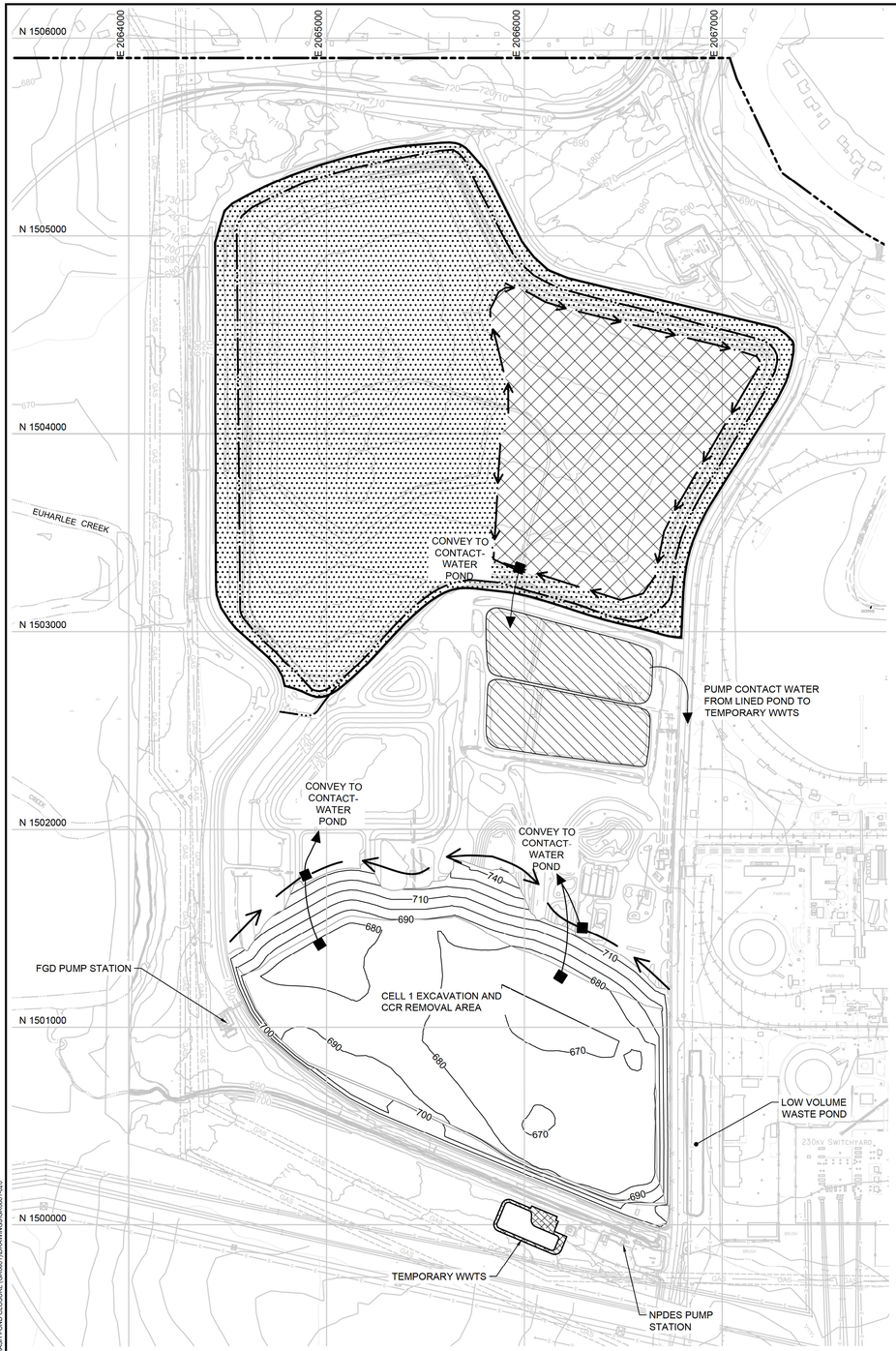
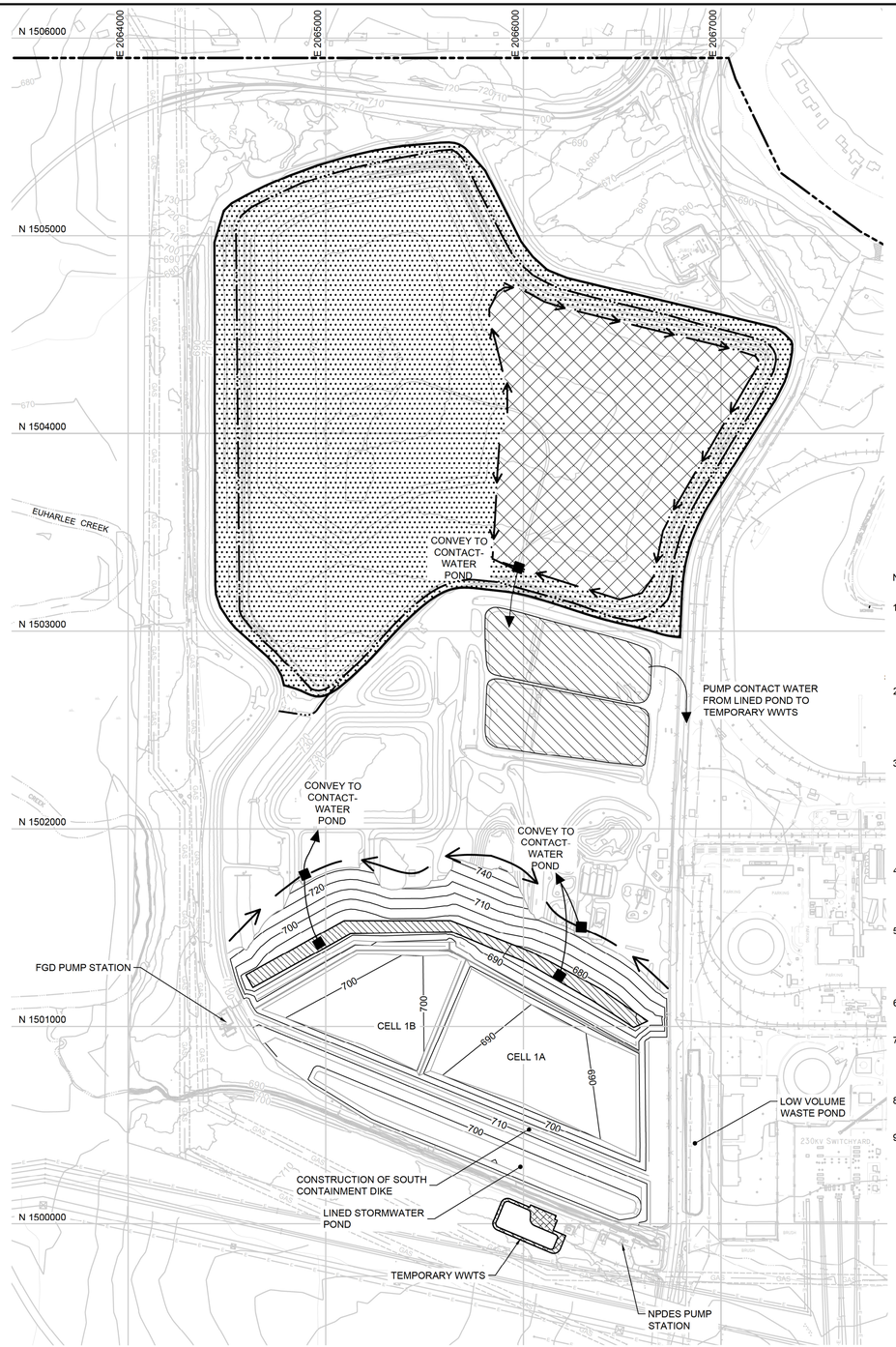


PHASE 1
INITIAL CCR EXCAVATION



PHASE 2
CELL 1 CONSTRUCTION

LEGEND

- COVERED CCR (NON-CONTACT WATER)
- TEMPORARY CCR STOCKPILE AREA (NOTE 6)
- CONTACT-WATER COLLECTION / MANAGEMENT AREA (NOTE 7)
- LINED CONTACT-WATER POND
- TEMPORARY WWTS PAD
- CONTACT-WATER DIVERSION
- STORMWATER (NON-CONTACT WATER) DIVERSION

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 13:32:49 -04'00'

NOTES:

1. PHASING APPROACH IS CONCEPTUAL, AND WILL BE REFINED DURING DETAILED DESIGN. IN ADDITION, CONTRACTOR WILL HAVE DISCRETION TO ADJUST PHASE BOUNDARIES AND SEQUENCE, STOCKPILE LOCATION(S), AND CONTACT-WATER COLLECTION / MANAGEMENT AREAS, BASED ON FIELD CONDITIONS ENCOUNTERED AND TO FACILITATE CONSTRUCTION, AS APPROVED BY GEORGIA POWER COMPANY, WITH REQUIREMENT THAT DESIGN CRITERIA INCLUDING THOSE RELATED TO STORMWATER AND CONTACT WATER MANAGEMENT, ARE MET.
2. STORMWATER AND CONTACT-WATER MANAGEMENT WILL BE CONDUCTED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN THE "CLOSURE PLAN" (PART A, SECTION 7 OF THIS PERMIT APPLICATION). DESIGN CRITERIA AND EVALUATION OF CASES RELATED TO THE CLOSURE PHASES PRESENTED HEREIN ARE PROVIDED IN A CALCULATION PACKAGE FOR INTERIM STORMWATER MANAGEMENT CONDITIONS, INCLUDED IN THE "ENGINEERING REPORT" (PART B, SECTION 3 OF THIS PERMIT APPLICATION).
3. DURING CLOSURE CONSTRUCTION, CONTACT WATER WILL BE PUMPED OR CONVEYED BY GRAVITY TO LINED CONTACT-WATER PONDS WITHIN AP-1, WHERE IT WILL BE TEMPORARILY STORED AND THEN PUMPED TO AN ON-SITE TEMPORARY WASTEWATER TREATMENT SYSTEM (WWTS) OR OTHERWISE PROPERLY MANAGED IN ACCORDANCE WITH THE PLANT'S NPDES PERMIT REQUIREMENTS. NON-CONTACT STORMWATER WILL BE MANAGED IN ACCORDANCE WITH APPLICABLE EROSION AND SEDIMENT CONTROL FEATURES AND REQUIREMENTS PROVIDED IN THIS SET OF CLOSURE DRAWINGS, AND THEN DISCHARGED THROUGH EXISTING OR NEW STORMWATER PONDS TO RECEIVING WATER BODIES WITHOUT TREATMENT.
4. CONTRACTOR WILL BE REQUIRED TO TAKE REASONABLE MEASURES TO MINIMIZE STORMWATER RUN-ON INTO THE CONTACT-WATER COLLECTION / MANAGEMENT AREAS. MINIMIZATION TECHNIQUES MAY INCLUDE THE CONSTRUCTION OF TEMPORARY DIVERSION BERMS OR CHANNELS TO DIVERT STORMWATER AWAY FROM THE COLLECTION / MANAGEMENT AREAS.
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8. TEMPORARY LINED STORWATER PONDS (NON-CONTACT WATER) MAY BE UTILIZED DURING CONSTRUCTION AS NEEDED.
9. FOR PHASES WHERE COVERED CCR SHADING ENCROACHES ON ACTIVE CCR PLACEMENT, THIS INDICATES WHERE A TEMPORARY OR FINAL COVER SYSTEM INCREMENT MAY BE INSTALLED ONCE FINISHED WASTE GRADES ARE ACHIEVED FOR THAT PHASE.

0 350 700
SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

CLOSURE PHASING PLANS I

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

GEORGIA REGISTERED No. 17515 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE August 16, 2021

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG. GR6601-020	EDIT 8/16/21
SCALE	1" = 350'	DRAWING 20 OF 50	
DATE	AUGUST 2021		

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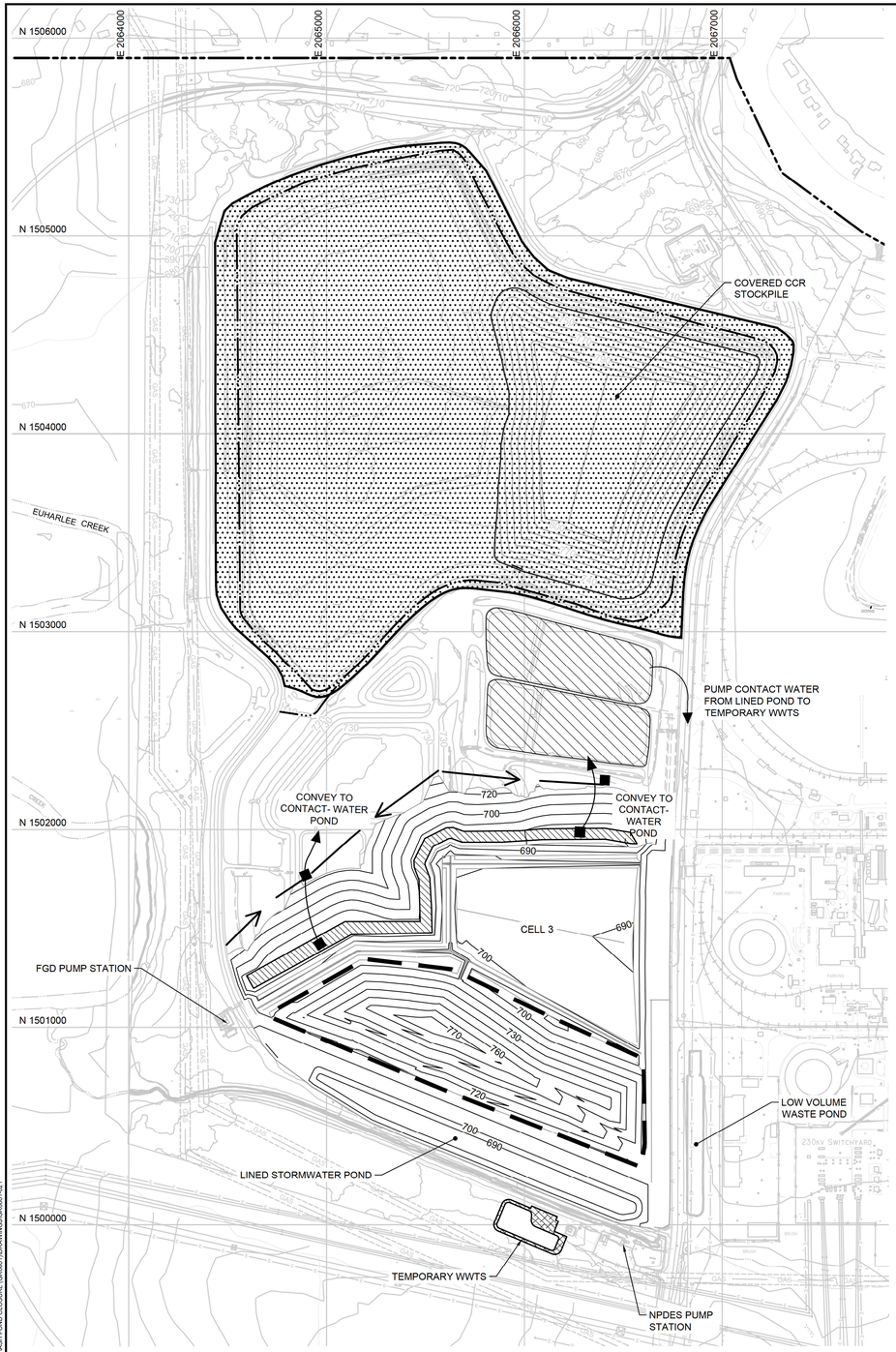
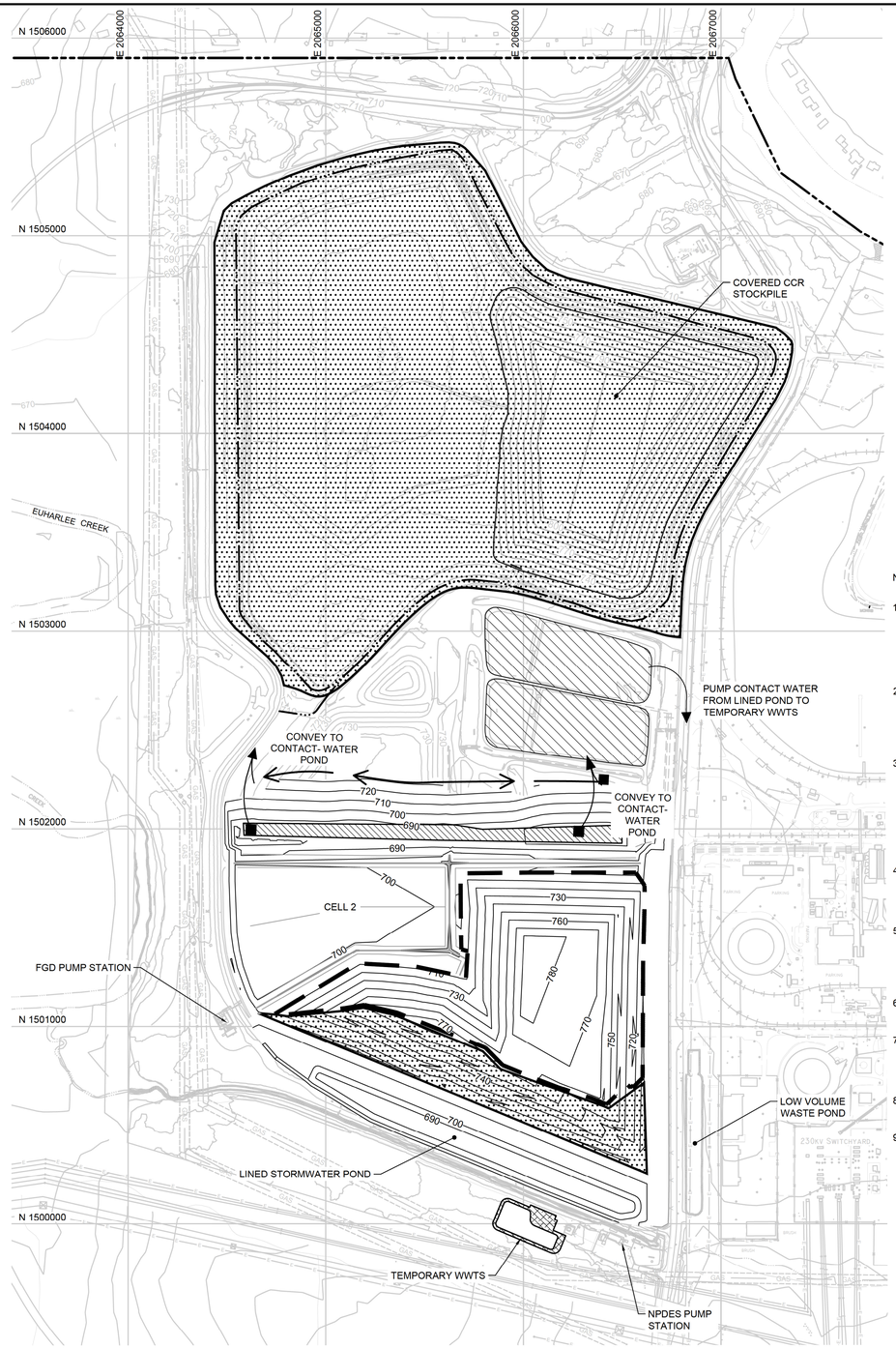


PHASE 3
CELL 3 CONSTRUCTION AND
CELL 1 FILLING



PHASE 4
CELL 2 CONSTRUCTION AND
CELLS 1 & 3 FILLING

LEGEND

- COVERED CCR (NON-CONTACT WATER)
- ACTIVE CCR PLACEMENT IN LINED CLOSURE AREA (NOTE 9)
- CONTACT-WATER COLLECTION / MANAGEMENT AREA (NOTE 7)
- LINED CONTACT-WATER POND
- TEMPORARY WWTS PAD
- CONTACT WATER DIVERSION
- STORMWATER (NON-CONTACT WATER) DIVERSION

N

NOTES:

1. THIS PHASING APPROACH IS CONCEPTUAL, AND WILL BE REFINED DURING DETAILED DESIGN. IN ADDITION, CONTRACTOR WILL HAVE DISCRETION TO ADJUST PHASE BOUNDARIES AND SEQUENCE, STOCKPILE LOCATION(S), AND CONTACT-WATER COLLECTION / MANAGEMENT AREAS, BASED ON FIELD CONDITIONS ENCOUNTERED AND TO FACILITATE CONSTRUCTION, AS APPROVED BY GEORGIA POWER COMPANY, WITH REQUIREMENT THAT DESIGN CRITERIA INCLUDING THOSE RELATED TO STORMWATER AND CONTACT WATER MANAGEMENT, ARE MET.
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0 350 700
SCALE IN FEET

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 13:53:57 -04'00'

GEORGIA REGISTERED Rudolph Bonaparte No. 57516 PROFESSIONAL August 16, 2021 ENGINEER RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

CLOSURE PHASING PLANS 2

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG. GR6601-021	EDIT 8/16/21
SCALE	1" = 350'	DRAWING 21 OF 50	
DATE	AUGUST 2021		

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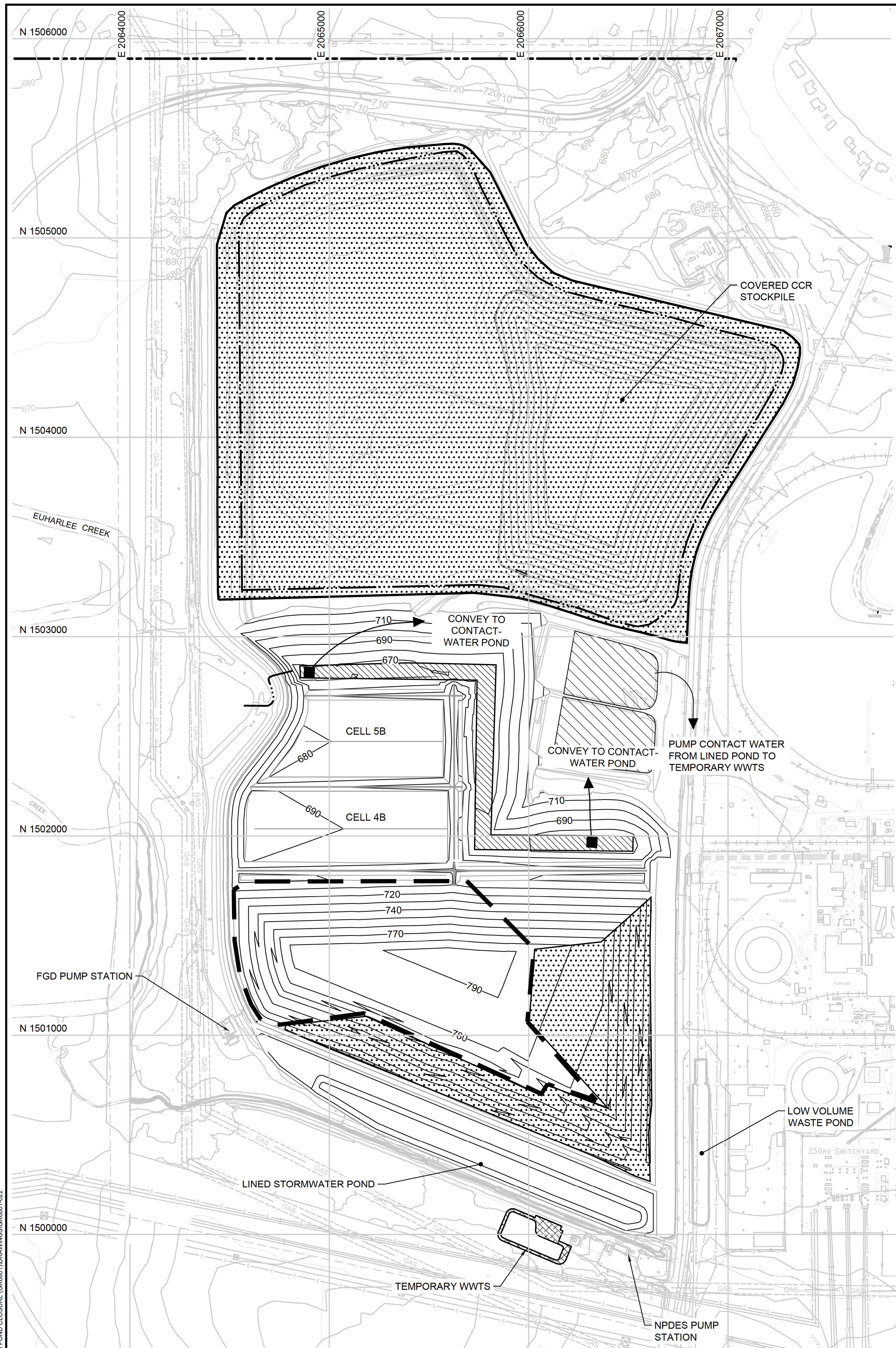
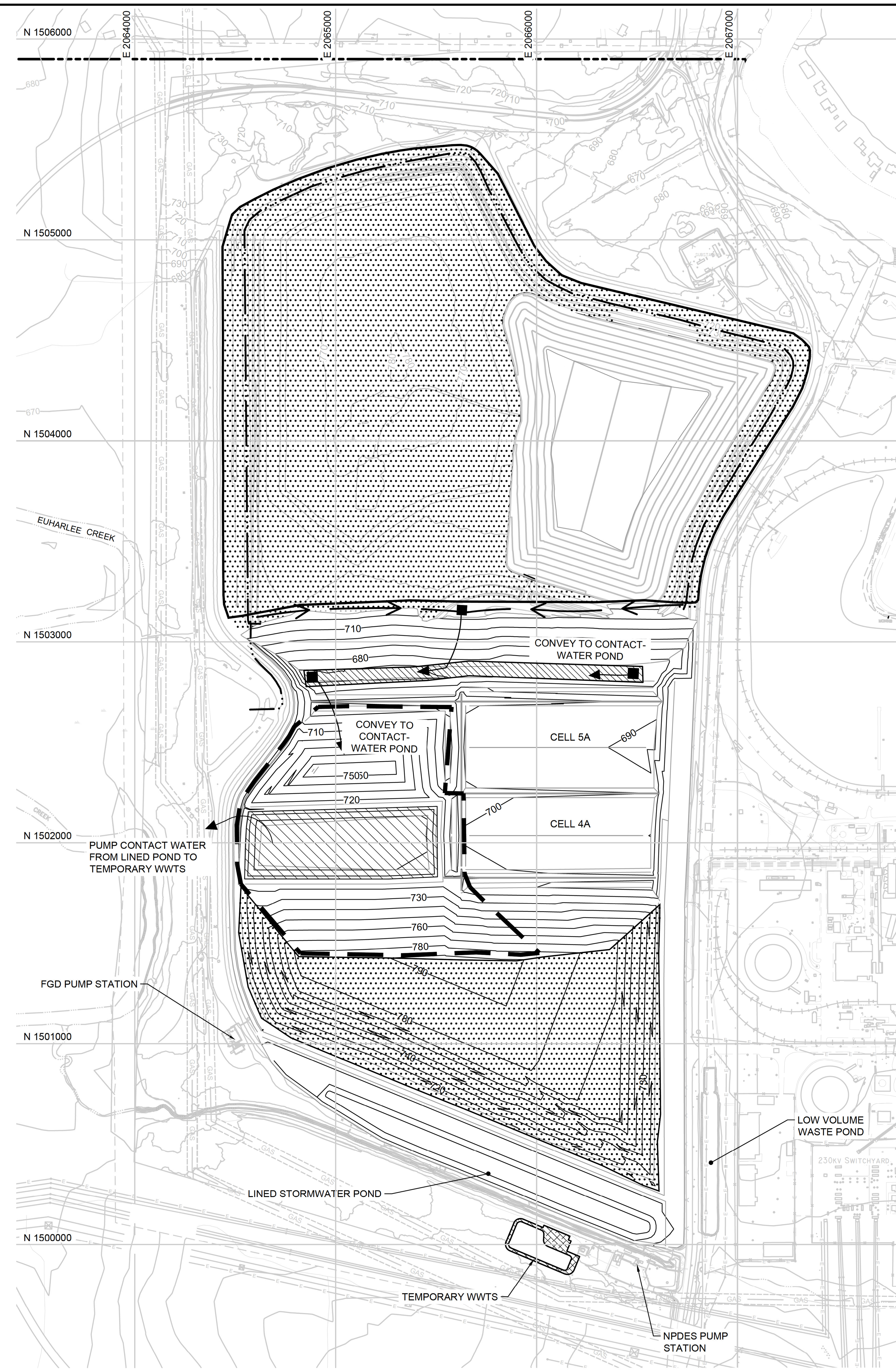


PHASE 5
CELL 4B & 5B CONSTRUCTION AND
CELL 2 FILLING



PHASE 6
CELL 4A & 5A CONSTRUCTION AND
CELL 4B & 5B FILLING

LEGEND

- COVERED CCR (NON-CONTACT WATER)
- ACTIVE CCR PLACEMENT IN LINED CLOSURE AREA (NOTE 9)
- CONTACT-WATER COLLECTION / MANAGEMENT AREA (NOTE 7)
- LINED CONTACT-WATER POND
- TEMPORARY WWTS PAD
- CONTACT WATER DIVERSION
- STORMWATER (NON-CONTACT WATER) DIVERSION

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0 350 700
SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

CLOSURE PHASING PLANS 3

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO. GR6601	DWG. GR6601-022	EDIT	8/16/21
SCALE 1" = 350'	DRAWING 22 OF 50		
DATE AUGUST 2021			

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 17516 RUDOLPH BONAPARTE

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

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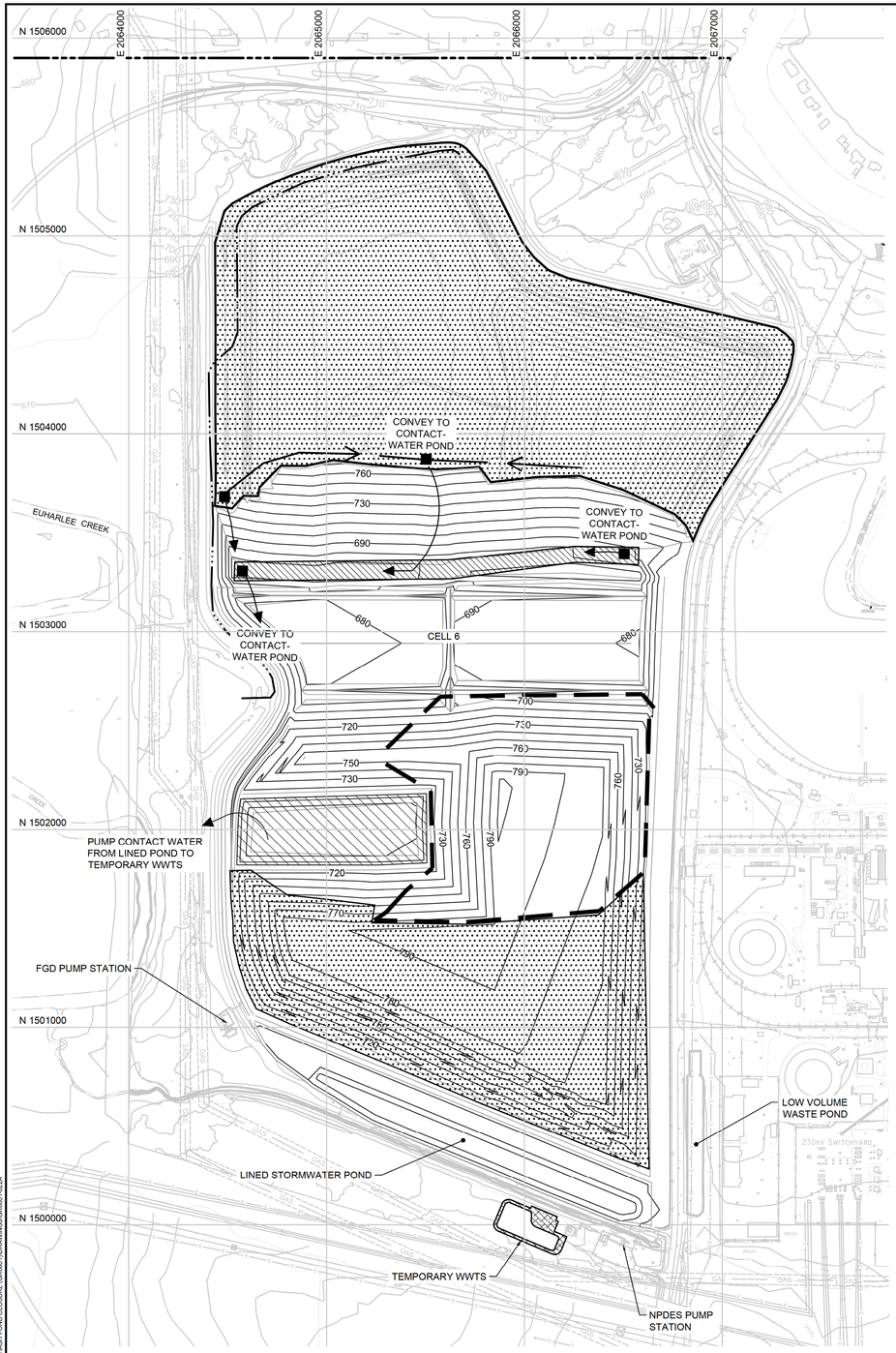
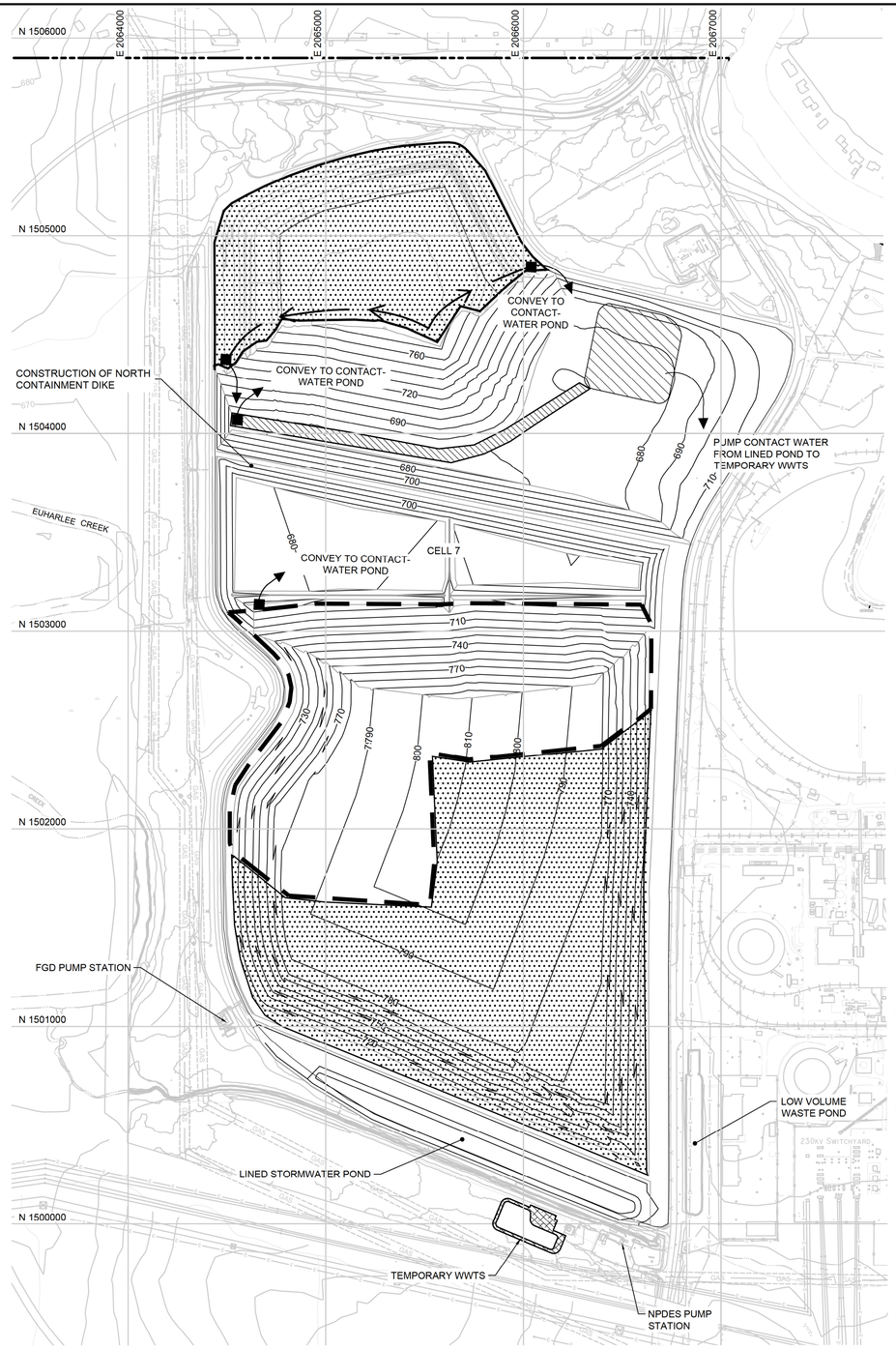


PHASE 7
CELL 6 CONSTRUCTION AND CELL 4A & 5A FILLING



PHASE 8
CELL 7 CONSTRUCTION AND CELL 6 FILLING

LEGEND

- COVERED CCR (NON-CONTACT WATER)
- ACTIVE CCR PLACEMENT IN LINED CLOSURE AREA (NOTE 9)
- CONTACT-WATER COLLECTION / MANAGEMENT AREA (NOTE 7)
- LINED CONTACT-WATER POND
- TEMPORARY WWTS PAD
- CONTACT WATER DIVERSION
- STORMWATER (NON-CONTACT WATER) DIVERSION

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0 350 700
SCALE IN FEET

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 13:39:33 -04'00'

GEORGIA REGISTERED Rudolph Bonaparte No. 17516 PROFESSIONAL Engineer RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

CLOSURE PHASING PLANS 4

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-022A
SCALE	1" = 350'	EDIT	8/16/21
DATE	AUGUST 2021	DRAWING	23 OF 50

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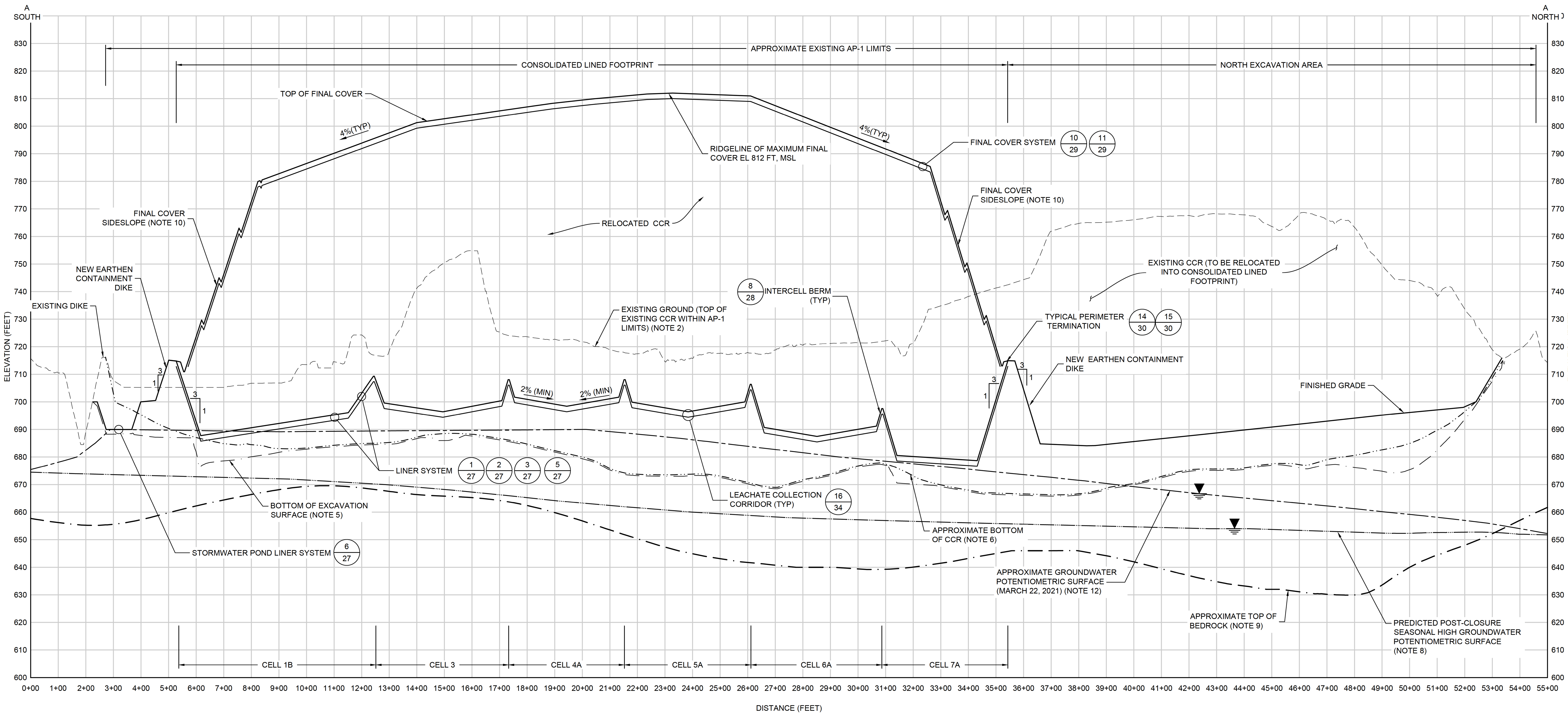
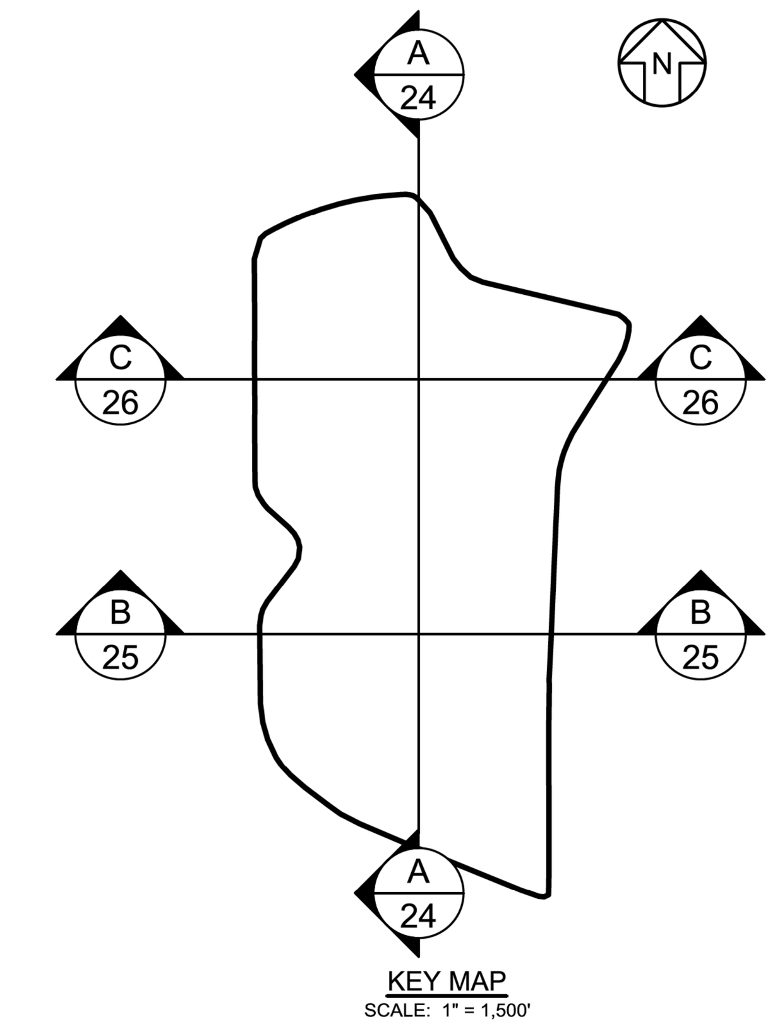




