

WE ENERGIES- CALEDONIA ASH LANDFILL PLAN OF OPERATION MODIFICATION TOWN OF CALEDONIA RACINE COUNTY, WISCONSIN GEI PROJECT NO.: 2203724



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Site Map
NOT TO SCALE

PREPARED FOR:



WE ENERGIES
333 WEST EVERETT STREET
MILWAUKEE, WISCONSIN

PREPARED BY:



NO.	DATE	ISSUE/REVISION	APP	DWG. NO.	SHEET NO.
				PM-1	
1	9/29/2023	PLAN OF OPERATION MODIFICATION	JXT		1 OF 21

**CALEDONIA
 ASH LANDFILL
 PLAN OF OPERATION
 MODIFICATION**

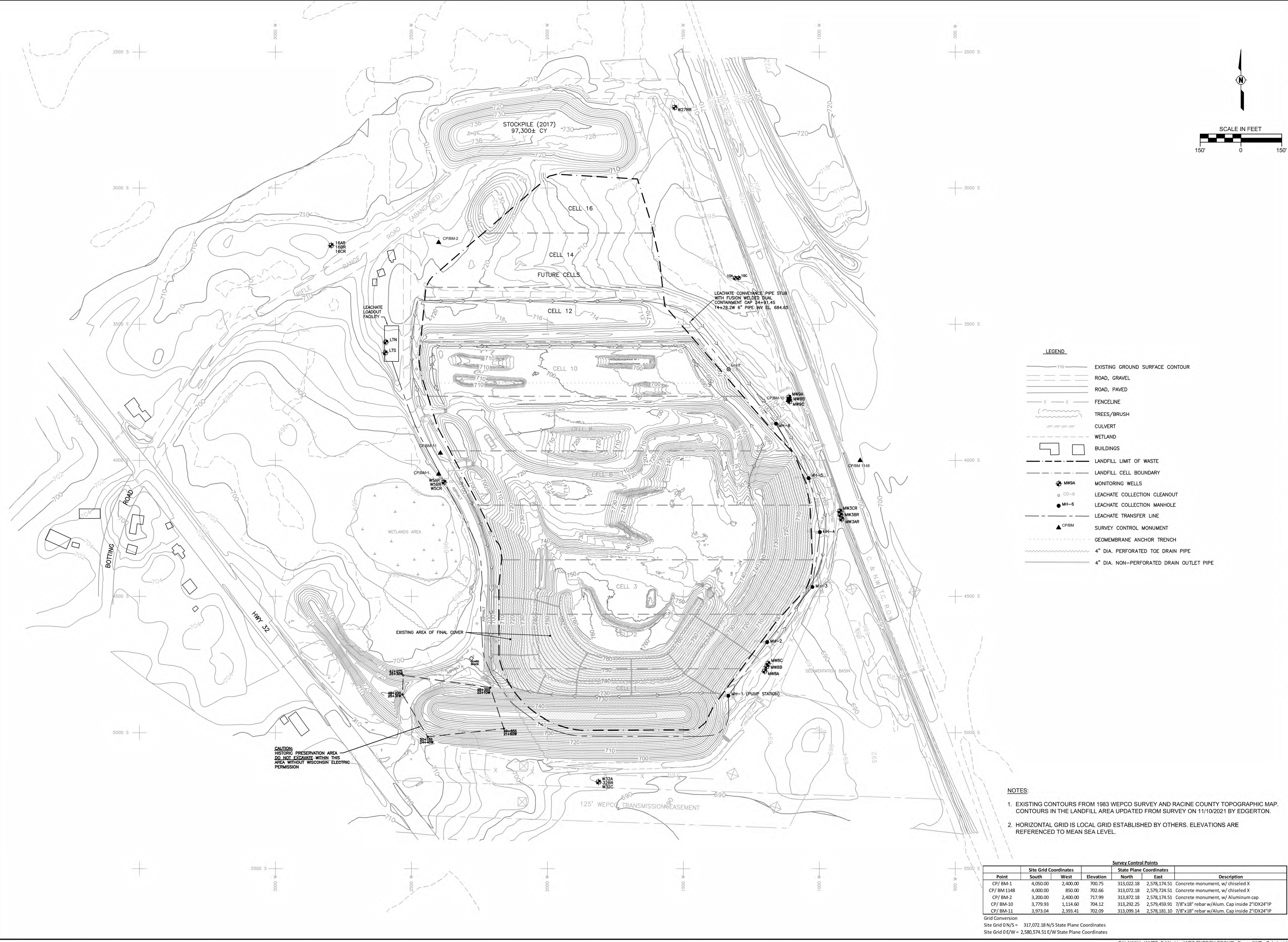
P.E. No.:
 Approved: **JXT**
 Checked: **JXT**
 Drawn: **JLC**
 Designed: **JLC**
 GEI Project: **2203724**

Attention: 1"
 0 150
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EXISTING SITE CONDITIONS

DWG. NO.
PM-2
 SHEET NO.
 2 OF 21



CAUTION:
 HISTORIC PRESERVATION AREA
 DO NOT EXCAVATE WITHIN THIS
 AREA WITHOUT WISCONSIN ELECTRIC
 PERMISSION

125' WPCO TRANSMISSION EASEMENT

125' WPCO TRANSMISSION EASEMENT

**CALEDONIA
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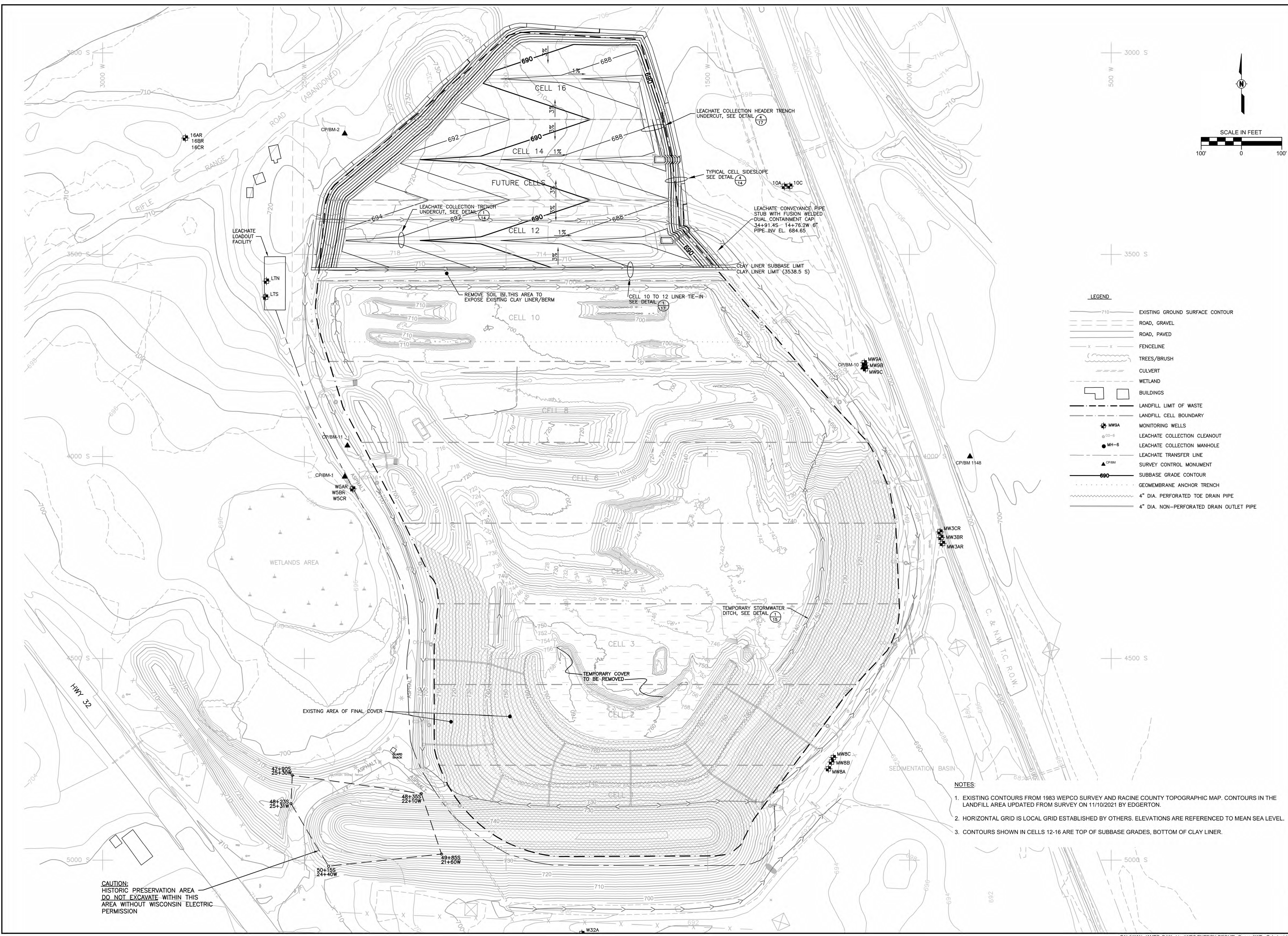
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SUBBASE GRADES

DWG. NO.
PM-3
 SHEET NO.
 3 OF 21



- LEGEND**
- 710 --- EXISTING GROUND SURFACE CONTOUR
 - ROAD, GRAVEL
 - ROAD, PAVED
 - FENCELINE
 - TREES/BRUSH
 - CULVERT
 - WETLAND
 - BUILDINGS
 - LANDFILL LIMIT OF WASTE
 - LANDFILL CELL BOUNDARY
 - MONITORING WELLS
 - LEACHATE COLLECTION CLEANOUT
 - LEACHATE COLLECTION MANHOLE
 - LEACHATE TRANSFER LINE
 - SURVEY CONTROL MONUMENT
 - 690 --- SUBBASE GRADE CONTOUR
 - GEOMEMBRANE ANCHOR TRENCH
 - 4" DIA. PERFORATED TOE DRAIN PIPE
 - 4" DIA. NON-PERFORATED DRAIN OUTLET PIPE

- NOTES:**
- EXISTING CONTOURS FROM 1983 WPCO SURVEY AND RACINE COUNTY TOPOGRAPHIC MAP. CONTOURS IN THE LANDFILL AREA UPDATED FROM SURVEY ON 11/10/2021 BY EDGERTON.
 - HORIZONTAL GRID IS LOCAL GRID ESTABLISHED BY OTHERS. ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL.
 - CONTOURS SHOWN IN CELLS 12-16 ARE TOP OF SUBBASE GRADES, BOTTOM OF CLAY LINER.

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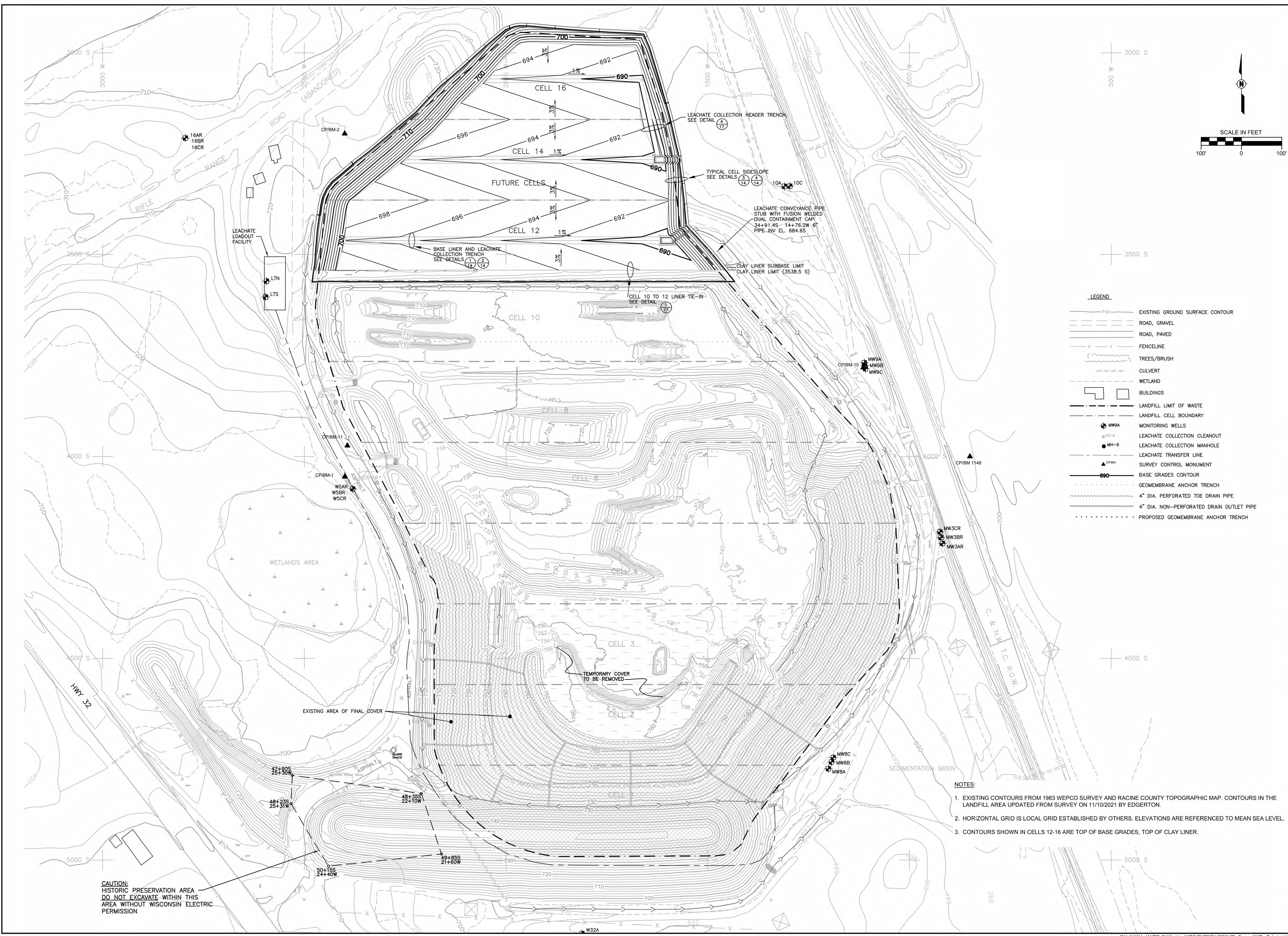
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BASE GRADES

DWG. NO.
PM-4
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 4 OF 21



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**CALEDONIA
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 PLAN OF OPERATION
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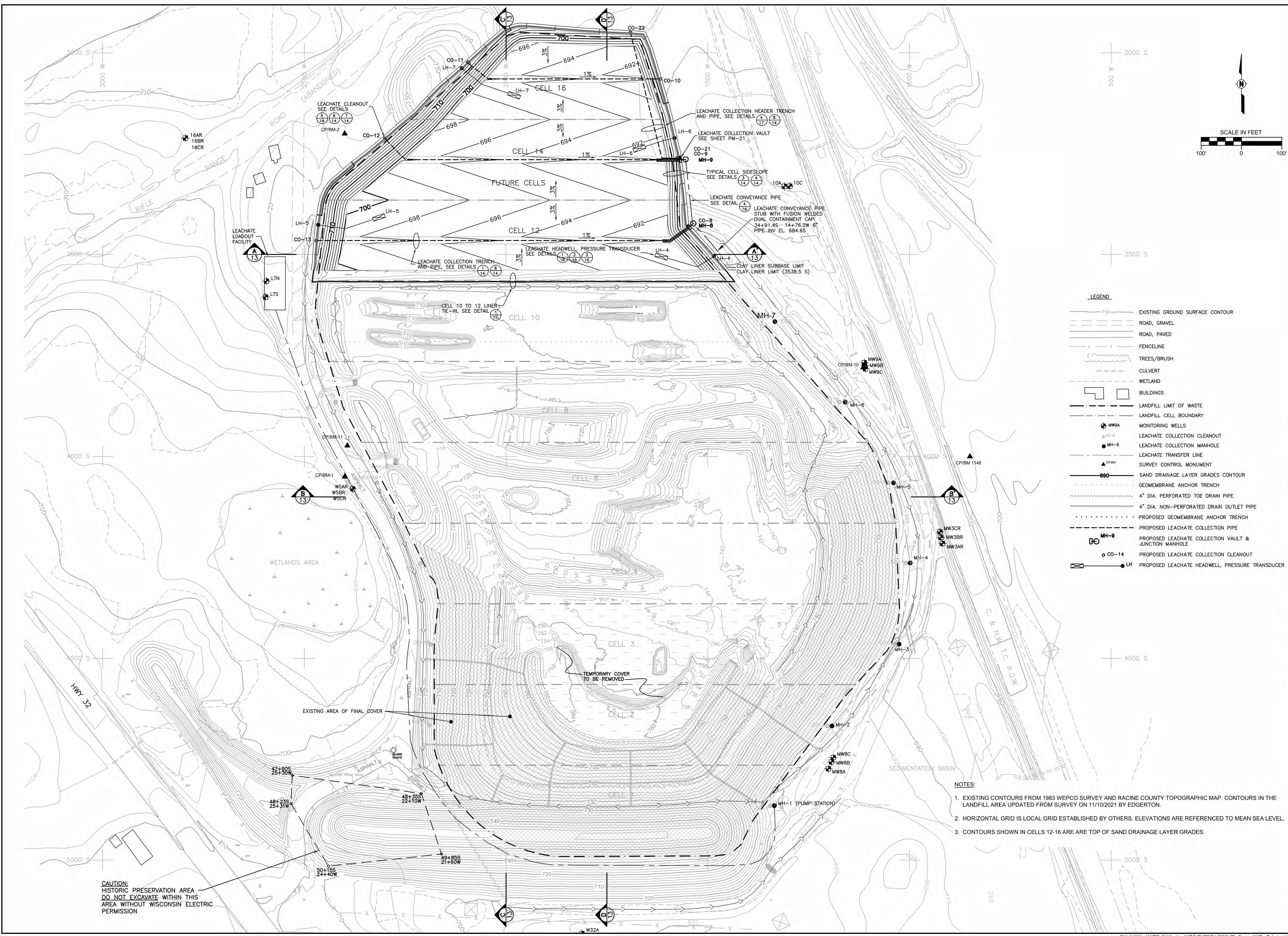
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**LEACHATE
 COLLECTION
 SYSTEM**

DWG. NO.
PM-5
 SHEET NO.
 5 OF 21



LEGEND

- 710 ——— EXISTING GROUND SURFACE CONTOUR
- ROAD, GRAVEL
- ROAD, PAVED
- - - - - FENCELINE
- ~~~~~ TREES/BRUSH
- ~~~~~ WETLAND
- ▭ BUILDINGS
- LANDFILL LIMIT OF WASTE
- LANDFILL CELL BOUNDARY
- ⊕ MW3A MONITORING WELLS
- ⊙ CO-6 LEACHATE COLLECTION CLEANOUT
- MH-6 LEACHATE COLLECTION MANHOLE
- LEACHATE TRANSFER LINE
- ▲ CP/BM SURVEY CONTROL MONUMENT
- 690 SAND DRAINAGE LAYER GRADES CONTOUR
- GEOMEMBRANE ANCHOR TRENCH
- 4" DIA. PERFORATED TOE DRAIN PIPE
- 4" DIA. NON-PERFORATED DRAIN OUTLET PIPE
- PROPOSED GEOMEMBRANE ANCHOR TRENCH
- PROPOSED LEACHATE COLLECTION PIPE
- ⊕ MH-9 PROPOSED LEACHATE COLLECTION VAULT & JUNCTION MANHOLE
- CO-14 PROPOSED LEACHATE COLLECTION CLEANOUT
- ⊕ LH PROPOSED LEACHATE HEADWELL, PRESSURE TRANSDUCER

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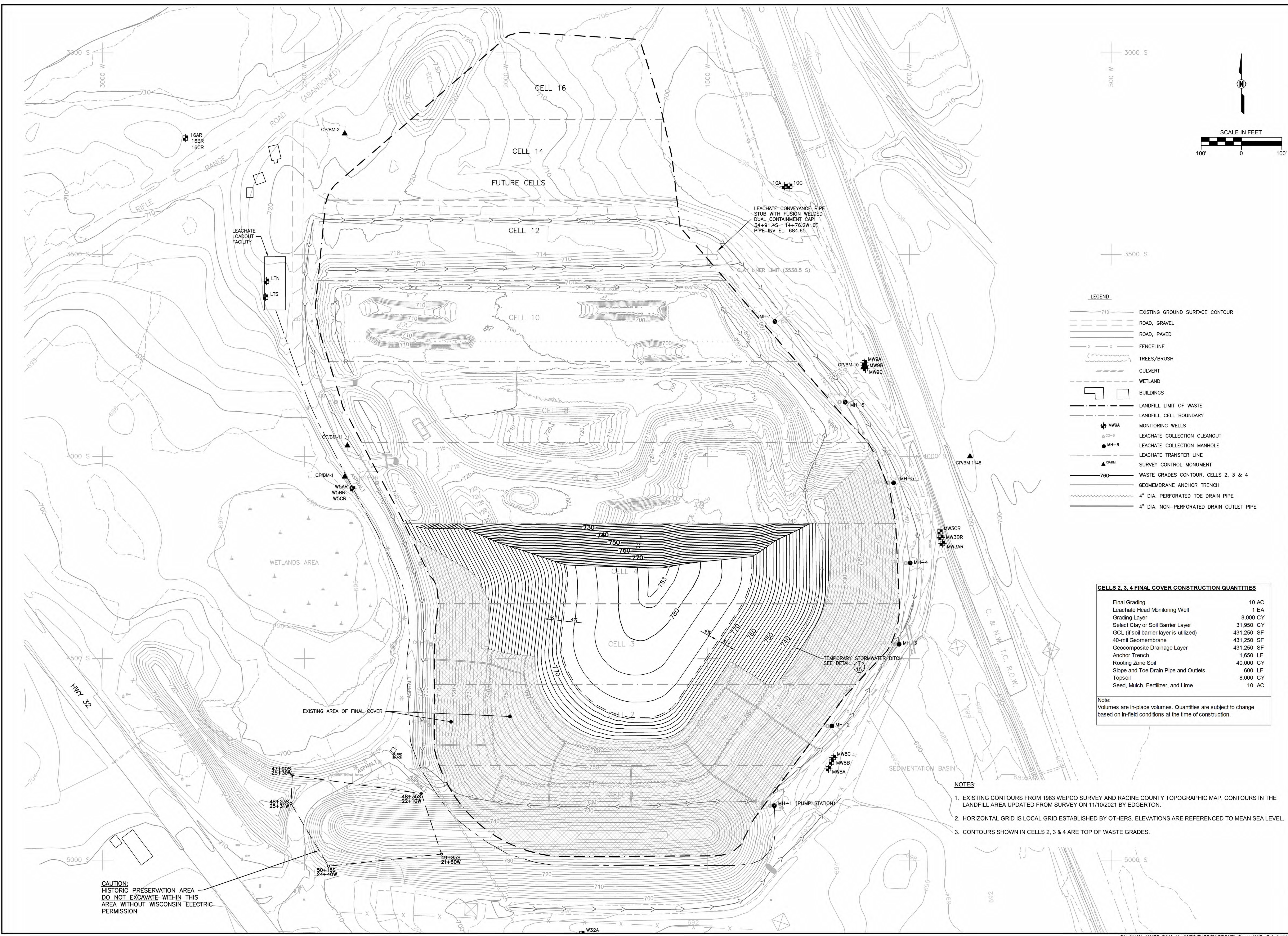
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**CELLS 2, 3 & 4
 WASTE GRADES**

DWG. NO.
PM-6
 SHEET NO.
 6 OF 21



LEGEND

	EXISTING GROUND SURFACE CONTOUR
	ROAD, GRAVEL
	ROAD, PAVED
	FENCE LINE
	TREES/BRUSH
	CULVERT
	WETLAND
	BUILDINGS
	LANDFILL LIMIT OF WASTE
	LANDFILL CELL BOUNDARY
	MONITORING WELLS
	LEACHATE COLLECTION CLEANOUT
	LEACHATE COLLECTION MANHOLE
	LEACHATE TRANSFER LINE
	SURVEY CONTROL MONUMENT
	WASTE GRADES CONTOUR, CELLS 2, 3 & 4
	GEOMEMBRANE ANCHOR TRENCH
	4" DIA. PERFORATED TOE DRAIN PIPE
	4" DIA. NON-PERFORATED DRAIN OUTLET PIPE

