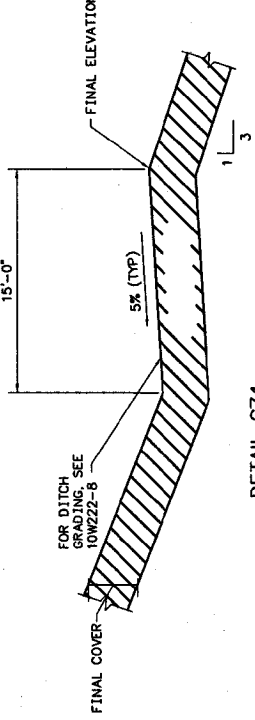
SECTION K74

NOTE: CHANNEL BERM NOT SHOWN FOR CLARITY



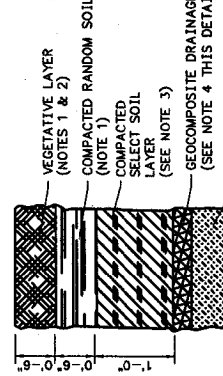
DETAIL J74

STARTER DIKE FINAL COVER TERMINATION  
COMPACTED CLAY FINAL COVER



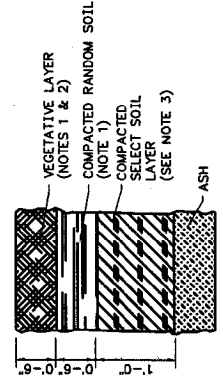
DETAIL C74

TERRACE DITCH  
COMPACTED CLAY FINAL COVER



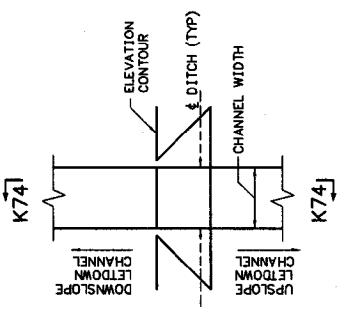
DETAIL G74

ALTERNATE GEOCOMPOSITE FINAL COVER  
COMPACTED CLAY FINAL COVER



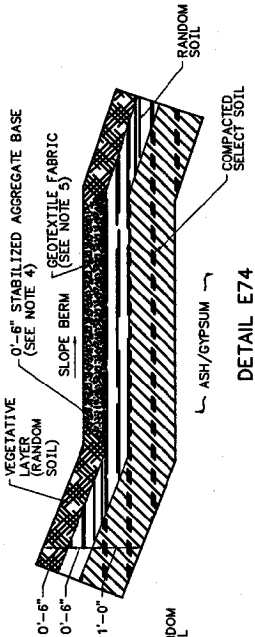
DETAIL F74

FINAL COVER  
COMPACTED CLAY FINAL COVER



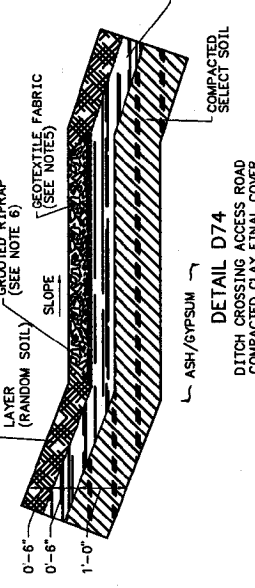
DETAIL B74

PLAN VIEW  
TERRACE DITCH  
LETDOWN CHANNEL INTERSECTION



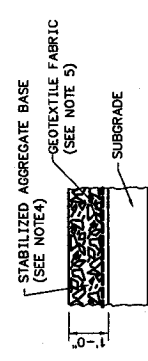
DETAIL E74

COVER ACCESS ROAD  
COMPACTED CLAY FINAL COVER



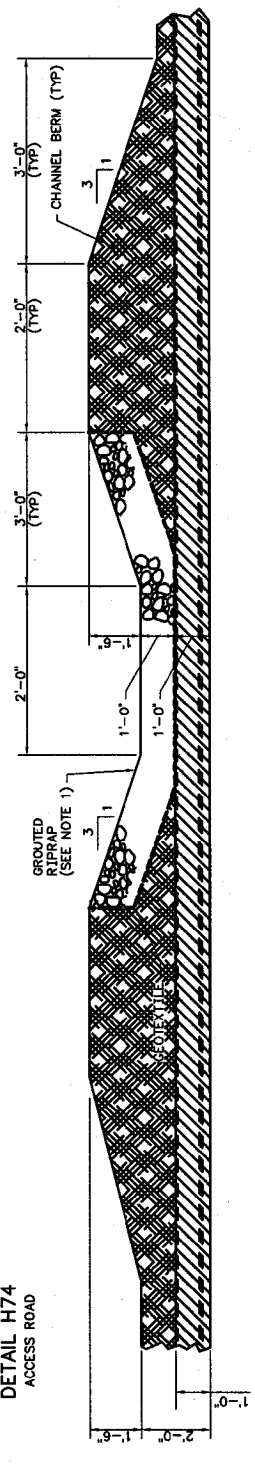
DETAIL D74

DITCH CROSSING ACCESS ROAD  
COMPACTED CLAY FINAL COVER



DETAIL H74

ACCESS ROAD



DETAIL M74

TYPICAL LETDOWN CHANNEL  
COMPACTED CLAY FINAL COVER

- NOTES:
1. THE UPPERMOST 1 FT. OF THE FINAL COVER SHALL CONSIST OF RANDOM SOIL PLACED IN ACCORDANCE WITH THE O&C PLAN FOR THIS FACILITY. THE UPPER 6 IN. SHALL BE PREPARED FOR SEEDING. PRIOR TO SEEDING, A MINIMUM OF 3 INCHES OF TOPSOIL SHALL BE SPREAD OVER THE FINAL COVER TO DETERMINE APPROPRIATE AMOUNTS OF LIME, FERTILIZER, ETC. TO BE SPREAD PRIOR TO SEEDING.
  2. SEED ALL AREAS (EXCLUDING ROAD & LET DOWN CHANNELS) IN ACCORDANCE WITH TVA SPECIFICATION T-1, SECTION 583.
  3. CONSTRUCT COMPACTED SELECT SOIL LAYER IN ACCORDANCE WITH THE CONSTRUCTION AND/OR PLAN FOR THIS FACILITY. THE COMPACTED SELECT SOIL LAYER SHALL BE CONSTRUCTED USING SELECT SOIL BACKFILL OBTAINED FROM STOCKPILED MATERIAL USED TO CONSTRUCT THE CLAY LAYER FOR THE LINER.
  4. THE GEOCOMPOSITE DRAINAGE LAYER BENEATH THE COMPACTED CLAY LAYER SHALL CONSIST OF THE FOLLOWING:
    - A CALENDERED WOVEN GEOTEXTILE WITH ACS DETERMINED BY TVA FES;
    - THE CALENDERED WOVEN GEOTEXTILE SHALL BE HEAT BONDED TO THE GEONET;
    - THE UPPER GEOTEXTILE SHALL BE A NON-WOVEN NEEDLEPUNCHED GEOTEXTILE.
  5. GEOTEXTILE FABRIC SHALL BE A NON-WOVEN NEEDLE PUNCHED FABRIC CLASS C IN ACCORDANCE WITH SECTION 571.
  6. EXTEND GROUTED RIPRAP TO MATCH THE FULL WIDTH OF THE LETDOWN CHANNEL. GROUTED RIPRAP IN ACCORDANCE WITH SECTION 577.

- NOTES:
1. GROUTED RIPRAP SHALL BE IN ACCORDANCE WITH SECTION 577.
  2. GEOTEXTILE FABRIC SHALL BE A NON-WOVEN NEEDLE PUNCHED FABRIC CLASS C, IN ACCORDANCE WITH SECTION 571.
  3. EXTEND GROUTED RIPRAP TO MATCH THE FULL WIDTH OF THE LETDOWN CHANNEL. GROUTED RIPRAP IN ACCORDANCE WITH SECTION 577.

DATE	BY	CHKD	APP'D	SCALE	EXCEPT AS NOTED
10/11/96	J.M.P.	J.M.P.	J.M.P.	AS SHOWN	
10/11/96	J.M.P.	J.M.P.	J.M.P.	AS SHOWN	
10/11/96	J.M.P.	J.M.P.	J.M.P.	AS SHOWN	
10/11/96	J.M.P.	J.M.P.	J.M.P.	AS SHOWN	
10/11/96	J.M.P.	J.M.P.	J.M.P.	AS SHOWN	
10/11/96	J.M.P.	J.M.P.	J.M.P.	AS SHOWN	
10/11/96	J.M.P.	J.M.P.	J.M.P.	AS SHOWN	
10/11/96	J.M.P.	J.M.P.	J.M.P.	AS SHOWN	
10/11/96	J.M.P.	J.M.P.	J.M.P.	AS SHOWN	

YARD  
DREDGE CELL LATERAL EXPANSION  
COMPACTED CLAY DETAILS  
FINAL COVER

DESIGNED BY	CHECKED BY	APPROVED BY	DATE	SCALE	EXCEPT AS NOTED
D.R. SMITH	J. MILES	W.P. TAYLOR	10/11/96	AS SHOWN	
DESIGNED BY	CHECKED BY	APPROVED BY	DATE	SCALE	EXCEPT AS NOTED
H.L. PETTY	RE PURKEY	J.G. ADAIR	10/11/96	AS SHOWN	

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R14	DATE	SCALE	EXCEPT AS NOTED
	10/11/96	AS SHOWN	

PARSONS  
TASK COMPLETED BY:

REV NO. 0

REV NO. 0

REV NO. 0

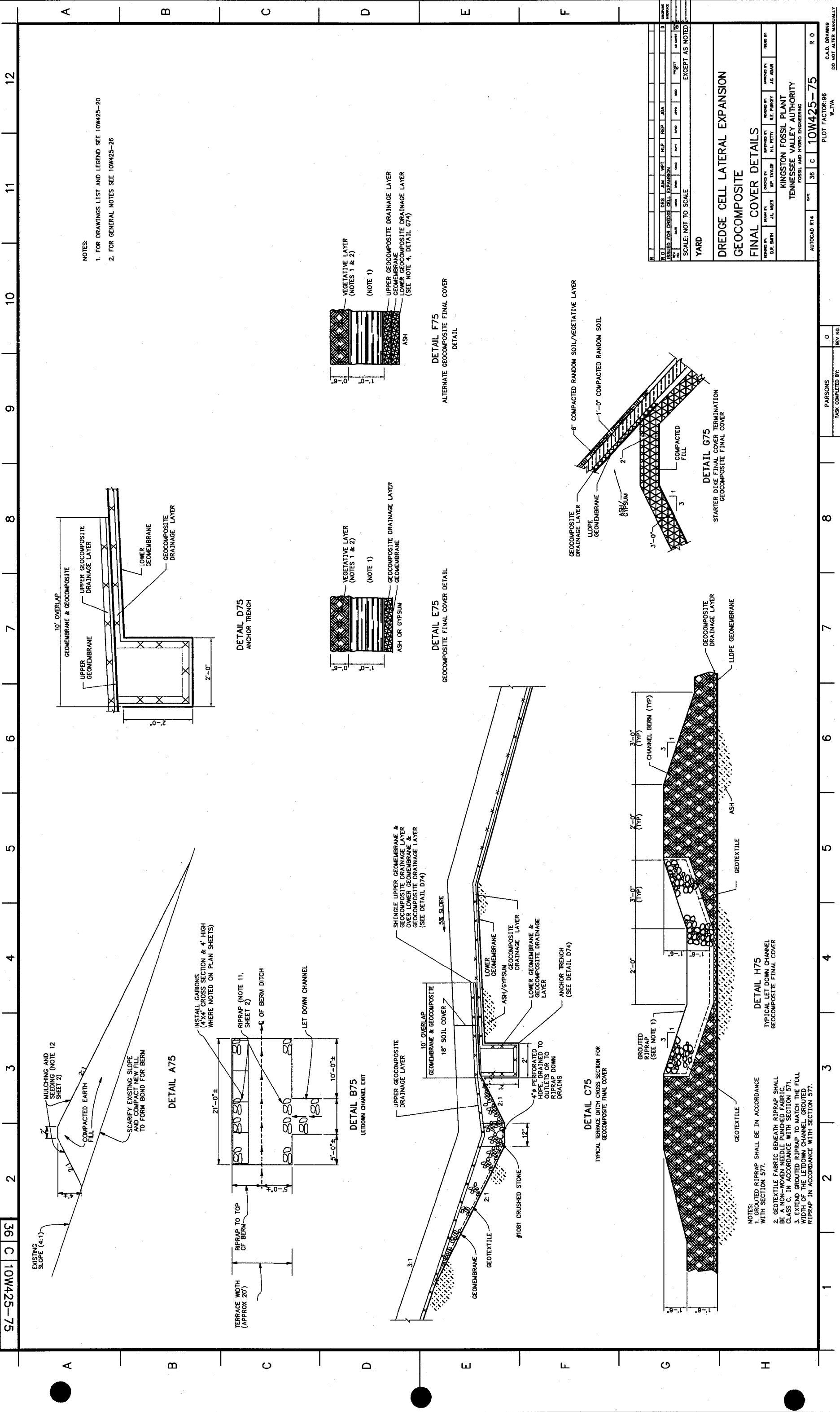
REV NO. 0

REV NO. 0

REV NO. 0

REV NO. 0

PLOT FACTOR: 96  
W.T.V.A.  
C.S. DRAWING  
DO NOT ALTER MANUALLY



NOTES:  
 1. FOR DRAWINGS LIST AND LEGEND SEE 10W425-20  
 2. FOR GENERAL NOTES SEE 10W425-26

REV.	DATE	BY	CHKD.	APP'D.	DESCRIPTION
1	08/11/06	J.L. SMITH	J.L. SMITH	J.L. SMITH	ISSUED FOR DREDGE CELL EXPANSION
2	08/11/06	J.L. SMITH	J.L. SMITH	J.L. SMITH	SCALE: NOT TO SCALE EXCEPT AS NOTED

PROJECT NO.	10W425-75
CLIENT	KINGSTON FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING
DESIGNER	PARSONS
DATE	08/11/06
SCALE	AS SHOWN
PROJECT	DREDGE CELL LATERAL EXPANSION
LOCATION	YARD
DATE	08/11/06
BY	J.L. SMITH
CHKD.	J.L. SMITH
APP'D.	J.L. SMITH
DATE	08/11/06

REV. NO.	0
TASK COMPLETED BY:	PARSONS
DATE	08/11/06
PROJECT	DREDGE CELL LATERAL EXPANSION
LOCATION	YARD
SCALE	AS SHOWN
PROJECT	DREDGE CELL LATERAL EXPANSION
LOCATION	YARD
DATE	08/11/06
BY	J.L. SMITH
CHKD.	J.L. SMITH
APP'D.	J.L. SMITH
DATE	08/11/06

96-527M01 C 36

2 3 4 5 6 7 8 9 10 11 12

A

B

C

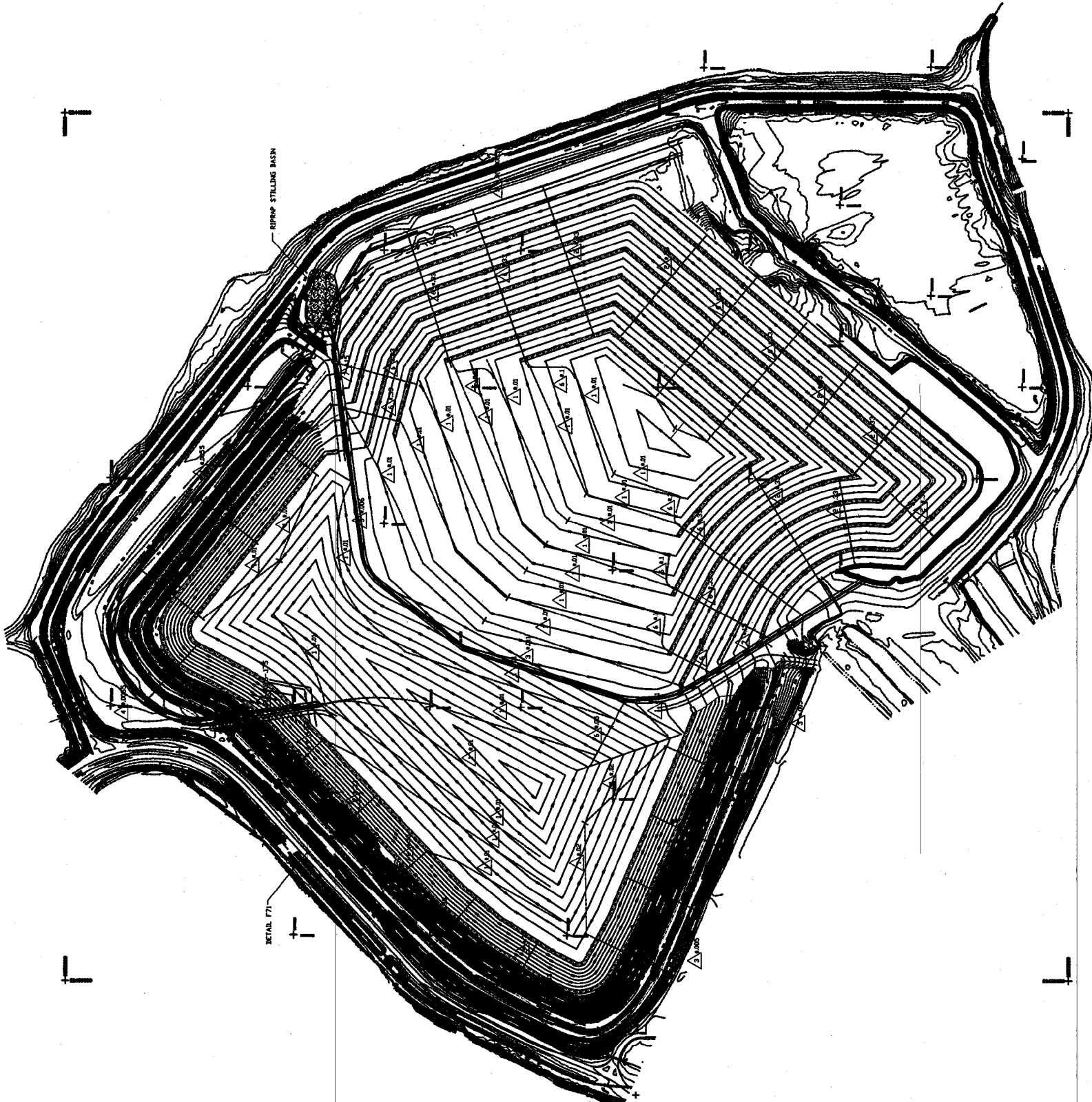
D

E

F

G

H



DITCH SCHEDULES

DITCH SCHED.	DITCH DEPTH-D	BOTTOM WIDTH-W	LININGS
△	2.5' NOM/2' MIN	-	SEE NOTE 3, DET D71
△	2.5' NOM/2' MIN	5' NOM/4' MIN	SEE NOTE 5, DET A71
△	3.5' NOM/3' MIN	10' NOM/9' MIN	SEE NOTE 3, DET A71
△	3.5' NOM/3' MIN	20' NOM/18' MIN	SEE NOTE 3, DET A71
△	4' NOM/2.5' MIN	40' NOM/35' MIN	SEE NOTE 3, DET B71
△	2.5' NOM/2' MIN	5' NOM/4' MIN	SEE NOTE 5, DET A71
△	4' NOM/2.5' MIN	10' NOM/9' MIN	DET C71
△	3.5' NOM/3' MIN	5' NOM/4.5' MIN	SEE NOTE 5, DET A71

LEGEND

	ROCK CHUTES
	TRUNK DITCHES
	DITCHES
	TERRACE DITCHES
	DITCH CLASS
	.01 DITCH SLOPE

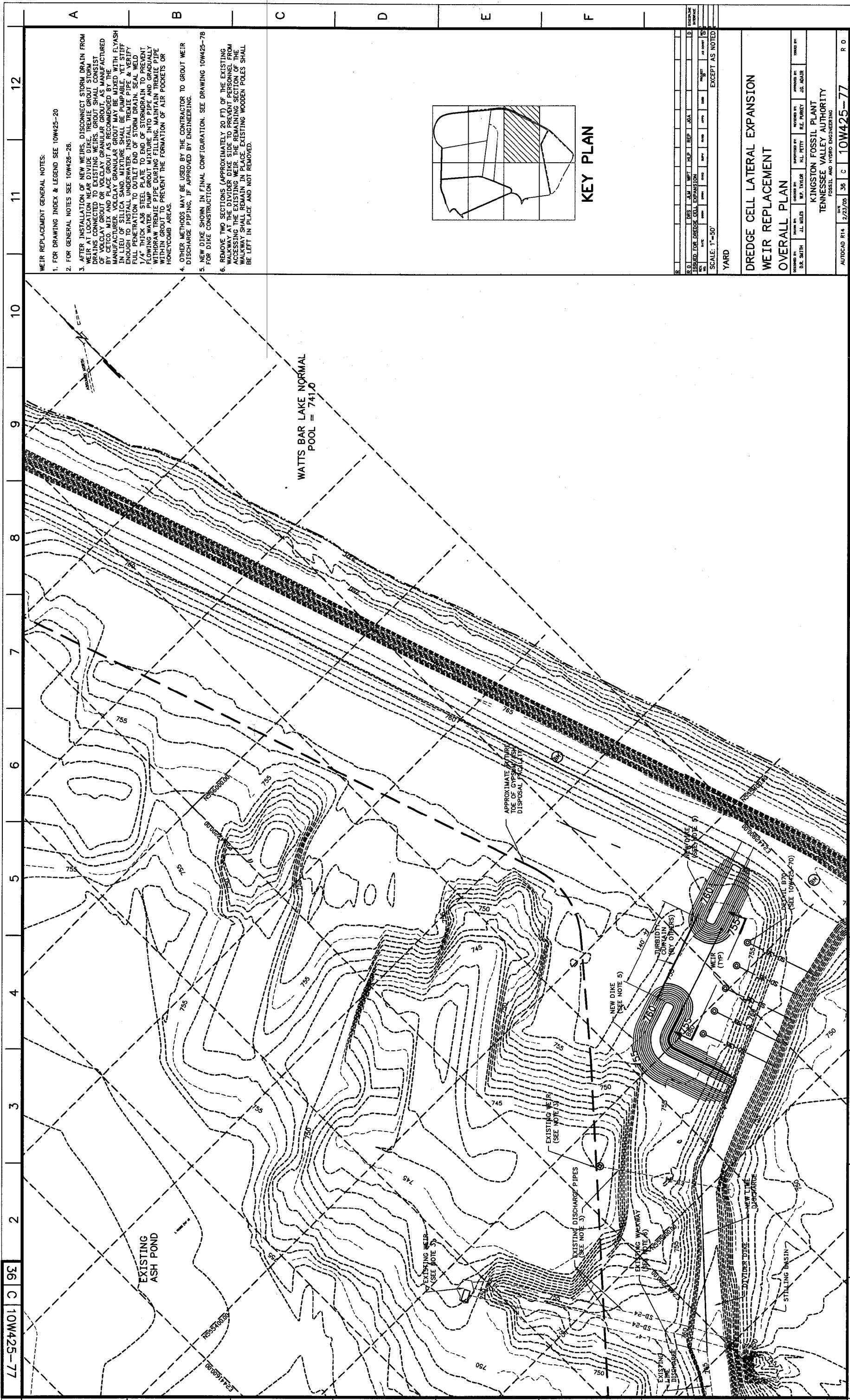
NOTE:  
1. FOR TERRACE DITCH DETAIL, SEE DETAIL E71, 10W425-71

EMORY RIVER-WATTS BAR LAKE  
100 YEAR FLOOD ELEVATION 486 AT RIVER MILE 0.00  
500 YEAR FLOOD ELEVATION 780.0 AT RIVER MILE 2.00

NO.	DATE	BY	CHKD.	APP.	REVISION
1					DESIGNED FOR DREDGE CELL EXPANSION
2					SCALE: 1"=200'
YARD					
DREDGE CELL					
LATERAL EXPANSION FINAL COVER					
DRAINAGE PLAN & SCHEDULE					
DESIGNED BY	D.R. SMITH	CHECKED BY	M.P. TAYLOR	APPROVED BY	H.L. PETTY
DRAWN BY			KINGSTON FOSSIL PLANT		
TENNESSEE VALLEY AUTHORITY			FOSSIL AND HYDRO ENGINEERING		
AUTOCAD R14	36	C	10W425-76	R	0

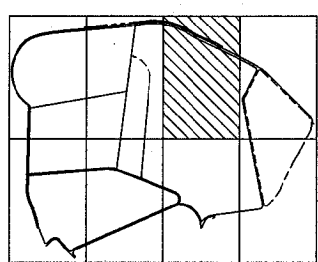
PLOT FACTOR: 200  
W.L.T.V.A  
C.A.S. DRAWING  
DO NOT ALTER MANUALLY

TASK COMPLETED BY:	REV. NO.
PARSONS	0



**WEIR REPLACEMENT GENERAL NOTES:**

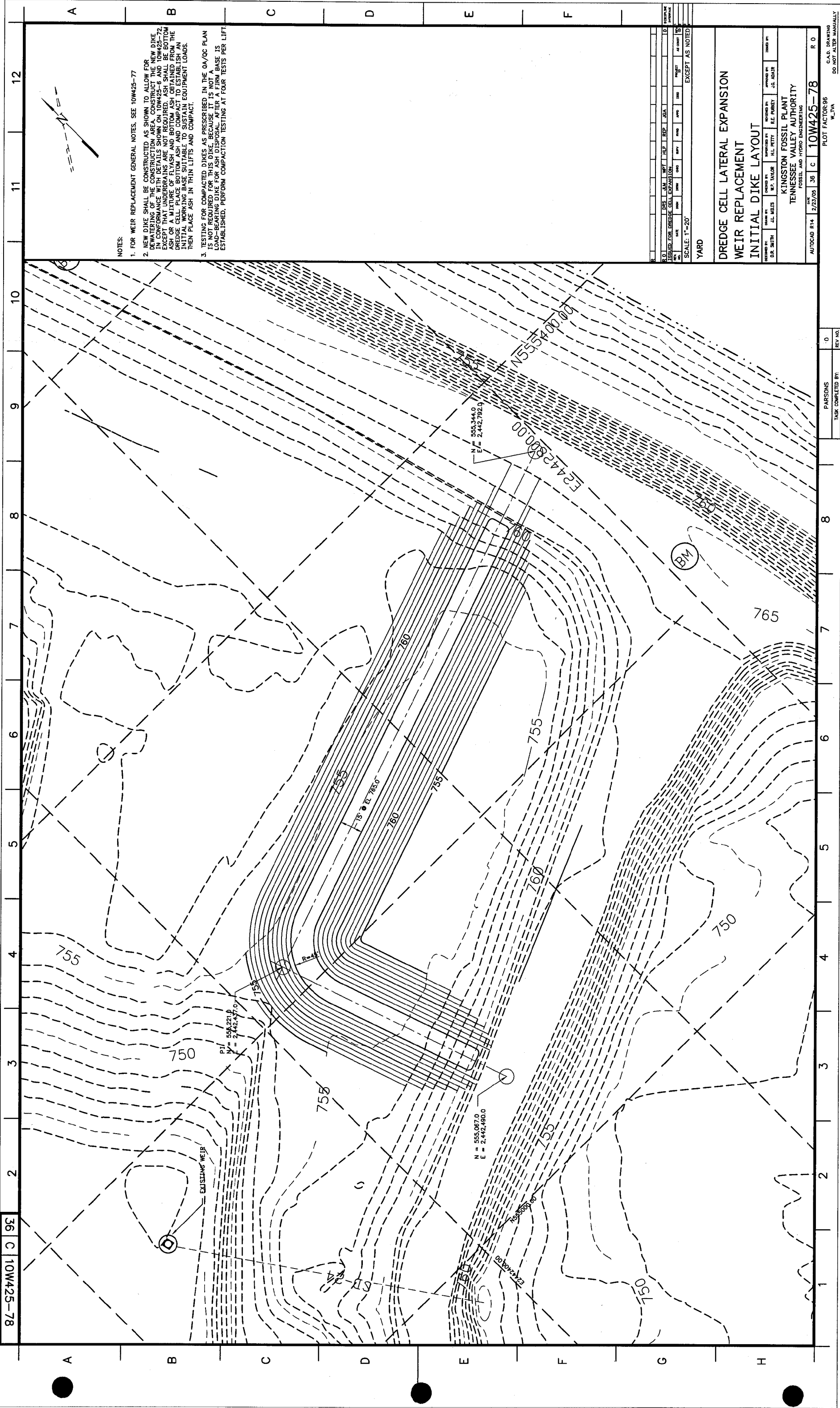
1. FOR DRAWING INDEX & LEGEND SEE 10W425-20
2. FOR GENERAL NOTES SEE 10W425-26.
3. AFTER INSTALLATION OF NEW WEIRS, DISCONNECT STORM DRAIN FROM WEIR. LOCATE NEW WEIR. REMOVE GROUT FROM STORM DRAIN. REMOVE EXISTING WEIR. REPLACE GROUT WITH VOLCANIC ASH. BACKFILL WITH VOLCANIC ASH OR VOLCLAY GRANULAR GROUT AS MANUFACTURED BY CETCO. MIX AND PLACE GROUT AS RECOMMENDED BY THE MANUFACTURER. VOLCLAY GRANULAR GROUT MAY BE MIXED WITH FLYASH IN LIEU OF SILICA SAND. MIXTURE SHALL BE PUMPABLE, YET STIFF ENOUGH TO INSTALL UNDERWATER. INSTALL TRENCH PIPE & VERIFY PERMEATION TO OUTLET END OF STORM DRAIN. SEAL WEIR WITH TRENCH PIPE. REMOVE GROUT FROM STORM DRAIN. GRADUALLY FLOWING WATER PUMP GROUT Mixture INTO PIPE AND GRADUALLY WITHDRAW TRENCH PIPE DURING FILLING. MAINTAIN TRENCH PIPE WITHIN GROUT TO PREVENT THE FORMATION OF AIR POCKETS OR HONEYCOMB AREAS.
4. OTHER METHODS MAY BE USED BY THE CONTRACTOR TO GROUT WEIR DISCHARGE PIPING, IF APPROVED BY ENGINEERING.
5. NEW DIKE SHOWN IN FINAL CONFIGURATION. SEE DRAWING 10W425-78 FOR DIKE CONSTRUCTION
6. REMOVE TWO SECTIONS (APPROXIMATELY 20 FT) OF THE EXISTING WALKWAY AT THE DIVIDER DIKE SIDE TO PREVENT PERSONNEL FROM FALLING OFF. THE EXISTING WALKWAY SHALL REMAIN IN PLACE. EXISTING WOODEN POLES SHALL BE LEFT IN PLACE AND NOT REMOVED.