A/11 SECTION

NORTH-SOUTH CROSS SECTION

SCALE: 1"=200' (HORIZONTAL): 1"=20' (VERTICAL)

NOTES:

1. SEE DRAWING 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL SITE NOTES.
2. EXISTING GROUND SHOWN ON THIS DRAWING IS TAKEN FROM THE TOPOGRAPHIC BASE MAP SHOWN ON DRAWING 4.
3. TOP OF LINER (GEOMEMBRANE COMPONENT OF THE LINER SYSTEM) SHOWN ON THIS DRAWING IS TAKEN FROM DRAWING 11.
4. TOP OF FINAL COVER AND FINISHED GRADES BEYOND THE CONSOLIDATED LINED FOOTPRINT LIMITS SHOWN ON THIS DRAWING ARE TAKEN FROM DRAWING 17.
5. EXCAVATION SURFACE ELEVATION REPRESENTS A MINIMUM EXCAVATION DEPTH, IS APPROXIMATE, AND IS TAKEN FROM DRAWING 8.
6. APPROXIMATE BOTTOM OF CCR SHOWN ON THIS DRAWING IS TAKEN FROM DRAWING 6.
7. TOP OF FINAL COVER SURFACE (AND MAXIMUM ELEVATION) IS BASED ON THE SOIL-GEOSYNTHETIC COVER SYSTEM ALTERNATIVE.
8. PREDICTED POST-CLOSURE SEASONAL HIGH GROUNDWATER POTENTIOMETRIC SURFACE SHOWN ON THIS DRAWING OBTAINED FROM GROUNDWATER FLOW MODELING RESULTS AS DOCUMENTED IN THE "HYDROGEOLOGIC ASSESSMENT REPORT (REVISION 3)" INCLUDED WITH THIS PERMIT APPLICATION AND SHOWN ON DRAWINGS 11 THROUGH 13.
9. TOP OF BEDROCK SURFACE IS APPROXIMATE AND WAS DEVELOPED BY GEOSYNTEC CONSULTANTS USING AVAILABLE SUBSURFACE INFORMATION FROM PREVIOUS SITE INVESTIGATIONS.
10. TOP OF FINAL COVER DESIGN GRADES ARE SLOPED AT NO STEEPER THAN 3H:1V ON LANDFILL SIDESLOPES BETWEEN DRAINAGE BENCHES, AND AT A MINIMUM OF FOUR (4) PERCENT ON THE LANDFILL TOP AREAS. SLOPES AND FINAL COVER SYSTEM LAYER THICKNESS MAY APPEAR DISTORTED ON THESE CROSS SECTIONS DUE TO THE EXAGGERATED VERTICAL SCALE AND SKEWED ANGLE AT WHICH THESE SECTIONS WERE CUT COMPARED TO THE THREE-DIMENSIONAL TRUE SLOPE DIRECTIONS.
11. LINER DESIGN GRADES ARE SLOPED AT NO STEEPER THAN 3H:1V ON DIKE AND INTERCELL BERM LINER SIDESLOPES, AND AT A MINIMUM OF TWO (2) PERCENT TOWARDS THE LEACHATE COLLECTION CORRIDORS ON THE CELL FLOOR AREAS. LEACHATE COLLECTION CORRIDORS ARE SLOPED AT A MINIMUM OF ONE (1) PERCENT TOWARDS THE SUMPS. SLOPES AND LAYER THICKNESS MAY APPEAR DISTORTED ON THESE CROSS SECTIONS DUE TO THE EXAGGERATED VERTICAL SCALE AND SKEWED ANGLE AT WHICH THESE SECTIONS WERE CUT COMPARED TO THE THREE-DIMENSIONAL TRUE SLOPE DIRECTIONS.
12. APPROXIMATE GROUNDWATER POTENTIOMETRIC SURFACE IS FROM WATER LEVEL MEASUREMENTS DATED 22 MARCH 2021 IN WELLS/PIEZOMETERS SCREENED IN BEDROCK AS PRESENTED IN THE "HYDROGEOLOGIC ASSESSMENT REPORT (REVISION 3)" INCLUDED WITH THIS PERMIT APPLICATION. THE MARCH 2021 POTENTIOMETRIC SURFACE IS HIGHER THAN THAT ASSOCIATED WITH THE DEWATERED AND CLOSED CONDITION WITHIN AP-1, AS REFLECTED IN NOTE 8.

P:\CADD\PROJECTS\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-023

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 17516 RUDOLPH BONAPARTE August 16, 2021

Georgia Power

PERMIT DRAWING
NOT FOR CONSTRUCTION

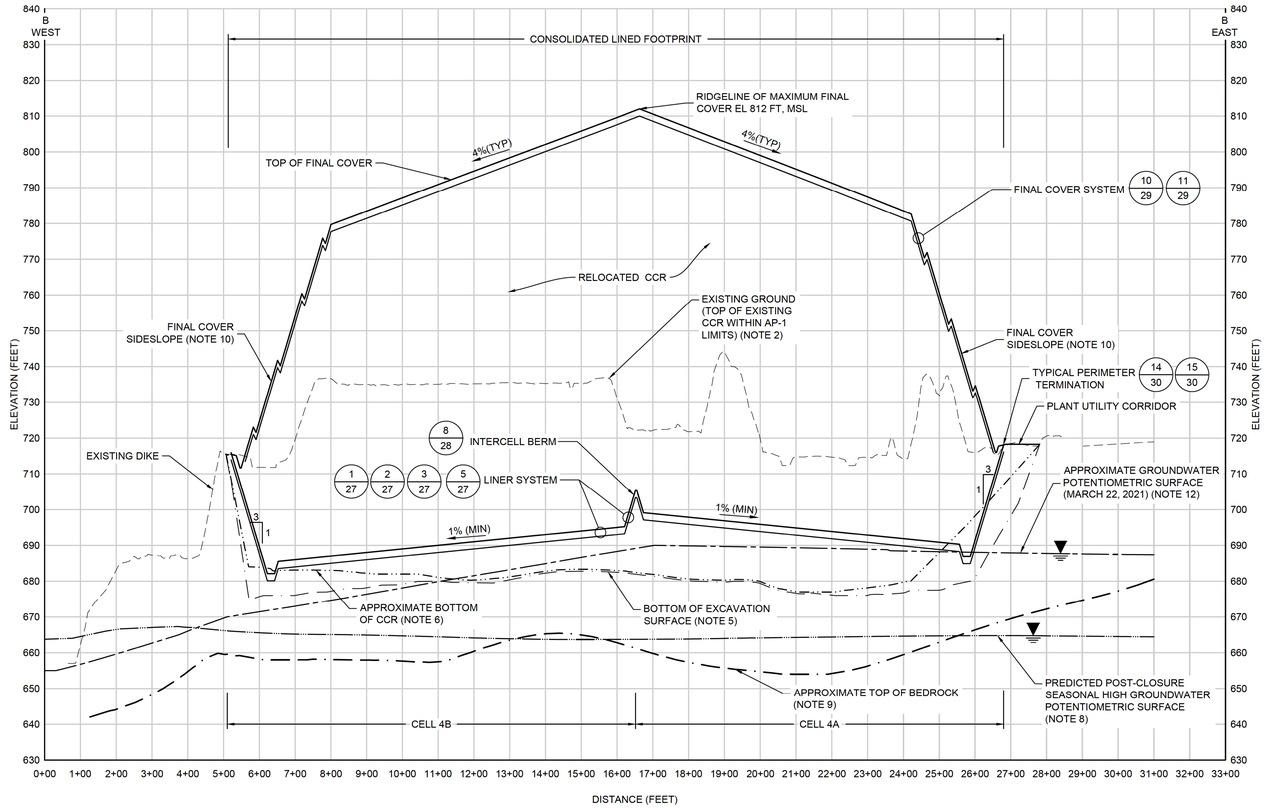
REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

SITE CROSS SECTIONS I

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

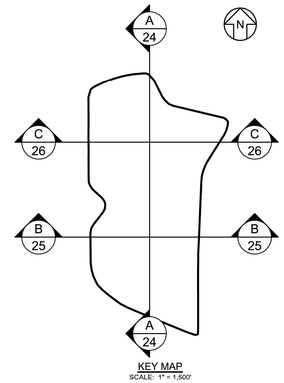
Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG. GR6601-023	EDIT 8/16/21
SCALE	AS SHOWN	DRAWING 24 OF 50	
DATE	AUGUST 2021		



B / 11 SECTION
EAST-WEST CROSS SECTION

SCALE: 1"=200' (HORIZONTAL): 1"=20' (VERTICAL)



KEY MAP
SCALE: 1" = 1,500'

NOTES:

1. SEE DRAWING 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL SITE NOTES.
2. EXISTING GROUND SHOWN ON THIS DRAWING IS TAKEN FROM THE TOPOGRAPHIC BASE MAP SHOWN ON DRAWING 4.
3. TOP OF LINER (GEOMEMBRANE COMPONENT OF THE LINER SYSTEM) SHOWN ON THIS DRAWING IS TAKEN FROM DRAWING 11.
4. TOP OF FINAL COVER AND FINISHED GRADES BEYOND THE CONSOLIDATED LINED FOOTPRINT LIMITS SHOWN ON THIS DRAWING ARE TAKEN FROM DRAWING 17.
5. EXCAVATION SURFACE ELEVATION REPRESENTS A MINIMUM EXCAVATION DEPTH, IS APPROXIMATE, AND IS TAKEN FROM DRAWING 8.
6. APPROXIMATE BOTTOM OF CCR SHOWN ON THIS DRAWING IS TAKEN FROM DRAWING 6.
7. TOP OF FINAL COVER SURFACE (AND MAXIMUM ELEVATION) IS BASED ON THE SOIL-GEOSYNTHETIC COVER SYSTEM ALTERNATIVE.
8. PREDICTED POST-CLOSURE SEASONAL HIGH GROUNDWATER POTENTIOMETRIC SURFACE SHOWN ON THIS DRAWING OBTAINED FROM GROUNDWATER FLOW MODELING RESULTS AS DOCUMENTED IN THE "HYDROGEOLOGIC ASSESSMENT REPORT (REVISION 3)" INCLUDED WITH THIS PERMIT APPLICATION AND SHOWN ON DRAWINGS 11 THROUGH 13.
9. TOP OF BEDROCK SURFACE IS APPROXIMATE AND WAS DEVELOPED BY GEOSYNTEC CONSULTANTS USING AVAILABLE SUBSURFACE INFORMATION FROM PREVIOUS SITE INVESTIGATIONS.
10. TOP OF FINAL COVER DESIGN GRADES ARE SLOPED AT NO STEEPER THAN 3H:1V ON LANDFILL SIDESLOPES BETWEEN DRAINAGE BENCHES, AND AT A MINIMUM OF FOUR (4) PERCENT ON THE LANDFILL TOP AREAS. SLOPES AND FINAL COVER SYSTEM LAYER THICKNESS MAY APPEAR DISTORTED ON THESE CROSS SECTIONS DUE TO THE EXAGGERATED VERTICAL SCALE AND SKEWED ANGLE AT WHICH THESE SECTIONS WERE CUT COMPARED TO THE THREE-DIMENSIONAL TRUE SLOPE DIRECTIONS.
11. LINER DESIGN GRADES ARE SLOPED AT NO STEEPER THAN 3H:1V ON DIKE AND INTERCELL BERM LINER SIDESLOPES, AND AT A MINIMUM OF TWO (2) PERCENT TOWARDS THE LEACHATE COLLECTION CORRIDORS ON THE CELL FLOOR AREAS. LEACHATE COLLECTION CORRIDORS ARE SLOPED AT A MINIMUM OF ONE (1) PERCENT TOWARDS THE SUMPS. SLOPES AND LAYER THICKNESS MAY APPEAR DISTORTED ON THESE CROSS SECTIONS DUE TO THE EXAGGERATED VERTICAL SCALE AND SKEWED ANGLE AT WHICH THESE SECTIONS WERE CUT COMPARED TO THE THREE-DIMENSIONAL TRUE SLOPE DIRECTIONS.
12. APPROXIMATE GROUNDWATER POTENTIOMETRIC SURFACE IS FROM WATER LEVEL MEASUREMENTS DATED 22 MARCH 2021 IN WELLS/PIEZOMETERS SCREENED IN BEDROCK AS PRESENTED IN THE "HYDROGEOLOGIC ASSESSMENT REPORT (REVISION 3)" INCLUDED WITH THIS PERMIT APPLICATION. THE MARCH 2021 POTENTIOMETRIC SURFACE IS HIGHER THAN THAT ASSOCIATED WITH THE DEWATERED AND CLOSED CONDITION WITHIN AP-1, AS REFLECTED IN NOTE 8.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 13:41:27 -04'00'

GEORGIA REGISTERED Rudolph Bonaparte No. 17516 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

SITE CROSS SECTIONS II

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG. GR6601-024	EDIT 8/16/21
SCALE	AS SHOWN	DRAWING 25 OF 50	
DATE	AUGUST 2021		

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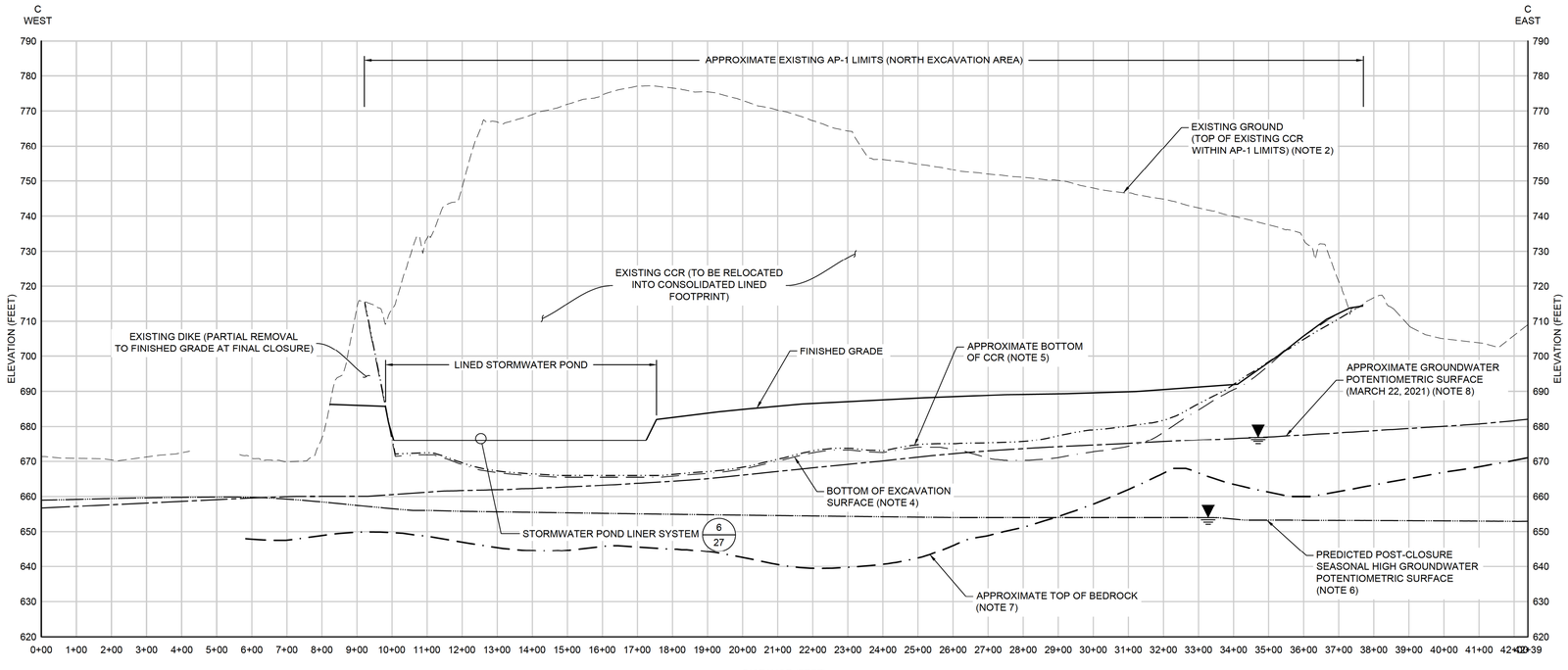
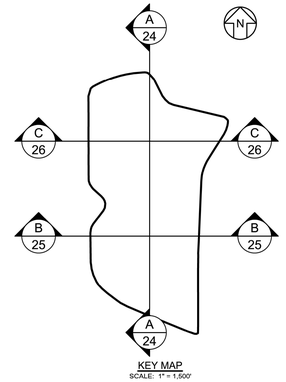


C
11
SECTION
EAST-WEST CROSS SECTION

SCALE: 1"=200' (HORIZONTAL): 1"=20' (VERTICAL)



KEY MAP
SCALE: 1" = 1,500'

NOTES:

1. SEE DRAWING 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL SITE NOTES.
2. EXISTING GROUND SHOWN ON THIS DRAWING IS TAKEN FROM THE TOPOGRAPHIC BASE MAP SHOWN ON DRAWING 4.
3. THE CONSOLIDATED LINED FOOTPRINT LIMITS SHOWN ON THIS DRAWING ARE TAKEN FROM DRAWING 17.
4. EXCAVATION SURFACE ELEVATION REPRESENTS A MINIMUM EXCAVATION DEPTH, IS APPROXIMATE, AND IS TAKEN FROM DRAWING 8.
5. APPROXIMATE BOTTOM OF CCR SHOWN ON THIS DRAWING IS TAKEN FROM DRAWING 6.
6. PREDICTED POST-CLOSURE SEASONAL HIGH GROUNDWATER POTENTIOMETRIC SURFACE SHOWN ON THIS DRAWING OBTAINED FROM GROUNDWATER FLOW MODELING RESULTS AS DOCUMENTED IN THE "HYDROGEOLOGIC ASSESSMENT REPORT (REVISION 3)" INCLUDED WITH THIS PERMIT APPLICATION AND SHOWN ON DRAWINGS 11 THROUGH 13.
7. TOP OF BEDROCK SURFACE IS APPROXIMATE AND WAS DEVELOPED BY GEOSYNTEC CONSULTANTS USING AVAILABLE SUBSURFACE INFORMATION FROM PREVIOUS SITE INVESTIGATIONS.
8. APPROXIMATE GROUNDWATER POTENTIOMETRIC SURFACE IS FROM WATER LEVEL MEASUREMENTS DATED 22 MARCH 2021 IN WELLS/PIEZOMETERS SCREENED IN BEDROCK AS PRESENTED IN THE "HYDROGEOLOGIC ASSESSMENT REPORT (REVISION 3)" INCLUDED WITH THIS PERMIT APPLICATION. THE MARCH 2021 POTENTIOMETRIC SURFACE IS HIGHER THAN THAT ASSOCIATED WITH THE DEWATERED AND CLOSED CONDITION WITHIN AP-1, AS REFLECTED IN NOTE 6.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 13:42:13 -04'00'

GEORGIA REGISTERED No. 17516 PROFESSIONAL ENGINEER Rudolph Bonaparte August 16, 2021 RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

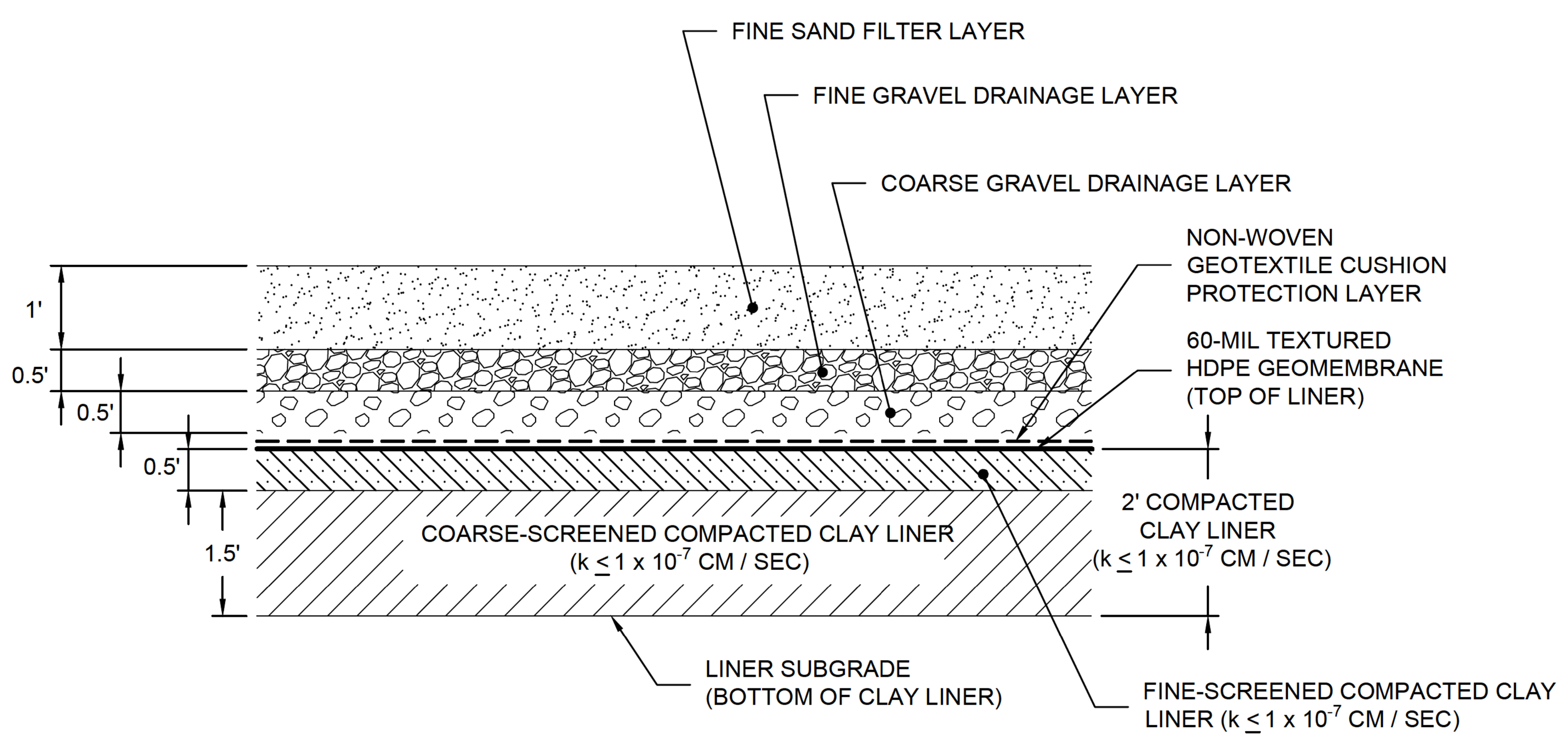
SITE CROSS SECTIONS III

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

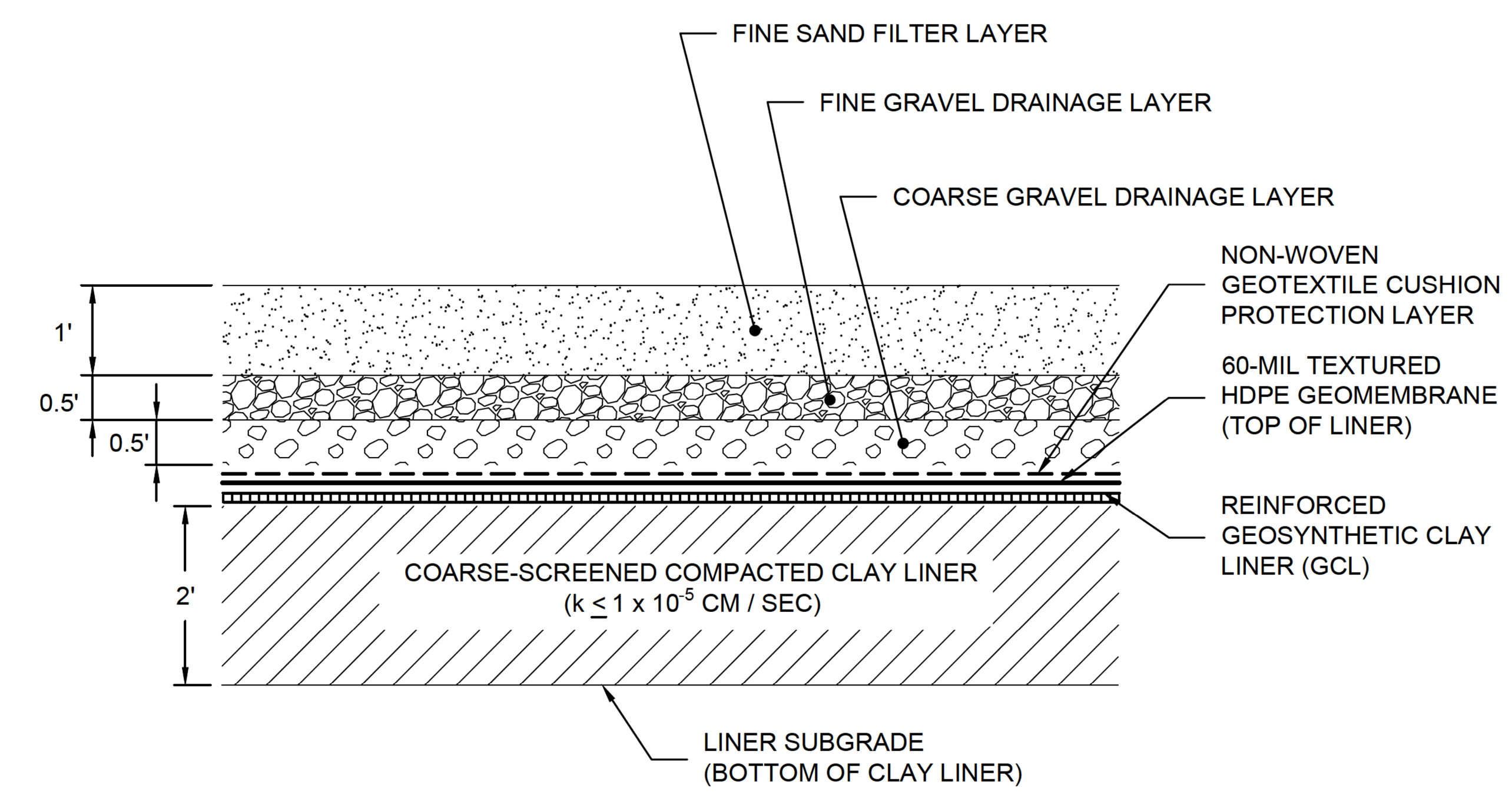
PROJ. NO.	GR6601	DWG. GR6601-025	EDIT 8/16/21
SCALE	AS SHOWN	DRAWING 26 OF 50	
DATE	AUGUST 2021		

P:\CAD\PROJECTS\GA\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-025



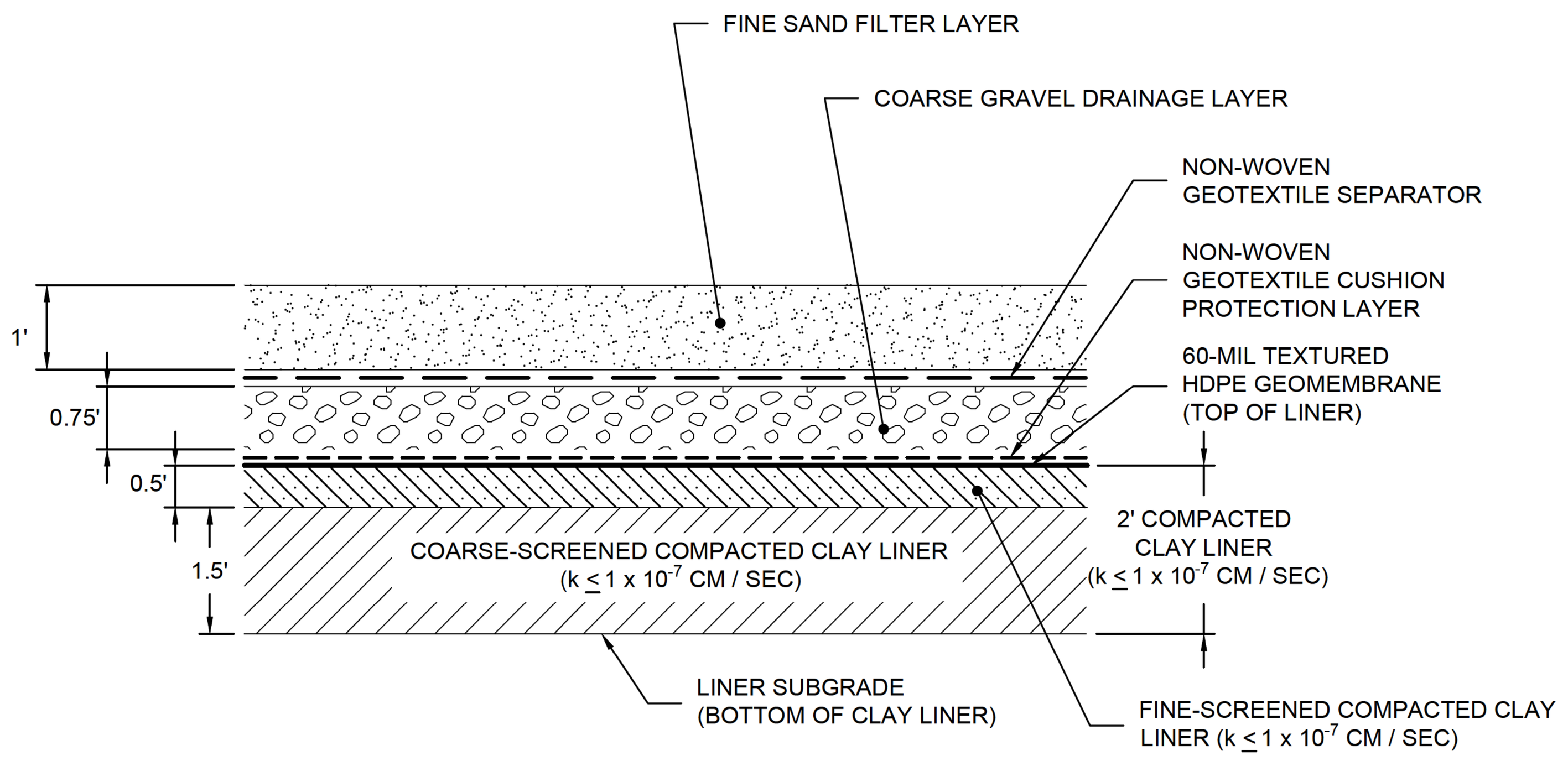
1 / 24 DETAIL
LINER SYSTEM OPTION L1 D1

SCALE IN FEET



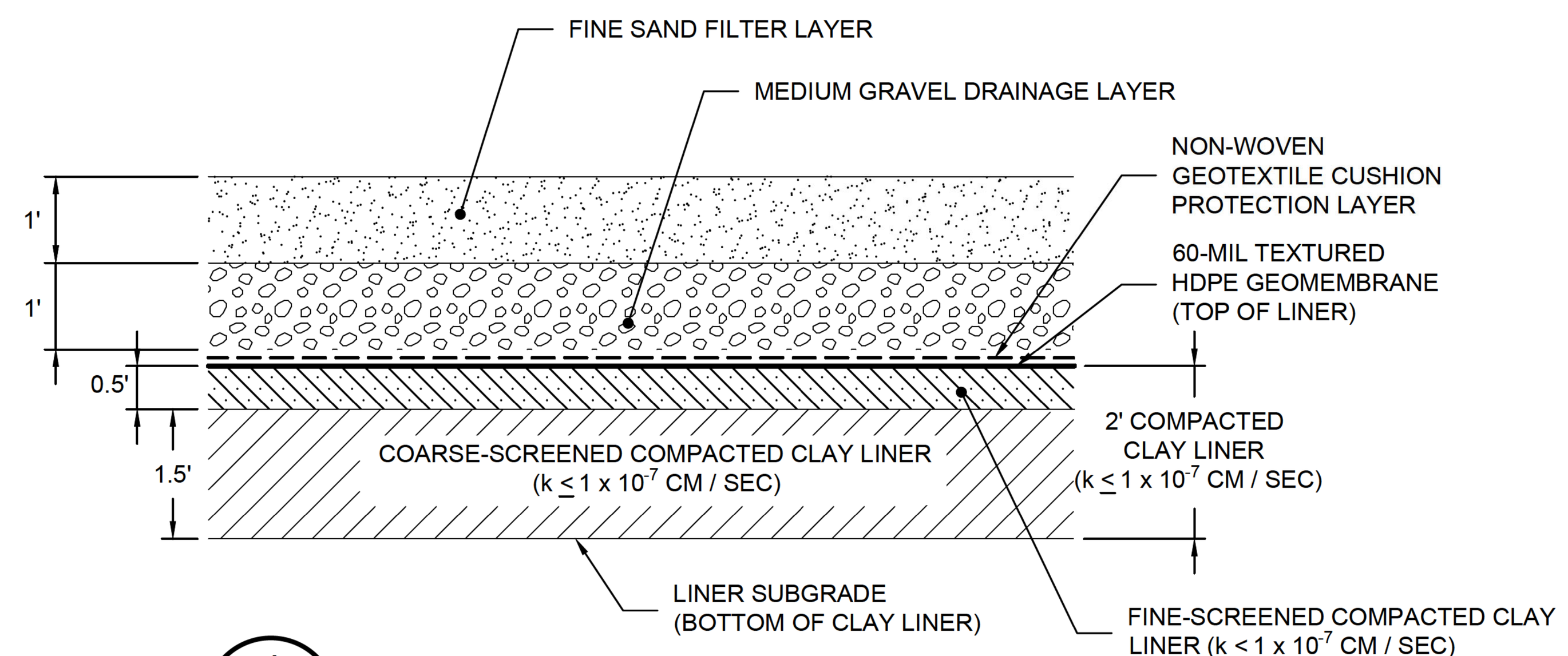
2 / 24 DETAIL
LINER SYSTEM OPTION L2

SCALE IN FEET



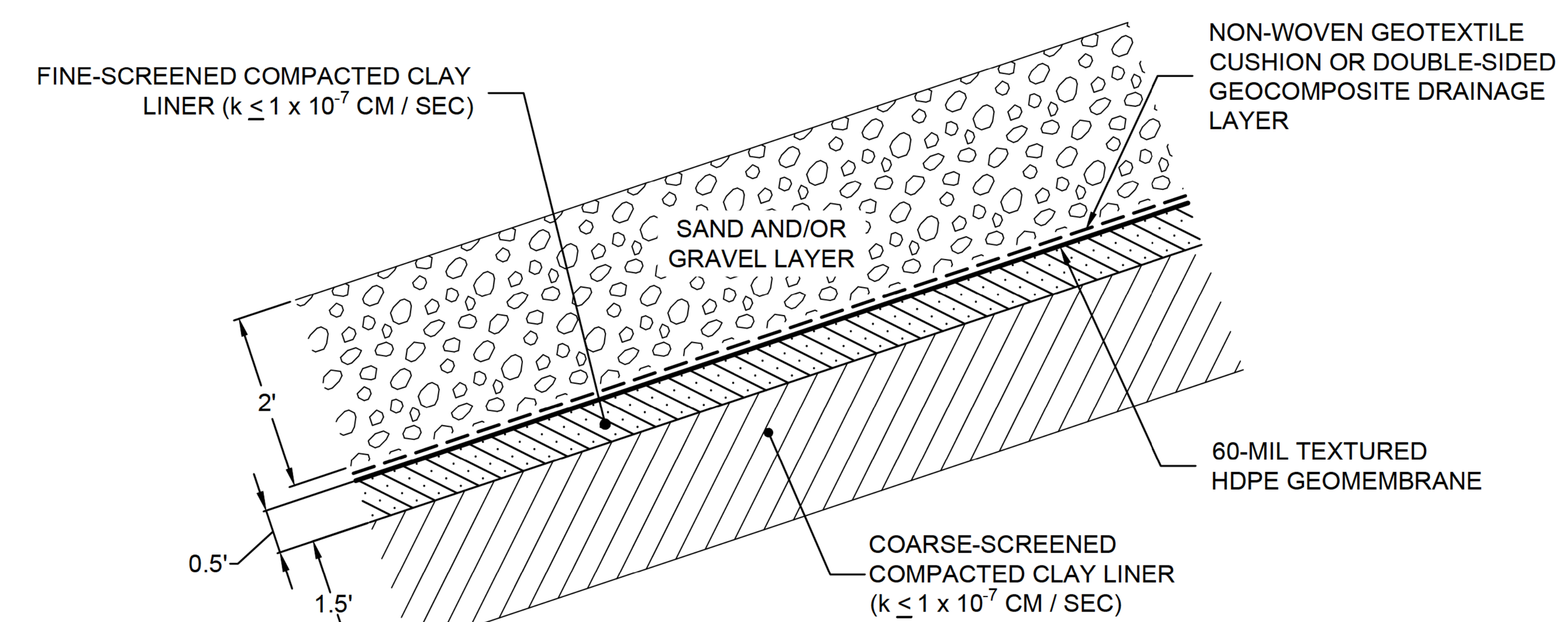
3 / 24 DETAIL
DRAINAGE SYSTEM OPTION D2

SCALE IN FEET



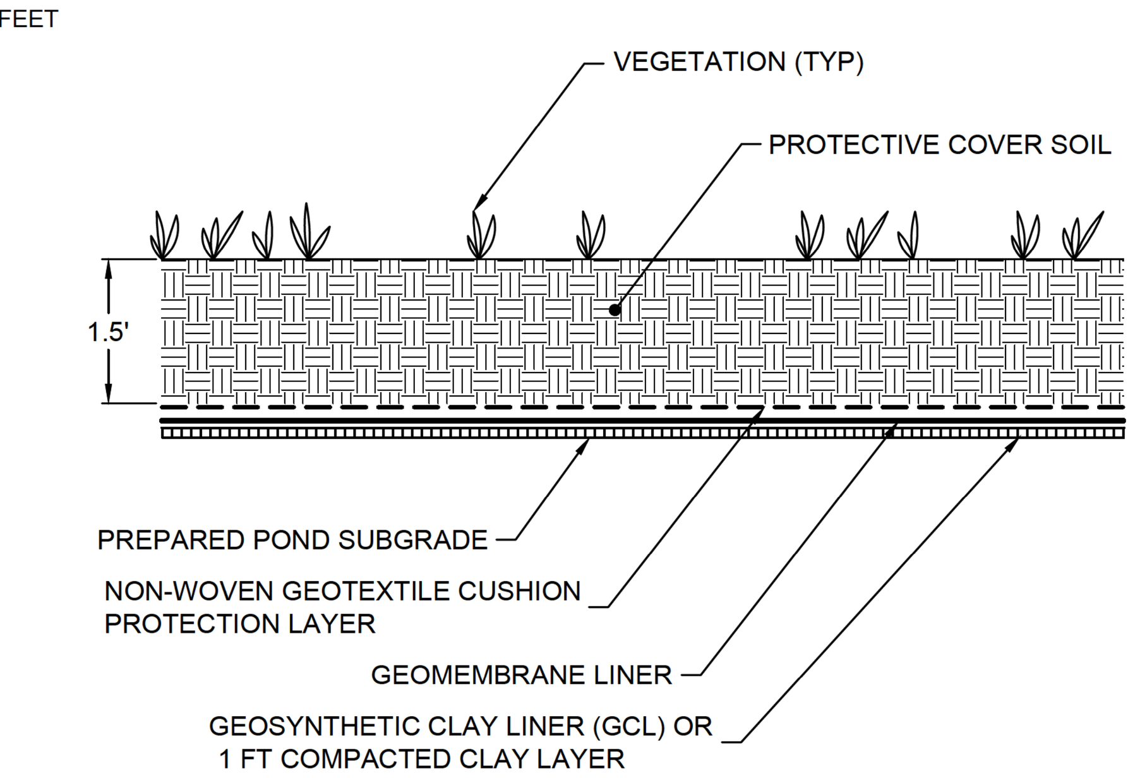
4 / 27 DETAIL
DRAINAGE SYSTEM OPTION D3

SCALE IN FEET



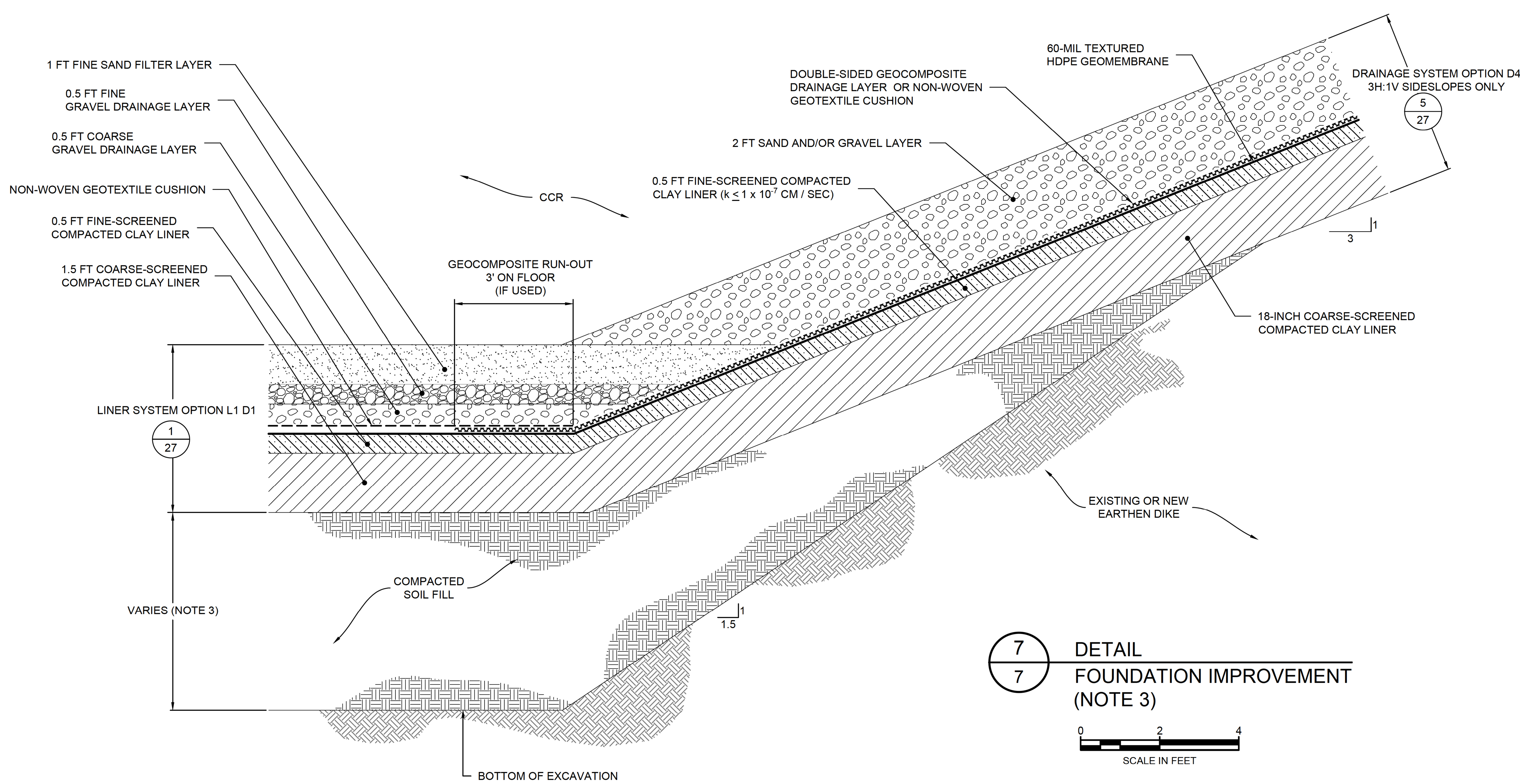
5 / 24 DETAIL
DRAINAGE SYSTEM OPTION D4
3H:1V SIDESLOPES ONLY

