

SAUNDERS DEMONSTRATION MINE

PREPARED FOR:

TWIN PINES MINERALS, LLC

2100 SOUTHBRIDGE PARKWAY SUITE 540

BIRMINGHAM, ALABAMA 32091



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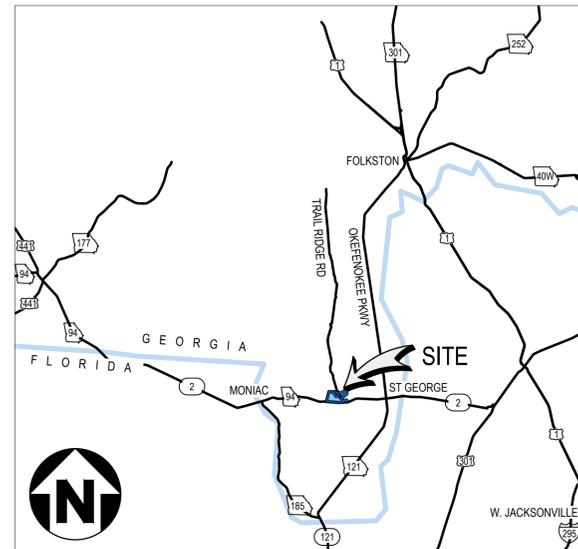
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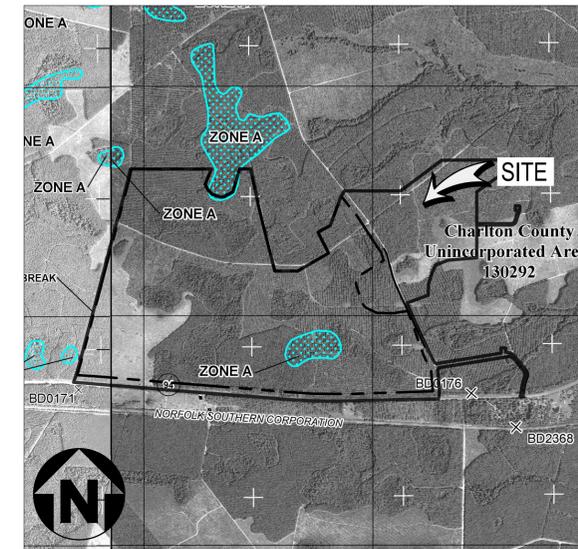
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⑩ VICINITY MAP - STATE OF GEORGIA
N.T.S.



⑪ LOCATION MAP
N.T.S.



⑫ F.I.R.M. PANEL
1" = 200'

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025

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REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REF	NUMBER	TITLE
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APPROVED FOR _____	
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR
M. ABDALLA PROJECT MGR	
PROJECT PHASE PERMITTING	
PROJECT NO. 7382224061	BY DES 07FEB22 DRN 07FEB22 CHK 07FEB22 APP 07FEB22
SCALE AS SHOWN	SUBJECT COVER SHEET

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

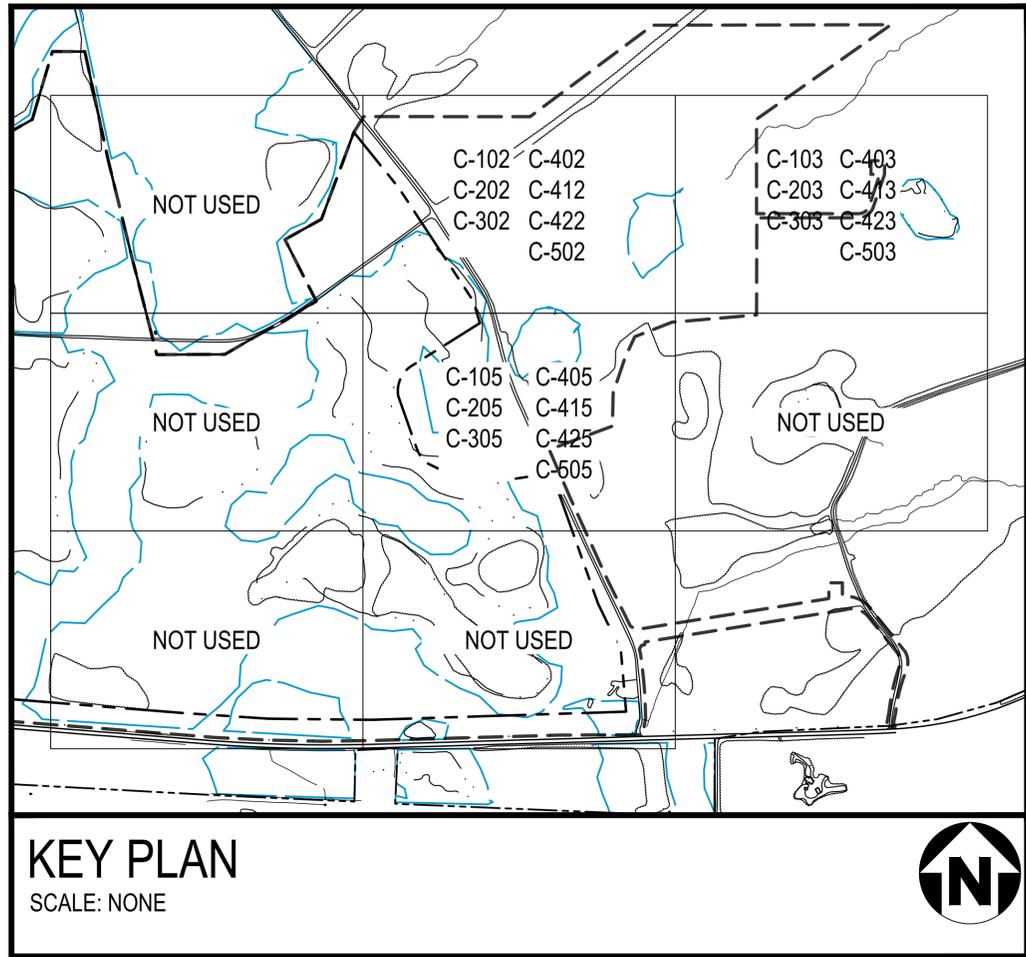
CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-001

REV
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SAVED: 10-Jun-22 11:01 AM PLOTTED: 18-Nov-22 2:41 PM USER: NICHOLSON, PETER



DRAWING INDEX		
SHEET NUMBER	DRAWING NUMBER	SHEET TITLE
	C-001	COVER SHEET
	C-002	DRAWING INDEX
	C-100	OVERALL EXISTING CONDITIONS PLAN
	C-102	EXISTING CONDITIONS PLAN SHEET 2
	C-103	EXISTING CONDITIONS PLAN SHEET 3
	C-105	EXISTING CONDITIONS PLAN SHEET 5
	C-200	OVERALL SITE PLAN
	C-202	SITE PLAN SHEET 2
	C-203	SITE PLAN SHEET 3
	C-205	SITE PLAN SHEET 5
	C-300	OVERALL GRADING AND DRAINAGE PLAN
	C-302	GRADING AND DRAINAGE PLAN SHEET 2
	C-303	GRADING AND DRAINAGE PLAN SHEET 3
	C-305	GRADING AND DRAINAGE PLAN SHEET 5
	C-400	OVERALL INITIAL EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN
	C-402	INITIAL EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 2
	C-403	INITIAL EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 3
	C-405	INITIAL EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 5
	C-410	OVERALL INTERMEDIATE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN
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	C-415	INTERMEDIATE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 5
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	C-422	FINAL EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 2
	C-423	FINAL EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 3
	C-425	FINAL EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 5
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DRAWING INDEX		
SHEET NUMBER	DRAWING NUMBER	SHEET TITLE
	C-521	PUMP STATION PLAN AND SECTION
	C-530	OVERALL EVAPORATOR LAYOUT
	C-532	EVAPORATOR PLAN SHEET 2
	C-533	EVAPORATOR PLAN SHEET 3
	C-535	EVAPORATOR PLAN SHEET 5
	C-571	PROCESS FLOW DIAGRAM SHEET 1
	C-572	PROCESS FLOW DIAGRAM SHEET 2
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	C-602	PERIMETER ROAD PLAN AND PROFILE SHEET 2
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	C-604	PERIMETER ROAD PLAN AND PROFILE SHEET 4
	C-605	PERIMETER ROAD PLAN AND PROFILE SHEET 5
	C-606	PERIMETER ROAD PLAN AND PROFILE SHEET 6
	C-611	PUMP HOUSE ROAD PLAN AND PROFILE SHEET 1
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	C-632	SITE CROSS SECTIONS SHEET 2
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	C-711	SITE DETAILS 1
	C-712	SITE DETAILS 2
	C-713	SITE DETAILS 3
	C-714	SITE DETAILS 4
	C-801	POND CLOSURE PLAN
	FIG 1	OVERALL GRADING AND WETLANDS EXHIBIT

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SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

wood.
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SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.
DRAWING NO.
C-002

REV
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GSWCC GEORGIA SOIL AND WATER
CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

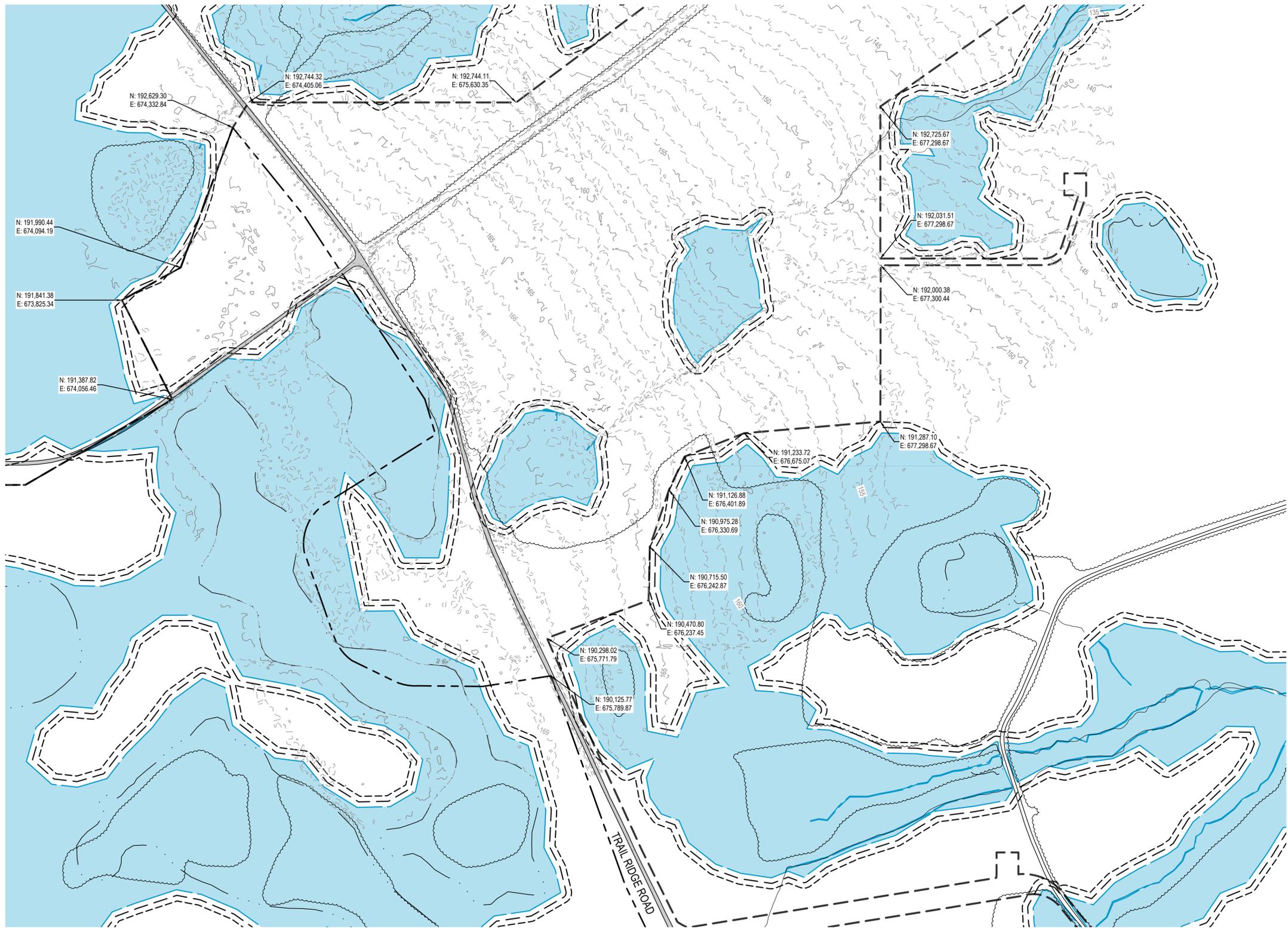
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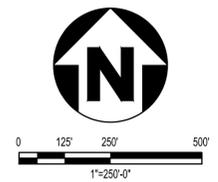
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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	NON-JURISDICTIONAL WETLANDS
	TREE LINE



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SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA
CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-100

REV
0

SUBJECT
OVERALL EXISTING CONDITIONS PLAN

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA
CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-100