**KEY PLAN**

SCALE: 1"=50'	EXCEPT AS NOTED
YARD	
DREDGE CELL LATERAL EXPANSION WEIR REPLACEMENT OVERALL PLAN	
DESIGNED BY: J.L. MILLER	CHECKED BY: W.P. TAYLOR
DATE: 2/23/05	DATE: 3/1/05
PROJECT NO: 10W425-77	PROJECT NO: 10W425-77
CLIENT: KINGSTON FOSSIL PLANT	CLIENT: KINGSTON FOSSIL PLANT
ENGINEER: TENNESSEE VALLEY AUTHORITY	ENGINEER: TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING	
AUTOCAD R14	DATE: 2/23/05
SCALE: 1"=50'	DATE: 2/23/05

PROJECT NO: 10W425-77	SCALE: 1"=50'
DATE: 2/23/05	DATE: 2/23/05
CLIENT: KINGSTON FOSSIL PLANT	CLIENT: KINGSTON FOSSIL PLANT
ENGINEER: TENNESSEE VALLEY AUTHORITY	ENGINEER: TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING	
AUTOCAD R14	DATE: 2/23/05
SCALE: 1"=50'	DATE: 2/23/05



**NOTES:**

1. FOR WEIR REPLACEMENT GENERAL NOTES, SEE 10W425-77
2. NEW DIKE SHALL BE CONSTRUCTED AS SHOWN TO ALLOW FOR WEIGHING OF THE CONSTRUCTION ASH. THE DIKE SHALL BE CONSTRUCTED IN CONFORMANCE WITH DETAILS SHOWN ON 10W425-76 AND 10W425-77 EXCEPT THAT UNDERDRAINS ARE NOT REQUIRED. ASH SHALL BE BOTTOM ASH OR A MIXTURE OF FLYASH AND BOTTOM ASH OBTAINED FROM THE DREDGE CELL. PLACE BOTTOM ASH AND COMPACT TO ESTABLISH AN INITIAL WORKING BASE SUITABLE TO SUSTAIN EQUIPMENT LOADS. THEN PLACE ASH IN THIN LIFTS AND COMPACT.
3. TESTING FOR COMPACTED DIKES AS PRESCRIBED IN THE O&C PLAN IS NOT REQUIRED FOR THIS DIKE, BECAUSE IT IS NOT A LOAD-BEARING DIKE FOR ASH DISPOSAL. AFTER A FIRM BASE IS ESTABLISHED, PERFORM COMPACTION TESTING AT FOUR TESTS PER LIFT

NO.	DATE	BY	DESCRIPTION
1	2/23/05	J.L. WILKS	ISSUED FOR DREDGE CELL EXPANSION
2		W.P. TAYLOR	REVISED
3		R.L. PETTY	REVISED
4		J.S. ADLER	REVISED

SCALE: 1"=20'  
YARD

**DREDGE CELL LATERAL EXPANSION  
WEIR REPLACEMENT  
INITIAL DIKE LAYOUT**

DESIGNED BY	J.L. WILKS	CHECKED BY	W.P. TAYLOR
DRAWN BY	R.L. PETTY	APPROVED BY	J.S. ADLER
<b>KINGSTON FOSSIL PLANT TENNESSEE VALLEY AUTHORITY</b>			
FOSSIL AND HYDRO ENGINEERING			
AUTOCAD FILE	2/23/05	SHEET NO.	36 C
			<b>10W425-78</b>
			PLOT FACTOR: 96
			R 0

C.A.D. DRAWING  
DO NOT ALTER MANUALLY

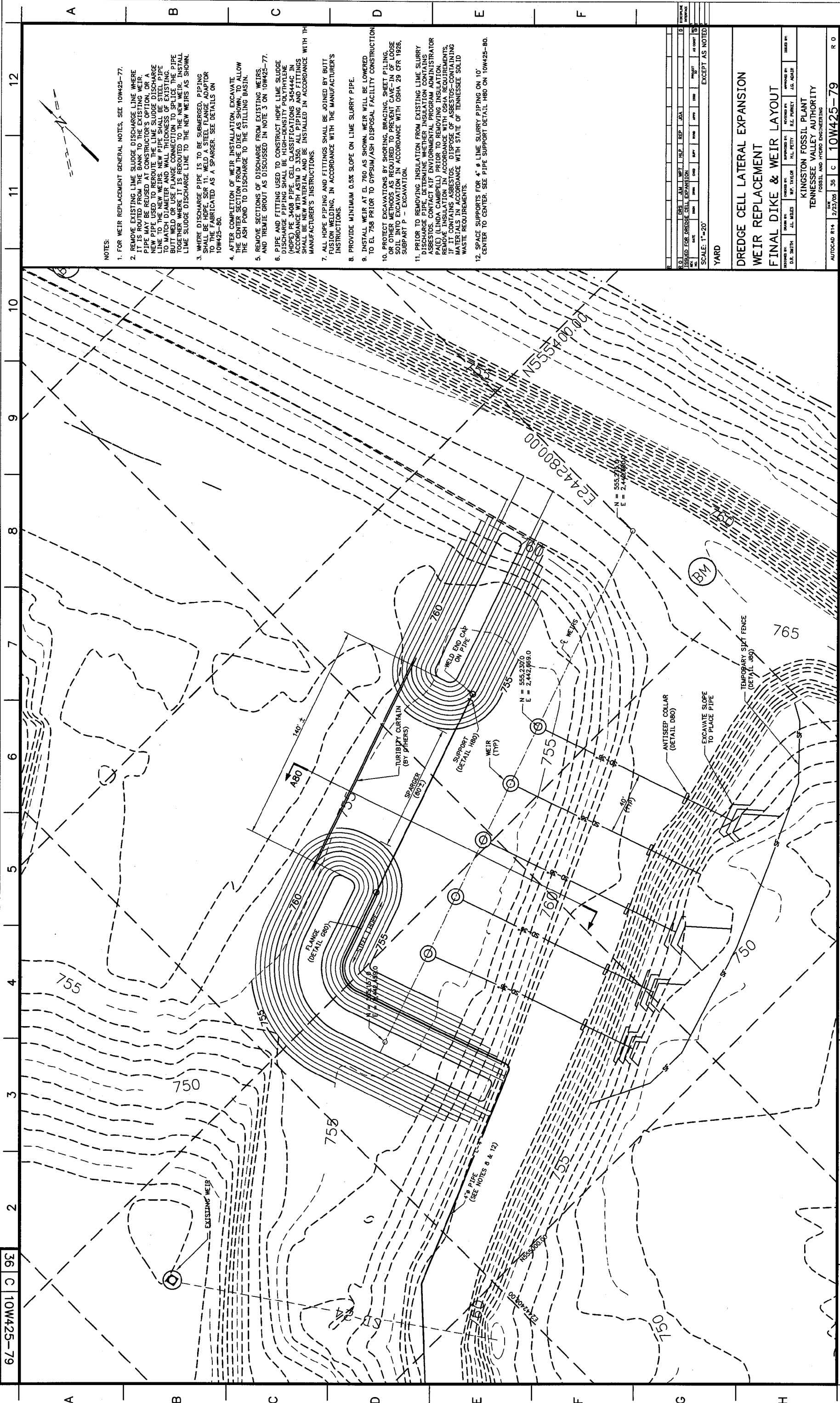
36 C 10W425-78

PARSONS  
TASK COMPLETED BY:

REV. NO.

0





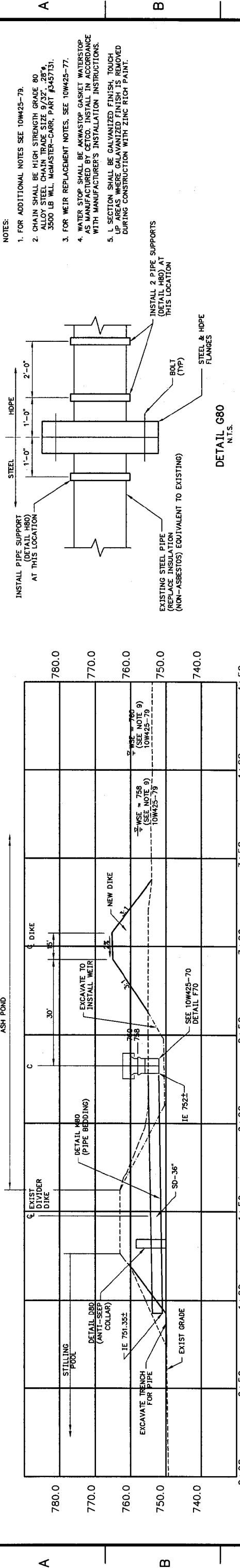
**NOTES:**

1. FOR WEIR REPLACEMENT GENERAL NOTES, SEE 10W425-77.
2. REMOVE EXISTING LIME SLUDGE DISCHARGE LINE WHERE IT IS ROUTED FROM THE BANK TO THE EXISTING WEIR. PIPE MAY BE REUSED AT CONSTRUCTOR'S OPTION, OR A NEW PIPE USED TO REROUTE THE LIME SLUDGE DISCHARGE LINE TO THE NEW WEIRS. NEW PIPE SHALL BE STEEL PIPE TO MATCH DIAMETER AND WALL THICKNESS OF EXISTING PIPE. ALL JOINTS SHALL BE WELDED TO SPURCE. THE PIPE TOGETHER WITH WEIR SHALL BE REROUTED TO THE STEEL LIME SLUDGE DISCHARGE LINE TO THE NEW WEIRS AS SHOWN.
3. WHERE DISCHARGE PIPE IS TO BE SUBMERGED, PIPING SHALL BE HDPE, SDR 11. WELD A STEEL FLANGE ADAPTOR TO THE FABRICATED AS A SPARGER. SEE DETAILS ON 10W425-80.
4. AFTER COMPLETION OF WEIR INSTALLATION, EXCAVATE THE CENTER SECTION FROM THE DIKE AS SHOWN, TO ALLOW THE ASH POND TO DISCHARGE TO THE STILLING BASIN.
5. REMOVE SECTIONS OF DISCHARGE FROM EXISTING WEIRS, AND TREWIE GROUT AS DISCUSSED IN NOTE 3 ON 10W425-77.
6. PIPE AND FITTING USED TO CONSTRUCT HDPE LIME SLUDGE DISCHARGE PIPING SHALL BE HIGH-DENSITY POLYETHYLENE (HDPE) PE 3408 PIPE. CELL CLASSIFICATIONS 345444C IN ACCORDANCE WITH ASTM D 3350. ALL PIPING AND FITTINGS SHALL BE NEW MATERIAL AND BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. ALL HDPE PIPING AND FITTINGS SHALL BE JOINED BY BUTT FUSION WELDING, IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
8. PROVIDE MINIMUM 0.5% SLOPE ON LIME SLURRY PIPE.
9. INSTALL WEIR AT EL. 760 AS SHOWN. WEIR WILL BE LOWERED TO EL. 758 PRIOR TO GYPSUM/ASH DISPOSAL FACILITY CONSTRUCTION.
10. PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, OR OTHER METHODS AS REQUIRED TO PREVENT CAVE-IN OF LOOSE SOIL INTO EXCAVATION IN ACCORDANCE WITH OSHA 29 CFR 1926, SUBPART P - EXCAVATION.
11. PRIOR TO REMOVING INSULATION FROM EXISTING LIME SLURRY DISCHARGE PIPE, DETERMINE WHETHER INSULATION CONTAINS ASBESTOS. CONTACT KTF ENVIRONMENTAL PROGRAM ADMINISTRATOR PA(LE) (LINDA CAMPELL) PRIOR TO REMOVING INSULATION. REMOVE INSULATION IN ACCORDANCE WITH OSHA REQUIREMENTS. IF IT CONTAINS ASBESTOS, DISPOSE OF ASBESTOS-CONTAINING WASTE IN ACCORDANCE WITH STATE OF TENNESSEE SOLID WASTE REQUIREMENTS.
12. SPACE SUPPORTS FOR 4" LIME SLURRY PIPING ON 10' CENTER TO CENTER. SEE PIPE SUPPORT DETAIL H80 ON 10W425-80.

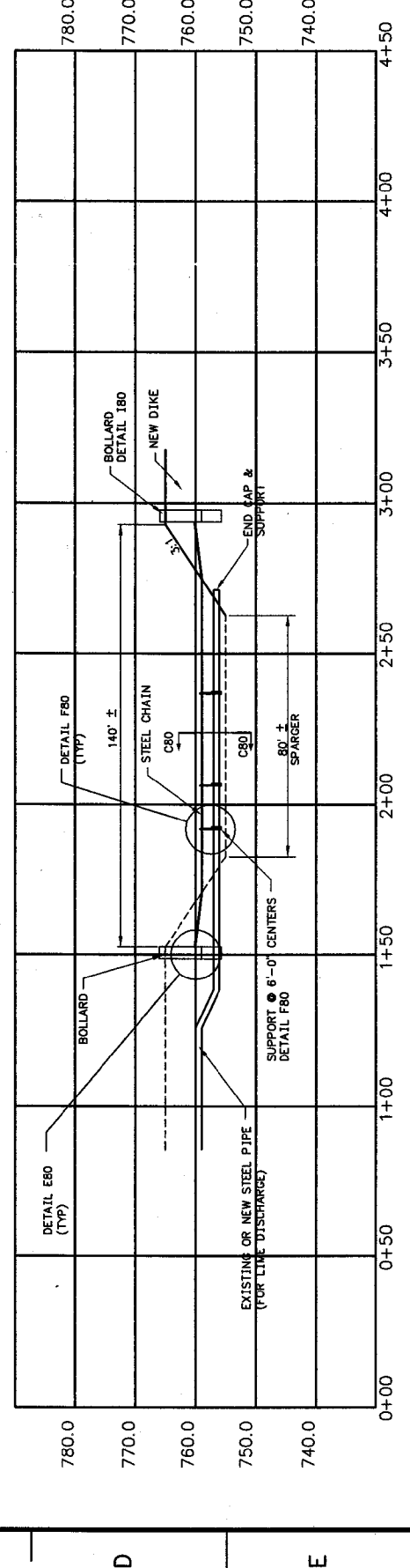
SCALE: 1"=20'	EXCEPT AS NOTED
YARD	
<b>DREDGE CELL LATERAL EXPANSION WEIR REPLACEMENT FINAL DIKE &amp; WEIR LAYOUT</b>	
DRAWN BY: J.L. SMITH CHECKED BY: H.L. PERRY DESIGNED BY: H.L. PERRY APPROVED BY: J.G. ADAIR	DATE: 2/23/05 SHEET: 36 OF: 36
KINGSTON FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING	
AUTOCAD R14	2/23/05 36 C 10W425-79
PLOT FACTOR: 96 W_IVA C.A.D. DRAWING DO NOT ALTER MANUALLY	

36 C 10W425-79

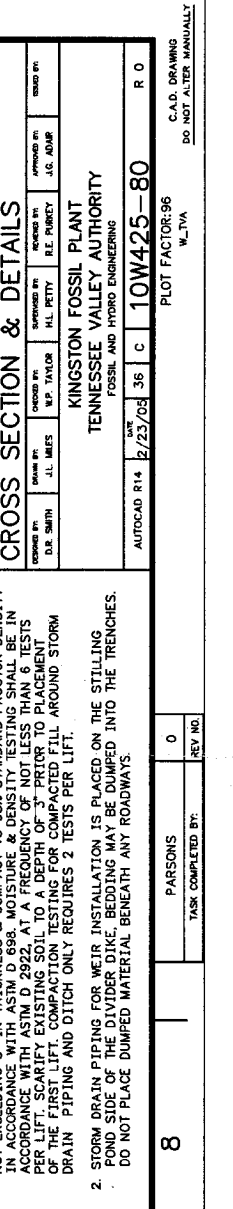
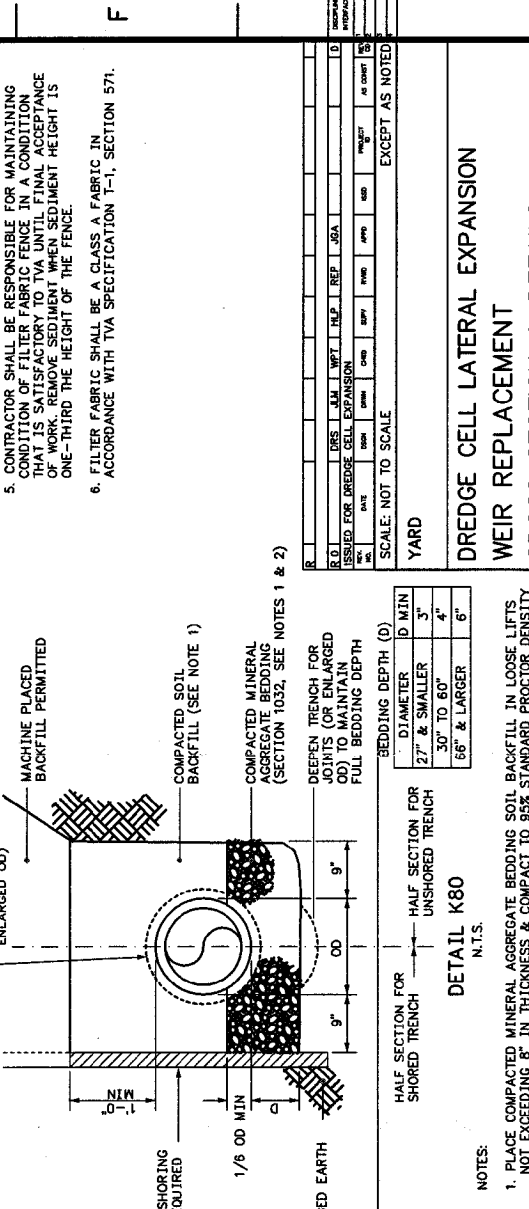
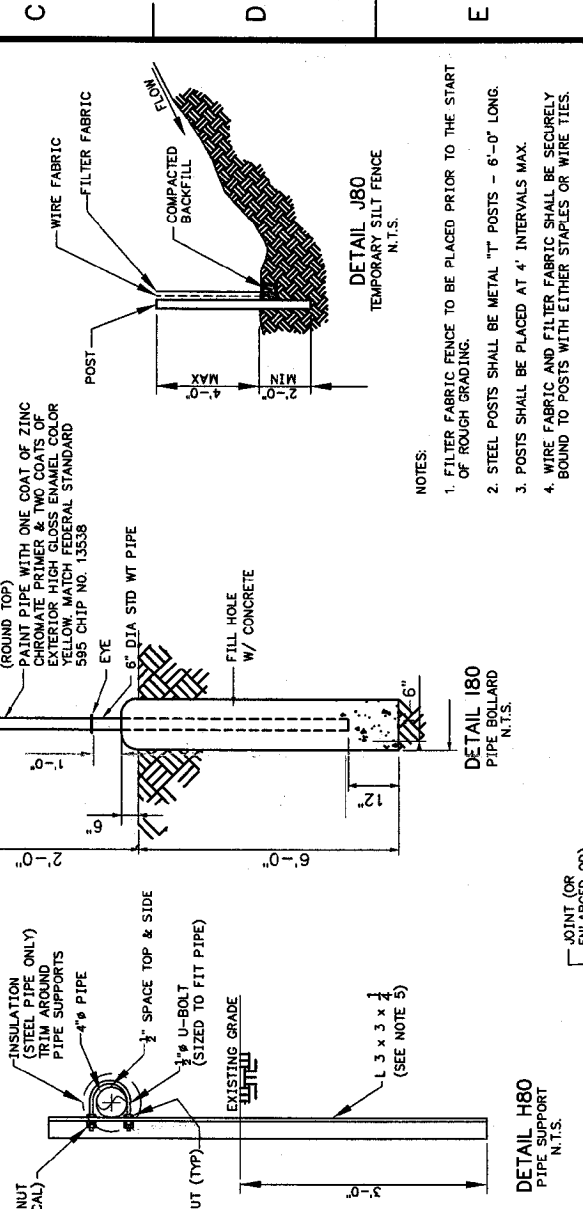
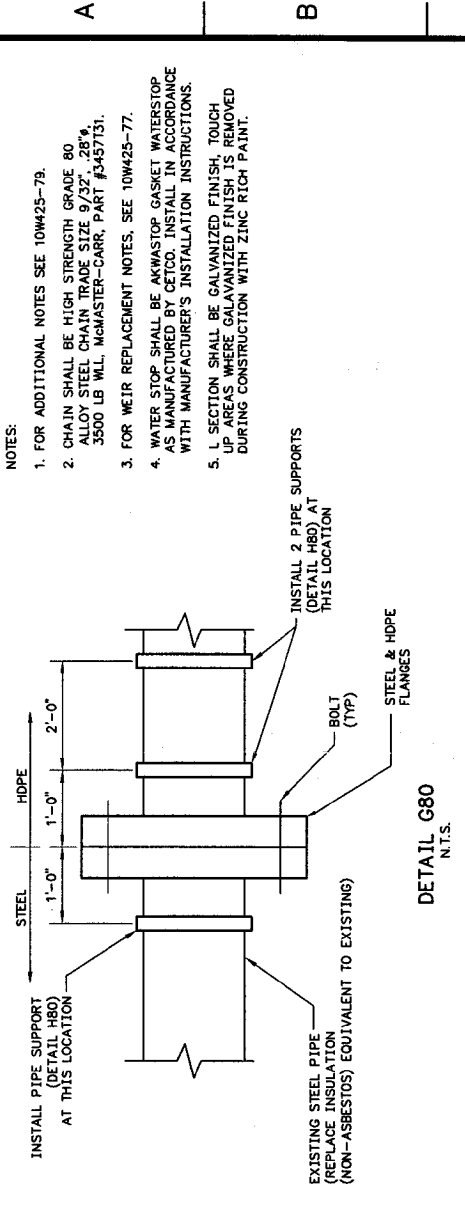
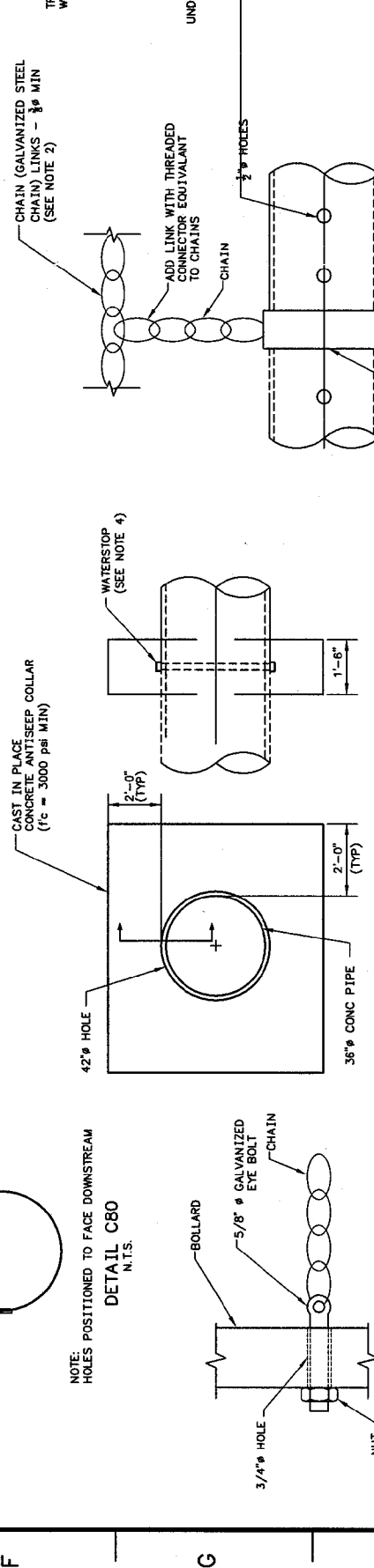
TASK COMPLETED BY: PARSONS  
REV. NO. 0



**SECTION A80-A80**  
SCALE: HORIZONTAL: 1"=20'  
VERTICAL: 1"=10'



**SECTION B80-B80**  
SCALE: HORIZONTAL: 1"=20'  
VERTICAL: 1"=10'



**NOTES:**

- FOR ADDITIONAL NOTES SEE 10W425-79.
- CHAIN SHALL BE HIGH STRENGTH GRADE 80 ALLOY STEEL CHAIN TRADE SIZE 9/32" .2875, 3500 LB WL. MCMASTER-CARR, PART #3457131.
- FOR WEIR REPLACEMENT NOTES, SEE 10W425-77.
- WATER STOP SHALL BE AKWASTOP GASKET WATERSTOP AS MANUFACTURED BY CETCO. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- SECTION SHALL BE GALVANIZED FINISH. TOUCH UP PAINTING SHALL BE PERFORMED IMMEDIATELY UPON REMOVAL DURING CONSTRUCTION WITH ZINC RICH PAINT.

**NOTES:**

- FILTER FABRIC FENCE TO BE PLACED PRIOR TO THE START OF ROUGH GRADING.
- STEEL POSTS SHALL BE METAL "T" POSTS - 6'-0" LONG.
- POSTS SHALL BE PLACED AT 4' INTERVALS MAX.
- WIRE FABRIC AND FILTER FABRIC SHALL BE SECURELY BOUND TO POSTS WITH EITHER STAPLES OR WIRE TIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONDITION OF FILTER FABRIC FENCE IN A CONDITION TO BE REUSED. FILTER FABRIC SHALL BE REMOVED AND REUSED OR WORK REMOVE SEDIMENT WHEN SEDIMENT HEIGHT IS ONE-THIRD THE HEIGHT OF THE FENCE.
- FILTER FABRIC SHALL BE A CLASS A FABRIC IN ACCORDANCE WITH TVA SPECIFICATION T-1, SECTION 571.

**NOTES:**

- PLACE COMPACTED MINERAL AGGREGATE BEDDING SOIL BACKFILL IN LOOSE LIFTS. NO EXCAVATION SHALL BE PERMITTED IN ANY SECTION OF THE BEDDING. SOIL MOISTURE & DENSITY TESTING SHALL BE IN ACCORDANCE WITH ASTM D 698. MOISTURE & DENSITY TESTING SHALL BE IN ACCORDANCE WITH ASTM D 2922. AT A FREQUENCY OF NOT LESS THAN 6 TESTS PER LIFT. SCARIFY EXISTING SOIL TO A DEPTH OF 3" PRIOR TO PLACEMENT OF THE FIRST LIFT. COMPACTION TESTING FOR COMPACTED FILL AROUND STORM DRAIN PIPING AND DITCH ONLY REQUIRES 2 TESTS PER LIFT.
- STORM DRAIN PIPING FOR WEIR INSTALLATION IS PLACED ON THE STILLING POND SIDE OF THE DIVIDER DIKE. BEDDING MAY BE DUMPED INTO THE TRENCHES. DO NOT PLACE DUMPED MATERIAL BENEATH ANY ROADWAYS.

REV	DATE	BY	CHKD	APPD	DESCRIPTION
1	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
2	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
3	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
4	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
5	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
6	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
7	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
8	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
9	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
10	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
11	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW
12	12/23/03	J.L. SMITH	J.L. SMITH	J.C. RUMPH	ISSUED FOR PRELIMINARY REVIEW

SCALE: NOT TO SCALE  
YARD

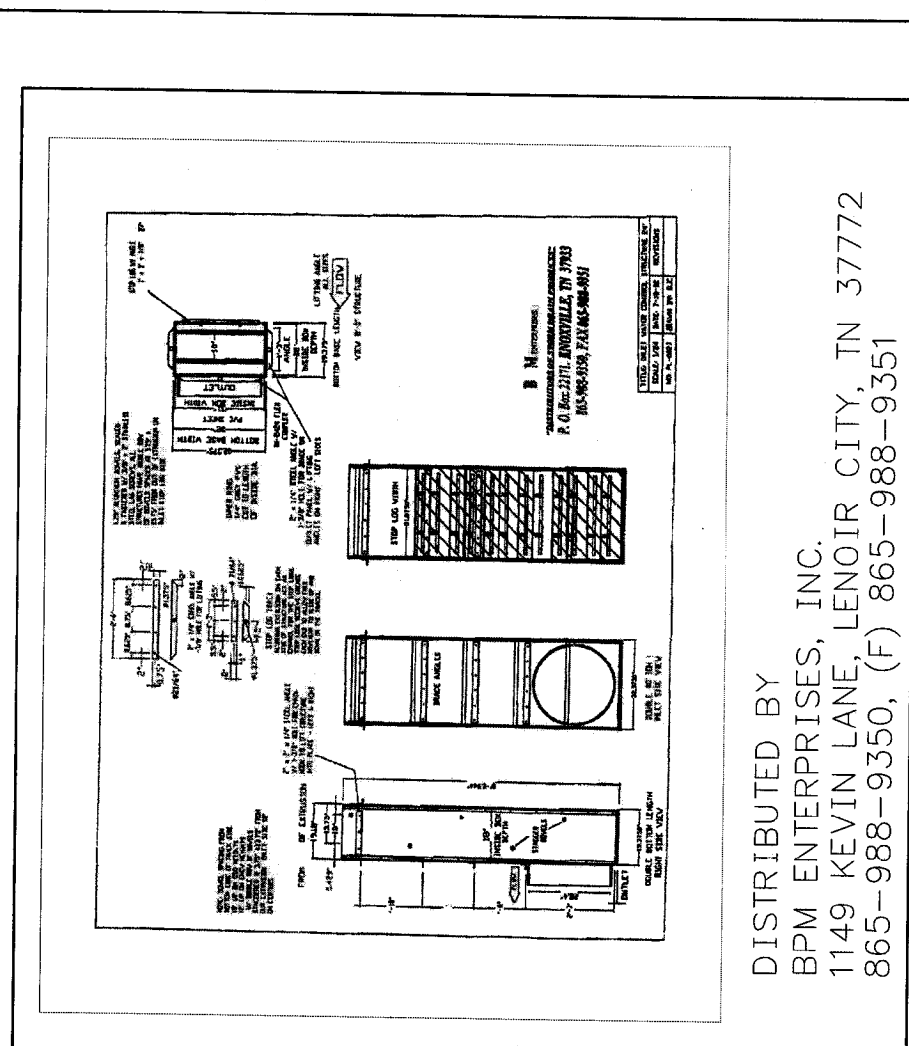
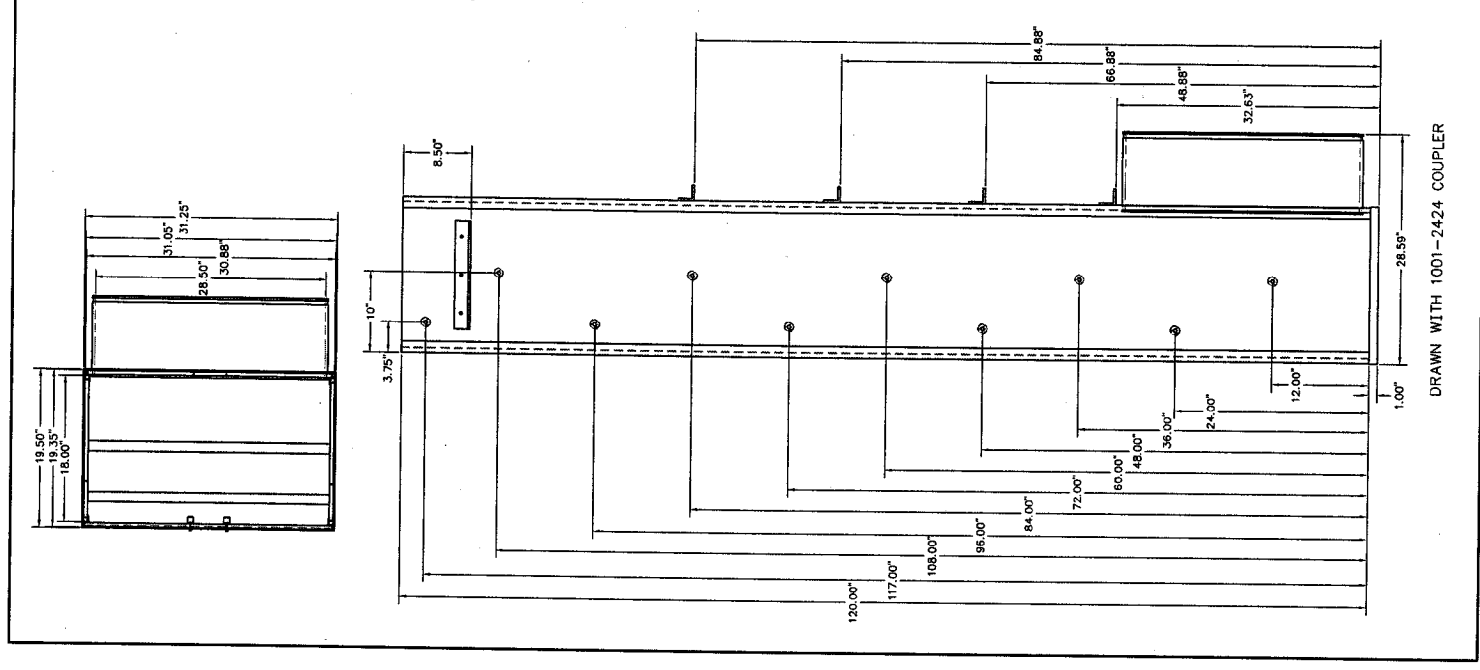
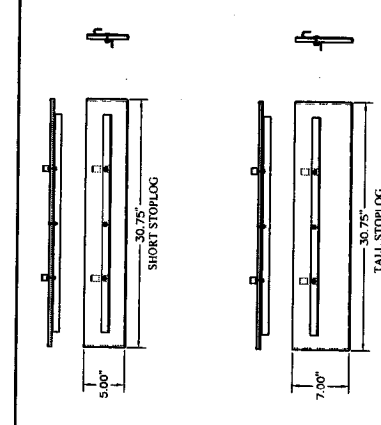
**DREDGE CELL LATERAL EXPANSION WEIR REPLACEMENT & DETAILS CROSS SECTION & DETAILS**

DATE: 12/23/03  
DRAWN BY: J.L. SMITH  
CHECKED BY: J.L. SMITH  
APPROVED BY: J.C. RUMPH

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R14 12/23/03 36 C 10W425-80 R 0

PLOT FACTOR: 96  
W.T.V.A.  
C.A.D. DRAWING  
DO NOT ALTER MANUALLY



ITEM	QTY	ITEM DESCRIPTION	PART NO.
<p>UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES.</p> <p>.X ±.06 .XX ±.03 .XXX ±.010</p> <p>ANGLES BREAK ALL SHARP CORNERS.</p> <p>ALL INFORMATION CONTAINED IN THIS DOCUMENT IS PROPRIETARY TO AGRI DRAIN CORP. DUPLICATION OR TRANSMITTAL OF THIS DOCUMENT IS STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF AGRI DRAIN CORP.</p>			
<p><b>Agri Drain</b> CORPORATION</p> <p><i>America's Most Complete Supplier of Water Management Products</i></p> <p>P.O. Box 458 - 1462 340th St. - Adair, IA 50002 - Ph: 1-800-232-4742 - Fax 1-800-282-3353 - www.agridrain.com</p>			
<p>TITLE</p> <p><b>INLET 24" X 120" WCS</b></p>			
DATE:		DRAWN BY:	PART NO.
REV.			