SCALE IN FEET



6 / 24 DETAIL
STORMWATER POND LINER SYSTEM

SCALE IN FEET



7 / 7 DETAIL
FOUNDATION IMPROVEMENT
(NOTE 3)

SCALE IN FEET

NOTES:

1. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
2. ADDITIONAL ACCEPTABLE LINER SYSTEMS WOULD COMBINE THE OPTION L2 (DETAIL 2) COMPOSITE LINER WITH THE OPTION D2 (DETAIL 3) OR D3 (DETAIL 4) LEACHATE COLLECTION SYSTEMS.
3. FOUNDATION IMPROVEMENT FOR CONSOLIDATED LINED AREAS WILL BE PERFORMED IN ACCORDANCE WITH THE "FOUNDATION IMPROVEMENT PLAN" INCLUDED WITH THIS PERMIT APPLICATION. THICKNESS OF COMPACTED SOIL FILL ZONE BENEATH FLOOR LINER AREAS IS A MINIMUM OF 8 FT THICK AND VARIES AS NEEDED TO FILL BETWEEN THE BOTTOM EXCAVATION (DRAWING 8) AND THE LINER SUBGRADE.
4. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.
5. FOUNDATION IMPROVEMENT DETAIL SHOWN ON THIS DRAWING REFLECTS LINER SYSTEM OPTIONS AS INDICATED. IF OTHER LINER SYSTEM OPTIONS ARE USED, THE DESIGN APPROACH WILL REMAIN CONSISTENT WITH THIS DRAWING.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 17516 RUDOLPH BONAPARTE August 16, 2021

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

LINER SYSTEM DETAILS I

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG. GR6601-028	EDIT 08.16.21
SCALE	AS SHOWN	DRAWING 27 OF 50	
DATE	AUGUST 2021		

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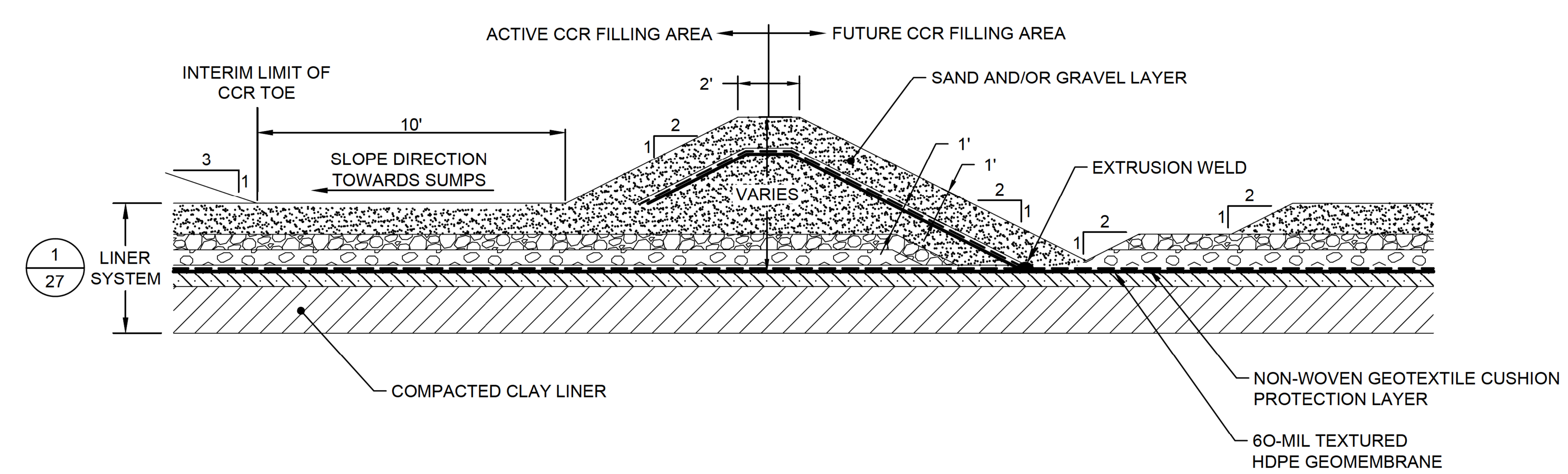
STEP 1

STEP 2

8 / 11 DETAIL INTERCELL BERM

SCALE IN FEET: 0 2 4



9 / - DETAIL RAIN FLAP (NOTE 2)

SCALE IN FEET: 0 4 8

NOTES:

1. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
2. RAIN FLAP BERMS CAN BE USED TO LIMIT THE SIZE OF THE ACTIVE AREA DURING INITIAL STAGE OF FILLING. RAIN FLAP BERM LOCATIONS WILL BE SELECTED BASED ON ACTUAL CONDITIONS.
3. DETAILS ON THIS DRAWING ARE SHOWN BASED ON LINER SYSTEM OPTION L1D1 (DETAIL 1 ON DRAWING 27). IF OTHER LINER SYSTEMS ARE USED, THE DESIGN APPROACH WILL REMAIN CONSISTENT WITH THE INFORMATION PRESENTED ON THIS DRAWING.
4. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 17516 RUDOLPH BONAPARTE

Georgia Power

PERMIT DRAWING
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REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

LINER SYSTEM DETAILS II

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-031
SCALE	AS SHOWN	EDIT	08.16.21
DATE	AUGUST 2021	DRAWING	28 OF 50

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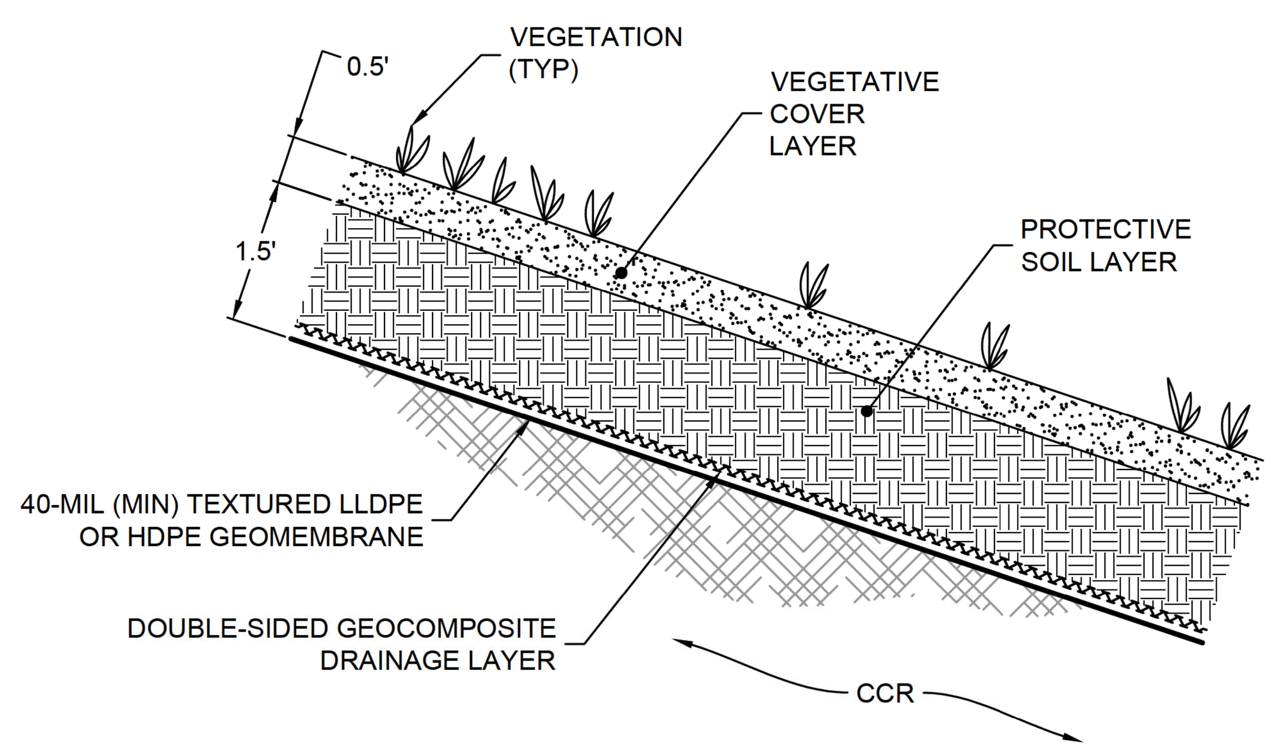
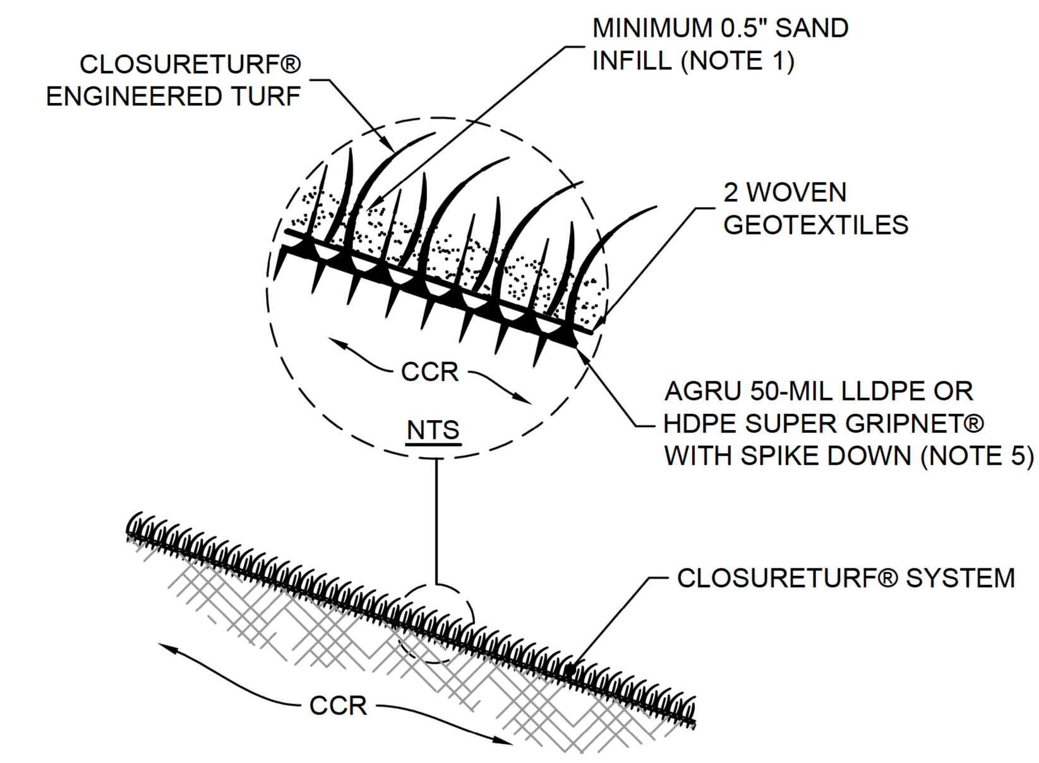
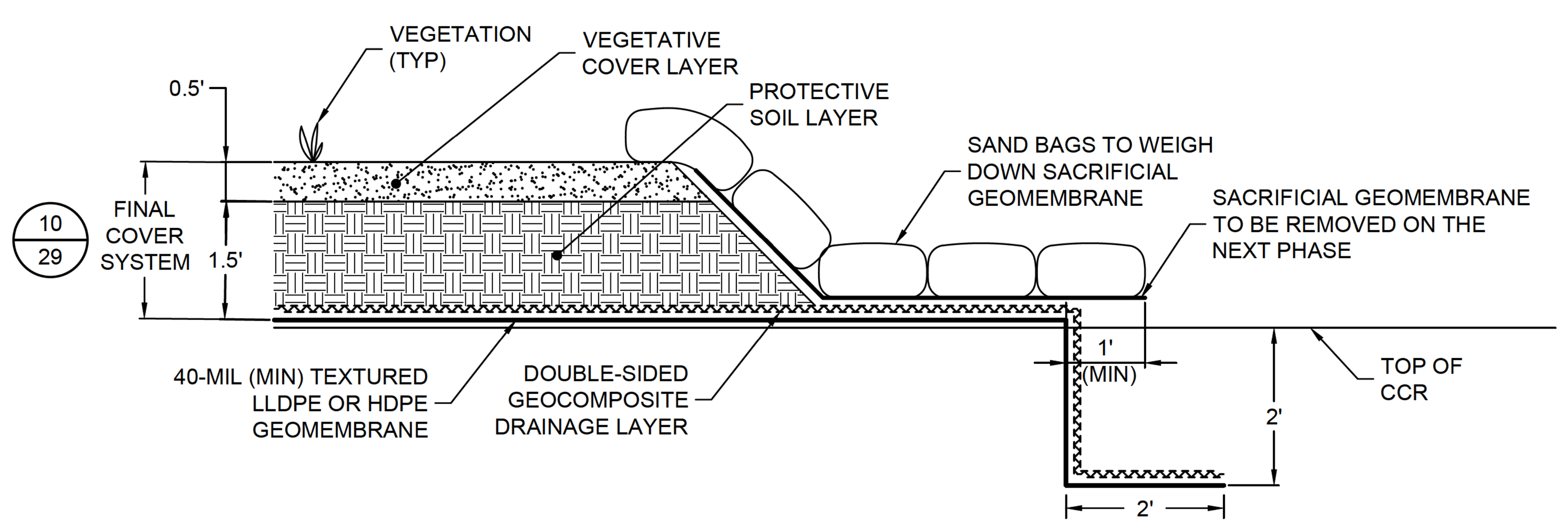


10 / 24 **DETAIL**
FINAL COVER SYSTEM (SOIL-GEOSYNTHETIC COMPOSITE COVER OPTION)

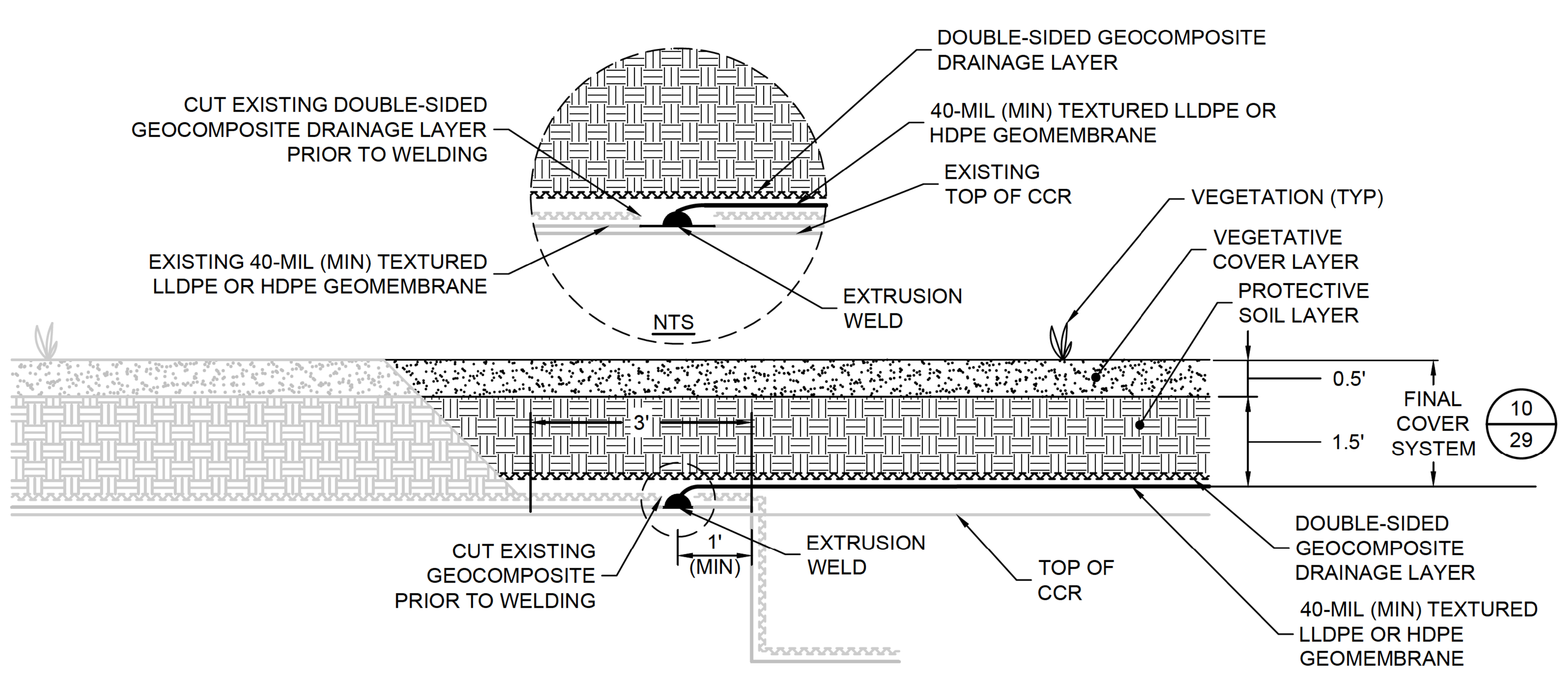
0 2 4
SCALE IN FEET



11 / 24 **DETAIL**
FINAL COVER SYSTEM (CLOSURETURF® COVER OPTION)
SCALE: NOT TO SCALE



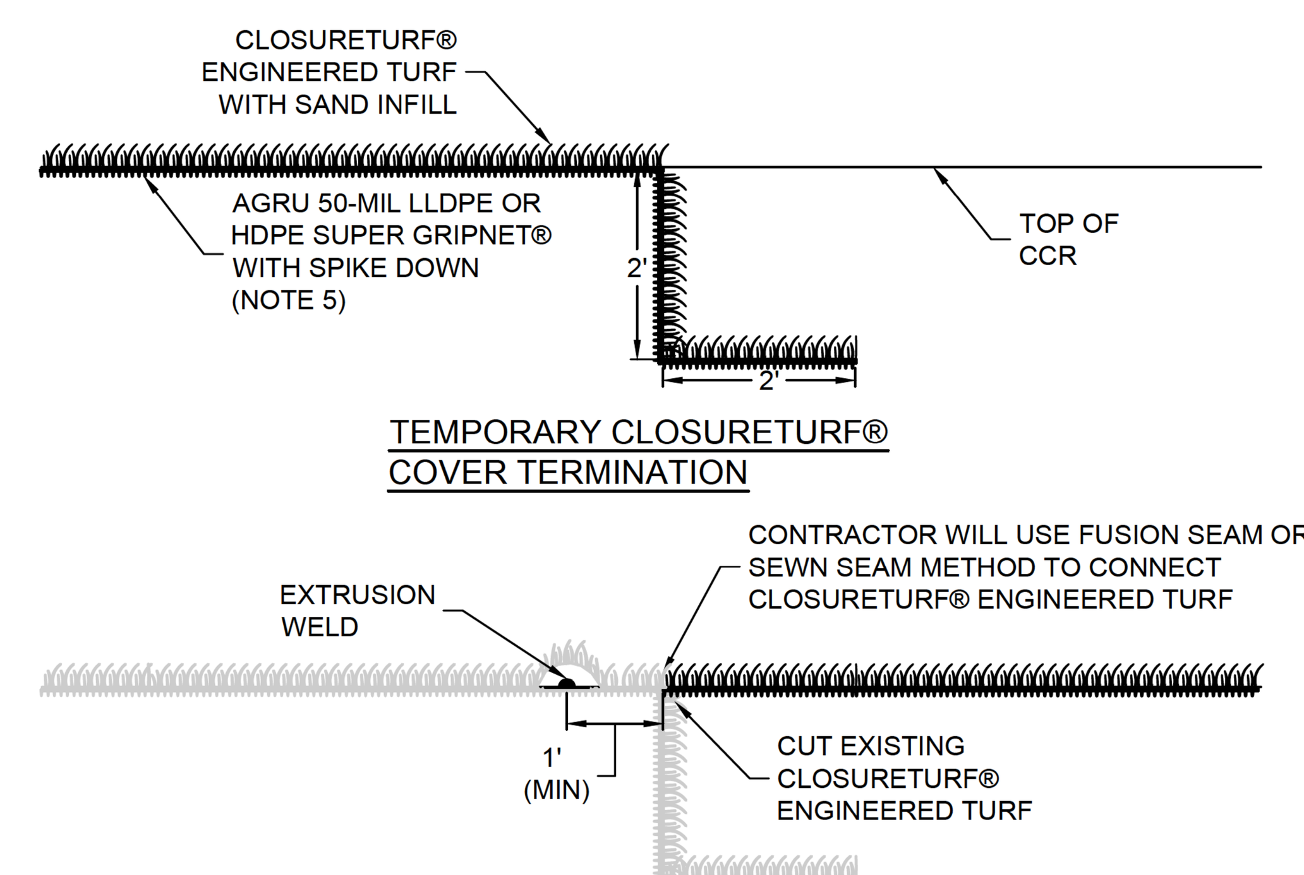
TEMPORARY FINAL COVER TERMINATION



AFTER TIE-IN

12 / - **DETAIL**
FINAL COVER TIE-IN AT PHASE BOUNDARY

0 2 4
SCALE IN FEET



13 / - **DETAIL**
ALTERNATIVE COVER TIE-IN AT PHASE BOUNDARY

0 2 4
SCALE IN FEET

NOTES:

1. SAND INFILL IS TO BE USED WITH CLOSURETURF® ENGINEERED TURF IN ALL LOCATIONS EXCEPT WITHIN DRAINAGE FEATURES, WHICH WILL USE HYDROBINDER AND/OR RIPRAP AS SPECIFIED ON THE STORMWATER MANAGEMENT SYSTEM DETAILS.
2. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
3. SUBGRADE PREPARATION IN AREAS WHERE GEOMEMBRANE LINER WILL BE INSTALLED WILL CONSIST OF MOISTURE CONDITIONING, COMPACTION, AND SMOOTH ROLLING AS NEEDED.
4. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.
5. CLOSURETURF® DETAILS SHOWN WITH SUPER GRIPNET® GEOMEMBRANE OPTION. OTHER CLOSURETURF® GEOMEMBRANE OPTIONS (E.G. MICRODRAIN® OR MICROSPIKE®) MAY BE CONSIDERED AS PART OF THE DETAILED DESIGN.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 17516 RUDOLPH BONAPARTE August 16, 2021

Georgia Power

PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

FINAL COVER SYSTEM DETAILS

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-029
SCALE	AS SHOWN	EDIT	08.16.21
DATE	AUGUST 2021	DRAWING	29 OF 50

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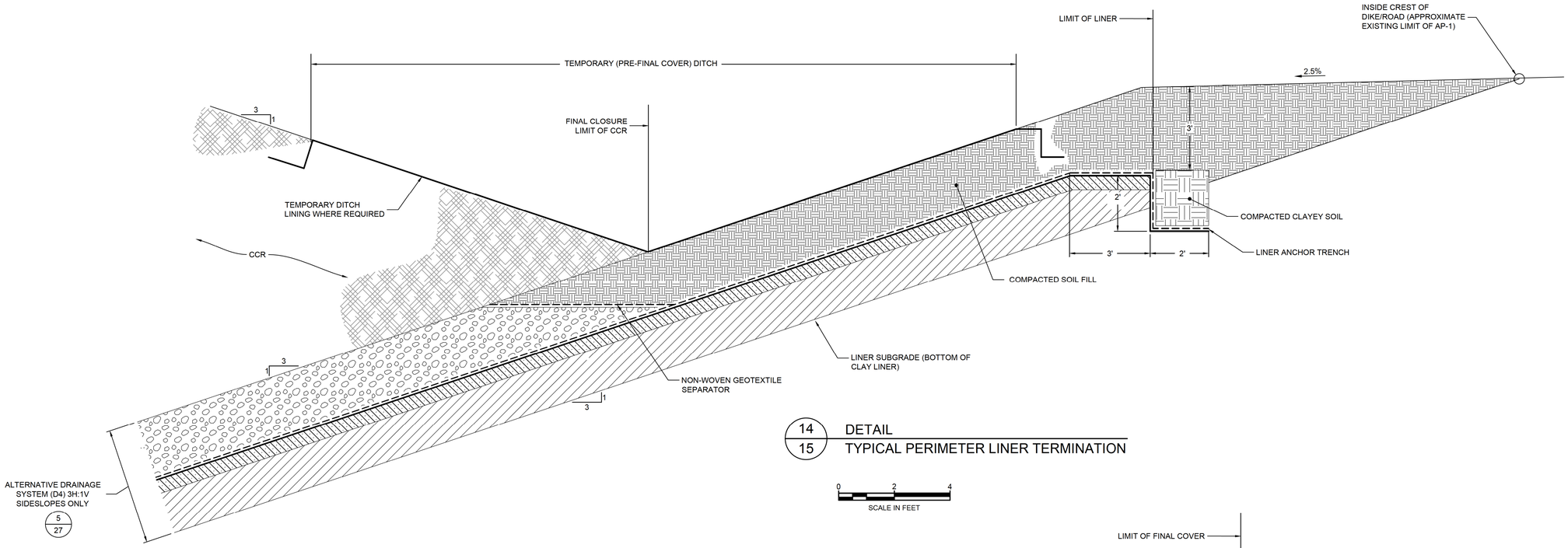
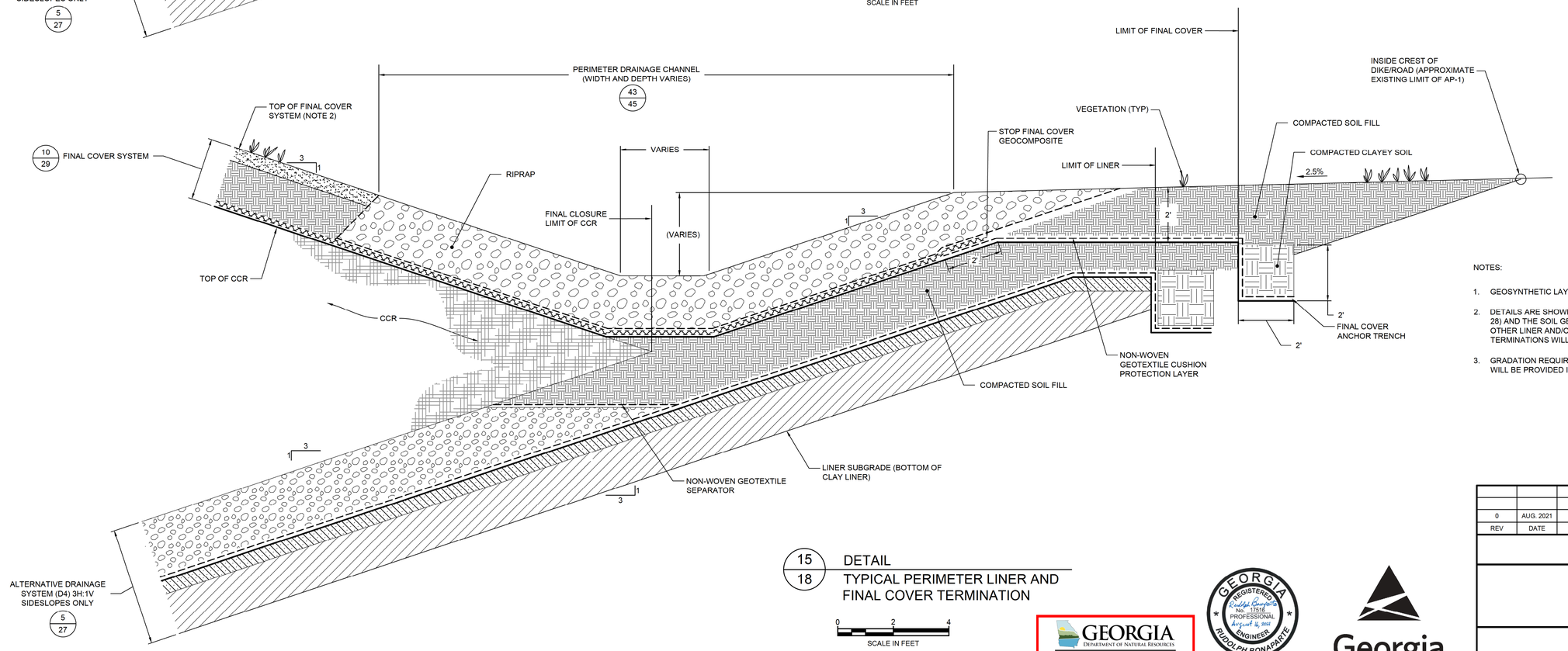


14
15
DETAIL
TYPICAL PERIMETER LINER TERMINATION

0 2 4
SCALE IN FEET



15
18
DETAIL
TYPICAL PERIMETER LINER AND FINAL COVER TERMINATION

0 2 4
SCALE IN FEET

NOTES:

1. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
2. DETAILS ARE SHOWN FOR LINER SYSTEM COMPONENTS "L1" AND "D4" (SEE DRAWING 28) AND THE SOIL GEOSYNTHETIC FINAL COVER SYSTEM OPTION (SEE DRAWING 30). IF OTHER LINER AND/OR FINAL COVER SYSTEM OPTIONS ARE USED, THEIR TERMINATIONS WILL BE CONSISTENT WITH THESE SHOWN HERE.
3. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Keith Stevens
Digitally signed by Keith Stevens
Date: 2021.08.27 13:43:46 -04'00'
Approved By: _____

GEORGIA REGISTERED Rudolph Bonaparte No. 17516 PROFESSIONAL Engineer RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

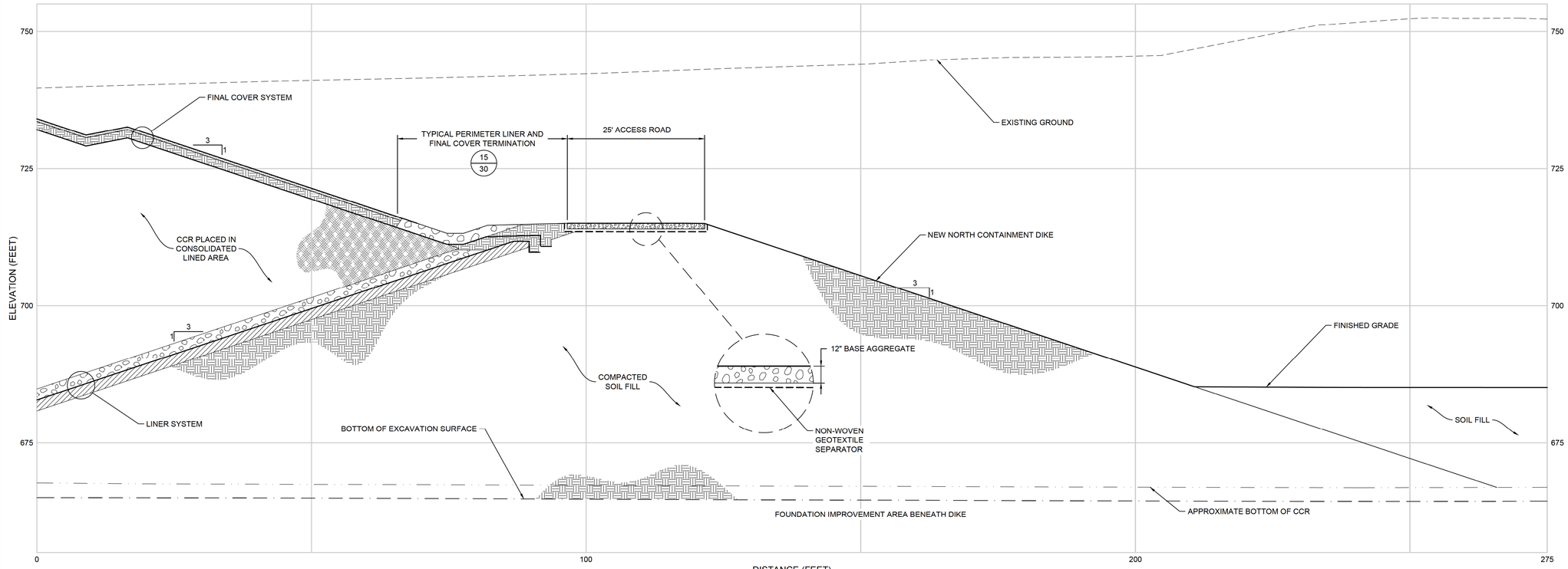
PERIMETER DETAILS

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

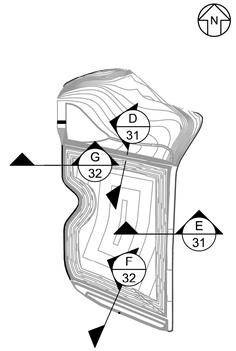
Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-030
SCALE	AS SHOWN	EDIT	08.16.21
DATE	AUGUST 2021	DRAWING	30 OF 50

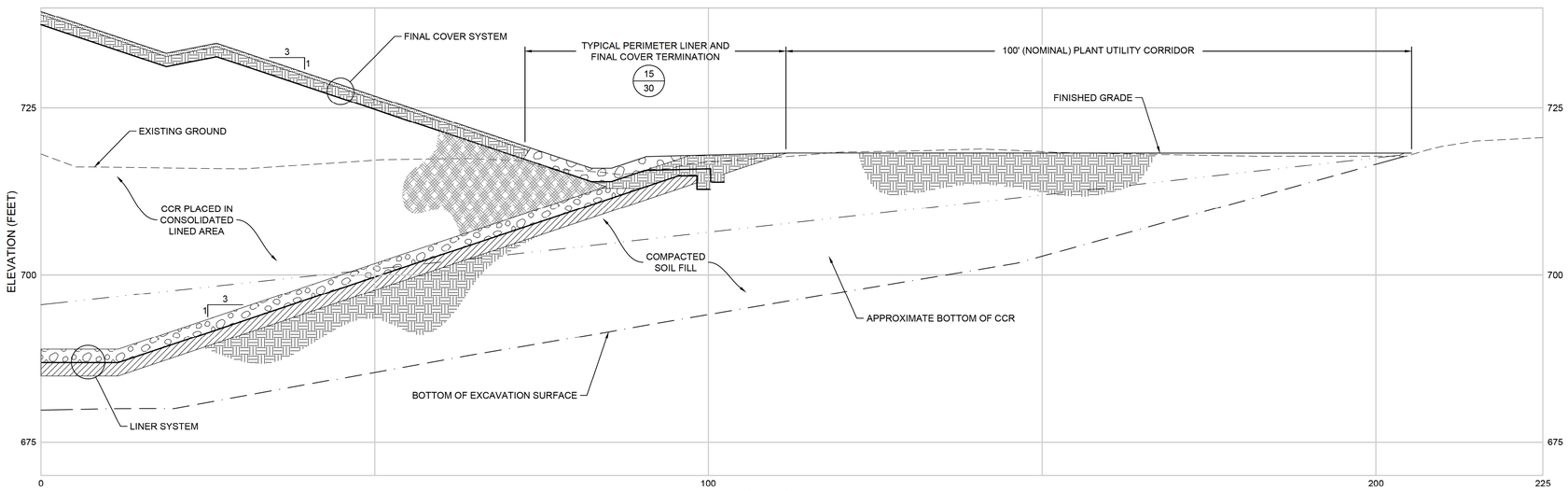
P:\ACAD\PROJECTS\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-030



D / 31 SECTION
NORTH PERIMETER
SCALE: 1" = 10'



KEY MAP
SCALE: 1" = 1,500'



E / 31 SECTION
EAST PERIMETER
SCALE: 1" = 10'

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens
Digitally signed by Keith Stevens
Date: 2021.08.27 13:46:31 -04'00'

GEORGIA REGISTERED Rudolph Bonaparte No. 17516 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE August 16, 2021