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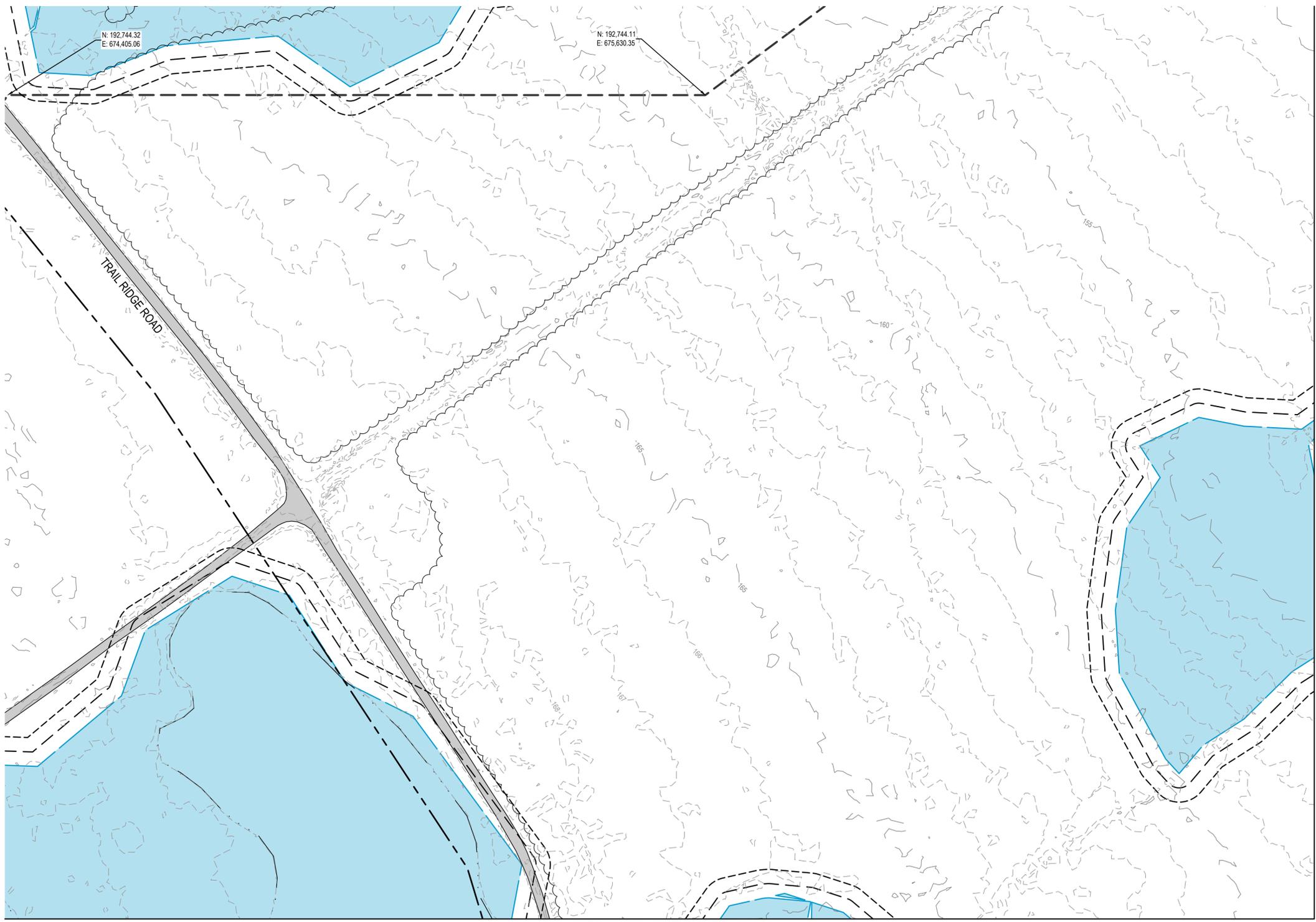
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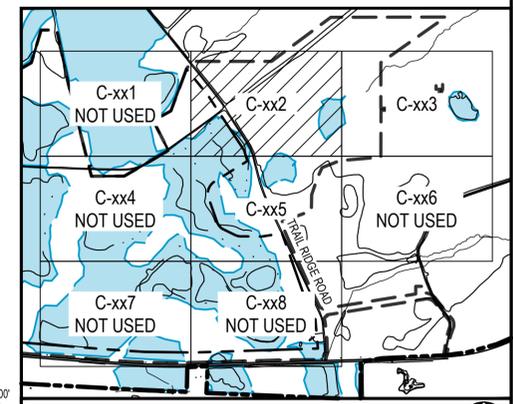
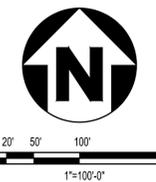
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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	NON-JURISDICTIONAL WETLANDS
	TREE LINE

MATCHLINE - SEE SHEET C-103

MATCHLINE - SEE SHEET C-105



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
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7382224061	DES	07FEB22
SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO.	REV
C-102	0

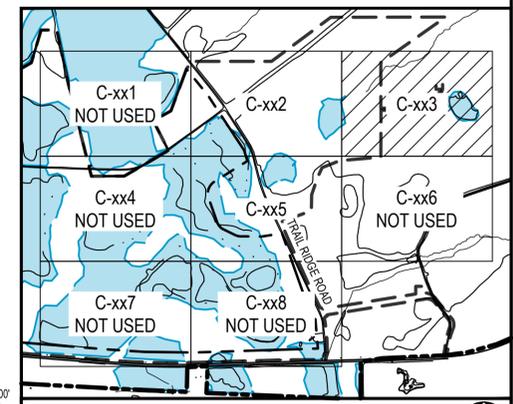
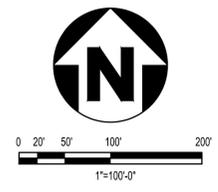


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MATCHLINE - SEE SHEET C-102

LEGEND

- MINE BOUNDARY
- PERMIT BOUNDARY
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- NON-JURISDICTIONAL WETLANDS
- TREE LINE



KEY PLAN
SCALE: NONE

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SCALE AS SHOWN	CHK 07FEB22	APP 07FEB22

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

SUBJECT
EXISTING CONDITIONS PLAN SHEET 3

AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO. C-103	REV 0



MATCHLINE - SEE SHEET C-102



LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	NON-JURISDICTIONAL WETLANDS
	TREE LINE

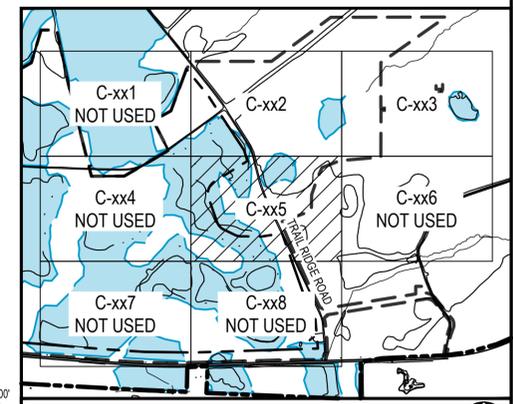
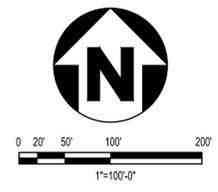
MATCHLINE - SEE SHEET C-104

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KEY PLAN
SCALE: NONE

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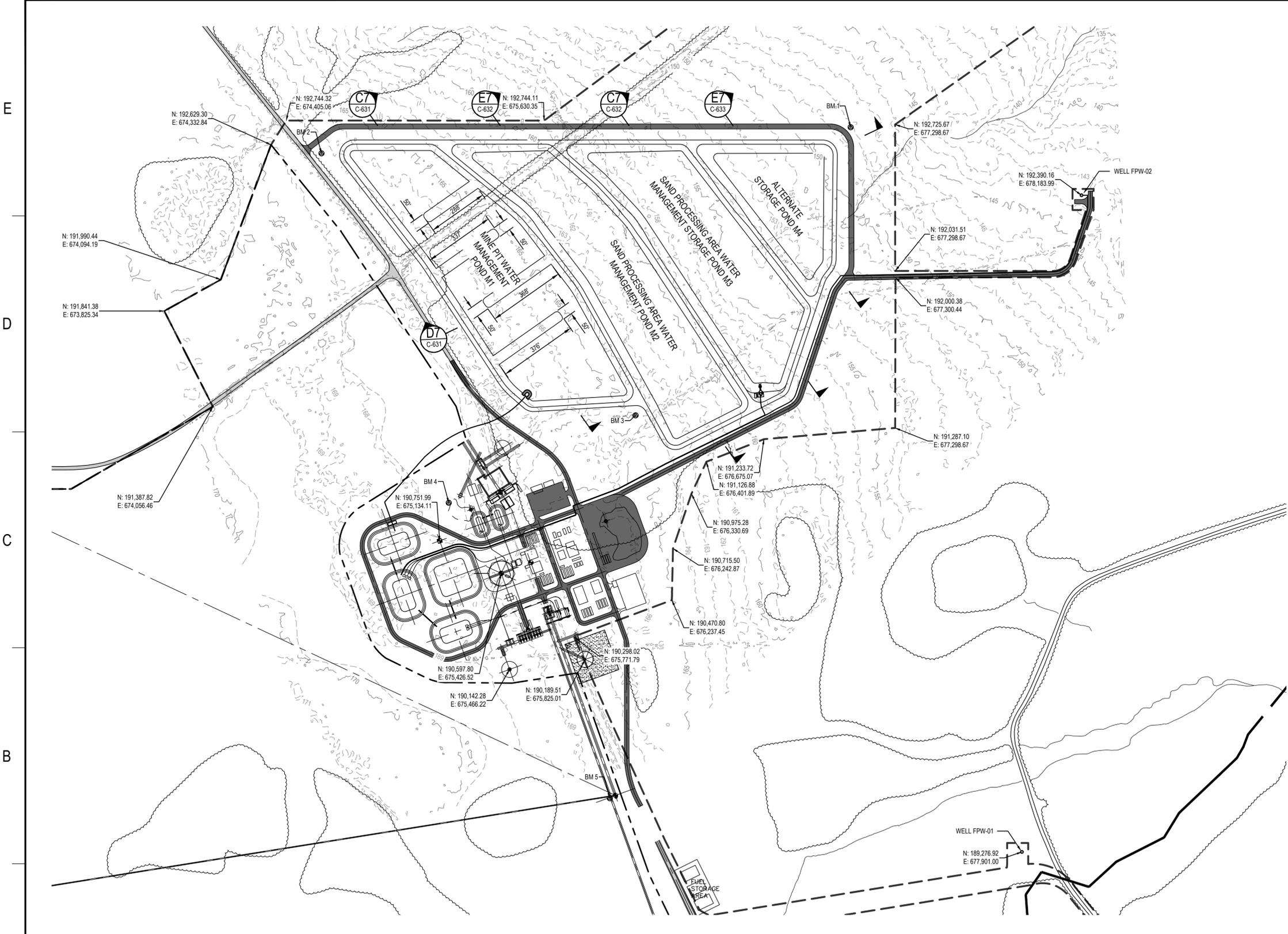
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SCALE AS SHOWN	CHK 07FEB22	APP 07FEB22

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

 4000 MEADOW LAKE DRIVE SUITE 121 BIRMINGHAM, AL 35242 (205) 980-6402	
AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO. C-105	REV 0

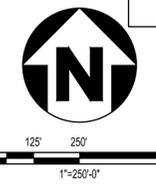
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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	EXISTING UNPAVED ROADWAY
	PROPOSED UNPAVED ROADWAY
	SITE BENCHMARK

TABLE OF POND VOLUMES			
WATER MANAGEMENT PONDS			
POND NAME	TOTAL VOLUME	MAX. WORKING VOLUME	POND AREA
MINE PIT WATER MANAGEMENT POND M1	51,153,368 GAL.	38,356,811 GAL.	17.1 Ac.
SAND PROCESSING AREA WATER MANAGEMENT POND M2	41,256,921 GAL.	32,160,837 GAL.	14.1 Ac.
SAND PROCESSING AREA WATER MANAGEMENT STORAGE POND M3	37,084,466 GAL.	28,670,896 GAL.	12.6 Ac.
ALTERNATE STORAGE POND M4	17,246,725 GAL.	12,697,470 GAL.	6.0 Ac.
PROCESS WATER PONDS			
PROCESS WATER POND P1	1,500,000 GAL.	1,300,000 GAL.	0.8 Ac.
PROCESS WATER POND P2	800,000 GAL.	700,000 GAL.	0.5 Ac.
PROCESS WATER POND P3	800,000 GAL.	700,000 GAL.	0.5 Ac.
PROCESS WATER POND P4	800,000 GAL.	700,000 GAL.	0.5 Ac.
THICKENER UNDERFLOW POND A	197,400 GAL.	108,380 GAL.	0.1 Ac.
THICKENER UNDERFLOW POND B	197,400 GAL.	108,380 GAL.	0.1 Ac.