DETAIL A81  
DETAIL INLET WATER CONTROL STRUCTURE 24"φ

SCALE: NOT TO SCALE	YARD	INLET WATER CONTROL STRUCTURE DETAIL
<p>DESIGNED BY: B.D. CARVER CHECKED BY: B.D. CARVER DATE: 08/01/01</p> <p>DRAWN BY: J.E. FOREY CHECKED BY: J.E. FOREY DATE: 08/01/01</p> <p>PROJECT: KINGSTON FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING</p>		
AUTOCAD R14	36	10W425-81
PLOT FACTOR: 96		R 0



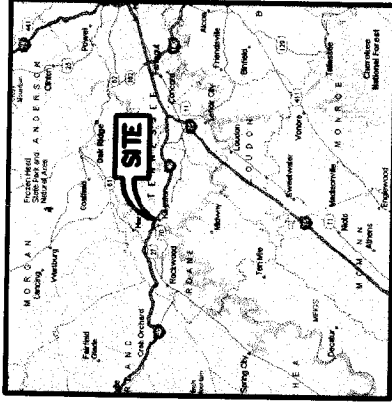
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B													
C													
D													
E													
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G													
H													

DRAWING INDEX

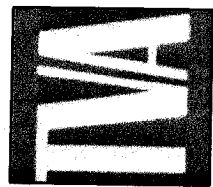
- 10W427-1 COVER SHEET
- 10W427-2 EXISTING SITE CONDITIONS AND BORING LOCATIONS
- 10W427-3 SITE DEVELOPMENT PLAN
- 10W427-4 PHASE I INITIAL GRADING PLAN AND SOIL DIKES
- 10W427-5 PHASE I TOP OF GEOLOGIC BUFFER
- 10W427-6 PHASE I STAGE IA
- 10W427-7 PHASE I STAGE IB
- 10W427-8 PHASE II INITIAL GRADING PLAN AND SOIL DIKES
- 10W427-9 PHASE II TOP OF GEOLOGIC BUFFER
- 10W427-10 PHASE II STAGE IA
- 10W427-11 PHASE I AND II FINAL COVER GRADING PLAN (WET STACK)
- 10W427-12 PHASE I AND II FINAL COVER GRADING PLAN (WET AND DRY STACK)
- 10W427-13 SURFACE WATER MANAGEMENT PLAN
- 10W427-14 CROSS SECTIONS I
- 10W427-15 CROSS SECTIONS II
- 10W427-16 OPERATIONAL AND TYPICAL DETAILS I
- 10W427-17 OPERATIONAL AND TYPICAL DETAILS II
- 10W427-18 DRAINAGE SYSTEM DETAILS I
- 10W427-19 DRAINAGE SYSTEM DETAILS II
- 10W427-20 FINAL COVER SYSTEM DETAILS
- 10W427-21 SURFACE WATER MANAGEMENT SYSTEM DETAILS I (DOWNDRAIN CHANNEL OPTION)
- 10W427-22 SURFACE WATER MANAGEMENT SYSTEM DETAILS II (DOWNDRAIN PIPE OPTION)
- 10W427-23 SURFACE WATER MANAGEMENT SYSTEM DETAILS III
- 10W427-24 UNDERDRAIN LIFT STATION
- 10W427-25 STORMWATER LIFT STATION



LOCATION MAP



VICINITY MAP



**COAL-COMBUSTION BY PRODUCT (GYPSUM)  
DISPOSAL FACILITY  
KINGSTON FOSSIL PLANT - PENINSULA SITE**

COVER SHEET

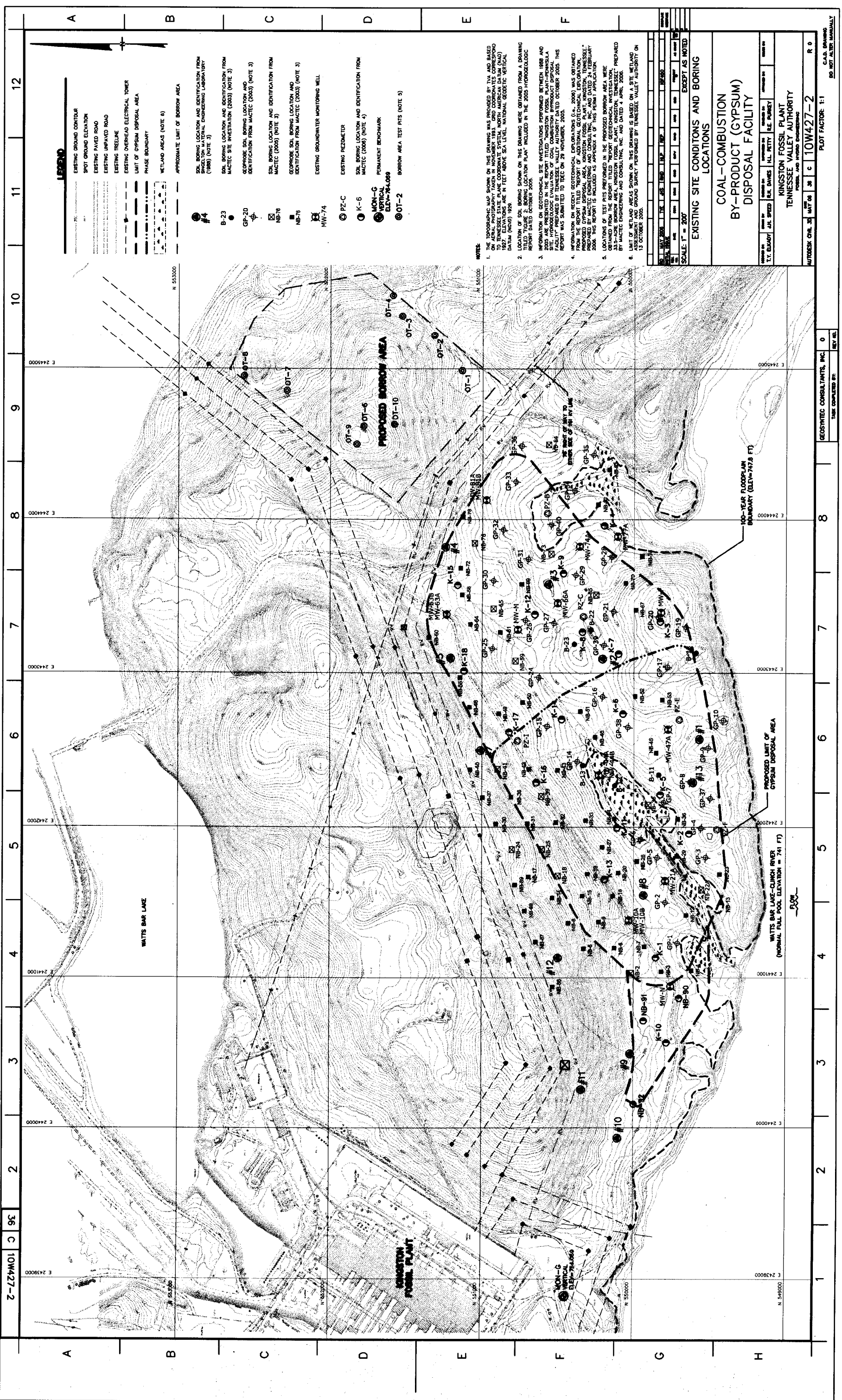
COAL-COMBUSTION  
BY-PRODUCT (GYPSUM)  
DISPOSAL FACILITY

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY

DATE	BY	CHKD	DATE	BY	CHKD
MAY 2000	J.L. BLADY	J.L. BLADY	MAY 08	J.L. BLADY	J.L. BLADY
SCALE: NONE	EXCEPT AS NOTED				
AUTODESK CIVIL 3D MAY 08 38 c 10W427-1					
PLOT FACTOR: 1:1					
R 0					

GEOSYNTEC CONSULTANTS, INC.  
DATE COMPLETED BY: 0

C.A.D. DRAWING  
DO NOT ALTER MANUALLY



**LEGEND**

- EXISTING GROUND CONTOUR
- SPOT GROUND ELEVATION
- EXISTING PAVED ROAD
- EXISTING IMPAVED ROAD
- EXISTING TIELINE
- EXISTING OVERHEAD ELECTRICAL TOWER
- LIMIT OF GYPSUM DISPOSAL AREA
- PHASE BOUNDARY
- WETLAND AREAS (NOTE 6)
- APPROXIMATE LIMIT OF BORROW AREA
- SOIL BORING LOCATION AND IDENTIFICATION FROM BRIMINGTON MATERIAL ENGINEERING LABORATORY (MSEL) (NOTE 3)
- SOIL BORING LOCATION AND IDENTIFICATION FROM MACTEC SITE INVESTIGATION (2003) (NOTE 3)
- GEOPROBE SOIL BORING LOCATION AND IDENTIFICATION FROM MACTEC (2003) (NOTE 3)
- SOIL BORING LOCATION AND IDENTIFICATION FROM MACTEC (2003) (NOTE 3)
- GEOPROBE SOIL BORING LOCATION AND IDENTIFICATION FROM MACTEC (2003) (NOTE 3)
- EXISTING GROUNDWATER MONITORING WELL
- EXISTING PNEUMETER
- SOIL BORING LOCATION AND IDENTIFICATION FROM MACTEC (2003) (NOTE 4)
- PERMANENT BENCHMARK
- MON-C VERTICAL ELEVATION 744.066
- BORROW AREA TEST PITS (NOTE 5)

WATTS BAR LAKE

PROPOSED BORROW AREA

KINGSTON FOSSIL PLANT

WATTS BAR LAKE-CLUNCH RIVER  
(NORMAL FULL POOL ELEVATION = 741 FT)

100-YEAR FLOODPLAIN  
BOUNDARY (ELEV=747.8 FT)

PROPOSED LIMIT OF  
GYPSUM DISPOSAL AREA

**NOTES**

1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PREPARED BY TVA AND BASED ON AERIAL PHOTOGRAPHY TAKEN IN NOVEMBER 1981. GRID COORDINATES CORRESPOND TO TENNESSEE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 83. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1988.
2. LOCATION OF SOIL BORING SHOWN ON THIS DRAWING WERE OBTAINED FROM A BORING TITLED "FIGURE 2: BORING LOCATION PLAN, INCLUDED IN THE 2005 HYDROGEOLOGIC REPORT DATED OCTOBER 2005."
3. INFORMATION ON GEOTECHNICAL SITE INVESTIGATIONS PERFORMED BETWEEN 1988 AND 2005 ARE PRESENTED IN THE REPORT TITLED "KINGSTON FOSSIL PLANT-PONDSULA FACILITY" PREPARED BY TENNESSEE VALLEY AUTHORITY DATED OCTOBER 2005. THIS REPORT WAS SUBMITTED TO DEC ON 28 NOVEMBER 2005.
4. INFORMATION ON RECENT GEOTECHNICAL EXPLORATIONS (G.E. 2008) WAS OBTAINED FROM THE REPORT TITLED "REPORT OF ADDITIONAL GEOTECHNICAL EXPLORATION, PROPOSED GYPSUM DISPOSAL AREA, KINGSTON FOSSIL PLANT, KINGSTON, TENNESSEE," PREPARED BY MACTEC ENGINEERING AND CONSULTING, INC. AND DATED 4 APRIL 2008.
5. LOCATIONS OF TEST PITS PREPARED IN THE PROPOSED BORROW AREA WERE OBTAINED FROM THE REPORT TITLED "REPORT OF GEOTECHNICAL INVESTIGATION, 33.5-ACRE BORROW AREA, KINGSTON FOSSIL PLANT, KINGSTON, TENNESSEE," PREPARED BY MACTEC ENGINEERING AND CONSULTING, INC. AND DATED 4 APRIL 2008.
6. LIMIT OF WETLAND AREAS SHOWN ON THIS DRAWING IS BASED ON A SITE WETLAND AND WETLAND GROUND SURVEY PERFORMED BY TENNESSEE VALLEY AUTHORITY ON 13 OCTOBER 2005.

DATE: JULY 2008	BY: J.D. HARRIS	CHKD: J.D. HARRIS	DATE: JULY 2008	BY: J.D. HARRIS	CHKD: J.D. HARRIS
SCALE: 1" = 200'	EXCEPT AS NOTED				
<b>EXISTING SITE CONDITIONS AND BORING</b>					
<b>COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY</b>					
KINGSTON FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING					
AUTODESK CIVIL 3D	DATE: JULY 08	BY: J.D. HARRIS	CHKD: J.D. HARRIS	SCALE: 1" = 200'	PROJECT: 10W427-2
PLOT FACTOR: 1:1					R 0

CAUTION: DRAWING IS NOT VALID MANUALLY

GEOSYNTEC CONSULTANTS, INC.

THEY COMPLETED BY:

REV. NO.

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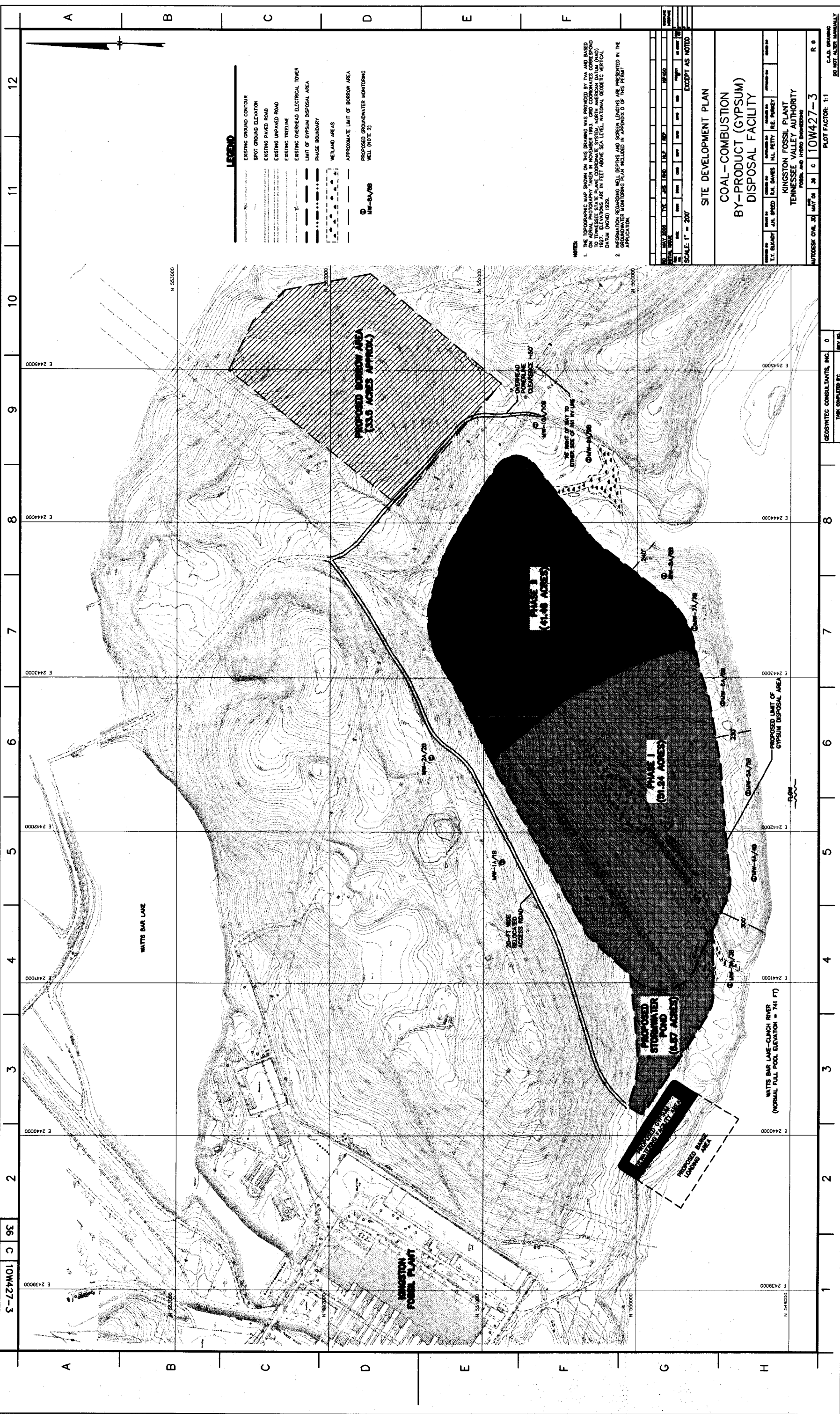
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**LEGEND**

- EXISTING GROUND CONTOUR
- SPOT GROUND ELEVATION
- EXISTING PAVED ROAD
- EXISTING IMPAVED ROAD
- EXISTING TREELINE
- EXISTING OVERHEAD ELECTRICAL TOWER
- LIMIT OF GYPSUM DISPOSAL AREA
- PHASE BOUNDARY
- WETLAND AREAS
- APPROXIMATE LIMIT OF BORROW AREA
- PROPOSED GROUNDWATER MONITORING WELL (NOTE 2)
- GW-1A/78

**NOTES:**

1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PROVIDED BY TVA AND BASED ON AERIAL PHOTOGRAPHY TAKEN IN NOVEMBER 1983. GRID COORDINATES CORRESPOND TO THE NATIONAL GRID SYSTEM. NORMAL MEAN SEA LEVEL (MSSL) IS USED AS DATUM (NAD) 1928. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL. NATIONAL GEODESIC SURVEILLATION (NGS) DATA IS USED.
2. INFORMATION REGARDING WELL DEPTHS AND SCREEN LENGTHS ARE PRESENTED IN THE GROUNDWATER MONITORING PLAN INCLUDED IN APPENDIX D OF THIS PERMIT APPLICATION.

DATE	BY	CHKD	APP'D	REVISION
10/27/83	J.H. BLAND	J.H. BLAND	J.H. BLAND	1
11/15/83	J.H. BLAND	J.H. BLAND	J.H. BLAND	2
12/15/83	J.H. BLAND	J.H. BLAND	J.H. BLAND	3
01/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	4
02/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	5
03/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	6
04/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	7
05/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	8
06/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	9
07/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	10
08/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	11
09/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	12
10/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	13
11/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	14
12/15/84	J.H. BLAND	J.H. BLAND	J.H. BLAND	15
01/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	16
02/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	17
03/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	18
04/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	19
05/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	20
06/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	21
07/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	22
08/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	23
09/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	24
10/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	25
11/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	26
12/15/85	J.H. BLAND	J.H. BLAND	J.H. BLAND	27
01/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	28
02/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	29
03/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	30
04/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	31
05/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	32
06/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	33
07/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	34
08/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	35
09/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	36
10/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	37
11/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	38
12/15/86	J.H. BLAND	J.H. BLAND	J.H. BLAND	39
01/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	40
02/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	41
03/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	42
04/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	43
05/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	44
06/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	45
07/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	46
08/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	47
09/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	48
10/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	49
11/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	50
12/15/87	J.H. BLAND	J.H. BLAND	J.H. BLAND	51
01/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	52
02/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	53
03/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	54
04/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	55
05/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	56
06/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	57
07/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	58
08/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	59
09/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	60
10/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	61
11/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	62
12/15/88	J.H. BLAND	J.H. BLAND	J.H. BLAND	63
01/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	64
02/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	65
03/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	66
04/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	67
05/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	68
06/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	69
07/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	70
08/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	71
09/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	72
10/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	73
11/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	74
12/15/89	J.H. BLAND	J.H. BLAND	J.H. BLAND	75
01/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	76
02/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	77
03/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	78
04/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	79
05/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	80
06/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	81
07/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	82
08/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	83
09/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	84
10/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	85
11/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	86
12/15/90	J.H. BLAND	J.H. BLAND	J.H. BLAND	87
01/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	88
02/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	89
03/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	90
04/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	91
05/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	92
06/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	93
07/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	94
08/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	95
09/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	96
10/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	97
11/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	98
12/15/91	J.H. BLAND	J.H. BLAND	J.H. BLAND	99
01/15/92	J.H. BLAND	J.H. BLAND	J.H. BLAND	100

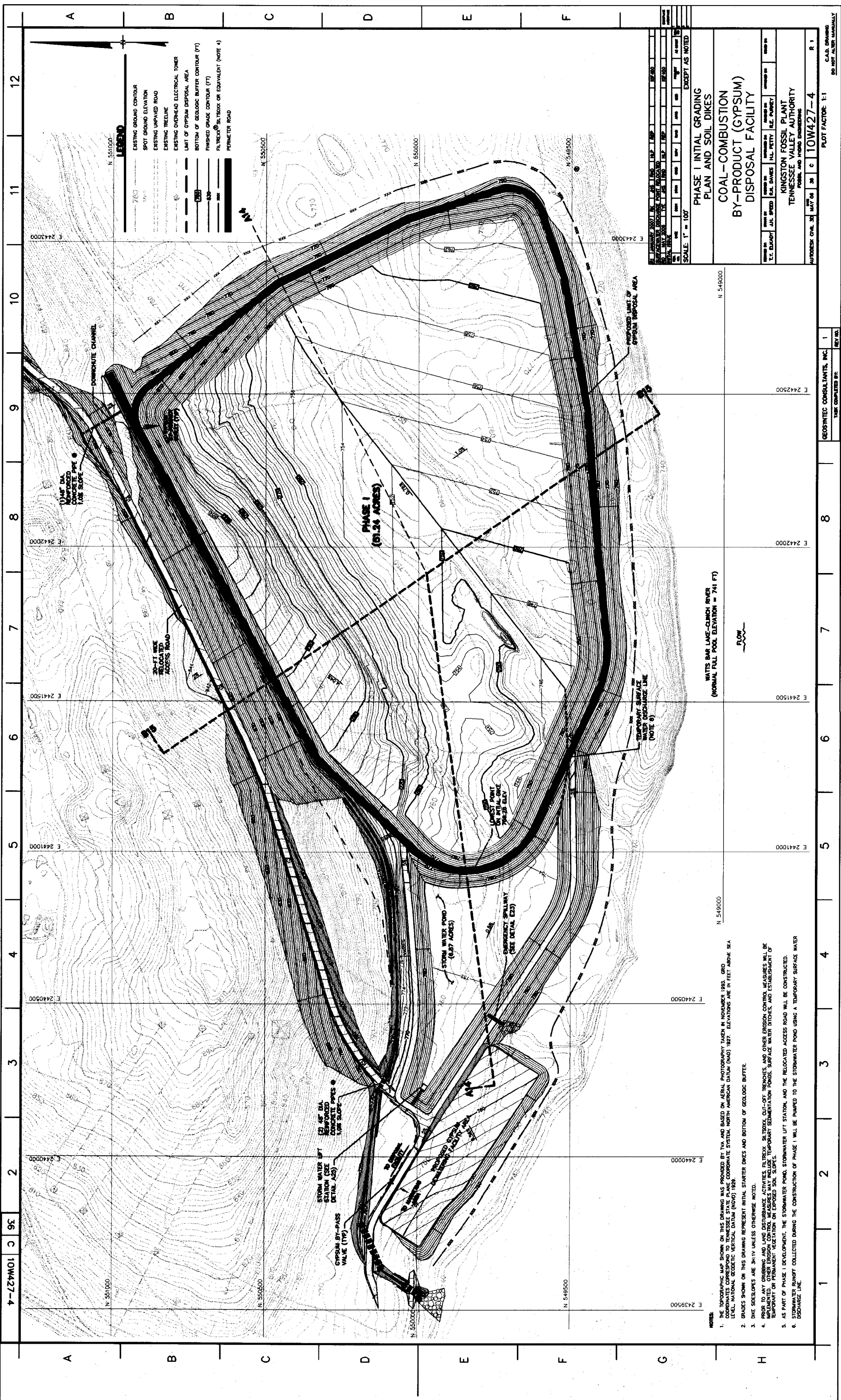
**SITE DEVELOPMENT PLAN**  
**COAL-COMBUSTION**  
**BY-PRODUCT (GYPSUM)**  
**DISPOSAL FACILITY**

KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 Fossil and Inerts Engineering

DATE: 04/15/87  
 DRAWN BY: J.H. BLAND  
 CHECKED BY: J.H. BLAND  
 APPROVED BY: J.H. BLAND  
 SCALE: 1" = 200'  
 PLOT FACTOR: 1:1  
 C.A.D. DRAWING  
 DO NOT ALTER MANUALLY

DATE COMPLETED BY: 0  
 REV. NO.





10	9	8	7	6	5	4	3	2	1
12	11	10	9	8	7	6	5	4	3
<p><b>PHASE I INITIAL GRADING PLAN AND SOIL DIKES</b>  <b>COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY</b></p> <p>DATE: 10/15/83          DRAWN BY: J.L. DAVIS          CHECKED BY: H.L. PERRY          APPROVED BY: [Signature]          KINGSTON FOSSIL PLANT          TENNESSEE VALLEY AUTHORITY          FOSIL AND WASTE ENGINEERING</p> <p>SCALE: 1" = 100'          EXCEPT AS NOTED</p> <p>PROJECT NO. 10W427-4          SHEET NO. 38          TOTAL SHEETS 40          PLOT FACTOR: 1:1</p>									

**NOTES:**

1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PROVIDED BY TVA AND BASED ON AERIAL PHOTOGRAPHY TAKEN IN NOVEMBER 1982. GRID COORDINATES CORRESPOND TO TENNESSEE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1827. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1929.
2. GRADES SHOWN ON THIS DRAWING REPRESENT INITIAL STARTER DIKES AND BOTTOM OF GEOLOGIC BUFFER.
3. DIKE SLOPES ARE 3H:1V UNLESS OTHERWISE NOTED.
4. PRIOR TO ANY GRADING AND LAND DISTURBANCE ACTIVITIES, FILTERS, SILTBOXS, CUT-OFF TRENCHES, AND OTHER EROSION CONTROL MEASURES WILL BE INSTALLED TO PREVENT EROSION AND SEDIMENTATION. TEMPORARY SEDIMENTATION PONDS, SURFACE WATER DITCHES, AND ESTABLISHMENT OF TEMPORARY OR PERMANENT VEGETATION ON EXPOSED SOIL SLOPES.
5. AS PART OF PHASE I DEVELOPMENT, THE STORMWATER POND, STORMWATER LIFT STATION, AND THE RELOCATED ACCESS ROAD WILL BE CONSTRUCTED.
6. STORMWATER RUNOFF COLLECTED DURING THE CONSTRUCTION OF PHASE I WILL BE PUMPED TO THE STORMWATER POND USING A TEMPORARY SURFACE WATER DISCHARGE LINE.

WATTS BAR LAKE-CUMBER RIVER  
 (NORMAL FULL POOL ELEVATION = 741 FT)

DOWN

TEMPORARY SURFACE WATER DISCHARGE LINE (NOTE 6)

PROPOSED LIMIT OF GYPSUM DISPOSAL AREA

STORM WATER POND (6.87 ACRES)

EMERGENCY SPILLWAY (SEE DETAIL E23)

LOWEST POINT ON INITIAL SOIL DIKES IS 742.25 ELEV.