CELLS 2, 3, 4 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	10 AC
Leachate Head Monitoring Well	1 EA
Grading Layer	8,000 CY
Select Clay or Soil Barrier Layer	31,950 CY
GCL (if soil barrier layer is utilized)	431,250 SF
40-mil Geomembrane	431,250 SF
Geocomposite Drainage Layer	431,250 SF
Anchor Trench	1,650 LF
Rooting Zone Soil	40,000 CY
Slope and Toe Drain Pipe and Outlets	600 LF
Topsoil	8,000 CY
Seed, Mulch, Fertilizer, and Lime	10 AC

Note:
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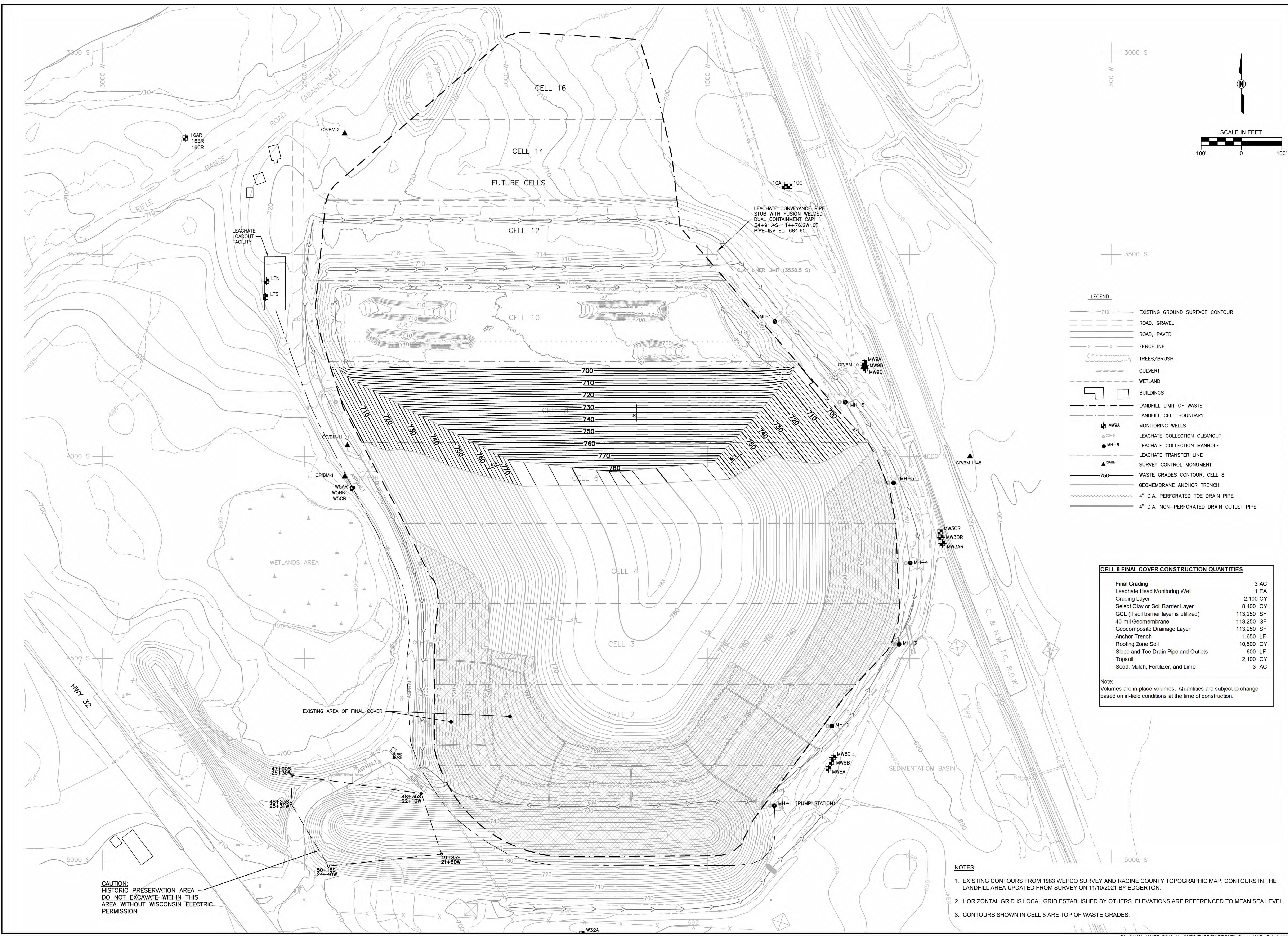
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**CELL 8
 WASTE GRADES**

DWG. NO.
PM-8
 SHEET NO.
 8 OF 21



LEGEND

- 710 --- EXISTING GROUND SURFACE CONTOUR
- ROAD, GRAVEL
- ROAD, PAVED
- - - - - FENCELINE
- TREES/BRUSH
- CULVERT
- WETLAND
- BUILDINGS
- LANDFILL LIMIT OF WASTE
- LANDFILL CELL BOUNDARY
- MONITORING WELLS
- LEACHATE COLLECTION CLEANOUT
- LEACHATE COLLECTION MANHOLE
- LEACHATE TRANSFER LINE
- SURVEY CONTROL MONUMENT
- 750 --- WASTE GRADES CONTOUR, CELL 8
- GEOMEMBRANE ANCHOR TRENCH
- 4" DIA. PERFORATED TOE DRAIN PIPE
- 4" DIA. NON-PERFORATED DRAIN OUTLET PIPE

CELL 8 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	3 AC
Leachate Head Monitoring Well	1 EA
Grading Layer	2,100 CY
Select Clay or Soil Barrier Layer	8,400 CY
GCL (if soil barrier layer is utilized)	113,250 SF
40-mil Geomembrane	113,250 SF
Geocomposite Drainage Layer	113,250 SF
Anchor Trench	1,650 LF
Rooting Zone Soil	10,500 CY
Slope and Toe Drain Pipe and Outlets	600 LF
Topsoil	2,100 CY
Seed, Mulch, Fertilizer, and Lime	3 AC

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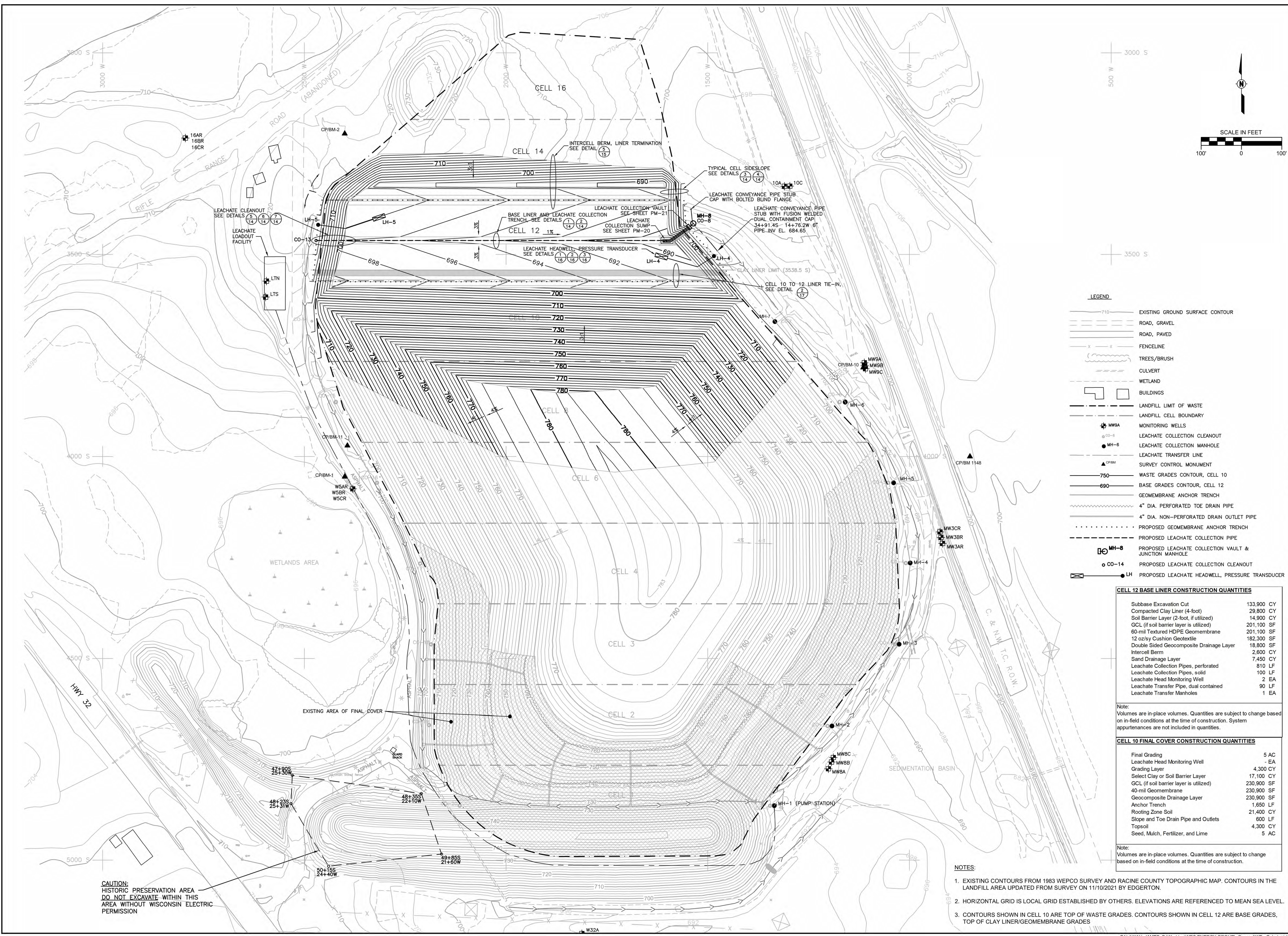
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**CELL 10
 WASTE GRADES
 &
 CELL 12
 BASE GRADES**

DWG. NO.
PM-9
 SHEET NO.
 9 OF 21



LEGEND

- 710 EXISTING GROUND SURFACE CONTOUR
- ROAD, GRAVEL
- ROAD, PAVED
- FENCELINE
- TREES/BRUSH
- CULVERT
- WETLAND
- BUILDINGS
- LANDFILL LIMIT OF WASTE
- LANDFILL CELL BOUNDARY
- MONITORING WELLS
- LEACHATE COLLECTION CLEANOUT
- LEACHATE COLLECTION MANHOLE
- LEACHATE TRANSFER LINE
- SURVEY CONTROL MONUMENT
- 750 WASTE GRADES CONTOUR, CELL 10
- 690 BASE GRADES CONTOUR, CELL 12
- GEOMEMBRANE ANCHOR TRENCH
- 4" DIA. PERFORATED TOE DRAIN PIPE
- 4" DIA. NON-PERFORATED DRAIN OUTLET PIPE
- PROPOSED GEOMEMBRANE ANCHOR TRENCH
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION VAULT & JUNCTION MANHOLE
- PROPOSED LEACHATE COLLECTION CLEANOUT
- PROPOSED LEACHATE HEADWELL, PRESSURE TRANSDUCER

CELL 12 BASE LINER CONSTRUCTION QUANTITIES

Subbase Excavation Cut	133,900 CY
Compacted Clay Liner (4-foot)	29,800 CY
Soil Barrier Layer (2-foot, if utilized)	14,900 CY
GCL (if soil barrier layer is utilized)	201,100 SF
60-mil Textured HDPE Geomembrane	201,100 SF
12 oz/sy Cushion Geotextile	182,300 SF
Double Sided Geocomposite Drainage Layer	18,800 SF
Intercell Berm	2,600 CY
Sand Drainage Layer	7,450 CY
Leachate Collection Pipes, perforated	810 LF
Leachate Collection Pipes, solid	100 LF
Leachate Head Monitoring Well	2 EA
Leachate Transfer Pipe, dual contained	90 LF
Leachate Transfer Manholes	1 EA

Note:
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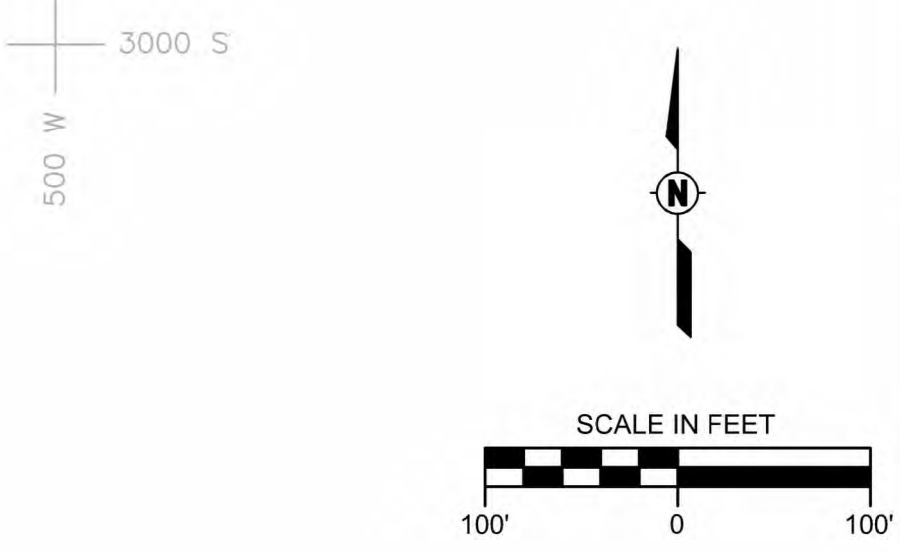
CELL 10 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	5 AC
Leachate Head Monitoring Well	EA
Grading Layer	4,300 CY
Select Clay or Soil Barrier Layer	17,100 CY
GCL (if soil barrier layer is utilized)	230,900 SF
40-mil Geomembrane	230,900 SF
Geocomposite Drainage Layer	230,900 SF
Anchor Trench	1,650 LF
Rooting Zone Soil	21,400 CY
Slope and Toe Drain Pipe and Outlets	600 LF
Topsoil	4,300 CY
Seed, Mulch, Fertilizer, and Lime	5 AC

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 PERMISSION



3000 S
 500 W
 3500 S
 500 W

LEGEND

- 710 EXISTING GROUND SURFACE CONTOUR
- ROAD, GRAVEL
- ROAD, PAVED
- FENCELINE
- TREES/BRUSH
- CULVERT
- WETLAND
- BUILDINGS
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- LEACHATE COLLECTION CLEANOUT
- LEACHATE COLLECTION MANHOLE
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- 750 WASTE GRADES CONTOUR, CELL 10
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- 4" DIA. PERFORATED TOE DRAIN PIPE
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CELL 12 BASE LINER CONSTRUCTION QUANTITIES

Subbase Excavation Cut	133,900 CY
Compacted Clay Liner (4-foot)	29,800 CY
Soil Barrier Layer (2-foot, if utilized)	14,900 CY
GCL (if soil barrier layer is utilized)	201,100 SF
60-mil Textured HDPE Geomembrane	201,100 SF
12 oz/sy Cushion Geotextile	182,300 SF
Double Sided Geocomposite Drainage Layer	18,800 SF
Intercell Berm	2,600 CY
Sand Drainage Layer	7,450 CY
Leachate Collection Pipes, perforated	810 LF
Leachate Collection Pipes, solid	100 LF
Leachate Head Monitoring Well	2 EA
Leachate Transfer Pipe, dual contained	90 LF
Leachate Transfer Manholes	1 EA

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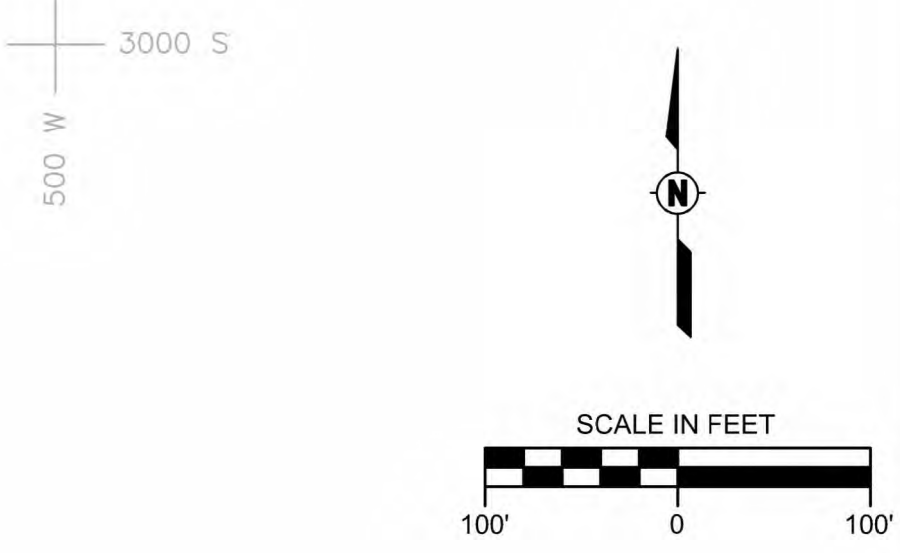
CELL 10 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	5 AC
Leachate Head Monitoring Well	EA
Grading Layer	4,300 CY
Select Clay or Soil Barrier Layer	17,100 CY
GCL (if soil barrier layer is utilized)	230,900 SF
40-mil Geomembrane	230,900 SF
Geocomposite Drainage Layer	230,900 SF
Anchor Trench	1,650 LF
Rooting Zone Soil	21,400 CY
Slope and Toe Drain Pipe and Outlets	600 LF
Topsoil	4,300 CY
Seed, Mulch, Fertilizer, and Lime	5 AC

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LEGEND

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CELL 12 BASE LINER CONSTRUCTION QUANTITIES

Subbase Excavation Cut	133,900 CY
Compacted Clay Liner (4-foot)	29,800 CY
Soil Barrier Layer (2-foot, if utilized)	14,900 CY
GCL (if soil barrier layer is utilized)	201,100 SF
60-mil Textured HDPE Geomembrane	201,100 SF
12 oz/sy Cushion Geotextile	182,300 SF
Double Sided Geocomposite Drainage Layer	18,800 SF
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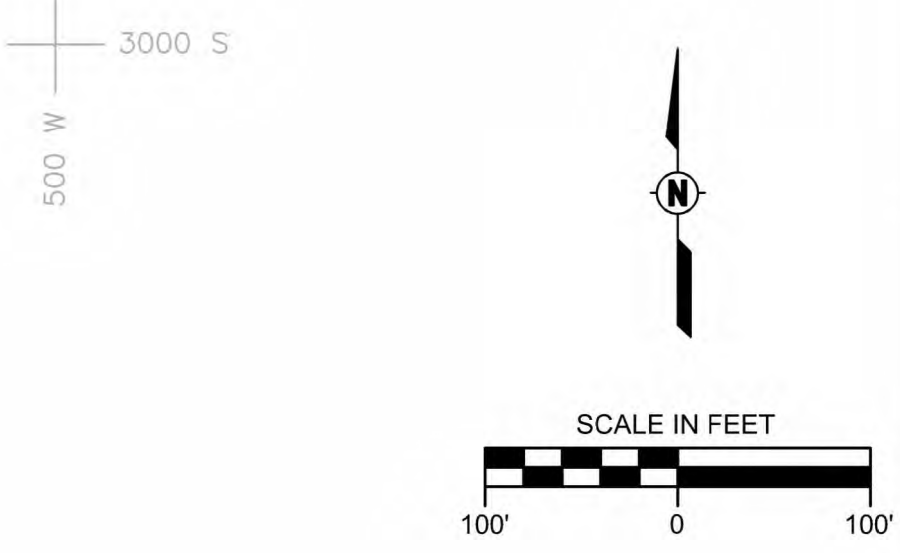
CELL 10 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	5 AC
Leachate Head Monitoring Well	EA
Grading Layer	4,300 CY
Select Clay or Soil Barrier Layer	17,100 CY
GCL (if soil barrier layer is utilized)	230,900 SF
40-mil Geomembrane	230,900 SF
Geocomposite Drainage Layer	230,900 SF
Anchor Trench	1,650 LF
Rooting Zone Soil	21,400 CY
Slope and Toe Drain Pipe and Outlets	600 LF
Topsoil	4,300 CY
Seed, Mulch, Fertilizer, and Lime	5 AC

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LEGEND

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- GEOMEMBRANE ANCHOR TRENCH
- 4" DIA. PERFORATED TOE DRAIN PIPE
- 4" DIA. NON-PERFORATED DRAIN OUTLET PIPE
- PROPOSED GEOMEMBRANE ANCHOR TRENCH
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION VAULT & JUNCTION MANHOLE
- PROPOSED LEACHATE COLLECTION CLEANOUT
- PROPOSED LEACHATE HEADWELL, PRESSURE TRANSDUCER

CELL 12 BASE LINER CONSTRUCTION QUANTITIES

Subbase Excavation Cut	133,900 CY
Compacted Clay Liner (4-foot)	29,800 CY
Soil Barrier Layer (2-foot, if utilized)	14,900 CY
GCL (if soil barrier layer is utilized)	201,100 SF
60-mil Textured HDPE Geomembrane	201,100 SF
12 oz/sy Cushion Geotextile	182,300 SF
Double Sided Geocomposite Drainage Layer	18,800 SF
Intercell Berm	2,600 CY
Sand Drainage Layer	7,450 CY
Leachate Collection Pipes, perforated	810 LF
Leachate Collection Pipes, solid	100 LF
Leachate Head Monitoring Well	2 EA
Leachate Transfer Pipe, dual contained	90 LF
Leachate Transfer Manholes	1 EA

Note:
 Volumes are in-place volumes. Quantities are subject to change based on in-field conditions at the time of construction. System appurtenances are not included in quantities.