SITE BENCHMARK LOCATIONS		
BENCHMARK	NORTHING	EASTING
BM 1	192,712.63	677,087.22
BM 2	192,588.82	674,572.34
BM 3	191,346.58	676,065.15
BM 4	190,932.19	675,177.20
BM 5	189,531.77	675,942.26



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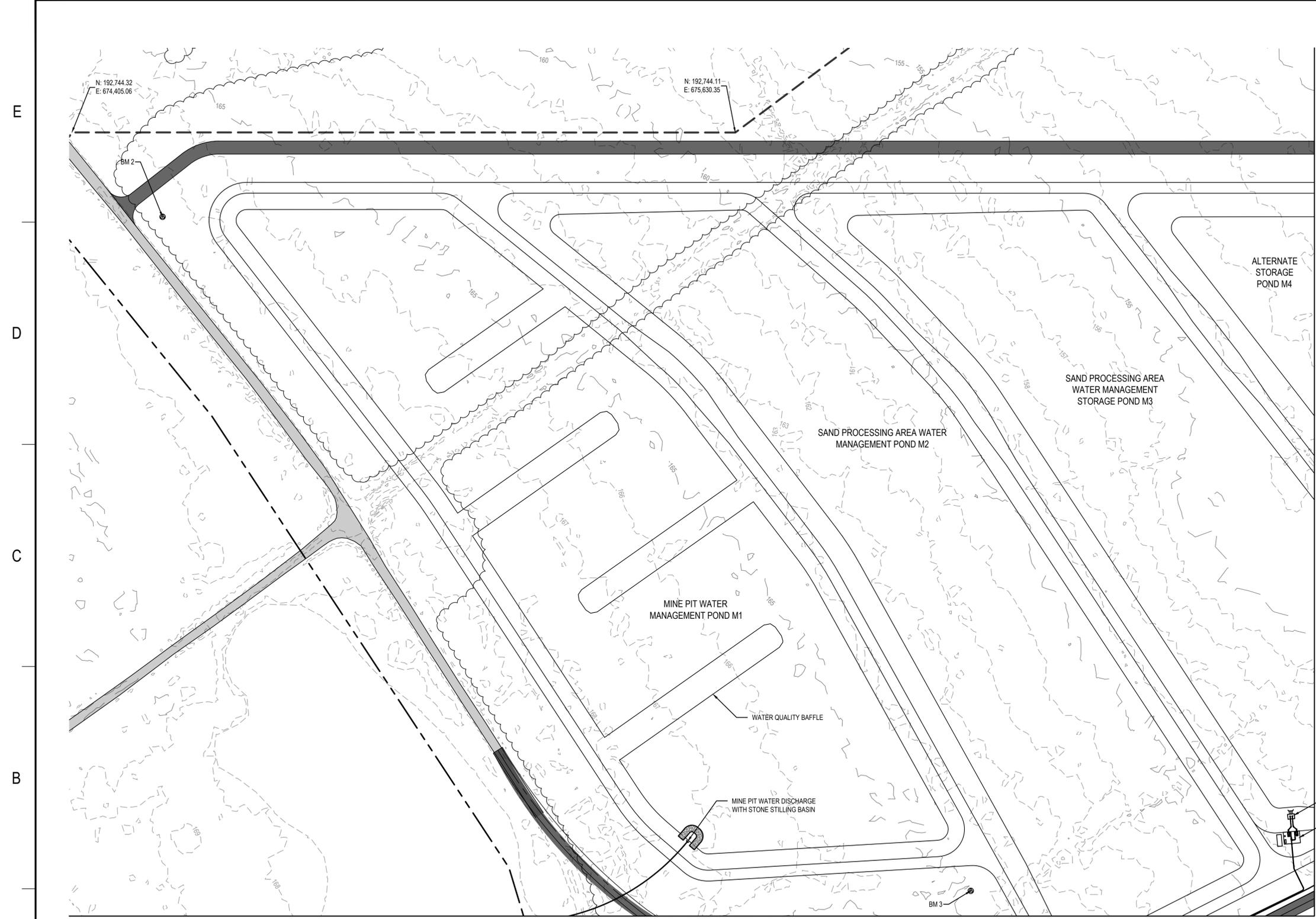
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OVERALL SITE PLAN

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

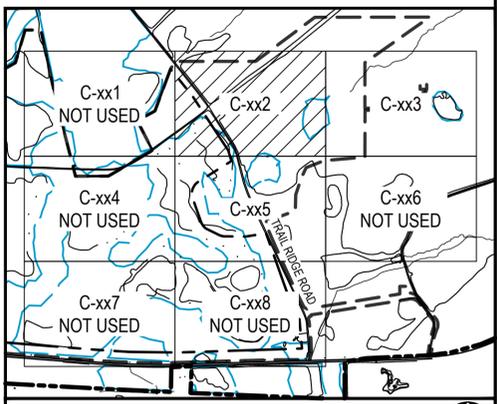
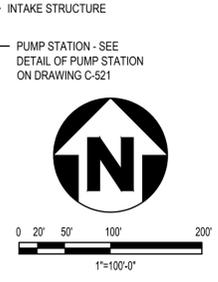
AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO.	REV
C-200	0



LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	EXISTING UNPAVED ROADWAY
	PROPOSED UNPAVED ROADWAY
	SITE BENCHMARK

MATCHLINE - SEE SHEET C-203

MATCHLINE - SEE SHEET C-205



KEY PLAN
SCALE: NONE

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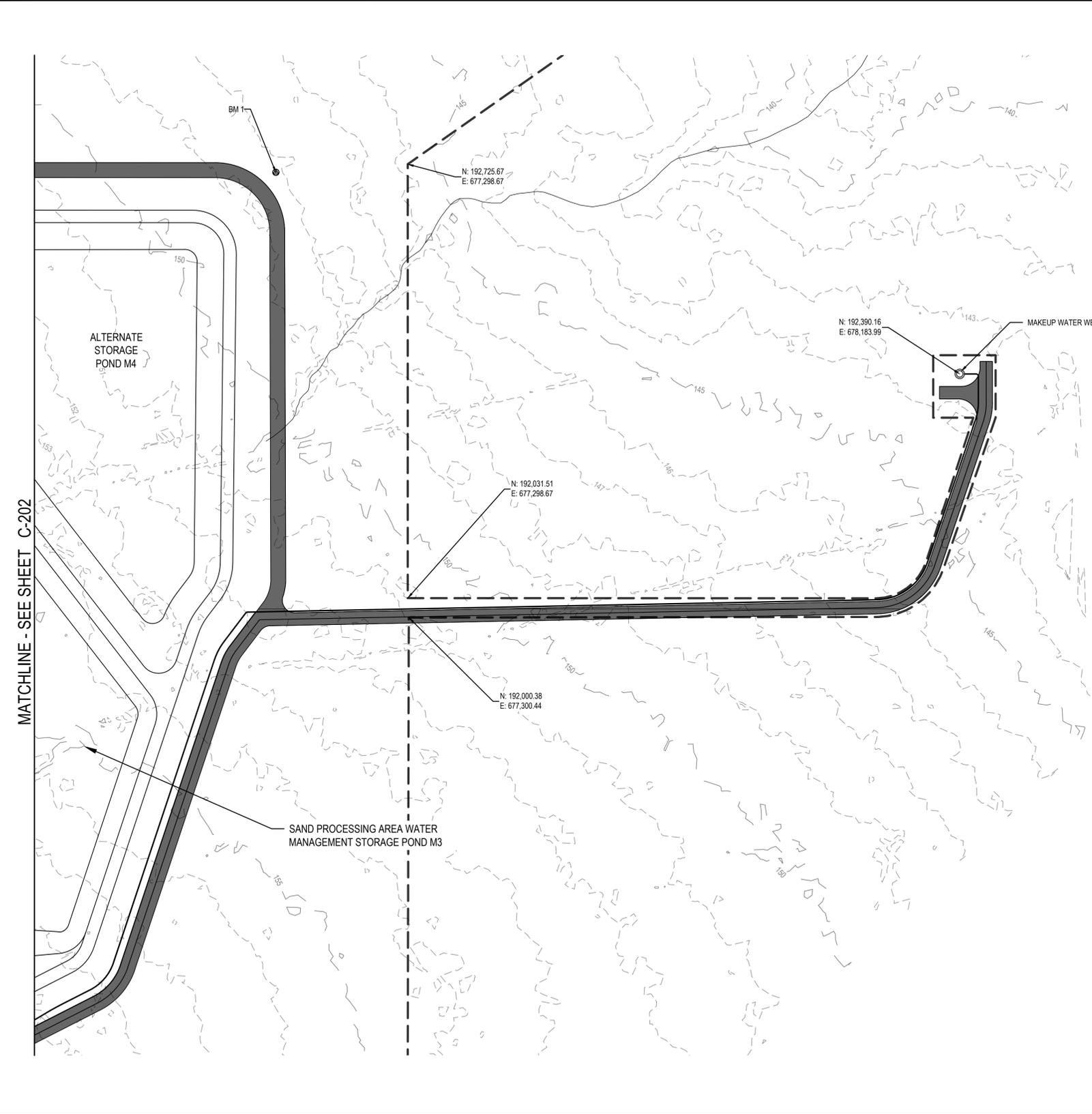
DRAWING NO.
C-202

REV
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SITE PLAN SHEET 2	
AREA	CERTIFICATE OF AUTHORIZATION ECA2221
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DRAWING NO.	C-202
REV	0

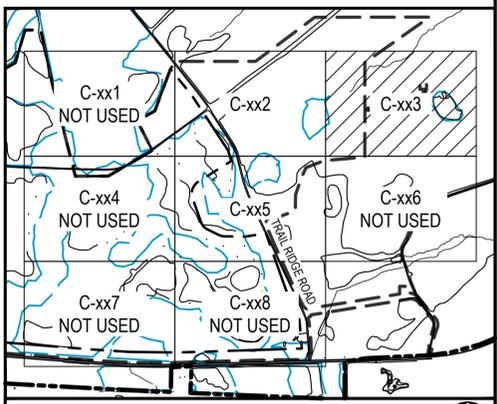
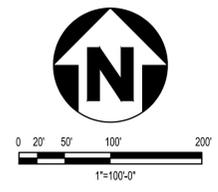


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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	EXISTING UNPAVED ROADWAY
	PROPOSED UNPAVED ROADWAY
	SITE BENCHMARK

MATCHLINE - SEE SHEET C-202



REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
0	8NOV2022	ISSUED FOR PERMITTING																			

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APPROVED FOR _____		
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE PERMITTING		
PROJECT NO. 7382224061	BY DES 07FEB22	DDMMYY 07FEB22
SCALE AS SHOWN	CHK 07FEB22	APP 07FEB22

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

SUBJECT
SITE PLAN SHEET 3

4000 MEADOW LAKE DRIVE SUITE 121 BIRMINGHAM, AL 35242 (205) 980-6402	
AREA ECA2221	CERTIFICATE OF AUTHORIZATION
CLIENT DWG NO.	
DRAWING NO. C-203	REV 0



MATCHLINE - SEE SHEET C-202

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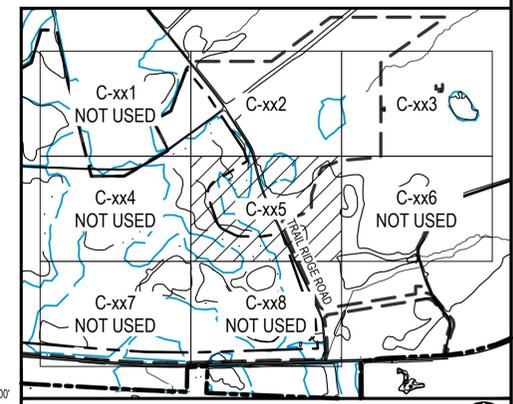
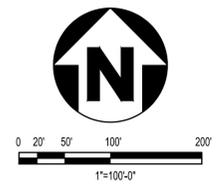
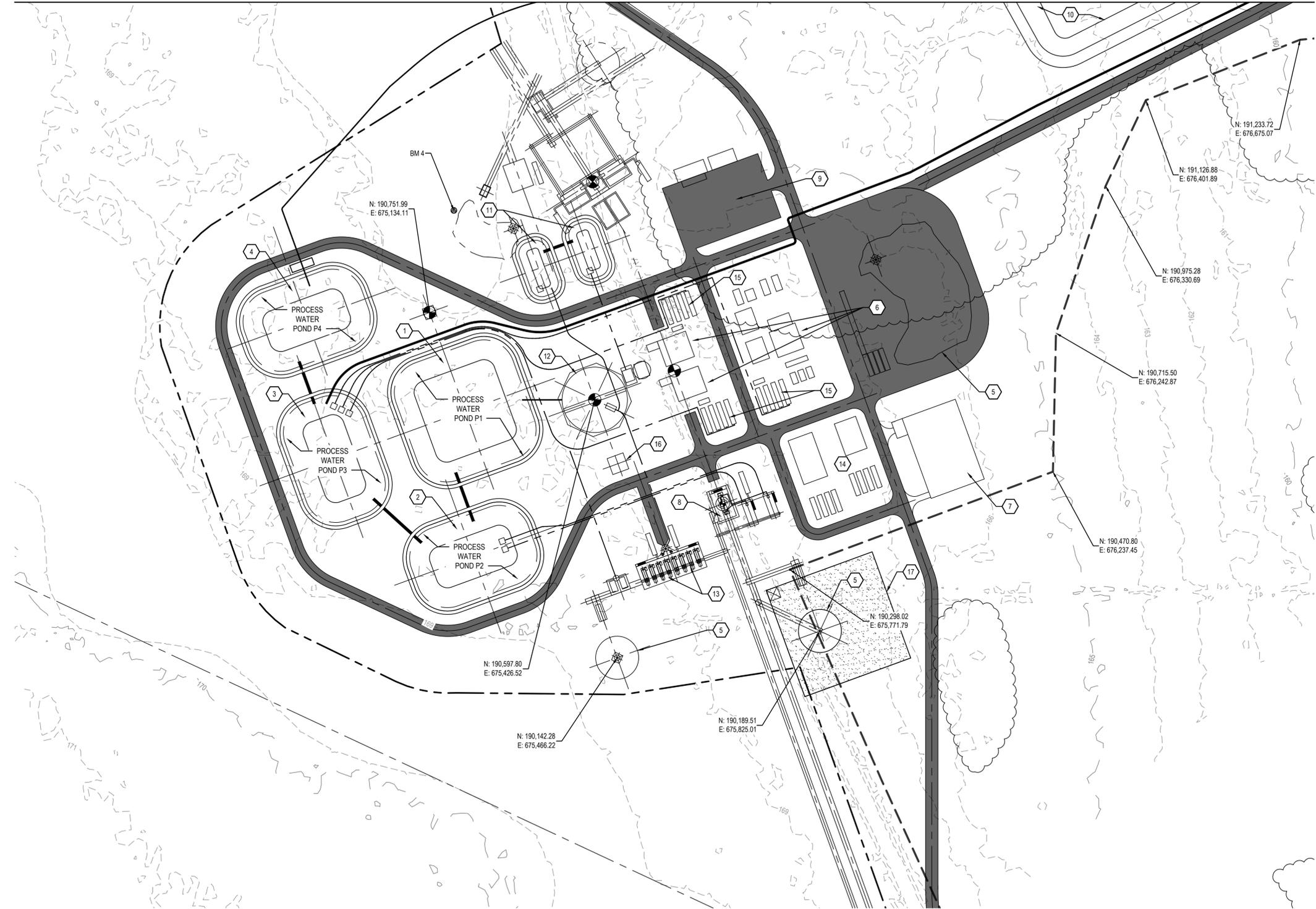
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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	EXISTING UNPAVED ROADWAY
	PROPOSED UNPAVED ROADWAY
	SITE BENCHMARK