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

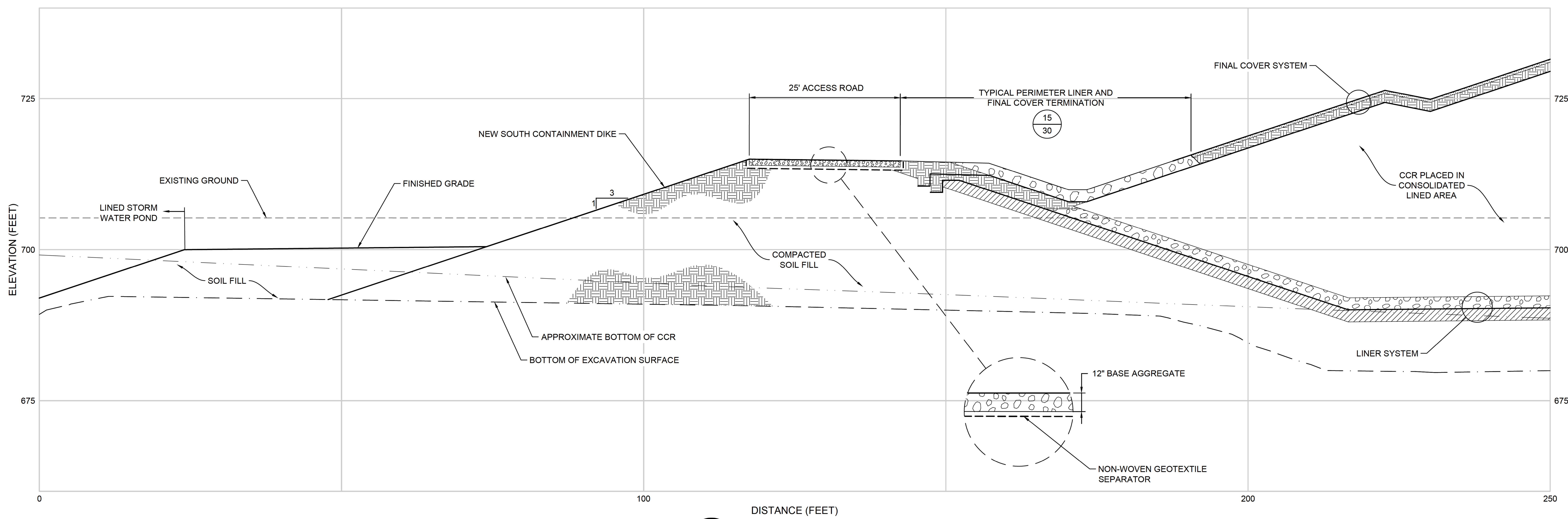
PERIMETER SECTIONS I

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

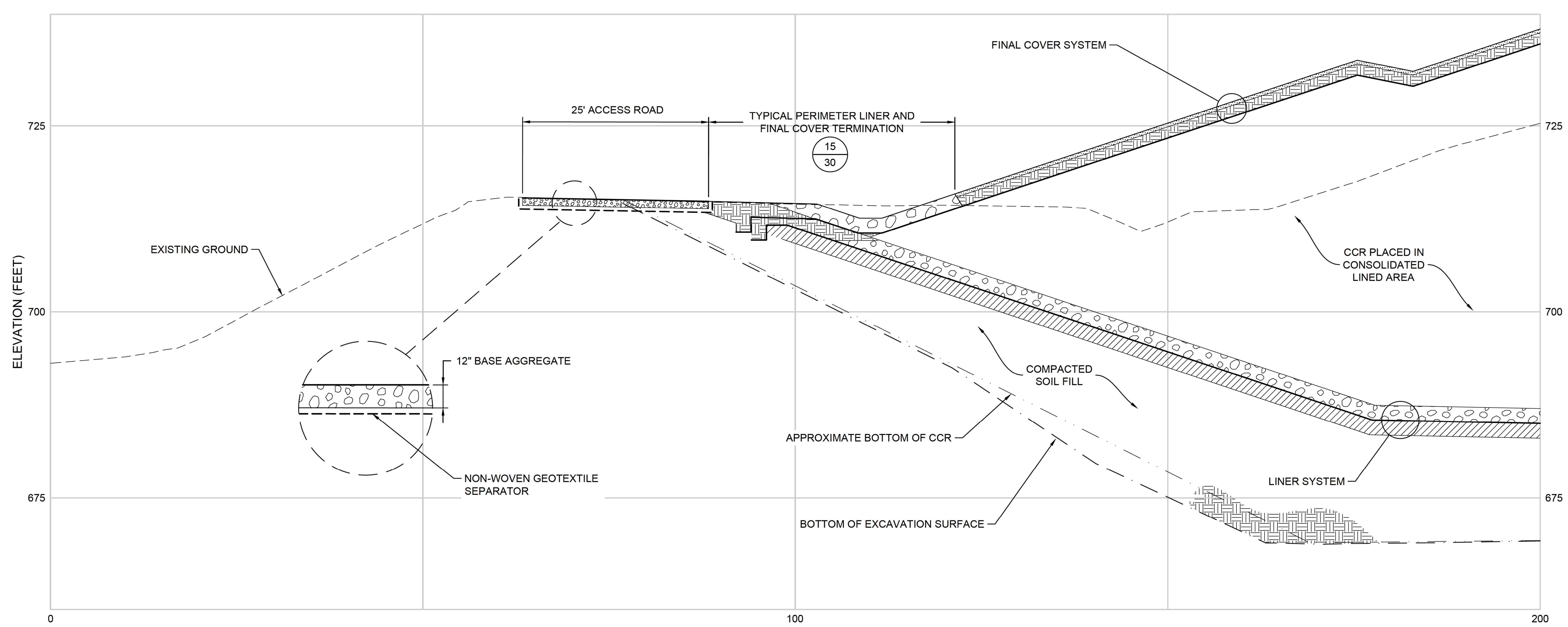
Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG. GR6601-032	EDIT 08.16.21
SCALE	AS SHOWN	DRAWING 31 OF 50	
DATE	AUGUST 2021		

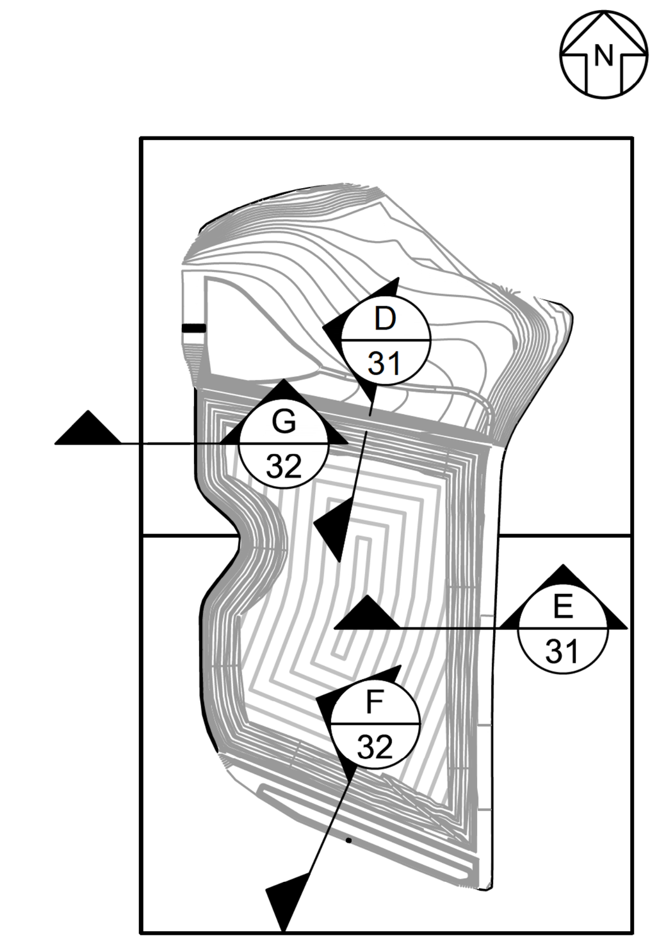
P:\GA\DOPROJECTS\GGEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-032



F / 32 SECTION
SOUTH PERIMETER
SCALE: 1" = 10'



G / 32 SECTION
WEST PERIMETER
SCALE: 1" = 10'



KEY MAP
SCALE: 1" = 1,500'

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

PERIMETER SECTIONS II

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-033	EDIT	08.16.21
SCALE	AS SHOWN	DRAWING 32 OF 50			
DATE	AUGUST 2021				

Georgia Power
PERMIT DRAWING
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GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 17516 RUDOLPH BONAPARTE August 16, 2021

GEORGIA Department of Natural Resources
Environmental Protection Division
Approved
Solid Waste Management Program
Approved By: Keith Stevens

N 1506000
N 1505000
N 1504000
N 1503000
N 1502000
N 1501000
N 1500000
E 2064000
E 2065000
E 2066000
E 2067000
E 2068000
E 2069000
E 2070000

COVERED BRIDGE ROAD
EUHARLEE CREEK
ETOWAH RIVER
GENERAL SERVICE WATER POND (GSWP)
COAL STORAGE
BOWEN ELECTRIC GENERATING PLANT
230kV SWITCHYARD
500kV SWITCHYARD
PIPES TO PLANT

NEW EARTHEN CONTAINMENT DIKE
3H:1V
CELL 7B
CELL 7A
CELL 6B
CELL 6A
CELL 5B
CELL 5A
CELL 4B
CELL 4A
CELL 3
CELL 2
CELL 1B
CELL 1A
LC
LFM

STORMWATER POND (TO BE LINED)
8/28 INTERCELL BERM (TYP)
FGD PUMP STATION
NEW EARTHEN CONTAINMENT DIKE
UNNAMED STREAM
TEMPORARY WWTS (NOTE 3)
NPDES PUMP STATION

LEACHATE COLLECTION SUMP (TYP) 18/34
LEACHATE FORCEMAIN AIR RELEASE MANHOLE (TYP) 23/37
LEACHATE FORCEMAIN CLEANOUT MANHOLE (TYP) 25/37
PLANT UTILITY CORRIDOR
PERMANENT WWTS LEACHATE FORCEMAIN JUNCTION MANHOLE 24/37
LEACHATE COLLECTION CORRIDOR (TYP) 16/34
LEACHATE RISER PAD (TYP) 22/36
LEACHATE FORCEMAIN PIPE EMBEDMENT (TYP) 20/35
LOW VOLUME WASTE POND
TEMPORARY WWTS LEACHATE FORCEMAIN JUNCTION MANHOLE 24/37

LEGEND

- 670 — EXCAVATION SURFACE ELEVATION (FEET)
- 680 — TOP OF LINER SYSTEM ELEVATION (FEET)
- EXISTING LIMIT OF AP-1
- LC — LC — LEACHATE COLLECTION CORRIDOR
- LEACHATE SUMP AND RISER PIPE
- LFM — LFM — LEACHATE FORCEMAIN
- PERMIT BOUNDARY
- LEACHATE FORCEMAIN AIR RELEASE MANHOLE
- LEACHATE FORCEMAIN CLEANOUT MANHOLE
- LEACHATE FORCEMAIN JUNCTION MANHOLE
- LEACHATE RISER PAD
- TEMPORARY WWTS PAD

N

NOTES:

1. SEE DRAWING 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL SITE NOTES.
2. TOP OF LINER GRADES SHOWN ON THIS DRAWING REPRESENT THE TOP OF THE GEOMEMBRANE COMPONENT OF THE LINER SYSTEM WITHIN THE CONSOLIDATED LINED FOOTPRINT AREA. WITHIN THE REMAINDER OF AP-1 (OUTSIDE THE CONSOLIDATED LINED FOOTPRINT AREA), GRADES REPRESENT EXTERIOR NORTH AND SOUTH CONTAINMENT DIKE SLOPES, WHICH TIE-IN TO THE ESTIMATED BOTTOM OF EXCAVATION GRADES. CONTOURS SHOWN ON THIS DRAWING BEYOND LIMITS OF AP-1 ARE EXISTING GROUND TOPOGRAPHY.
3. A TEMPORARY WWTS WILL BE ESTABLISHED AT THE APPROXIMATE LOCATION SHOWN FOR TREATMENT OF LEACHATE AND CONTACT WATER GENERATED DURING CLOSURE CONSTRUCTION. AT THE COMPLETION OF CLOSURE CONSTRUCTION, LEACHATE WILL BE ROUTED TO A PERMANENT ON-SITE WWTS LOCATED OUTSIDE THE AP-1 PERMIT BOUNDARY, ON THE PLANT BOWEN PROPERTY.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 13:49:24 -04'00'
Approved By: _____

0 300 600
SCALE IN FEET

GEORGIA REGISTERED No. 17516 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

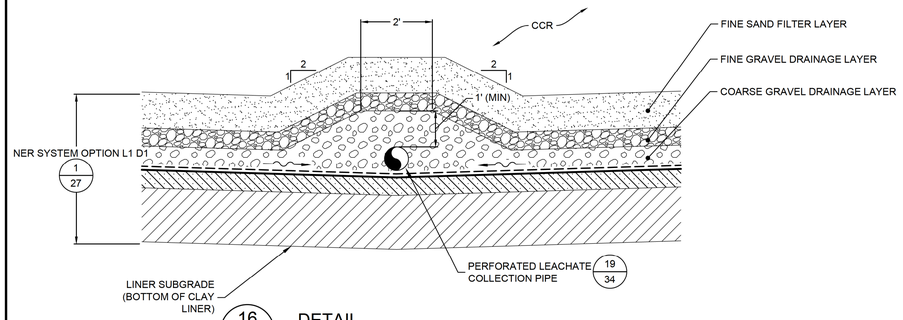
LEACHATE MANAGEMENT PLAN

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

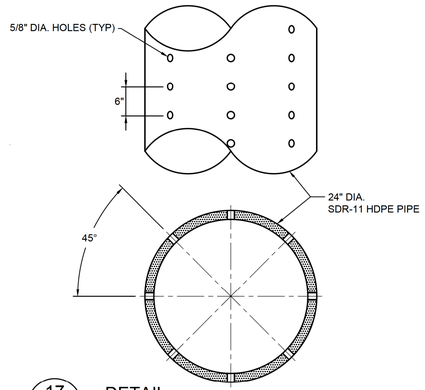
PROJ. NO.	GR6601	DWG.	GR6601-034
SCALE	1" = 300'	EDIT	8/16/21
DATE	AUGUST 2021	DRAWING	33 OF 50

P:\ACAD\PROJECTS\GOGEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-034

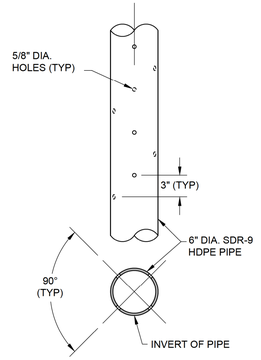


16 / 33 DETAIL
LEACHATE COLLECTION CORRIDOR

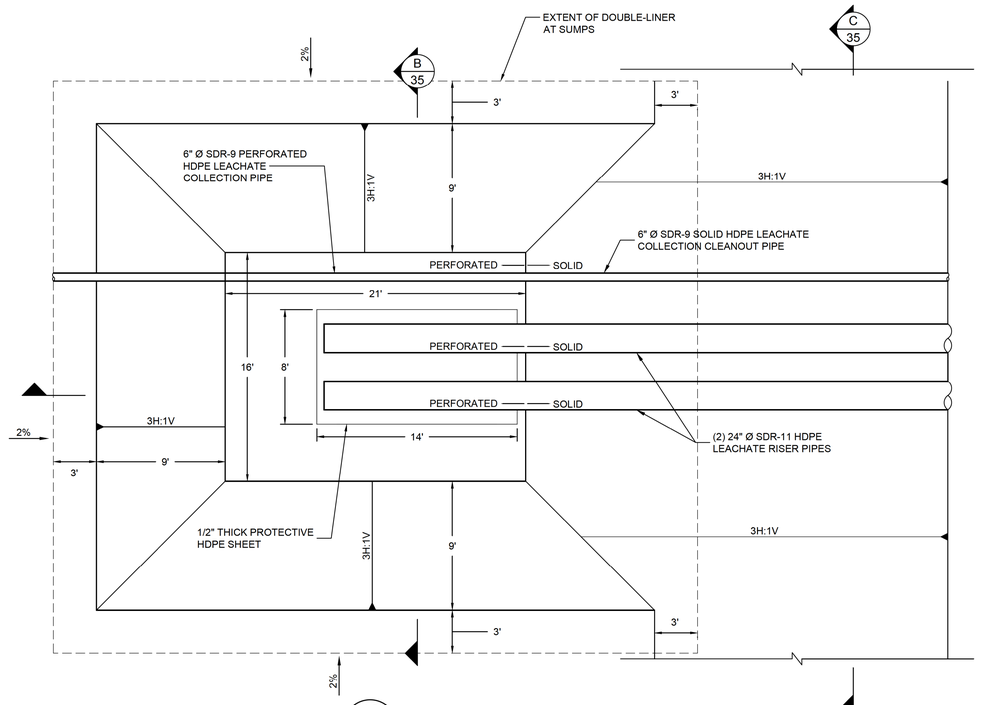
0 2 4
SCALE IN FEET



17 / 34 DETAIL
PERFORTED LEACHATE RISER PIPE
SCALE: NOT TO SCALE

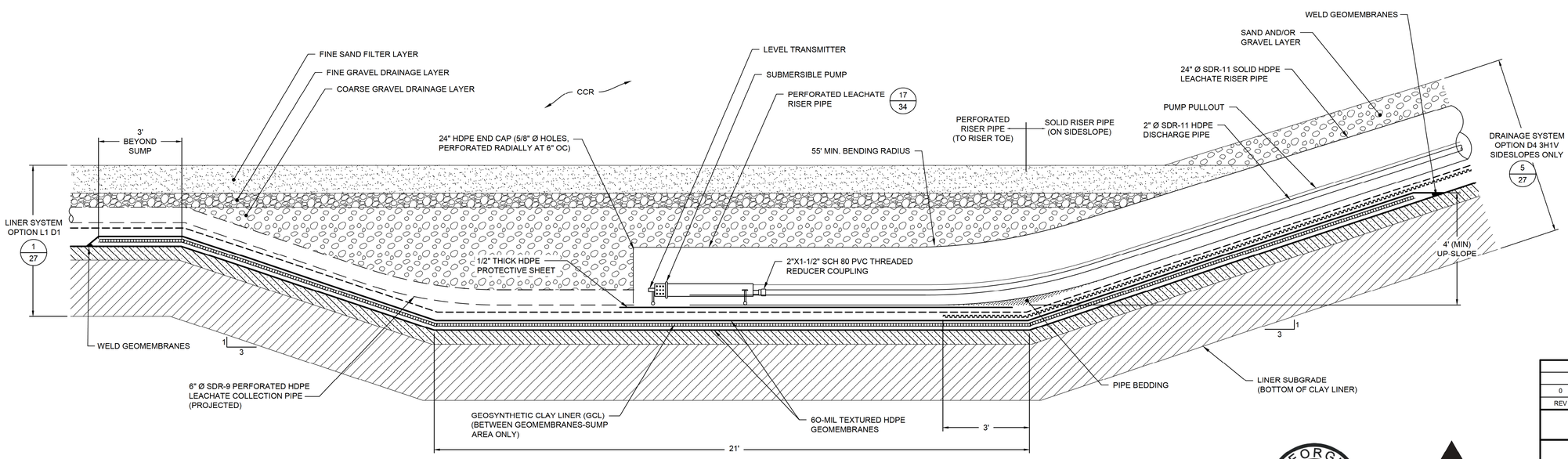


19 / 34 DETAIL
PERFORATED LEACHATE COLLECTION PIPE
SCALE: NOT TO SCALE



18 / 33 DETAIL
LEACHATE COLLECTION SUMP

0 5 10
SCALE IN FEET



A / 34 SECTION
LEACHATE COLLECTION RISER TOE

0 2 4
SCALE IN FEET

NOTES:

1. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
2. SUBGRADE PREPARATION IN AREAS WHERE GEOMEMBRANE LINER WILL BE INSTALLED WILL CONSIST OF MOISTURE CONDITIONING, COMPACTION, AND SMOOTH ROLLING AS NEEDED.
3. TWO RISER PIPES ARE PROVIDED: A PRIMARY RISER AND A BACKUP/REDUNDANT RISER - EACH WITH A SUBMERSIBLE PUMP.
4. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.
5. DETAILS SHOWN ON THIS DRAWING REFLECT LINER SYSTEM OPTIONS AS INDICATED. IF OTHER LINER SYSTEM OPTIONS ARE USED, THE DESIGN APPROACH WILL REMAIN CONSISTENT WITH THIS DRAWING.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 13:50:35 -04'00'
Approved By: _____

GEORGIA REGISTERED Rudolph Bonaparte No. 37516 PROFESSIONAL August 16, 2021 ENGINEER RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

LEACHATE COLLECTION SYSTEM DETAILS I

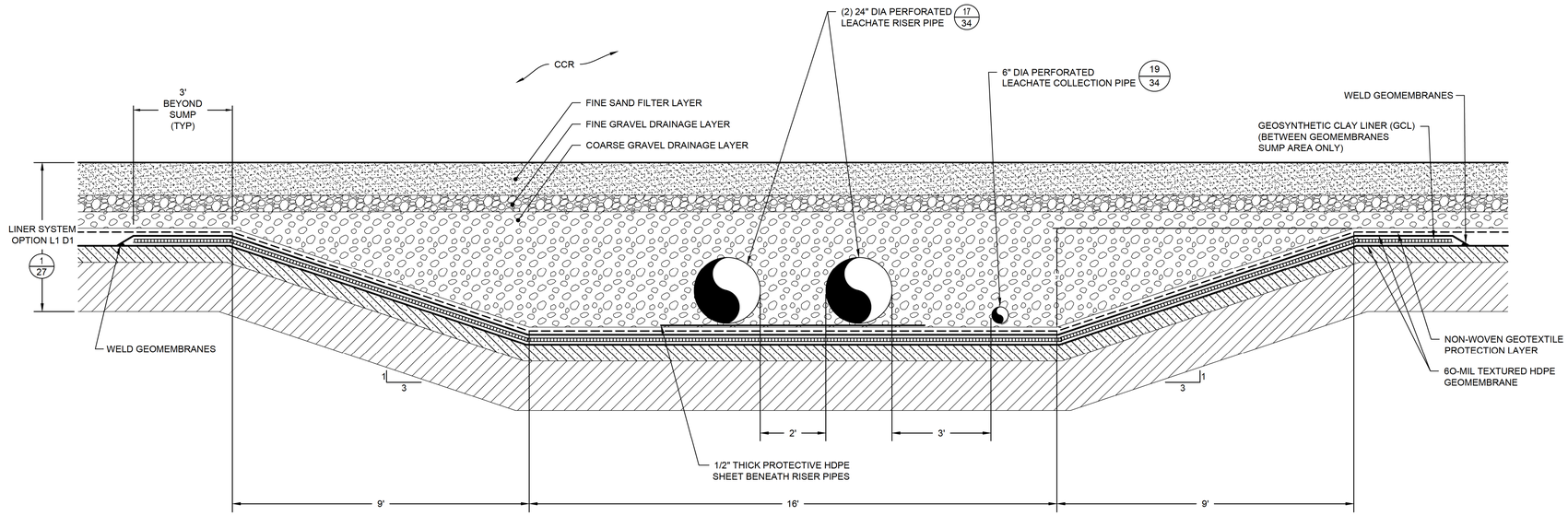
PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

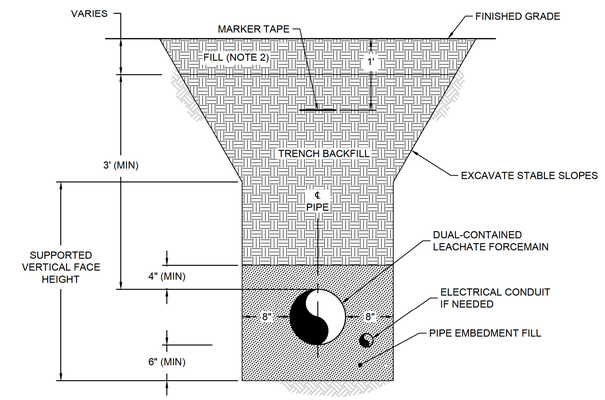
PROJ. NO.	GR6601	DWG. GR6601-036	EDIT 08.16.21
SCALE	AS SHOWN		
DATE	AUGUST 2021		

DRAWING 34 OF 50

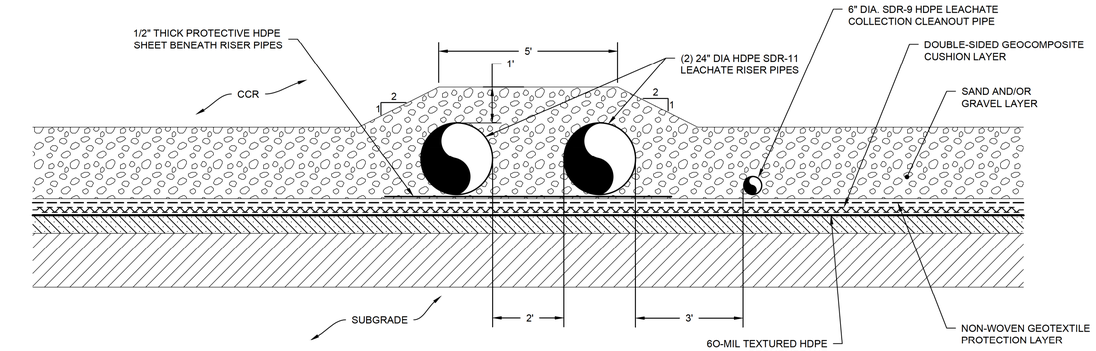
P:\CAD\PROJECTS\GA\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE GR6601\DRAWINGS\GR6601-036



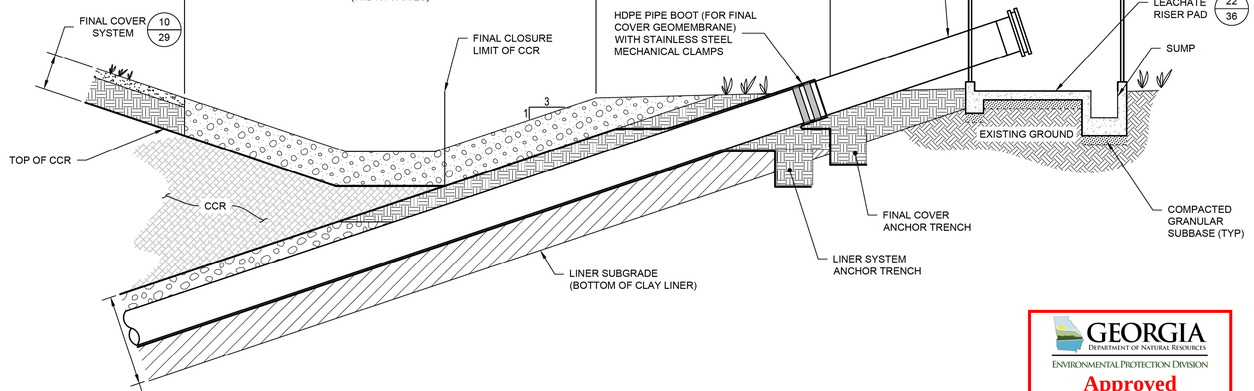
B/34 SECTION
LEACHATE COLLECTION SUMP
SCALE: 1"=2'
0 2 4
SCALE IN FEET



20/33 DETAIL
LEACHATE FORCEMAIN PIPE EMBEDMENT
SCALE: 1" = 1'
0 1 2
SCALE IN FEET



C/34 SECTION
SIDESLOPE LEACHATE RISER SYSTEM
SCALE: 1"=2'
0 2 4
SCALE IN FEET



21/- DETAIL
LEACHATE COLLECTION RISER PIPE TERMINATION
SCALE: 1"=4'
0 4 8
SCALE IN FEET

NOTES:

1. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
2. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.
3. DETAILS SHOWN ON THIS DRAWING REFLECT LINER SYSTEM OPTIONS AS INDICATED. IF ALTERNATIVE LINER SYSTEMS ARE USED, THE DESIGN APPROACH WILL REMAIN CONSISTENT WITH THIS DRAWING.

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 17516 Rudolph Bonaparte August 6, 2021 RUDOLPH BONAPARTE

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 13:51:29 -04'00'

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

LEACHATE COLLECTION SYSTEM DETAILS II

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-037
SCALE	AS SHOWN	EDIT	08.16.21
DATE	AUGUST 2021	DRAWING	35 OF 50

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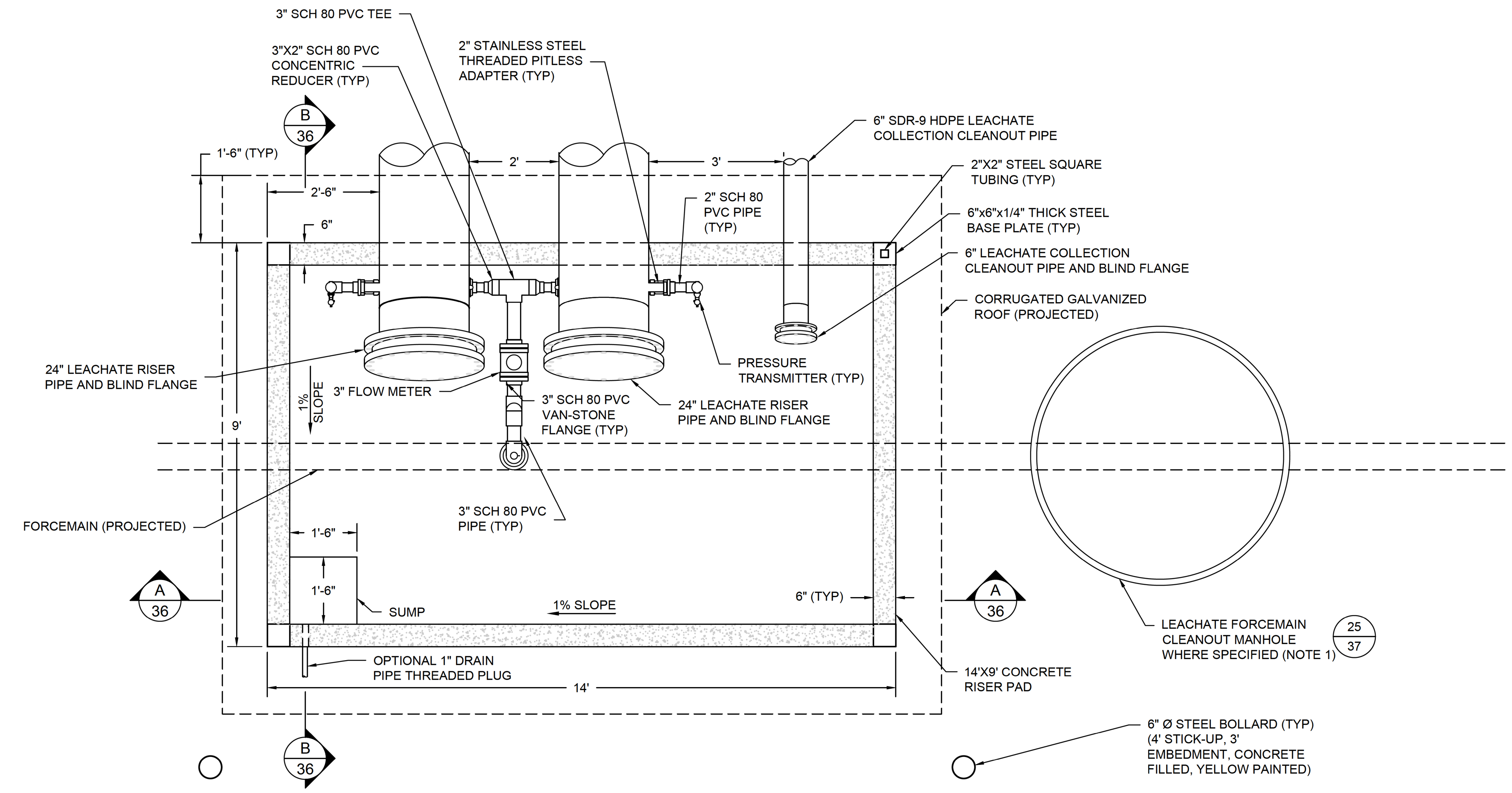
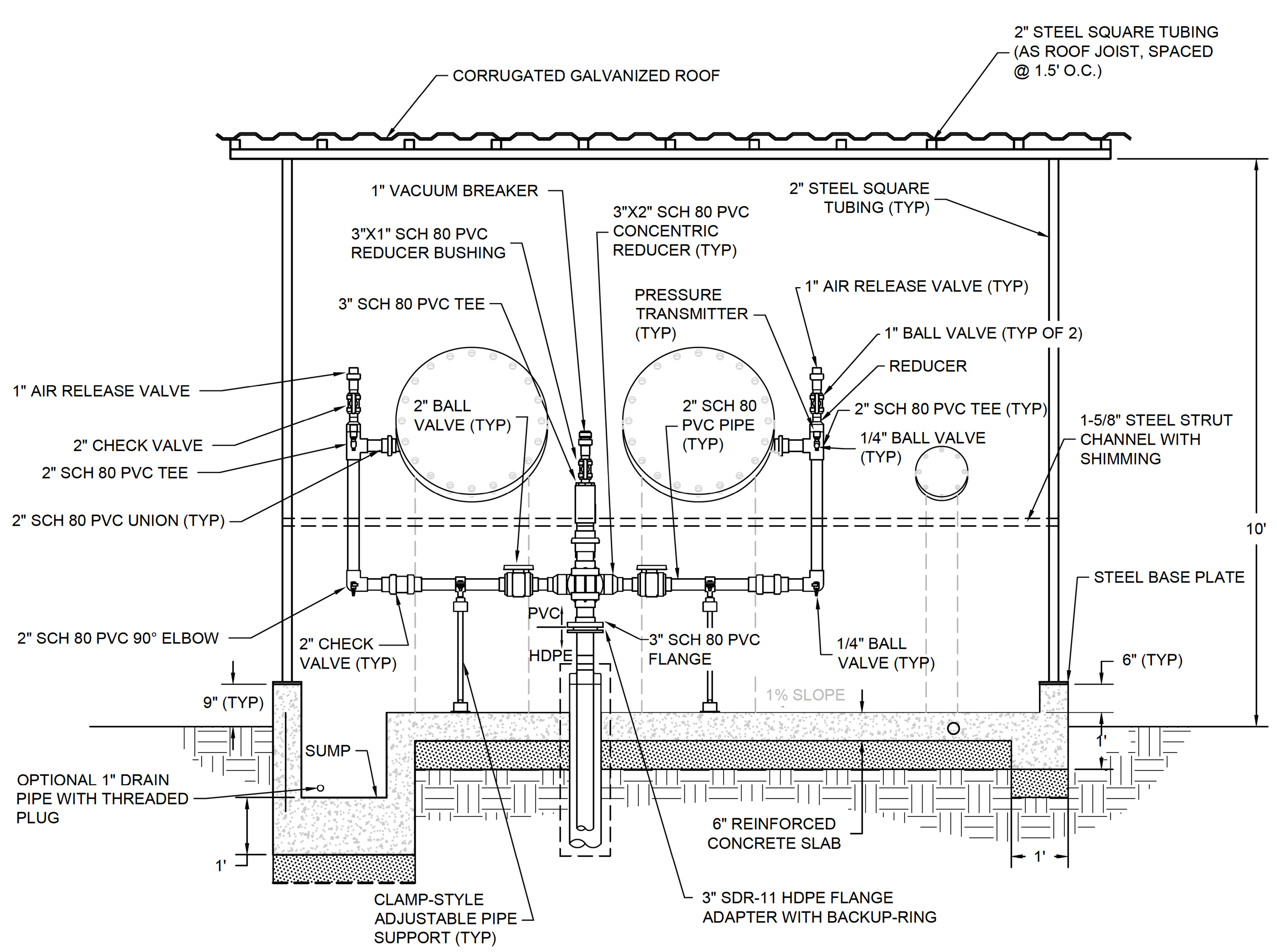
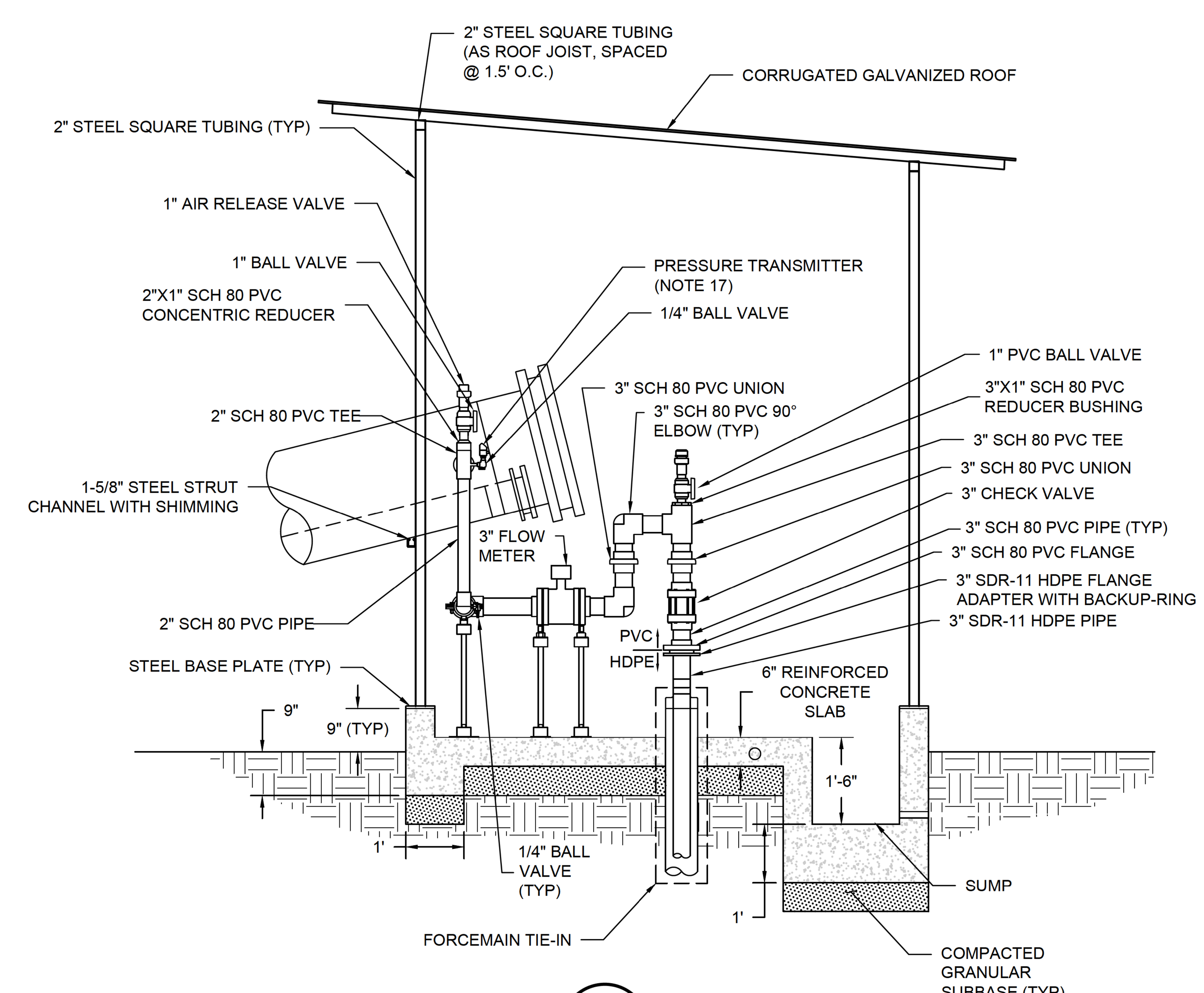


PLAN VIEW



A 36 SECTION
LEACHATE RISER PAD



B 36 SECTION
LEACHATE RISER PAD

NOTE:

1. CLEANOUT MANHOLES WILL BE USED AT RISER PAD AREA OF CELLS 1A,4A,4B,AND 7A. ADDITIONAL CLEANOUTS MAY BE ADDED AS NEEDED. CLEANOUT MANHOLES MAY BE INSTALLED WITHIN RISER PADS, OR NEXT TO RISER PADS AS SHOWN.
2. PIPING AND VALVES ARE CONCEPTUAL TO ILLUSTRATE INTENDED FUNCTIONALITY AND MAY BE REVISED DURING DETAILED DESIGN.