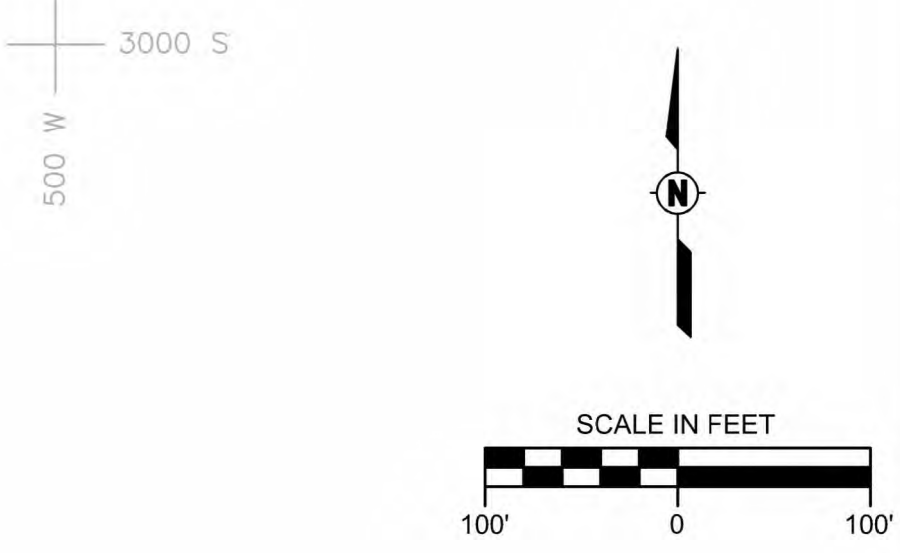
CELL 10 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	5 AC
Leachate Head Monitoring Well	EA
Grading Layer	4,300 CY
Select Clay or Soil Barrier Layer	17,100 CY
GCL (if soil barrier layer is utilized)	230,900 SF
40-mil Geomembrane	230,900 SF
Geocomposite Drainage Layer	230,900 SF
Anchor Trench	1,650 LF
Rooting Zone Soil	21,400 CY
Slope and Toe Drain Pipe and Outlets	600 LF
Topsoil	4,300 CY
Seed, Mulch, Fertilizer, and Lime	5 AC

Note:
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- NOTES:**
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CAUTION:
 HISTORIC PRESERVATION AREA
 DO NOT EXCAVATE WITHIN THIS
 AREA WITHOUT WISCONSIN ELECTRIC
 PERMISSION



3000 S
 500 W
 3500 S
 500 W

LEGEND

- 710 EXISTING GROUND SURFACE CONTOUR
- ROAD, GRAVEL
- ROAD, PAVED
- FENCELINE
- TREES/BRUSH
- CULVERT
- WETLAND
- BUILDINGS
- LANDFILL LIMIT OF WASTE
- LANDFILL CELL BOUNDARY
- MONITORING WELLS
- LEACHATE COLLECTION CLEANOUT
- LEACHATE COLLECTION MANHOLE
- LEACHATE TRANSFER LINE
- SURVEY CONTROL MONUMENT
- 750 WASTE GRADES CONTOUR, CELL 10
- 690 BASE GRADES CONTOUR, CELL 12
- GEOMEMBRANE ANCHOR TRENCH
- 4" DIA. PERFORATED TOE DRAIN PIPE
- 4" DIA. NON-PERFORATED DRAIN OUTLET PIPE
- PROPOSED GEOMEMBRANE ANCHOR TRENCH
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION VAULT & JUNCTION MANHOLE
- PROPOSED LEACHATE COLLECTION CLEANOUT
- PROPOSED LEACHATE HEADWELL, PRESSURE TRANSDUCER

CELL 12 BASE LINER CONSTRUCTION QUANTITIES

Subbase Excavation Cut	133,900 CY
Compacted Clay Liner (4-foot)	29,800 CY
Soil Barrier Layer (2-foot, if utilized)	14,900 CY
GCL (if soil barrier layer is utilized)	201,100 SF
60-mil Textured HDPE Geomembrane	201,100 SF
12 oz/sy Cushion Geotextile	182,300 SF
Double Sided Geocomposite Drainage Layer	18,800 SF
Intercell Berm	2,600 CY
Sand Drainage Layer	7,450 CY
Leachate Collection Pipes, perforated	810 LF
Leachate Collection Pipes, solid	100 LF
Leachate Head Monitoring Well	2 EA
Leachate Transfer Pipe, dual contained	90 LF
Leachate Transfer Manholes	1 EA

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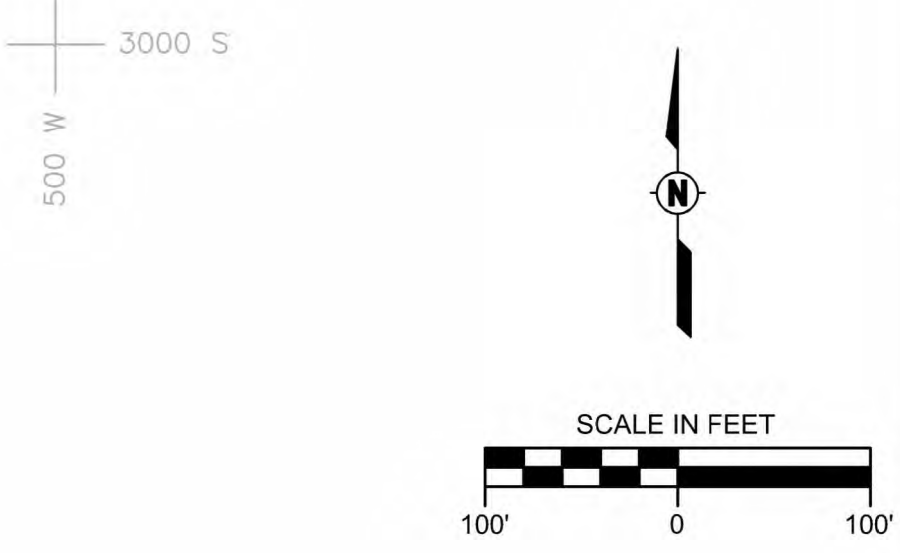
CELL 10 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	5 AC
Leachate Head Monitoring Well	EA
Grading Layer	4,300 CY
Select Clay or Soil Barrier Layer	17,100 CY
GCL (if soil barrier layer is utilized)	230,900 SF
40-mil Geomembrane	230,900 SF
Geocomposite Drainage Layer	230,900 SF
Anchor Trench	1,650 LF
Rooting Zone Soil	21,400 CY
Slope and Toe Drain Pipe and Outlets	600 LF
Topsoil	4,300 CY
Seed, Mulch, Fertilizer, and Lime	5 AC

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3000 S
 500 W
 3500 S
 500 W

LEGEND

- 710 EXISTING GROUND SURFACE CONTOUR
- ROAD, GRAVEL
- ROAD, PAVED
- FENCELINE
- TREES/BRUSH
- CULVERT
- WETLAND
- BUILDINGS
- LANDFILL LIMIT OF WASTE
- LANDFILL CELL BOUNDARY
- MONITORING WELLS
- LEACHATE COLLECTION CLEANOUT
- LEACHATE COLLECTION MANHOLE
- LEACHATE TRANSFER LINE
- SURVEY CONTROL MONUMENT
- 750 WASTE GRADES CONTOUR, CELL 10
- 690 BASE GRADES CONTOUR, CELL 12
- GEOMEMBRANE ANCHOR TRENCH
- 4" DIA. PERFORATED TOE DRAIN PIPE
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- PROPOSED LEACHATE COLLECTION VAULT & JUNCTION MANHOLE
- PROPOSED LEACHATE COLLECTION CLEANOUT
- PROPOSED LEACHATE HEADWELL, PRESSURE TRANSDUCER

CELL 12 BASE LINER CONSTRUCTION QUANTITIES

Subbase Excavation Cut	133,900 CY
Compacted Clay Liner (4-foot)	29,800 CY
Soil Barrier Layer (2-foot, if utilized)	14,900 CY
GCL (if soil barrier layer is utilized)	201,100 SF
60-mil Textured HDPE Geomembrane	201,100 SF
12 oz/sy Cushion Geotextile	182,300 SF
Double Sided Geocomposite Drainage Layer	18,800 SF
Intercell Berm	2,600 CY
Sand Drainage Layer	7,450 CY
Leachate Collection Pipes, perforated	810 LF
Leachate Collection Pipes, solid	100 LF
Leachate Head Monitoring Well	2 EA
Leachate Transfer Pipe, dual contained	90 LF
Leachate Transfer Manholes	1 EA

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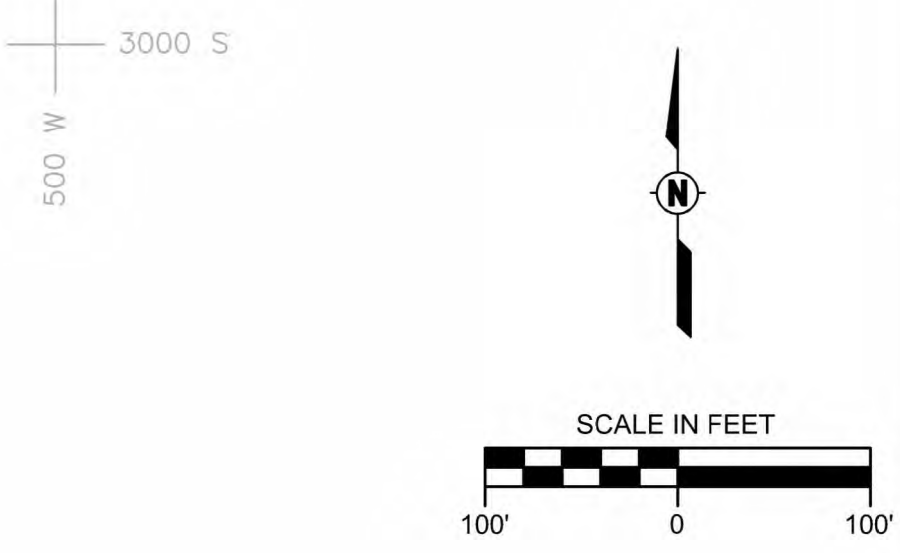
CELL 10 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	5 AC
Leachate Head Monitoring Well	EA
Grading Layer	4,300 CY
Select Clay or Soil Barrier Layer	17,100 CY
GCL (if soil barrier layer is utilized)	230,900 SF
40-mil Geomembrane	230,900 SF
Geocomposite Drainage Layer	230,900 SF
Anchor Trench	1,650 LF
Rooting Zone Soil	21,400 CY
Slope and Toe Drain Pipe and Outlets	600 LF
Topsoil	4,300 CY
Seed, Mulch, Fertilizer, and Lime	5 AC

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3000 S
 500 W
 3500 S
 500 W

LEGEND

- 710 EXISTING GROUND SURFACE CONTOUR
- ROAD, GRAVEL
- ROAD, PAVED
- FENCELINE
- TREES/BRUSH
- CULVERT
- WETLAND
- BUILDINGS
- LANDFILL LIMIT OF WASTE
- LANDFILL CELL BOUNDARY
- MONITORING WELLS
- LEACHATE COLLECTION CLEANOUT
- LEACHATE COLLECTION MANHOLE
- LEACHATE TRANSFER LINE
- SURVEY CONTROL MONUMENT
- 750 WASTE GRADES CONTOUR, CELL 10
- 690 BASE GRADES CONTOUR, CELL 12
- GEOMEMBRANE ANCHOR TRENCH
- 4" DIA. PERFORATED TOE DRAIN PIPE
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- PROPOSED GEOMEMBRANE ANCHOR TRENCH
- PROPOSED LEACHATE COLLECTION PIPE

**CALEDONIA
 ASH LANDFILL
 PLAN OF OPERATION
 MODIFICATION**

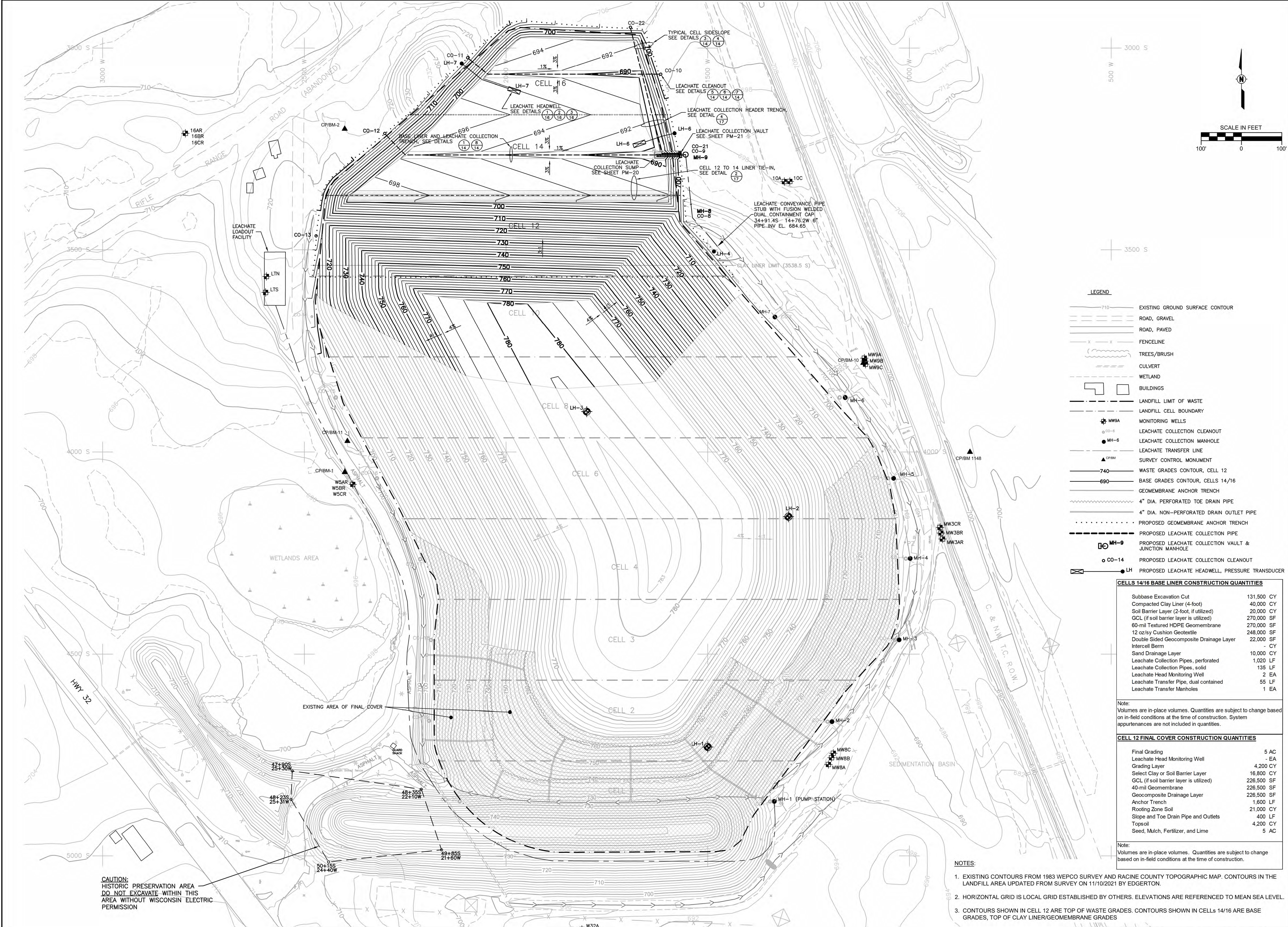
P.E. No.:
 Approved: *JXT*
 Checked: *JXT*
 Drawn: *JLC*
 Designed: *JLC*
 GEI Project: 2203724

Attention: 1"
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**CELL 12
 WASTE GRADES
 &
 CELL 14/16
 BASE GRADES**