KEYNOTES	
1.	PRIMARY PROCESS WATER POND (PROCESS WATER POND 1)
2.	SECONDARY PROCESS WATER POND (PROCESS WATER POND 2)
3.	SECONDARY PROCESS WATER POND (PROCESS WATER POND 3)
4.	PRIMARY OVERFLOW POND (PROCESS WATER POND 4)
5.	STOCKPILE
6.	PCP/WCP PLANT
7.	SUBSTATION
8.	COVERED FACILITY
9.	PARKING AND OFFICES
10.	SAND PROCESSING AREA WATER MANAGEMENT POND M2
11.	TEMPORARY THICKENER UNDERFLOW PONDS (A & B)
12.	THICKENER
13.	CENTRIFUGES
14.	MAINTENANCE YARD
15.	PROCESS WATER TANKS
16.	FLOCCULATION BUILDING
17.	CONTAINMENT AREA



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REF	NUMBER	TITLE
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STAMP/SEAL

APPROVED FOR		
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE PERMITTING		
PROJECT NO. 7382224061	BY DES 07FEB22	DDMMYY 07FEB22
SCALE AS SHOWN	CHK DRN 07FEB22	APP 07FEB22

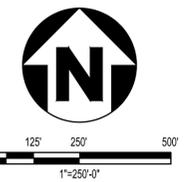
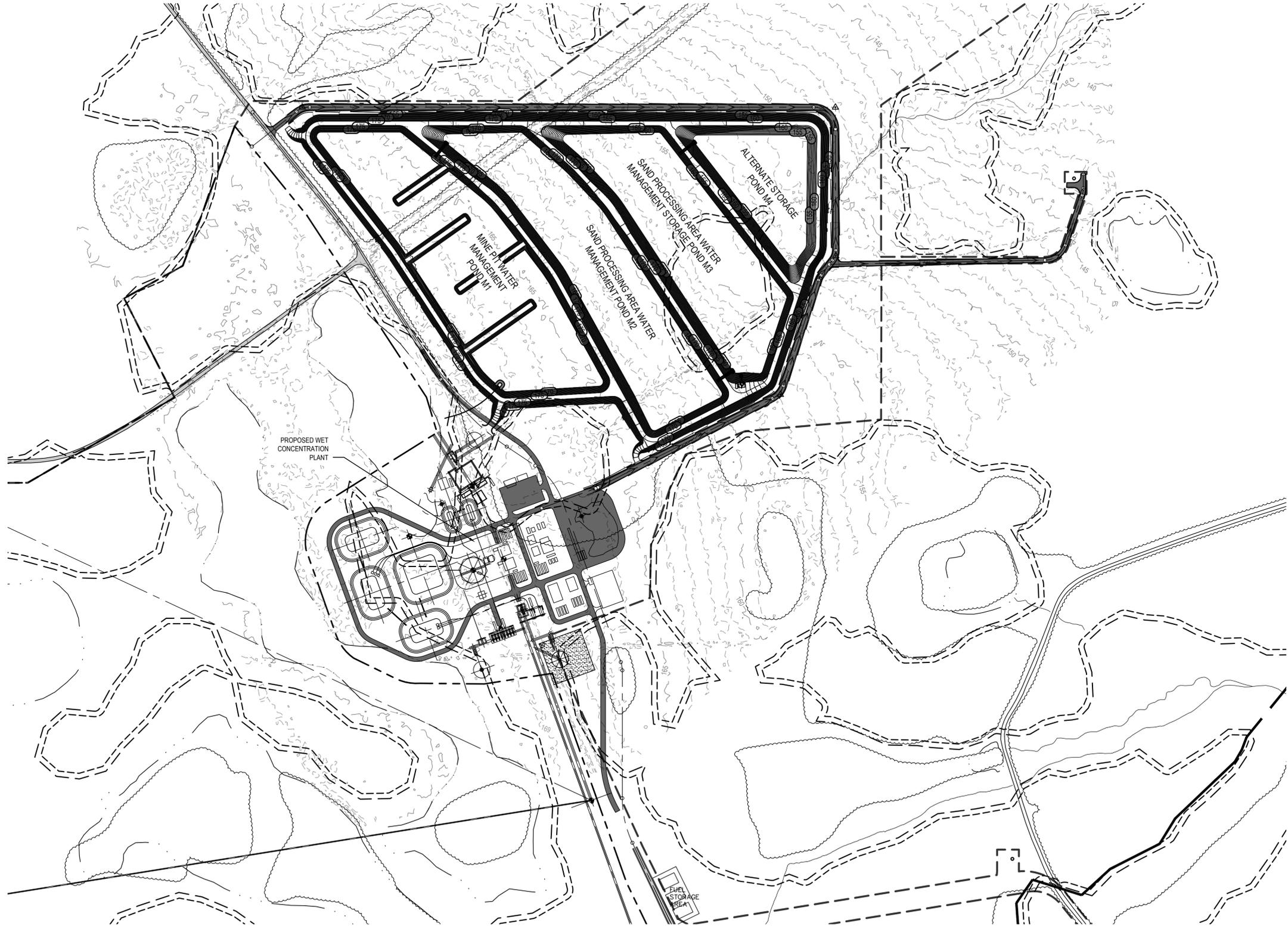
TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

4000 MEADOW LAKE DRIVE SUITE 121 BIRMINGHAM, AL 35242 (205) 980-6402	
AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO. C-205	REV 0



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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR



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REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE	
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STAMP/SEAL

APPROVED FOR		
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

SUBJECT
OVERALL GRADING AND DRAINAGE PLAN

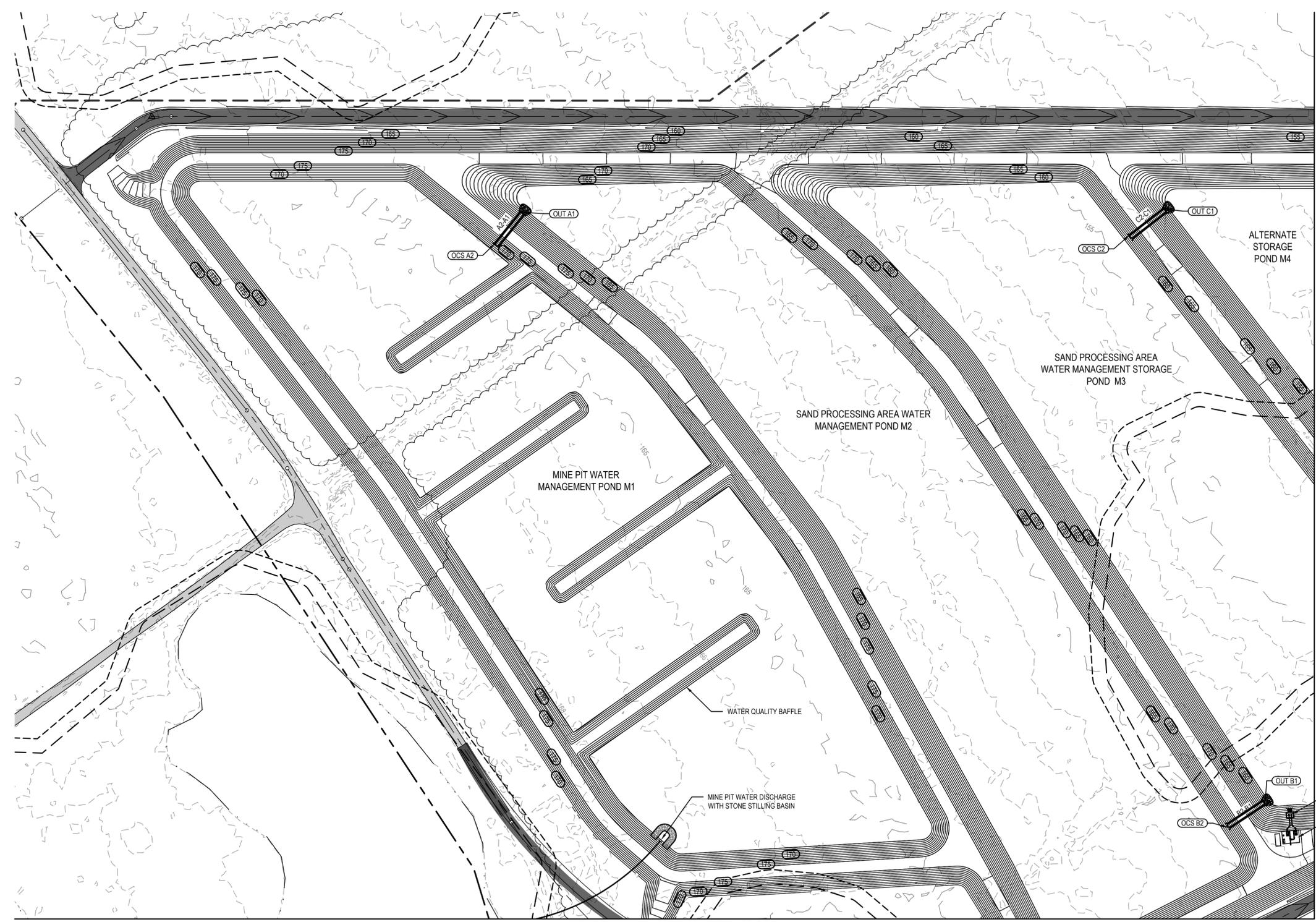
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AREA	CERTIFICATE OF AUTHORIZATION
	ECA2221
CLIENT DWG NO.	
DRAWING NO.	REV
C-300	0

ANSI D 2024

CAD FILE: W:\AD\020300 GRADING PLAN.DWG



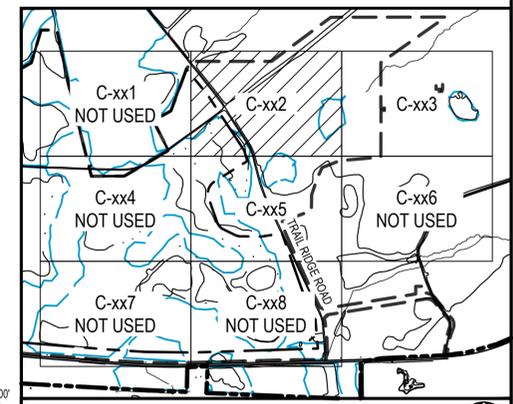
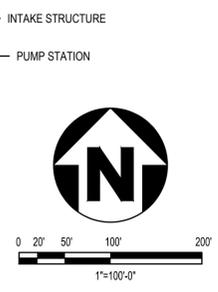
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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	STORM DRAIN PIPES
	STORM PIPE NAME
	STORM STRUCTURE NAME
	15'x20' STONE SPLASH PAD

MATCHLINE - SEE SHEET C-303

MATCHLINE - SEE SHEET C-305



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REF	NUMBER	TITLE
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STAMP/SEAL