22 33 DETAIL
LEACHATE RISER PAD
SCALE: NOT TO SCALE

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Keith Stevens
Approved By:

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 17516 RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

LEACHATE COLLECTION SYSTEM DETAILS III

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-038	EDIT	08.16.21
SCALE	AS SHOWN	DRAWING 36 OF 50			
DATE	AUGUST 2021				

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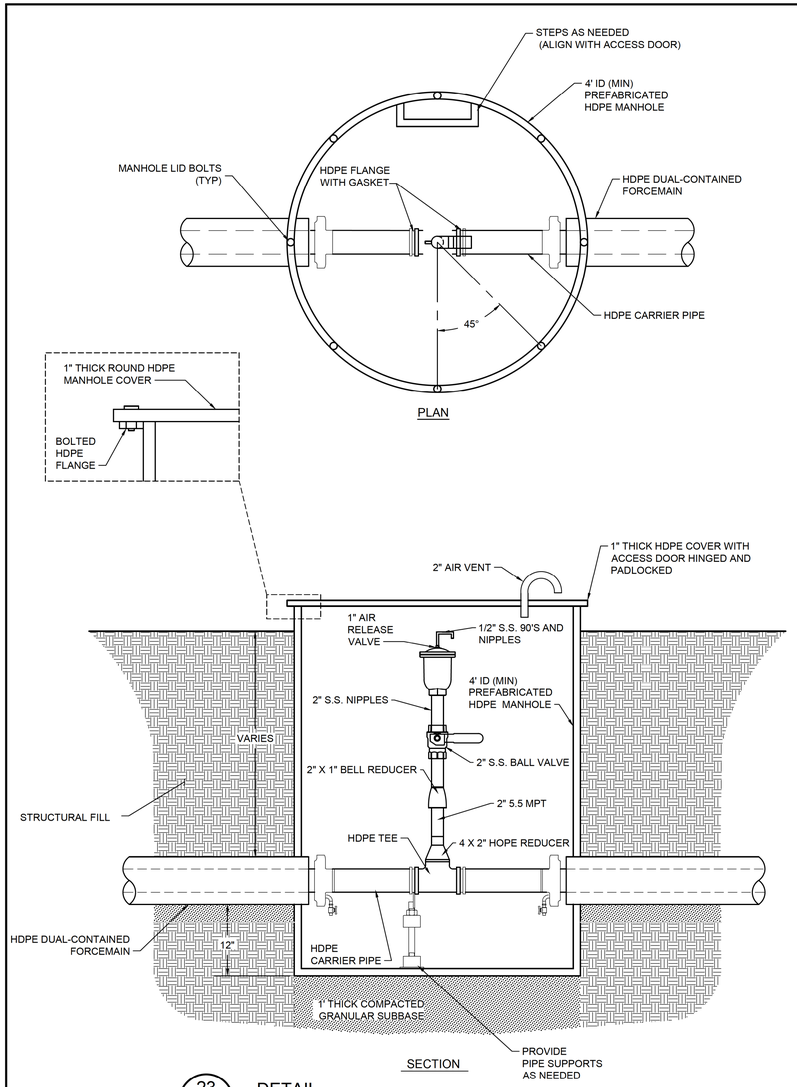
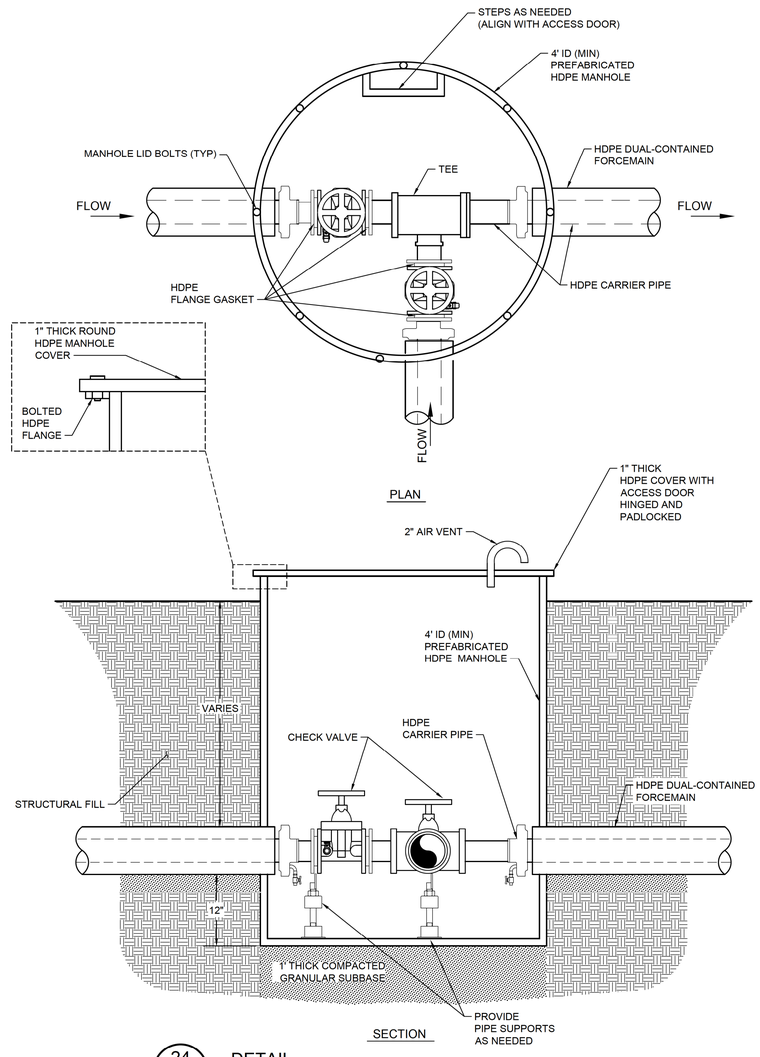


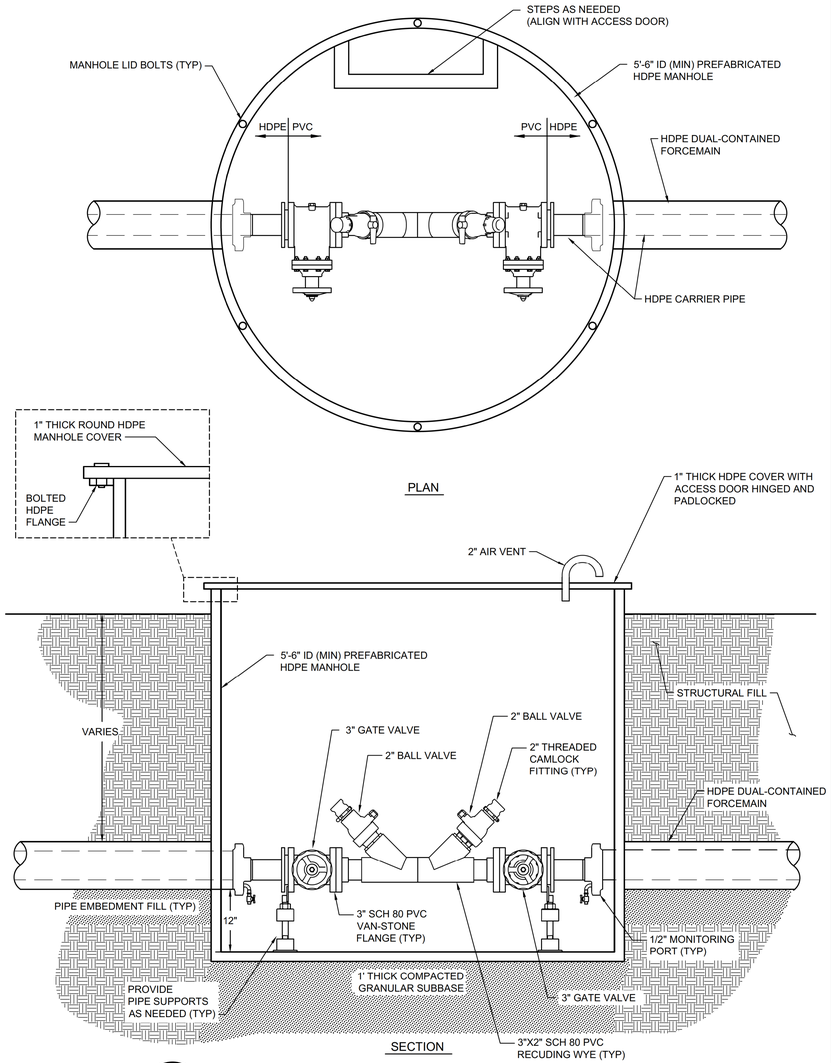
23/33 DETAIL
LEACHATE FORCEMAIN AIR RELEASE MANHOLE

SCALE: NTS



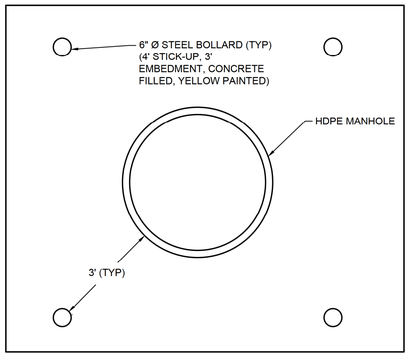
24/33 DETAIL
LEACHATE FORCEMAIN JUNCTION MANHOLE

SCALE: NTS



25/36 DETAIL
LEACHATE FORCEMAIN CLEANOUT MANHOLE

SCALE: NTS



PLAN VIEW
TYPICAL STEEL BOLLARD PLACEMENT (ALL MANHOLES)
SCALE: NTS

NOTE:

1. PIPING AND VALVES ARE CONCEPTUAL TO ILLUSTRATE INTENDED FUNCTIONALITY AND MAY BE REVISED DURING DETAILED DESIGN.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 13:53:40 -04'00'

GEORGIA REGISTERED Rudolph Bonaparte No. 17516 PROFESSIONAL Not valid w/o seal ENGINEER RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
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REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

LEACHATE COLLECTION SYSTEM DETAILS IV

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-039	EDIT	08.16.21
SCALE	AS SHOWN	DRAWING	37	OF	50
DATE	AUGUST 2021				

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N 1506000
N 1505000
N 1504000
N 1503000
N 1502000
N 1501000
N 1500000
E 2064000
E 2065000
E 2066000
E 2067000
E 2068000
E 2069000
E 2070000

COVERED BRIDGE ROAD
EUHARLEE CREEK
ETOWAH RIVER
UNNAMED STREAM

POND SPILLWAY
LINED STORMWATER POND 3
DRAINAGE CHANNEL
NEW EARTHEN CONTAINMENT DIKE
POND SPILLWAY
LINED STORMWATER POND 2
36/43 FINAL COVER DOWNCHUTE AND PERIMETER CHANNEL INTERSECTION
FGD PUMP STATION
LINED STORMWATER POND 1
POND SPILLWAY
46/46 OUTLET PROTECTION(TYP)

PERIMETER DRAINAGE CHANNEL (TYP) 43/45
FINAL COVER DOWNCHUTE CHANNEL (TYP) 30/42
PLANT UTILITY CORRIDOR
FINAL COVER SIDESLOPE DRAINAGE BENCH (TYP) 27/41
FINAL COVER TOP DECK DIVERSION BERM (TYP) 26/41
EXTERIOR DOWNCHUTE (TYP) 45/45
NPDES PUMP STATION

GENERAL SERVICE WATER POND (GSWP)
COAL STORAGE
BOWEN ELECTRIC GENERATING PLANT
LOW VOLUME WASTE POND
230KV SWITCHYARD
500KV SWITCHYARD
PIPES TO PLANT

LEGEND

- 710 — FINISHED GROUND ELEVATION (FEET) (NOTE 1)
- FINAL COVER TOP DECK DIVERSION BERM
- FINAL COVER TOP DECK LET-DOWN CHANNEL
- DC—DC FINAL COVER DOWNCHUTE CHANNEL
- FINAL COVER SIDESLOPE DRAINAGE BENCH
- STORMWATER CHANNEL
- LINED STORMWATER POND

N

DRAWING 40
DRAWING 39

KEY MAP
SCALE: 1" = 1,500'

NOTES:

1. SEE DRAWING 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL SITE NOTES.
2. FINAL CLOSURE GRADES SHOWN ON THIS DRAWING REPRESENT THE TOP OF THE FINAL COVER SYSTEM (SOIL-GEOSYNTHETIC COMPOSITE COVER) WITHIN THE FINAL COVER LIMITS. BEYOND THE FINAL COVER LIMITS, PROPOSED FINISHED GRADES ARE SHOWN, WHICH TIE-IN TO EXISTING GROUND TOPOGRAPHY AT THE LIMIT OF DISTURBANCE. SEE DRAWING 2, GENERAL SITE NOTE 19.
3. IN ADDITION TO PERMANENT STORMWATER PONDS SHOWN, TEMPORARY LINED STORMWATER PONDS WILL BE UTILIZED DURING CONSTRUCTION AS NEEDED.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens
Digitally signed by Keith Stevens
Date: 2021.08.27 13:56:14 -04'00'

0 300 600
SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

STORMWATER MANAGEMENT SYSTEM - OVERVIEW

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

GEORGIA REGISTERED No. 17516 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE

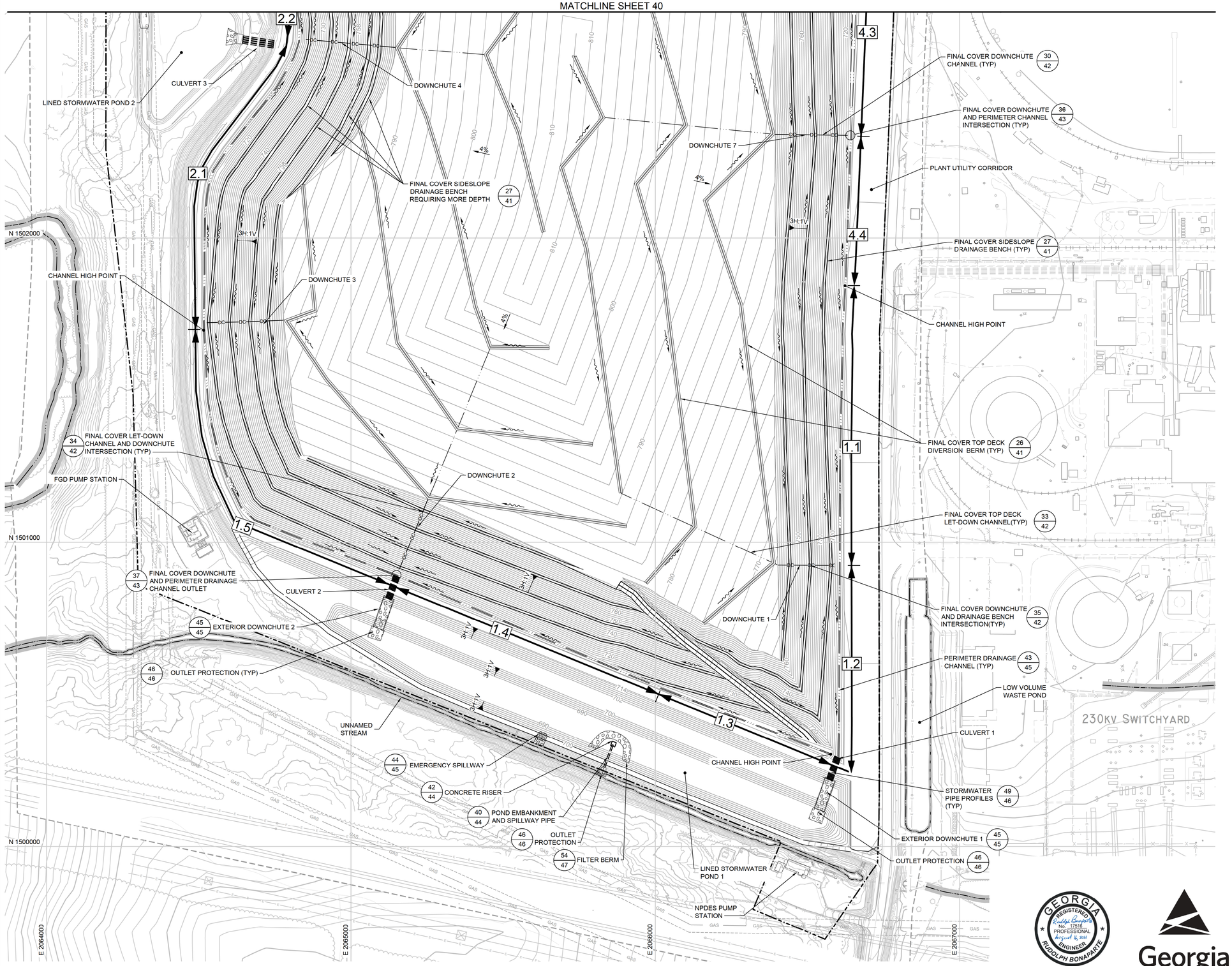
Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG. GR6601-040	EDIT 8/16/21
SCALE	1" = 300'	DRAWING 38 OF 50	
DATE	AUGUST 2021		

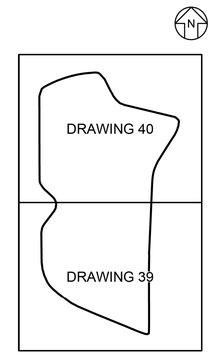
P:\ACAD\PROJECTS\GOGEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-040

MATCHLINE SHEET 40



LEGEND

- 710 — FINISHED GROUND ELEVATION (FEET) (NOTE 1)
- FINAL COVER TOP DECK DIVERSION BERM
- FINAL COVER TOP DECK LET-DOWN CHANNEL
- DC DC — FINAL COVER DOWNCHUTE CHANNEL
- FINAL COVER SIDESLOPE DRAINAGE BENCH
- STORMWATER CHANNEL
- 4.4 — STORMWATER CHANNEL DELINEATION



KEY MAP
SCALE: 1" = 1,500'

NOTES:

1. SEE DRAWING 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL SITE NOTES.
2. FINAL CLOSURE GRADES SHOWN ON THIS DRAWING REPRESENT THE TOP OF THE FINAL COVER SYSTEM (SOIL-GEOSYNTHETIC COMPOSITE COVER) WITHIN THE FINAL COVER LIMITS. BEYOND THE FINAL COVER LIMITS, PROPOSED FINISHED GRADES ARE SHOWN, WHICH TIE-IN TO EXISTING GROUND TOPOGRAPHY AT THE LIMIT OF DISTURBANCE. SEE DRAWING 2, GENERAL SITE NOTE 19.
3. IN ADDITION TO PERMANENT STORMWATER PONDS SHOWN, TEMPORARY LINED STORMWATER PONDS WILL BE UTILIZED DURING CONSTRUCTION AS NEEDED.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Keith Stevens
Approved By: _____

0 150 300
SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

STORMWATER MANAGEMENT SYSTEM - SOUTH AP-1

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

GEORGIA REGISTERED No. 17516 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-041	EDIT	8/16/21
SCALE	1" = 150'	DRAWING	39 OF 50		
DATE	AUGUST 2021				

P:\GA\CO\PROJECTS\GSE\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (DRAFT)\DRAWINGS\GR6601-041

E 2064000
E 2065000
E 2066000
E 2067000
N 1505000
N 1504000
N 1503000

ETOWAH RIVER

44/45 EMERGENCY SPILLWAY
LINED STORMWATER POND 3
40/44 POND EMBANKMENT AND SPILLWAY PIPE
CONCRETE RISER 42/44
FILTER BERM 54/47
46/46 OUTLET PROTECTION
OUTLET PROTECTION 46/46
EXTERIOR DOWNCHUTE 4 45/45
CULVERT 4
FINAL COVER DOWNCHUTE AND DRAINAGE BENCH INTERSECTION 35/42
CHANNEL HIGH POINT
DOWNCHUTE 5
CULVERT 5
EXTERIOR DOWNCHUTE 5 45/45
STORMWATER PIPE PROFILES 49/46
PERIMETER DRAINAGE CHANNEL (TYP) 43/45
FINAL COVER DOWNCHUTE AND PERIMETER CHANNEL INTERSECTION 36/43
FINAL COVER DOWNCHUTE CHANNEL (TYP) 30/42
DOWNCHUTE 6
CHANNEL HIGH POINT
LINED STORMWATER POND 2
42A/44 EXISTING POND 2 RISER PIPE

3.1 3.2 3.3 4.1 4.2 4.3 4.5 2.2

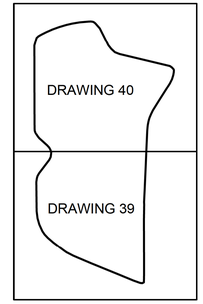
3H:1V
4%

MATCHLINE SHEET 39

LEGEND

- 710 — FINISHED GROUND ELEVATION (FEET) (NOTE 1)
- FINAL COVER TOP DECK DIVERSION BERM
- FINAL COVER TOP DECK LET-DOWN CHANNEL
- DC—DC FINAL COVER DOWNCHUTE CHANNEL
- FINAL COVER SIDESLOPE DRAINAGE BENCH
- STORMWATER CHANNEL
- 4.4 STORMWATER CHANNEL DELINEATION

N



KEY MAP
SCALE: 1" = 1,500'

NOTES:

1. SEE DRAWING 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL SITE NOTES.
2. FINAL CLOSURE GRADES SHOWN ON THIS DRAWING REPRESENT THE TOP OF THE FINAL COVER SYSTEM (SOIL-GEOSYNTHETIC COMPOSITE COVER) WITHIN THE FINAL COVER LIMITS. BEYOND THE FINAL COVER LIMITS, PROPOSED FINISHED GRADES ARE SHOWN, WHICH TIE-IN TO EXISTING GROUND TOPOGRAPHY AT THE LIMIT OF DISTURBANCE. SEE DRAWING 2, GENERAL SITE NOTE 19.
3. IN ADDITION TO PERMANENT STORMWATER PONDS SHOWN, TEMPORARY LINED STORMWATER PONDS WILL BE UTILIZED DURING CONSTRUCTION AS NEEDED.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 14:09:07 -04'00'

0 150 300
SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

STORMWATER MANAGEMENT SYSTEM - NORTH AP-1

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

GEORGIA REGISTERED No. 17515 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-042	EDIT	8/16/21
SCALE	1" = 150'	DRAWING	40	OF	50
DATE	AUGUST 2021				

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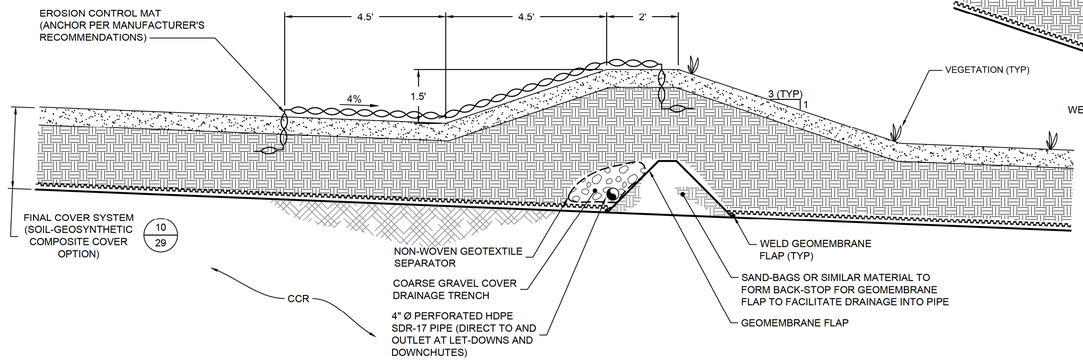
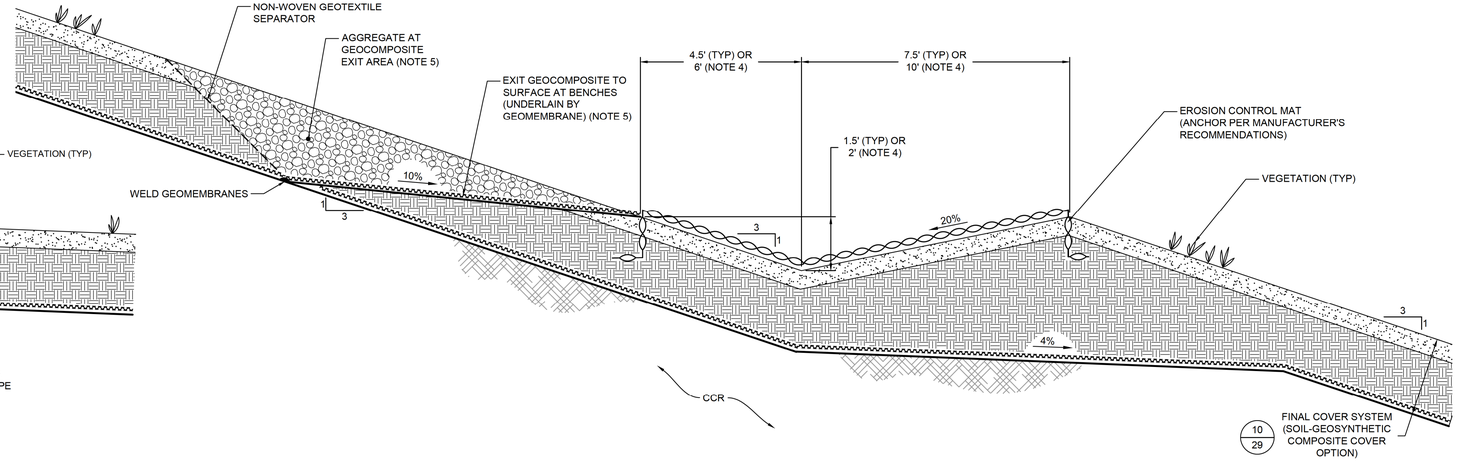


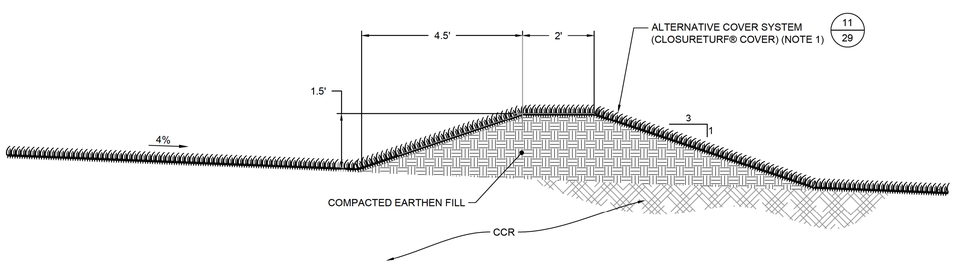
26/38 DETAIL
FINAL COVER TOP DECK DIVERSION BERM

0 2 4
SCALE IN FEET



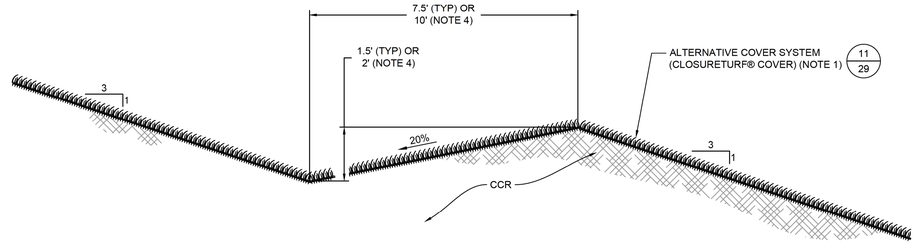
27/38 DETAIL
FINAL COVER SIDESLOPE DRAINAGE BENCH

0 2 4
SCALE IN FEET



28/- DETAIL
FINAL COVER TOP DECK DIVERSION BERM (CLOSURETURF® OPTION)

0 2 4
SCALE IN FEET



29/- DETAIL
FINAL COVER SIDESLOPE DRAINAGE BENCH (CLOSURETURF® OPTION)

0 2 4
SCALE IN FEET

NOTES:

1. IF THE CLOSURETURF® FINAL COVER SYSTEM OPTION IS SELECTED, SAND INFILL IS TO BE USED WITH CLOSURETURF® ENGINEERED TURF IN ALL LOCATIONS. WITHIN THE FINAL COVER SIDESLOPE DRAINAGE BENCHES AND TOP DECK DIVERSION BERMS, GRANULAR LINING MATERIALS THAT SUPPLEMENT THE SAND INFILL WILL BE EVALUATED DURING DETAILED DESIGN AND SPECIFIED AS APPROPRIATE.
2. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
3. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.
4. SIDESLOPE DRAINAGE BENCH DIMENSIONS ARE MINIMUM AND TYPICAL. SEE DRAWINGS 39 AND 40 FOR THE LOCATIONS OF THE LARGER SIDESLOPE DRAINAGE BENCHES.
5. IN LIEU OF GEOCOMPOSITE EXIT DESIGN AT SIDESLOPE BENCHES, AN ALTERNATIVE DRAINAGE LAYER EXIT SYSTEM USING PERIODICALLY-SPACED OUTLET PIPES WILL BE EVALUATED DURING DETAILED DESIGN AND MAY BE USED UPON APPROVAL BY THE DESIGN ENGINEER AND AUTHORIZATION BY GPC.
5. IN LIEU OF GEOCOMPOSITE EXIT DESIGN AT SIDESLOPE BENCHES, AN ALTERNATIVE DRAINAGE LAYER EXIT SYSTEM USING PERIODICALLY-SPACED OUTLET PIPES WILL BE EVALUATED DURING DETAILED DESIGN AND MAY BE USED UPON APPROVAL BY THE DESIGN ENGINEER AND AUTHORIZATION BY GPC.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Keith Stevens
Digitally signed by Keith Stevens
Date: 2021.08.27 14:01:25 -04'00'
Approved By: _____

GEORGIA REGISTERED No. 17515 PROFESSIONAL ENGINEER Rudolph Bonaparte August 16, 2021 RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

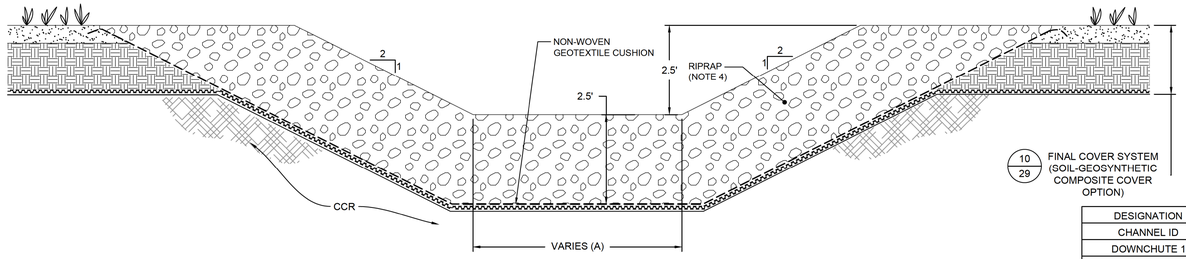
STORMWATER MANAGEMENT SYSTEM DETAILS I

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG. GR6601-043	EDIT 08.16.21
SCALE	AS SHOWN	DRAWING 41 OF 50	
DATE	AUGUST 2021		

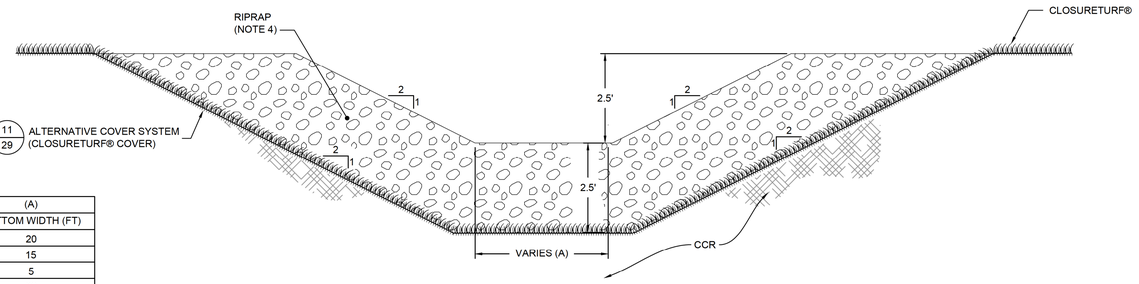
P:\CAD\PROJECTS\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-043



DESIGNATION	(A)
CHANNEL ID	BOTTOM WIDTH (FT)
DOWNCHUTE 1	20
DOWNCHUTE 2	15
DOWNCHUTE 3	5
DOWNCHUTE 4	30
DOWNCHUTE 5	10
DOWNCHUTE 6	5
DOWNCHUTE 7	15

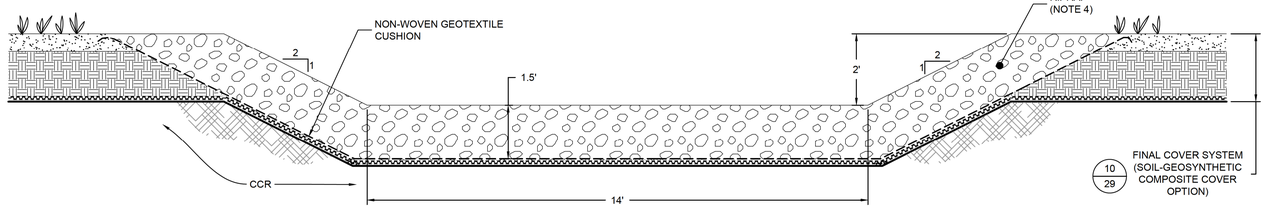
30/38 DETAIL
FINAL COVER DOWNCHUTE CHANNEL

0 2 4
SCALE IN FEET



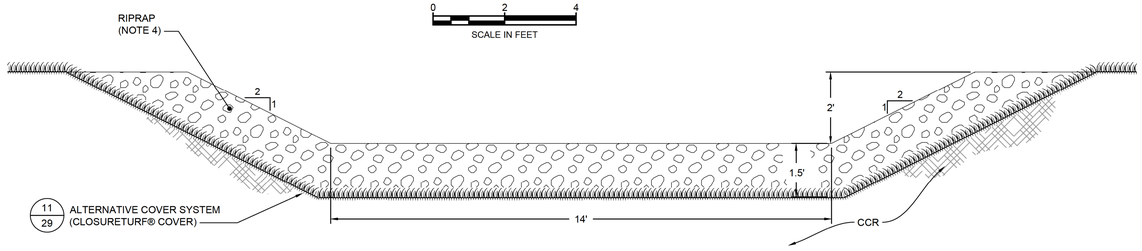
31/- DETAIL
FINAL COVER DOWNCHUTE CHANNEL (CLOSURETURF® OPTION)

0 2 4
SCALE IN FEET



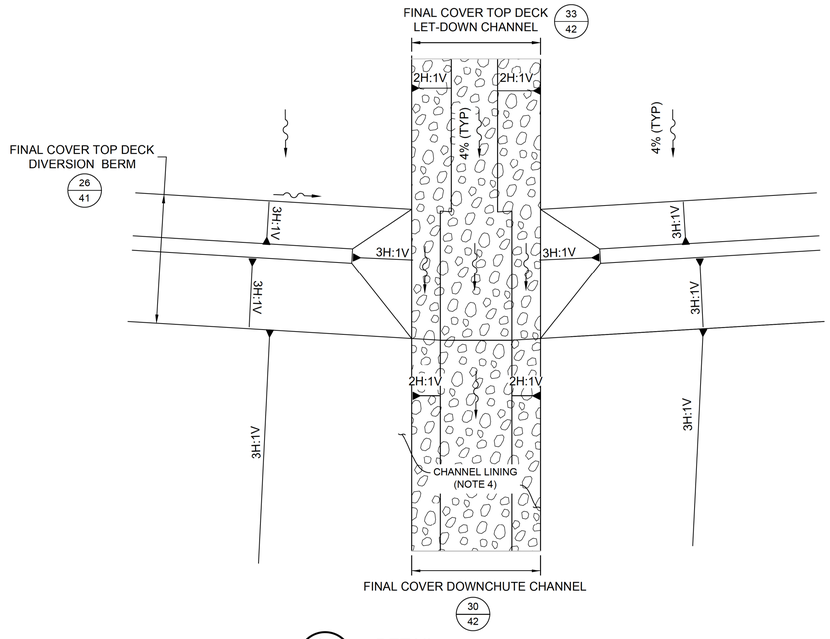
33/39 DETAIL
FINAL COVER TOP DECK LET-DOWN CHANNEL

0 2 4
SCALE IN FEET



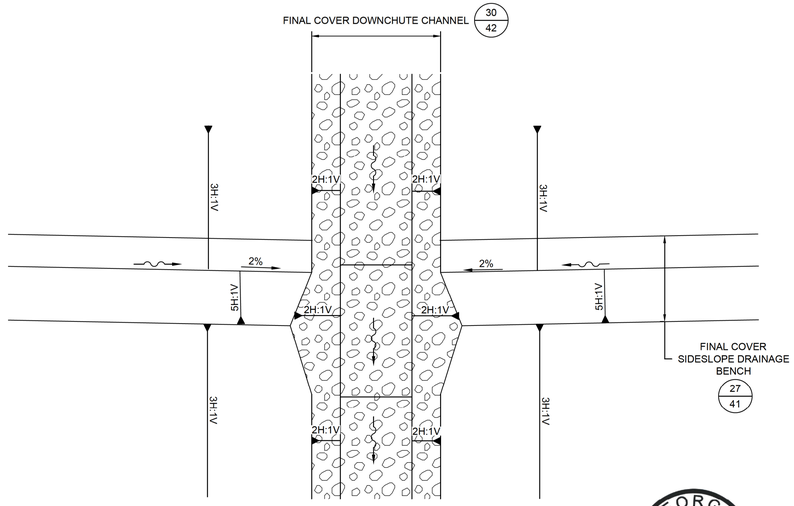
33/- DETAIL
FINAL COVER TOP DECK LET-DOWN CHANNEL (CLOSURETURF® OPTION)

0 2 4
SCALE IN FEET



34/39 DETAIL
FINAL COVER LET-DOWN CHANNEL AND DOWNCHUTE INTERSECTION

0 10 20
SCALE IN FEET



35/39 DETAIL
FINAL COVER DOWNCHUTE AND DRAINAGE BENCH INTERSECTION

0 10 20
SCALE IN FEET

GEORGIA REGISTERED Rudolph Bonaparte No. 17516 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 14:05:39 -04'00'

NOTES:

1. SAND INFILL IS TO BE USED WITH CLOSURETURF® ENGINEERED TURF IN ALL LOCATIONS.
2. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
3. OTHER CHANNEL DIMENSIONS AND LINING SYSTEMS WILL BE ASSESSED DURING THE DETAILED DESIGN BY FOLLOWING THE CHANNEL SIZING PROCEDURES IN THE "FINAL COVER STORMWATER MANAGEMENT SYSTEM DESIGN AND ANALYSIS" AND UTILIZING SUFFICIENT ENERGY DISSIPATION TECHNIQUES WITHIN FHWA CIRCULAR NUMBER 14 (HEC 14).
4. DOWNCHUTE CHANNELS WILL USE NATIONAL STONE ASSOCIATION (N.S.A) NO. R-5 GRADED RIPRAP WITH N.S.A. NO. FS-2 FILTER STONE AS PRESENTED IN TABLE C-1 OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL" (GREEN BOOK).
5. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.
6. IN LIEU OF RIPRAP LINING AT THE FINAL COVER DOWNCHUTES AND TOP DECK LET-DOWN CHANNELS, AN ALTERNATIVE LINING SYSTEM USING CLOSURETURF® WITH HYDROBINDER® WILL BE EVALUATED DURING DETAILED DESIGN AND SPECIFIED AS APPROPRIATE.