30'-FT WIDE ACCESS ROAD

DOWNCHUTE CHANNEL

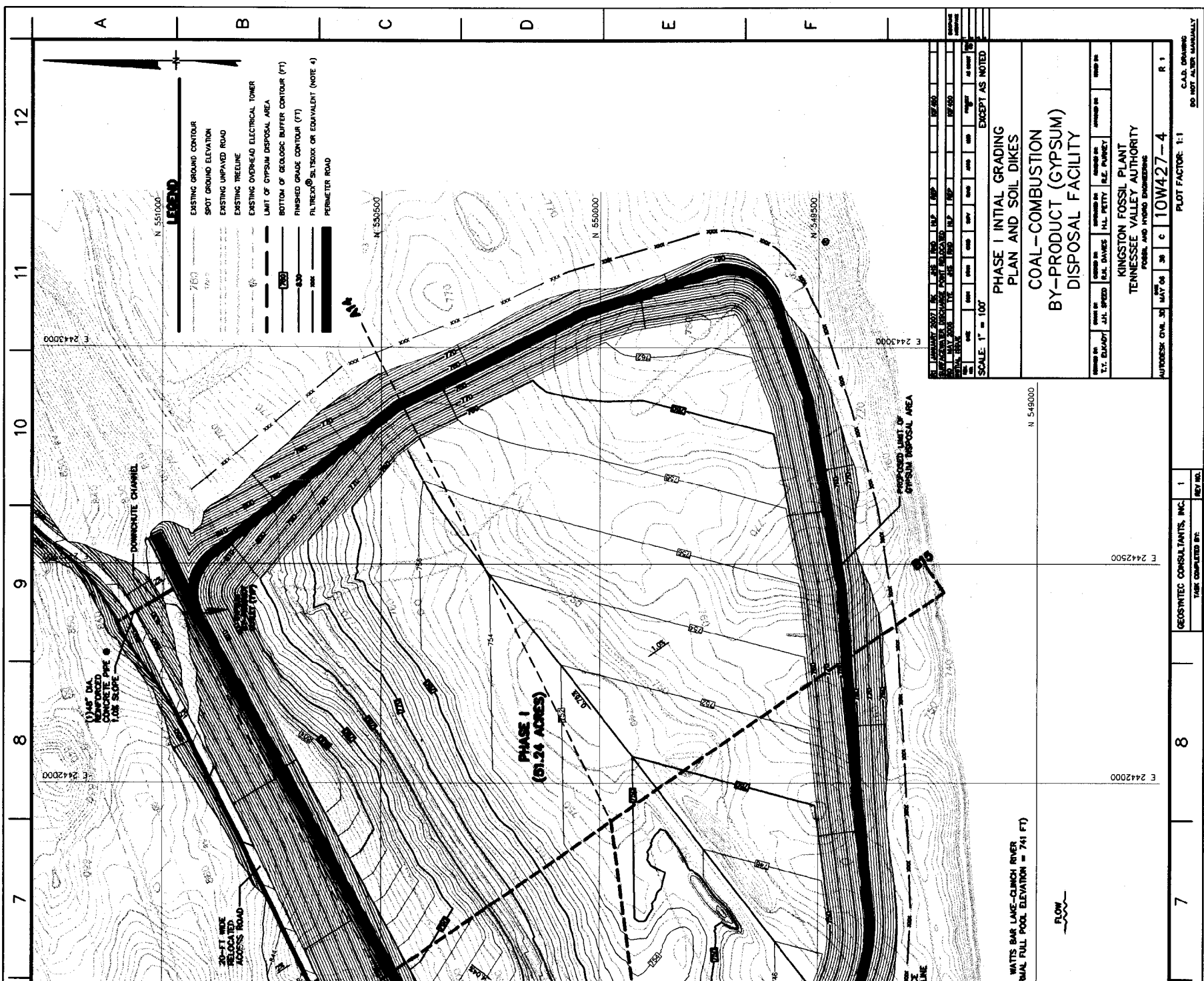
10'-FT DIA. REINFORCED CONCRETE PIPE (3% SLOPE)

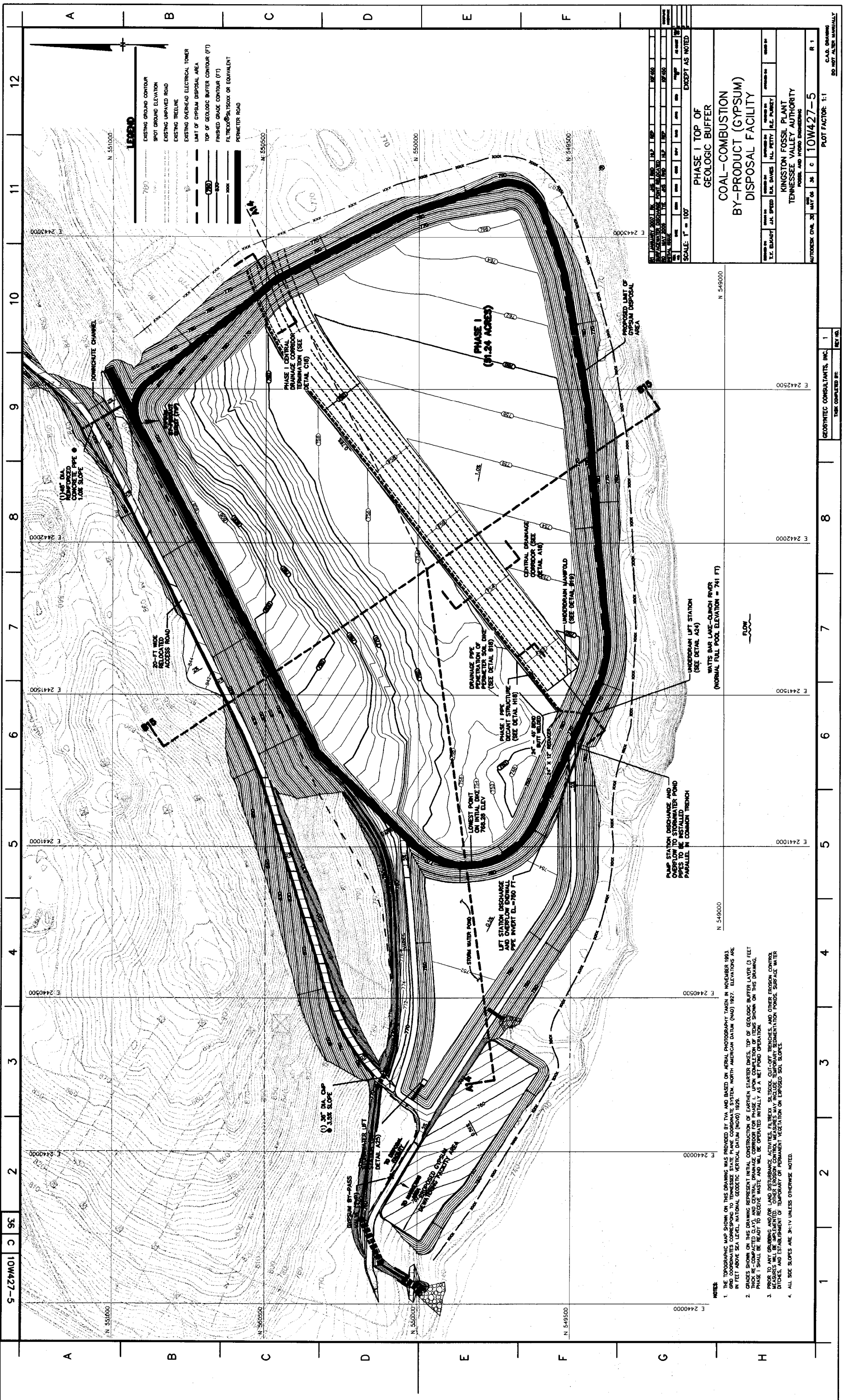
GYPSUM BY-PASS VALVE (17P)

STORM WATER LIFT STATION (SEE DETAIL A25)

24" DIA. REINFORCED CONCRETE PIPE (3% SLOPE)

PHASE I (51.24 ACRES)





DATE	BY	CHKD	APP'D	SCALE	NOTES
10/27/83	TVA			1" = 100'	EXCEPT AS NOTED

PHASE I TOP OF GEOLOGIC BUFFER			
COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY			
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
TVA	JUL BIRD	JUL BIRD	JUL BIRD
PROJECT NO.	DATE	SCALE	PLANT
10W427-5	MAY 83	1" = 100'	KINGSTON FOSSIL PLANT
CLIENT			PROJECT
TENNESSEE VALLEY AUTHORITY			PHASE I
KINGSTON FOSSIL PLANT			BY-PRODUCT (GYPSUM) DISPOSAL FACILITY
KINGSTON FOSSIL PLANT			PHASE I
KINGSTON FOSSIL PLANT			PHASE I
KINGSTON FOSSIL PLANT			PHASE I
KINGSTON FOSSIL PLANT			PHASE I

**NOTE:**

1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PROVIDED BY TVA AND BASED ON AERIAL PHOTOGRAPHY TAKEN IN NOVEMBER 1983. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1929.
2. GRADES SHOWN ON THIS DRAWING REPRESENT INITIAL CONSTRUCTION OF EARTHEN STAFFED DICES, TOP OF GEOLOGIC BUFFER LAYER (2 FEET ABOVE STAFFED DICES) AND DRAINAGE CHANNELS. GRADES FOR STAFFED DICES AND DRAINAGE CHANNELS ARE SHOWN ON THIS DRAWING. PHASE I SHALL BE READY TO RECEIVE WASTE AND WILL BE OPERATED INITIALLY AS A WET POND OPERATION.
3. PRIOR TO ANY GRUBBING AND/OR LAND DISTURBANCE ACTIVITIES, EROSION CONTROL, SLOPE STABILIZATION, SEDIMENTATION PONDS, SURFACE WATER DITCHES, AND ESTABLISHMENT OF TEMPORARY VEGETATION ON EXPOSED SOIL SLOPES.
4. ALL SIDE SLOPES ARE 3H:1V UNLESS OTHERWISE NOTED.

WATTS BAR LAKE-CLINCH RIVER  
(NORMAL FULL POOL ELEVATION = 741 FT)

PHASE I (91.24 ACRES)

PROPOSED LIMIT OF GYPSUM DISPOSAL AREA

PHASE I LIFT STATION  
(SEE DETAIL A24)

UNDERDRAIN MANHOLE  
(SEE DETAIL A18)

UNDERDRAIN MANHOLE  
(SEE DETAIL A19)

UNDERDRAIN MANHOLE  
(SEE DETAIL A20)

UNDERDRAIN MANHOLE  
(SEE DETAIL A21)

UNDERDRAIN MANHOLE  
(SEE DETAIL A22)

UNDERDRAIN MANHOLE  
(SEE DETAIL A23)

UNDERDRAIN MANHOLE  
(SEE DETAIL A24)

UNDERDRAIN MANHOLE  
(SEE DETAIL A25)

UNDERDRAIN MANHOLE  
(SEE DETAIL A26)

UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
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UNDERDRAIN MANHOLE  
(SEE DETAIL A92)

UNDERDRAIN MANHOLE  
(SEE DETAIL A93)

UNDERDRAIN MANHOLE  
(SEE DETAIL A94)

UNDERDRAIN MANHOLE  
(SEE DETAIL A95)

UNDERDRAIN MANHOLE  
(SEE DETAIL A96)

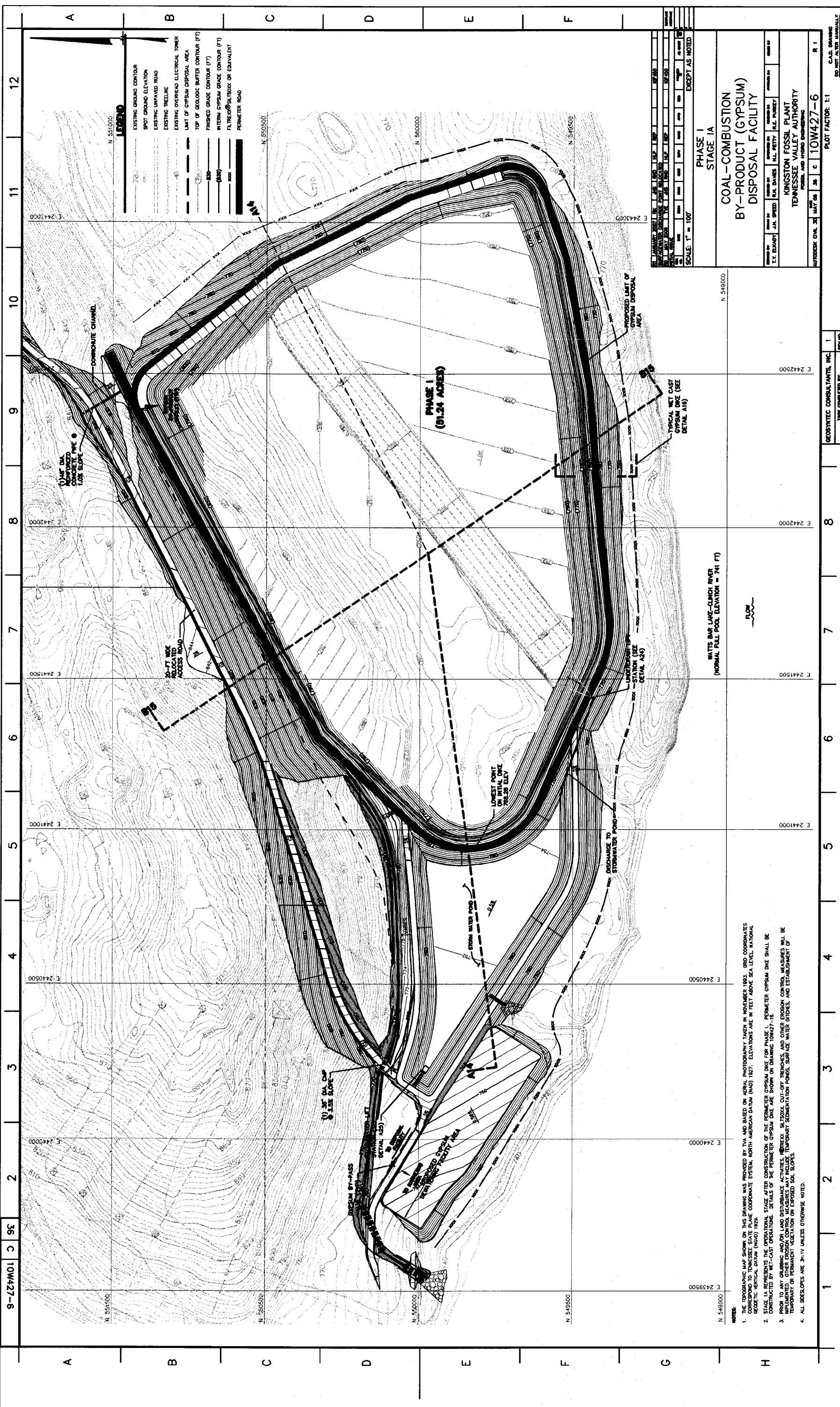
UNDERDRAIN MANHOLE  
(SEE DETAIL A97)

UNDERDRAIN MANHOLE  
(SEE DETAIL A98)

UNDERDRAIN MANHOLE  
(SEE DETAIL A99)

UNDERDRAIN MANHOLE  
(SEE DETAIL A100)





36 C 10W427-6

12 11 10 9 8 7 6 5 4 3 2 1

A B C D E F G H

N 551000 E 2443000 N 550500 E 2442000 N 549500 E 2441000 N 549000 E 2440000 N 548500 E 2439500

1 2 3 4 5 6 7 8 9 10 11 12

LEGEND  
 EXISTING GROUND CONTOUR  
 SPOT GROUND ELEVATION  
 EXISTING UNPAVED ROAD  
 EXISTING TREELINE  
 EXISTING OVERHEAD ELECTRICAL TOWER  
 LIMIT OF GYPSUM DISPOSAL AREA  
 TOP OF GEOLOGIC BUFFER CONTOUR (FT)  
 FINISHED GRADE CONTOUR (FT)  
 INTERIM GYPSUM GRADE CONTOUR (FT)  
 FILTER/SILT/SOX OR EQUIVALENT  
 PERIMETER ROAD

PHASE I  
 (51.24 ACRES)

DOWNWIND CHANNEL  
 1/4" DIA. CONCRETE PIPE @ 1:100 SLOPE  
 20-FT WIDE RELOCATED ACCESS ROAD  
 PERIMETER ROAD  
 STORM WATER POND  
 DISCHARGE TO STORMWATER POND  
 UNDERFLOW STATION (SEE DETAIL A54)  
 PROPOSED LIMIT OF GYPSUM DISPOSAL AREA  
 TYPICAL NET CAST GYPSUM DIKE (SEE DETAIL A16)  
 LOWEST POINT ON GYPSUM DIKE PROPOSED ELEV.

WATTS BAR LAKE-CLINCH RIVER  
 (NORMAL FULL POOL ELEVATION = 741 FT)

FLOW

1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PROVIDED BY TVA AND BASED ON AERIAL PHOTOGRAPHY TAKEN IN NOVEMBER 1963. GRID COORDINATES ARE IN FEET ABOVE MEAN SEA LEVEL. THE COORDINATE SYSTEM IS THE NORTH AMERICAN DATUM (NAD) 1927. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1928.

2. STAGE IA REPRESENTS THE OPERATIONAL STAGE AFTER CONSTRUCTION OF THE PERIMETER GYPSUM DIKE FOR PHASE I. PERIMETER GYPSUM DIKE SHALL BE CONSTRUCTED BY NET-CAST OPERATIONS. DETAILS OF THE PERIMETER GYPSUM DIKE ARE SHOWN ON DRAWING 10W427-16.

3. PRIOR TO ANY GRADING AND/OR LAND RESTORATION ACTIVITIES, EROSION CONTROL MEASURES AND OTHER EROSION CONTROL MEASURES WILL BE IMPLEMENTED. OTHER EROSION CONTROL MEASURES MAY INCLUDE TEMPORARY SEDIMENTATION PONDING, SURFACE WATER OUTLETS, AND ESTABLISHMENT OF TEMPORARY OR PERMANENT VEGETATION ON EXPOSED SOIL SLOPES.

4. ALL SLOPES ARE 3:1 UNLESS OTHERWISE NOTED.

NOTE:  
 N 548000 E 2440500  
 N 548500 E 2440000  
 N 549000 E 2439500  
 N 549500 E 2441000  
 N 549500 E 2441500  
 N 549500 E 2442000  
 N 549500 E 2442500  
 N 549500 E 2443000  
 N 550000 E 2443000  
 N 550500 E 2443000  
 N 551000 E 2443000

PHASE I  
 STAGE IA  
 COAL-COMBUSTION  
 BY-PRODUCT (GYPSUM)  
 DISPOSAL FACILITY

KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 POWER AND HYDRO ENGINEERING

SCALE: 1" = 100'  
 EXCEPT AS NOTED

DATE: MAY 1968  
 DRAWN BY: J.E. BLOUNT  
 CHECKED BY: J.E. BLOUNT  
 APPROVED BY: J.E. BLOUNT

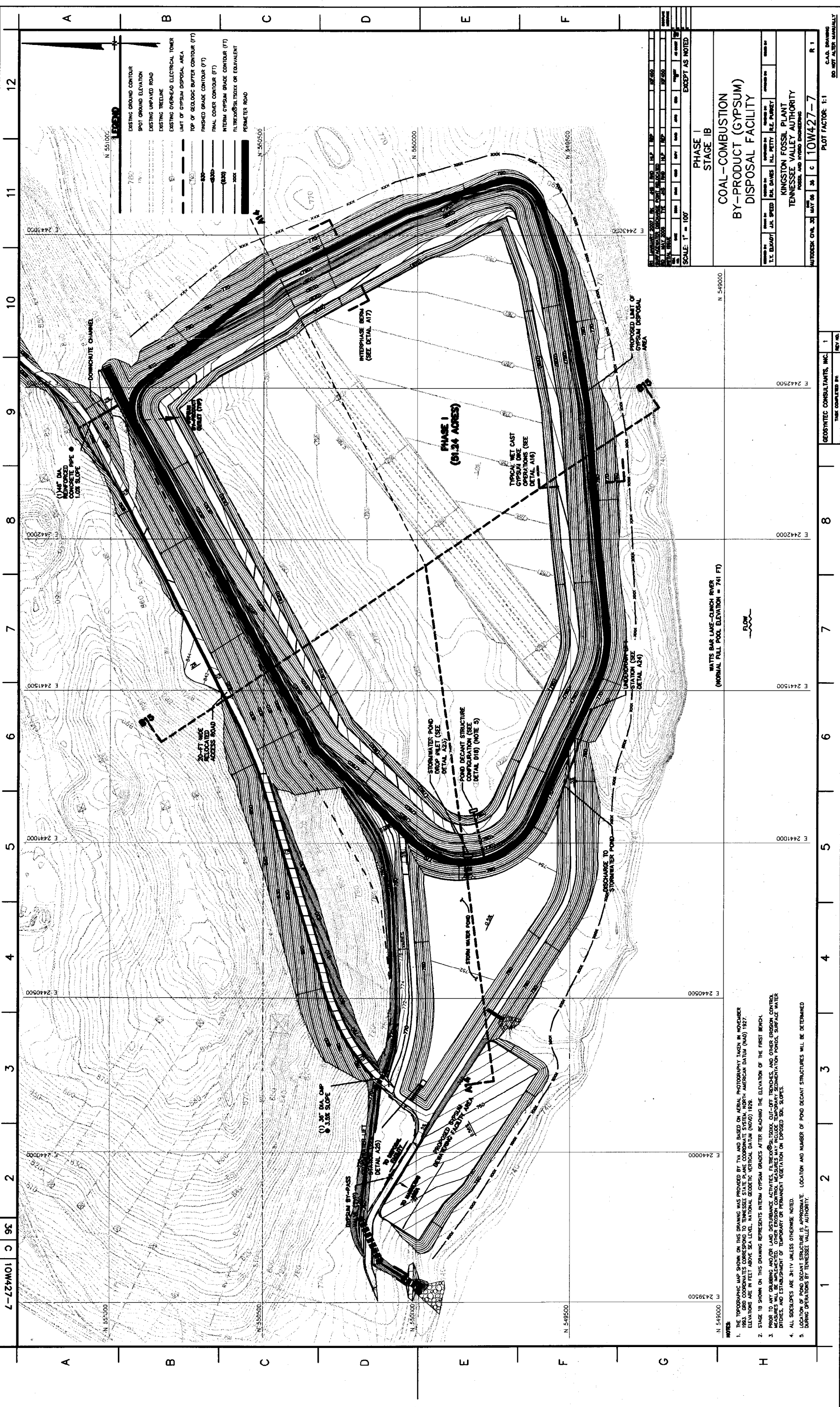
PROJECT NO. 10W427-6  
 SHEET NO. 36 C

GEOTECH CONSULTANTS, INC.  
 1  
 THIS COMPLETED BY: (REV. NO.)

PLOT FACTOR: 1:1  
 R 1

C.A.D. DRAWING  
 DO NOT ALTER MANUALLY

TVA-00002902



10W427-7 C 36

1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F

DATE		BY	CHECKED	DATE	BY	CHECKED	DATE	BY	CHECKED
10/11/87	10/11/87	JAL	JAL	10/11/87	JAL	JAL	10/11/87	JAL	JAL
SCALE: 1" = 100'		EXCEPT AS NOTED							

**PHASE I  
STAGE IB**  
**COAL-COMBUSTION  
BY-PRODUCT (GYPSUM)  
DISPOSAL FACILITY**

DESIGNED BY: T.V. BLAUGT, JAL, SPED  
CHECKED BY: RAL. DAVES, KIL. PERRY  
DATE: 10/11/87

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
POWER AND HYDRO ENGINEERING

PROJECT NO. 10W427-7  
PLOT FACTOR: 1:1  
C.A.A. DRAWING  
DO NOT ALTER MANUALLY

WATTS BAR LAKE-CUMBER RIVER  
(NORMAL FULL POOL ELEVATION = 741 FT)

FLOW

**NOTES:**

1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PROVIDED BY TVA AND BASED ON AERIAL PHOTOGRAPHY TAKEN IN NOVEMBER 1981. GRID COORDINATES CORRESPOND TO TENNESSEE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1929.
2. STAGE IB SHOWN ON THIS DRAWING REPRESENTS INTERIM GYPSUM GRADES AFTER REACHING THE ELEVATION OF THE FIRST BENCH.
3. PRIOR TO ANY GRABBING AND/OR LAND DISTURBANCE ACTIVITIES, FILTER/SILT/SLOTTED, OUT-OFF, TRENCHES, AND OTHER EROSION CONTROL MEASURES WILL BE IMPLEMENTED. OTHER EROSION CONTROL MEASURES MAY INCLUDE TEMPORARY SEDIMENTATION PONDS, SURFACE WATER DIVERSION, AND ESTABLISHMENT OF TEMPORARY OR PERMANENT VEGETATION ON EXPOSED SOIL SLOPES.
4. ALL SLOPES ARE 3H:1V UNLESS OTHERWISE NOTED.
5. LOCATION OF POND DECANT STRUCTURE IS APPROXIMATE. LOCATION AND NUMBER OF POND DECANT STRUCTURES WILL BE DETERMINED DURING OPERATIONS BY TENNESSEE VALLEY AUTHORITY.

DATE COMPLETED: 10/11/87  
BY: JAL

GEOSYNTEC CONSULTANTS, INC.

1

8

6

5

4

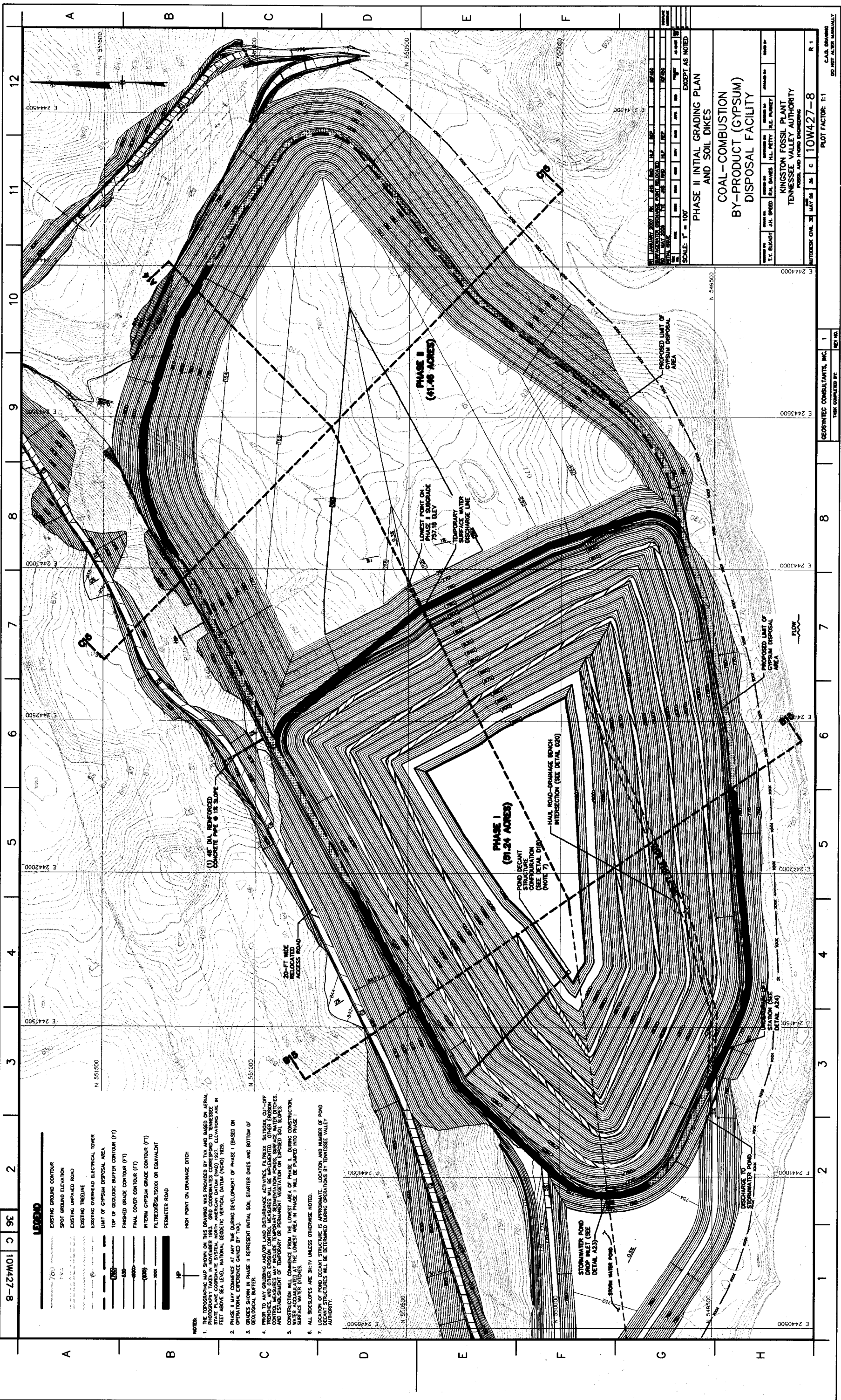
3

2

1

10W427-7





**LEGEND**

750	EXISTING GROUND CONTOUR
750	SPOT GROUND ELEVATION
---	EXISTING UNPAVED ROAD
---	EXISTING TREELINE
---	EXISTING OVERHEAD ELECTRICAL TOWER
---	LIMIT OF GYPSUM DISPOSAL AREA
---	TOP OF GEOLOGIC BUFFER CONTOUR (FT)
---	FINISHED GRADE CONTOUR (FT)
---	FINAL COVER CONTOUR (FT)
---	INTERNAL GYPSUM GRADE CONTOUR (FT)
---	FILTERDRAIN/SALTBOX OR EQUIVALENT
---	PERIMETER ROAD
IP	HIGH POINT ON DRAINAGE DITCH

- NOTES**
1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PROVIDED BY TVA AND BASED ON AERIAL PHOTOGRAPHY TAKEN IN NOVEMBER 1983. GRID COORDINATES CORRESPOND TO TENNESSEE COORDINATE SYSTEM. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL. NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1928.
  2. PHASE I MAY COMMENCE AT ANY TIME DURING DEVELOPMENT OF PHASE I. (BASED ON OPERATIONAL EXPERIENCE GAINED BY TVA).
  3. PHASES SHOWN IN PHASE II REPRESENT INITIAL SOIL STARTER DIKES AND BOTTOM OF GEOLOGIC BUFFER.
  4. FENCING AND ORDERING AND MAINTENANCE ACTIVITIES SHALL BE TAKEN OUT-OF-SEQUENCE AND COMPLETED PRIOR TO THE START OF CONSTRUCTION. CONTROL MEASURES MAY INCLUDE TEMPORARY SEDIMENTATION PONDS, SURFACE WATER DITCHES, AND ESTABLISHMENT OF TEMPORARY OR PERMANENT VEGETATION ON EXPOSED SOIL SLOPES.
  5. CONSTRUCTION WILL COMMENCE FROM THE LOWEST AREA OF PHASE II. DURING CONSTRUCTION, SURFACE WATER DIKES IN THE LOWEST AREA IN PHASE II WILL BE PUMPED INTO PHASE I.
  6. ALL SLOPES ARE 3H:1V UNLESS OTHERWISE NOTED.
  7. LOCATION OF POND DEWATER STRUCTURE IS APPROXIMATE. LOCATION AND NUMBER OF POND DEWATER STRUCTURES WILL BE DETERMINED DURING OPERATIONS BY TENNESSEE VALLEY AUTHORITY.