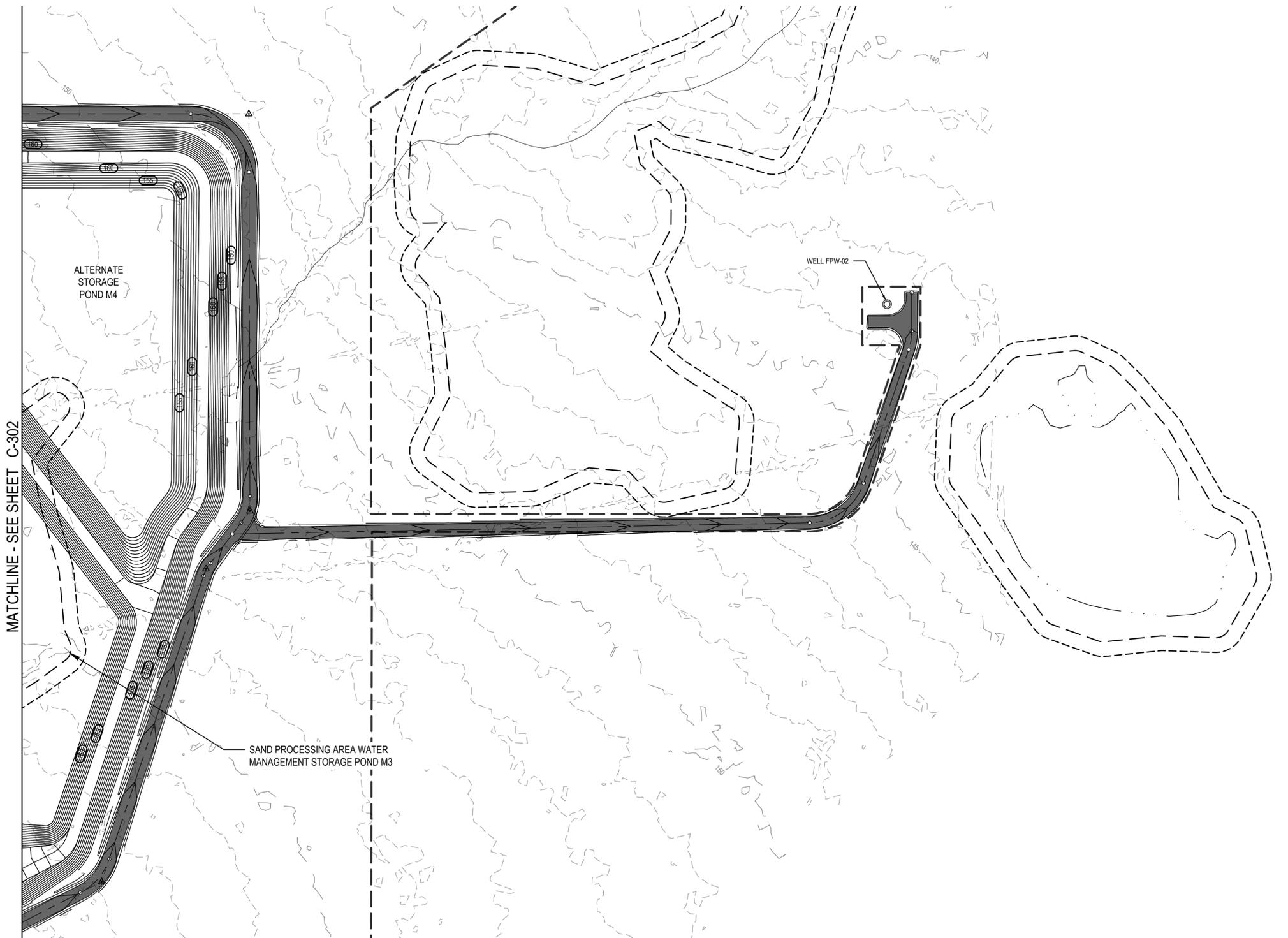
APPROVED FOR		
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
	DRN	07FEB22
SCALE	CHK	07FEB22
AS SHOWN	APP	07FEB22

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

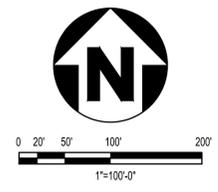
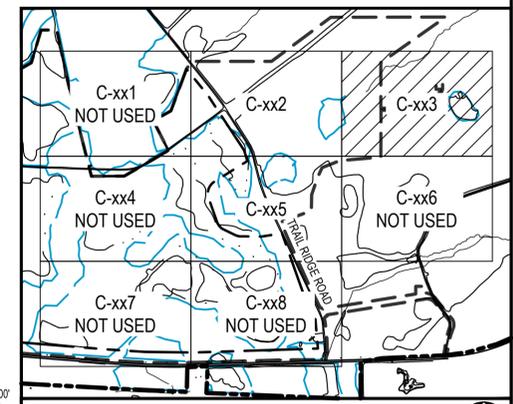
AREA		CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.		
DRAWING NO.	REV	
C-302	0	



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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	STORM DRAIN PIPES
	STORM PIPE NAME
	STORM STRUCTURE NAME



REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	APP	REF	NUMBER	TITLE
0	8NOV2022	ISSUED FOR PERMITTING											

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APPROVED FOR _____		
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE PERMITTING		
PROJECT NO. 7382224061	BY DES 07FEB22	DDMMYY 07FEB22
SCALE AS SHOWN	CHK 07FEB22	APP 07FEB22

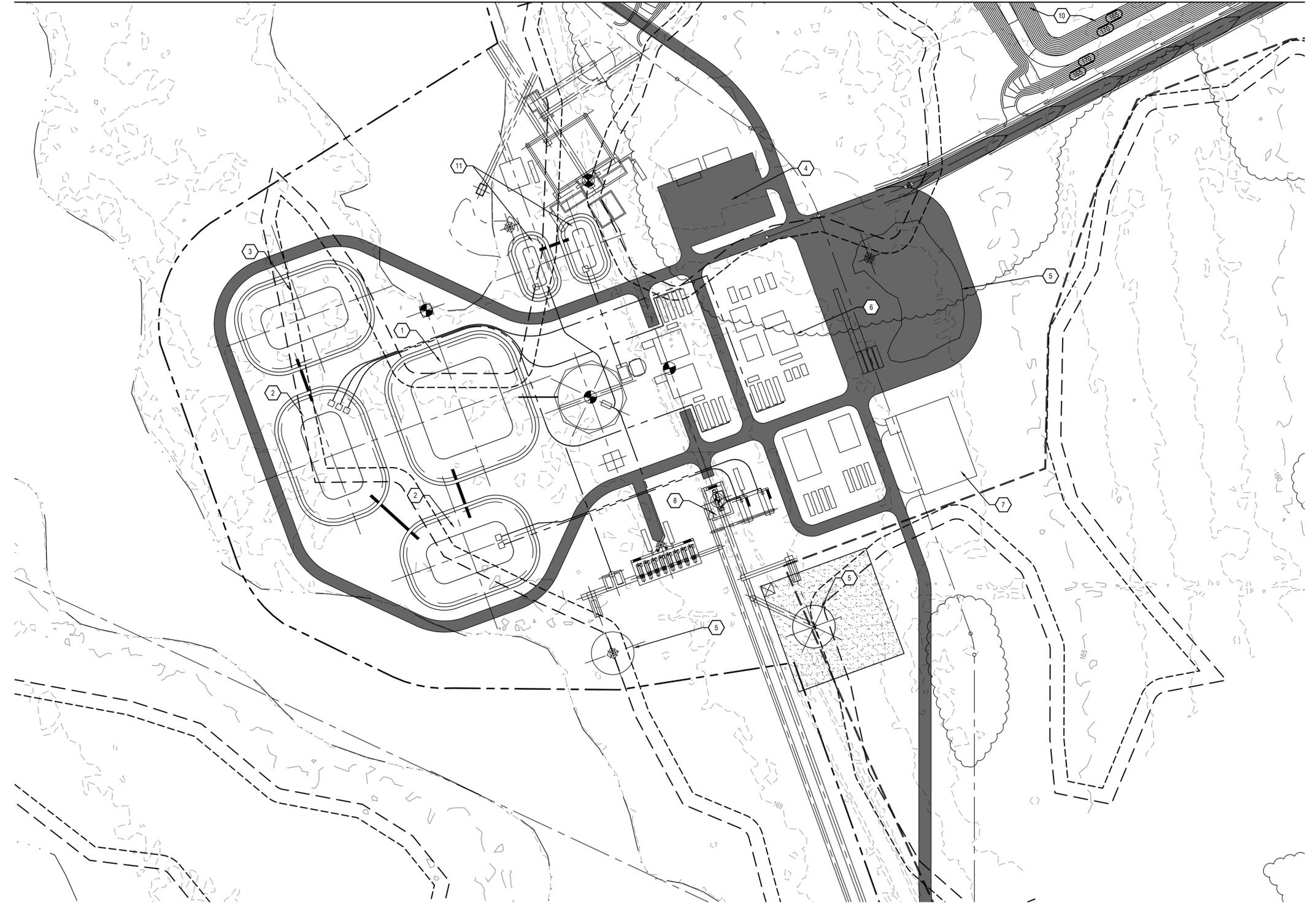
TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

4000 MEADOW LAKE DRIVE SUITE 121 BIRMINGHAM, AL 35242 (205) 980-6402	
AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO. C-303	REV 0



MATCHLINE - SEE SHEET C-302

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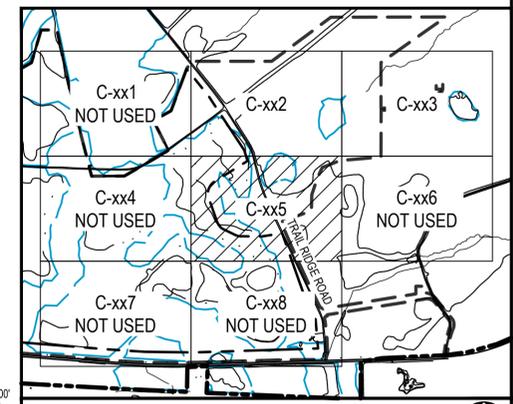
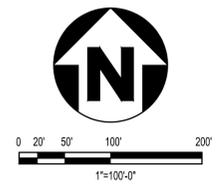


LEGEND

- MINE BOUNDARY
- - - PERMIT BOUNDARY
- EXISTING INDEX CONTOUR
- - - EXISTING INTERMEDIATE CONTOUR
- ==== STORM DRAIN PIPES
- C2-C1 STORM PIPE NAME
- OCS C2 STORM STRUCTURE NAME

KEYNOTES #

1. PRIMARY PROCESS WATER POND P1
2. SECONDARY PROCESS WATER PONDS P2 & P3
3. PRIMARY OVERFLOW POND P4
4. PARKING AND OFFICES
5. STOCKPILE
6. PCP/WCP PLANT
7. SUBSTATION
8. COVERED FACILITY
9. EXCAVATION STOCKPILE
10. SAND PROCESSING AREA WATER MANAGEMENT POND M2
11. THICKENER UNDERFLOW PONDS A & B



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
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APPROVED FOR

M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE PERMITTING		
PROJECT NO. 7382224061	BY DES 07FEB22 CHK 07FEB22 APP 07FEB22	DDMMYY 07FEB22
SCALE AS SHOWN	SUBJECT GRADING AND DRAINAGE PLAN SHEET 5	

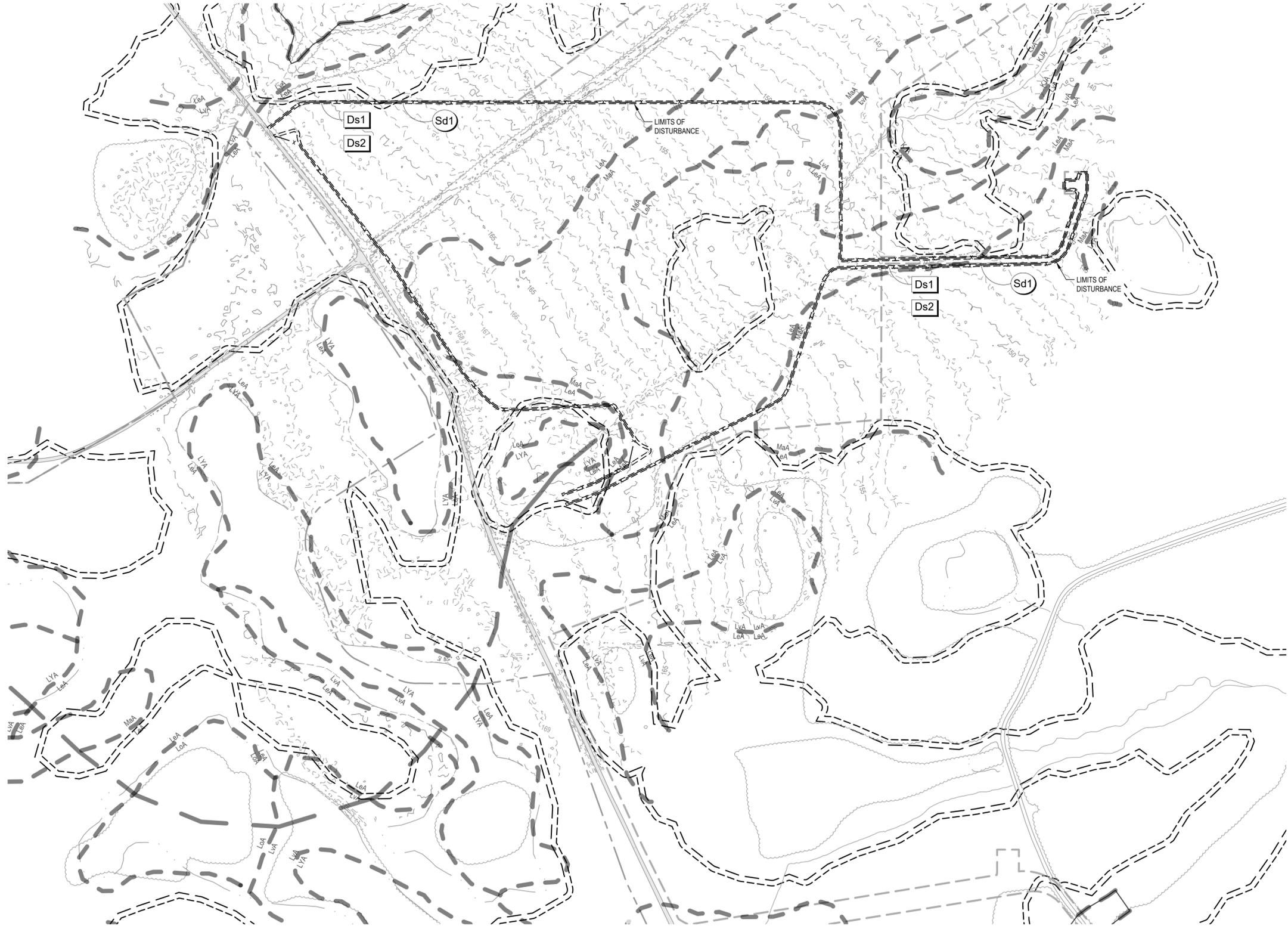
TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA CERTIFICATE OF AUTHORIZATION ECA2221	
CLIENT DWG NO.	
DRAWING NO. C-305	REV 0

ANSI Z39-18



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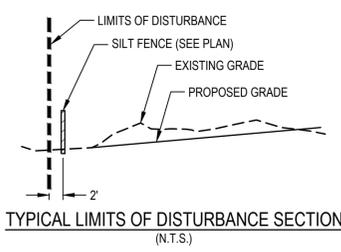


LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	LIMITS OF DISTURBANCE
	SILT FENCE

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
Co	CONSTRUCTION EXIT		A CRUSHED STONE PAD LOCATED AT THE CONSTRUCTION SITE EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES THEREBY PROTECTING PUBLIC STREETS.
Ds1	DISTURBED AREA STABILIZATION (MULCHING ONLY)		ESTABLISHING TEMPORARY PROTECTION FOR DISTURBED AREAS WHERE SEEDINGS MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AN EROSION RETARDING COVER.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)		ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS.
Sd1	SEDIMENT BARRIER		A BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT MAY BE SANDBAGS, BALES OF STRAW OR HAY, BRUSH, LOGS AND POLES, GRAVEL, OR A SEDIMENT FENCE. THE BARRIERS ARE USUALLY TEMPORARY.
Sd2	SEDIMENT TRAP TEMPORARY		AN IMPOUNDING AREA CREATED BY EXCAVATING AROUND A STORM DRAIN DROP INLET. THE EXCAVATED AREA WILL BE FILLED AND STABILIZED ON COMPLETION OF CONSTRUCTION ACTIVITIES.