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

STORMWATER MANAGEMENT SYSTEM DETAILS II

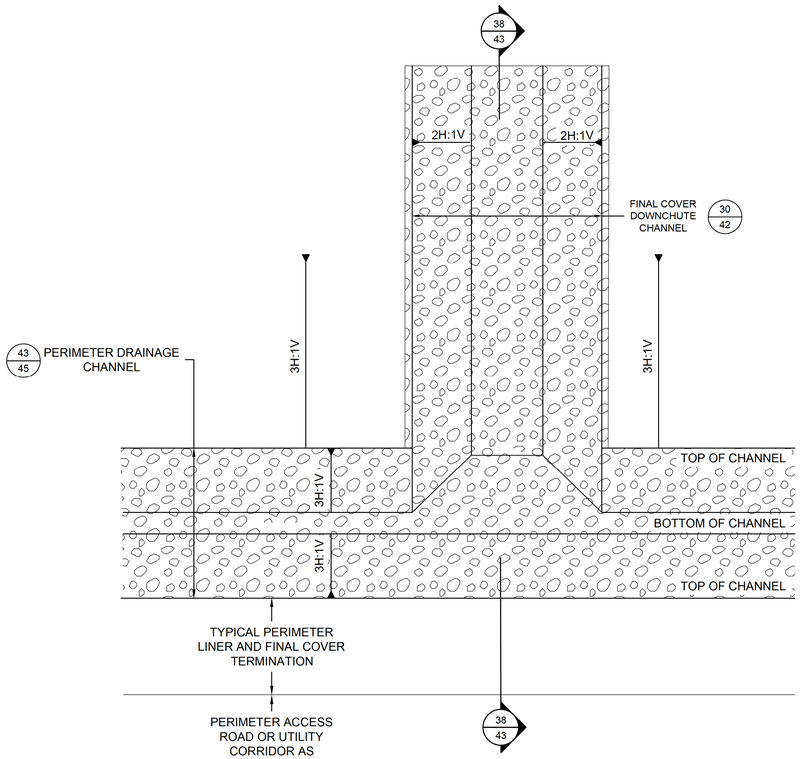
PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

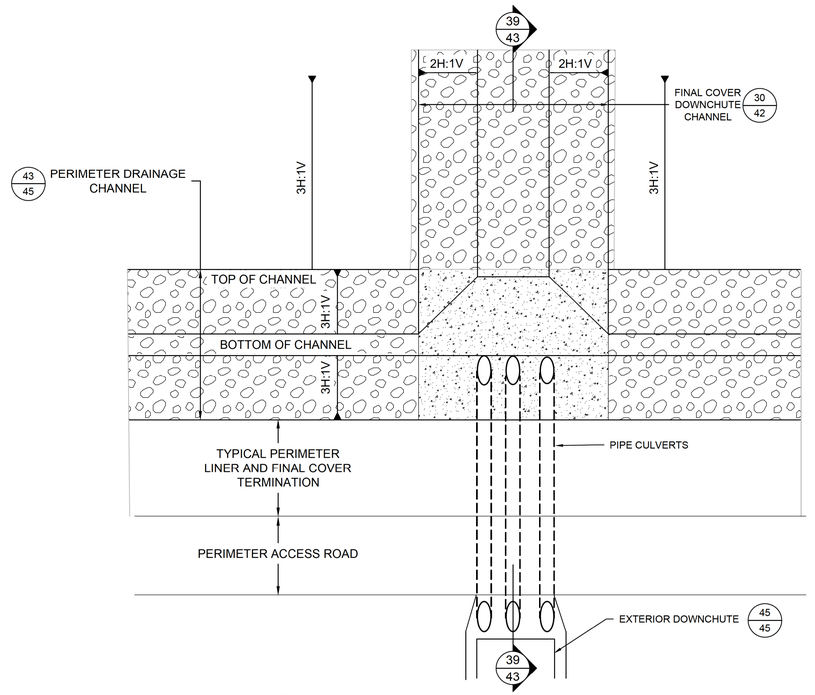
Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-044	EDIT	08.16.21
SCALE	AS SHOWN	DRAWING 42 OF 50			
DATE	AUGUST 2021				

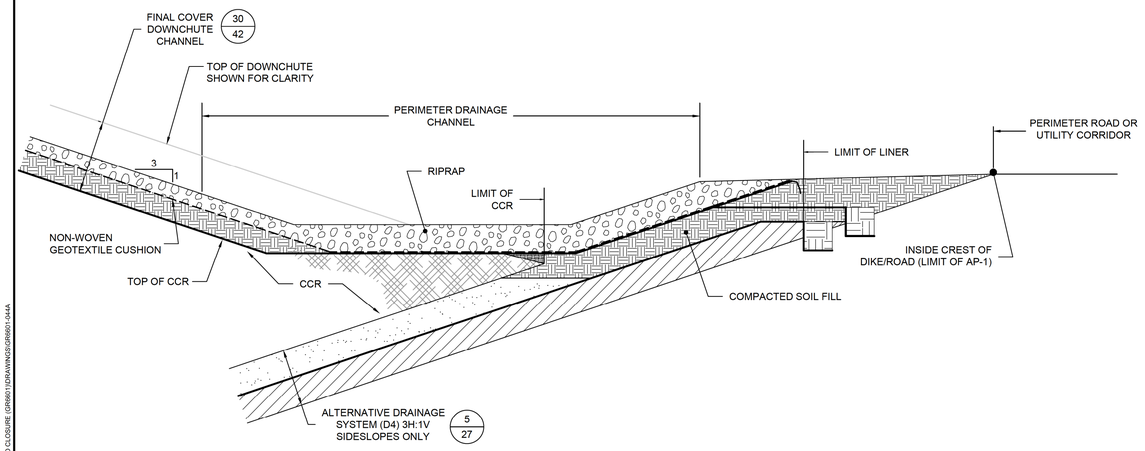
P:\ACE\PROJECTS\VG\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR660)\DRAWINGS\GR6601-044



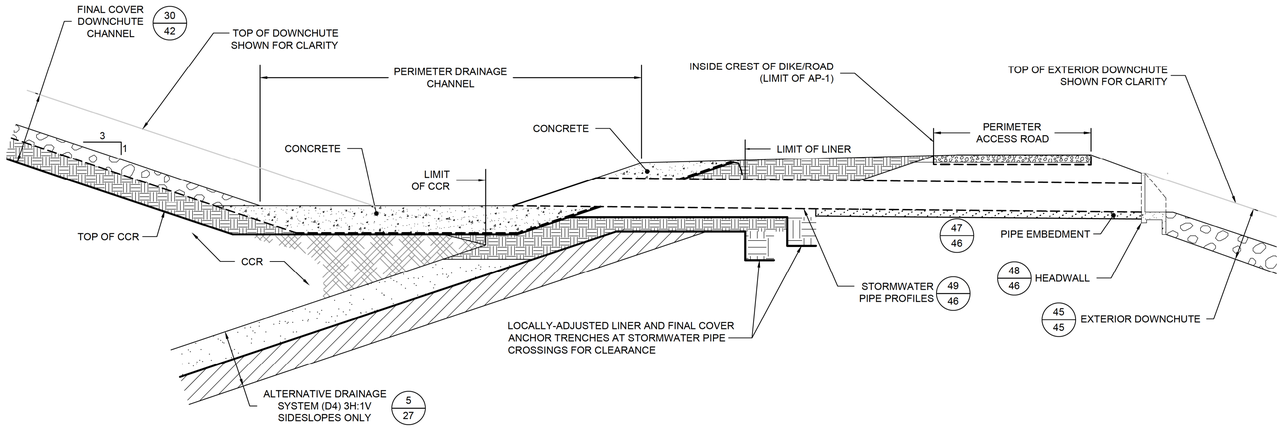
36 / 38 DETAIL
FINAL COVER DOWNCHUTE AND PERIMETER CHANNEL INTERSECTION
SCALE: NTS



37 / 39 DETAIL
FINAL COVER DOWNCHUTE AND PERIMETER DRAINAGE CHANNEL OUTLET
SCALE: NTS



38 / 43 SECTION
FINAL COVER DOWNCHUTE AND PERIMETER CHANNEL SECTION
SCALE: NTS



39 / 43 SECTION
DOWNCHUTE AND PERIMETER DRAINAGE CHANNEL OUTLET
SCALE: NTS

NOTES:

1. SAND INFILL IS TO BE USED WITH CLOSURETURF® ENGINEERED TURF IN ALL LOCATIONS.
2. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
3. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.
4. IF THE CLOSURETURF© OPTION IS SELECTED, THE FINAL COVER DOWNCHUTE AND PERIMETER CHANNEL WILL BE INSTALLED TO MAINTAIN THE SAME LIMIT OF CCR MINIMUM CHANNEL DIMENSIONS, AND DEGREE OF SEPARATION BETWEEN THE RIPRAP LINING AND CCR.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 14:11:51 -04'00'

GEORGIA REGISTERED Rudolph Bonaparte No. 17516 PROFESSIONAL Engineer RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

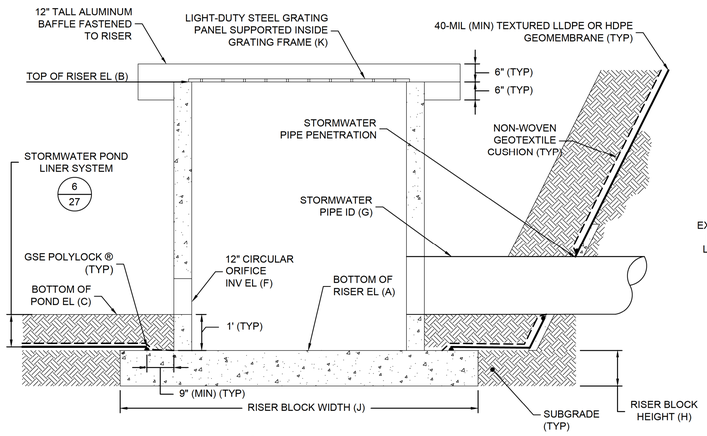
STORMWATER MANAGEMENT SYSTEM DETAILS III

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

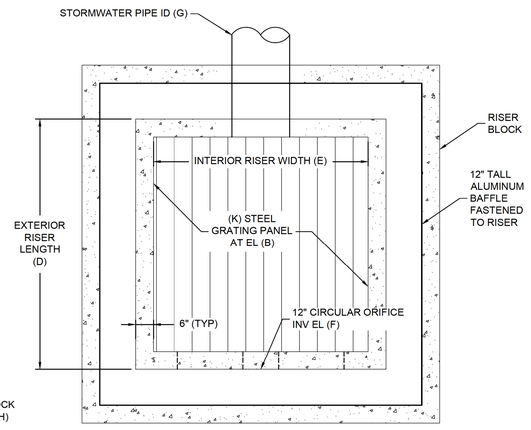
Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-044A	EDIT	08.16.21
SCALE	AS SHOWN	DRAWING	43	OF	50
DATE	AUGUST 2021				

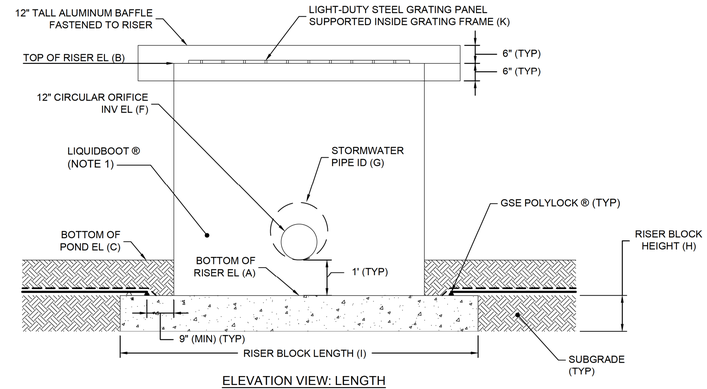
P:\ACAD\PROJECTS\GOGEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-044A



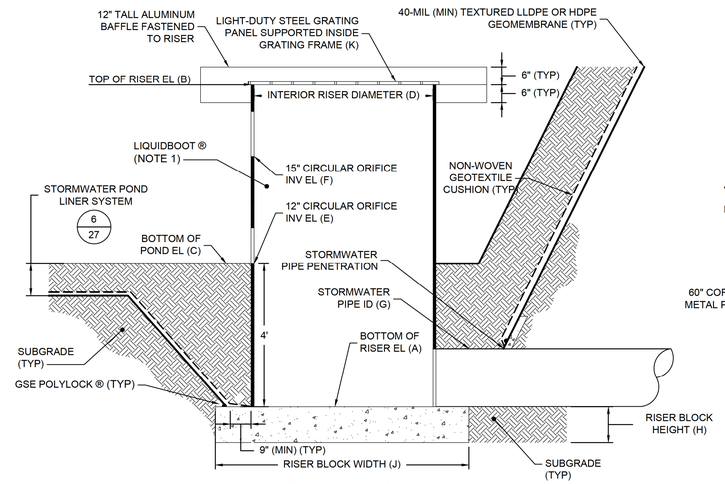
PROFILE VIEW: WIDTH



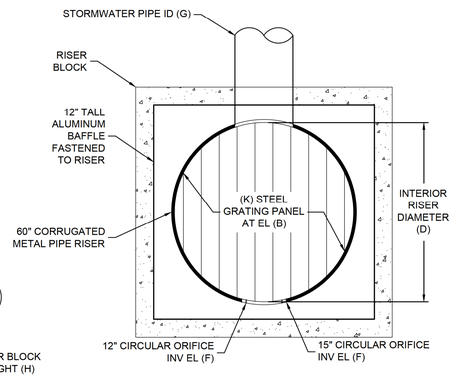
PLAN VIEW



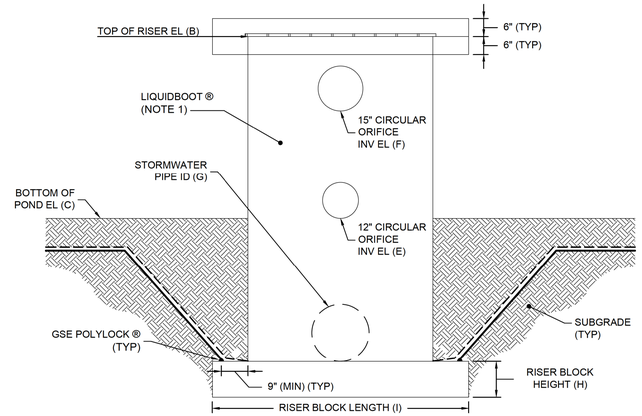
ELEVATION VIEW: LENGTH



PROFILE VIEW: WIDTH



PLAN VIEW



PROFILE VIEW: WIDTH

DESIGNATION	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
POND ID	BOTTOM OF RISER EL (FT)	TOP OF RISER EL (FT)	BOTTOM OF POND EL (FT)	EXTERIOR RISER LENGTH (FT)	INTERIOR RISER WIDTH (FT)	ORIFICE INV EL (FT)	STORMWATER PIPE ID	RISER BLOCK HEIGHT (FT)	RISER BLOCK LENGTH (FT)	RISER BLOCK WIDTH (FT)	PANEL LENGTH (in), X WIDTH (in)
POND 1	689.0	695.5	690.0	5	4	690.0	POND 1 PRINCIPAL SPILLWAY PIPE	2	6	6	50
POND 3	675.0	679.0	676.0	5	4	676.0	POND 3 PRINCIPAL SPILLWAY PIPE	2	6	6	50

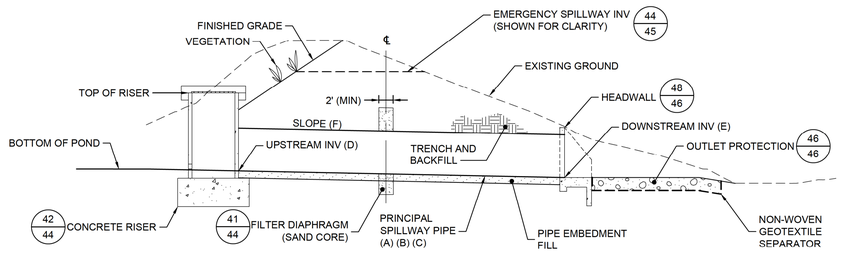
42/39 DETAIL
CONCRETE RISER

SCALE: NTS

DESIGNATION	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
POND ID	BOTTOM OF RISER EL (FT)	TOP OF RISER EL (FT)	BOTTOM OF POND EL (FT)	INTERIOR RISER DIAMETER (FT)	12" CIRCULAR ORIFICE INV EL (FT)	15" CIRCULAR ORIFICE INV EL (FT)	STORMWATER PIPE ID	RISER BLOCK HEIGHT (FT)	RISER BLOCK LENGTH (FT)	RISER BLOCK WIDTH (FT)	PANEL DIAMETER (in)
POND 2	673.5	683.0	677.5	5	677.5	680.5	POND 2 PRINCIPAL SPILLWAY PIPE	2	7.2	7.2	60

42A/39 DETAIL
EXISTING POND 2 RISER PIPE

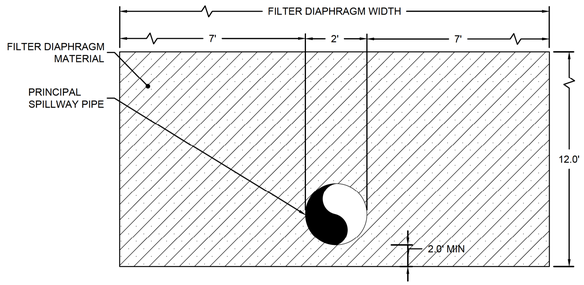
SCALE: NTS



40/39 DETAIL
POND EMBANKMENT AND SPILLWAY PIPE

SCALE: NTS

DESIGNATION	(A)	(B)	(C)	(D)	(.E)	(F)
OUTLET ID	MATERIAL TYPE	(NUMBER OF SURFACE WATER PIPE) - DIAMETER	LENGTH (FT)	INLET INV EL (FT)	OUTLET INV EL (FT)	SLOPE (FT/FT)
POND 1 PRINCIPAL SPILLWAY PIPE	RCP	(1) - 2.0'	100	690.0	689.5	0.0050
POND 2 PRINCIPAL SPILLWAY PIPE	HDPE	(1) - 1.5'	76	673.5	672.5	0.0130
POND 3 PRINCIPAL SPILLWAY PIPE	RCP	(1) - 2.5'	230	676.0	674.0	0.0090



41/44 DETAIL
FILTER DIAPHRAGM (SAND CORE)

SCALE: 1" = 5'

NOTE:
1. THE HEIGHT OF THE FILTER DIAPHRAGM WILL BE AT LEAST 2 FEET BELOW THE EMBANKMENT SURFACE AND EXTEND UPWARD AT LEAST 3 TIMES THE OUTSIDE PIPE DIAMETER WHERE POSSIBLE.

NOTES:

1. LIQUIDBOOT® WILL BE APPLIED TO EXPOSED SURFACES OF RISER STRUCTURES.
2. SUBGRADE PREPARATION IN AREAS WHERE GEOMEMBRANE LINER WILL BE INSTALLED WILL CONSIST OF MOISTURE CONDITIONING. COMPACTION, AND SMOOTH ROLLING AS NEEDED.
3. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.
4. TRASH RACK WILL BE INSTALLED OVER DRAWDOWN ORIFICES TO PREVENT CLOGGING.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 14:14:22 -04'00'

GEORGIA REGISTERED Rudolph Bonaparte No. 37516 PROFESSIONAL ENGINEER August 16, 2021 RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

STORMWATER MANAGEMENT SYSTEM DETAILS IV

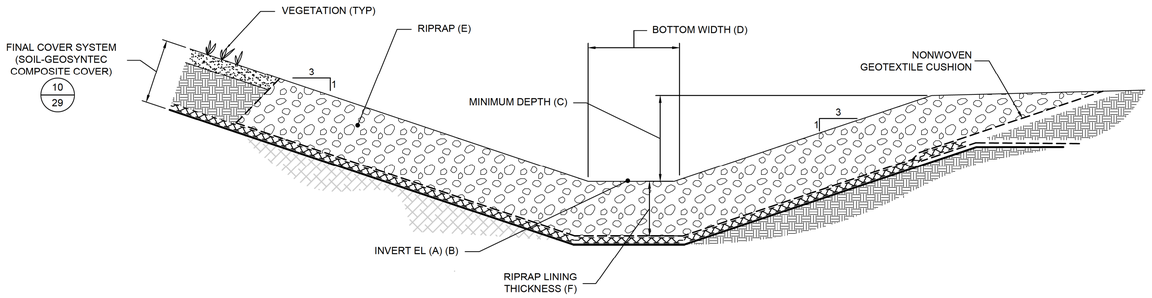
PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-045
SCALE	AS SHOWN	EDIT	08.16.21
DATE	AUGUST 2021		

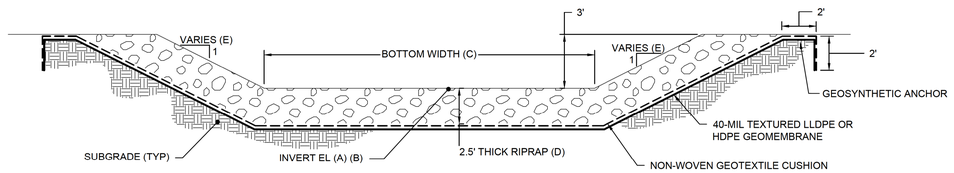
DRAWING 44 OF 50

P:\CAD\PROJECTS\GA\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-045



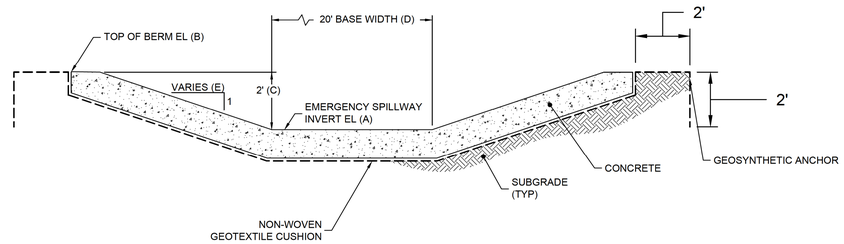
DESIGNATION			(A)	(B)	(C)	(D)	(E)	(F)
PERIMETER CHANNEL ID	LENGTH (FT)	SLOPE (FT/FT)	UPSTREAM INVERT EL (FT)	DOWNSTREAM INVERT EL (FT)	MIN DEPTH (FT)	BOTTOM WIDTH (FT)	RIPRAP STONE GRADE (FILTER STONE GRADE) (NOTE 2)	RIPRAP LINING THICKNESS
1.1	934	0.005	716.86	712.19	2.5	3	N.S.A. No. R-4 (FS-2)	1.5
1.2	675	0.005	712.19	708.81	4	3	N.S.A. No. R-4 (FS-2)	1.5
1.3	674	0.005	713.00	709.62	2	3	N.S.A. No. R-4 (FS-2)	1.5
1.4	927	0.006	713.00	707.17	2.5	3	N.S.A. No. R-4 (FS-2)	1.5
1.5	1226	0.005	713.30	707.17	2.5	3	N.S.A. No. R-4 (FS-2)	1.5
2.1	1031	0.005	713.30	708.14	3	3	N.S.A. No. R-4 (FS-2)	1.5
2.2	872	0.005	712.92	708.14	2	3	N.S.A. No. R-4 (FS-2)	1.5
3.1	490	0.005	712.92	710.47	2	3	N.S.A. No. R-4 (FS-2)	1.5
3.2	807	0.005	710.97	706.93	3	3	N.S.A. No. R-4 (FS-2)	1.5
3.3	580	0.005	713.70	710.97	2	3	N.S.A. No. R-4 (FS-2)	1.5
4.1	575	0.005	713.70	710.60	2	3	N.S.A. No. R-4 (FS-2)	1.5
4.2	315	0.005	710.60	708.91	3	3	N.S.A. No. R-4 (FS-2)	1.5
4.3	1110	0.005	714.46	708.91	3	9	N.S.A. No. R-4 (FS-2)	1.5
4.4	480	0.005	716.86	714.46	2.5	3	N.S.A. No. R-4 (FS-2)	1.5
4.5	1815	0.010	695.49	676.83	3	20	N.S.A. No. R-5 (FS-2)	2.5

43/30 DETAIL
PERIMETER DRAINAGE CHANNEL
SCALE: NTS



DESIGNATION			(A)	(B)	(C)	(D)	(E)
EXTERIOR DOWNCHUTE ID	LENGTH (FT)	SLOPE (FT/FT)	UPSTREAM INVERT EL (FT)	DOWNSTREAM INVERT EL (FT)	BOTTOM WIDTH (FT)	RIPRAP STONE GRADE (FILTER STONE GRADE) (NOTE 2)	SIDE SLOPE (H:V)
ED-1	110	0.33 (NOTE 7)	709.0	790.0	15	N.S.A. No. R-5 (FS-2)	2:1
ED-2	110	0.33 (NOTE 7)	706.8	790.0	10	N.S.A. No. R-5 (FS-2)	2:1
ED-4	100	0.33	706.6	682.0	5	N.S.A. No. R-5 (FS-2)	2:1
ED-5	100	0.33	708.7	699.9	10	N.S.A. No. R-5 (FS-2)	3:1

45/38 DETAIL
EXTERIOR DOWNCHUTE
SCALE: NTS



DESIGNATION	(A)	(B)	(C)	(D)	(E)
POND ID	SPILLWAY INV EL (FT)	TOP OF BERM EL (FT)	DEPTH (FT)	BASE WIDTH (FT)	SIDE SLOPE (H:V)
POND 1 EMERGENCY SPILLWAY	698	700	2	20	3:1
POND 2 EMERGENCY SPILLWAY (EXISTING)	685	687	2	20	10:1
POND 3 EMERGENCY SPILLWAY	680	682	2	20	10:1

44/39 DETAIL
EMERGENCY SPILLWAY
SCALE: NTS

NOTES:

1. GEOSYNTHETIC LAYER THICKNESSES EXAGGERATED FOR CLARITY.
2. N.S.A No. REFERS TO NATIONAL STONE ASSOCIATION RIPRAP AND FILTER STONE GRADATIONS AS PRESENTED IN TABLE C-1 OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL" (GREEN BOOK).
3. OTHER CHANNEL DIMENSIONS AND LINING SYSTEMS WILL BE ASSESSED DURING THE DETAILED DESIGN BY FOLLOWING THE CHANNEL SIZING PROCEDURES IN THE "FINAL COVER STORMWATER MANAGEMENT SYSTEM DESIGN AND ANALYSIS" AND UTILIZING SUFFICIENT ENERGY DISSIPATION TECHNIQUES WITHIN FHWA CIRCULAR NUMBER 14 (HEC 14).
4. GRADATION REQUIREMENTS AND OTHER MATERIAL PROPERTIES FOR SOIL LAYERS WILL BE PROVIDED IN TECHNICAL SPECIFICATIONS DEVELOPED FOR DETAILED DESIGN.
5. SUBGRADE PREPARATION IN AREAS WHERE GEOMEMBRANE LINER WILL BE INSTALLED WILL CONSIST OF MOISTURE CONDITIONING, COMPACTION, AND SMOOTH ROLLING AS NEEDED.
6. PERIMETER DRAINAGE CHANNEL 4.5 IS CONSTRUCTED OUTSIDE OF THE NEW EARTHEN CONTAINMENT DIKE, AS SHOWN ON DWG 40, AND WILL BE CONSTRUCTED FOLLOWING THE EXTERIOR DOWNCHUTE DETAIL.
7. EXTERIOR DOWNCHUTE 1 AND EXTERIOR DOWNCHUTE 2 WILL BE CONSTRUCTED AT A MINIMUM SLOPE OF 1 PERCENT ALONG THE CORRIDOR BETWEEN THE NEW EARTHEN CONTAINMENT DIKE AND POND 1.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally Signed by Keith Stevens Date: 2021.08.27 14:17:05 -04'00'

GEORGIA REGISTERED No. 17516 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

STORMWATER MANAGEMENT SYSTEM DETAILS V

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG.	GR6601-046	EDIT 08.16.21
SCALE	AS SHOWN	DRAWING 45 OF 50		
DATE	AUGUST 2021			

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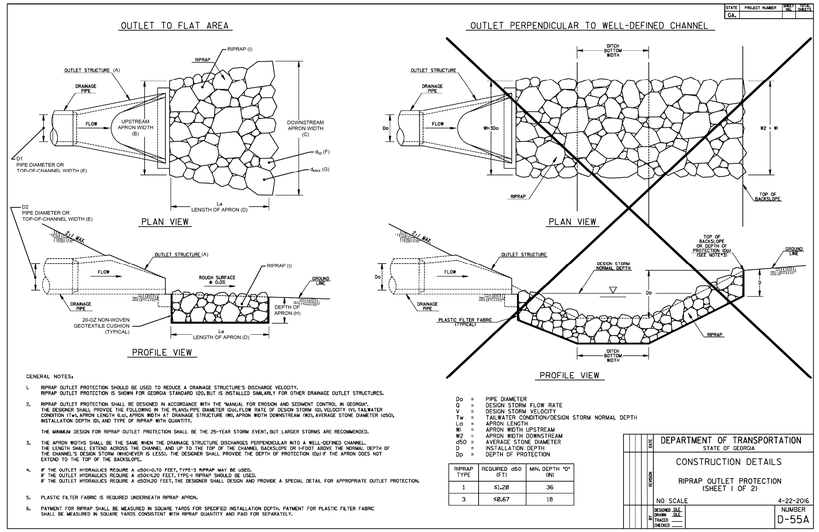
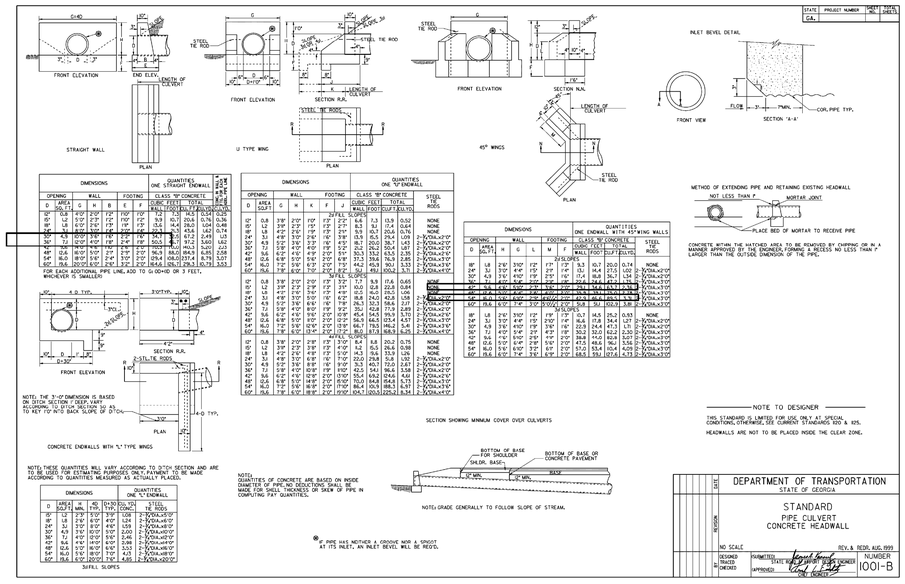
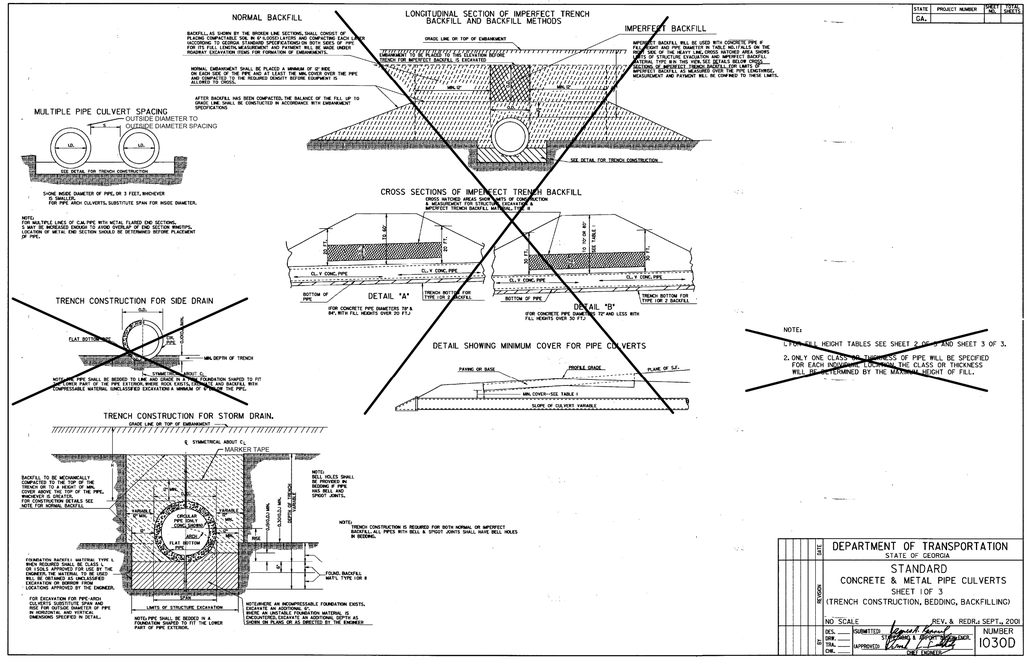


DESIGNATION	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
OUTLET ID	OUTLET TYPE	UPSTREAM APRON WIDTH (FT)	DOWNSTREAM APRON WIDTH (FT)	LENGTH OF APRON (FT)	PIPE DIAMETER OR (TOP-OF-CHANNEL WIDTH x DEPTH) (FT)	d50 (in.)	dmax (in.)	DEPTH OF APRON (FT)	RIPRAP STONE GRADE (FILTER STONE GRADE) (NOTE 3)
POND 1 PRINCIPAL SPILLWAY PIPE	RCP	6	20	15	2.0	6	12	1.5	N.S.A. No. R-4 (FS-2)
POND 3 PRINCIPAL SPILLWAY PIPE	RCP	7.5	20	20	2.5	6	12	1.5	N.S.A. No. R-4 (FS-2)
POND 1 EMERGENCY SPILLWAY	CONCRETE TRAPEZOIDAL CHANNEL	32	32	25	(32 x 2)	9	18	2.5	N.S.A. No. R-5 (FS-2)
POND 3 EMERGENCY SPILLWAY	CONCRETE TRAPEZOIDAL CHANNEL	60	60	25	(60 x 2)	9	18	2.5	N.S.A. No. R-5 (FS-2)
PERIMETER CHANNEL 4.5	RIPRAP-LINED TRAPEZOIDAL CHANNEL	40	45	35	(38 x 3)	9	18	2.5	N.S.A. No. R-5 (FS-2)
EXTERIOR DOWNCHUTE 1	RIPRAP-LINED TRAPEZOIDAL CHANNEL	30	40	35	(27 x 3)	9	18	2.5	N.S.A. No. R-5 (FS-2)
EXTERIOR DOWNCHUTE 2	RIPRAP-LINED TRAPEZOIDAL CHANNEL	25	40	35	(22 x 3)	9	18	2.5	N.S.A. No. R-5 (FS-2)
EXTERIOR DOWNCHUTE 4	RIPRAP-LINED TRAPEZOIDAL CHANNEL	20	40	35	(17 x 3)	9	18	2.5	N.S.A. No. R-5 (FS-2)
EXTERIOR DOWNCHUTE 5	RIPRAP-LINED TRAPEZOIDAL CHANNEL	25	40	35	(22 x 3)	9	18	2.5	N.S.A. No. R-5 (FS-2)

46/38 DETAIL
OUTLET PROTECTION
SCALE: NTS
SOURCE: GDOT



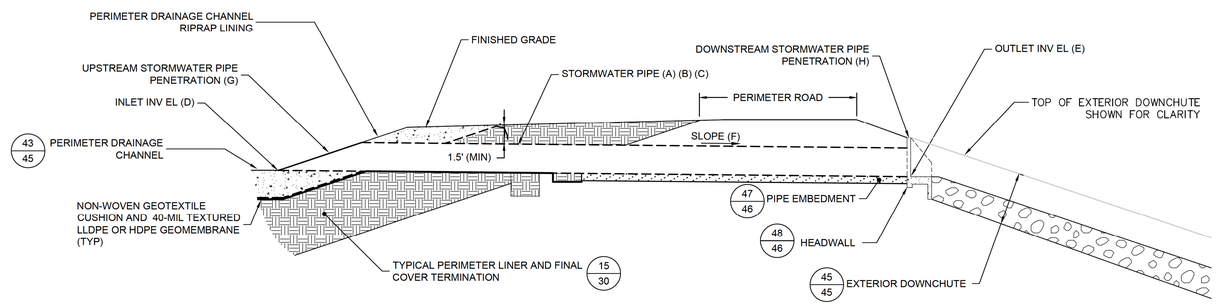
48/43 DETAIL
HEADWALL
SCALE: NTS
SOURCE: GDOT



NUMBER OF PIPES	NOMINAL PIPE DIAMETER (FT)	MINIMUM TRENCH WIDTH (FT)	(S) OUTSIDE DIAMETER TO OUTSIDE DIAMETER SPACING (FT)
1	3	6	3
2	3	13	3
3	3	20	3
4	3	26	3
5	3	33	3

NOTE:
1. FOR FILL HEIGHT TABLES SEE SHEET 2 OF 3 AND SHEET 3 OF 3.
2. ONLY ONE CLASS OR THICKNESS OF PIPE WILL BE SPECIFIED FOR EACH INSTALLATION. LOCATION, THE CLASS OR THICKNESS WILL BE DETERMINED BY THE MAXIMUM HEIGHT OF FILL.

47/43 SECTION
PIPE EMBEDMENT
SCALE: NTS
SOURCE: GDOT



DESIGNATION	(A)	(B)	(C)	(D)	(.E)	(F)	(G)	(H)
CULVERT ID	MATERIAL TYPE	(NUMBER OF SURFACE WATER PIPE) - DIAMETER	LENGTH (FT)	INLET INV EL (FT)	OUTLET INV EL (FT)	SLOPE (FT/FT)	UPSTREAM PIPE PENETRATION	DOWNSTREAM PIPE PENETRATION
C-1	RCP	(5) - 3.0'	75	709.5	709.0	0.0067	PERIMETER CHANNEL	EXTERIOR DOWNCHUTE CHANNEL TO POND 1
C-2	RCP	(3) - 3.0'	80	707.2	706.8	0.0050	PERIMETER CHANNEL	EXTERIOR DOWNCHUTE CHANNEL TO POND 1
C-4	RCP	(2) - 3.0'	75	707.1	706.6	0.0067	PERIMETER CHANNEL	EXTERIOR DOWNCHUTE CHANNEL TO POND 3
C-5	RCP	(4) - 3.0'	85	709.1	708.7	0.0058	PERIMETER CHANNEL	EXTERIOR DOWNCHUTE CHANNEL TO POND 3

49/39 DETAIL
STORMWATER PIPE PROFILES
SCALE: NTS

NOTES:
1. RIPRAP OUTLET PROTECTION WILL BE LINED WITH A 40-MIL (MIN) TEXTURED LLDPE OR HDPE GEOMEMBRANE OVERLAIN WITH A GEOTEXTILE CUSHION.
2. SUBGRADE PREPARATION IN AREAS WHERE GEOMEMBRANE LINER WILL BE INSTALLED WILL CONSIST OF MOISTURE CONDITIONING, COMPACTION, AND SMOOTH ROLLING AS NEEDED.
3. N.S.A No. REFERS TO NATIONAL STONE ASSOCIATION RIPRAP AND FILTER STONE GRADATIONS AS PRESENTED IN TABLE C-1 OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL" (GREEN BOOK).

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Keith Stevens
Approved By: _____

GEORGIA REGISTERED No. 37516 PROFESSIONAL ENGINEER Rudolph Bonaparte RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

STORMWATER MANAGEMENT SYSTEM DETAILS VI

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
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PROJ. NO.	GR6601	DWG.	GR6601-048
SCALE	AS SHOWN	EDIT	08.16.21
DATE	AUGUST 2021	DRAWING	46 OF 50

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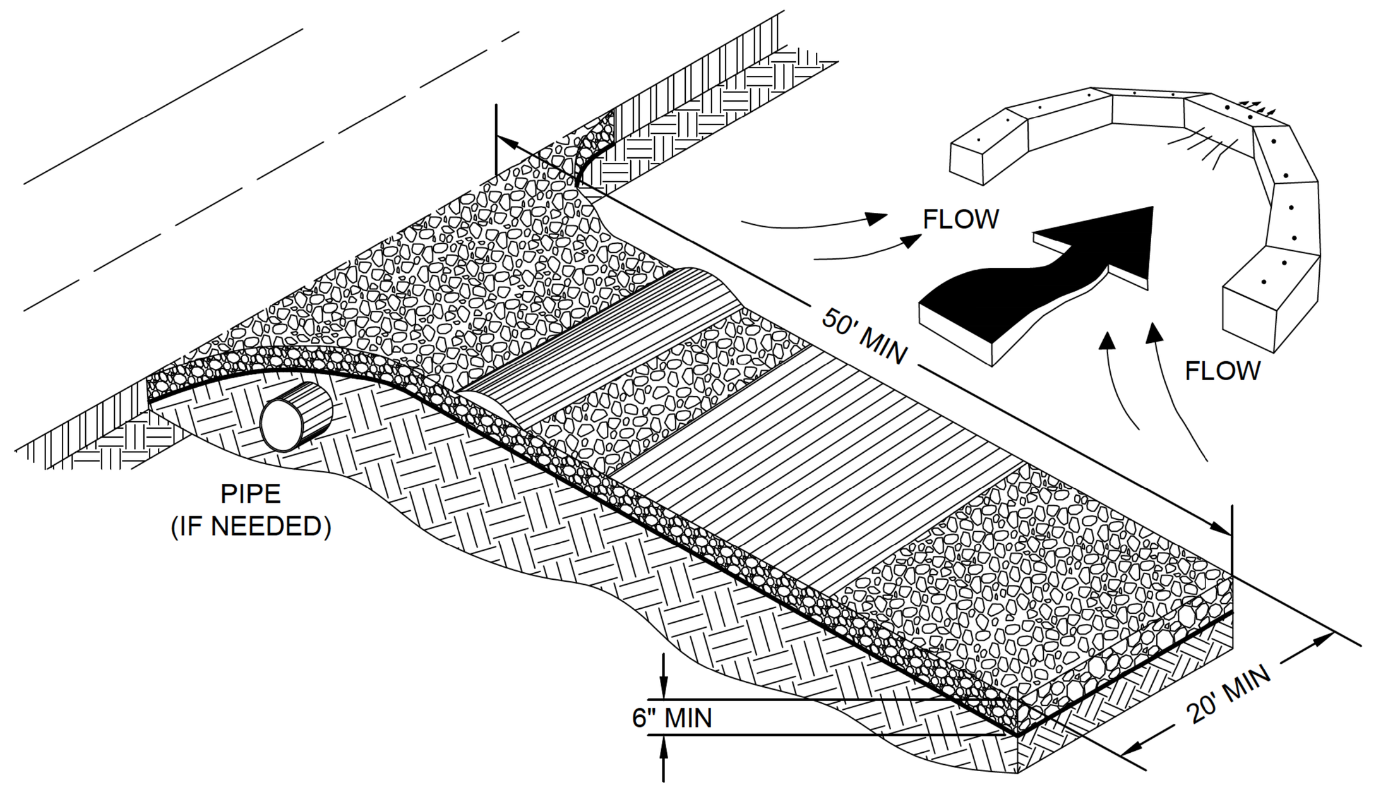
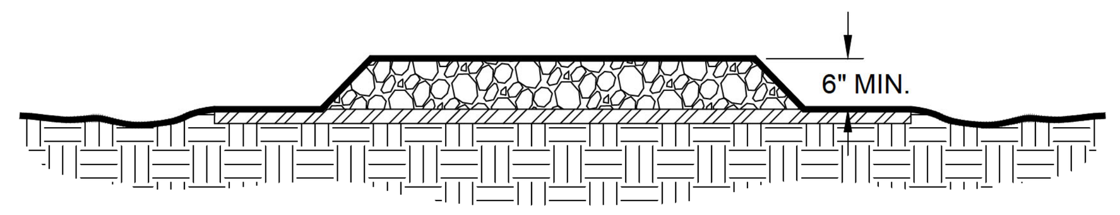
EXIT DIAGRAM



ENTRANCE ELEVATION

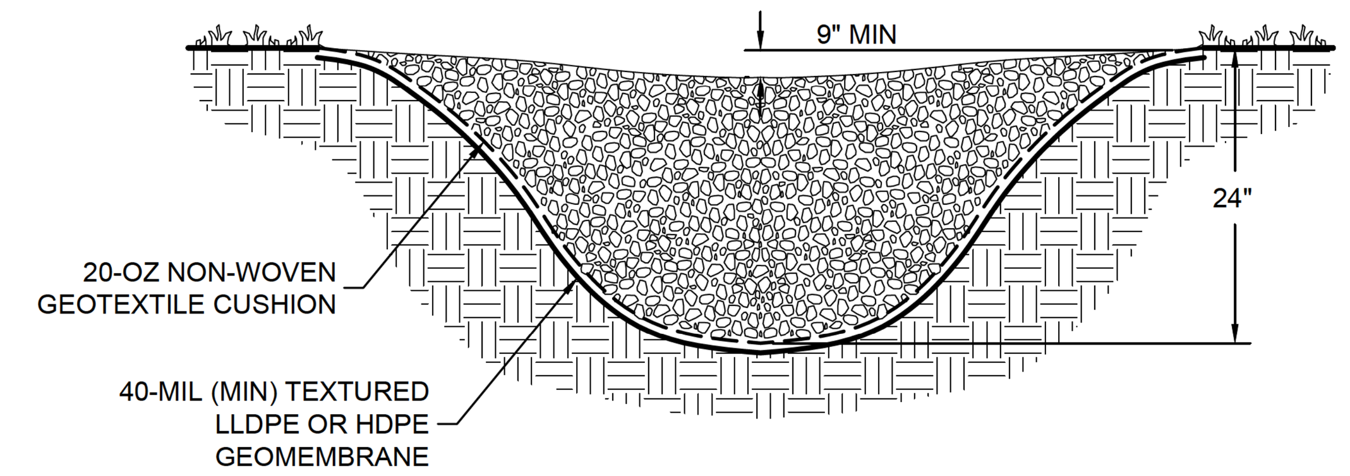


NOTES:

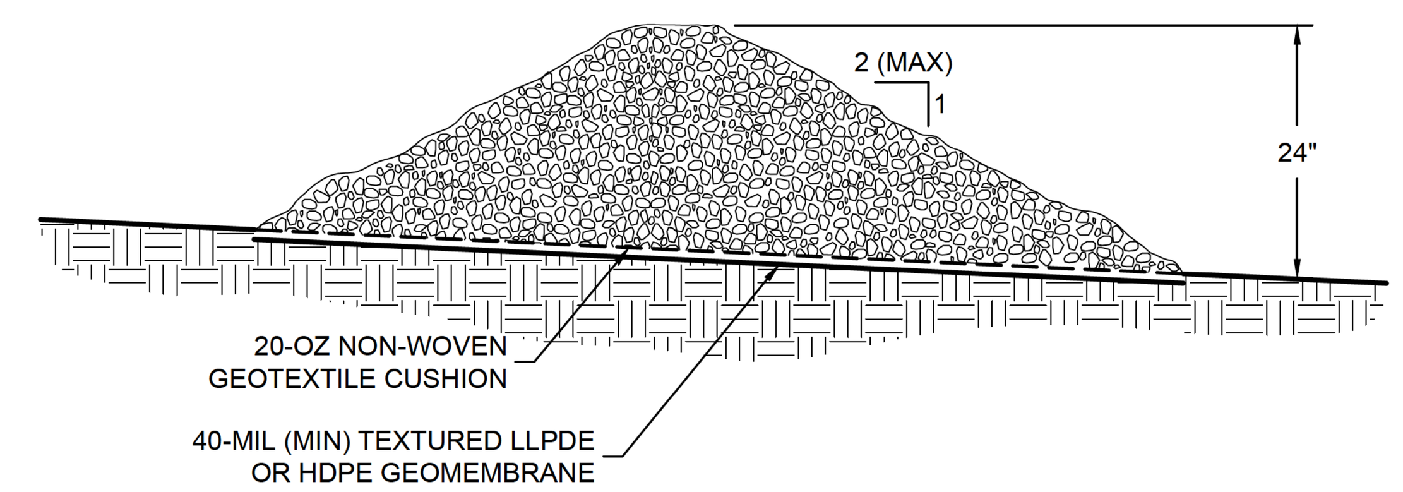
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVES MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

Co — 50 / - DETAIL
CONSTRUCTION EXIT
SCALE: NTS
SOURCE: GSWCC

CROSS SECTION



PROFILE VIEW



NOTES:

1. CHECK DAMS ARE TO BE USED ONLY IN SMALL OPEN CHANNELS (THEY ARE NOT TO BE USED IN LIVE STREAMS).
2. THE DRAINAGE AREA FOR STONE CHECK DAMS SHALL NOT EXCEED TWO ACRES.
3. THE CENTER OF THE CHECK DAM MUST BE AT LEAST 9 INCHES LOWER THAN THE OUTER EDGES.
4. THE DAM HEIGHT SHOULD BE A MAXIMUM OF 2 FEET FROM CENTER TO RIM EDGE.
5. THE SIDE SLOPES OF THE CHECK DAM SHALL NOT EXCEED A 2:1 SLOPE.
6. GEOTEXTILE SHALL BE USED TO PREVENT THE MITIGATION OF SUBGRADE SOIL PARTICLES INTO THE STONES (REFER TO AASHTO M288-96, SECTION 7.3, TABLE 3).
7. CHECK DAMS SHALL BE SPACED 250 FT APART.