DWG. NO.
PM-10
 SHEET NO.
 10 OF 21



LEGEND

- 710 ——— EXISTING GROUND SURFACE CONTOUR
- ROAD, GRAVEL
- ROAD, PAVED
- - - - - FENCELINE
- ~~~~~ TREES/BRUSH
- ~~~~~ CULVERT
- ~~~~~ WETLAND
- BUILDINGS
- - - - - LANDFILL LIMIT OF WASTE
- - - - - LANDFILL CELL BOUNDARY
- ⊕ MW3A MONITORING WELLS
- ⊕ CO-6 LEACHATE COLLECTION CLEANOUT
- MH-6 LEACHATE COLLECTION MANHOLE
- LEACHATE TRANSFER LINE
- ▲ CPBM SURVEY CONTROL MONUMENT
- 740- WASTE GRADES CONTOUR, CELL 12
- 690- BASE GRADES CONTOUR, CELLS 14/16
- GEOMEMBRANE ANCHOR TRENCH
- ~~~~~ 4" DIA. PERFORATED TOE DRAIN PIPE
- ~~~~~ 4" DIA. NON-PERFORATED DRAIN OUTLET PIPE
- PROPOSED GEOMEMBRANE ANCHOR TRENCH
- PROPOSED LEACHATE COLLECTION PIPE
- ⊕ MH-9 PROPOSED LEACHATE COLLECTION VAULT & JUNCTION MANHOLE
- CO-14 PROPOSED LEACHATE COLLECTION CLEANOUT
- ⊕ LH PROPOSED LEACHATE HEADWELL, PRESSURE TRANSDUCER

CELLS 14/16 BASE LINER CONSTRUCTION QUANTITIES

Subbase Excavation Cut	131,500	CY
Compacted Clay Liner (4-foot)	40,000	CY
Soil Barrier Layer (2-foot, if utilized)	20,000	CY
GCL (if soil barrier layer is utilized)	270,000	SF
60-mil Textured HDPE Geomembrane	270,000	SF
12 oz/sy Cushion Geotextile	248,000	SF
Double Sided Geocomposite Drainage Layer	22,000	SF
Intercell Berm	-	CY
Sand Drainage Layer	10,000	CY
Leachate Collection Pipes, perforated	1,020	LF
Leachate Collection Pipes, solid	135	LF
Leachate Head Monitoring Well	2	EA
Leachate Transfer Pipe, dual contained	55	LF
Leachate Transfer Manholes	1	EA

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CELL 12 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	5	AC
Leachate Head Monitoring Well	1	EA
Grading Layer	4,200	CY
Select Clay or Soil Barrier Layer	16,800	CY
GCL (if soil barrier layer is utilized)	226,500	SF
40-mil Geomembrane	226,500	SF
Geocomposite Drainage Layer	226,500	SF
Anchor Trench	1,600	LF
Rooting Zone Soil	21,000	CY
Slope and Toe Drain Pipe and Outlets	400	LF
Topsoll	4,200	CY
Seed, Mulch, Fertilizer, and Lime	5	AC

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**CALEDONIA
 ASH LANDFILL
 PLAN OF OPERATION
 MODIFICATION**

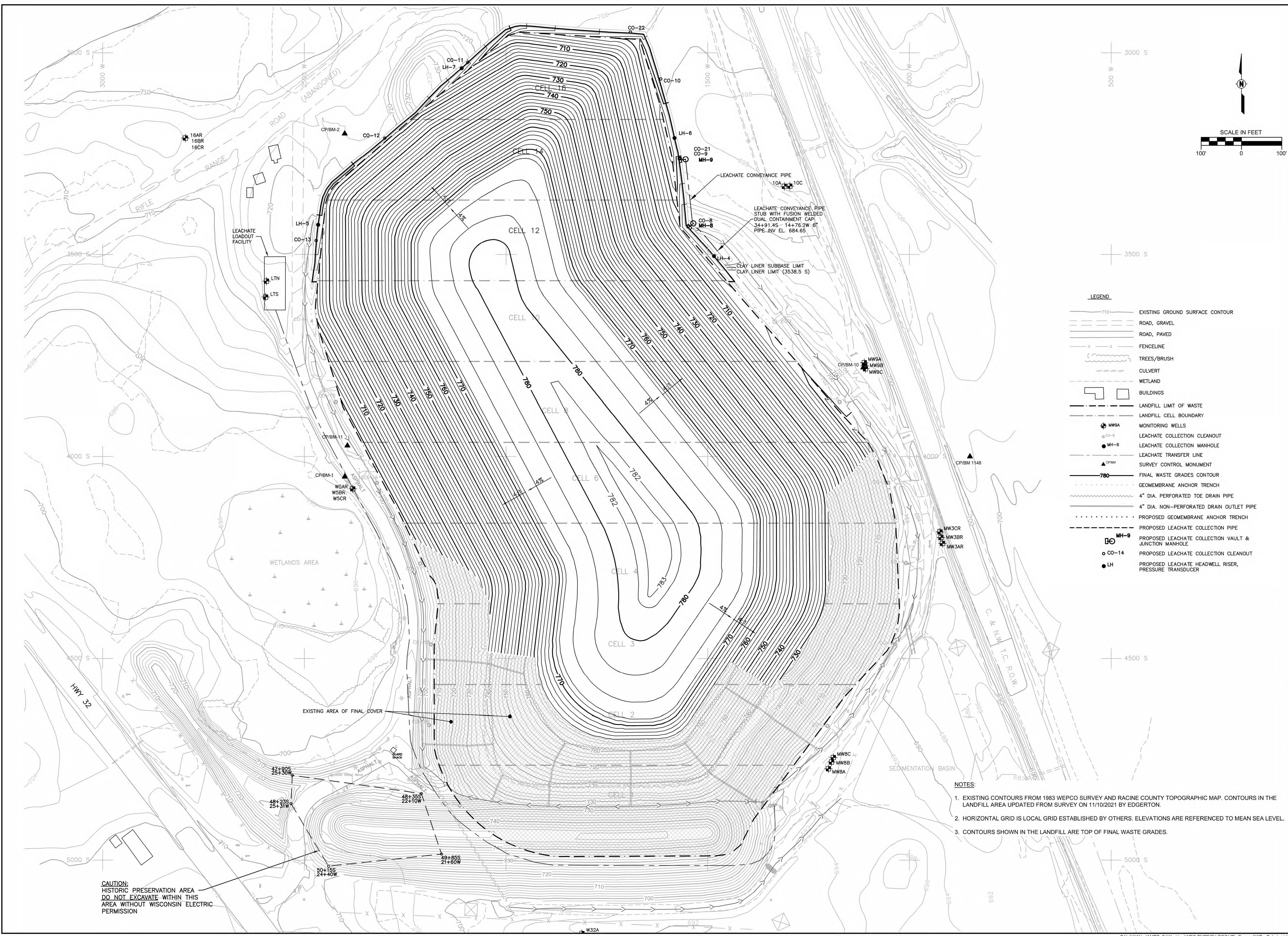
P.E. No.:
 Approved: *JXT*
 Checked: *JXT*
 Drawn: *JLC*
 Designed: *JLC*
 GEI Project: 2203724

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NO.	DATE	ISSUE/REVISION	APP
1	9/29/2023	PLAN MOD	JXT

FINAL WASTE GRADES