TOTAL LIMITS OF DISTURBANCE = 3.03 ACRES

SOILS LEGEND	
MAP UNIT SYMBOL	MAP UNIT NAME
KJA	KINSTON AND JOHNSTON SOILS, 0 TO 2 PERCENT SLOPES, FREQUENTLY FLOODED
LeA	LEON FINE SAND, FREQUENTLY, 0 TO 2 PERCENT SLOPES
LoA	LEON FINE SAND, FREQUENTLY PONDED, 0 TO 2 PERCENT SLOPES
LvA	LYNN HAVEN FINE SAND, 0 TO 2 PERCENT SLOPES
LvA	LYNN HAVEN, ALLANTON AND KINGSFERRY SOILS, PONDED, 0 TO 1 PERCENT SLOPES
MaA	MANDARIN FINE SAND, 0 TO 2 PERCENT SLOPES



24 HOUR CONTACT PERSON:
MARK FOWLER: (205) 403-5287



Know what's Below.
Call before you dig.



Philip W Marcum
Level II Certified Design Professional
CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	APP	REF	NUMBER	TITLE
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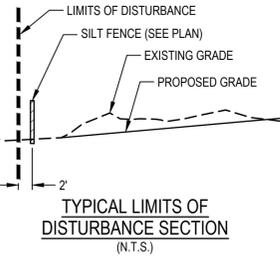
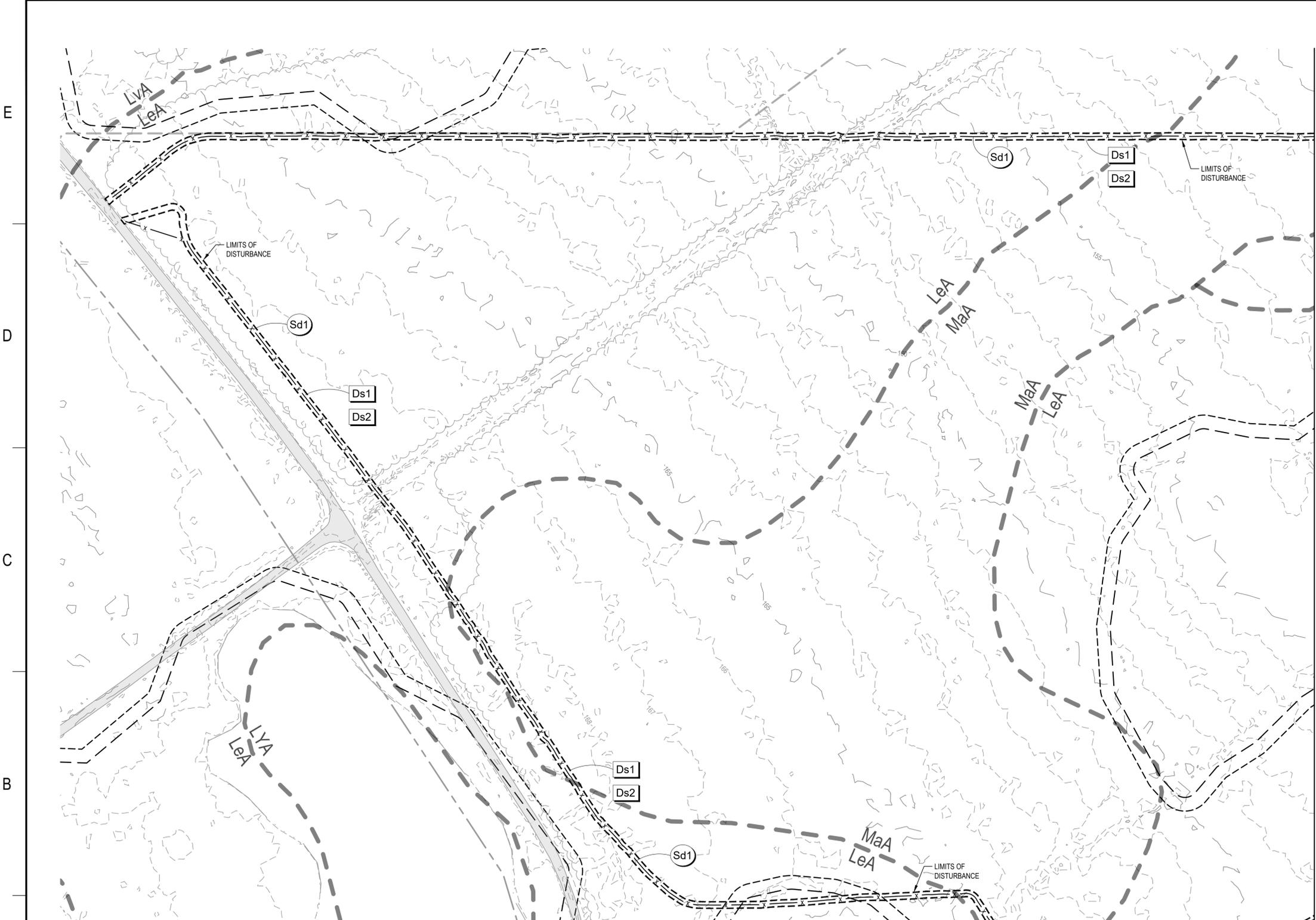
STAMP/SEAL

APPROVED FOR		
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA		CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.		
DRAWING NO.	C-400	REV 0

ANSI D 2024



LEGEND	
---	MINE BOUNDARY
---	PERMIT BOUNDARY
---	EXISTING INDEX CONTOUR
---	EXISTING INTERMEDIATE CONTOUR
---	LIMITS OF DISTURBANCE
x x	SILT FENCE

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
Co	CONSTRUCTION EXIT		A CRUSHED STONE PAD LOCATED AT THE CONSTRUCTION SITE EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES THEREBY PROTECTING PUBLIC STREETS.
Ds1	DISTURBED AREA STABILIZATION (MULCHING ONLY)		ESTABLISHING TEMPORARY PROTECTION FOR DISTURBED AREAS WHERE SEEDINGS MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AN EROSION RETARDING COVER.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)		ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS.
Sd1	SEDIMENT BARRIER		A BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT MAY BE SANDBAGS, BALES OF STRAW OR HAY, BRUSH, LOGS AND POLES, GRAVEL, OR A SEDIMENT FENCE. THE BARRIERS ARE USUALLY TEMPORARY.
Sd2	SEDIMENT TRAP TEMPORARY		AN IMPOUNDING AREA CREATED BY EXCAVATING AROUND A STORM DRAIN DROP INLET. THE EXCAVATED AREA WILL BE FILLED AND STABILIZED ON COMPLETION OF CONSTRUCTION ACTIVITIES.

24 HOUR CONTACT PERSON:
MARK FOWLER: (205) 403-5287

TOTAL LIMITS OF DISTURBANCE = 3.03 ACRES

SOILS LEGEND	
MAP UNIT SYMBOL	MAP UNIT NAME
KJA	KINSTON AND JOHNSTON SOILS, 0 TO 2 PERCENT SLOPES, FREQUENTLY FLOODED
LeA	LEON FINE SAND, FREQUENTLY, 0 TO 2 PERCENT SLOPES
LoA	LEON FINE SAND, FREQUENTLY PONDED, 0 TO 2 PERCENT SLOPES
LvA	LYNN HAVEN FINE SAND, 0 TO 2 PERCENT SLOPES
LYA	LYNN HAVEN, ALLANTON AND KINGSFERRY SOILS, PONDED, 0 TO 1 PERCENT SLOPES
MaA	MANDARIN FINE SAND, 0 TO 2 PERCENT SLOPES



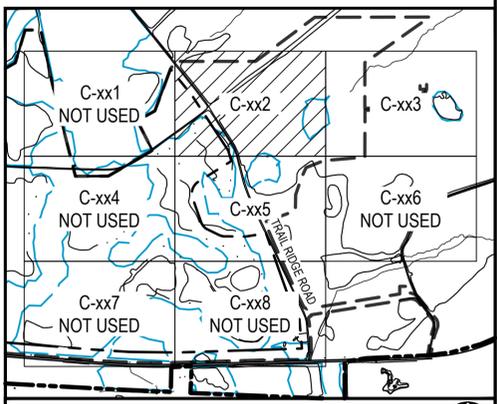
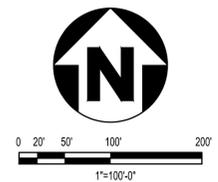
GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER: 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025

MATCHLINE - SEE SHEET C-403

MATCHLINE - SEE SHEET C-405



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
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STAMP/SEAL

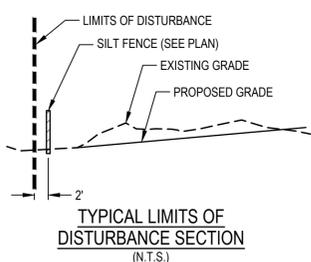
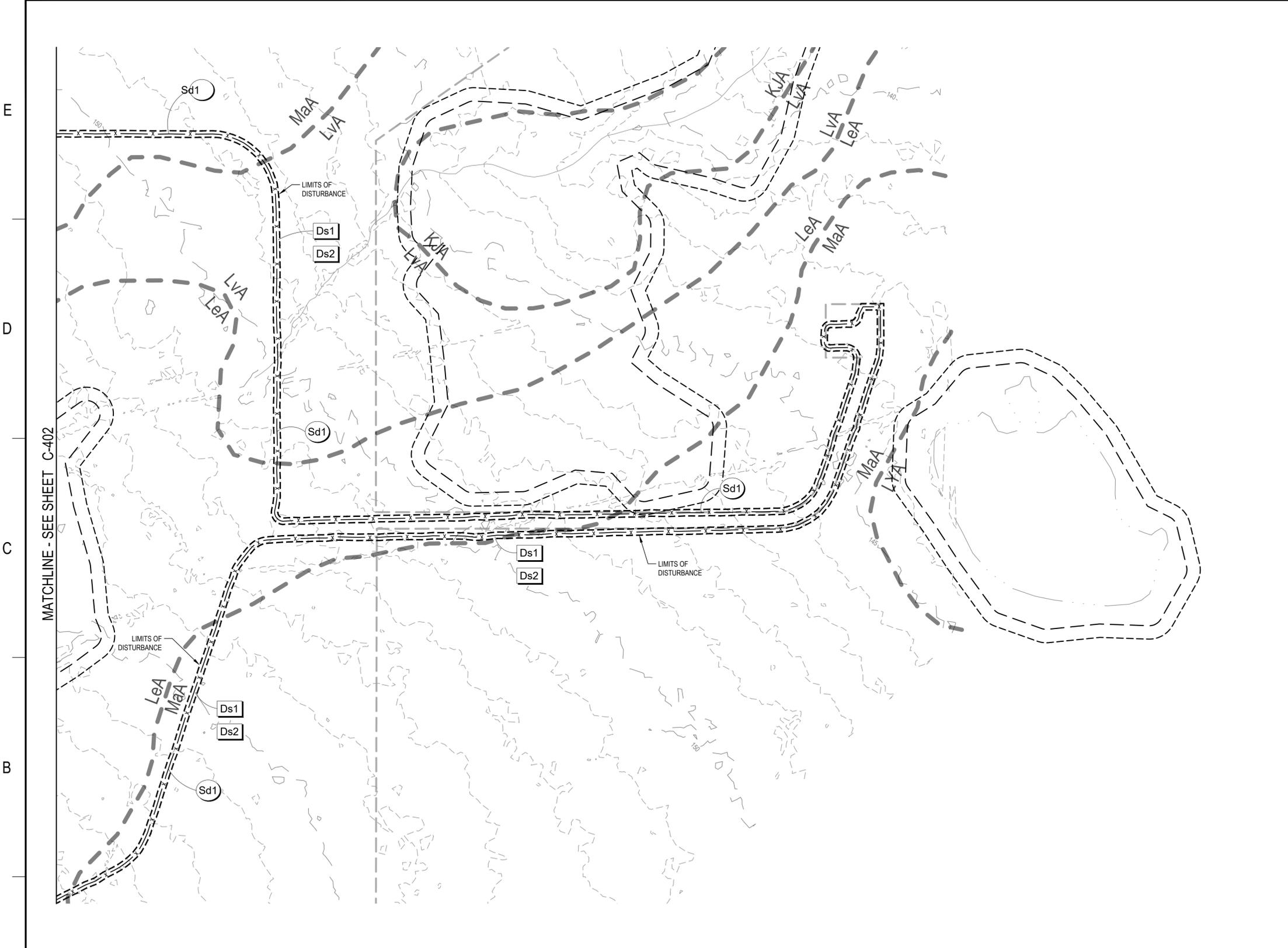
APPROVED FOR			
M. FOWLER	P. MARCUM	M. ABDALLA	
CLIENT PROJECT MGR	TECHNICAL MGR	PROJECT MGR	
PROJECT PHASE: PERMITTING			
PROJECT NO.	BY	DDMMYY	SUBJECT
7382224061	DES	07FEB22	INITIAL EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 2
SCALE: AS SHOWN	DRN	07FEB22	
	CHK	07FEB22	
	APP	07FEB22	

wood.