Cd — 53 / - DETAIL
STONE CHECK DAM
SCALE: NTS
SOURCE: GSWCC

CONDITIONS

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO SURFACE AND AIR MOVEMENT OF DUST WHERE ON AND OFF-SITE DAMAGE MAY OCCUR WITHOUT TREATMENT.

METHODS AND MATERIALS

A. TEMPORARY METHODS

MULCHES. SEE SPECIFICATION Ds1 - DISTURBED AREA STABILIZATION (WITH MULCHING ONLY).

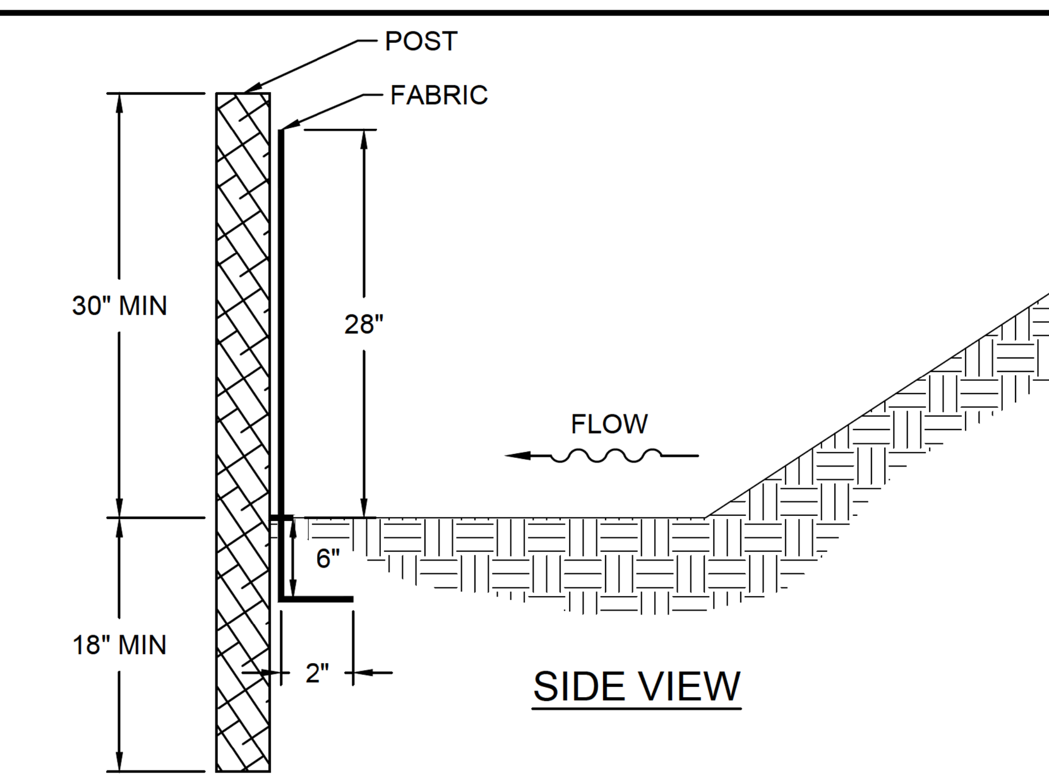
VEGETATIVE COVER. SEE SPECIFICATION Ds2 - DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING).

B. PERMANENT METHODS

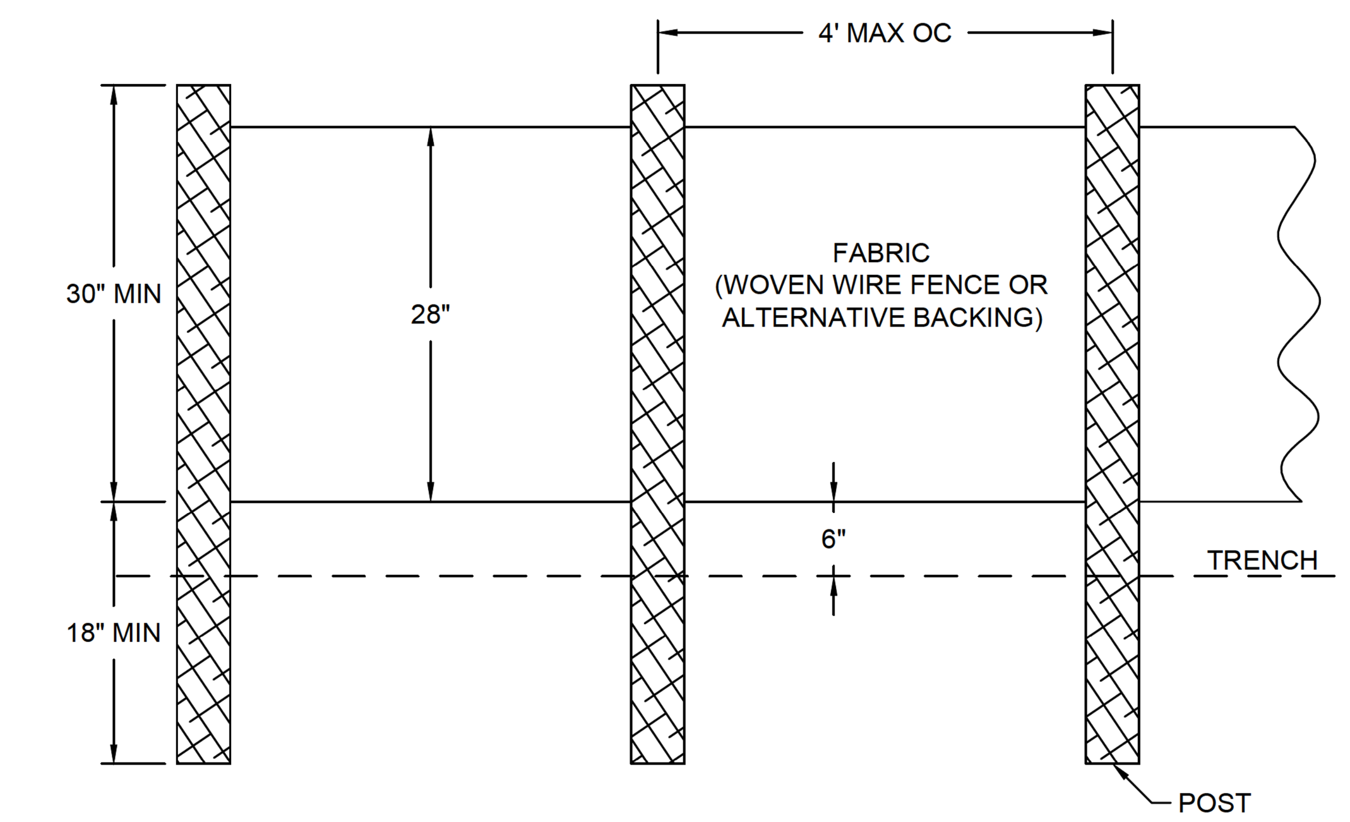
PERMANENT VEGETATION. SEE SPECIFICATION Ds3 - DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION). EXISTING TREES AND LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.

TOPSOILING. SEE SPECIFICATION Tp - TOPSOILING.

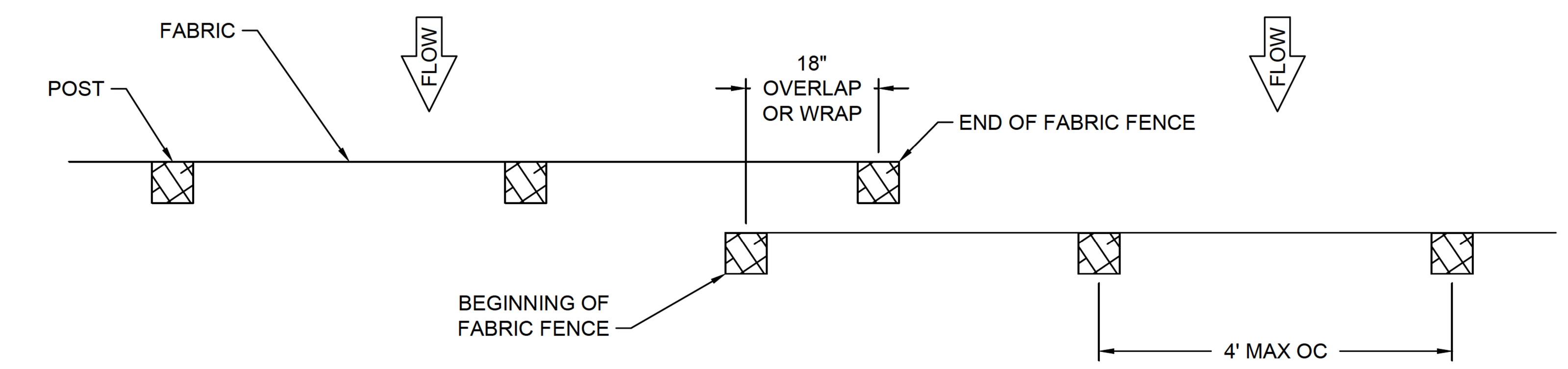
Du — 51 / - DETAIL
DUST CONTROL ON DISTURBED AREAS
SCALE: NTS
SOURCE: GSWCC



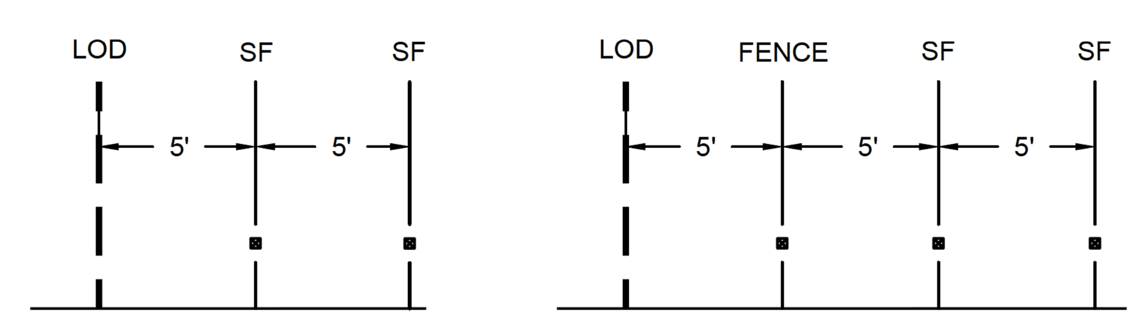
SIDE VIEW



FRONT VIEW



TOP VIEW



SILT FENCE SPACING

CRITERIA FOR SILT FENCE PLACEMENT	
LAND SLOPE (PERCENT)	MAXIMUM LENGTH OF SLOPE ABOVE FENCE (FEET)
<2	100
2 TO 5	75
5 TO 10	50
10 TO 20	25
>20	15

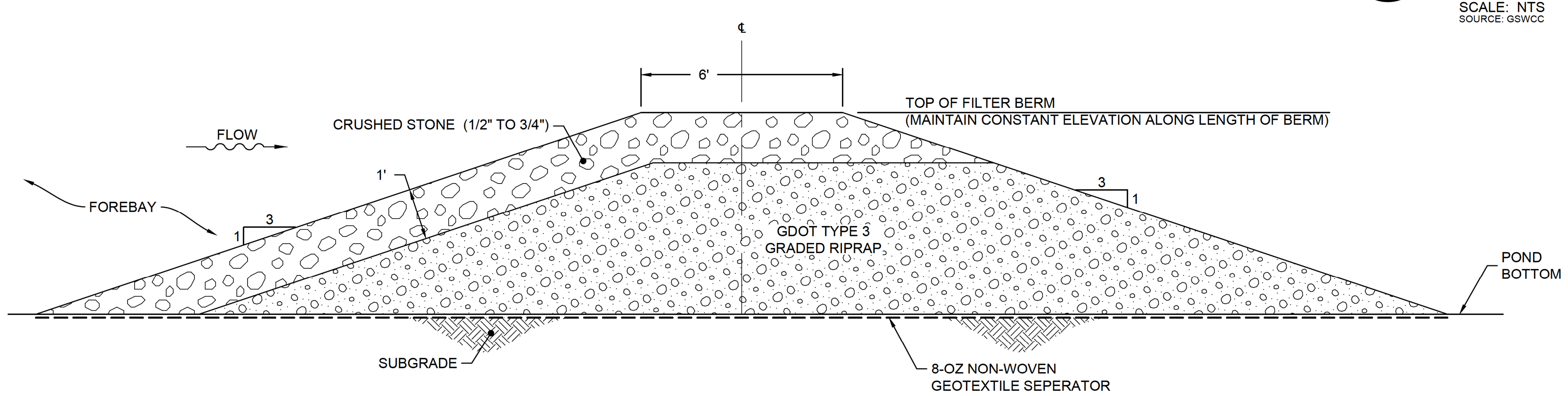
SILT FENCE NOTES:

1. ALL SILT FENCE SHOWN ON THE PLANS IS TO BE DOUBLE ROW TYPE "C" BARRIER. CONTRACTOR SHALL MAINTAIN FENCE AT THESE LOCATIONS DURING CONSTRUCTION UNTIL FINAL SURFACE TREATMENTS HAVE BEEN APPLIED AND A SUFFICIENT STAND OF GRASS HAS BEEN ESTABLISHED AS DETERMINED BY THE SITE ENGINEER.
2. ADDITIONAL SILT FENCE SHALL BE REQUIRED IN AREAS WHICH ARE CLEARED OR GRADED AND DO NOT HAVE STORMWATER RUNOFF DIVERTED TO SEDIMENT BASINS MEETING THE CRITERIA LISTED IN THE TABLES. THE DRAINAGE AREA SHALL NOT EXCEED 1/4 ACRE FOR EVERY 100 FEET OF SILT FENCE.

INSTALLATION:

1. WHERE NO SEDIMENT TRAP/STORMWATER DISPOSAL SYSTEM IS PRESENT, MAXIMUM SLOPE LENGTH SHALL NOT EXCEED THAT IN THE TABLE. ALSO, THE DRAINAGE AREA IS NOT TO EXCEED 1/4 ACRE PER 100 FEET OF SILT FENCE.
2. INSTALL ALONG CONTOURS WITH ENDS POINTING UPHILL.
3. DO NOT PLACE IN WATERWAYS OR AREAS OF CONCENTRATED FLOW.
4. PROVIDE A RIPRAP SPLASH PAD OR OTHER OUTLET PROTECTION DEVICE FOR ANY POINT WHERE FLOW MAY TOP THE SEDIMENT FENCE. ENSURE THAT THE MAXIMUM HEIGHT OF THE FENCE AT A PROTECTED, REINFORCED OUTLET DOES NOT EXCEED 1 FT AND THAT SUPPORT POST SPACING DOES NOT EXCEED 4 FT FOR TYPE C.
5. SAFETY CAPS ARE REQUIRED FOR ALL STEEL POSTS.
6. POSTS SHALL BE STEEL AND HAVE A MINIMUM LENGTH OF 4 FEET. POSTS SHALL BE "U", "T", OR "C" SHAPED AND HAVE A MINIMUM WEIGHT OF 1.3 POUNDS PER FOOT. THE POSTS SHALL HAVE PROJECTIONS FOR FASTENING THE WOVEN WIRE AND FILTER FABRIC. MAXIMUM POSTS SPACING SHALL BE 4 FEET FOR TYPE C.
7. A WOVEN WIRE SUPPORT FENCE SHALL BE USED WITH TYPE "C" FENCE. THE WIRE FENCE FABRIC SHALL BE AT LEAST 36 INCHES HIGH AND SHALL HAVE AT LEAST 6 HORIZONTAL WIRES. VERTICAL WIRES SHALL HAVE A MAXIMUM SPACING OF 12 INCHES. THE TOP AND BOTTOM WIRES SHALL BE AT LEAST 10 GAUGE AND ALL OTHER WIRES SHALL BE AT LEAST 12 1/2 GAUGE.
8. APPROVED SILT FENCE FABRICS ARE LISTED IN THE GEORGIA DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST #36 (QPL-36).

Sd1-S — 52 / - DETAIL
SILT FENCE - TYPE C
SCALE: NTS
SOURCE: GSWCC



54 / 39 DETAIL
FILTER BERM
SCALE: NTS

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. ALL EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA." STORMWATER CONTROLS AND BEST MANAGEMENT PRACTICES SHALL BE DESIGNED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPLICABLE NPDES CONSTRUCTION STORMWATER DISCHARGE GENERAL PERMIT, NPDES INDUSTRIAL STORMWATER DISCHARGE GENERAL PERMIT AND/OR THE FACILITY'S NPDES INDUSTRIAL WASTEWATER DISCHARGE INDIVIDUAL PERMIT.
2. STORM WATER DISCHARGES ASSOCIATED WITH ASH POND CLOSURE ACTIVITIES WILL BE COVERED UNDER THE APPLICABLE NPDES CONSTRUCTION STORMWATER DISCHARGE GENERAL PERMIT, NPDES INDUSTRIAL STORMWATER DISCHARGE GENERAL PERMIT AND/OR THE FACILITY'S NPDES INDUSTRIAL WASTEWATER DISCHARGE INDIVIDUAL PERMIT.
3. STATE WATERS BUFFERS SHALL REMAIN UNDISTURBED, EXCEPT WHERE ENCROACHMENT IS REQUIRED TO FACILITATE ASH POND CLOSURE ACTIVITIES. UNLESS OTHERWISE EXEMPTED BY THE APPROPRIATE NPDES CONSTRUCTION STORMWATER DISCHARGE GENERAL PERMIT, A STATE WATERS BUFFER VARIANCE SHALL BE OBTAINED FROM GEORGIA EPD'S WATERSHED PROTECTION BRANCH PRIOR TO BUFFER ENCROACHMENT. GEORGIA EPD'S SOLID WASTE MANAGEMENT BRANCH SHALL BE NOTIFIED WHEN GPC ENVIRONMENTAL AFFAIRS APPLIES FOR A STATE WATERS BUFFER VARIANCE. CONTACT GPC ENVIRONMENTAL AFFAIRS FOR ASSISTANCE.
4. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES FOR THIS PROJECT, THE PERMITTED BOUNDARY, THE LIMITS OF DISTURBANCE AND ALL WETLANDS AND STATE WATERS BUFFERS WITHIN 200 FEET OF THE LIMITS OF DISTURBANCE OR WITHIN THE PROPERTY BOUNDARY (WHICHEVER IS CLOSER) SHALL BE CLEARLY FLAGGED AND STAKED. THESE MARKINGS SHALL BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION / CLOSURE ACTIVITIES. SHOULD ANY OF THE MARKINGS BE DISTURBED, THE CONTRACTOR SHALL NOTIFY GEORGIA POWER COMPANY IMMEDIATELY. ALL CONSTRUCTION PERSONNEL SHALL BE SHOWN THE LOCATION OF THE LIMITS OF DISTURBANCE, STATE WATER BUFFERS, STATE WATERS AND WETLANDS OUTSIDE THE LIMITS OF DISTURBANCE TO PREVENT HEAVY EQUIPMENT ENCROACHMENT INTO THESE AREAS.

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

EROSION AND SEDIMENT CONTROL DETAILS I

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
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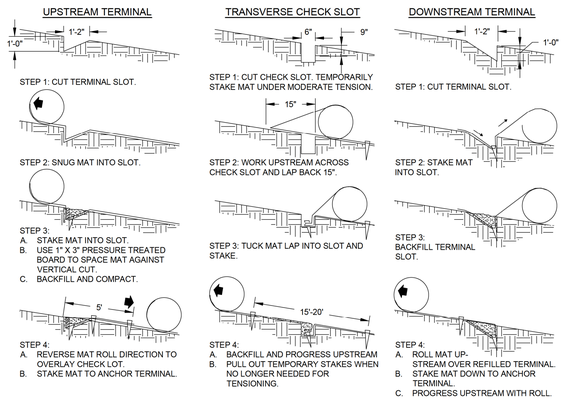
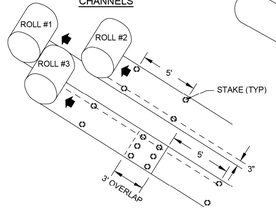
PROJ. NO.	GR6601	DWG.	GR6601-049	EDIT	08.16.21
SCALE	AS SHOWN	DRAWING 47 OF 50			
DATE	AUGUST 2021				

TYPICAL INSTALLATION GUIDELINES FOR ROLLED EROSION CONTROL PRODUCTS (RECP)

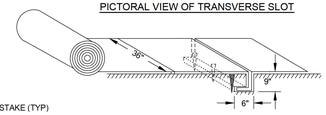
BLANKET AND MATTING CROSS-SECTIONS



SEQUENTIAL ROLL RUN OUT IN CHANNELS



PICTORAL VIEW OF TRANSVERSE SLOT



Ss | 55 - | DETAIL | SLOPE STABILIZATION

SCALE: NTS
SOURCE: GWSCC

NOTES

CONDITIONS
SLOPE STABILIZATION CAN BE APPLIED TO FLAT AREAS OR SLOPES WHERE THE EROSION HAZARD IS HIGH AND SLOPE PROTECTION IS NEEDED DURING THE ESTABLISHMENT OF VEGETATION.

PLANNING CONSIDERATIONS
CARE MUST BE TAKEN TO CHOOSE THE TYPE OF SLOPE STABILIZATION PRODUCT WHICH IS MOST APPROPRIATE FOR THE SPECIFIC NEEDS OF A PROJECT. TWO GENERAL TYPES OF SLOPE STABILIZATION PRODUCTS ARE DISCUSSED WITHIN THIS SPECIFICATION.

ROLLED EROSION CONTROL PRODUCTS (RECP)
A NATURAL FIBER BLANKET WITH SINGLE OR DOUBLE PHOTODEGRADABLE OR BIODEGRADABLE NETS.

HYDRAULIC EROSION CONTROL PRODUCTS (HECP)
HECP SHALL UTILIZE STRAW, COTTON, WOOD OR OTHER NATURAL BASED FIBERS HELD TOGETHER BY A SOIL BINDING AGENT WHICH WORKS TO STABILIZE SOIL PARTICLES. PAPER MULCH SHOULD NOT BE USED FOR EROSION CONTROL.

CRITERIA
ROLLED EROSION CONTROL PRODUCTS (RECPS) AND HYDRAULIC EROSION CONTROL PRODUCTS (HECPS):

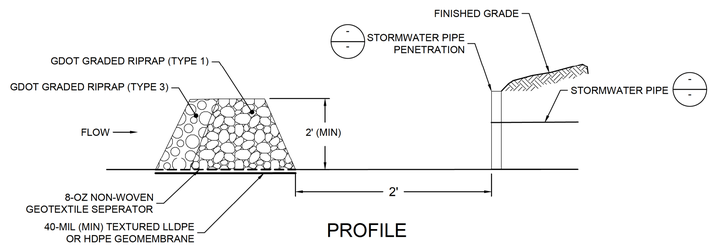
- INSTALLATION AND STAPLING OF RECPS AND APPLICATION RATES FOR THE HECPS SHALL CONFORM TO MANUFACTURER'S GUIDELINES FOR APPLICATION
- PRODUCTS SHALL HAVE A MAXIMUM C-FACTOR (ASTM D6459) FOR THE FOLLOWING GRADE:

SLOPE (H:V)	C-FACTOR (MAX)
3:1 OR GREATER	0.080

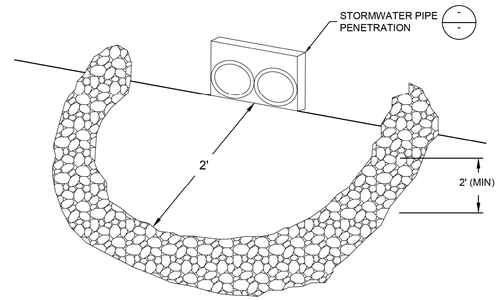
PERFORMANCE EVALUATION
FOR A PRODUCT OR PRACTICE TO BE APPROVED AS SLOPE STABILIZATION, THAT PRODUCT OR PRACTICE MUST HAVE A DOCUMENTED C-FACTOR OF 0.080, AS SPECIFIED BY GSWCC. FOR COMPLETE TEST PROCEDURES AND APPROVED PRODUCTS LIST PLEASE VISIT WWW.GASWCC.GEORGIA.GOV.

SITE PREPARATION
AFTER THE SITE HAS BEEN SHAPED AND GRADED TO THE APPROVED DESIGN, PREPARE A FRIABLE SEEDBED RELATIVELY FREE FROM CLODS AND ROCKS MORE THAN ONE INCH IN DIAMETER, AND ANY FOREIGN MATERIAL THAT WILL PREVENT CONTACT OF THE SOIL STABILIZATION MAT WITH THE SOIL SURFACE. SURFACE MUST BE SMOOTH TO ENSURE PROPER CONTACT OF BLANKETS OR MATTING TO THE SOIL SURFACE. IF NECESSARY, REDIRECT ANY RUNOFF FROM THE DITCH OR SLOPE DURING INSTALLATION.

1. START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
2. FIRST ROLL IS CENTERED LONGITUDINALLY IN MID-CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
3. SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND THE FIRST ROLL. USE THE CENTER ROLL FOR ALIGNMENT TO THE CHANNEL CENTER.
4. WORK OUTWARDS FROM THE CHANNEL CENTER TO THE EDGE.
5. USE 3" OVERLAPS AND STAKE AT 5' INTERVALS ALONG THE SEAMS.
6. USE 3' OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT THE LINING AT THE ROLL ENDS.
7. IT IS THE INTENTION OF THIS SECTION TO ALLOW INTERCHANGEABLE USE OF RECPS AND HECPS FOR EROSION PROTECTION ON SLOPES. THE PROJECT ENGINEER SHOULD SELECT THE TYPE OF EROSION CONTROL PRODUCT THAT BEST FITS THE NEED OF THE PARTICULAR SITE.



PROFILE

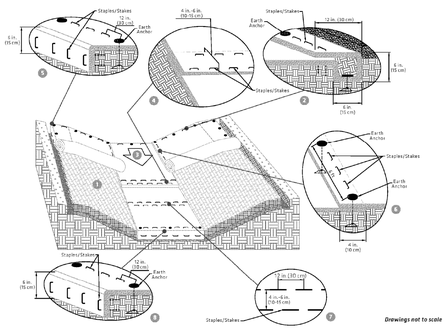


PERSPECTIVE

Fr | 56 - | DETAIL | FILTER RING

SCALE: NTS

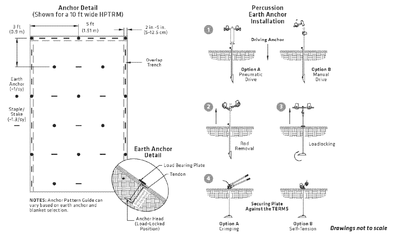
Channel Installation Detail



GENERAL INSTALLATION

1. Prepare soil before installing the HPTRM, including any necessary application of soil amendments such as lime or fertilizer. See seeding and vegetating section for details regarding preseeding, overseeding or use with sod.
2. Begin at the top of the channel by anchoring the HPTRM in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench with approximately 12 in. (30 cm) of HPTRM extended beyond the upslope portion of the trench. Anchor the HPTRM with a row of anchors/staples/stakes spaced approximately 12 in. (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Compact soil and fold remaining 12 in. (30 cm) portion of HPTRM back over compacted soil. Secure HPTRM over soil with a row of anchors/staples/stakes spaced approximately 12 in. (30 cm) across the width of the HPTRM.
3. Roll center HPTRM in direction of water flow in bottom of channel. HPTRMs will unroll with appropriate side against the soil surface. All HPTRMs must be securely fastened to soil surface by placing anchors/staples/stakes in appropriate locations as shown in the anchoring detail.
4. Place consecutive HPTRMs end over end (shingle style) with a 4 in. x 6 in. (10 cm-15 cm) overlap. Use a double row of staples/stakes staggered 12 in. (30 cm) apart and 12 in. (30 cm) on center to secure HPTRMs.
5. Full length edge of HPTRMs at top of side slopes must be anchored with a row of staples/stakes approximately 12 in. (30 cm) apart in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent HPTRMs must be overlapped approximately 4 in. (10 cm) and fastened.
7. In high flow channel applications, a staple/stake check slot is recommended at 30 ft to 40 ft (9 m-12 m) intervals. Use a double row of staples/stakes staggered 4 in. (10 cm) apart and 12 in. (30 cm) on center over entire width of the channel.
8. The terminal end of the HPTRMs must be anchored with a row of staples/stakes approximately 12 in. (30 cm) apart in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench. Backfill and compact the trench after stapling.

Anchoring Detail



ANCHORING DETAIL

The performance of ground anchoring devices is highly dependent on numerous site/project specific variables. It is the sole responsibility of the project engineer and/or contractor to select the appropriate anchor type and length. Anchoring shall be selected to hold the mat in intimate contact with the soil subgrade and resist pullout in accordance with the project's design intent.

1. Staples and/or stakes should be at least 6 in. (15 cm) in length and with sufficient ground penetration to resist pullout. Longer staples and/or stakes may be needed in looser soils.
2. The percussion earth anchor assembly consists of an anchor head, a tendon, a faceplate, and an end piece device. See North American Green® Earth Anchor specification for detailed information on assembly components and associated pull-out strength.

PERCUSSION EARTH ANCHOR INSTALLATION

1. Insert the drive rod into the assembly's anchor head then use either a sledge hammer or vibratory hammer to drive the anchor to their desired depth.
2. After the desired anchor depth is achieved, retract the drive rod.
3. Lock the anchor assembly by swiftly pulling the cable upwards until the anchor head rotates as signaled by sudden resistance to pulling. A hooked setting tool may be used to aid in this step.

NOTE: Longer anchors may require more force to set the anchor. This can be achieved through using simple mechanical equipment for greater leverage, such as a falcons, manual or hydraulic jack, winch, or post puller.

4. Secure the faceplate to the High-performance Turf Reinforcement Mat (HPTRM) surface by locking the end-piece. If using a copper or aluminum stop, crimp the ferrule to secure. If using a self-tensioning end-piece (grip or wedge grip) set by simply tightening the end-piece against the faceplate. If desired, cut the remaining cable assembly, above end-piece, to desired length.

SEEDING AND VEGETATING

When using a Composite Turf Reinforcement Mat (C-TRM) with fiber components:

1. Pre-seed prepared soils prior to the installation of the C-TRM. Install matting as directed. C-TRM does not require soil infill or a top dressing of seed. Over-seeding may be done as a secondary form of seeding.
2. Sod may be installed in place of seeding on top of the C-TRM. Additional staking of sod is recommended in high-flow conditions. Sodded areas should be irrigated until rooting through the mat and into subgrade occurs.

When using a woven HPTRM:

1. Install the HPTRM as directed prior to seed and soil filling.
2. Place seed into the installed HPTRM. After seeding, spread a layer of fine soil into the mat. Using the flat side of a rake, broom or other tool, completely fill the voids. Smooth soil-fill in order to just expose the top of the HPTRM matrix. Do not place excessive soil above the mat.
3. Additional seed, hydraulic mulching of the use of a temporary Erosion Control Blanket (ECB) can be applied over the soil-filled mat for increased protection.
4. Sod may be installed in place of seeding. Install HPTRM, and soil-fill as outlined above. Place sod directly onto the soil-filled HPTRM. Additional staking of sod is recommended in high-flow conditions. Sodded areas should be irrigated until rooting through the mat and into subgrade occurs.
5. Consult with a manufacturer's technical representative for installation assistance if unique conditions apply.

57 - DETAIL TURF REINFORCEMENT MATTING

SCALE: NTS
SOURCE: NORTH AMERICAN GREEN

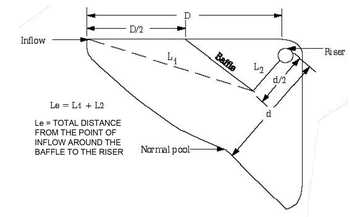
DEFINITION
TACKIFIERS ARE USED AS A TIE-DOWN FOR SOIL, COMPOST, SEED, STRAW, HAY OR MULCH. TACKIFIERS HYDRATE IN WATER AND READILY BLEND WITH OTHER SLURRY MATERIALS TO FORM A HOMOGENOUS SLURRY.

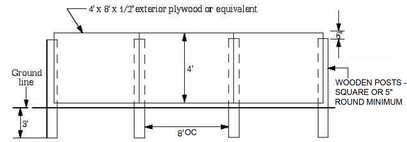
PURPOSE
TO REDUCE SOIL EROSION FROM WIND AND WATER ON CONSTRUCTION SITES. OTHER BENEFITS INCLUDE SOIL INFILTRATION, SOIL FERTILITY, ENHANCED SEED GERMINATION, INCREASED SOIL COHESION, ENHANCED SOIL STABILIZATION, REDUCED STORMWATER RUNOFF TURBIDITY AND REDUCTION IN LESS OF TOPSOIL.

CONDITIONS
THIS PRACTICE IS INTENDED FOR DIRECT SOIL SURFACE APPLICATION TO SITES WHERE THE TIMELY ESTABLISHMENT OF VEGETATION MAY NOT BE FEASIBLE OR WHERE VEGETATION COVER IS ABSENT OR INADEQUATE. SUCH AREAS INCLUDE CONSTRUCTION AREAS, WHERE PLANT RESIDUES ARE INADEQUATE TO PROTECT THE SOIL SURFACE AND WHERE LAND DISTURBING ACTIVITIES PREVENT THE ESTABLISHMENT OR MAINTENANCE OF A VEGETATIVE COVER.

Tac | 58 - | DETAIL | TACKIFIER

SOURCE: GWSCC





59 - DETAIL STORMWATER BAFFLE

SCALE: NTS
SOURCE: GWSCC

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens
Digitally signed by Keith Stevens
Date: 2021.08.27 14:23:01 -04'00'

GEORGIA REGISTERED No. 17516 PROFESSIONAL ENGINEER Rudolph Bonaparte August 16, 2021 RUDOLPH BONAPARTE

Georgia Power
PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

EROSION AND SEDIMENT CONTROL DETAILS II

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
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PROJ. NO.	GR6601	DWG.	GR6601-050
SCALE	AS SHOWN	EDIT	08.16.21
DATE	AUGUST 2021	DRAWING	48 OF 50

P:\CAD\PROJECTS\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-050

DEFINITION
APPLYING PLANT RESIDUES OR OTHER SUITABLE MATERIALS, PRODUCED ON THE SITE IF POSSIBLE, TO THE SOIL SURFACE.

REQUIREMENT FOR REGULATORY COMPLIANCE
MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF DISTURBANCE. MULCH CAN BE USED AS A SINGULAR EROSION CONTROL DEVICE FOR UP TO SIX MONTHS, BUT IT SHALL BE APPLIED AT THE APPROPRIATE DEPTH (DEPENDING ON THE MATERIAL USED), ANCHORED, AND HAVE A CONTINUOUS 90% COVER OR GREATER OF THE SOIL SURFACE.

MAINTENANCE SHALL BE REQUIRED TO MAINTAIN APPROPRIATE DEPTH AND 90% COVER. TEMPORARY VEGETATION MAY BE EMPLOYED INSTEAD OF MULCH IF THE AREA WILL REMAIN UNDISTURBED FOR LESS THAN SIX MONTHS.

IF ANY AREA WILL REMAIN UNDISTURBED FOR GREATER THAN SIX MONTHS, PERMANENT VEGETATIVE TECHNIQUES SHALL BE EMPLOYED. REFER TO Ds2-DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING), AND Ds3 - DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION).

SPECIFICATIONS
MULCHING WITHOUT SEEDING:
THIS STANDARD APPLIES TO GRADED OR CLEARED AREAS WHERE SEEDINGS MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AN EROSION RETARDANT COVER, BUT CAN BE STABILIZED WITH A MULCH COVER.

SITE PREPARATION
1. GRADE TO PERMIT THE USE OF EQUIPMENT FOR APPLYING AND ANCHORING MULCH.
2. INSTALL NEEDED EROSION CONTROL MEASURES AS REQUIRED SUCH AS DIKES, DIVERSIONS, BERMS, TERRACES AND SEDIMENT BARRIERS.
3. LOOSEN COMPACTED SOIL TO A MINIMUM DEPTH OF 3 INCHES.

MULCHING MATERIALS
SELECT ONE OF THE FOLLOWING MATERIALS AND APPLY AT THE DEPTH INDICATED:
1. DRY STRAW OR HAY SHALL BE APPLIED AT A DEPTH OF 2 TO 4 INCHES PROVIDING COMPLETE SOIL COVERAGE. ONE ADVANTAGE OF THIS MATERIAL IS EASY APPLICATION.
2. WOOD WASTE (CHIPS, SAWDUST OR BARK) SHALL BE APPLIED AT A DEPTH OF 2 TO 3 INCHES. ORGANIC MATERIAL FROM THE CLEARING STAGE OF DEVELOPMENT REMAINING ON SITE CAN BE CHIPPED AND APPLIED AS MULCH. THIS METHOD OF MULCHING CAN GREATLY REDUCE EROSION CONTROL COSTS.
3. POLYETHYLENE FILM SHALL BE SECURED OVER BANKS OR STOCKPILED SOIL MATERIAL FOR TEMPORARY PROTECTION. THIS MATERIAL CAN BE SALVAGED AND RE-USED.

APPLYING MULCH
WHEN MULCH IS USED WITHOUT SEEDING, MULCH SHALL BE APPLIED TO PROVIDE FULL COVERAGE OF THE EXPOSED AREA.
1. DRY STRAW OR HAY MULCH AND WOOD CHIPS SHALL BE APPLIED UNIFORMLY BY HAND OR BY MECHANICAL EQUIPMENT.
2. IF THE AREA WILL EVENTUALLY BE COVERED WITH PERENNIAL VEGETATION, 20-30 POUNDS OF NITROGEN PER ACRE, IN ADDITION TO THE NORMAL AMOUNT, SHALL BE APPLIED TO OFFSET THE UPTAKE OF NITROGEN CAUSED BY THE DECOMPOSITION OF THE ORGANIC MULCHES.

ANCHORING MULCH
1. STRAW OR HAY MULCH CAN BE PRESSED INTO THE SOIL WITH A DISK HARROW WITH THE DISK SET STRAIGHT OR WITH A SPECIAL "PACKER DISK." DISKS MAY BE SMOOTH OR SERRATED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART. THE EDGES OF THE DISK SHOULD BE DULL ENOUGH NOT TO CUT THE MULCH BUT TO PRESS IT INTO THE SOIL LEAVING MUCH OF IT IN AN ERECT POSITION. STRAW OR HAY MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION. STRAW OR HAY MULCH SPREAD WITH SPECIAL BLOWER-TYPE EQUIPMENT MAY BE ANCHORED. TACKIFERS, BINDERS AND HYDRAULIC MULCH WITH TACKIFIER SPECIFICALLY DESIGNED FOR TACKING STRAW CAN BE SUBSTITUTED FOR EMULSIFIED ASPHALT, REFER TO Tac-TACKIFERS. PLASTIC MESH OR NETTING WITH MESH NO LARGER THAN ONE INCH BY ONE INCH SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
2. NETTING OF THE APPROPRIATE SIZE SHALL BE USED TO ANCHOR WOOD WASTE. OPENINGS OF THE NETTING SHALL NOT BE LARGER THAN THE AVERAGE SIZE OF THE WOOD WASTE CHIPS.