DATE: JANUARY 2001	BY: J. L. BIRD, J. R. LIPP	SCALE: 1" = 100'	EXCEPT AS NOTED
REVISION:	NO. 1	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP
NO. 2	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 3	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 4	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 5	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 6	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 7	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 8	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 9	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 10	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 11	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 12	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	

**PHASE II INITIAL GRADING PLAN AND SOIL DIKES**

**COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY**

DESIGNED BY: J. L. BIRD, J. R. LIPP  
 CHECKED BY: J. L. BIRD, J. R. LIPP  
 APPROVED BY: H. E. PERRY  
 KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 CIVIL AND HYDRO ENGINEERING

PROJECT NO. 36 C 10W427-8  
 PLOT FACTOR: 1:1  
 C.A.B. DRAWING NO. 107-ALB-1000-11

DATE: JANUARY 2001	BY: J. L. BIRD, J. R. LIPP	SCALE: 1" = 100'	EXCEPT AS NOTED
REVISION:	NO. 1	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP
NO. 2	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 3	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 4	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 5	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 6	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 7	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 8	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 9	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 10	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 11	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	
NO. 12	DATE: MAY 2001	BY: J. L. BIRD, J. R. LIPP	

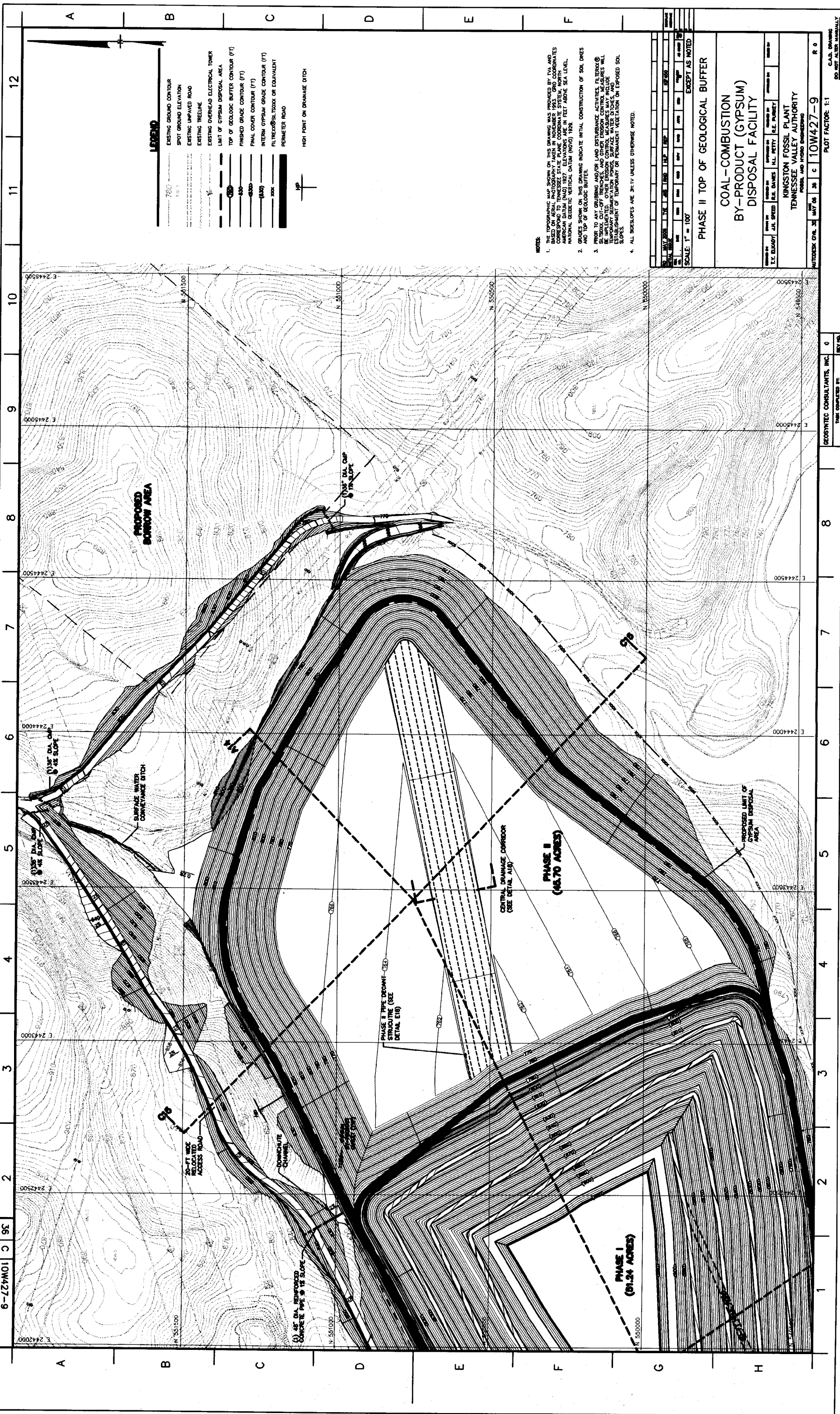
**PHASE II INITIAL GRADING PLAN AND SOIL DIKES**

**COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY**

DESIGNED BY: J. L. BIRD, J. R. LIPP  
 CHECKED BY: J. L. BIRD, J. R. LIPP  
 APPROVED BY: H. E. PERRY  
 KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 CIVIL AND HYDRO ENGINEERING

PROJECT NO. 36 C 10W427-8  
 PLOT FACTOR: 1:1  
 C.A.B. DRAWING NO. 107-ALB-1000-11





**LEGEND**

EXISTING GROUND CONTOUR
SPOT GROUND ELEVATION
EXISTING UNPAVED ROAD
EXISTING TIE LINE
EXISTING OVERHEAD ELECTRICAL TOWER
LIMIT OF GYPSUM DISPOSAL AREA
TOP OF GEOLOGIC BUFFER CONTOUR (F1)
FINISHED GRADE CONTOUR (F1)
FINAL COVER CONTOUR (F1)
INTERNAL GYPSUM GRADE CONTOUR (F1)
FILTERED/SILT/SAND OR EQUIVALENT PERMEABLE ROAD
HIGH POINT ON DRAINAGE DITCH

**NOTES**

1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PROVIDED BY TVA AND CORRESPONDS TO THE DATA SHOWN ON THE TOPOGRAPHIC MAPS OF THE KINGSTON FOSSIL PLANT, TENNESSEE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1927. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1928.
2. GRADES SHOWN ON THIS DRAWING INDICATE INITIAL CONSTRUCTION OF SOIL Dikes AND TOP OF GEOLOGIC BUFFER.
3. PRIOR TO ANY GRUBBING AND/OR LAND DISTURBANCE ACTIVITIES, FILTERED/TEMPORARY SEEDING AND/OR OTHER EROSION CONTROL MEASURES WILL BE IMPLEMENTED TO PREVENT SOIL EROSION. TEMPORARY SEEDING AND/OR OTHER EROSION CONTROL MEASURES WILL BE IMPLEMENTED TO PREVENT SOIL EROSION. TEMPORARY SEEDING AND/OR OTHER EROSION CONTROL MEASURES WILL BE IMPLEMENTED TO PREVENT SOIL EROSION.
4. ALL SLOPES ARE 3:1 UNLESS OTHERWISE NOTED.

**PHASE II TOP OF GEOLOGICAL BUFFER**

**COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY**

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
POSSIBLE AND HYDRO ENGINEERING

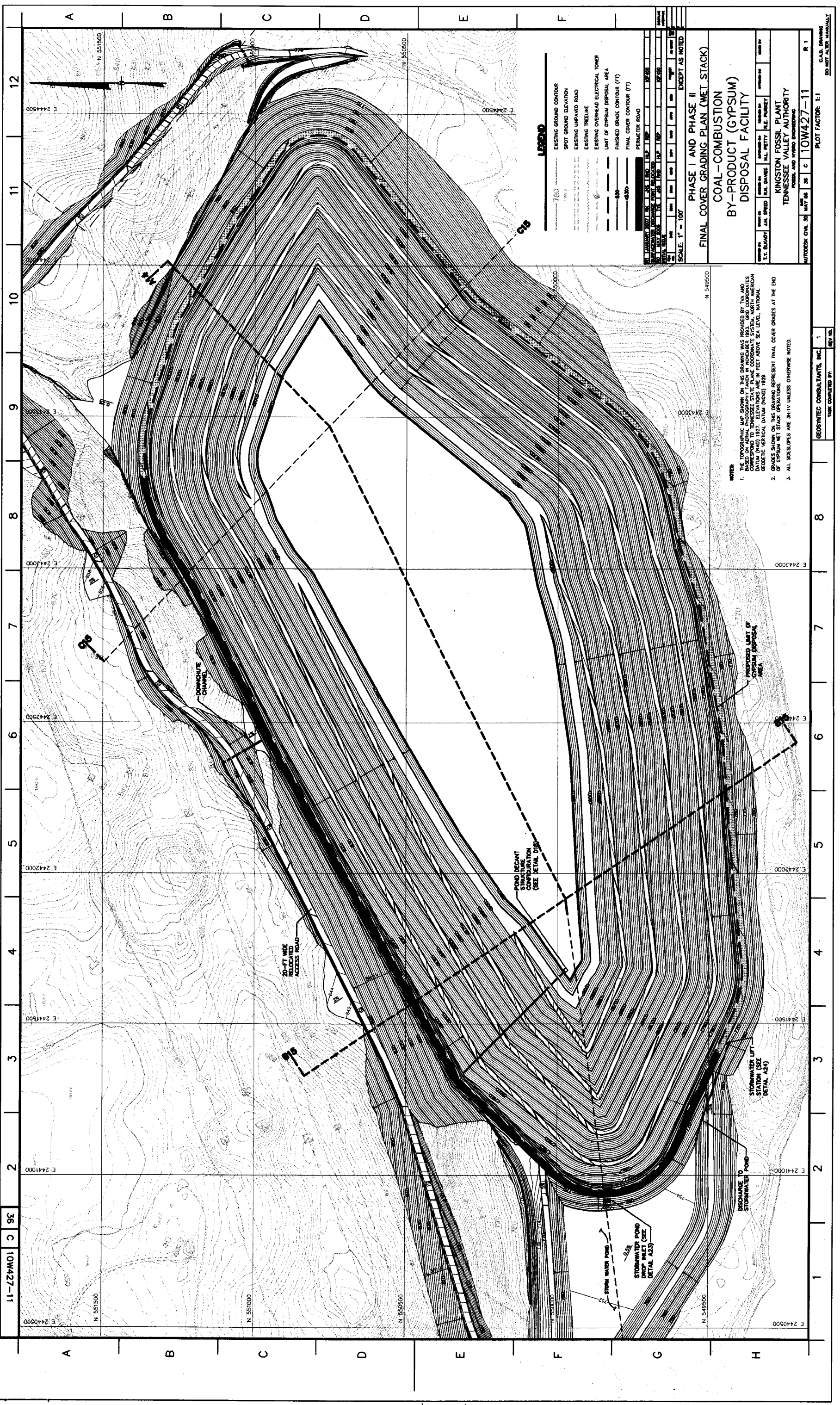
DATE	10/27/08
SCALE	1" = 100'
EXCEPT AS NOTED	

PROJECT NO. 10W427-9  
PLUT FACTOR: 1:1  
C.A.D. DRAWING  
DO NOT ALTER MANUALLY

GEOSYNTEC CONSULTANTS, INC.  
DATE COMPLETED: 08/08/08  
REV: 0







11-LZ-0101-C-9C

36

10W427-11

NOTES:  
 1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PREPARED BY THE U.S. GEOLOGICAL SURVEY IN 1954. THE SPOT ELEVATIONS SHOWN ON THIS DRAWING CORRESPOND TO THE SPOT ELEVATIONS SHOWN ON THE PHOTOGRAPHY TAKEN IN NOVEMBER 1953. GRID COORDINATES CORRESPOND TO THE TENNESSEE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD 83). SPOT ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, NATIONAL GEODETIC DATUM (NGVD) 1988.  
 2. SPOT ELEVATIONS REPRESENT FINAL COVER GRADES AT THE END OF GYPSUM WET STACK OPERATIONS.  
 3. ALL SLOPES ARE 3:1 UNLESS OTHERWISE NOTED.

**LEGEND**

- EXISTING GROUND CONTOUR
- SPOT GROUND ELEVATION
- EXISTING UNPAVED ROAD
- EXISTING TREELINE
- EXISTING OVERHEAD ELECTRICAL TOWER
- LIMIT OF GYPSUM DISPOSAL AREA
- FINISHED GRADE CONTOUR (F1)
- FINAL COVER CONTOUR (F1)
- PERIMETER ROAD

PHASE I AND PHASE II  
 FINAL COVER GRADING PLAN (WET STACK)  
 COAL-COMBUSTION  
 BY-PRODUCT (GYPSUM)  
 DISPOSAL FACILITY

DESIGNED BY: J.E. BLAUGHT, JR.  
 CHECKED BY: J.E. BLAUGHT, JR.  
 DRAWN BY: J.E. BLAUGHT, JR.  
 DATE: MAY 2008

APPROVED BY: J.E. BLAUGHT, JR.  
 DATE: MAY 2008

KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 POWER AND HYDRO ENGINEERING

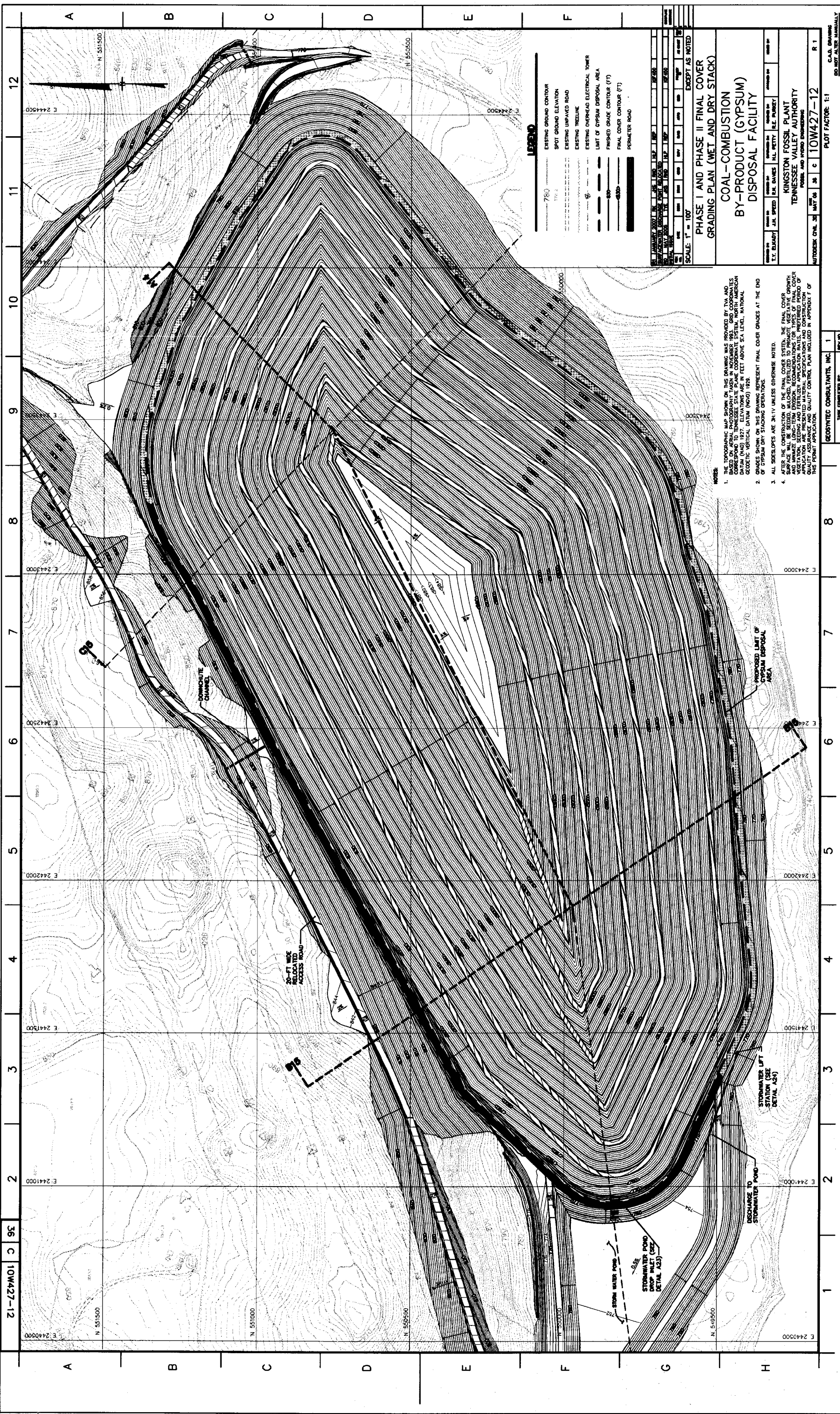
PROJECT NO. 10W427-11  
 SHEET NO. C-9C  
 TOTAL SHEETS 36  
 SCALE: 1" = 100'

DATE: MAY 2008  
 DRAWN BY: J.E. BLAUGHT, JR.  
 CHECKED BY: J.E. BLAUGHT, JR.  
 DATE: MAY 2008

SCALE: 1" = 100'  
 EXCEPT AS NOTED

PROJECT NO.	10W427-11	DATE	MAY 2008	SCALE	1" = 100'
SHEET NO.	C-9C	TOTAL SHEETS	36	DESIGNED BY	J.E. BLAUGHT, JR.
DATE	MAY 2008	CHECKED BY	J.E. BLAUGHT, JR.	DRAWN BY	J.E. BLAUGHT, JR.
APPROVED BY	J.E. BLAUGHT, JR.	DATE	MAY 2008	PROJECT NO.	10W427-11
CLIENT	KINGSTON FOSSIL PLANT	ENGINEERING	POWER AND HYDRO ENGINEERING	SCALE	1" = 100'
LOCATION	TENNESSEE VALLEY AUTHORITY	PROJECT NO.	10W427-11	SHEET NO.	C-9C
DATE	MAY 2008	SCALE	1" = 100'	EXCEPT AS NOTED	
PROJECT NO.	10W427-11	SHEET NO.	C-9C	TOTAL SHEETS	36
DATE	MAY 2008	DESIGNED BY	J.E. BLAUGHT, JR.	CHECKED BY	J.E. BLAUGHT, JR.
DRAWN BY	J.E. BLAUGHT, JR.	DATE	MAY 2008	APPROVED BY	J.E. BLAUGHT, JR.
CLIENT	KINGSTON FOSSIL PLANT	ENGINEERING	POWER AND HYDRO ENGINEERING	SCALE	1" = 100'
LOCATION	TENNESSEE VALLEY AUTHORITY	PROJECT NO.	10W427-11	SHEET NO.	C-9C
DATE	MAY 2008	SCALE	1" = 100'	EXCEPT AS NOTED	



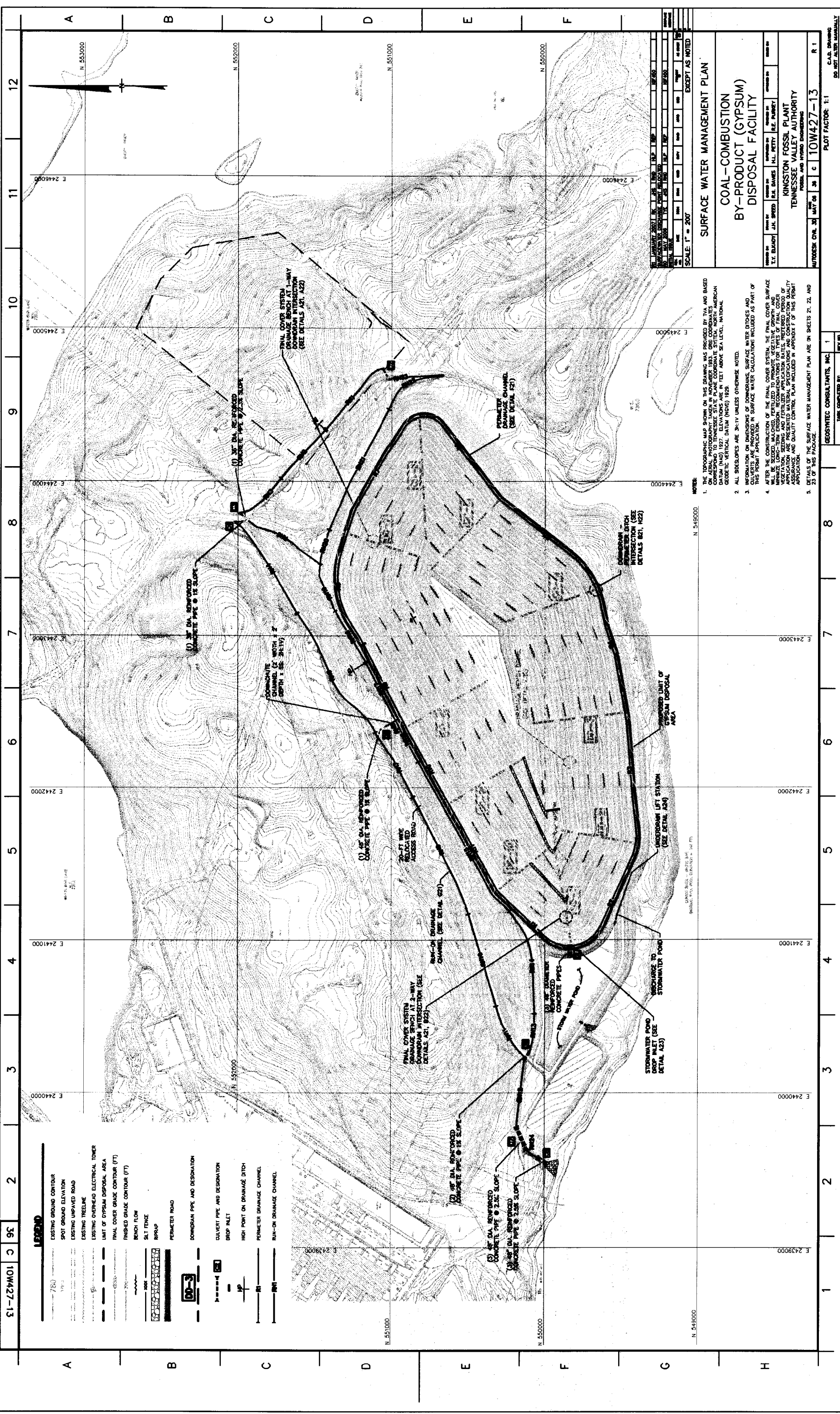


NOTES:

1. THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PROVIDED BY TVA AND BASED ON AERIAL PHOTOGRAPHY TAKEN IN NOVEMBER 1983. GRID COORDINATES CORRESPOND TO TENNESSEE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN GEODETIC VERTICAL DATUM (NAD83) 1974 IN FEET ABOVE SEA LEVEL, NATIONAL GRID.
2. GRADES SHOWN ON THIS DRAWING REPRESENT FINAL COVER GRADES AT THE END OF GYPSUM DRY STACKING OPERATIONS.
3. ALL SLOPES ARE 3H:1V UNLESS OTHERWISE NOTED.
4. AFTER THE CONSTRUCTION OF THE FINAL COVER SYSTEM, THE FINAL COVER SHALL BE MAINTAINED AND MONITORED FOR LONG-TERM EROSION, RECOMMENDATIONS FOR TYPES OF FINAL COVER VEGETATION, SEEDING AND FERTILIZER APPLICATION RATES, PREPARED PERIOD OF VEGETATION ESTABLISHMENT, AND QUALITY ASSURANCE AND QUALITY CONTROL PLAN INCLUDED IN APPENDIX F OF THIS PERMIT APPLICATION.

36 C 10W427-12

DATE: JANUARY 2007  
 DRAWN BY: J.L. BLADY  
 CHECKED BY: J.L. BLADY  
 SCALE: 1" = 100'  
 PROJECT: PHASE I AND PHASE II FINAL COVER GRADING PLAN (WET AND DRY STACK)  
 CLIENT: KINGSTON FOSSIL PLANT, TENNESSEE VALLEY AUTHORITY  
 DESIGNER: POSSIBLE AND HYDRO ENGINEERING  
 DATE: MAY 06  
 SHEET NO: 36 C 10W427-12  
 PLOT FACTOR: 1:1  
 C.A.B. DRAWING  
 DO NOT ALTER MANUALLY



**95 C 13 27401 13**

**LEGEND**

- EXISTING GROUND CONTOUR
- SPOT GROUND ELEVATION
- EXISTING UNPAVED ROAD
- EXISTING TREELINE
- EXISTING OVERHEAD ELECTRICAL TOWER
- LIMIT OF GYPSUM DISPOSAL AREA
- FINAL COVER GRADE CONTOUR (FT)
- FINISHED GRADE CONTOUR (FT)
- BRANCH FLOW
- SILT FENCE
- SRP/RAP
- PERIMETER ROAD
- DOWNSLOPE PIPE AND DESIGNATION
- CULVERT PIPE AND DESIGNATION
- DROP INLET
- HIGH POINT ON DRAINAGE DITCH
- PERIMETER DRAINAGE CHANNEL
- RUN-ON DRAINAGE CHANNEL

**SCALE: 1" = 200'**

**EXCEPT AS NOTED**

DATE	BY	CHKD.	REV.
JANUARY 2007	J.L. BLOOM	J.L. BLOOM	1
MAY 2008	J.L. BLOOM	J.L. BLOOM	2
MAY 2008	J.L. BLOOM	J.L. BLOOM	3
MAY 2008	J.L. BLOOM	J.L. BLOOM	4
MAY 2008	J.L. BLOOM	J.L. BLOOM	5
MAY 2008	J.L. BLOOM	J.L. BLOOM	6
MAY 2008	J.L. BLOOM	J.L. BLOOM	7
MAY 2008	J.L. BLOOM	J.L. BLOOM	8
MAY 2008	J.L. BLOOM	J.L. BLOOM	9
MAY 2008	J.L. BLOOM	J.L. BLOOM	10
MAY 2008	J.L. BLOOM	J.L. BLOOM	11
MAY 2008	J.L. BLOOM	J.L. BLOOM	12

**NOTE:**

- THE TOPOGRAPHIC MAP SHOWN ON THIS DRAWING WAS PROVIDED BY TVA AND BASED ON THE SURFACE OF THE EARTH AS SHOWN ON THE TOPOGRAPHIC MAP SHEETS CORRESPONDING TO TENNESSEE STATE PLANE COORDINATE SYSTEM NORTH AMERICAN DATUM (NAD) 1927. ELEVATIONS ARE IN FEET ABOVE SEA LEVEL, NATIONAL GEODETIC VERTICAL DATUM (NGVD) 1929.
- ALL SLOPES ARE 3% UNLESS OTHERWISE NOTED.
- INFORMATION ON DIMENSIONS OF DOWNSLOPE SURFACE WATER DITCHES AND CULVERTS ARE PROVIDED IN SURFACE WATER CALCULATIONS INCLUDED AS PART OF THIS PERMIT APPLICATION.
- AFTER THE CONSTRUCTION OF THE FINAL COVER SYSTEM, THE FINAL COVER SURFACE WILL BE MAINTAINED AT A MINIMUM GRADE 1% ABOVE THE FINAL COVER MINIMIZE LONG-TERM EROSION. RECOMMENDATIONS FOR TYPES OF FINAL COVER MATERIALS AND APPLICATION RATES, REQUIRED PERIODS OF MAINTENANCE, AND OTHER RELEVANT INFORMATION ARE INCLUDED IN THIS PERMIT APPLICATION, AND QUALITY CONTROL PLAN INCLUDED IN APPENDIX E OF THIS PERMIT APPLICATION.
- DETAILS OF THE SURFACE WATER MANAGEMENT PLAN ARE ON SHEETS 21, 22, AND 23 OF THIS PACKAGE.

**GEOSURTEC CONSULTANTS, INC.**  
 11758 LANTANA DRIVE, SUITE 200, WEST BEND, WI 53090  
 PH: 608-839-9700 FAX: 608-839-9701  
 WWW.GEOSURTEC.COM  
 PROJECT NO. 07-30001-0001  
 SHEET NO. 13 OF 27

**SURFACE WATER MANAGEMENT PLAN**

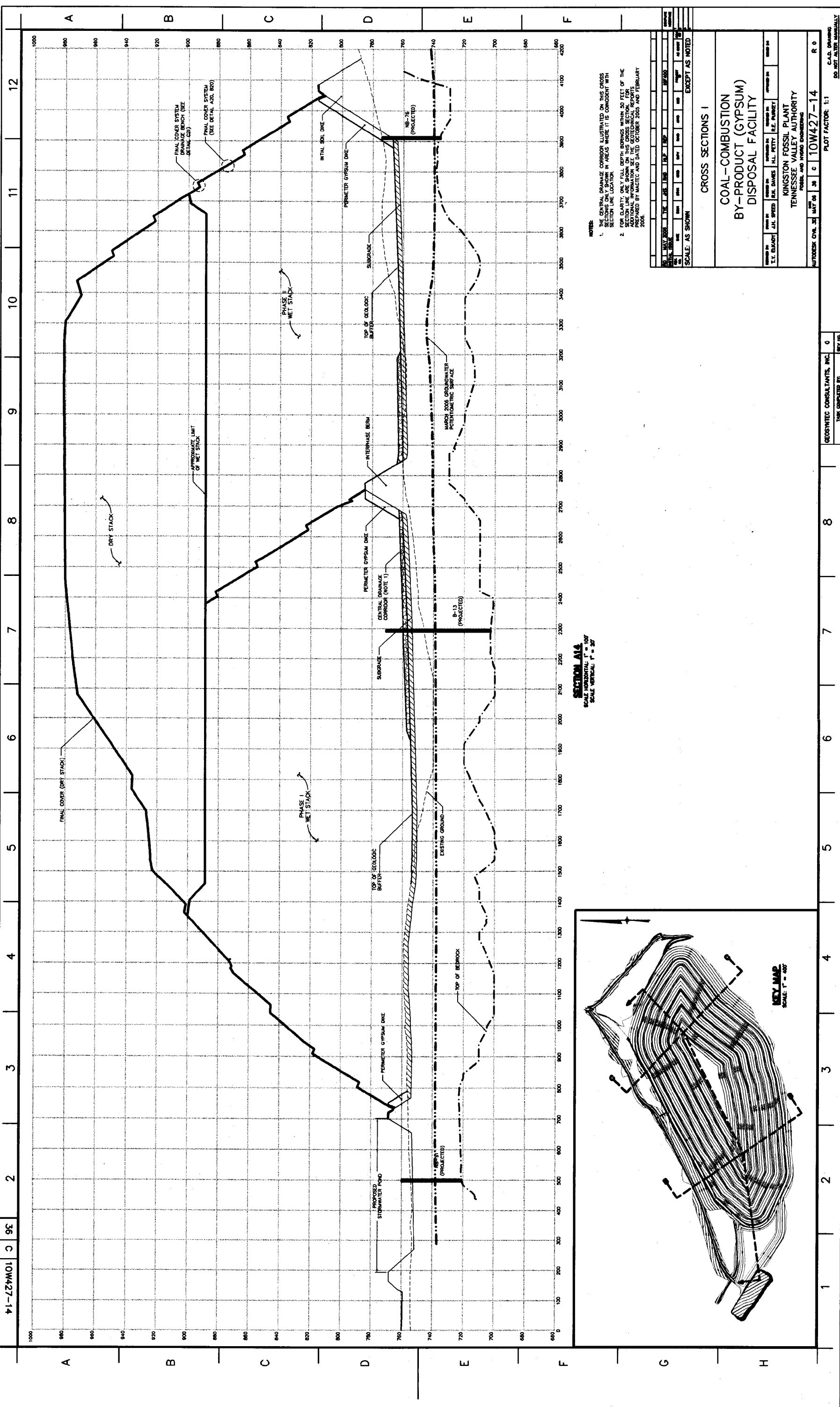
**COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY**

DATE: MAY 2008  
 DRAWN BY: J.L. BLOOM  
 CHECKED BY: J.L. BLOOM  
 APPROVED BY: J.L. BLOOM  
 PROJECT NO.: 07-30001-0001  
 SHEET NO.: 13 OF 27  
 SCALE: 1" = 200'  
 EXCEPT AS NOTED

**TENNESSEE VALLEY AUTHORITY**  
 KINGSFORD FOSSIL PLANT  
 COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY  
 PROJECT NO. 07-30001-0001  
 SHEET NO. 13 OF 27  
 SCALE: 1" = 200'  
 EXCEPT AS NOTED

**GEOSURTEC CONSULTANTS, INC.**  
 11758 LANTANA DRIVE, SUITE 200, WEST BEND, WI 53090  
 PH: 608-839-9700 FAX: 608-839-9701  
 WWW.GEOSURTEC.COM  
 PROJECT NO. 07-30001-0001  
 SHEET NO. 13 OF 27





**SECTION A/A**  
 SCALE HORIZONTAL: 1" = 100'  
 SCALE VERTICAL: 1" = 20'

**NOTES:**  
 1. THE CENTRAL DRAINAGE CORRIDOR ILLUSTRATED ON THIS CROSS SECTION IS ONLY SHOWN IN AREAS WHERE IT IS CONSISTENT WITH SECTION LINE LOCATION.  
 2. FOR CLARITY, ONLY FULL DEPTH BORINGS WITHIN 50 FEET OF THE SECTION LINE ARE SHOWN ON THIS CROSS SECTION. FOR OTHER BORINGS, SEE THE CROSS SECTION DATED OCTOBER 2005 AND FEBRUARY 2006.  
 PREPARED BY MACTEC AND DATED OCTOBER 2005 AND FEBRUARY 2006.