DWG. NO.
PM-11
 SHEET NO.
 11 OF 21



**CALEDONIA
 ASH LANDFILL
 PLAN OF OPERATION
 MODIFICATION**

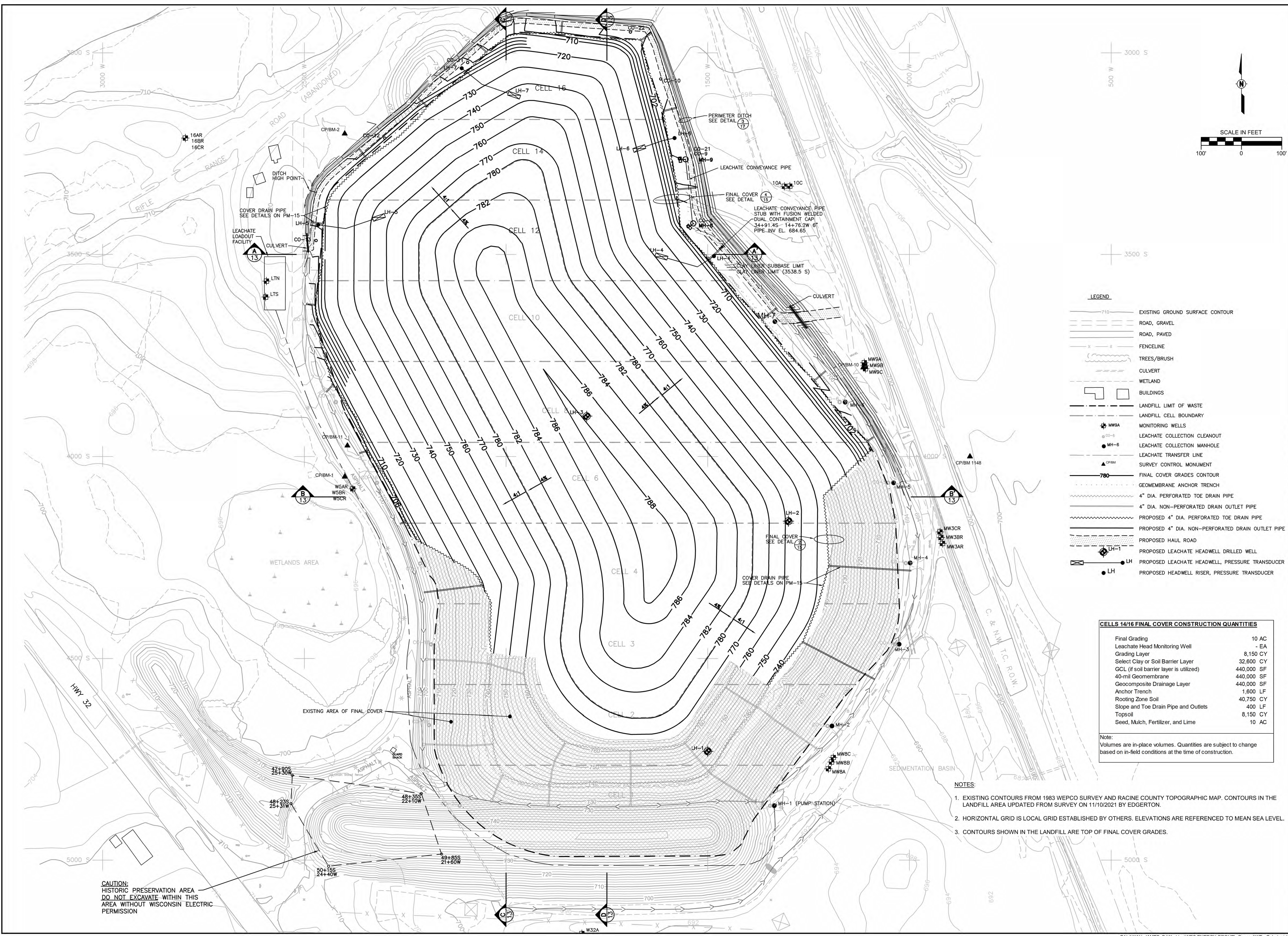
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 Designed: *JLC*
 GEI Project: 2203724

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NO.	DATE	ISSUE/REVISION	APP

**FINAL COVER
 GRADES**

DWG. NO.
PM-12
 SHEET NO.
 12 OF 21



LEGEND

- 710- EXISTING GROUND SURFACE CONTOUR
- ROAD, GRAVEL
- ROAD, PAVED
- - - - FENCELINE
- TREES/BRUSH
- WETLAND
- BUILDINGS
- LANDFILL LIMIT OF WASTE
- LANDFILL CELL BOUNDARY
- MONITORING WELLS
- LEACHATE COLLECTION CLEANOUT
- LEACHATE COLLECTION MANHOLE
- LEACHATE TRANSFER LINE
- SURVEY CONTROL MONUMENT
- 780- FINAL COVER GRADES CONTOUR
- GEOMEMBRANE ANCHOR TRENCH
- 4" DIA. PERFORATED TOE DRAIN PIPE
- 4" DIA. NON-PERFORATED DRAIN OUTLET PIPE
- PROPOSED 4" DIA. PERFORATED TOE DRAIN PIPE
- PROPOSED 4" DIA. NON-PERFORATED DRAIN OUTLET PIPE
- PROPOSED HAUL ROAD
- PROPOSED LEACHATE HEADWELL DRILLED WELL
- PROPOSED LEACHATE HEADWELL, PRESSURE TRANSDUCER
- PROPOSED HEADWELL RISER, PRESSURE TRANSDUCER

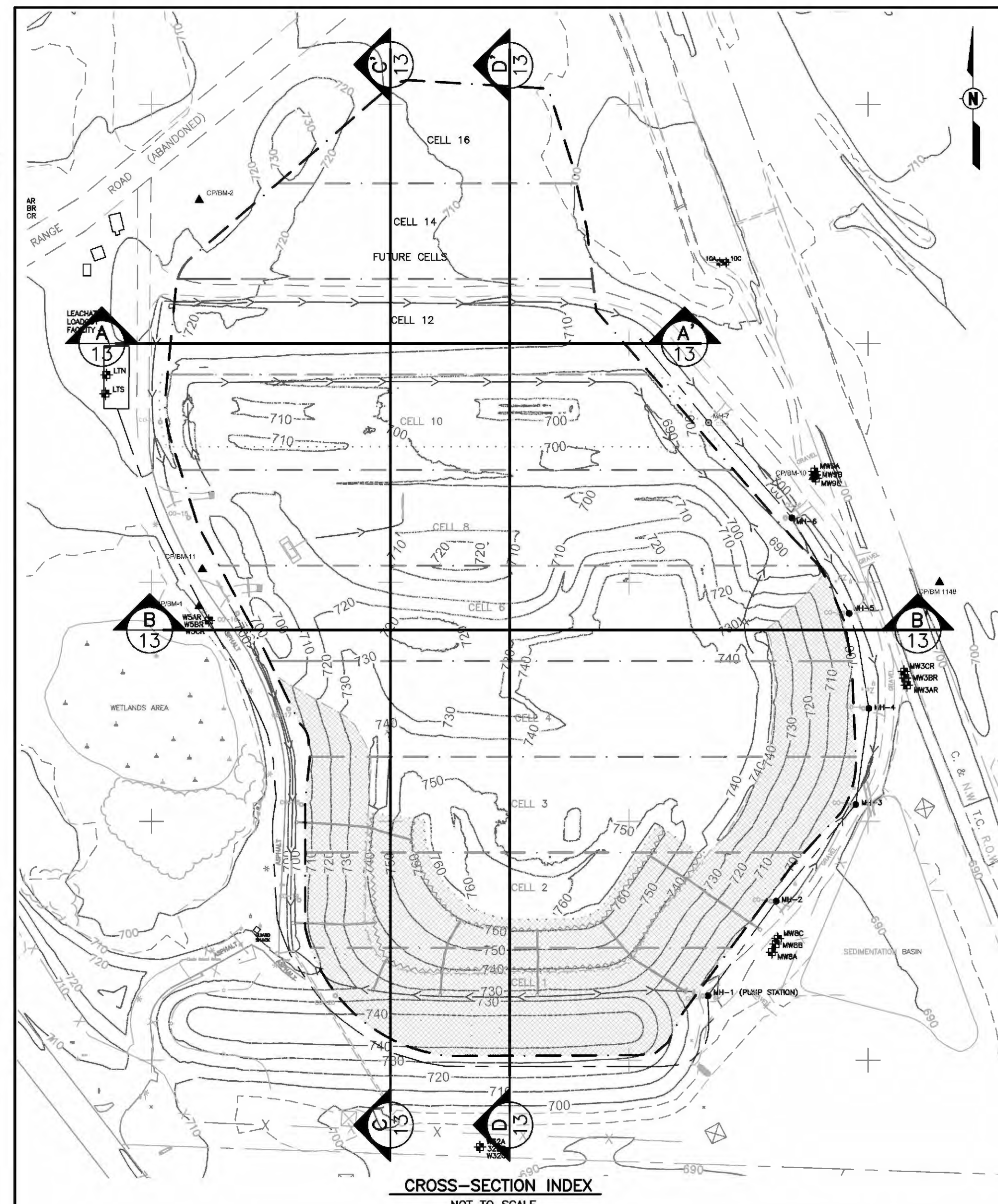
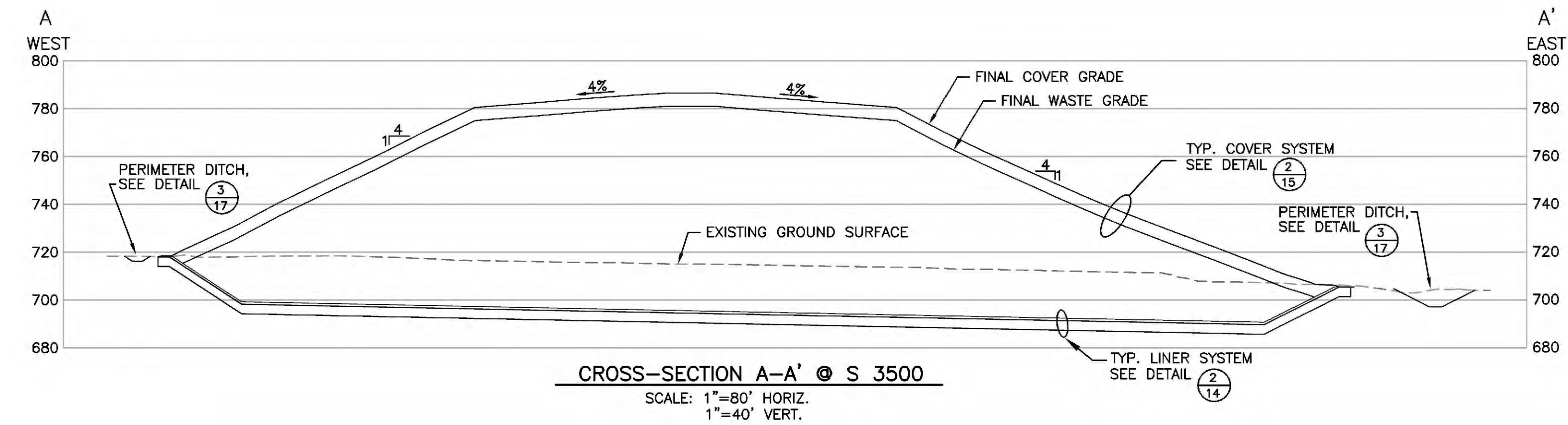
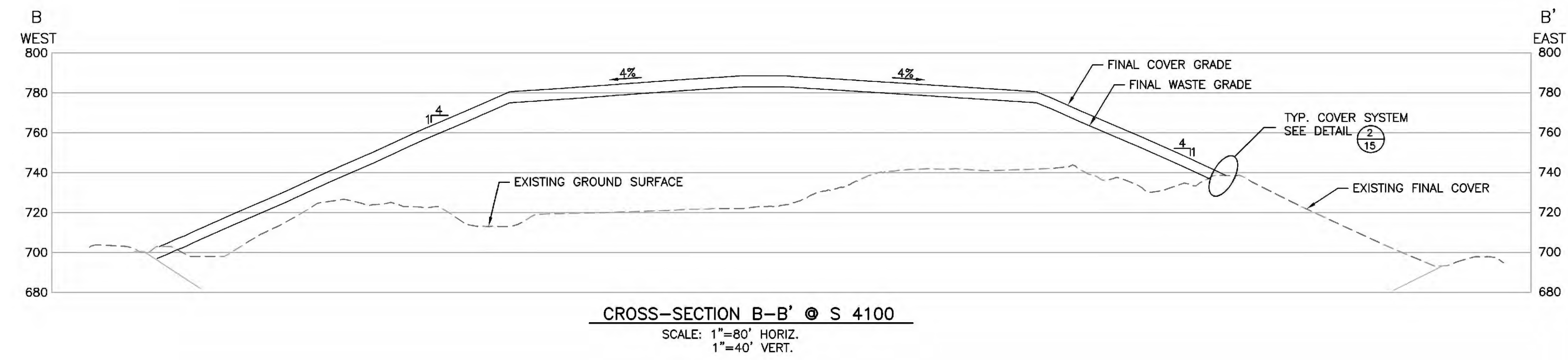
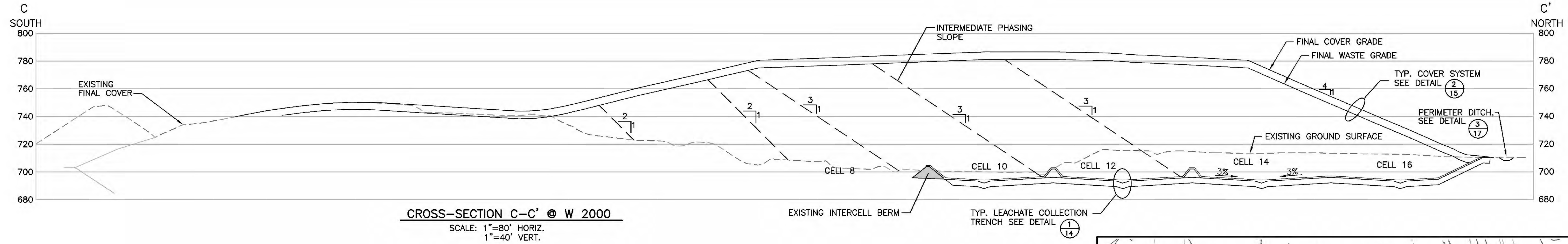
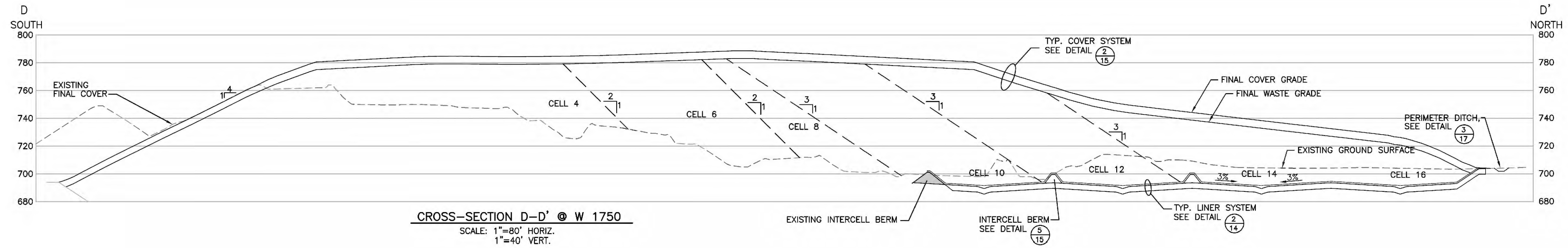
CELLS 14/16 FINAL COVER CONSTRUCTION QUANTITIES

Final Grading	10 AC
Leachate Head Monitoring Well	- EA
Grading Layer	8,150 CY
Select Clay or Soil Barrier Layer	32,600 CY
GCL (if soil barrier layer is utilized)	440,000 SF
40-mil Geomembrane	440,000 SF
Geocomposite Drainage Layer	440,000 SF
Anchor Trench	1,600 LF
Rooting Zone Soil	40,750 CY
Slope and Toe Drain Pipe and Outlets	400 LF
Topsoil	8,150 CY
Seed, Mulch, Fertilizer, and Lime	10 AC

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**CALEDONIA
 ASH LANDFILL
 PLAN OF OPERATION
 MODIFICATION**



P.E. No.:

Approved: JXT

Checked: JXT

Drawn: JLC

Designed: JLC

GEI Project: 2203724

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CROSS-SECTIONS

DWG. NO.
PM-13
 SHEET NO.
 13 OF 21

**CALEDONIA
 ASH LANDFILL
 PLAN OF OPERATION
 MODIFICATION**

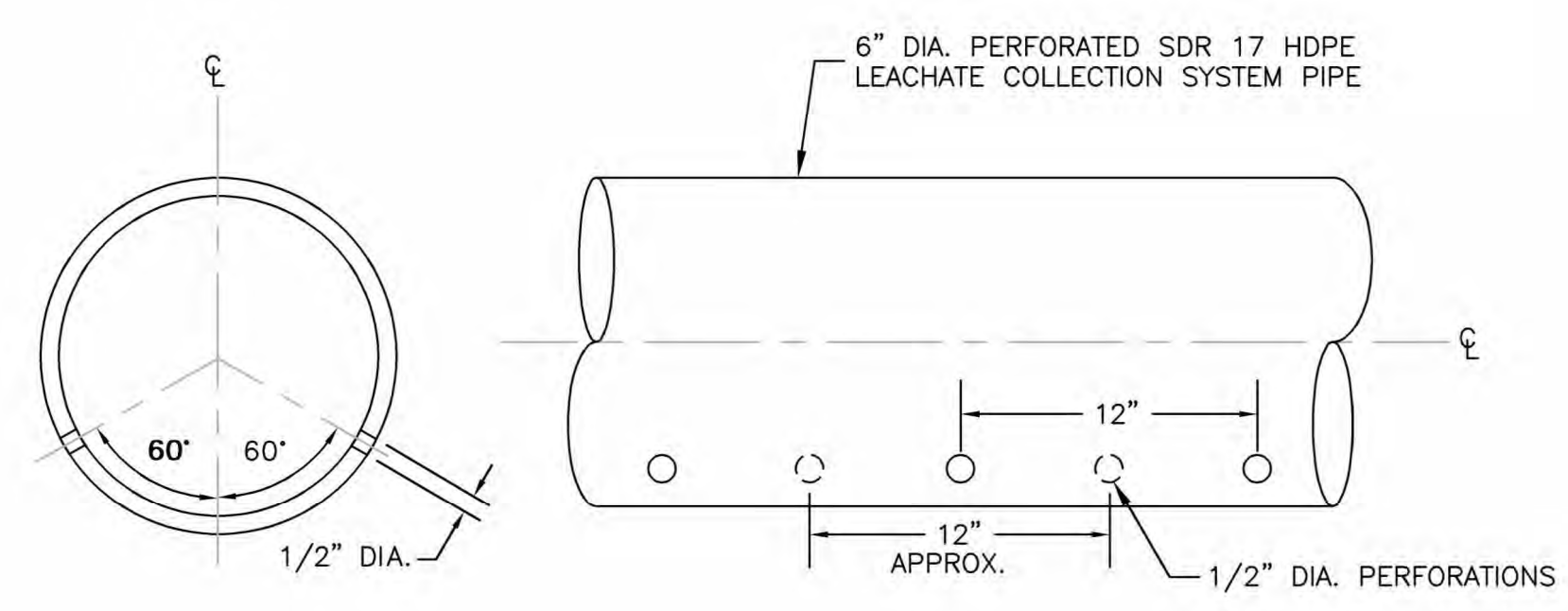
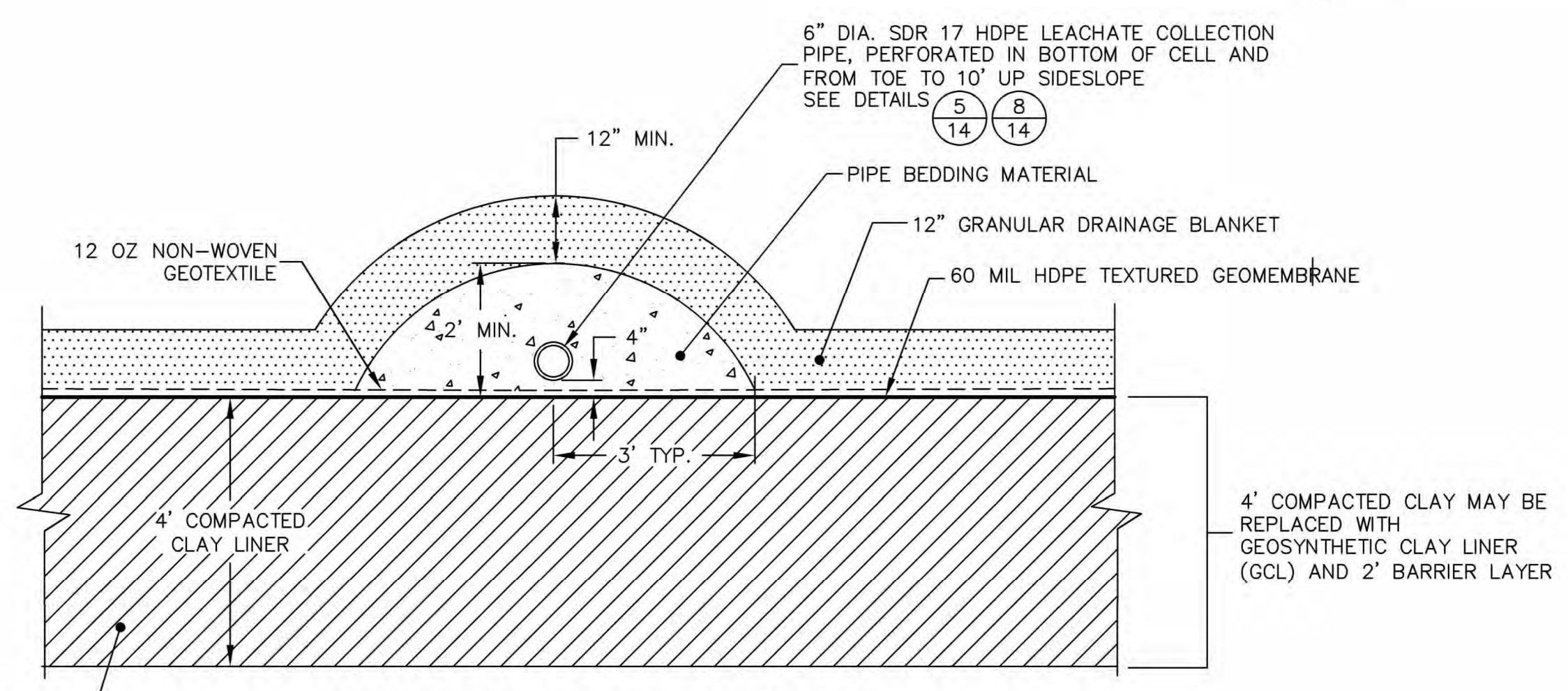
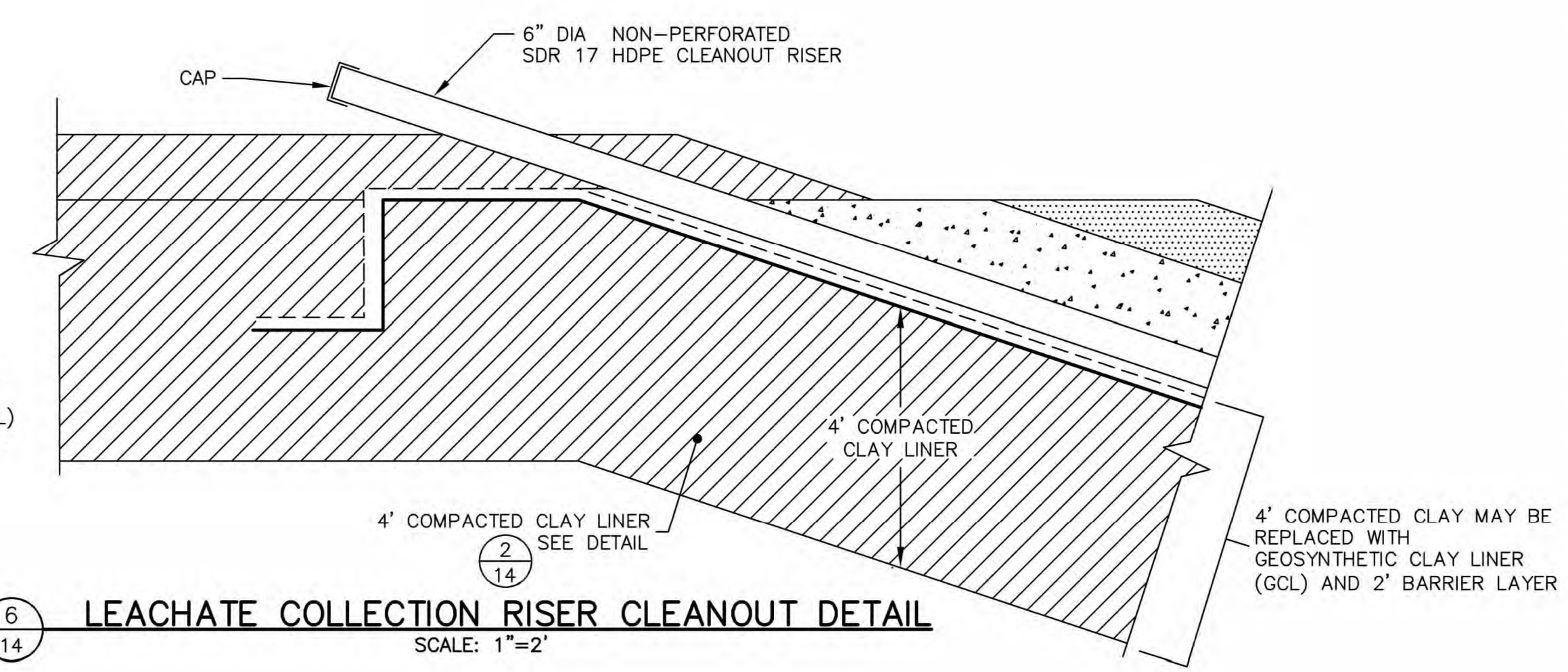
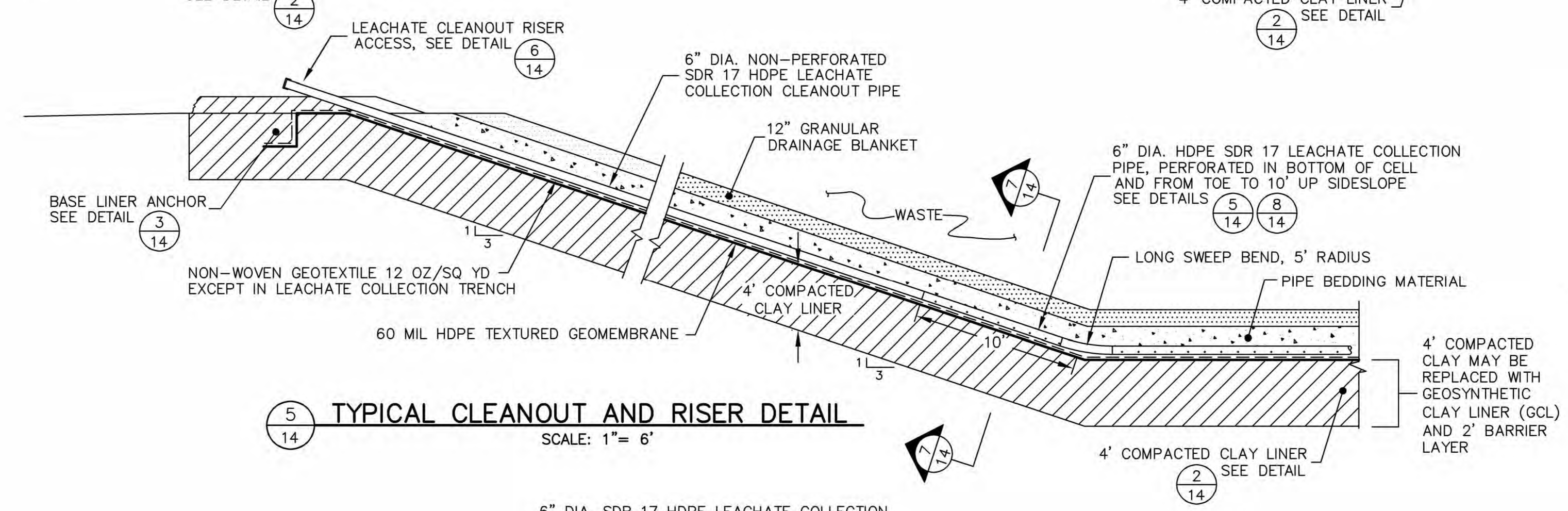
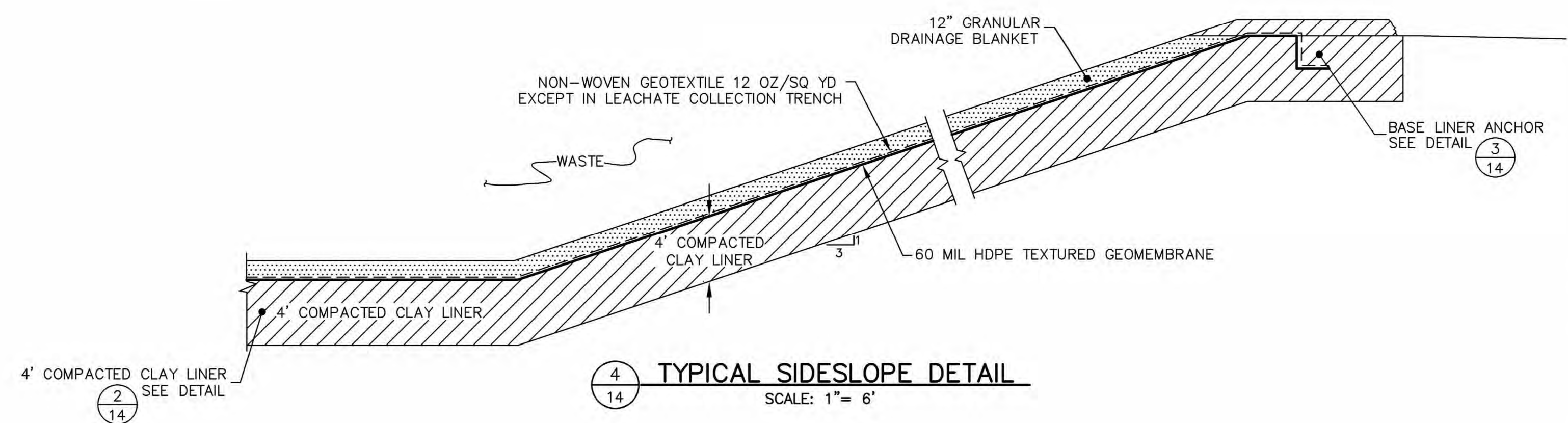