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA	CERTIFICATE OF AUTHORIZATION
	ECA2221
CLIENT DWG NO.	
DRAWING NO.	
C-402	
REV	0



LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	LIMITS OF DISTURBANCE
	SILT FENCE

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
Co	CONSTRUCTION EXIT		A CRUSHED STONE PAD LOCATED AT THE CONSTRUCTION SITE EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES THEREBY PROTECTING PUBLIC STREETS.
Ds1	DISTURBED AREA STABILIZATION (MULCHING ONLY)		ESTABLISHING TEMPORARY PROTECTION FOR DISTURBED AREAS WHERE SEEDINGS MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AN EROSION RETARDING COVER.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)		ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS.
Sd1	SEDIMENT BARRIER		A BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT MAY BE SANDBAGS, BALES OF STRAW OR HAY, BRUSH, LOGS AND POLES, GRAVEL, OR A SEDIMENT FENCE. THE BARRIERS ARE USUALLY TEMPORARY.
Sd2	SEDIMENT TRAP TEMPORARY		AN IMPOUNDING AREA CREATED BY EXCAVATING AROUND A STORM DRAIN DROP INLET. THE EXCAVATED AREA WILL BE FILLED AND STABILIZED ON COMPLETION OF CONSTRUCTION ACTIVITIES.

24 HOUR CONTACT PERSON:
MARK FOWLER: (205) 403-5287

TOTAL LIMITS OF DISTURBANCE = 3.03 ACRES

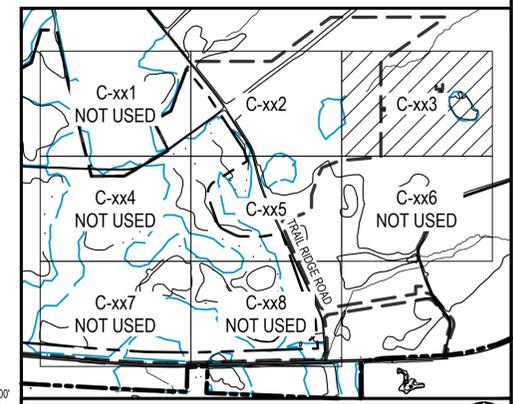
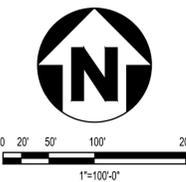


SOILS LEGEND	
MAP UNIT SYMBOL	MAP UNIT NAME
KJA	KINSTON AND JOHNSTON SOILS, 0 TO 2 PERCENT SLOPES, FREQUENTLY FLOODED
LeA	LEON FINE SAND, FREQUENTLY, 0 TO 2 PERCENT SLOPES
LoA	LEON FINE SAND, FREQUENTLY PONDED, 0 TO 2 PERCENT SLOPES
LvA	LYNN HAVEN FINE SAND, 0 TO 2 PERCENT SLOPES
LYA	LYNN HAVEN, ALLANTON AND KINGSFERRY SOILS, PONDED, 0 TO 1 PERCENT SLOPES
MaA	MANDARIN FINE SAND, 0 TO 2 PERCENT SLOPES

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
0		8NOV2022 ISSUED FOR PERMITTING																			

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STAMP/SEAL

APPROVED FOR		
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA CERTIFICATE OF AUTHORIZATION
ECA2221

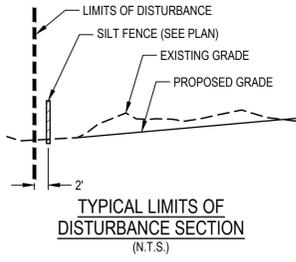
CLIENT DWG NO.

DRAWING NO.
C-403

REV
0



MATCHLINE - SEE SHEET C-402



LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	LIMITS OF DISTURBANCE
	SILT FENCE

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
Co	CONSTRUCTION EXIT		A CRUSHED STONE PAD LOCATED AT THE CONSTRUCTION SITE EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES THEREBY PROTECTING PUBLIC STREETS.
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Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)		ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS.
Sd1	SEDIMENT BARRIER		A BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT MAY BE SANDBAGS, BALES OF STRAW OR HAY, BRUSH, LOGS AND POLES, GRAVEL, OR A SEDIMENT FENCE. THE BARRIERS ARE USUALLY TEMPORARY.
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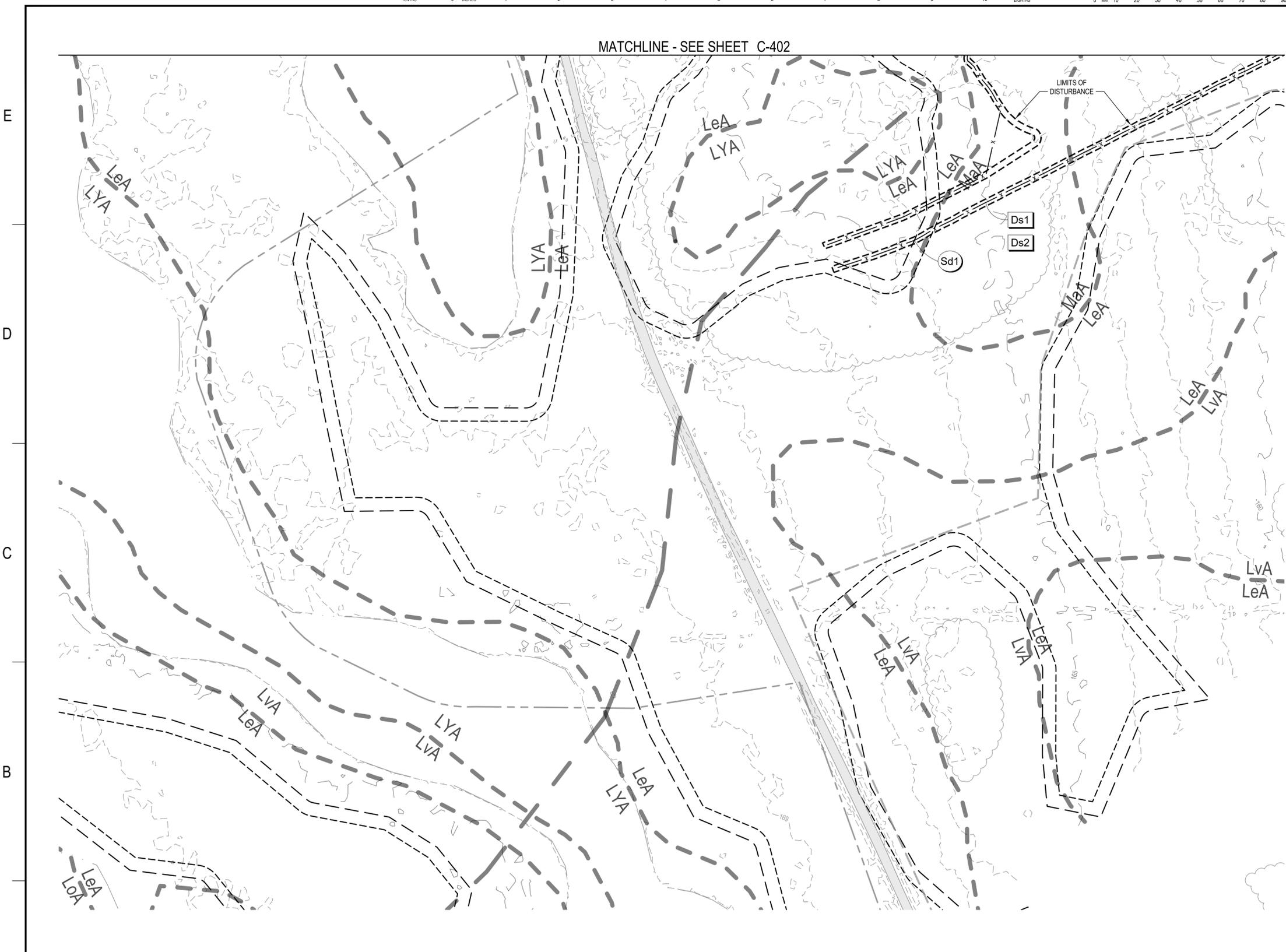
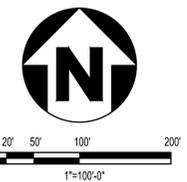
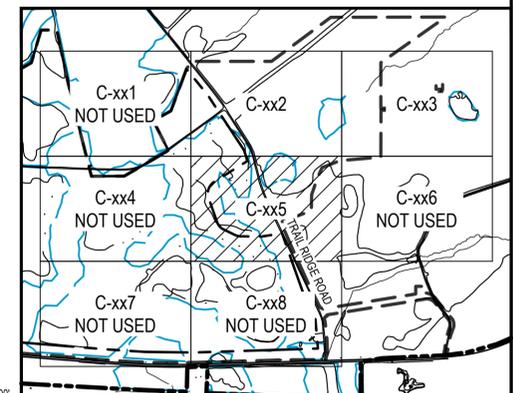


Know what's below.
Call before you dig.

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025



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STAMP/SEAL

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PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

wood

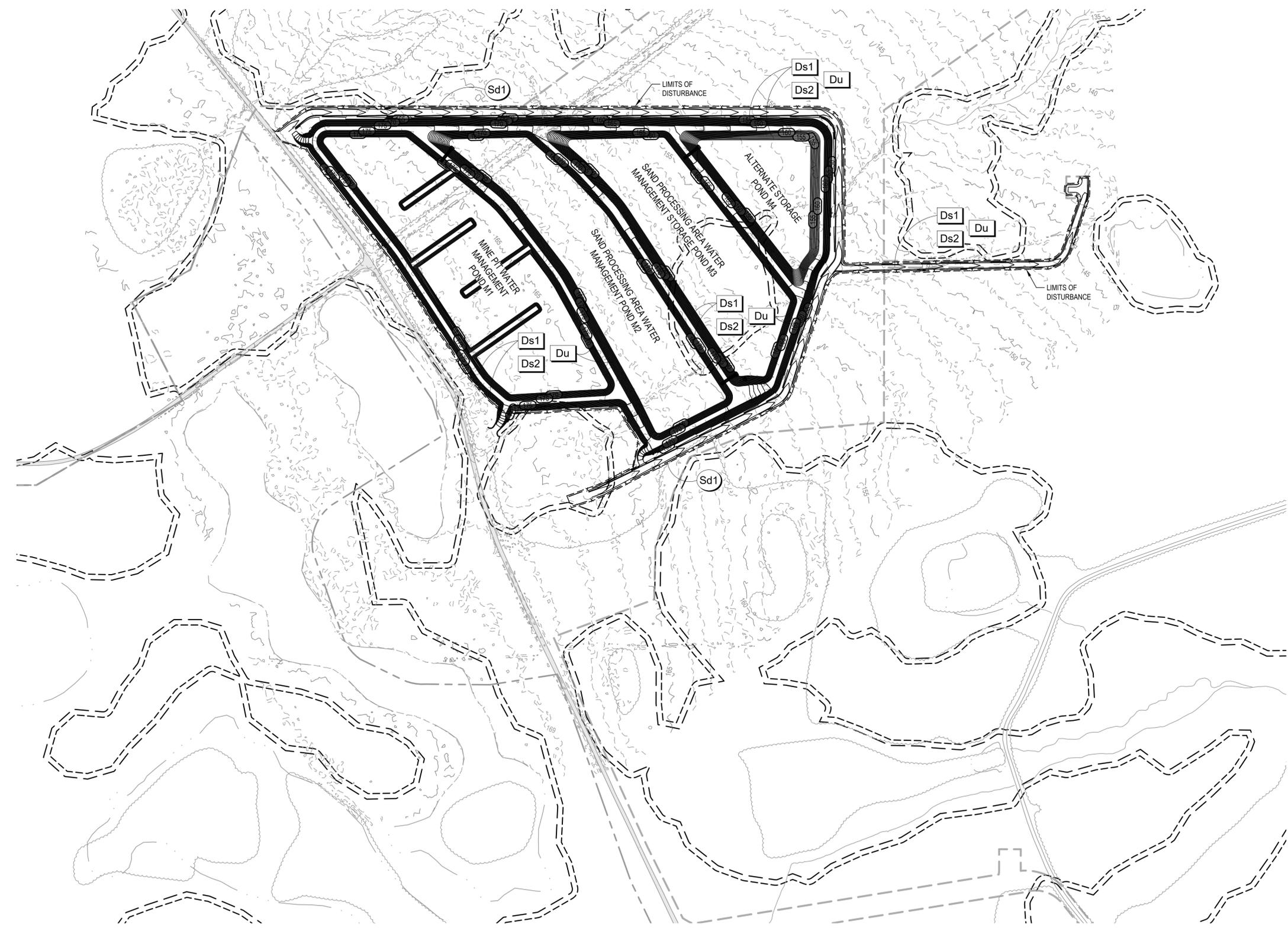
TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA		CERTIFICATE OF AUTHORIZATION
		ECA2221
CLIENT DWG NO.		
DRAWING NO.	REV	
C-405	0	