Ds1 — 60 / - DETAIL
DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)
SOURCE: GSWCC

CUBIC YARDS OF TOPSOIL REQUIRED FOR APPLICATION TO VARIOUS DEPTHS

DEPTH (IN.)	PER 1,000 SQUARE FEET	PER ACRE
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672
6	18.6	806

CONDITIONS
THIS PRACTICE IS RECOMMENDED FOR SITES OF 2H:1V OR FLATTER SLOPES WHERE:
1. THE TEXTURE OF THE EXPOSED SUBSOIL OR PARENT MATERIAL IS NOT SUITABLE TO PRODUCE ADEQUATE VEGETATIVE GROWTH.
2. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS WITH CONTINUING SUPPLIES OF MOISTURE AND FOOD.
3. THE SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

CONSTRUCTION SPECIFICATIONS
MATERIALS
TOPSOIL SHOULD BE FRIABLE AND LOAMY, FREE OF DEBRIS, OBJECTIONABLE WEEDS AND STONES, AND CONTAIN NO TOXIC SUBSTANCE THAT MAY BE HARMFUL TO PLANT GROWTH. A pH RANGE OF 5.0-7.5 IS ACCEPTABLE. SOLUBLE SALTS SHOULD NOT EXCEED 500 PPM.

TESTING
FIELD EXPLORATION SHOULD BE MADE TO DETERMINE WHETHER THE QUANTITY AND QUALITY OF SURFACE SOIL JUSTIFIES STRIPPING.

STRIPPING
STRIPPING SHOULD BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA. A 4 TO 6 INCH STRIPPING DEPTH IS COMMON, BUT MAY VARY DEPENDING ON THE PARTICULAR SOIL.

TOPSOIL pH
IF pH VALUE IS LESS THAN 6.0, LIME SHALL BE APPLIED AND INCORPORATED WITH THE TOPSOIL TO ADJUST THE pH TO 6.5 OR HIGHER. TOPSOILS CONTAINING SOLUBLE SALTS GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.

SITE PREPARATION (WHERE TOPSOIL IS TO BE ADDED)
TOPSOILING - WHEN TOPSOILING, MAINTAIN NEEDED EROSION CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, DIKES, LEVEL SPREADERS, WATERWAYS, SEDIMENT BASINS, ETC.

GRADING - GRADES ON THE AREAS TO BE TOPSOILED WHICH HAVE BEEN PREVIOUSLY ESTABLISHED SHALL BE MAINTAINED.

LIMING - SOIL TESTS SHOULD BE USED TO DETERMINE THE pH OF THE SOIL. WHERE THE pH OF THE SUBSOIL IS 5.0 OR LESS OR COMPOSED OF HEAVY CLAYS, AGRICULTURAL LIMESTONE SHALL BE SPREAD AT THE RATE OF 100 POUNDS PER 1,000 SQUARE FEET. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURE.

BONDING - USE ONE OF THE FOLLOWING METHODS TO INSURE BONDING OF TOPSOIL AND SUBSOIL:
1. TILLING. AFTER THE AREAS TO BE TOPSOILED HAVE BEEN BROUGHT TO GRADE, AND IMMEDIATELY PRIOR TO DUMPING AND SPREADING THE TOPSOIL, THE SUBGRADE SHALL BE LOOSENED BY DISCING OR SCARIFYING TO A DEPTH OF AT LEAST 3 INCHES TO PERMIT BONDING OF THE TOPSOIL TO THE SUBSOIL.
2. TRACKING. PASSING A BULLDOZER OVER THE ENTIRE SURFACE AREA OF THE SLOPE TO LEAVE HORIZONTAL DEPRESSIONS.

APPLYING TOPSOIL
1. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE.
2. A UNIFORM APPLICATION OF 6 INCHES (UNSETTLED) IS RECOMMENDED, BUT MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER OR LANDSCAPE ARCHITECT.

Tp — 61 / - DETAIL
TOPSOILING
SOURCE: GSWCC

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens Digitally signed by Keith Stevens Date: 2021.08.27 14:25:10 -04'00'

SEEDING RATES FOR TEMPORARY SEEDING

BROADCAST SPECIES	RATES	J	F	M	A	M	J	J	A	S	O	N	D	COMMENTS
BARLEY ALONE	144 LBS./AC													WINTER HARDY, USE ON PRODUCTIVE SOILS
BARLEY IN MIXTURE	24 LBS./AC													
LESPEDEZA, ANNUAL ALONE	40 LBS./AC													MAY VOLUNTEER FOR SEVERAL YEARS. USE INOCULANT TYPE EL.
LESPEDEZA, ANNUAL IN MIXTURE	10 LBS./AC													
LOVEGRASS, WEEPING ALONE	4 LBS./AC													MAY LAST FOR SEVERAL YEARS. MIX WITH SERICEA LESPEDEZA.
LOVEGRASS, WEEPING IN MIXTURE	2 LBS./AC													
MILLET, BROWNTOP ALONE	40 LBS./AC													QUICK DENSE COVER. WILL PROVIDE TOO MUCH COMPETITION IN MIXTURES IF SEEDED AT HIGH RATES.
MILLET, BROWNTOP IN MIXTURE	10 LBS./AC													
MILLET, PEARL ALONE	50 LBS./AC													QUICK DENSE COVER. MAY REACH 5 FEET IN HEIGHT. NOT RECOMMENDED FOR MIXTURES.
OATS ALONE	128 LBS./AC													USE ON PRODUCTIVE SOILS. NOT AS WINTER HARDY AS RYE OR BARLEY.
OATS IN MIXTURE	32 LBS./AC													
RYE ALONE	168 LBS./AC													QUICK COVER. DROUGHT TOLERANT AND WINTER HARDY.
RYE IN MIXTURE	28 LBS./AC													
RYEGRASS, ANNUAL ALONE	40 LBS./AC													DENSE COVER. VERY COMPETITIVE AND NOT TO BE USED IN MIXTURES.
SUDANGRASS ALONE	60 LBS./AC													GOOD ON DROUGHTY SITES. NOT RECOMMENDED FOR MIXTURES.
TRITICALE ALONE	144 LBS./AC													USE ON LOWER PART OF SOUTHERN COASTAL PLAIN AND IN ATLANTIC COASTAL FLATWOODS ONLY.
TRITICALE IN MIXTURE	24 LBS./AC													
WHEAT ALONE	180 LBS./AC													WINTER HARDY.
WHEAT WITH OTHER PERENNIALS	30 LBS./AC													

SOLID LINES INDICATE OPTIMUM DATES, DOTTED LINES INDICATE PERMISSIBLE BUT MARGINAL DATES.

DEFINITION
THE ESTABLISHMENT OF TEMPORARY VEGETATION COVER WITH FAST GROWING SEEDINGS FOR SEASONAL PROTECTION ON DISTURBED OR DENUDED AREAS.

CONDITIONS
TEMPORARY VEGETATIVE MEASURES SHOULD BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL AND EFFECTIVE STABILIZATION. MOST TYPES OF TEMPORARY VEGETATION ARE IDEAL TO USE AS COMPANION CROPS UNTIL THE PERMANENT VEGETATION IS ESTABLISHED. NOTE: SOME SPECIES OF TEMPORARY VEGETATION ARE NOT APPROPRIATE FOR COMPANION CROP PLANTINGS BECAUSE OF THEIR POTENTIAL TO OUT-COMPETE THE DESIRED SPECIES (E.G. ANNUAL RYEGRASS). CONTACT NATURAL RESOURCE CONSERVATION SERVICE OR THE LOCAL SOIL WATER CONSERVATION DISTRICT FOR MORE INFORMATION.

SPECIFICATIONS
GRADING AND SHAPING
EXCESSIVE WATER RUNOFF SHALL BE REDUCED BY PROPERLY DESIGNED AND INSTALLED EROSION CONTROL PRACTICES SUCH AS CLOSED DRAINS, DITCHES, DIKES, DIVERSIONS, SEDIMENT BARRIERS AND OTHERS. NO SHAPING OR GRADING IS REQUIRED IF SLOPES CAN BE STABILIZED BY HAND-SEEDED VEGETATION OR IF HYDRAULIC SEEDING EQUIPMENT IS TO BE USED.

SEEDBED PREPARATION
WHEN A HYDRAULIC SEEDER IS USED, SEEDBED PREPARATION IS NOT REQUIRED. WHEN USING CONVENTIONAL OR HAND-SEEDING, SEEDBED PREPARATION IS NOT REQUIRED IF THE SOIL MATERIAL IS LOOSE AND NOT SEALED BY RAINFALL. WHEN SOIL HAS BEEN SEALED BY RAINFALL OR CONSISTS OF SMOOTH CUT SLOPES, THE SOIL SHALL BE PITTED, TRENCHED, OR OTHERWISE SCARIFIED TO PROVIDE A PLACE FOR SEED TO LEDGE AND GERMINATE.

LIME AND FERTILIZER
AGRICULTURAL LIME IS REQUIRED UNLESS SOIL TESTS INDICATE OTHERWISE. APPLY AGRICULTURAL LIME AT A RATE DETERMINED BY SOIL TEST FOR pH. QUICK ACTING LIME SHOULD BE INCORPORATED TO MODIFY pH DURING THE GERMINATION PERIOD. BIO STIMULANTS SHOULD ALSO BE CONSIDERED WHEN THERE IS LESS THAN 3% ORGANIC MATTER IN THE SOIL. GRADED AREAS REQUIRE LIME APPLICATION. SOILS MUST BE TESTED TO DETERMINE REQUIRED AMOUNTS OF FERTILIZER AND AMENDMENTS. FERTILIZER SHOULD BE APPLIED BEFORE LAND PREPARATION AND INCORPORATED WITH A DISK, RIPPER, OR CHISEL. ON SLOPES TOO STEEP FOR OR INACCESSIBLE TO EQUIPMENT, FERTILIZER SHALL BE HYDRAULICALLY APPLIED, PREFERABLY IN THE FIRST PASS WITH SEED AND SOME HYDRAULIC MULCH, THEN TOPPED WITH THE REMAINING REQUIRED APPLICATION RATE.

SEEDING
SELECT A GRASS OR GRASS-LEGUME MIXTURE SUITABLE TO THE AREA AND SEASON OF THE YEAR. SEED SHALL BE APPLIED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER-SEEDER, OR HYDRAULIC SEEDER (SLURRY INCLUDING SEED AND FERTILIZER). DRILL OR CULTIPACKER SEEDERS SHOULD NORMALLY PLACE SEED ONE-QUARTER TO ONE-HALF INCH DEEP. APPROPRIATE DEPTH OF PLANTING IS TEN TIMES THE SEED DIAMETER. SOIL SHOULD BE "RAKED" LIGHTLY TO COVER SEED WITH SOIL IF SEEDED BY HAND. SEE THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, LATEST EDITION, FOR MORE INFORMATION.

MULCHING
TEMPORARY VEGETATION CAN, IN MOST CASES, BE ESTABLISHED WITHOUT THE USE OF MULCH, PROVIDED THERE IS LITTLE TO NO EROSION POTENTIAL. HOWEVER, THE USE OF MULCH CAN OFTEN ACCELERATE AND ENHANCE GERMINATION AND VEGETATION ESTABLISHMENT. MULCH WITHOUT SEEDING SHOULD BE CONSIDERED FOR SHORT TERM PROTECTION. REFER TO Ds1-DISTURBED AREA STABILIZATION (WITH MULCHING ONLY).

IRRIGATION
DURING TIMES OF DROUGHT, WATER SHALL BE APPLIED AT A RATE NOT CAUSING RUNOFF AND EROSION. THE SOIL SHALL BE THOROUGHLY WETTED TO A DEPTH THAT WILL INSURE GERMINATION OF THE SEED. SUBSEQUENT APPLICATIONS SHOULD BE MADE WHEN NEEDED.

Ds2 — 62 / - DETAIL
DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)
SOURCE: GSWCC

FERTILIZER REQUIREMENTS

YEAR	EQUIVALENT N-P-K	ANALYSIS OR RATE	N TOP DRESSING
WARM SEASON GRASSES			
FIRST	6-12-12	1500 LBS./AC.	50-100 LBS./AC. 2/6/
SECOND	6-12-12	800 LBS./AC.	50-100 LBS./AC. 2/
MAINTENANCE	10-10-10	400 LBS./AC.	30 LBS./AC.
COOL SEASON GRASSES			
FIRST	6-12-12	1500 LBS./AC.	50 LBS./AC./6/
SECOND	0-10-10	1000 LBS./AC.	------
MAINTENANCE	0-10-10	400 LBS./AC.	------

1. APPLY IN SPRING FOLLOWING SEEDING.
2. APPLY IN SPLIT APPLICATIONS WHEN HIGH RATES ARE USED.
3. APPLY IN 3 SPLIT APPLICATIONS.
4. APPLY WHEN PLANTS ARE PRUNED.
5. APPLY GRASS SPECIES ONLY.
6. APPLY WHEN PLANTS GROW TO A HEIGHT OF 2 TO 4 INCHES.

PLANT, PLANTING RATE & PLANTING DATE FOR PERMANENT COVER

SPECIES	BROADCAST RATES	J	F	M	A	M	J	J	A	S	O	N	D	PLANTING DATE REMARKS
LESPEDEZA SERICEA SCARIFIED	60 LBS./AC													WIDELY ADAPTED. LOW MAINTENENCE. MIX WITH COMMON BERMUDA OR TALL FESCUE. INOCULATE SEED WITH EL INOCULANT.
LESPEDEZA SERICEA UNSCARIFIED	75 LBS./AC													MIX WITH TALL FESCUE.
PENSACOLA BAHIA ALONE OR WITH TEMPORARY COVER	60 LBS./AC													LOW GROWING. SOD FORMING. SLOW TO ESTABLISH. PLANT WITH A COMPANION CROP. WILL SPREAD INTO BERMUDA PASTURES AND LAWNS. MIX WITH SERICEA LESPEDEZA.
WILMINGTON BAHIA WITH OTHER PERENNIALS	30 LBS./AC													
TALL FESCUE ALONE	50 LBS./AC													USE ALONE ONLY ON BETTER SITES. MIX WITH PERENNIAL LESPEDEZA OR CROWNVETCH. APPLY TOP DRESSING IN SPRING FOLLOWING FALL PLANTINGS. NOT FOR HEAVY USE AREAS OR ATHLETIC FIELDS.
TALL FESCUE WITH OTHER PERENNIALS	30 LBS./AC													
REED CANARY GRASS ALONE	50 LBS./AC													
REED CANARY GRASS WITH OTHER PERENNIALS	30 LBS./AC													GROWS SIMILAR TO TALL FESCUE.
COMMON BERMUDA UNHULLED SEED WITH TEMPORARY COVER	10 LBS./AC													PLANT WITH WINTER ANNUALS.
COMMON BERMUDA UNHULLED SEED WITH OTHER PERENNIALS	6 LBS./AC													PLANT WITH TALL FESCUE.

SOLID LINES INDICATE OPTIMUM DATES, DOTTED LINES INDICATE PERMISSIBLE BUT MARGINAL DATES.

DEFINITION
THE PLANTING OF PERENNIAL VEGETATION SUCH AS TREES, SHRUBS, VINES, GRASSES, OR LEGUMES ON EXPOSED AREAS FOR FINAL PERMANENT STABILIZATION. PERMANENT PERENNIAL VEGETATION SHALL BE USED TO ACHIEVE FINAL STABILIZATION.

CONDITIONS
PERMANENT PERENNIAL VEGETATION IS USED TO PROVIDE A PROTECTIVE COVER FOR EXPOSED AREAS INCLUDING CUTS, FILLS, DAMS, AND OTHER DENUDED AREAS.

SPECIFICATIONS
GRADING AND SHAPING
GRADING AND SHAPING MAY NOT BE REQUIRED WHERE HYDRAULIC SEEDING AND FERTILIZING EQUIPMENT IS TO BE USED. VERTICAL BANKS SHALL BE SLOPED TO ENABLE PLANT ESTABLISHMENT. WHEN CONVENTIONAL SEEDING AND FERTILIZING ARE TO BE DONE, GRADE AND SHAPE WHERE FEASIBLE AND PRACTICAL, SO THAT EQUIPMENT CAN BE USED SAFELY AND EFFICIENTLY DURING SEEDBED PREPARATION, SEEDING, MULCHING AND MAINTENANCE OF THE VEGETATION. CONCENTRATIONS OF WATER THAT WILL CAUSE EXCESSIVE SOIL EROSION SHALL BE DIVERTED TO A SAFE OUTLET. DIVERSIONS AND OTHER TREATMENT PRACTICES SHALL CONFORM WITH THE APPROPRIATE STANDARDS AND SPECIFICATIONS.

SEEDBED PREPARATION
SEEDBED PREPARATION MAY NOT BE REQUIRED WHERE HYDRAULIC SEEDING AND FERTILIZING EQUIPMENT IS TO BE USED (BUT IS STRONGLY RECOMMENDED FOR ANY SEEDING PROCESS, WHEN POSSIBLE). WHEN CONVENTIONAL SEEDING IS TO BE USED, SEEDBED PREPARATION WILL BE DONE AS FOLLOWS:

BROADCAST PLANTINGS
1. TILLAGE, AT A MINIMUM, SHALL ADEQUATELY LOOSEN THE SOIL TO A DEPTH OF 4 TO 6 INCHES; ALLEVIATE COMPACTION; INCORPORATE LIME AND FERTILIZER; SMOOTH AND FIRM THE SOIL; ALLOW FOR THE PROPER PLACEMENT OF SEED, SPRIGS, OR PLANTS; AND ALLOW FOR THE ANCHORING OF STRAW OR HAY MULCH IF A DISK IS TO BE USED.
2. TILLAGE MAY BE DONE WITH ANY SUITABLE EQUIPMENT.
3. TILLAGE SHOULD BE DONE ON THE CONTOUR WHERE FEASIBLE.
4. ON SLOPES TOO STEEP FOR THE SAFE OPERATION OF TILLAGE EQUIPMENT, THE SOIL SURFACE SHALL BE PITTED OR TRENCHED ACROSS THE SLOPE WITH APPROPRIATE HAND TOOLS TO PROVIDE TWO PLACES 6 TO 8 INCHES APART IN WHICH SEED MAY LODGE AND GERMINATE. HYDRAULIC SEEDING MAY ALSO BE USED.

INDIVIDUAL PLANTS
1. WHERE INDIVIDUAL PLANTS ARE TO BE SET, THE SOIL SHALL BE PREPARED BY EXCAVATING HOLES, OPENING FURROWS, OR DIBBLE PLANTING.
2. FOR NURSERY STOCK PLANTS, HOLES SHALL BE LARGE ENOUGH TO ACCOMMODATE ROOTS WITHOUT CROWDING.
3. WHERE PINE SEEDLINGS ARE TO BE PLANTED, SUBSOIL UNDER THE ROW 36 INCHES DEEP ON THE CONTOUR FOUR TO SIX MONTHS PRIOR TO PLANTING. SUBSOILING SHOULD BE DONE WHEN THE SOIL IS DRY, PREFERABLY IN AUGUST OR SEPTEMBER.

PLANTING
HYDRAULIC SEEDING
MIX THE SEED (INNOCULATED IF NEEDED), FERTILIZER, AND WOOD CELLULOSE OR WOOD PULP FIBER MULCH WITH WATER AND APPLY IN A SLURRY UNIFORMLY OVER THE AREA TO BE TREATED. APPLY WITHIN ONE HOUR AFTER THE MIXTURE IS MADE.
CONVENTIONAL SEEDING
SEEDING WILL BE DONE ON A FRESHLY PREPARED AND FIRMED SEEDBED. FOR BROADCAST PLANTING, USE A CULTIPACKER-SEEDER, DRILL ROTARY SEEDER, OTHER MECHANICAL SEEDER, OR HAND SEEDING TO DISTRIBUTE THE SEED UNIFORMLY OVER THE AREA TO BE TREATED. COVER THE SEED LIGHTLY WITH 1/8 TO 1/4 INCH OF SOIL FOR SMALL SEED AND 1/2 TO 1 INCH FOR LARGE SEED WHEN USING A CULTIPACKER OR OTHER SUITABLE EQUIPMENT.
NO-TILLING SEEDING
NO-TILL SEEDING IS PERMISSIBLE INTO ANNUAL COVER CROPS WHEN PLANTING IS DONE FOLLOWING MATURITY OF THE COVER CROP OR IF THE TEMPORARY COVER STAND IS SPARSE ENOUGH TO ALLOW ADEQUATE GROWTH OF THE PERMANENT (PERENNIAL) SPECIES.
NO-TILL SEEDING SHALL BE DONE WITH APPROPRIATE NO-TILL SEEDING EQUIPMENT. THE SEED MUST BE UNIFORMLY DISTRIBUTED AND PLANTED AT THE PROPER DEPTH.
INDIVIDUAL PLANTS
SHRUBS, VINES AND SPRIGS MAY BE PLANTED WITH APPROPRIATE PLANTERS OR HAND TOOLS. PINE TREES SHALL BE PLANTED MANUALLY IN THE SUBSOIL FURROW. EACH PLANT SHALL BE SET IN A MANNER THAT WILL AVOID CROWDING THE ROOTS.

NURSERY STOCK PLANTS SHALL BE PLANTED AT THE SAME DEPTH OR SLIGHTLY DEEPER THAN THEY GREW AT THE NURSERY. THE TIPS OF VINES AND SPRIGS MUST BE AT OR SLIGHTLY ABOVE THE GROUND SURFACE.

WHERE INDIVIDUAL HOLES ARE DUG, FERTILIZER SHALL BE PLACED IN THE BOTTOM OF THE HOLE, TWO INCHES OF SOIL SHALL BE ADDED, AND THE PLANT SHALL BE SET IN THE HOLE.

MULCHING
MULCH IS REQUIRED FOR ALL PERMANENT VEGETATION APPLICATIONS. MULCH APPLIED TO SEEDED AREAS SHALL RECEIVE 75% TO 100% SOIL COVER. WHEN SELECTING A MULCH, DESIGN PROFESSIONALS SHOULD CONSIDER THE MULCH'S FUNCTIONAL LONGEVITY, VEGETATION ESTABLISHMENT ENHANCEMENT, AND EROSION CONTROL EFFECTIVENESS. SELECT THE MULCHING MATERIAL FROM THE FOLLOWING AND APPLY AS INDICATED:
1. DRY STRAW OR DRY HAY OF GOOD QUALITY AND FREE OF WEED SEEDS CAN BE USED. DRY STRAW SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. DRY HAY SHALL BE APPLIED AT A RATE OF 2 1/2 TONS PER ACRE.
2. WOOD CELLULOSE MULCH OR WOOD PULP FIBER SHALL BE USED WITH HYDRAULIC SEEDING. IT SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE. DRY STRAW OR DRY HAY SHALL BE APPLIED (AT THE RATE INDICATED ABOVE) AFTER HYDRAULIC SEEDING.
3. ONE THOUSAND POUNDS OF WOOD CELLULOSE OR WOOD PULP FIBER, WHICH INCLUDES A TACKIFIER, SHALL BE USED WITH HYDRAULIC SEEDING ON SLOPES 1/4:1 OR STEEPER.
4. SERICEA LESPEDEZA HAY CONTAINING MATURE SEED SHALL BE APPLIED AT A RATE OF THREE TONS PER ACRE.
5. PINE STRAW OR PINE BARK SHALL BE APPLIED AT A THICKNESS OF 3 INCHES FOR BEDDING PURPOSES. OTHER SUITABLE MATERIALS IN SUFFICIENT QUANTITY MAY BE USED WHERE ORNAMENTALS OR OTHER GROUND COVERS ARE PLANTED. THIS IS NOT APPROPRIATE FOR SEEDED AREAS.
6. WHEN USING TEMPORARY EROSION CONTROL BLANKETS OR BLOCK SOD, MULCH IS NOT REQUIRED.
7. BITUMINOUS TREATED ROVING MAY BE APPLIED ON PLANTED AREAS, SLOPES, IN DITCHES, OR DRY WATERWAYS TO PREVENT EROSION. BITUMINOUS TREATED ROVING SHALL BE APPLIED WITHIN 24 HOURS AFTER AN AREA HAS BEEN PLANTED. APPLICATION RATES AND MATERIALS MUST MEET GEORGIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS. WOOD CELLULOSE AND WOOD PULP FIBERS SHALL NOT CONTAIN GERMINATION OR GROWTH INHIBITING FACTORS. THEY SHALL BE EVENLY DISPERSED WHEN AGITATED IN WATER. THE FIBERS SHALL CONTAIN A DYE TO ALLOW VISUAL METERING AND AID IN UNIFORM APPLICATION DURING SEEDING.

APPLYING MULCH
STRAW OR HAY MULCH WILL BE SPREAD UNIFORMLY WITHIN 24 HOURS AFTER SEEDING AND/OR PLANTING. THE MULCH MAY BE SPREAD BY BLOWER-TYPE SPREADING EQUIPMENT, OTHER SPREADING EQUIPMENT OR BY HAND. MULCH SHALL BE APPLIED TO COVER 75% OF THE SOIL SURFACE. WOOD CELLULOSE OR WOOD FIBER MULCH SHALL BE APPLIED UNIFORMLY WITH HYDRAULIC SEEDING EQUIPMENT.

ANCHORING MULCH
ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION BY ONE OF THE FOLLOWING METHODS:
1. HAY AND STRAW MULCH SHALL BE PRESSED INTO THE SOIL IMMEDIATELY AFTER THE MULCH IS SPREAD. A SPECIAL "PACKER DISK" OR DISK HARROW WITH THE DISKS SET STRAIGHT MAY BE USED. THE DISKS MAY BE SMOOTH OR SERRATED AND SHOULD BE 2 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART. THE EDGES OF THE DISKS SHALL BE DULL ENOUGH TO PRESS THE MULCH INTO THE GROUND WITHOUT CUTTING IT, LEAVING MUCH OF IT IN AN ERECT POSITION. MULCH SHALL NOT BE PLOWED INTO THE SOIL.
2. SYNTHETIC TACKIFIERS, FINDERS OR HYDRAULIC MULCH SPECIFICALLY DESIGNED TO TACK STRAW, SHALL BE APPLIED IN CONJUNCTION WITH OR IMMEDIATELY AFTER THE MULCH IS SPREAD. SYNTHETIC TACKIFIERS SHALL BE MIXED AND APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. ALL TACKIFIERS, FINDERS OR HYDRAULIC MULCH SPECIFICALLY DESIGNED TO TACK STRAW SHOULD BE VERIFIED NONTOXIC THROUGH EPA 2021.0 TESTING. REFER TO TACKIFIERS-TAC IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, LATEST EDITION.
3. RYE OR WHEAT CAN BE INCLUDED WITH FALL AND WINTER PLANTINGS TO STABILIZE THE MULCH. THEY SHALL BE APPLIED AT A RATE OF ONE-QUARTER TO ONE-HALF BUSHED PER ACRE.
4. PLASTIC MESH OR NETTING WITH MESH NO LARGER THAN ONE INCH BY ONE INCH MAY BE NEEDED TO ANCHOR STRAW OR HAY MULCH ON UNSTABLE SOILS AND CONCENTRATED FLOW AREAS. THESE MATERIALS SHALL BE INSTALLED AND ANCHORED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

LIME AND FERTILIZER APPLICATION
WHEN HYDRAULIC SEEDING EQUIPMENT IS USED, THE INITIAL FERTILIZER SHALL BE MIXED WITH SEED, INNOCULANT (IF NEEDED), AND WOOD CELLULOSE OR WOOD PULP FIBER MULCH AND APPLIED IN A SLURRY. THE INNOCULANT, IF NEEDED, SHALL BE MIXED WITH THE SEED PRIOR TO BEING PLACED INTO THE HYDRAULIC SEEDER. THE SLURRY MIXTURE WILL BE AGITATED DURING APPLICATION TO KEEP THE INGREDIENTS THOROUGHLY MIXED. THE MIXTURE WILL BE SPREAD UNIFORMLY OVER THE AREA WITHIN ONE HOUR AFTER BEING PLACED IN THE HYDROSEEDER. FINELY GROUND LIMESTONE CAN BE APPLIED IN THE MULCH SLURRY OR IN COMBINATION WITH THE TOP DRESSING. WHEN CONVENTIONAL PLANTING IS TO BE DONE, LIME AND FERTILIZER SHALL BE APPLIED UNIFORMLY IN ONE OF THE FOLLOWING WAYS:
1. APPLY BEFORE LAND PREPARATION SO THAT IT WILL BE MIXED WITH THE SOIL DURING SEEDBED REPARATION.
2. MIX WITH THE SOIL USED TO FILL THE HOLES, DISTRIBUTE IN FURROWS.
3. BROADCAST AFTER STEEP SURFACES ARE SCARIFIED, PITTED OR TRENCHED.
4. A FERTILIZER PELLET SHALL BE PLACED AT ROOT DEPTH IN THE CLOSING HOLE BESIDE EACH PINE TREE SEEDLING.

PLANT SELECTION
REFER TO THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, LATEST EDITION, FOR APPROVED SPECIES. SPECIES NOT LISTED SHALL BE APPROVED BY THE STATE RESOURCE CONSERVATIONIST OF THE NATURAL RESOURCES CONSERVATION SERVICE BEFORE THEY ARE USED. PLANTS SHALL BE SELECTED ON THE BASIS OF SPECIES CHARACTERISTICS, SITE AND SOIL CONDITIONS, PLANNED USE AND MAINTENANCE OF THE AREA; TIME OF YEAR OF PLANTING, METHOD OF PLANTING; AND THE NEEDS AND DESIRES OF THE LAND USER. SOME PERENNIAL SPECIES ARE EASILY ESTABLISHED AND CAN BE PLANTED ALONE. EXAMPLES OF THESE ARE COMMON BERMUDA, TALL FESCUE, AND WEEPING LOVEGRASS. OTHER PERENNIALS, SUCH AS BAHIA GRASS AND SERICEA LESPEDEZA, ARE SLOW TO BECOME ESTABLISHED AND SHOULD BE PLANTED WITH ANOTHER PERENNIAL SPECIES. THE ADDITIONAL SPECIES WILL PROVIDE QUICK COVER AND AMPLE SOIL PROTECTION UNTIL THE TARGET PERENNIAL SPECIES BECOME ESTABLISHED. FOR EXAMPLE, COMMON SEEDING COMBINATIONS ARE 1) WEEPING LOVEGRASS WITH SERICEA LESPEDEZA (SCARIFIED) AND 2) TALL FESCUE WITH SERICEA LESPEDEZA (UNSPECIFIED). PLANT SELECTION MAY ALSO INCLUDE ANNUAL COMPANION CROPS. ANNUAL COMPANION CROPS SHOULD BE USED ONLY WHEN THE PERENNIAL SPECIES ARE NOT PLANTED DURING THEIR OPTIMUM PLANTING PERIOD. A COMMON MIXTURE IS BROWN TOP MILLET WITH COMMON BERMUDA IN MID SUMMER. CARE SHOULD BE TAKEN IN SELECTING COMPANION CROP SPECIES AND SEEDING RATES BECAUSE ANNUAL CROPS WILL COMPETE WITH PERENNIAL SPECIES FOR WATER, NUTRIENTS, AND GROWING SPACE. A HIGH SEEDING RATE OF THE COMPANION CROP MAY PREVENT THE ESTABLISHMENT OF PERENNIAL SPECIES. RYEGRASS SHALL NOT BE USED IN ANY SEEDING MIXTURES CONTAINING PERENNIAL SPECIES DUE TO ITS ABILITY TO OUT-COMPETE DESIRED SPECIES CHOSEN FOR PERMANENT PERENNIAL COVER.

Ds3 — 63 / - DETAIL
DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)
SOURCE: GSWCC

GEORGIA REGISTERED No. 17516 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE — August 16, 2021

Georgia Power

PERMIT DRAWING
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

EROSION AND SEDIMENT CONTROL DETAILS III

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

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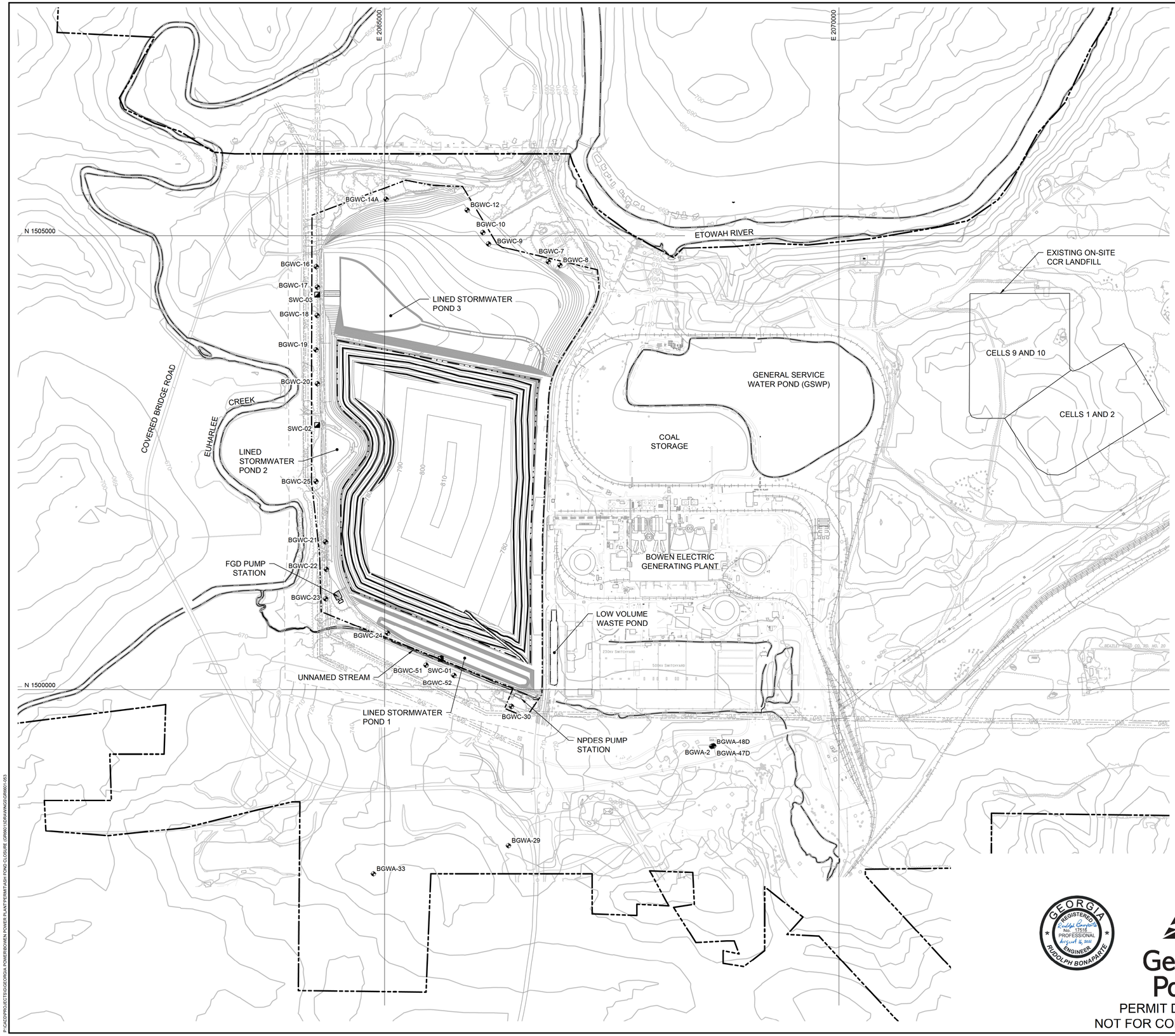
PROJ. NO.	GR6601	DWG.	GR6601-051	EDIT	08.16.21
SCALE	AS SHOWN	DRAWING 49 OF 50			
DATE	AUGUST 2021				



N

LEGEND

- PROPERTY BOUNDARY
- PERMIT BOUNDARY
- FINAL LIMIT OF CCR (CONSOLIDATED FOOTPRINT)
- BGWA-7 — CURRENT GROUNDWATER MONITORING WELL (NOTE 3)
- SWC-01 — SURFACE WATER MONITORING POINT (NOTE 4)

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: Keith Stevens — Digitally signed by Keith Stevens Date: 2021.08.27 14:28:19 -04'00'

COMPLIANCE MONITORING NETWORK (NOTE 3)

MONITORING WELL ID	MONITORING PURPOSE	NORTHING	EASTING	GROUND SURFACE ELEVATION	SCREEN ELEVATIONS (TOP TO BOTTOM) (FT)		
BGWA-2	BACKGROUND	1499374.18	2068599.59	727.00	650.5	TO	640.5
BGWA-29	BACKGROUND	1498283.04	2066362.32	718.84	632.9	TO	622.9
BGWA-33	BACKGROUND	1497972.13	2064876.80	740.50	661.2	TO	651.2
BGWA-47D	BACKGROUND	1499377.79	2068612.48	726.93	585.9	TO	575.9
BGWA-48D	BACKGROUND	1499380.09	2068623.31	726.64	545.0	TO	535.0
BGWC-7	DOWNGRADIENT	1504711.59	2066801.40	702.49	625.2	TO	615.2
BGWC-8	DOWNGRADIENT	1504671.82	2066929.46	703.71	636.8	TO	628.8
BGWC-9	DOWNGRADIENT	1504909.12	2066143.27	689.18	638.3	TO	628.3
BGWC-10	DOWNGRADIENT	1505033.22	2066081.09	683.39	633.7	TO	623.7
BGWC-12	DOWNGRADIENT	1505279.88	2065908.56	691.71	626.0	TO	616.0
BGWC-14A	DOWNGRADIENT	1505398.54	2065015.98	715.57	629.6	TO	619.6
BGWC-16	DOWNGRADIENT	1504656.42	2064247.67	671.65	635.3	TO	625.3
BGWC-17	DOWNGRADIENT	1504432.00	2064259.38	671.25	615.4	TO	605.4
BGWC-18	DOWNGRADIENT	1504118.73	2064257.00	670.32	645.1	TO	635.1
BGWC-19	DOWNGRADIENT	1503742.25	2064244.66	671.04	628.9	TO	618.9
BGWC-20	DOWNGRADIENT	1503367.73	2064259.55	672.29	635.1	TO	625.1
BGWC-21	DOWNGRADIENT	1501627.51	2064348.09	688.53	648.8	TO	638.6
BGWC-22	DOWNGRADIENT	1501323.76	2064358.05	692.64	662.6	TO	652.6
BGWC-23	DOWNGRADIENT	1501000.57	2064350.17	693.16	654.3	TO	644.3
BGWC-24	DOWNGRADIENT	1500621.22	2065032.84	699.46	646.3	TO	636.3
BGWC-25	DOWNGRADIENT	1502292.73	2064244.10	677.60	632.9	TO	622.9
BGWC-30	DOWNGRADIENT	1499815.93	2066395.86	698.39	651.6	TO	641.6
BGWC-51	DOWNGRADIENT	1500270.09	2065455.80	708.99	654.6	TO	644.6
BGWC-52	DOWNGRADIENT	1500156.97	2065764.13	707.77	638.9	TO	628.9

NOTES:

1. GRADING SHOWN IN AND AROUND THE AP-1 AREA REPRESENTS FINAL CONDITIONS UPON COMPLETION OF CLOSURE.
2. MONITORING WELL COORDINATES, GROUND SURFACE ELEVATIONS, AND SCREEN ELEVATIONS WERE OBTAINED FROM THE "SEPTEMBER 2020 WELL INSTALLATION ADDENDUM MEMORANDUM" DATED 29 SEPTEMBER 2020, PREPARED BY GEOSYNTEC CONSULTANTS, INC. DATA FOR MONITORING WELLS BGWC-51 AND BGWC-52 WERE OBTAINED FROM THE "ASH POND MONITORING WELL CERTIFICATION REPORT - ADDENDUM NO. 4" DATED 24 MARCH 2021, PREPARED BY GEOSYNTEC CONSULTANTS, INC.
3. GROUNDWATER MONITORING WELLS SHOWN AND TABULATED ON THIS DRAWING ARE THOSE USED TO BOTH MEASURE GROUNDWATER LEVELS AND COLLECT GROUNDWATER SAMPLES FOR ANALYSIS. REFER TO THE GROUNDWATER MONITORING PLAN FOR THE LOCATION AND PURPOSE OF OTHER ON-SITE PIEZOMETERS AND WELLS.
4. THE COORDINATES OF THE SURFACE WATER MONITORING POINTS ARE AS FOLLOWS:
   - SWC-01: 34° 7' 19.40" N, 84° 55' 47.42" W (IN NAD 83: NORTHING: 1500339.06, EASTING: 2065618.14).
   - SWC-02: 34° 7' 44.78" N, 84° 56' 3.85" W (IN NAD 83: NORTHING: 1502914.64, EASTING: 2064256.49).
   - SWC-03: 34° 7' 58.98" N, 84° 56' 3.96" W (IN NAD 83: NORTHING: 1504349.80, EASTING: 2064257.83).

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
Approved
Solid Waste Management Program
Approved By: John Sayer — Digitally signed by John Sayer Date: 2021.08.30 14:52:14 -04'00'

0 500 1000
SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
0	AUG. 2021	SUBMITTAL TO GA EPD	JJV/KH	RB

COMPLIANCE MONITORING NETWORK

PLANT BOWEN ASH POND 1 (AP-1)
CLOSURE DRAWINGS
BARTOW COUNTY, GEORGIA

GEORGIA REGISTERED No. 17516 PROFESSIONAL ENGINEER RUDOLPH BONAPARTE

Georgia Power

PERMIT DRAWING
NOT FOR CONSTRUCTION

Geosyntec consultants
1255 ROBERTS BOULEVARD, NW, SUITE 200
KENNESAW, GEORGIA 30144 USA
PHONE: 678.202.9500
WWW.GEOSYNTEC.COM

PROJ. NO.	GR6601	DWG. GR6601-053	EDIT 8/16/21
SCALE	1" = 500'	DRAWING 50 OF 50	
DATE	AUGUST 2021		

P:\ACAD\PROJECTS\GEORGIA POWER\BOWEN POWER PLANT\PERMIT\ASH POND CLOSURE (GR6601)\DRAWINGS\GR6601-053