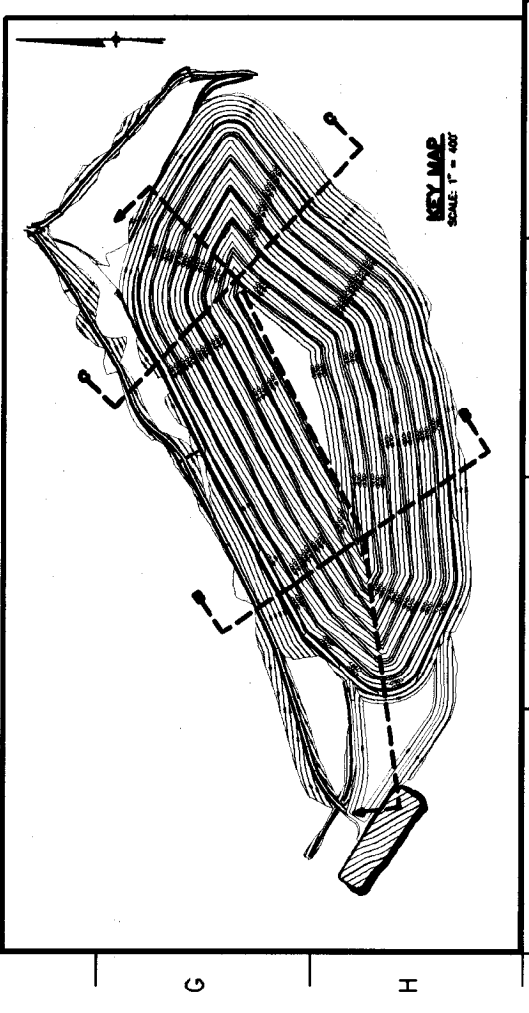
DATE	BY	CHECKED	APPROVED
MAY 2006	J.E. PERRY	J.E. PERRY	J.E. PERRY
DESIGNED	DRAWN	CHECKED	APPROVED
J.E. PERRY	J.E. PERRY	J.E. PERRY	J.E. PERRY

SCALE AS SHOWN EXCEPT AS NOTED

**CROSS SECTIONS I**  
**COAL-COMBUSTION**  
**BY-PRODUCT (GYPSUM)**  
**DISPOSAL FACILITY**

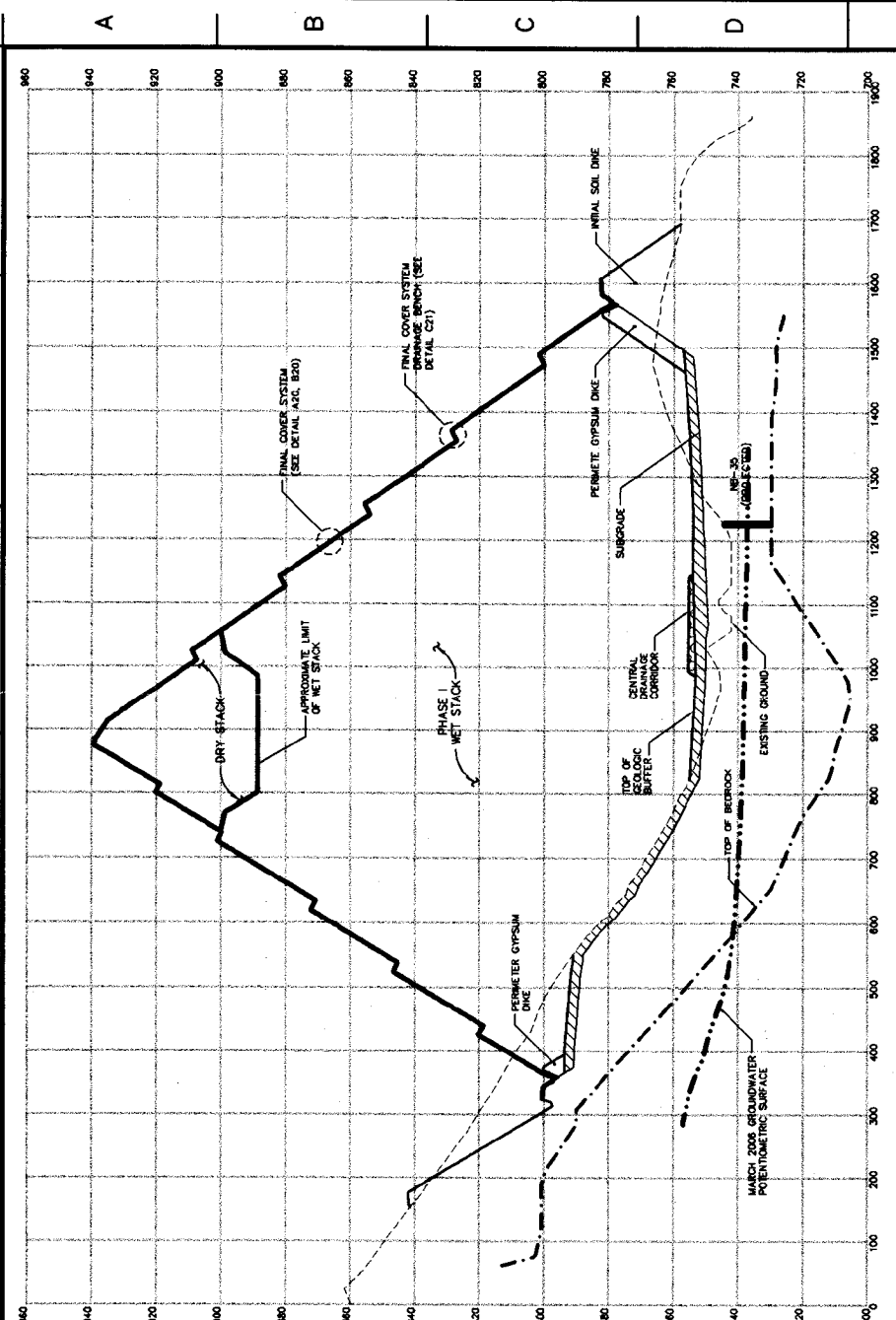
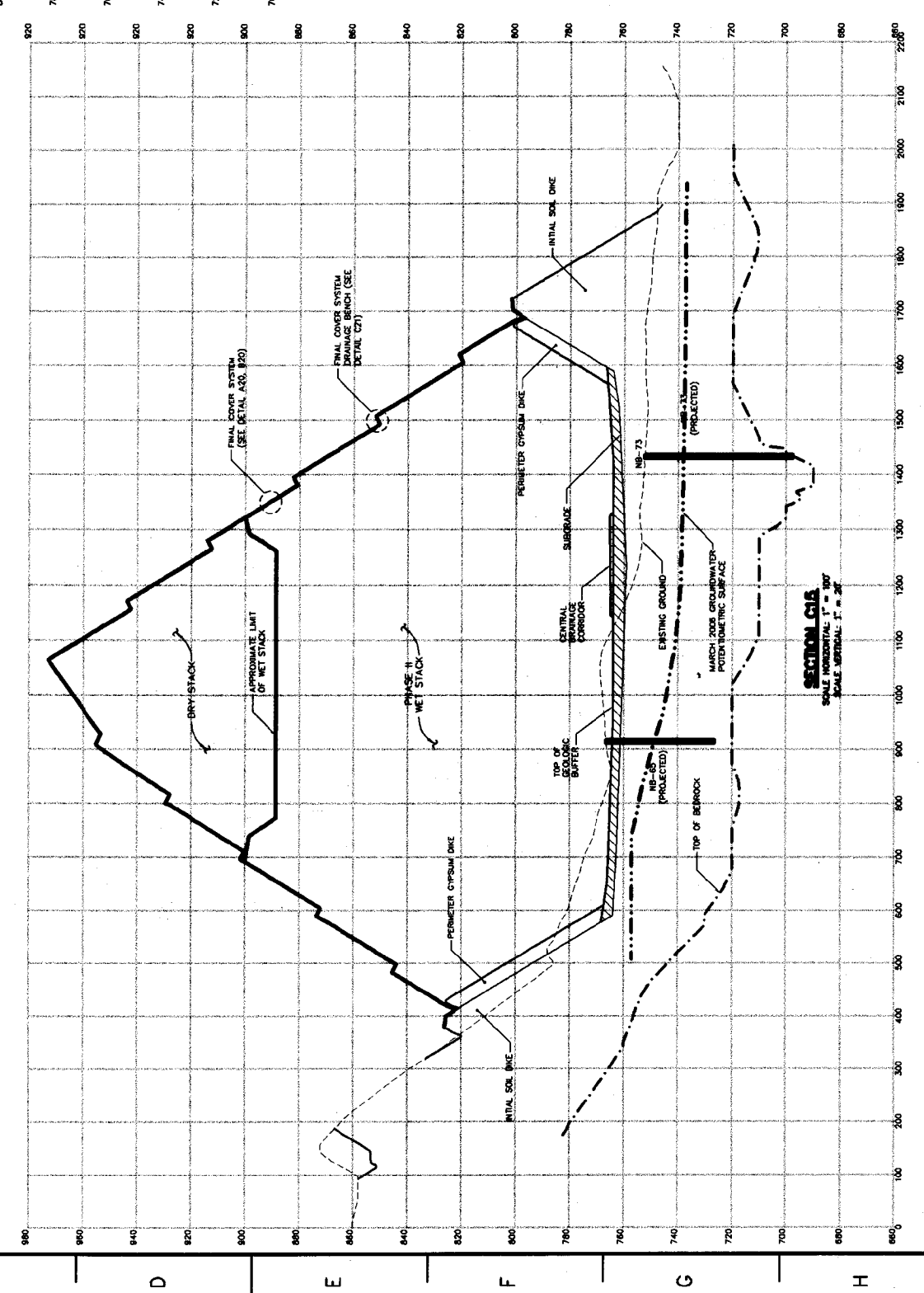
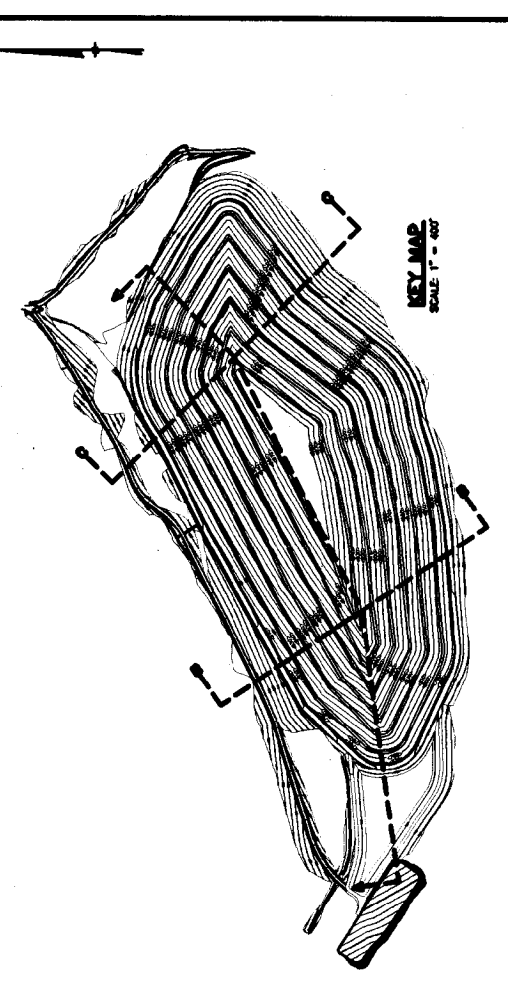
KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 FOSSIL AND HYDRO ENGINEERS

AUTODESK CIVIL 3D MAY 06 3d c 10W427-14  
 PLOT FACTOR: 1:1  
 C.S. DRAWING  
 DO NOT ALTER MANUALLY



SI-LZ4M01 C 9E

2 3 4 5 6 7 8 9 10 11 12



NOTE

1. FOR CLARITY ONLY FULL DEPTH BORINGS WITHIN 50 FEET OF THE SECTION LINE ARE SHOWN ON THIS CROSS SECTION. FOR ADDITIONAL INFORMATION SEE THE GEOTECHNICAL REPORTS OBTAINED BY INTERESTED PARTIES ON OCTOBER 2005 AND FEBRUARY 2006.

DATE	BY	CHKD BY	APP'D BY	REVISION
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	1
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	2
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	3
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	4
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	5
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	6
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	7
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	8
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	9
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	10
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	11
MAY 2008	J.T. BLADY	J.H. SPREED	R.H. DAVIES	12

**CROSS SECTIONS II**

**COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY**

DESIGNED BY: J.T. BLADY  
CHECKED BY: J.H. SPREED  
APPROVED BY: R.H. DAVIES

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
FOSSIL AND MINERAL OPERATIONS

AUTODESK CIVIL 3D MAY 08 30 c 10W427-15

SCALE: AS SHOWN EXCEPT AS NOTED

GEOSTYNE CONSULTANTS, INC. 0  
TASK COMPLETED BY: REV. NO.

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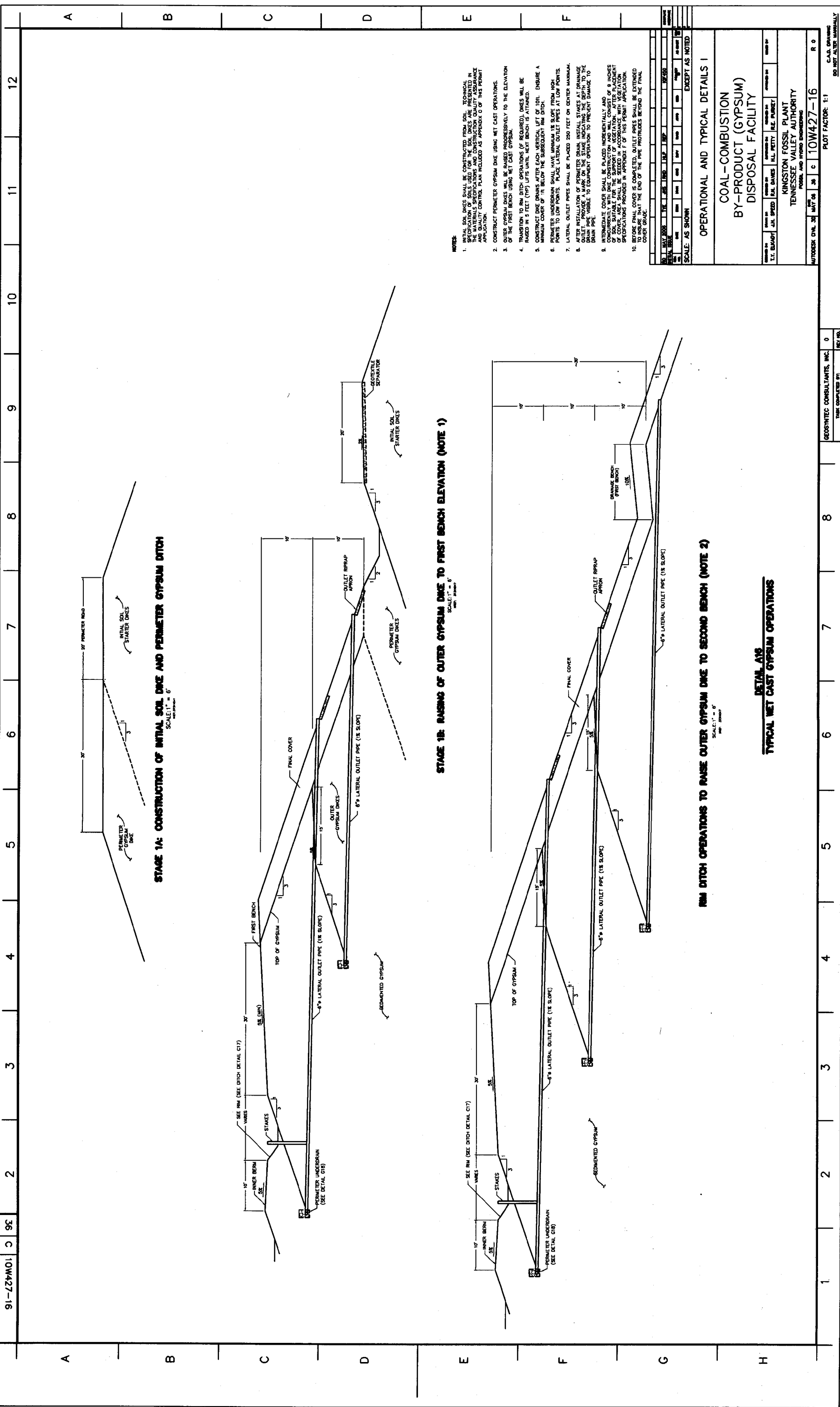
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A B C D E F G H



**STAGE 1A: CONSTRUCTION OF INITIAL SOIL DIKE AND PERIMETER GYPSUM DITCH**  
SCALE: 1" = 6'

**STAGE 1B: RAISING OF OUTER GYPSUM DIKE TO FIRST BENCH ELEVATION (NOTE 1)**  
SCALE: 1" = 6'

**STAGE 2: RISE OPERATIONS TO RAISE OUTER GYPSUM DIKE TO SECOND BENCH (NOTE 2)**  
SCALE: 1" = 6'

**DETAIL A15  
TYPICAL NET CAST GYPSUM OPERATIONS**

- NOTES:**
- INITIAL SOIL DICES SHALL BE CONSTRUCTED FROM SOIL TECHNICAL SPECIFICATIONS OF SOILS USED FOR THE SOIL DICES ARE PRESENTED IN APPENDIX F OF THIS PERMIT. INITIAL SOIL DICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS AND QUALITY CONTROL PLAN INCLUDED AS APPENDIX D OF THIS PERMIT APPLICATION.
  - CONSTRUCT PERIMETER GYPSUM DIKE USING NET CAST OPERATIONS.
  - OUTER GYPSUM DICES WILL BE RAISED PROGRESSIVELY TO THE ELEVATION OF THE FIRST BENCH USING NET CAST GYPSUM.
  - TRANSITION TO RM DITCH OPERATIONS (IF REQUIRED). DICES WILL BE RAISED IN 5 FEET (TYP) LIFTS UNTIL NEXT BENCH IS ATTAINED.
  - CONSTRUCT DICE FRAMES AFTER EACH VERTICAL LIFT OF 5 FT. ENSURE A MINIMUM COVER OF 18" BELOW THE SUBSEQUENT RM DITCH.
  - PERIMETER UNDERDRAIN SHALL HAVE MINIMUM 1% SLOPE FROM HIGH POINTS TO LOW POINTS. PLACE LATERAL OUTLET PIPES AT LOW POINTS.
  - LATERAL OUTLET PIPES SHALL BE PLACED 200 FEET ON CENTER MAXIMUM.
  - AFTER INSTALLATION OF PERIMETER DIKE INITIAL STAKES AT 50' SPACING SHALL BE PLACED AT THE END OF THE DIKE. PROVIDE A MARK ON THE STAKE INDICATING THE DEPTH TO THE DRAIN PIPE VISIBLE TO EQUIPMENT OPERATOR TO PREVENT DAMAGE TO DRAIN PIPE.
  - INTERMEDIATE COVER SHALL BE PLACED INCREMENTALLY AND THE COVER SHALL BE SEEDED IN ACCORDANCE WITH VEGETATION SPECIFICATIONS PROVIDED IN APPENDIX F OF THIS PERMIT APPLICATION.
  - BEFORE FINAL COVER IS COMPLETED, OUTLET PIPES SHALL BE EXTENDED TO THE END OF THE PIPE PROVIDED BEHIND THE FINAL COVER GRADE.

OPERATIONAL AND TYPICAL DETAILS I

COAL-COMBUSTION  
BY-PRODUCT (GYPSUM)  
DISPOSAL FACILITY

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
POWER AND HYDRO ENGINEERING

PROJECT NO. 91-234M01-C-95  
DATE: MAY 04 88  
DRAWN BY: C  
CHECKED BY: C  
SCALE: AS SHOWN  
PLOT FACTOR: 1:1  
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DO NOT ALTER MANUALLY

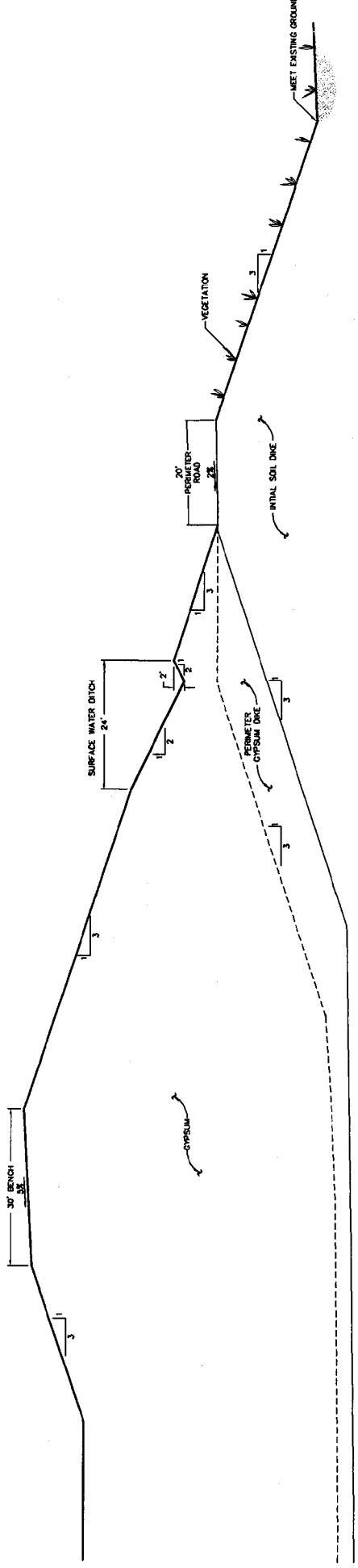
GEOSYNTEC CONSULTANTS, INC.  
DATE COMPLETED BY: 0



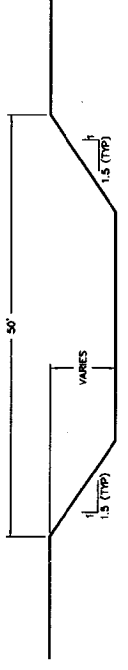
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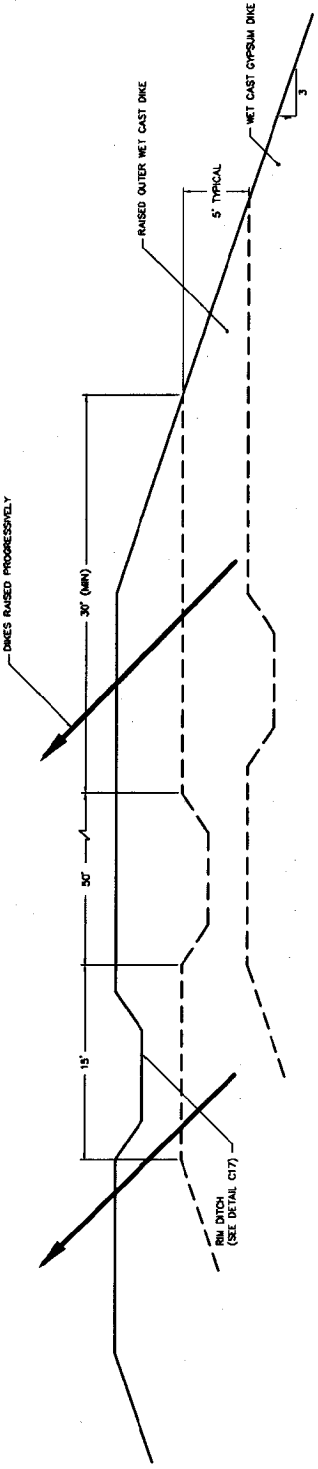
A B C D E F G H



**DETAIL A17**  
SCALE: 1" = 10'  
DATE: 10/1/80



**DETAIL C17**  
SCALE: 1" = 10'  
DATE: 10/1/80



**DETAIL B17**  
SCALE: 1" = 5'  
DATE: 10/1/80

**DIKE RAISING IN 5 FEET INCREMENTS USING RM DITCH OPERATION**

DATE	BY	CHKD	APP'D	REVISION
MAY 2008	T.S. JAMES	J.S. JAMES	J.S. JAMES	1.0
SCALE: AS SHOWN EXCEPT AS NOTED				

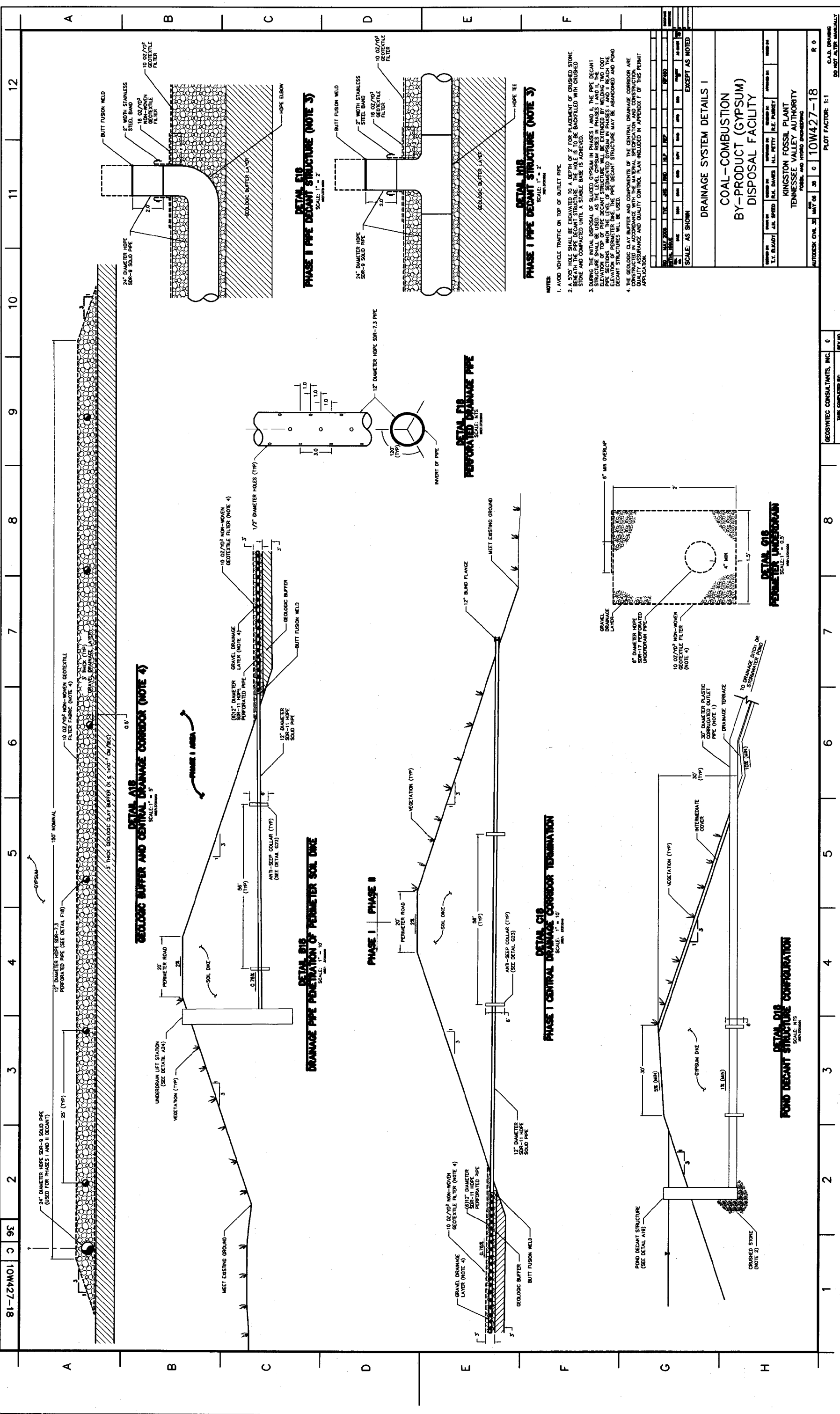
OPERATIONAL AND TYPICAL DETAILS II  
**COAL-COMBUSTION  
 BY-PRODUCT (GYPSUM)  
 DISPOSAL FACILITY**

DESIGNED BY  
 T.Y. BLADY  
 CHECKED BY  
 J.M. SPREED  
 IN CHARGE  
 R.A. DAVIES  
 N.L. PETTY  
 R.E. PURNEY  
 KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 FOSIL, AND HEAVY ENGINEERING

PROJECT NO.  
 10W427-17  
 PLOT FACTOR: 1:1  
 R. 0  
 C.A.D. DRAWING  
 DO NOT ALTER MANUALLY

GEOSYNTEC CONSULTANTS, INC.  
 DATE COMPLETED BY  
 0  
 REV. NO.

1 2 3 4 5 6 7 8



**DETAIL A18**  
**PHASE I PIPE DECANT STRUCTURE (NOTE 3)**  
 SCALE: 1" = 2'

**DETAIL A19**  
**PHASE I PIPE DECANT STRUCTURE (NOTE 3)**  
 SCALE: 1" = 2'

**DETAIL A18**  
**DRAINAGE PIPE PENETRATION OF PERIMETER SOIL DIKE**  
 SCALE: 1" = 10'

**DETAIL A18**  
**PERFORATED DRAINAGE PIPE**  
 SCALE: 1" = 10'

**DETAIL A18**  
**PHASE I CENTRAL DRAINAGE CORRIDOR TERMINATION**  
 SCALE: 1" = 10'

**DETAIL A18**  
**POUD DECANT STRUCTURE CONFIGURATION**  
 SCALE: 1" = 10'

**DETAIL A18**  
**PERIMETER UNDERDRAIN**  
 SCALE: 1" = 10'

- NOTES:**
1. AVOID VEHICLE TRAFFIC ON TOP OF OUTLET PIPE.
  2. A 2" DIA. HOLE SHALL BE ENGRAINED TO A DEPTH OF 2' FOR PLACEMENT OF CRUSHED STONE BENEATH THE PIPE DECANT STRUCTURE. THE HOLE IS TO BE BACKFILLED WITH CRUSHED STONE AND COMPACTED UNTIL A STABLE BASE IS ACHIEVED.
  3. DURING THE INITIAL DISPOSAL OF SLURGED GYPSUM IN PHASES I AND II, THE PIPE DECANT STRUCTURE SHALL BE USED. AS THE LEVEL OF GYPSUM RISES IN PHASES I AND II, THE PIPE DECANT STRUCTURE SHALL BE ABANDONED AND THE GYPSUM SHALL BE WELDED TO THE PERIMETER DIKE. THE REASON FOR ABANDONING THE PIPE DECANT STRUCTURE IS THAT THE ELEVATION OF PERIMETER DIKE, THE LEVEL OF GYPSUM, AND THE ELEVATION OF PERIMETER DIKE. THE PIPE DECANT STRUCTURE MAY BE ABANDONED AND POND DECANT STRUCTURES WILL BE USED.
  4. THE GEOLOGIC CLAY BUFFER AND COMPONENTS OF THE CENTRAL DRAINAGE CORRIDOR ARE TO BE CONSTRUCTED WITH THE SAME MATERIALS AND CONSTRUCTION QUALITY ASSURANCE AND QUALITY CONTROL PLAN INCLUDED IN APPENDIX 1 OF THIS PERMIT APPLICATION.