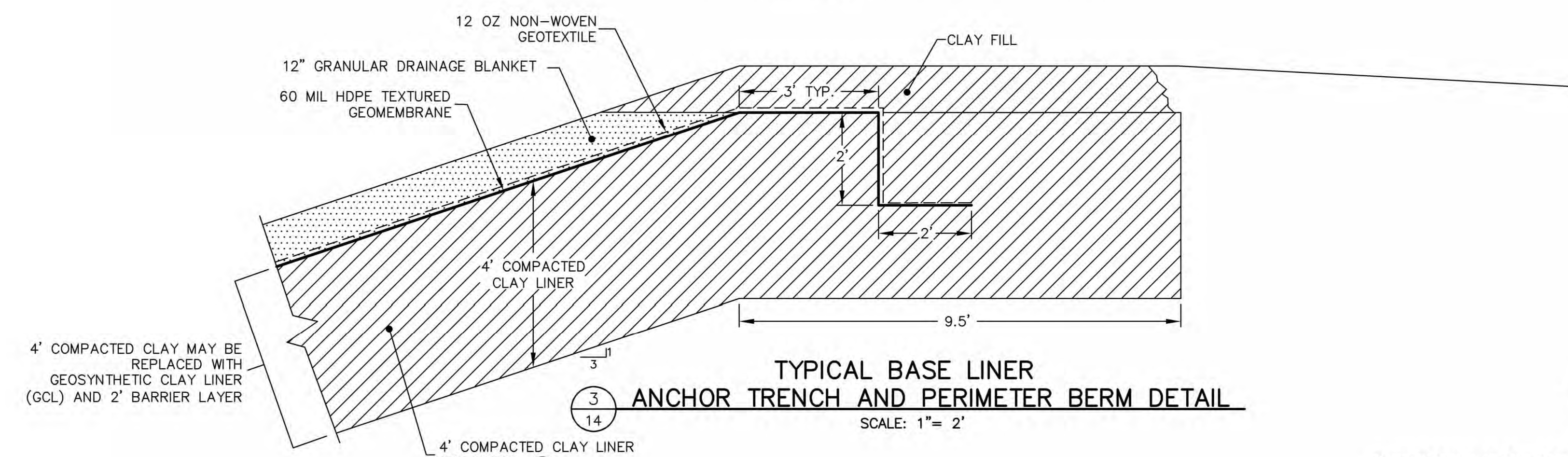
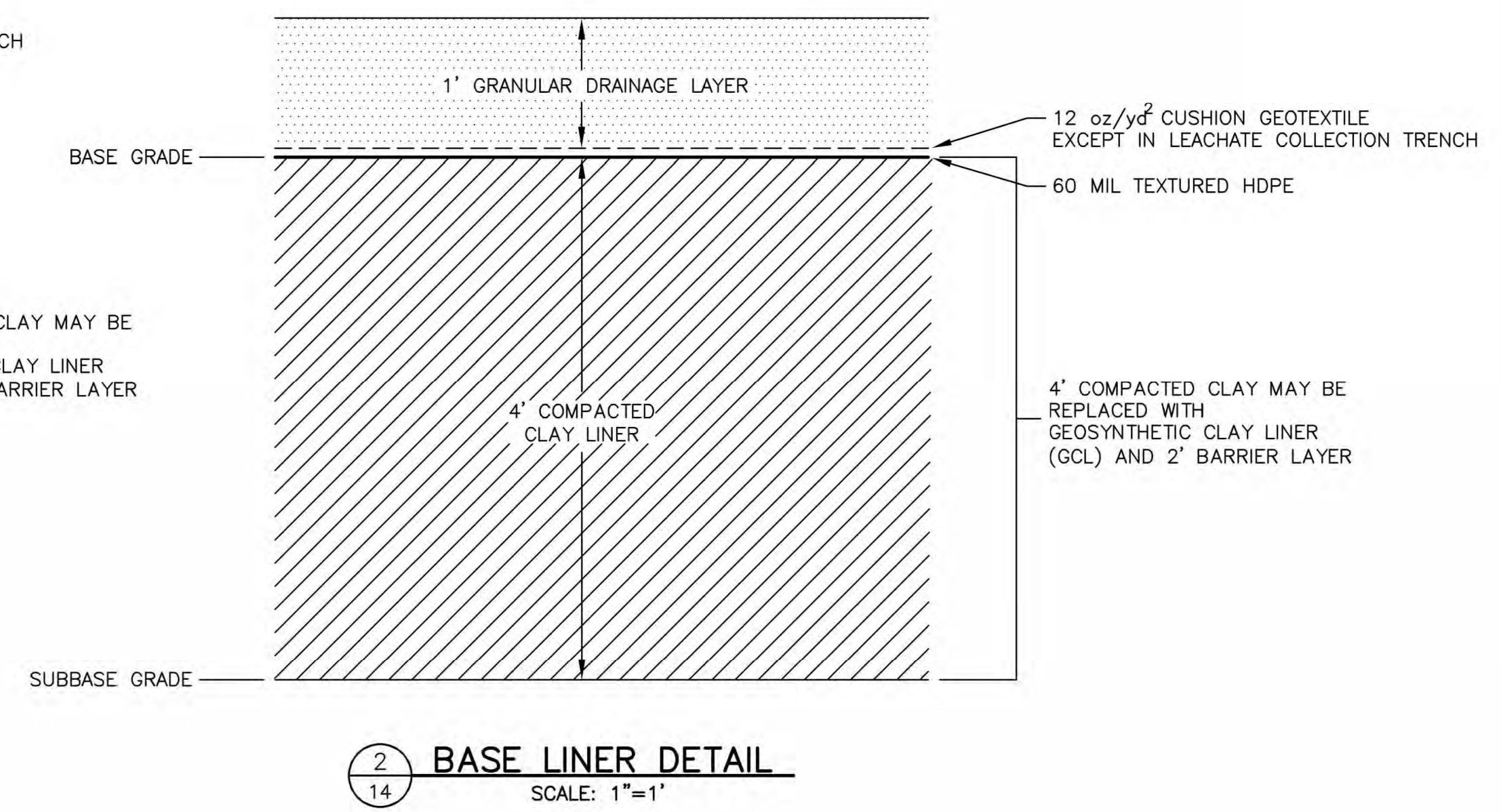
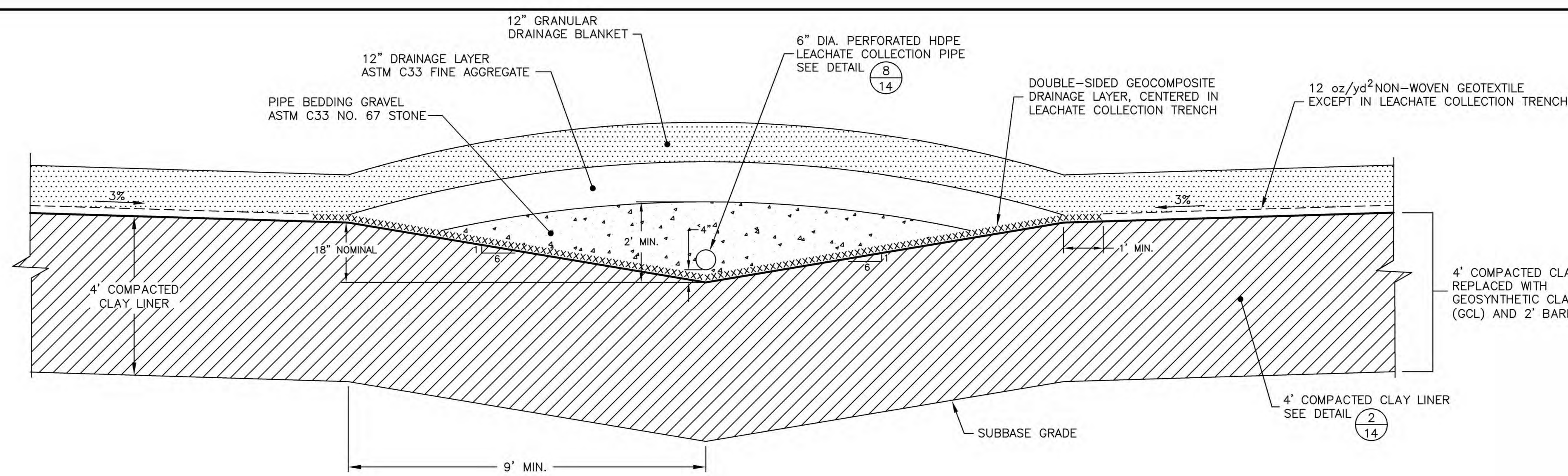
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 Designed: JLC
 GEI Project: 2203724

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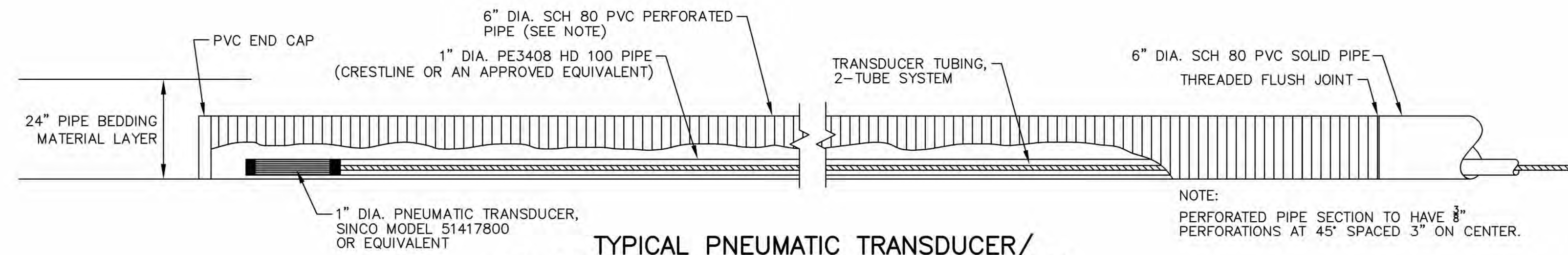
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**CONSTRUCTION
 DETAILS**

DWG. NO.
PM-14
 SHEET NO.
 14 OF 21

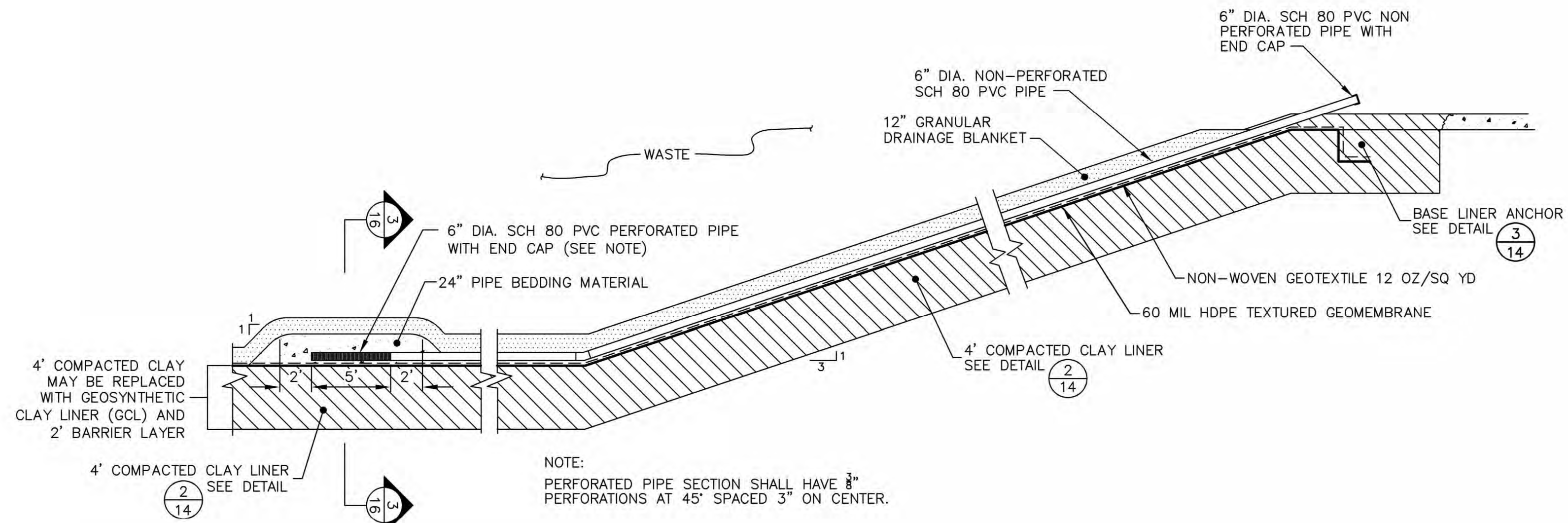


CALEDONIA
 ASH LANDFILL
 PLAN OF OPERATION
 MODIFICATION

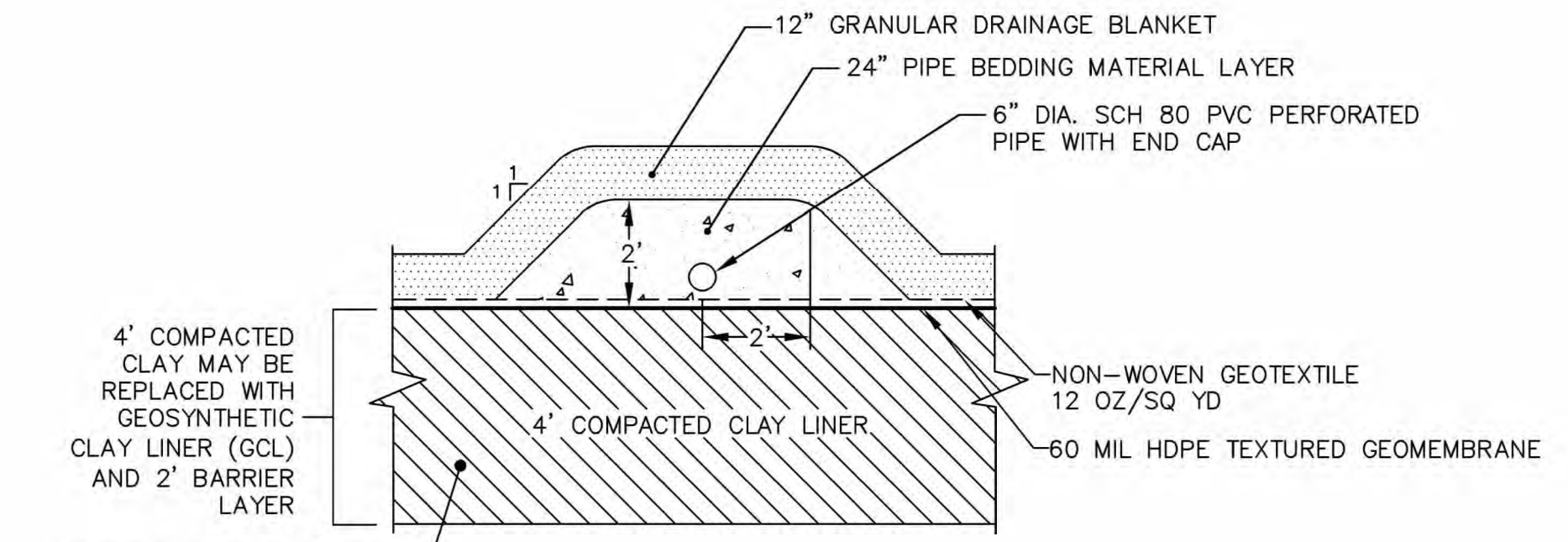


1
16
**TYPICAL PNEUMATIC TRANSDUCER/
 LEACHATE MONITORING HEADWELL DETAIL**
 NOT TO SCALE

NOTE:
 PERFORATED PIPE SECTION TO HAVE 3/8"
 PERFORATIONS AT 45° SPACED 3" ON CENTER.



2
16
TYPICAL LEACHATE HEAD MONITORING SIDESLOPE RISER DETAIL
 SCALE: 1" = 6'

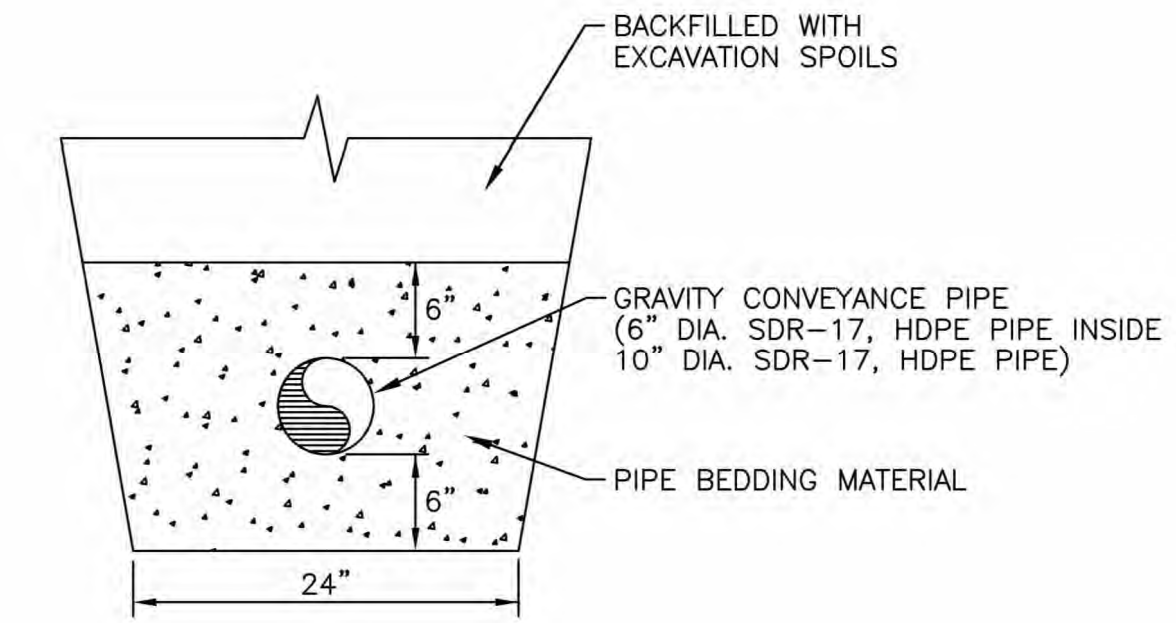


3
16
**TYPICAL LEACHATE HEAD
 MONITORING SECTION DETAIL**
 SCALE: 1" = 3'

P.E. No.:
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 Drawn: JLC
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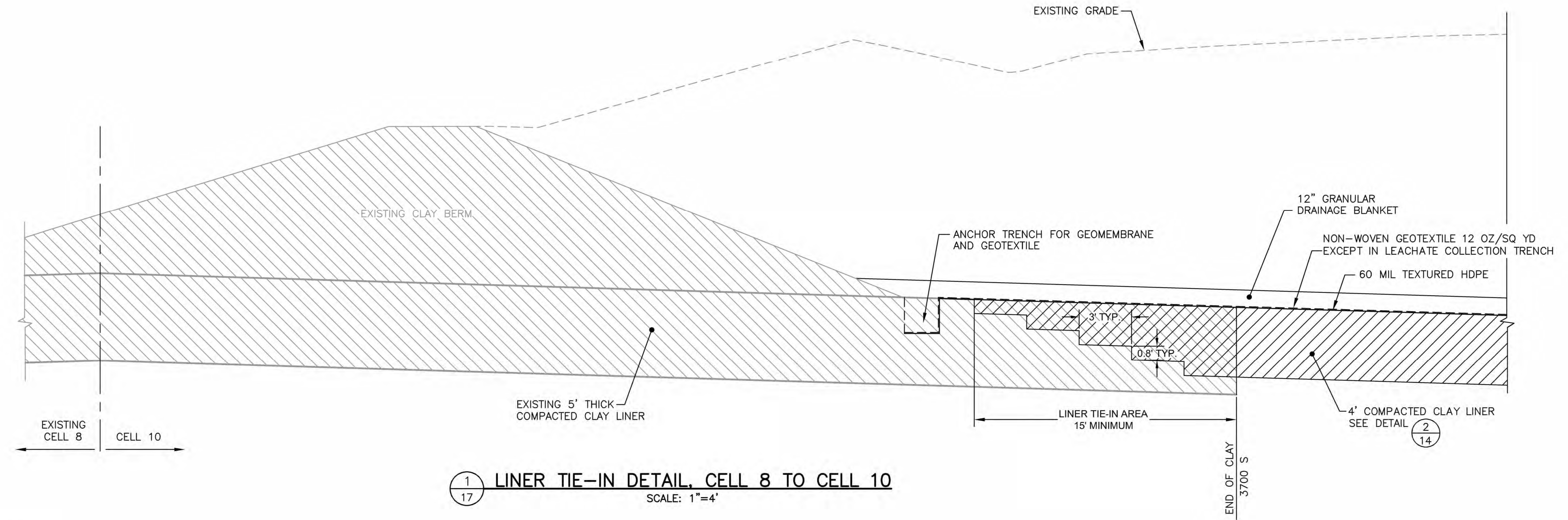


4
16
SOLID WALL PIPE TRENCH DETAIL
 NOT TO SCALE

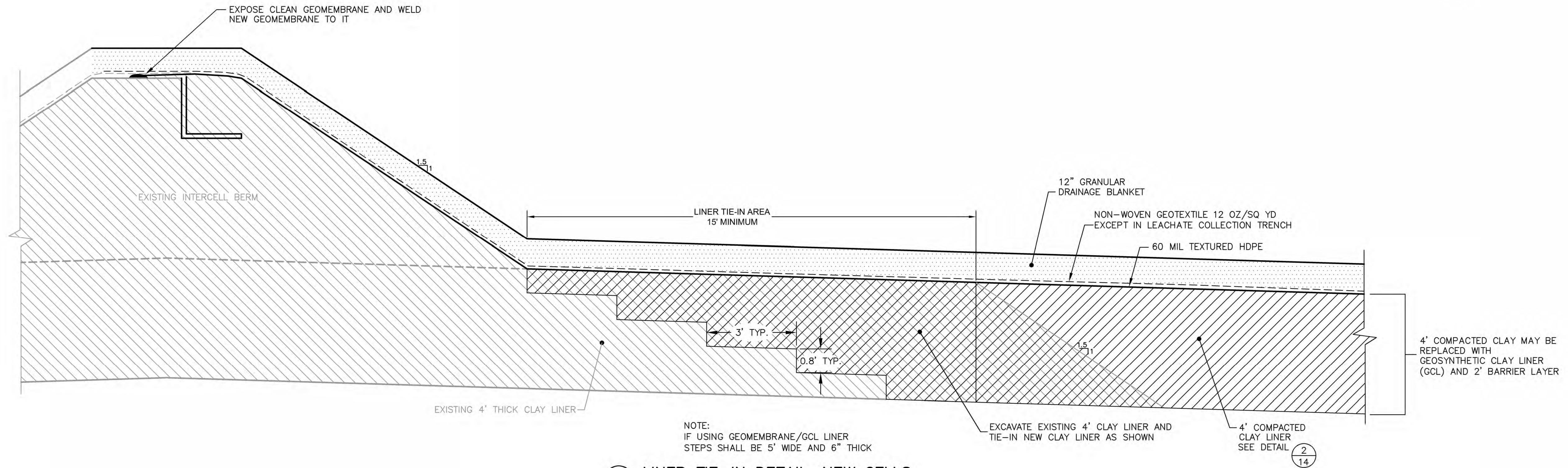
CONSTRUCTION
 DETAILS

DWG. NO.
PM-16
 SHEET NO.
 16 OF 21

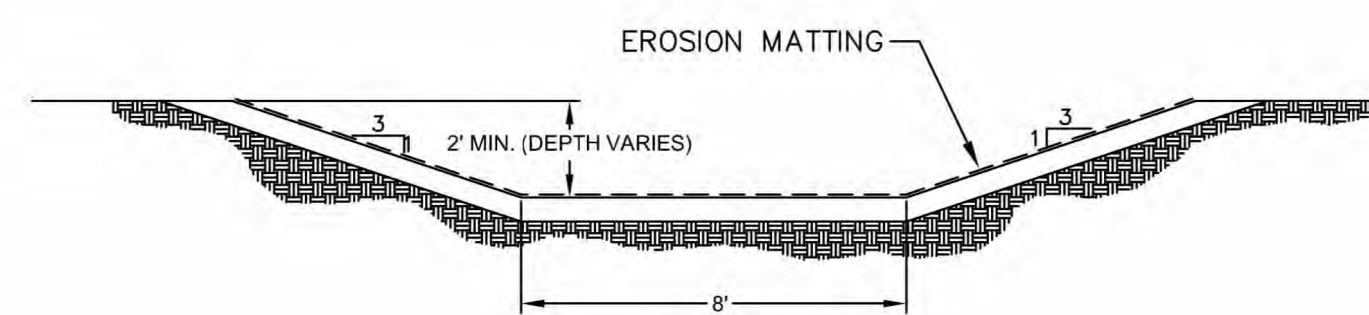
**CALEDONIA
 ASH LANDFILL
 PLAN OF OPERATION
 MODIFICATION**



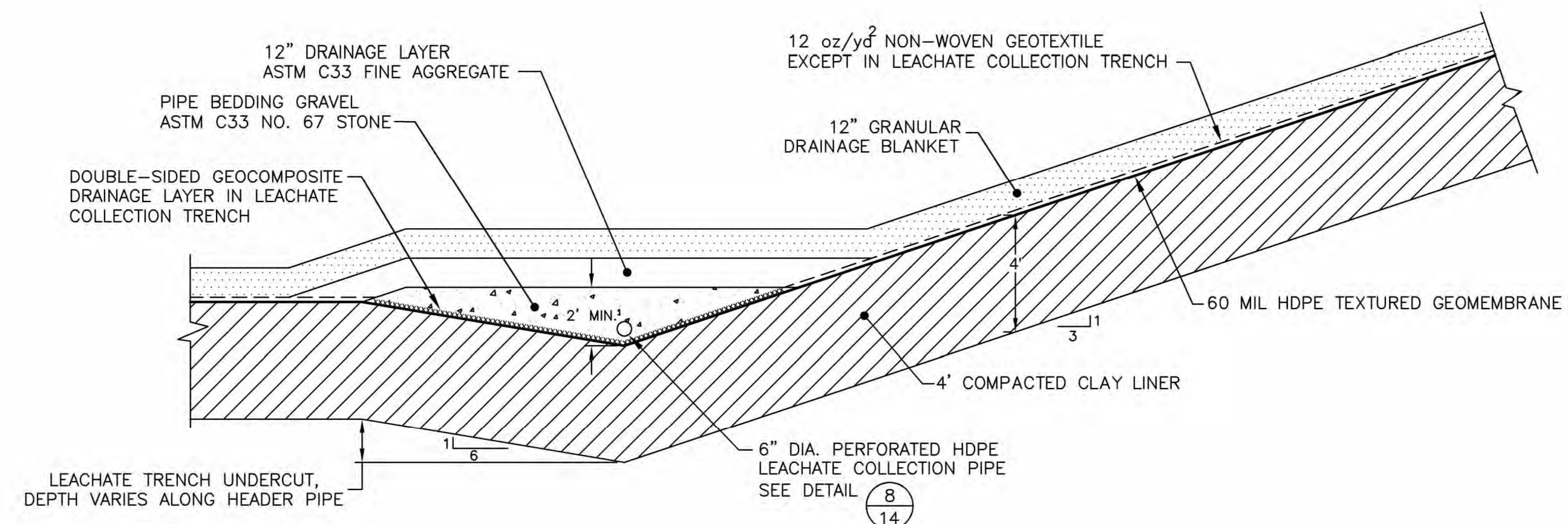
1
 17
LINER TIE-IN DETAIL, CELL 8 TO CELL 10
 SCALE: 1"=4'



2
 17
LINER TIE-IN DETAIL, NEW CELLS
 SCALE: 1"=2'



3
 17
PERIMETER DRAINAGE DITCH DETAIL
 SCALE: 1"=2'



4
 17
LEACHATE HEADER PIPE & TRENCH DETAIL
 SCALE: 1"= 4'

P.E. No.:
 Approved: JXT
 Checked: JXT
 Drawn: JLC
 Designed: JLC
 GEI Project: 2203724

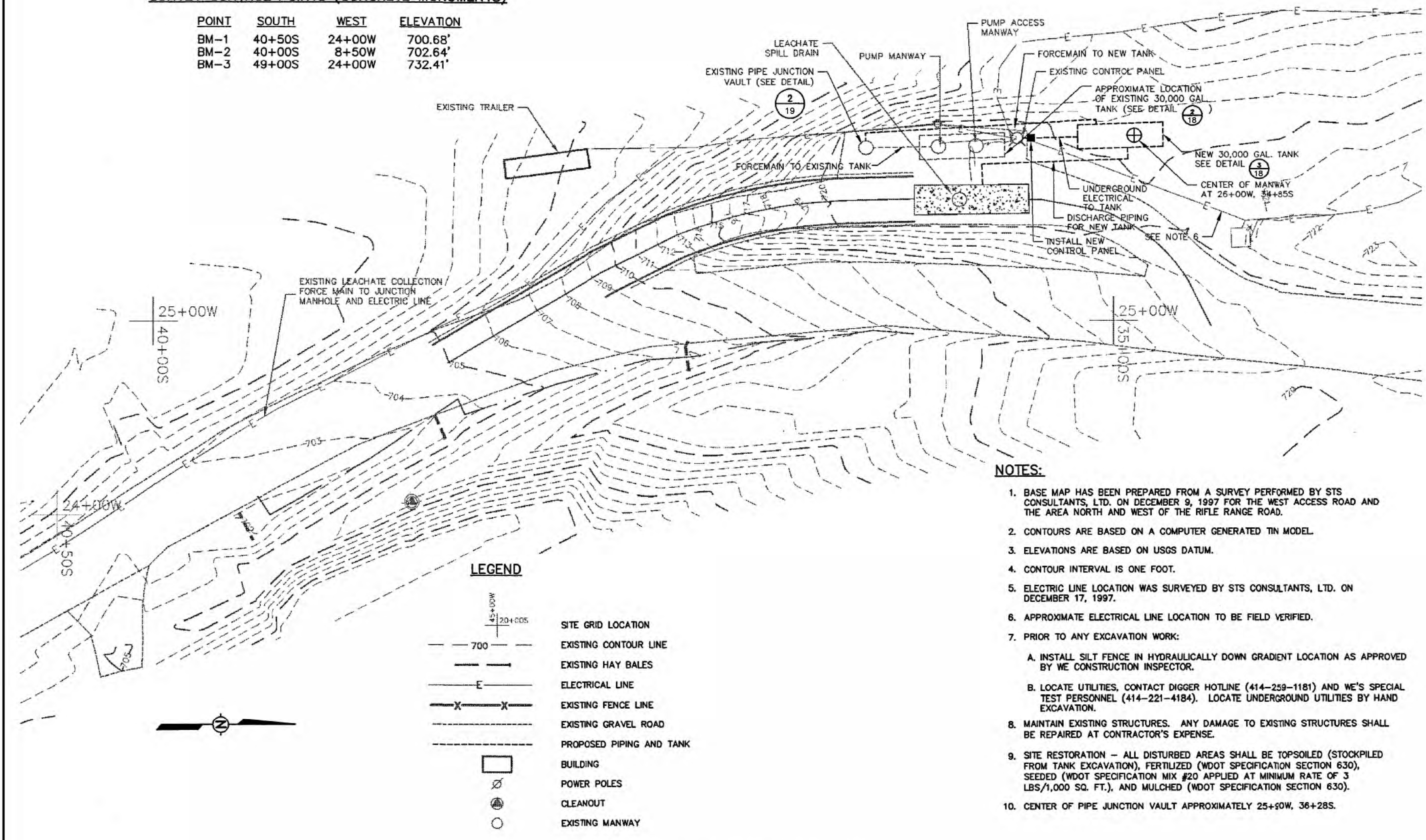
Attention: 1"
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**CONSTRUCTION
 DETAILS**

SURVEY CONTROL POINTS (CONCRETE MONUMENTS)

POINT	SOUTH	WEST	ELEVATION
BM-1	40+50S	24+00W	700.68'
BM-2	40+00S	8+50W	702.64'
BM-3	49+00S	24+00W	732.41'



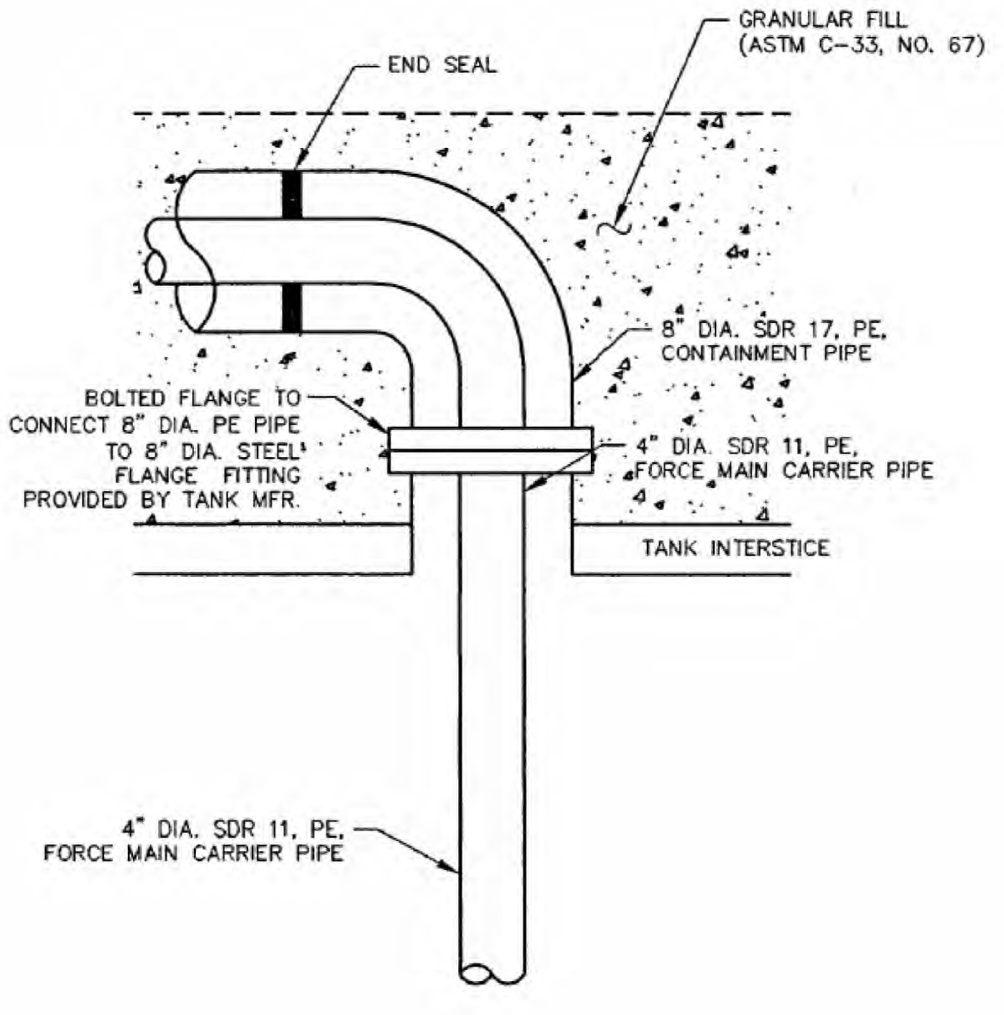
LEGEND

- SITE GRID LOCATION
- EXISTING CONTOUR LINE
- EXISTING HAY BALES
- ELECTRICAL LINE
- EXISTING FENCE LINE
- EXISTING GRAVEL ROAD
- PROPOSED PIPING AND TANK
- BUILDING
- POWER POLES
- CLEANOUT
- EXISTING MANWAY

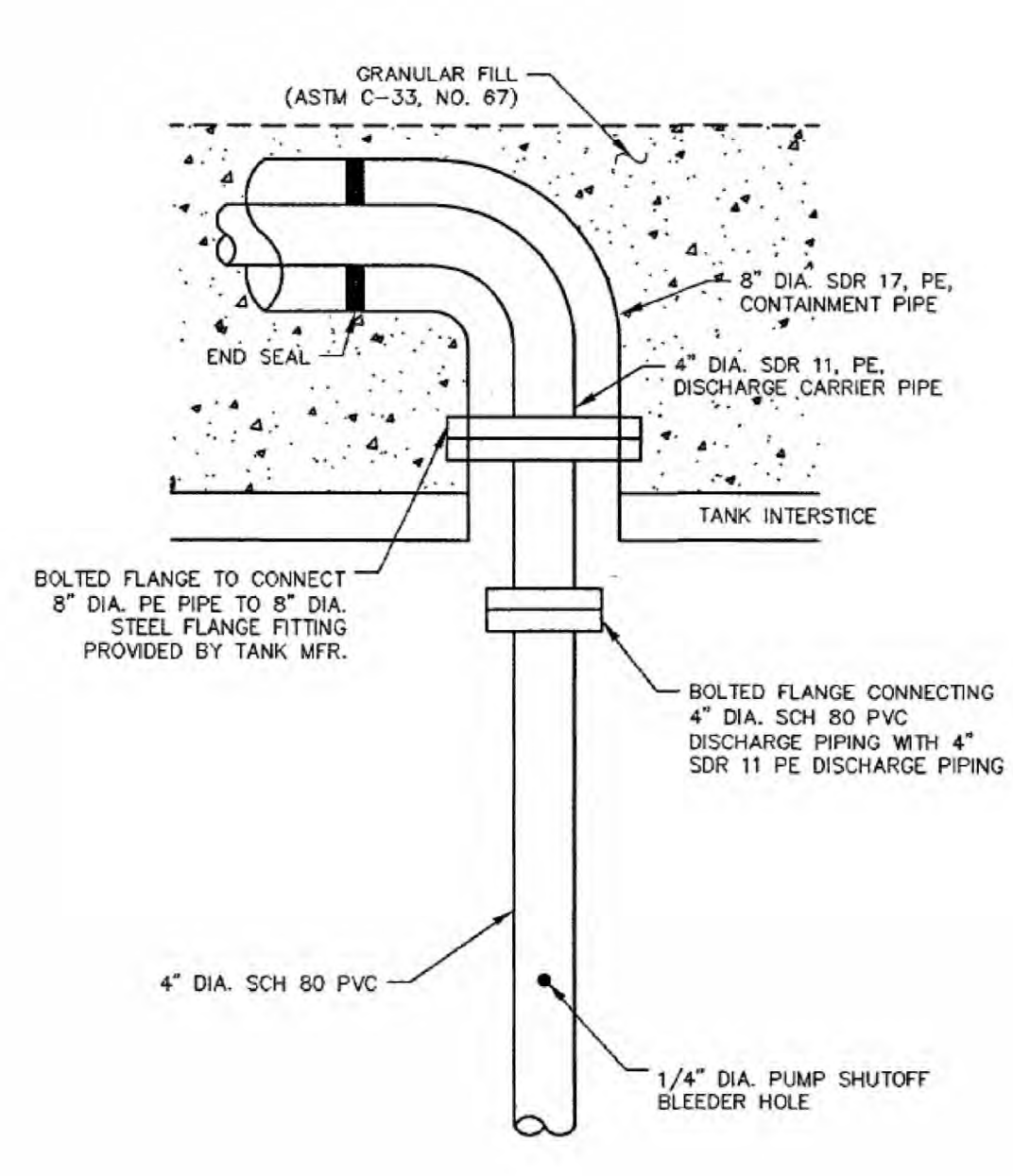
NOTES:

1. BASE MAP HAS BEEN PREPARED FROM A SURVEY PERFORMED BY STS CONSULTANTS, LTD. ON DECEMBER 9, 1997 FOR THE WEST ACCESS ROAD AND THE AREA NORTH AND WEST OF THE RIFLE RANGE ROAD.
2. CONTOURS ARE BASED ON A COMPUTER GENERATED TIN MODEL.
3. ELEVATIONS ARE BASED ON USGS DATUM.
4. CONTOUR INTERVAL IS ONE FOOT.
5. ELECTRIC LINE LOCATION WAS SURVEYED BY STS CONSULTANTS, LTD. ON DECEMBER 17, 1997.
6. APPROXIMATE ELECTRICAL LINE LOCATION TO BE FIELD VERIFIED.
7. PRIOR TO ANY EXCAVATION WORK:
 - A. INSTALL SILT FENCE IN HYDRAULICALLY DOWN GRADIENT LOCATION AS APPROVED BY WE CONSTRUCTION INSPECTOR.
 - B. LOCATE UTILITIES, CONTACT DIGGER HOTLINE (414-259-1181) AND WE'S SPECIAL TEST PERSONNEL (414-221-4184). LOCATE UNDERGROUND UTILITIES BY HAND EXCAVATION.
8. MAINTAIN EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.
9. SITE RESTORATION - ALL DISTURBED AREAS SHALL BE TOPSOILED (STOCKPILED FROM TANK EXCAVATION), FERTILIZED (WOOT SPECIFICATION SECTION 630), SEEDS (WOOT SPECIFICATION MIX #20 APPLIED AT MINIMUM RATE OF 3 LBS/1,000 SQ. FT.), AND MULCHED (WOOT SPECIFICATION SECTION 630).
10. CENTER OF PIPE JUNCTION VAULT APPROXIMATELY 25+00W, 36+28S.

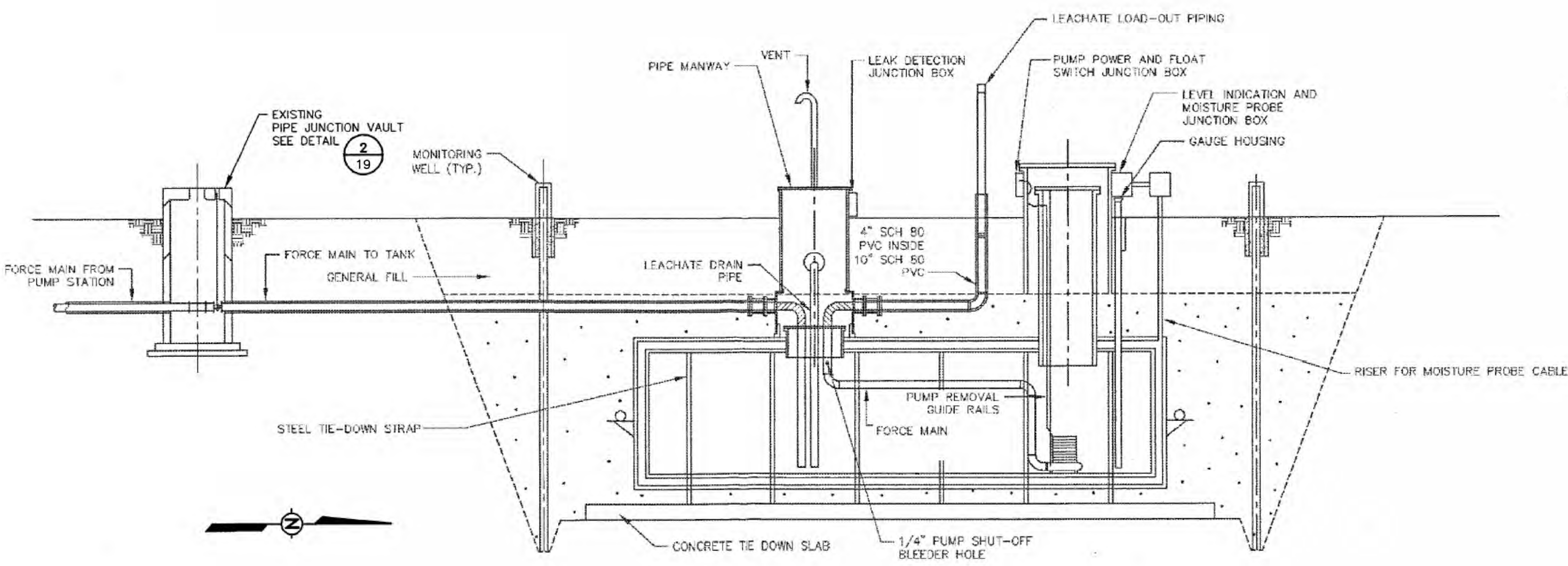
1 PROJECT LOCATION
 SCALE: 1"=40'



4 FORCE MAIN TANK CONNECTION
 NOT TO SCALE

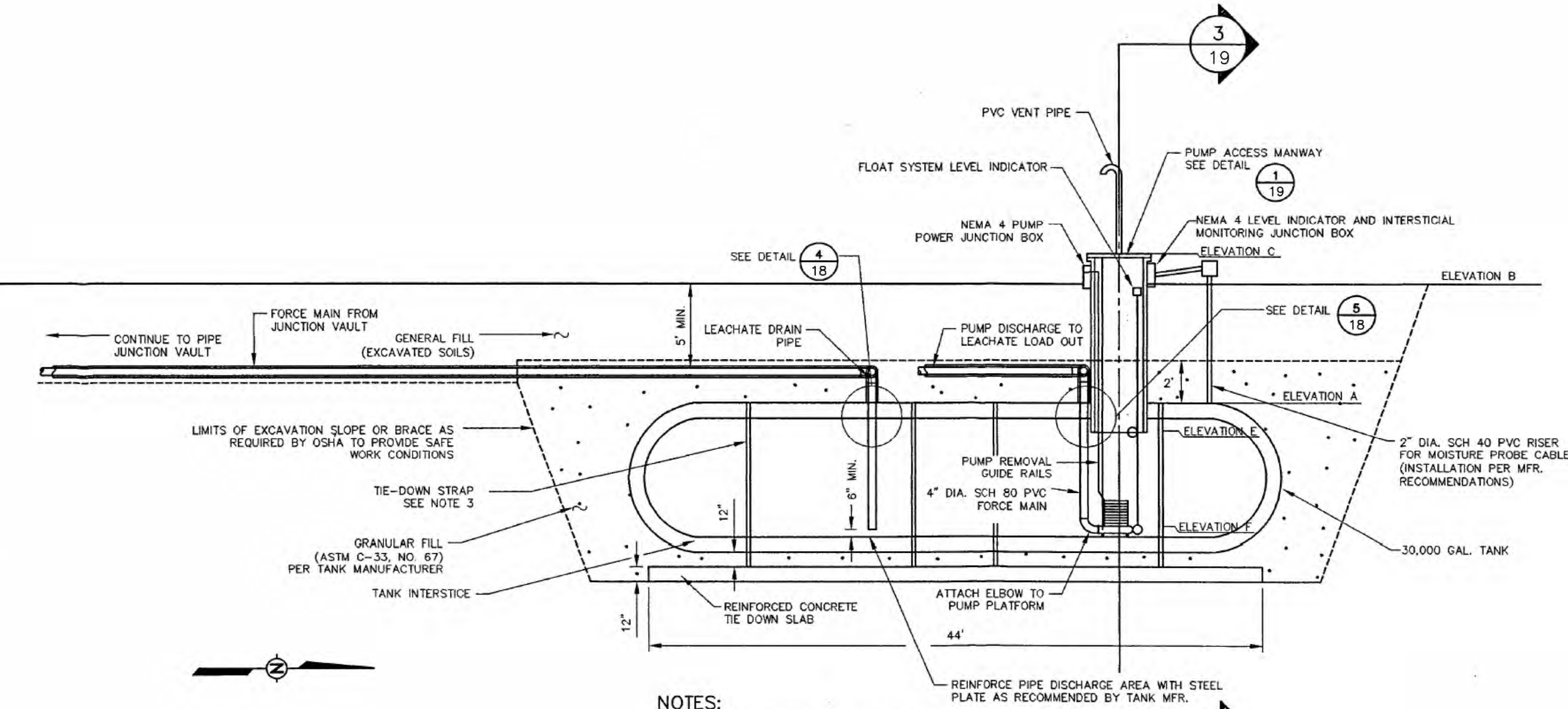


5 DISCHARGE PIPING SCHEMATIC
 NOT TO SCALE



NOTE:
 1. INFORMATION OBTAINED FROM WE PLAN OF OPERATIONS DRAWING SET.

2 EXISTING STORAGE TANK SECTION
 NOT TO SCALE



NOTES:

1. STRUCTURAL SUPPORT FOR THE PUMP REMOVAL GUIDE AS REQUIRED BY THE PUMP AND TANK MFRS. TO MAINTAIN INTEGRITY OF TANK.
2. EXCESS EXCAVATED SPOILS SHALL BE DISPOSED IN ON SITE GENERAL FILL STOCKPILE.
3. NUMBER AND SIZE OF TIE DOWN STRAPS PER TANK MFR. RECOMMENDATIONS.
4. KEEP EXCAVATION FREE FROM PONDED WATER.
5. HAND COMPACT GENERAL FILL AROUND PIPES LOCATED OUTSIDE OF TANK EXCAVATION.
6. SEE TANK INFORMATION CHART ON SHEET PM-19 FOR TANK AND PUMP DIMENSIONS AND ELEVATION INFORMATION.
7. CONTRACTOR TO PROVIDE SHOP DRAWINGS PRIOR TO TANK INSTALLATION.

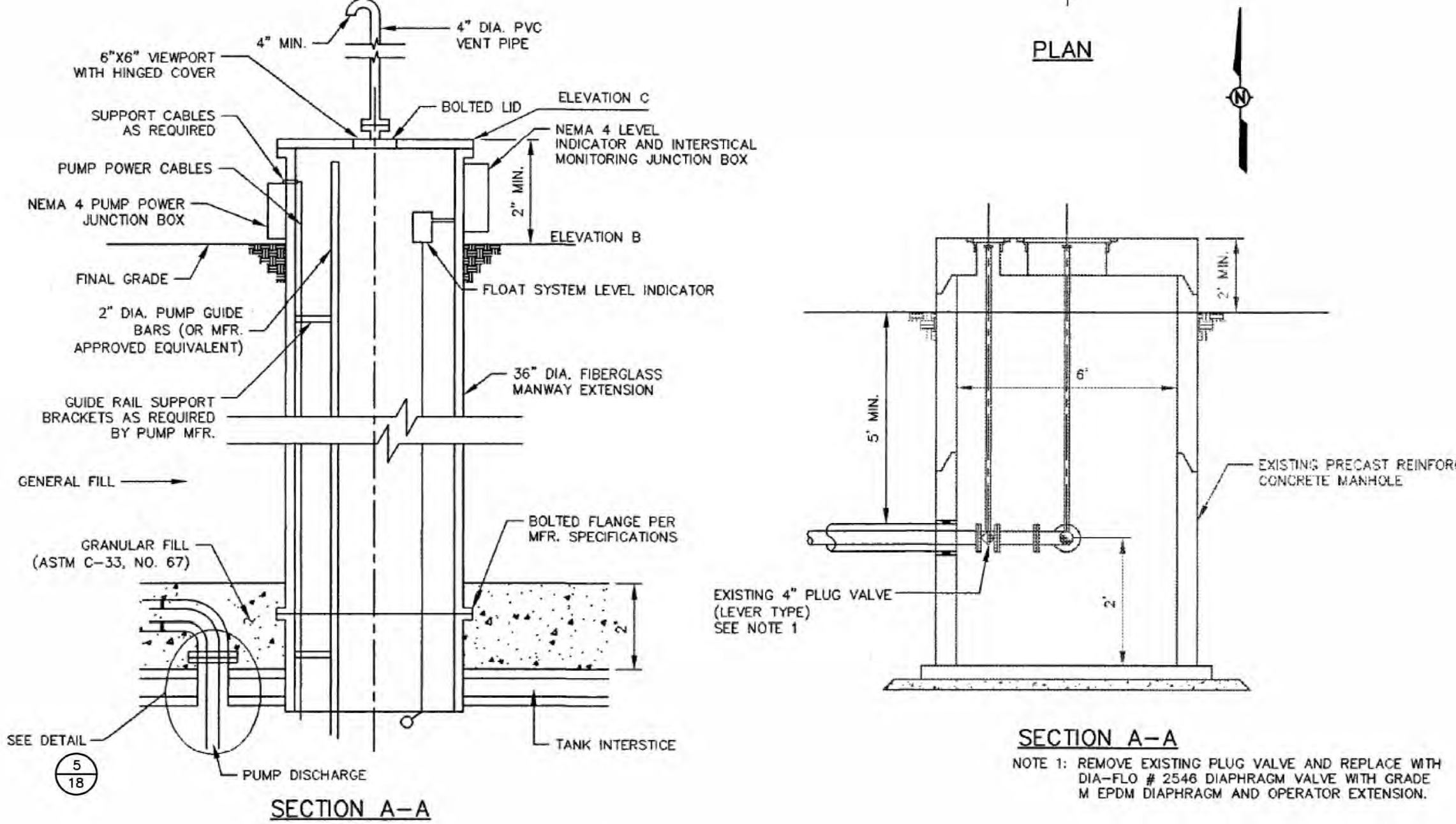
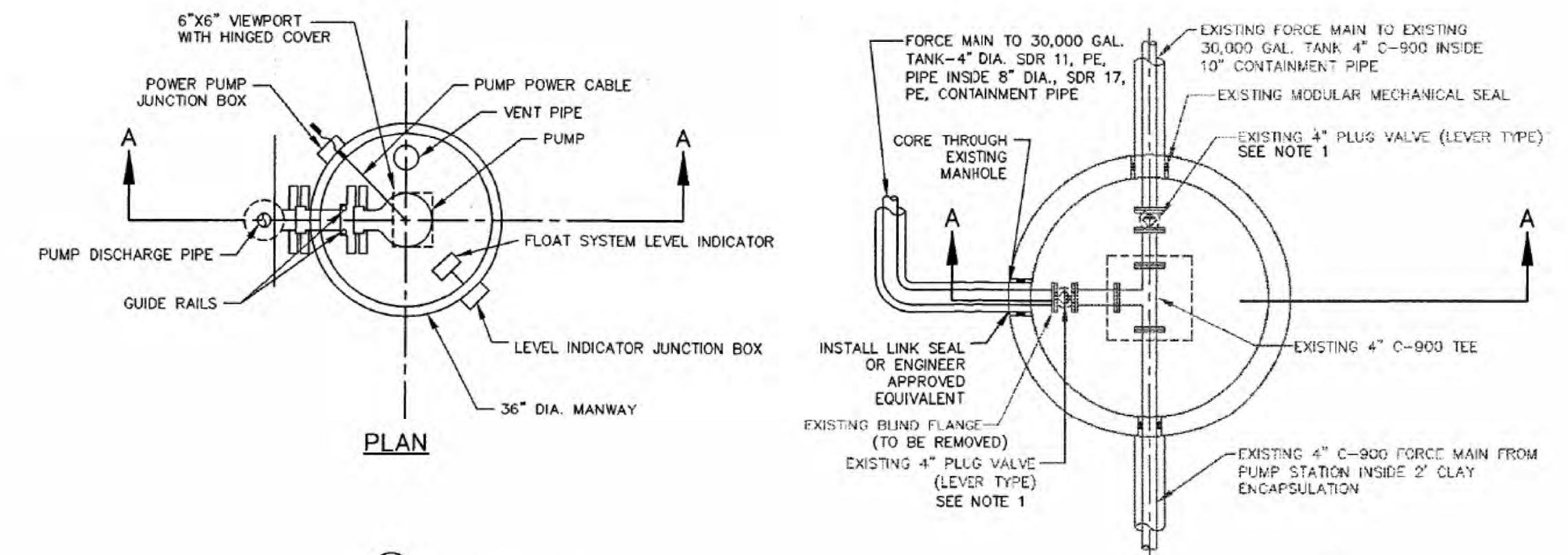
3 NEW STORAGE TANK SECTION
 NOT TO SCALE

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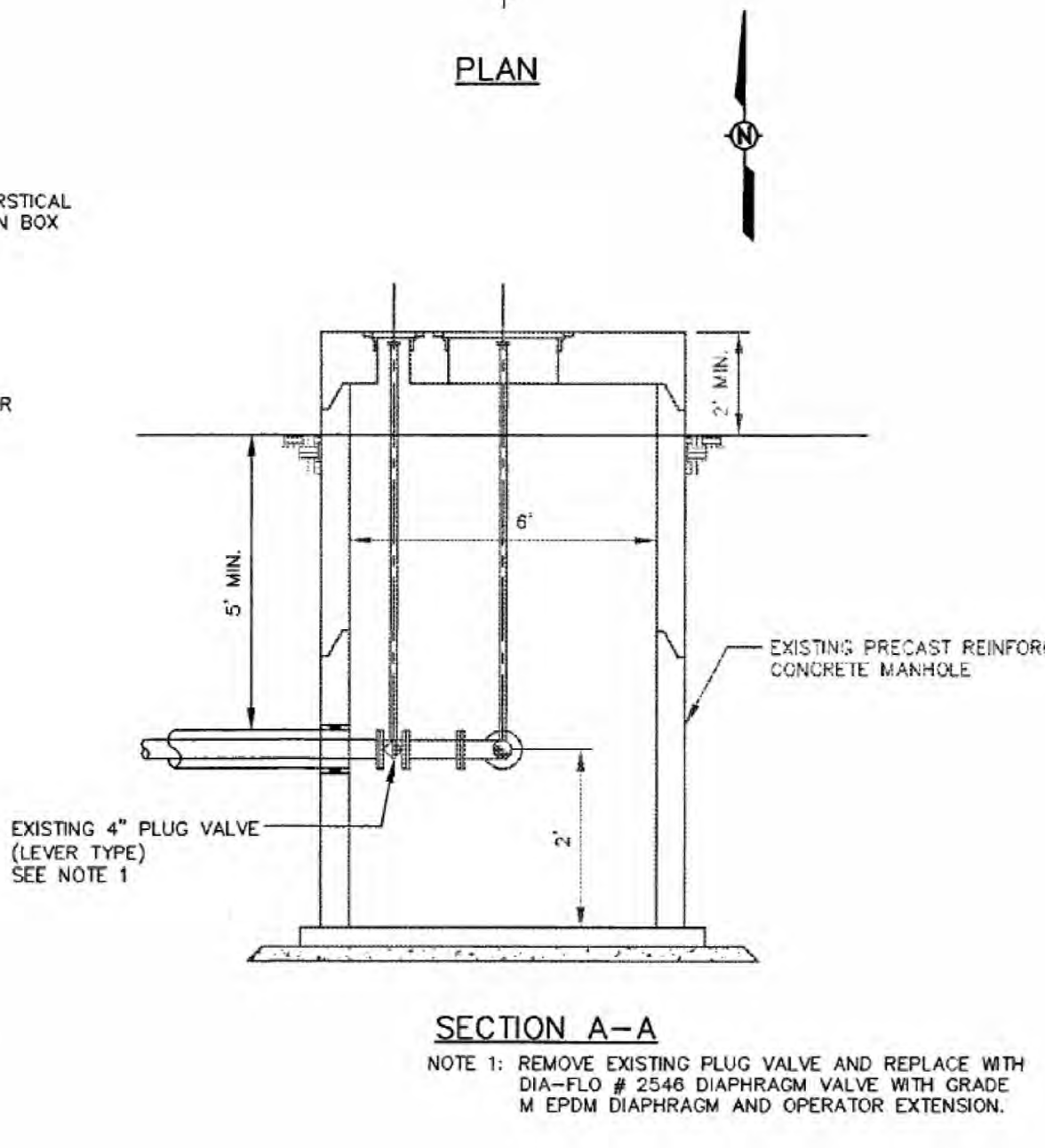
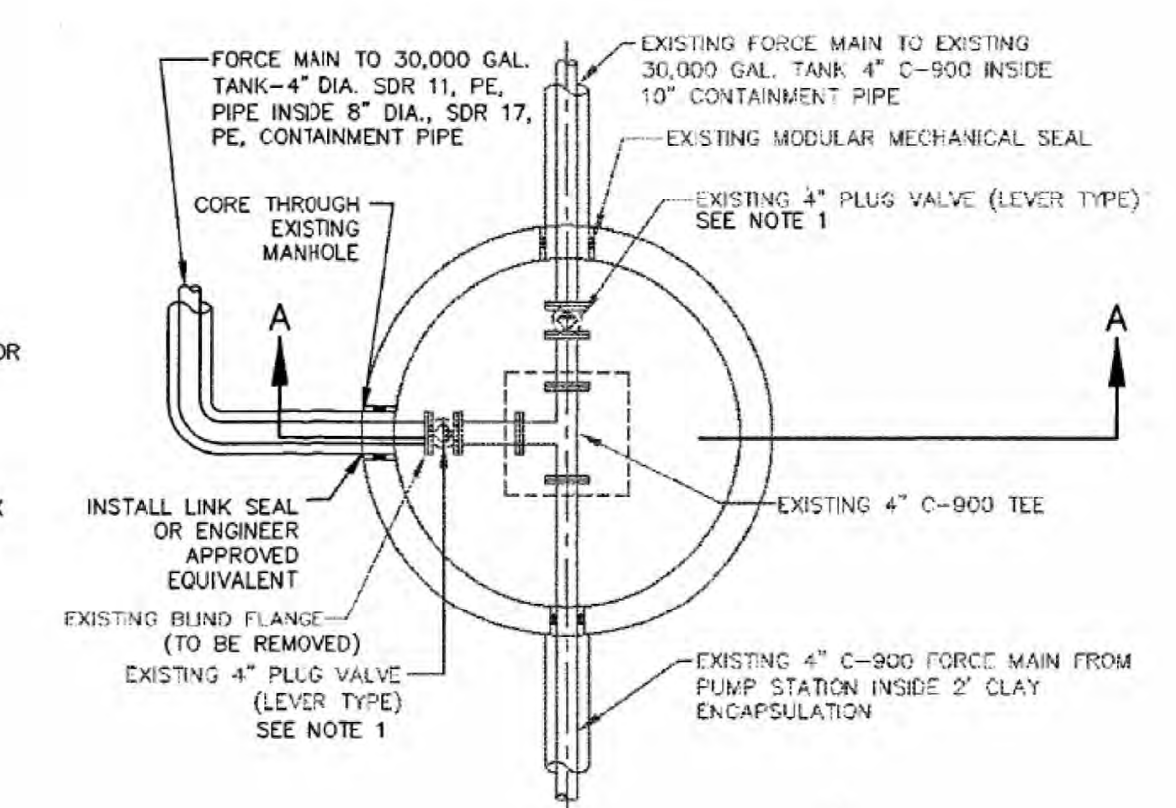
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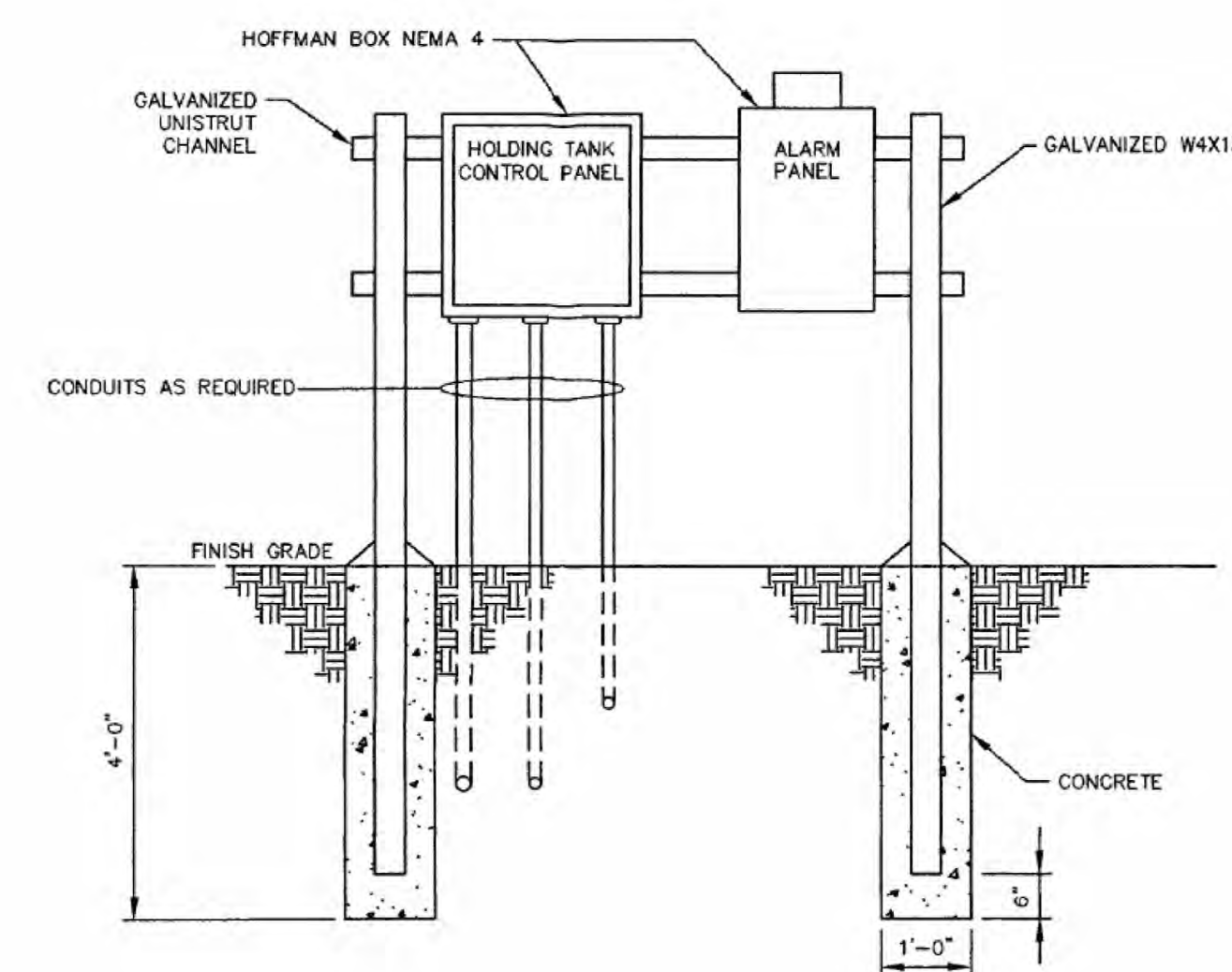