DATE	BY	CHKD	APP'D	SCALE	EXCEPT AS NOTED
10/15/08	J.T. BROAD	J.A.C. DAVIS	K.L. PERRY	AS SHOWN	

DRAINAGE SYSTEM DETAILS I	
COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY	
KINGSTON FOSSIL PLANT	
TENNESSEE VALLEY AUTHORITY	
FOSSIL AND HYDRO ENGINEERING	
PROJECT NO.	10W427-18
DATE	MAY 08
SCALE	1:1
PLANT	R 0

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GEOSYNTEC CONSULTANTS, INC. 0

DATE COMPLETED BY:

REV. NO.

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10W427-18

R 0

PLANT

SCALE

DATE

PROJECT NO.

FOSSIL AND HYDRO ENGINEERING

TENNESSEE VALLEY AUTHORITY

KINGSTON FOSSIL PLANT

COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY

DRAINAGE SYSTEM DETAILS I

EXCEPT AS NOTED

SCALE: AS SHOWN

APP'D

CHKD

BY

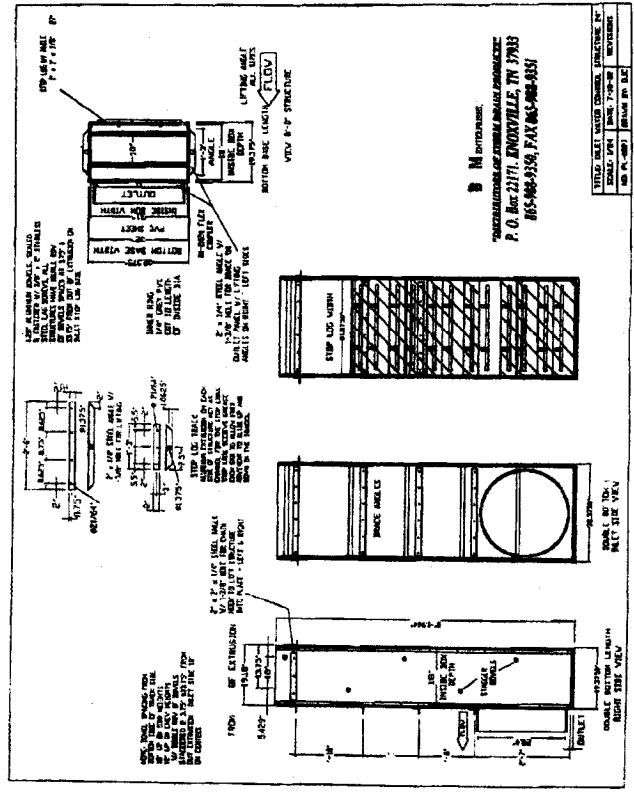
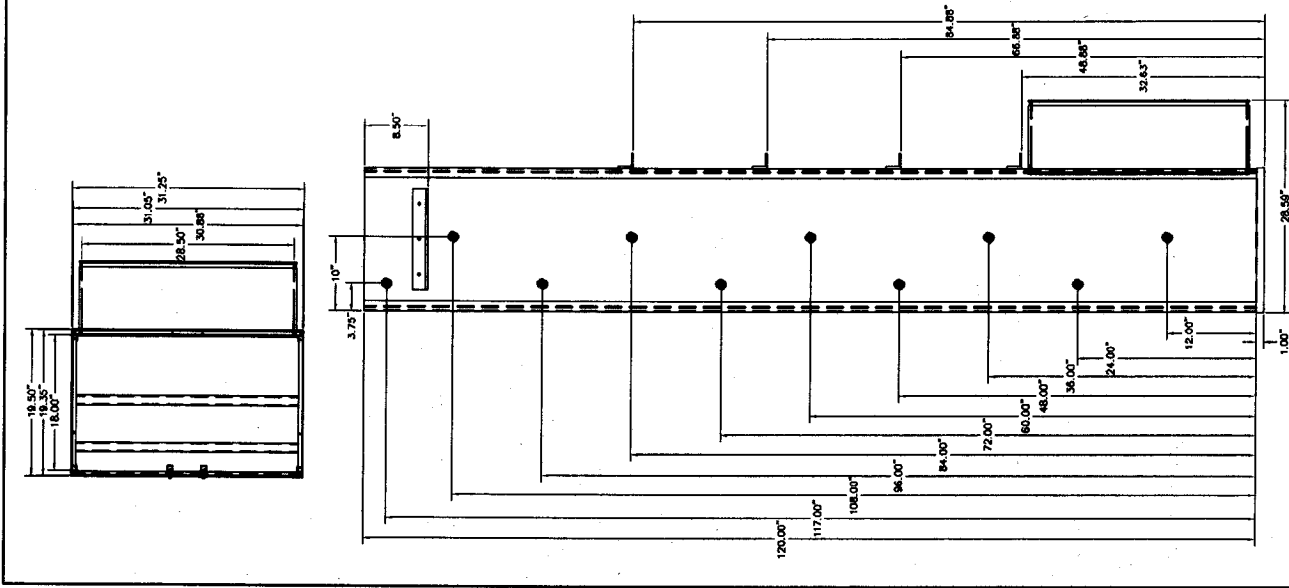
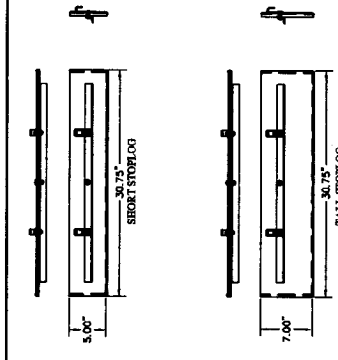
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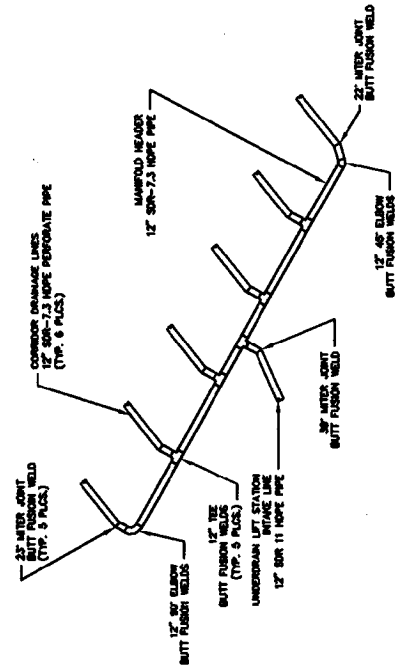


BPM ENTERPRISES, INC.  
 1149 KEVIN LANE, LENOIR CITY, TN 37772  
 865-988-9350, (F) 865-988-9351

ITEM	QTY	ITEM DESCRIPTION	PART NO.
<b>Agri Drain</b> <b>CORPORATION</b> <i>America's Most Complete Supplier of Water Management Products</i> P.O. Box 488 - 1462 340th St. - Ames, IA 50002 - Ph: 1-800-232-4742 - Fax: 1-800-282-3353 - www.agridrain.com			
TITLE <b>INLET 24" X 120" WCS</b>			
DATE:		DRAWN BY:	REV.
PART NO.		PART NO.	REV.

UNLESS OTHERWISE SPECIFIED  
 ALL DIMENSIONS ARE IN INCHES.  
 .X ±.06  
 .XX ±.03  
 .XXX ±.010  
 ANGLES ±2°  
 BREAK ALL SHARP CORNERS.

ALL INFORMATION CONTAINED IN THIS DOCUMENT IS PROPRIETARY TO AGRI DRAIN CORP. DUPLICATION OR TRANSMITTAL OF THIS DOCUMENT IS STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF AGRI DRAIN CORP.



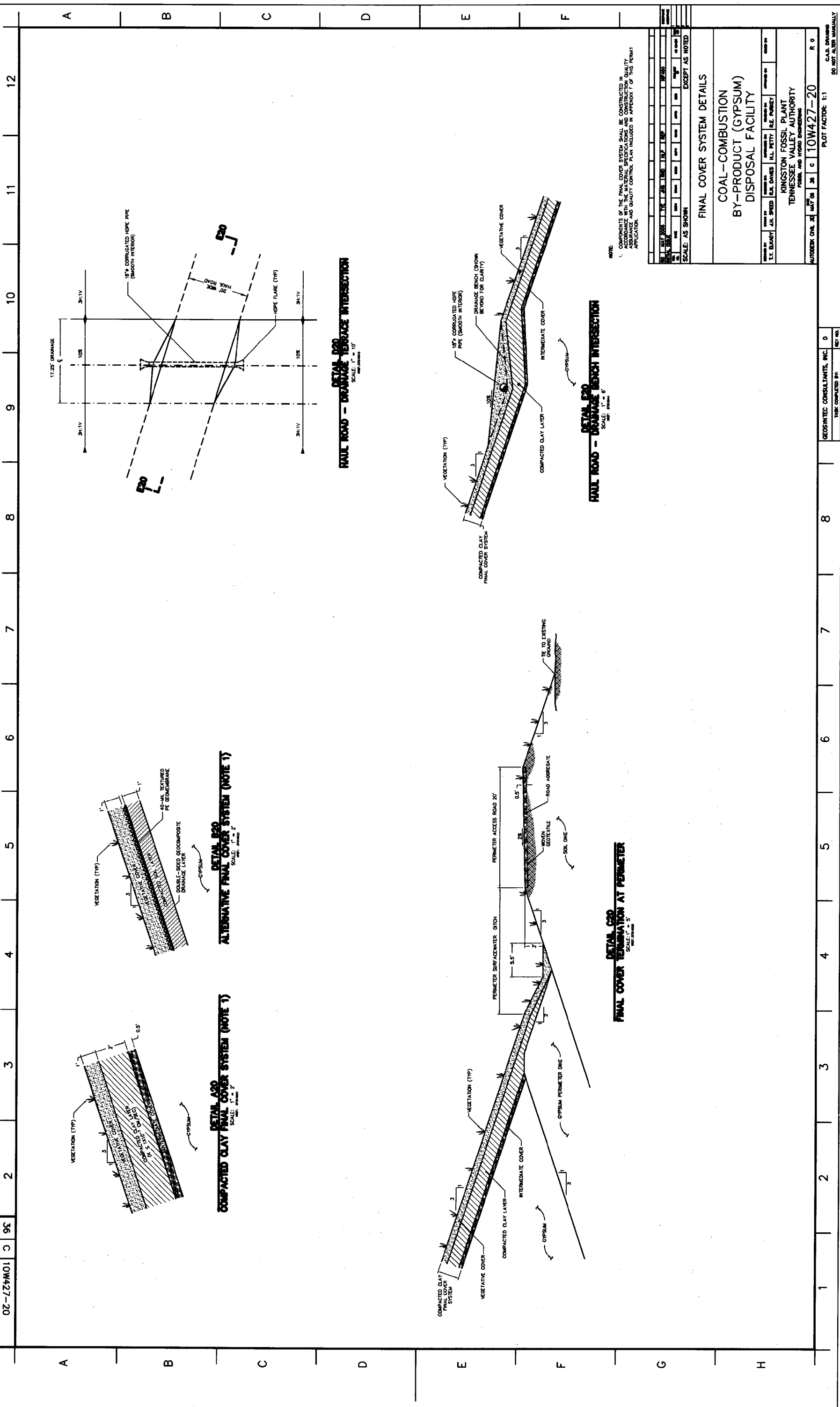
**DETAIL B19**  
**UNDERDRAIN MANFOLD**

DATE: 10/12/00	BY: J.E. BLAND	CHK: J.E. BLAND	APP: J.E. BLAND	DATE: 10/12/00	BY: J.E. BLAND	CHK: J.E. BLAND	APP: J.E. BLAND
SCALE: NONE EXCEPT AS NOTED							
DRAINAGE SYSTEM DETAILS II							
COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY							
KINGSTON FOSSIL PLANT TENNESSEE VALLEY AUTHORITY POWER AND HYDRO ENGINEERING							
AUTODESK CIVIL 3D	MAY 04	38	C	10W427-19	R	0	
PLOT FACTOR: 1:1							

**DETAIL A19**  
**FOND BEAM STRUCTURE**

GEOSYNTEC CONSULTANTS, INC. 0  
 DATE COMPLETED BY: 0

DATE: 10/12/00  
 BY: J.E. BLAND  
 CHK: J.E. BLAND  
 APP: J.E. BLAND



**HAUL ROAD - DRAINAGE TERRACE INTERSECTION**  
**DETAIL E20**  
 SCALE: 1" = 10'  
DATE: 10/20/08

**HAUL ROAD - DRAINAGE TERRACE INTERSECTION**  
**DETAIL E20**  
 SCALE: 1" = 6'  
DATE: 10/20/08

**FINAL COVER TERMINATION AT PERIMETER**  
**DETAIL C20**  
 SCALE: 1" = 5'  
DATE: 10/20/08

**COMPACTED CLAY FINAL COVER SYSTEM (NOTE 1)**  
**DETAIL A20**  
 SCALE: 1" = 6'  
DATE: 10/20/08

**ALTERNATIVE FINAL COVER SYSTEM (NOTE 1)**  
**DETAIL B20**  
 SCALE: 1" = 6'  
DATE: 10/20/08

**NOTE:**  
 1. COMPONENTS OF THE FINAL COVER SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MATERIAL SPECIFICATIONS AND CONSTRUCTION QUALITY ASSURANCE AND QUALITY CONTROL PLAN INCLUDED IN APPENDIX I OF THIS PERMIT APPLICATION.

DATE	BY	CHKD	APP'D	REV	DESCRIPTION
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	1	ISSUED FOR PERMIT
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	2	REVISED TO ADD DETAIL E20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	3	REVISED TO ADD DETAIL C20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	4	REVISED TO ADD DETAIL A20 AND B20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	5	REVISED TO ADD DETAIL E20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	6	REVISED TO ADD DETAIL C20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	7	REVISED TO ADD DETAIL A20 AND B20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	8	REVISED TO ADD DETAIL E20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	9	REVISED TO ADD DETAIL C20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	10	REVISED TO ADD DETAIL A20 AND B20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	11	REVISED TO ADD DETAIL E20
10/20/08	J.H. SPEED	J.H. SPEED	J.H. SPEED	12	REVISED TO ADD DETAIL C20

SCALE: AS SHOWN EXCEPT AS NOTED

**FINAL COVER SYSTEM DETAILS**  
 COAL-COMBUSTION  
 BY-PRODUCT (GYPSUM)  
 DISPOSAL FACILITY

DESIGNED BY: J.H. SPEED  
 CHECKED BY: J.H. SPEED  
 APPROVED BY: J.H. SPEED

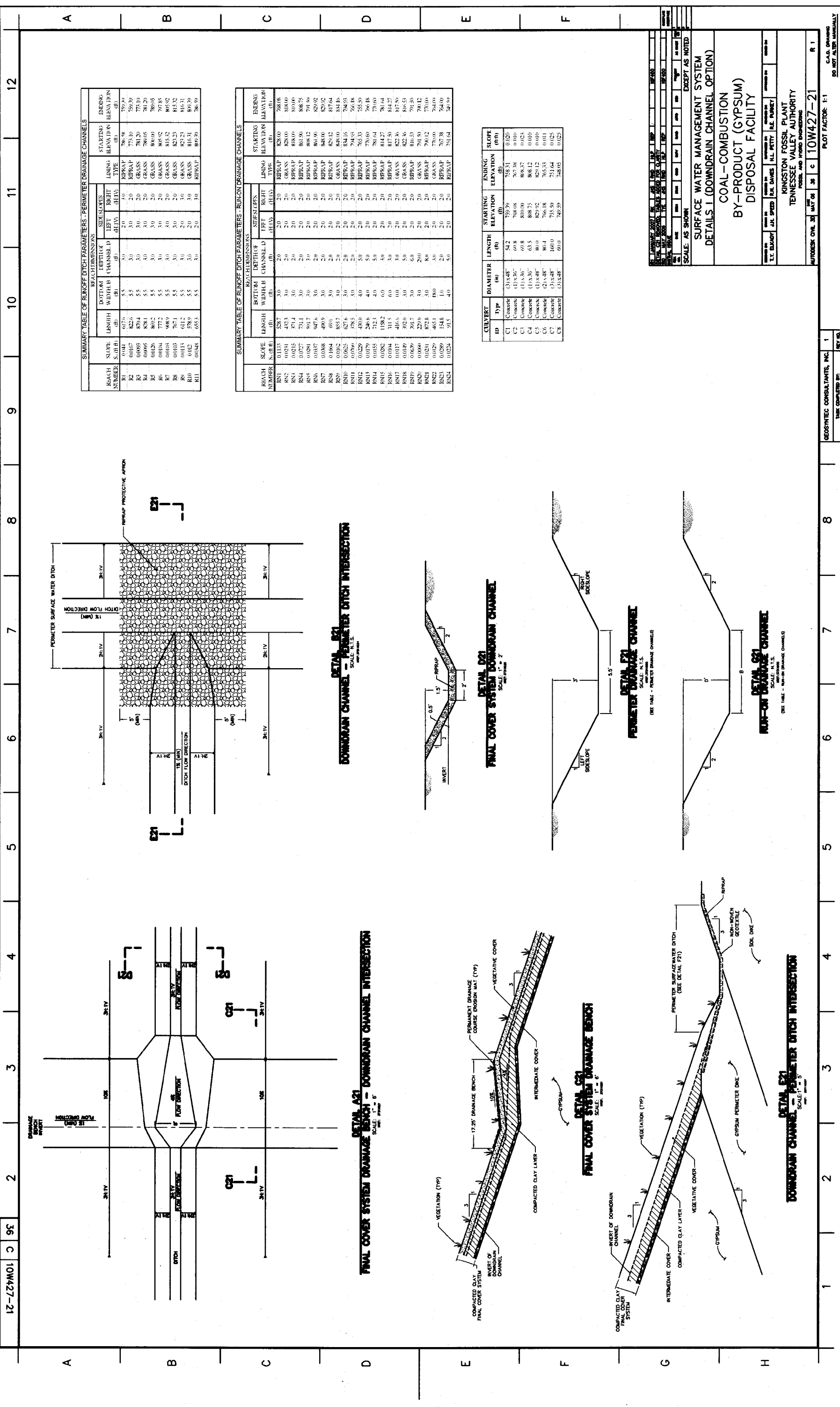
KINGSTON FOSSIL PLANT  
 TENNESSEE VALLEY AUTHORITY  
 FOSSIL AND WASTE ENGINEERING

AUTODESK CIVIL 3D 2008 10/20/08 J.H. SPEED J.H. SPEED J.H. SPEED  
 PLOT FACTOR: 1:1

GEOSYNTEC CONSULTANTS, INC. 0  
 TASK COMPLETED BY: J.H. SPEED

10W427-20  
 R 0  
 C.A.S. DRAWING  
 DO NOT ALTER MANUALLY

02-Z4401 C 36 10W427-20



**SUMMARY TABLE OF RUNOFF DITCH PARAMETERS - PERIMETER DRAINAGE CHANNELS**

REACH NUMBER	SLOPE S.F.(H)	LENGTH (ft)	DITCH DIMENSIONS		SIZESLOPES		STARTING ELEVATION (ft)	ENDING ELEVATION (ft)
			WIDTH (ft)	DEPTH (ft)	LEFT (ft)	RIGHT (ft)		
R1	0.0141	627.6	5.5	3.0	2.0	2.0	796.78	797.49
R2	0.0167	822.6	5.5	3.0	2.0	2.0	773.10	775.29
R3	0.0093	870.4	5.5	3.0	2.0	2.0	781.20	775.10
R4	0.0065	828.1	5.5	3.0	2.0	2.0	780.05	781.29
R5	0.0126	869.2	5.5	3.0	2.0	2.0	800.00	780.05
R6	0.0104	777.2	5.5	3.0	2.0	2.0	805.92	797.85
R7	0.0118	968.9	5.5	3.0	2.0	2.0	815.52	805.92
R8	0.0115	767.1	5.5	3.0	2.0	2.0	823.23	816.31
R9	0.012	578.9	5.5	3.0	2.0	2.0	816.31	809.39
R10	0.0148	653.3	5.5	3.0	2.0	2.0	809.39	787.59

**SUMMARY TABLE OF RUNOFF DITCH PARAMETERS - RUNOFF DRAINAGE CHANNELS**

REACH NUMBER	SLOPE S.F.(H)	LENGTH (ft)	DITCH DIMENSIONS		SIZESLOPES		STARTING ELEVATION (ft)	ENDING ELEVATION (ft)
			WIDTH (ft)	DEPTH (ft)	LEFT (ft)	RIGHT (ft)		
RN1	0.1133	528.7	3.0	2.0	2.0	2.0	828.00	808.08
RN2	0.0231	423.3	3.0	2.0	2.0	2.0	828.00	818.00
RN3	0.0215	371.4	3.0	2.0	2.0	2.0	818.00	810.00
RN4	0.0727	731.1	3.0	2.0	2.0	2.0	861.90	868.75
RN5	0.0281	591.7	3.0	2.0	2.0	2.0	868.12	791.59
RN6	0.0337	947.6	3.0	2.0	2.0	2.0	861.90	829.92
RN7	0.0388	496.9	3.0	2.0	2.0	2.0	848.00	829.92
RN8	0.1664	691.0	3.0	2.0	2.0	2.0	829.12	817.64
RN9	0.0192	853.7	3.0	2.0	2.0	2.0	828.00	841.16
RN10	0.0625	627.6	3.0	2.0	2.0	2.0	841.16	794.05
RN11	0.0199	593.3	3.0	2.0	2.0	2.0	794.05	766.18
RN12	0.0229	420.0	3.0	2.0	2.0	2.0	766.18	752.39
RN13	0.0115	416.0	3.0	2.0	2.0	2.0	752.39	730.61
RN14	0.0282	712.3	3.0	2.0	2.0	2.0	730.61	776.64
RN15	0.0282	1188.2	3.0	2.0	2.0	2.0	776.64	814.27
RN16	0.0104	311.5	3.0	2.0	2.0	2.0	814.27	817.50
RN17	0.0117	406.6	3.0	2.0	2.0	2.0	817.50	814.27
RN18	0.0149	392.0	3.0	2.0	2.0	2.0	814.27	822.36
RN19	0.0639	301.7	3.0	2.0	2.0	2.0	822.36	816.53
RN20	0.0060	229.6	3.0	2.0	2.0	2.0	816.53	791.59
RN21	0.0231	872.8	3.0	2.0	2.0	2.0	791.59	790.12
RN22	0.0129	465.1	3.0	2.0	2.0	2.0	790.12	784.00
RN23	0.0289	134.8	1.6	2.0	2.0	2.0	784.00	787.38
RN24	0.0224	91.5	4.0	5.0	2.0	2.0	787.38	751.64

**CULVERT**

ID	TYPE	DIAMETER (ft)	LENGTH (ft)	STARTING ELEVATION (ft)	ENDING ELEVATION (ft)	SLOPE (ft/ft)
C1	Concrete	33x48"	54.2	759.79	758.31	0.020
C2	Concrete	33x36"	69.8	768.08	767.38	0.010
C3	Concrete	33x36"	69.8	810.00	808.37	0.023
C4	Concrete	33x36"	63.5	808.75	808.12	0.010
C5	Concrete	33x48"	80.0	829.92	829.12	0.010
C6	Concrete	24x48"	86.4	766.18	765.33	0.011
C7	Concrete	33x48"	160.0	755.59	751.64	0.025
C8	Concrete	33x48"	69.0	749.39	748.05	0.022

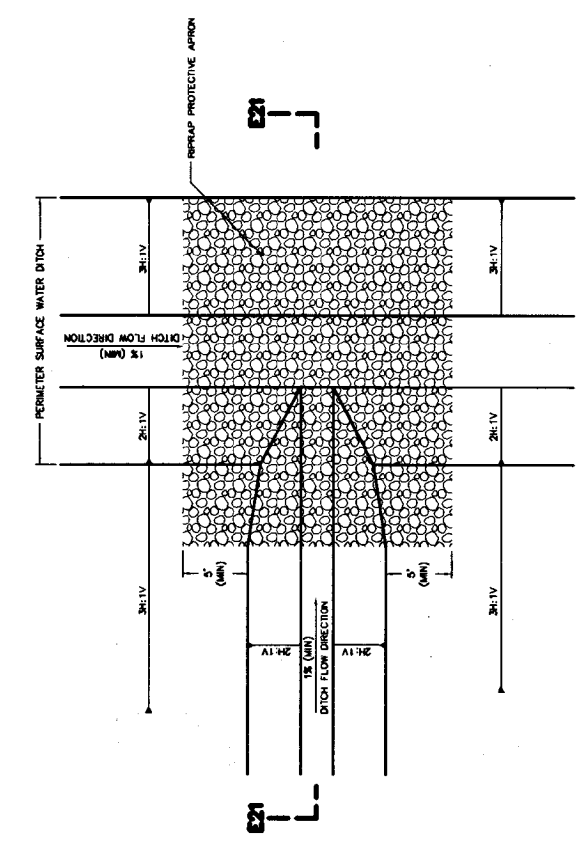
**DATE** 10/27/07 **BY** J.H. BLAND **CHECKED** J.H. BLAND **SCALE** AS SHOWN EXCEPT AS NOTED

**SURFACE WATER MANAGEMENT SYSTEM**  
**DETAILS I (DOWNDRAIN CHANNEL OPTION)**  
**COAL-COMBUSTION**  
**BY-PRODUCT (GYPSUM)**  
**DISPOSAL FACILITY**

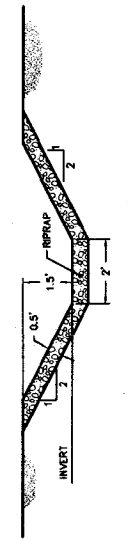
**DESIGNED BY** J.H. BLAND **DESIGNED BY** J.H. BLAND **DESIGNED BY** J.H. BLAND **DESIGNED BY** J.H. BLAND

**PROJECT** KINGSTON FOSSIL PLANT  
**CLIENT** TENNESSEE VALLEY AUTHORITY  
**FOSSIL AND HYDRO ENGINEERING**

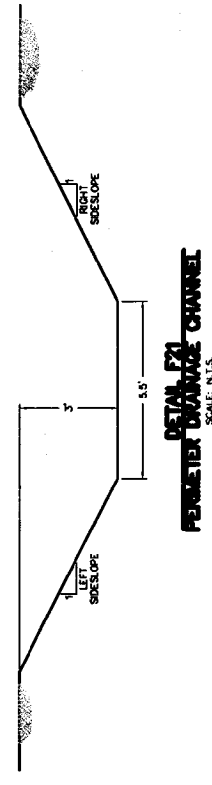
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 C.A.D. DRAWING  
 DO NOT ALTER MANUALLY



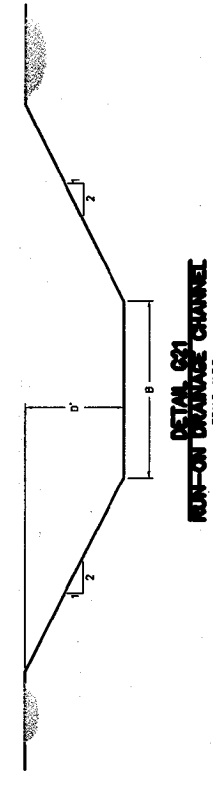
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**DOWNDRAIN CHANNEL - PERIMETER DITCH INTERSECTION**  
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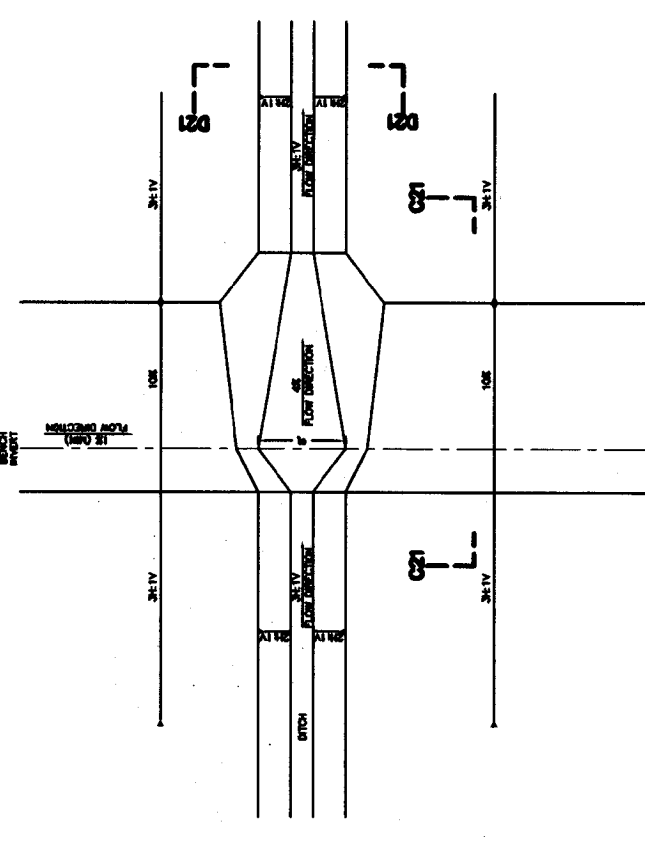
**DETAIL D21**  
**FINAL COVER SYSTEM DOWNDRAIN CHANNEL**  
 SCALE: 1" = 2'



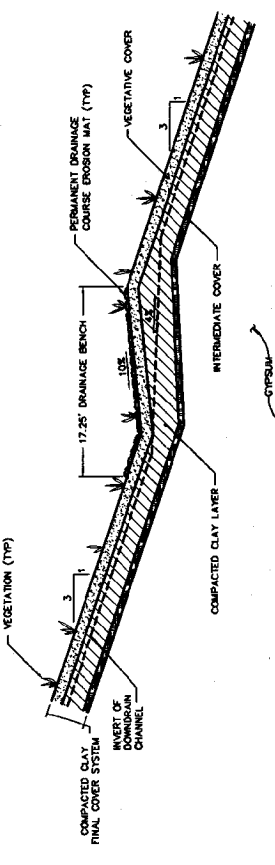
**DETAIL E21**  
**PERIMETER DRAINAGE CHANNEL**  
 SCALE: 1" = 5'



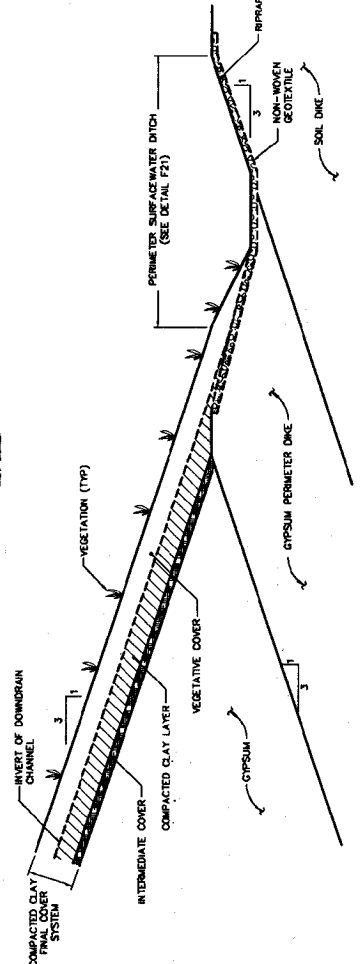
**DETAIL G21**  
**RUN-OFF DRAINAGE CHANNEL**  
 SCALE: 1" = 5'



**DETAIL A21**  
**FINAL COVER SYSTEM DRAINAGE BENCH - DOWNDRAIN CHANNEL INTERSECTION**  
 SCALE: 1" = 6'

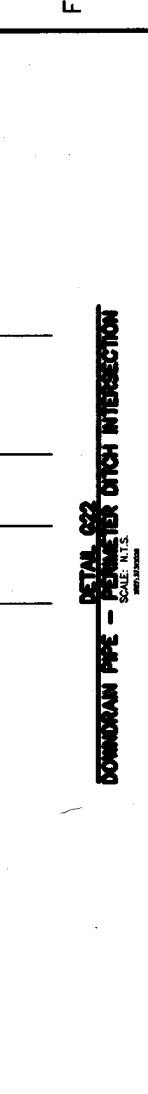
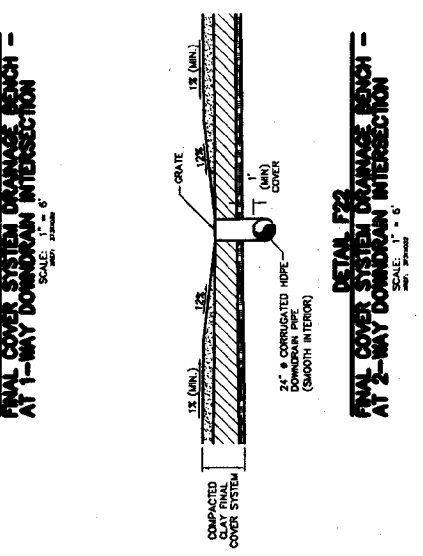
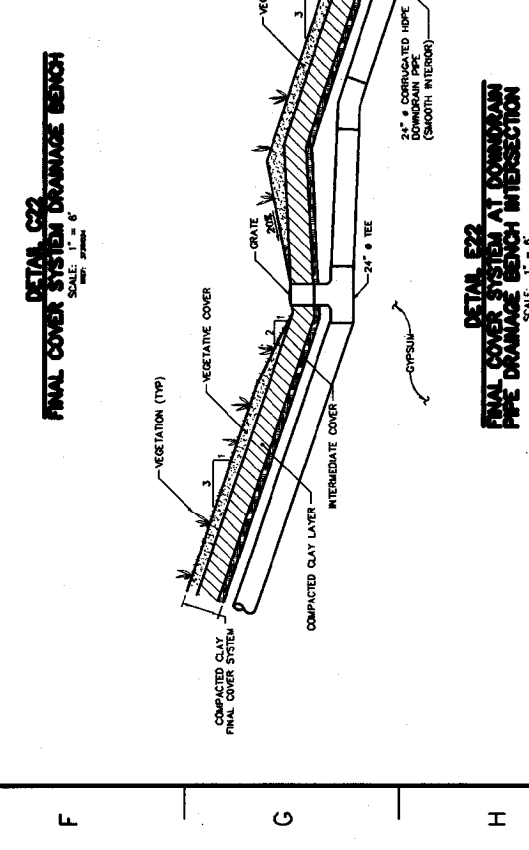
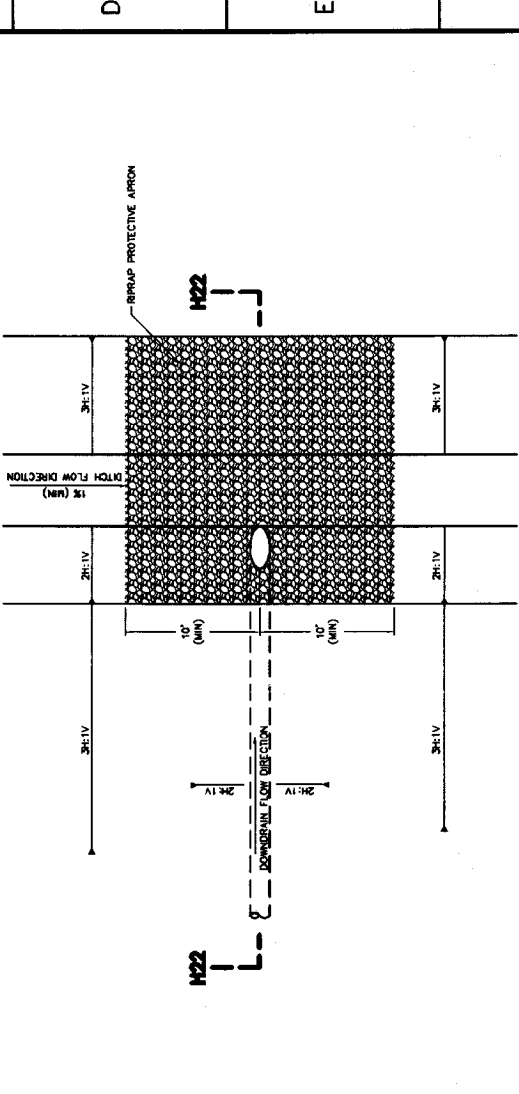
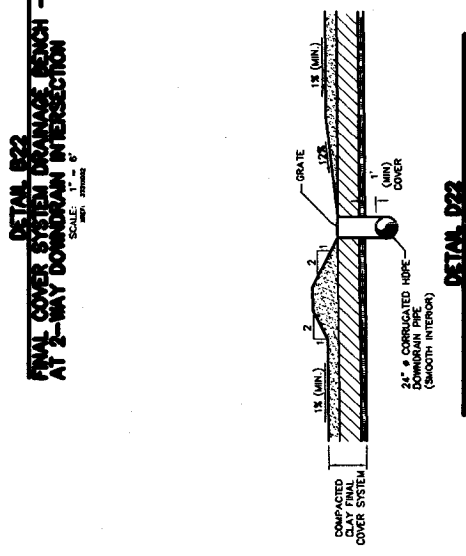
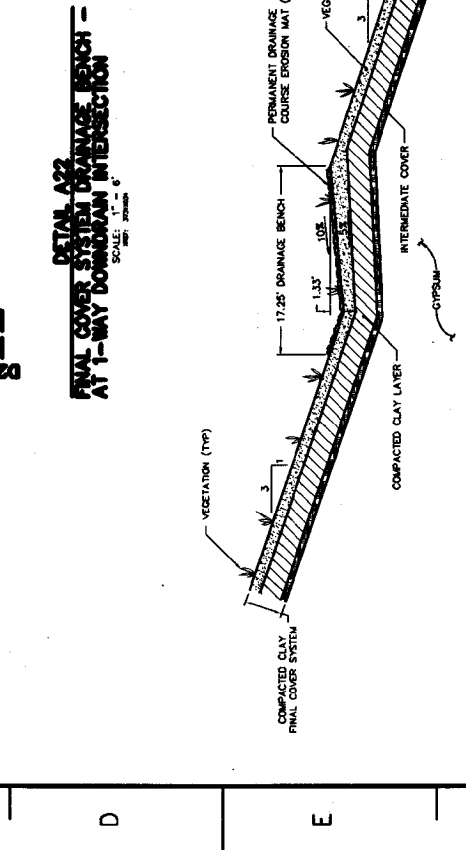
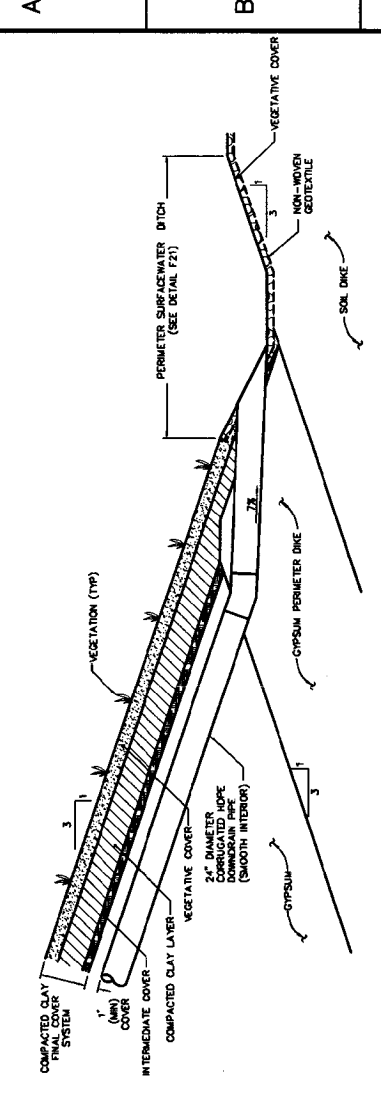
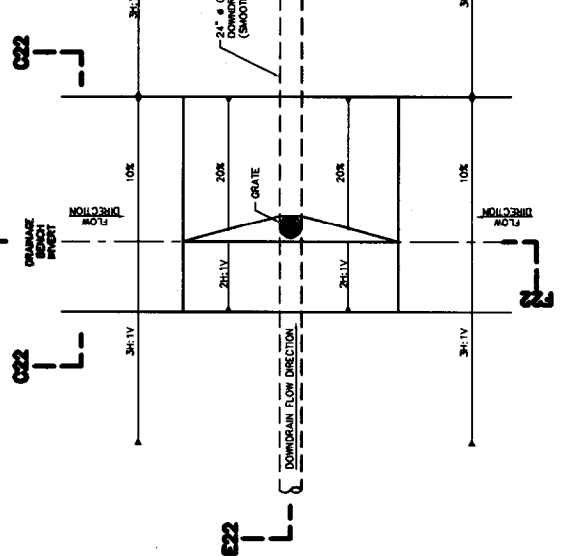
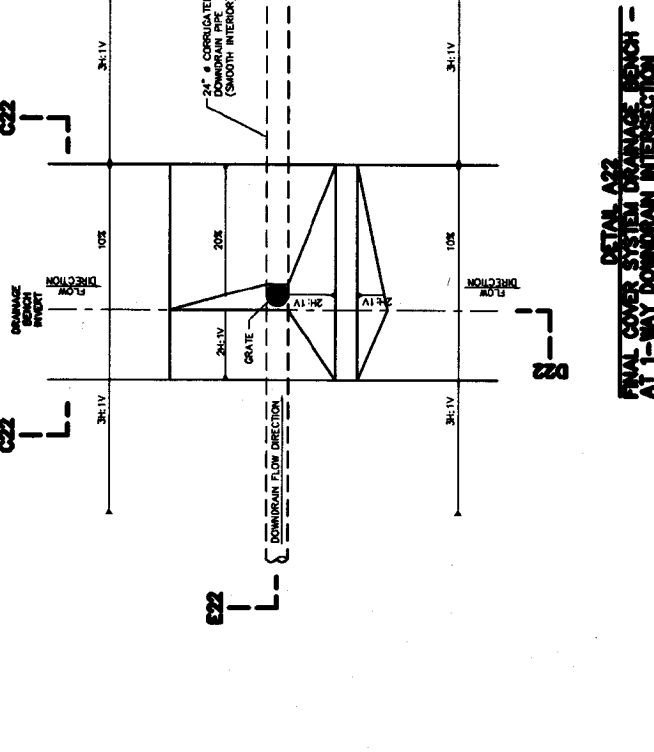
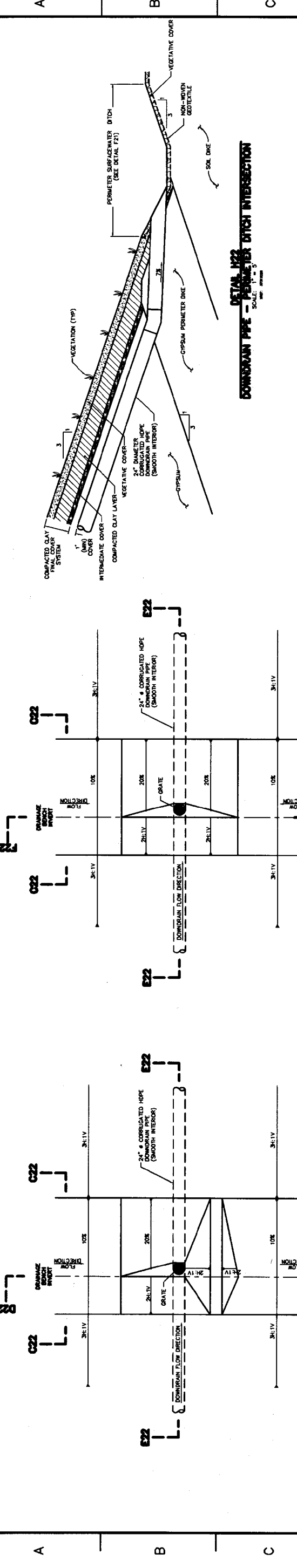


**DETAIL C21**  
**FINAL COVER SYSTEM DRAINAGE BENCH**  
 SCALE: 1" = 6'



**DETAIL E21**  
**DOWNDRAIN CHANNEL - PERIMETER DITCH INTERSECTION**  
 SCALE: 1" = 5'

36 C 10W427-22 2 3 4 5 6 7 8 9 10 11 12



DETAIL E22  
FINAL COVER SYSTEM AT DRAINAGE PIPE DRAINAGE BENCH INTERSECTION  
SCALE: 1" = 8'  
DATE: 12/22/20

DETAIL F22  
FINAL COVER SYSTEM DRAINAGE BENCH AT 2-WAY DRAINAGE INTERSECTION  
SCALE: 1" = 6'  
DATE: 12/22/20

DETAIL G22  
DOWN DRAIN PIPE - PERIMETER DITCH INTERSECTION  
SCALE: 1" = 6'  
DATE: 12/22/20

DETAIL M22  
DOWN DRAIN PIPE - PERIMETER DITCH INTERSECTION  
SCALE: 1" = 6'  
DATE: 12/22/20

NOTE:  
1. LOW CHECK DAMS MAY BE PLACED ABOVE THE GRATED  
INLETS TO PREVENT CLOGGING WITH SEDIMENT.

DESIGNED BY			CHECKED BY			DATE		
12/22/20	12/22/20	12/22/20	12/22/20	12/22/20	12/22/20	12/22/20	12/22/20	12/22/20
SURFACE WATER MANAGEMENT SYSTEM DETAILS II (DOWN DRAIN PIPE OPTION) COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY			KINGSTON FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING			PROJECT NO. 10W427-22		

PLANT NO. 10W427-22  
SHEET NO. 36 C  
DATE: 12/22/20  
SCALE: 1" = 6'  
DATE: 12/22/20

REVISIONS:  
REV NO. 1  
DATE 12/22/20  
DESCRIPTION

PLANNED BY: J. L. BLANCHARD, JR.  
DESIGNED BY: J. L. BLANCHARD, JR.  
CHECKED BY: J. L. BLANCHARD, JR.  
DATE: 12/22/20

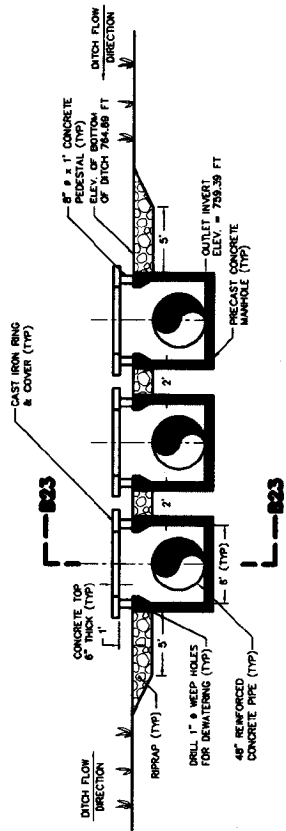
DESIGNED BY: J. L. BLANCHARD, JR.  
CHECKED BY: J. L. BLANCHARD, JR.  
DATE: 12/22/20

DESIGNED BY: J. L. BLANCHARD, JR.  
CHECKED BY: J. L. BLANCHARD, JR.  
DATE: 12/22/20

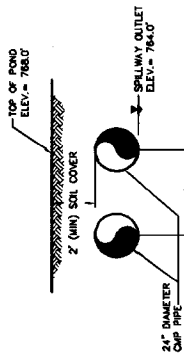
DESIGNED BY: J. L. BLANCHARD, JR.  
CHECKED BY: J. L. BLANCHARD, JR.  
DATE: 12/22/20

DESIGNED BY: J. L. BLANCHARD, JR.  
CHECKED BY: J. L. BLANCHARD, JR.  
DATE: 12/22/20

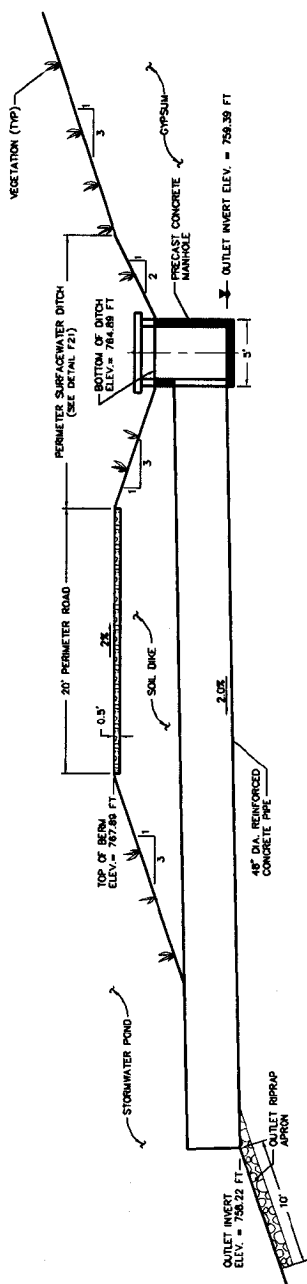
36 C 10W427-23 2 3 4 5 6 7 8 9 10 11 12



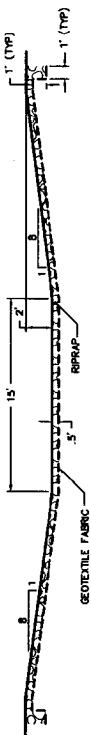
**DETAIL A23**  
STORM WATER POND DROP INLET  
SCALE: 1" = 5'  
REV. 2/2002



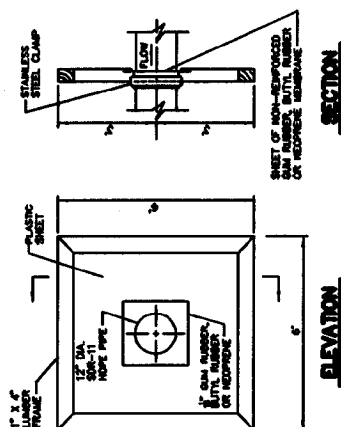
**DETAIL E23**  
EMERGENCY OVERFLOW  
SCALE: 1" = 3'  
REV. 2/2002



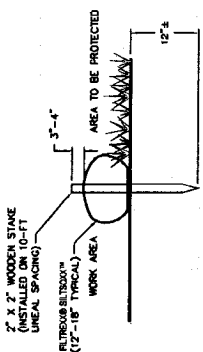
**DETAIL B23**  
DROP INLET TO STORM WATER POND  
SCALE: 1" = 5'  
REV. 2/2002



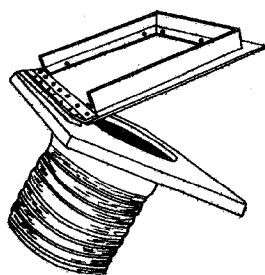
**DETAIL F23**  
ALTERNATIVE EMERGENCY SPILLWAY  
SCALE: 1" = 5'  
REV. 2/2002



**DETAIL G23**  
FLEXIBLE ANTI-SEEP COLLAR (NOTE 1)  
SCALE: N.T.S.  
REV. 2/2002



**DETAIL D23**  
FILTERCROSSING (NOTE 2)  
SCALE: N.T.S.  
REV. 2/2002



**DETAIL C23**  
FLOODWATER POP GATE  
SCALE: N.T.S.

**NOTES**

1. THE FLEXIBLE ANTI-SEEP COLLARS IS INSTALLED BY CUTTING A HOLE 3-INCHES SMALLER THAN THE DIAMETER OF THE PIPE AND FORGING IT OVER THE PIPE. THE COLLARS MUST BE TIGHTLY FITTED TO THE PIPE. THE COLLARS MUST BE INSTALLED WITH THE ANTI-SEEP CLAMP. CARE MUST BE TAKEN TO BACKFILL EQUALLY ON BOTH SIDES OF THE ANTI-SEEP COLLAR.
2. FILTERCROSSINGS SHALL BE INSTALLED AND MAINTAINED IN GENERAL ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND TECHNICAL SPECIFICATIONS.

NO.	DATE	BY	CHK'D	APP'D	REVISION
1	02/02/02	J.P. DAVIS	J.P. DAVIS	J.P. DAVIS	ISSUED FOR PERMIT
2	02/02/02	J.P. DAVIS	J.P. DAVIS	J.P. DAVIS	REVISED PER COMMENTS
3	02/02/02	J.P. DAVIS	J.P. DAVIS	J.P. DAVIS	REVISED PER COMMENTS
4	02/02/02	J.P. DAVIS	J.P. DAVIS	J.P. DAVIS	REVISED PER COMMENTS
5	02/02/02	J.P. DAVIS	J.P. DAVIS	J.P. DAVIS	REVISED PER COMMENTS

SCALE: AS SHOWN EXCEPT AS NOTED

**SURFACE WATER MANAGEMENT SYSTEM DETAILS III**

**COAL-COMBUSTION BY-PRODUCT (GYPSUM) DISPOSAL FACILITY**

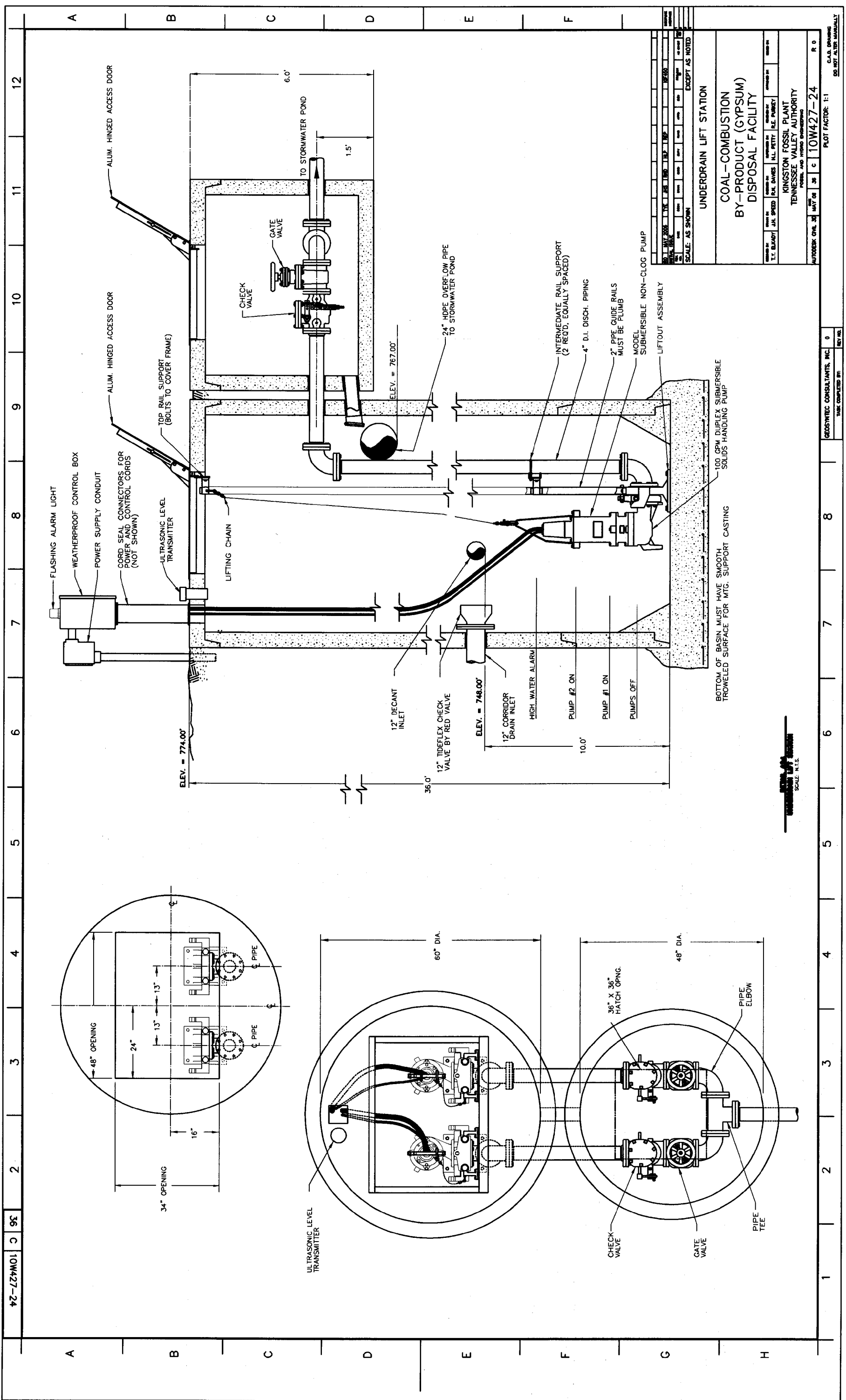
DESIGNED BY: J.P. DAVIS  
CHECKED BY: J.P. DAVIS  
APPROVED BY: J.P. DAVIS

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
FOSSIL AND HYDRO ENGINEERING

AUTODESK CIVIL 3D MAY 08 08 10W427-23  
PLOT FACTOR: 1:1  
C.A.D. DRAWING  
DO NOT ALTER MANUALLY

DESIGNED BY: J.P. DAVIS  
CHECKED BY: J.P. DAVIS  
APPROVED BY: J.P. DAVIS

DATE COMPLETED BY: 1  
REV. NO. 1



DATE	BY	CHKD	APP'D	SCALE	EXCEPT AS NOTED
10/27/80	J.L. BLANDY	J.L. BLANDY	J.L. BLANDY	AS SHOWN	

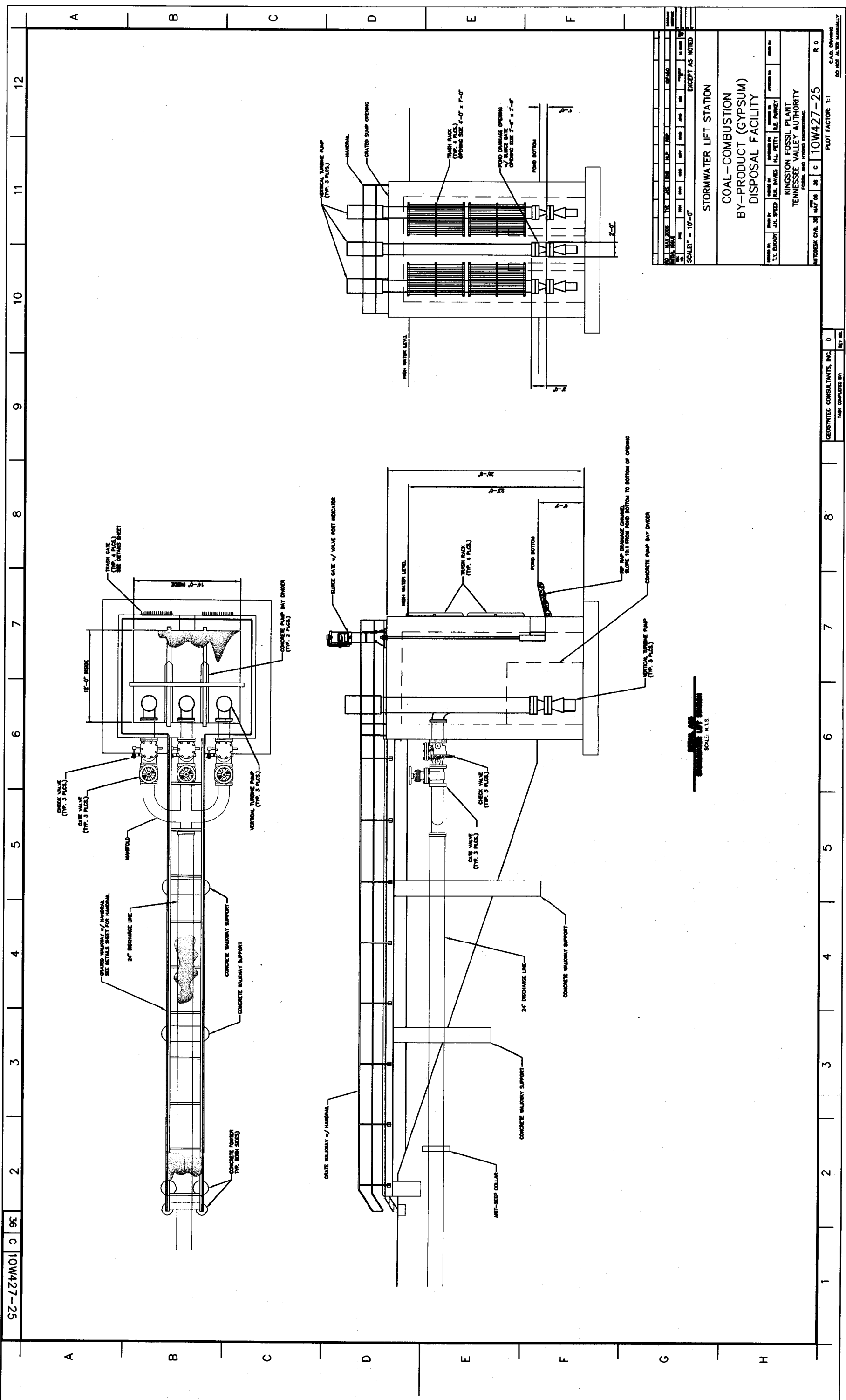
  

UNDERDRAIN LIFT STATION	
COAL-COMBUSTION	
BY-PRODUCT (GYPSUM)	
DISPOSAL FACILITY	
DESIGNED BY	KINGSTON FOSSIL PLANT
APPROVED BY	TENNESSEE VALLEY AUTHORITY
PROJECT NO.	10W427-24
DATE	MAY 80
SCALE	1:1
PLANT	10W427-24
REV.	0

SCALE: N.T.S.

PROJECT NO.	10W427-24	DATE	MAY 80	SCALE	1:1
DESIGNED BY	KINGSTON FOSSIL PLANT	APPROVED BY	TENNESSEE VALLEY AUTHORITY	PROJECT NO.	10W427-24
DATE	MAY 80	SCALE	1:1	PLANT	10W427-24
REV.	0	GEOTECHNICAL CONSULTANTS, INC.	DATE	10/27/80	BY
		100 CPN DUPLEX SUBMERSIBLE SOLIDS HANDLING PUMP			
		10.0'			
		PUMPS OFF			
		PUMP #1 ON			
		PUMP #2 ON			
		HIGH WATER ALARM			
		12" CORRIDOR DRAIN INLET			
		ELEV. = 748.00'			
		12" TIDEFLEX CHECK VALVE BY RED VALVE			
		12" DECANT INLET			
		ELEV. = 767.00'			
		24" HDPE OVERFLOW PIPE TO STORMWATER POND			
		CHECK VALVE			
		GATE VALVE			
		6.0'			
		1.5'			
		TO STORMWATER POND			





DATE	BY	CHKD	APP'D	REV	DESCRIPTION
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	1	ISSUED FOR PERMIT
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	2	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	3	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	4	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	5	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	6	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	7	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	8	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	9	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	10	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	11	REVISED PER COMMENTS
10 MAY 2008	J.H. SPREED	J.H. SPREED	J.H. SPREED	12	REVISED PER COMMENTS

SCALE = 10'-0"

EXCEPT AS NOTED

STORMWATER LIFT STATION

COAL-COMBUSTION  
BY-PRODUCT (GYPSUM)  
DISPOSAL FACILITY

KINGSTON FOSSIL PLANT  
TENNESSEE VALLEY AUTHORITY  
POWER AND FUELS DIVISION

PROJECT NO. 10W427-25

PLANT FACTOR 1:1

DATE: 10 MAY 2008

SCALE: N.T.S.

GEOSTYEC CONSULTANTS, INC. 0  
TASK COMPLETED BY: REV. NO.

1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F G H