LEACHATE TANK DETAILS



1 PUMP ACCESS MANWAY
 19 NOT TO SCALE



2 PUMP JUNCTION VAULT
 19 NOT TO SCALE



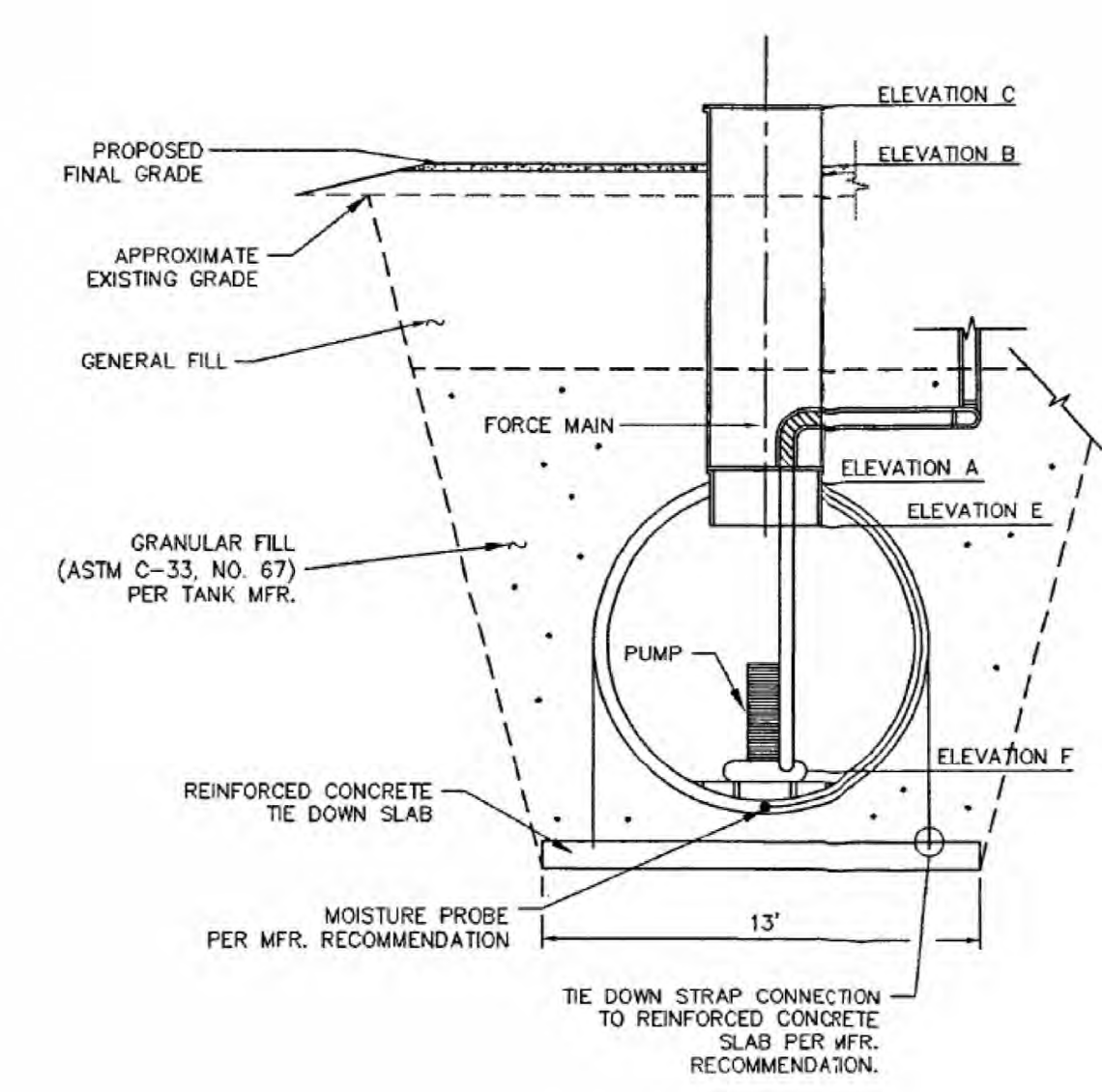
NOTES:
 1. CONDUIT TO EXISTING PANEL SHALL BE SIZED BY CONTRACTOR.
 2. CONTRACTOR TO PROVIDE SHOP DRAWINGS PRIOR TO ELECTRICAL HARDWARE INSTALLATION.

5 EQUIPMENT MOUNTING RACK
 19 NOT TO SCALE

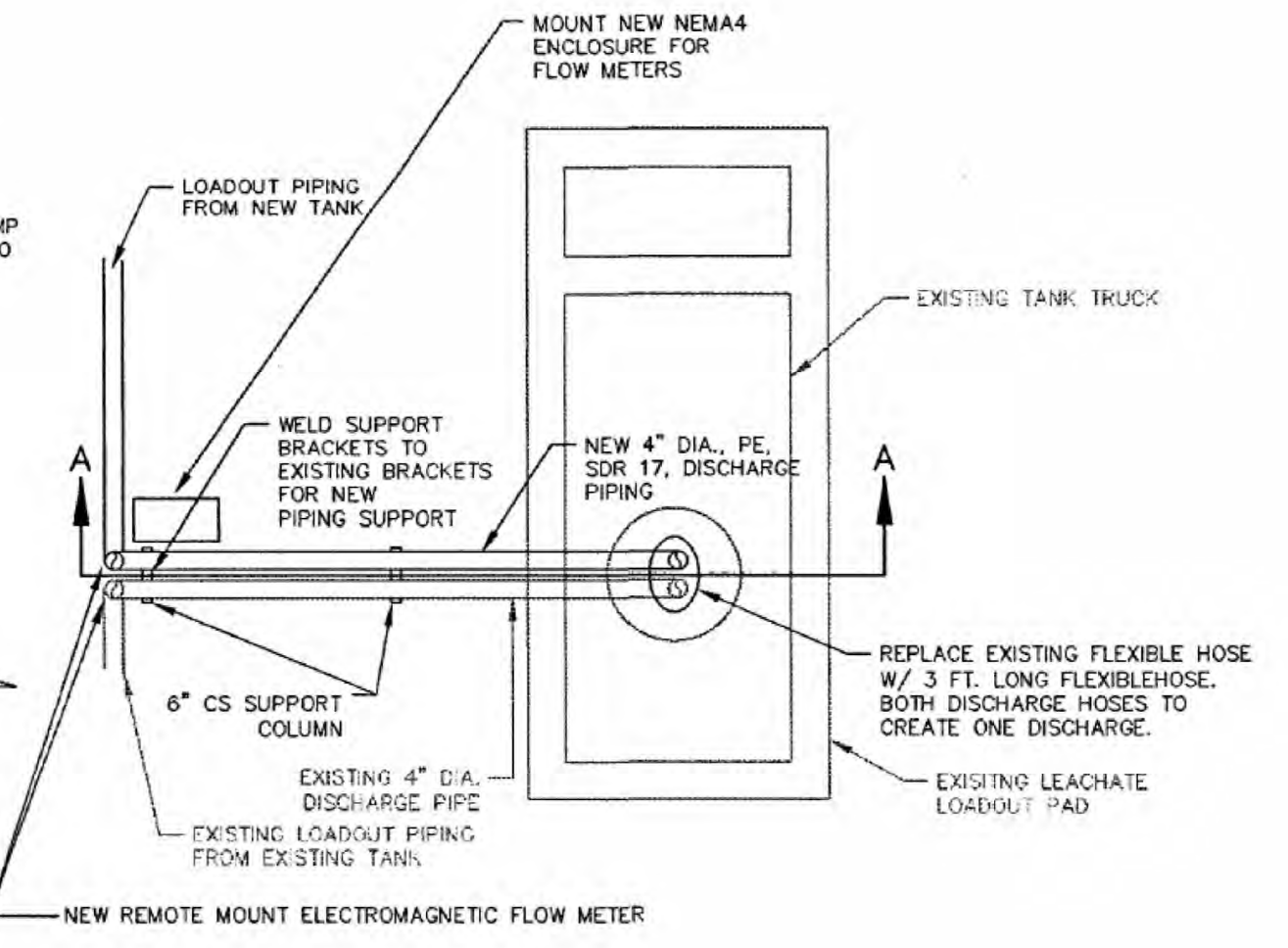
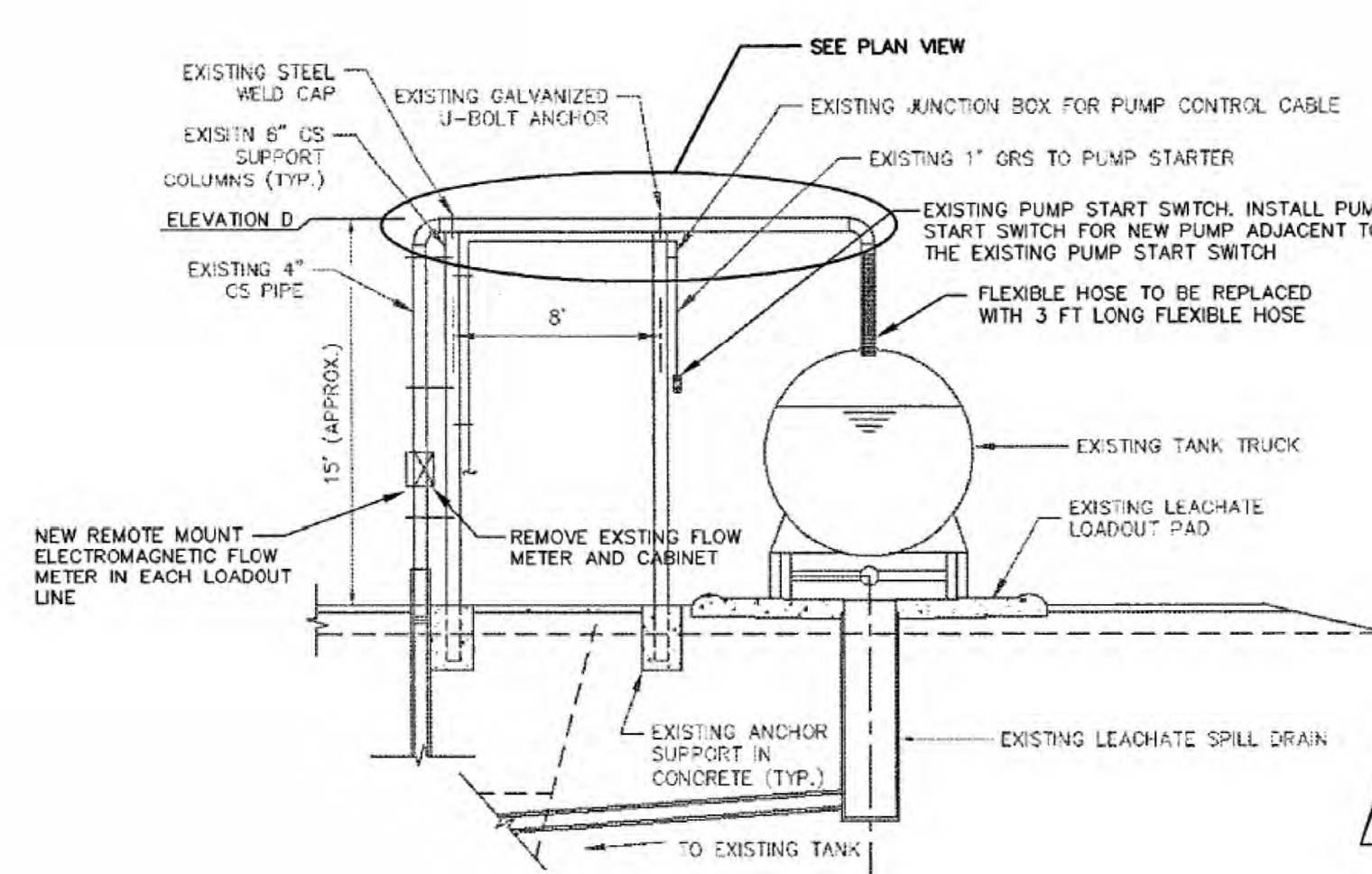
TANK INFORMATION CHART *		
	TANK 1	TANK 2
VOLUME (GAL)	30,000	30,000
SIZE NOMINAL DIA X APPROX. LENGTH	12' x 37'	11' x 42'
TOP OF TANK EL. "A"	714.0	713.0
GRADE (EL.) "B"	721.0	720.0
TOP MANWAY EL. "C"	723.0	722.0
TOP OF LOADOUT COUPLING EL. "D"	736.0	736.0
HIGH HOLDING TANK ALARM (I) EL. "E"	712.0	711.0
PUMP OFF (O) EL. "F"	704.5	702.5
PUMP CAPACITY **	-	-
PUMP MOTOR HP	7.8	7.8
MOTOR VOLTAGE	230 1P	230 1P

* TO BE VERIFIED BY TANK MFR.
 ** PUMPS SHALL BE FLYGT 3127 WITH 462 IMPELLER AND SPARK KIT OR ENGINEER APPROVED EQUIVALENT

TANK INFORMATION CHART



3 END VIEW
 19 NOT TO SCALE



NOTES:
 1. CONTRACTOR SHALL REPLACE EXISTING FLOW METER WITH NEW FLOW METER
 2. FLOW METERS SHALL PROVIDE DIGITAL READ OUT IN GALLONS OF INDIVIDUAL LOADOUT PERIOD OPERATION AND A TOTALIZED FLOW READ OUT IN A CONTROL BOX.

4 LEACHATE LOADOUT PIPING
 19 NOT TO SCALE

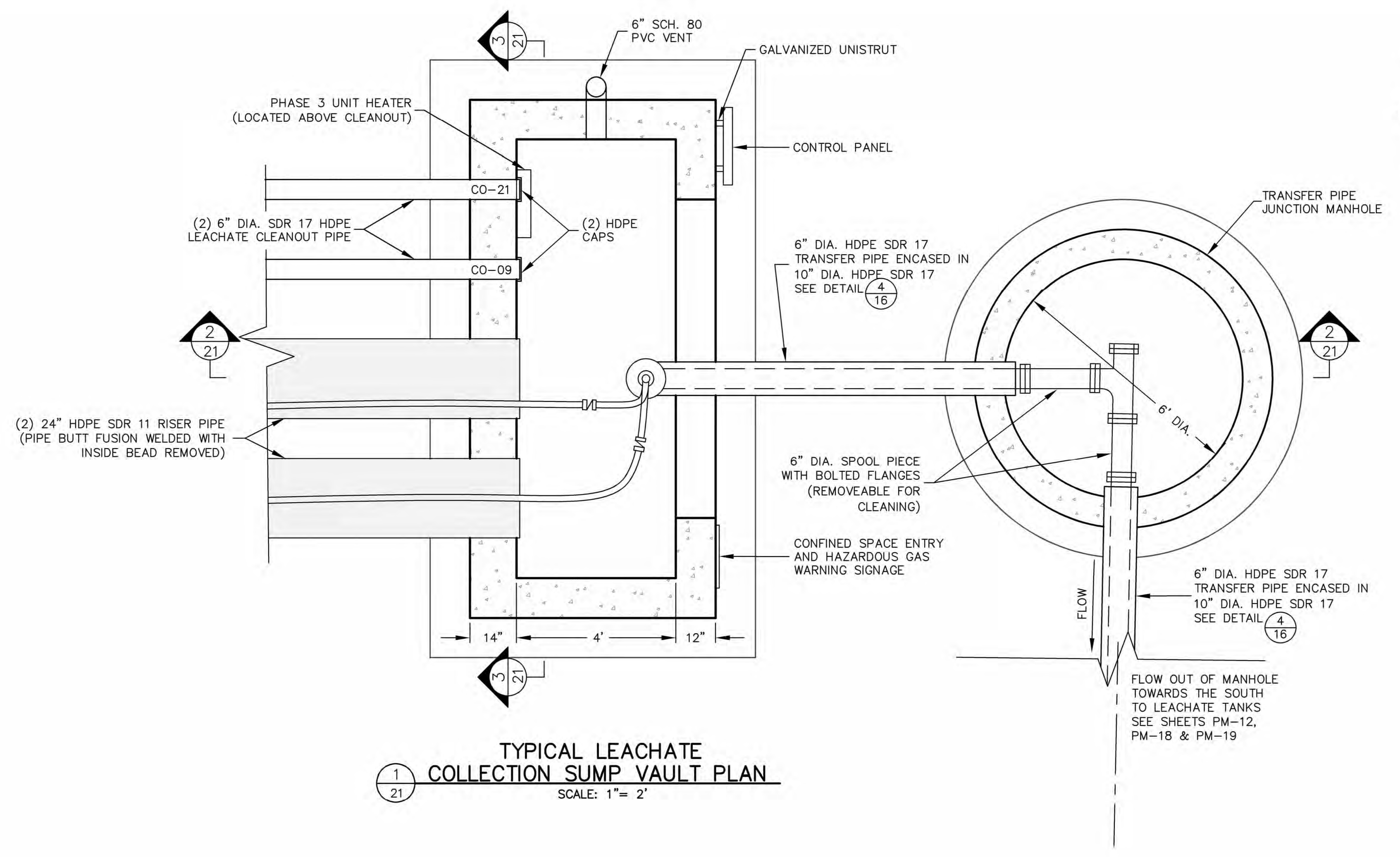
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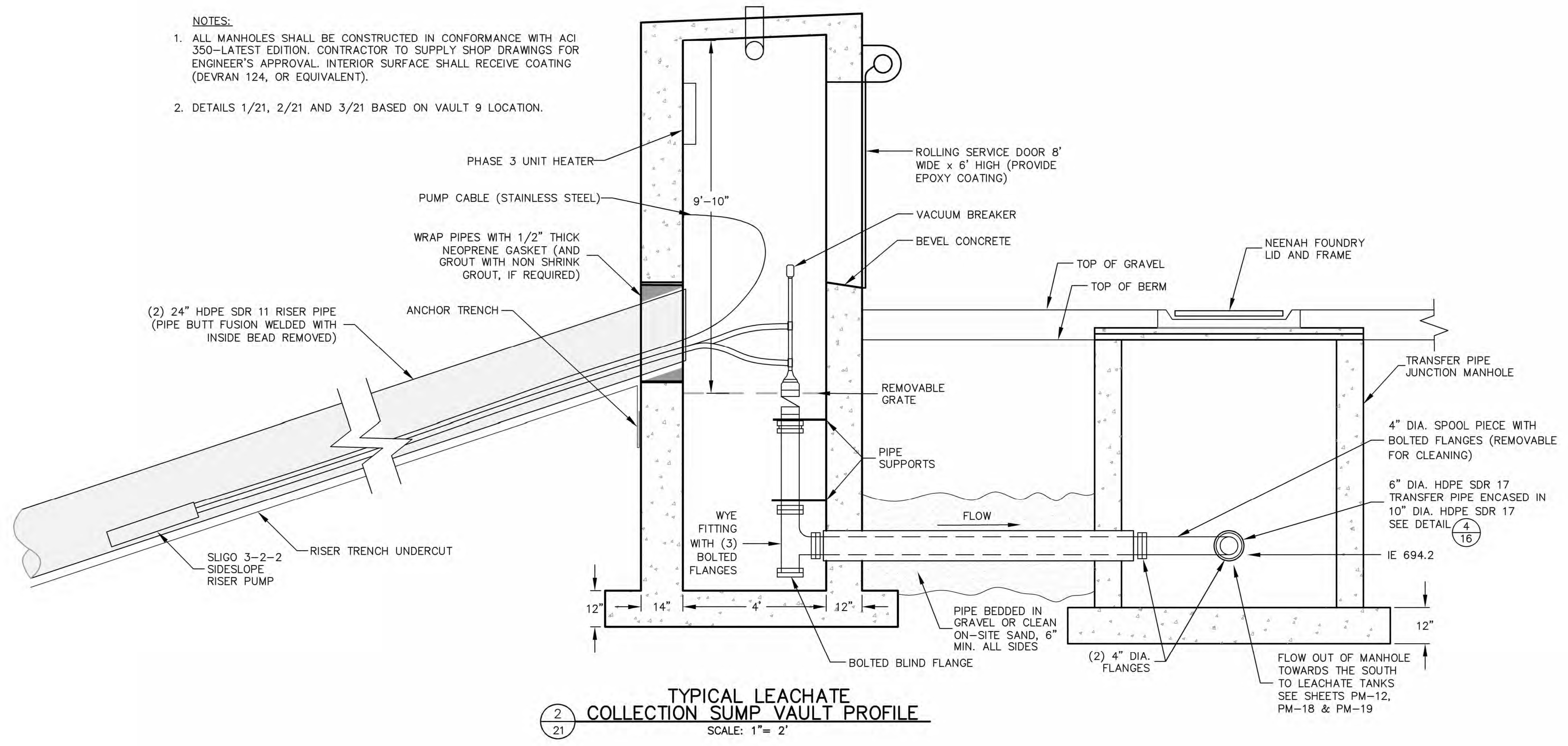
LEACHATE TANK DETAILS

**CALEDONIA
 ASH LANDFILL
 PLAN OF OPERATION
 MODIFICATION**

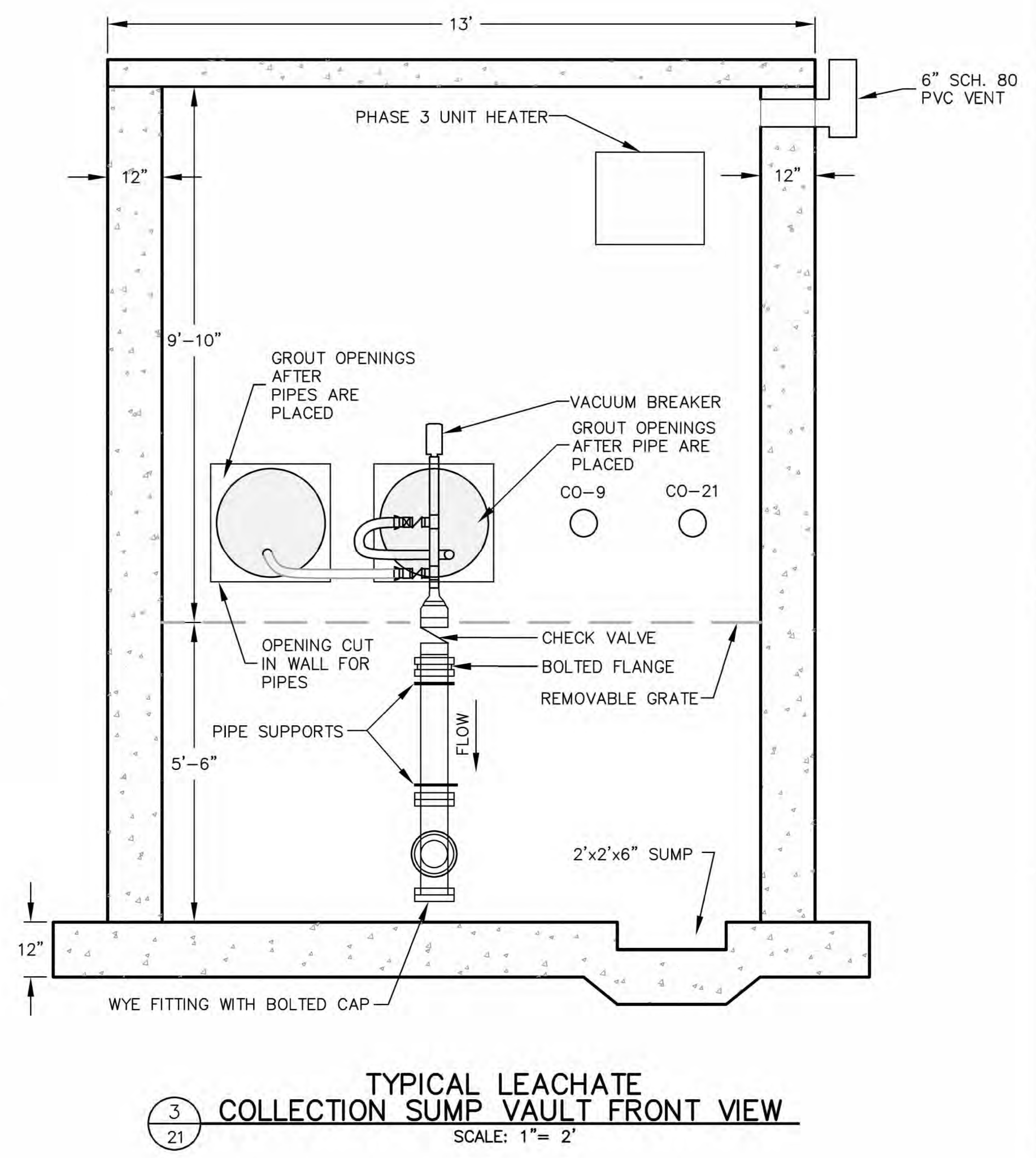


1
 21
**TYPICAL LEACHATE
 COLLECTION SUMP VAULT PLAN**
 SCALE: 1" = 2'

- NOTES:**
- ALL MANHOLES SHALL BE CONSTRUCTED IN CONFORMANCE WITH ACI 350-LATEST EDITION. CONTRACTOR TO SUPPLY SHOP DRAWINGS FOR ENGINEER'S APPROVAL. INTERIOR SURFACE SHALL RECEIVE COATING (DEVTRAN 124, OR EQUIVALENT).
 - DETAILS 1/21, 2/21 AND 3/21 BASED ON VAULT 9 LOCATION.



2
 21
**TYPICAL LEACHATE
 COLLECTION SUMP VAULT PROFILE**
 SCALE: 1" = 2'



3
 21
**TYPICAL LEACHATE
 COLLECTION SUMP VAULT FRONT VIEW**
 SCALE: 1" = 2'

P.E. No.:
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 GEI Project: 2203724

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**CONSTRUCTION
 DETAILS**

DWG. NO.
PM-21
 SHEET NO.
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