ANSI Z39-18



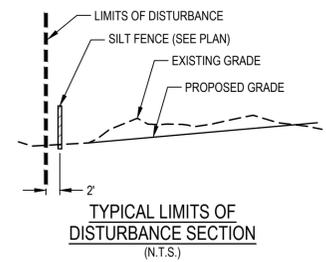
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D
C
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A



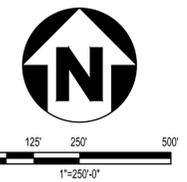
LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	LIMITS OF DISTURBANCE
	SILT FENCE
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR
	STORM DRAIN PIPES
	15'x20' STONE SPLASH PAD

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
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Du	DUST CONTROL ON DISTURBED AREAS		CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITES, ROADWAYS AND SIMILAR SITES.
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TOTAL LIMITS OF DISTURBANCE = 70.19 ACRES



24 HOUR CONTACT PERSON:
MARK FOWLER: (205) 403-5287



GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025

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PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
SCALE		
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

OVERALL INTERMEDIATE EROSION
SEDIMENTATION AND POLLUTION CONTROL
PLAN

AREA	CERTIFICATE OF AUTHORIZATION
	ECA2221
CLIENT DWG NO.	
DRAWING NO.	
C-410	
REV	0

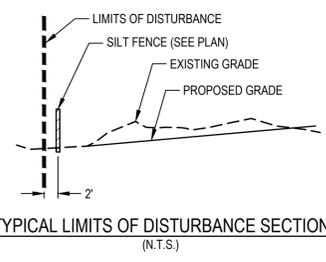
ANSI Z39-18



LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	LIMITS OF DISTURBANCE
	SILT FENCE
	PROPOSED INDEX CONTOUR
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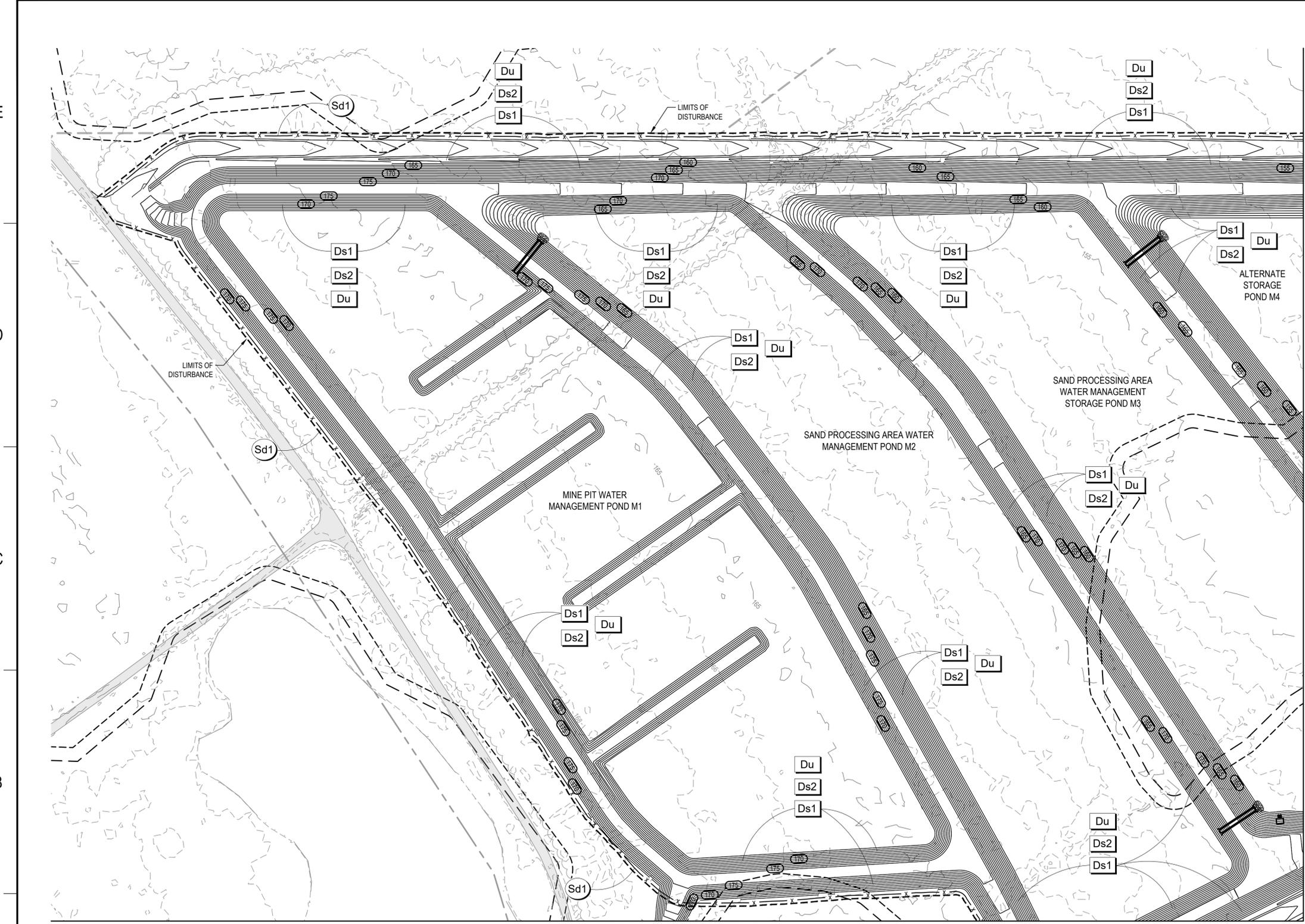
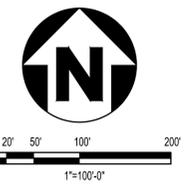
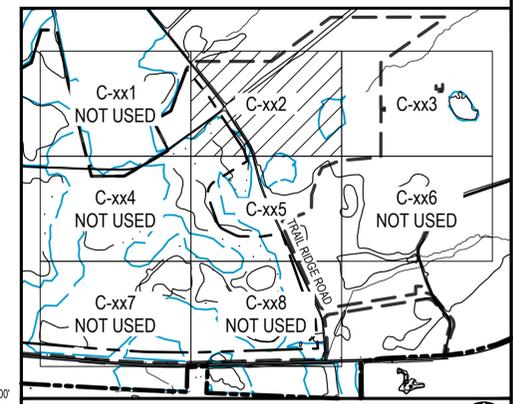
Know what's below. Call before you dig.

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER: 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025

24 HOUR CONTACT PERSON:
MARK FOWLER: (205) 403-5287



REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
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PROJECT PHASE: PERMITTING		
PROJECT NO. 7382224061	BY DES 07FEB22	DDMMYY 07FEB22
SCALE AS SHOWN	CHK 07FEB22	APP 07FEB22

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA: CERTIFICATE OF AUTHORIZATION ECA2221

CLIENT DWG NO.

DRAWING NO. C-412

REV 0

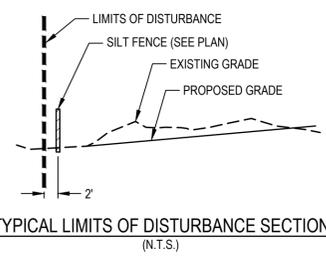
SAVED: 10-Jun-22 11:08 AM PLOTTED: 18-Nov-22 2:45 PM USER: NICHOLSON, PETER



LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	LIMITS OF DISTURBANCE
	SILT FENCE
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR

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TOTAL LIMITS OF DISTURBANCE = 70.19 ACRES



GEORGIA811
Utilities Protection Center, Inc.

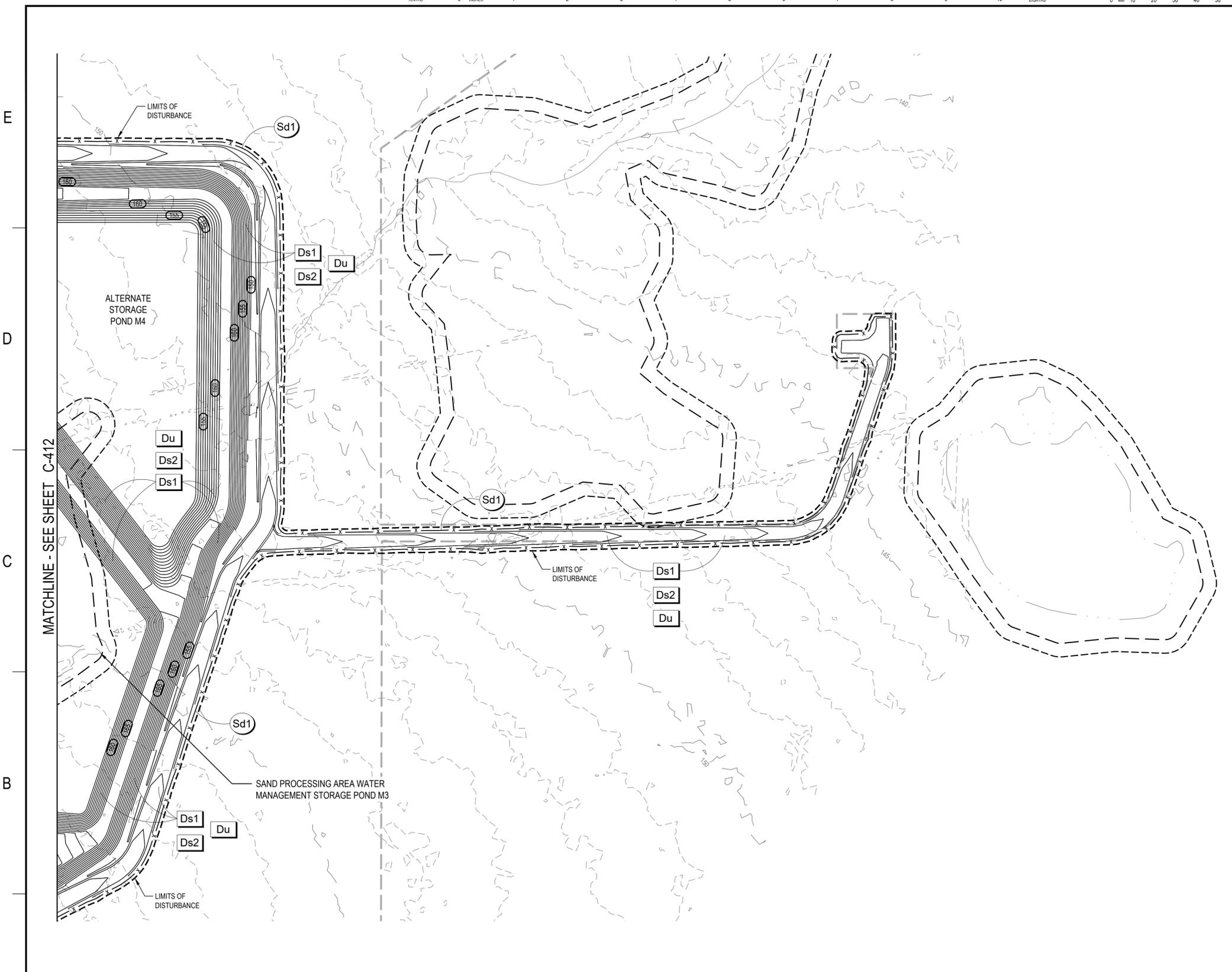
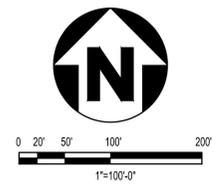
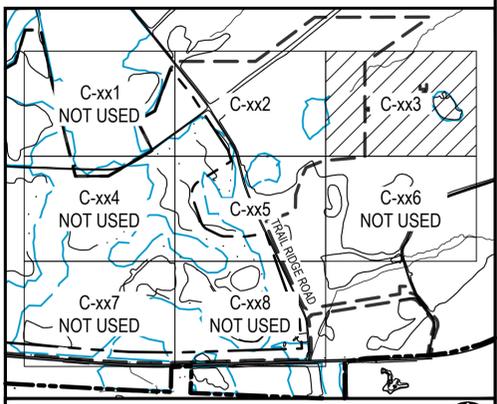
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GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

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ISSUED: 01/31/2022 EXPIRES: 01/31/2025

24 HOUR CONTACT PERSON:
MARK FOWLER: (205) 403-5287



REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
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APPROVED FOR		
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE: PERMITTING		
PROJECT NO. 7382224061	BY DES 07FEB22 DRN 07FEB22 CHK 07FEB22 APP 07FEB22	DDMMYY
SCALE AS SHOWN	SUBJECT INTERMEDIATE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 3	

wood

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA: CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.

DRAWING NO. C-413

wood

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA: CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.

DRAWING NO. C-413

REV 0

ANSI Z39-18



MATCHLINE - SEE SHEET C-412

E

D

C

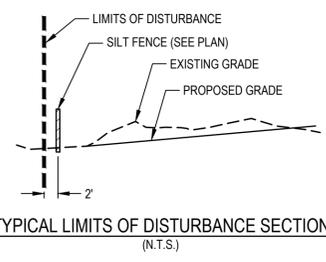
B

A

LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	LIMITS OF DISTURBANCE
	SILT FENCE
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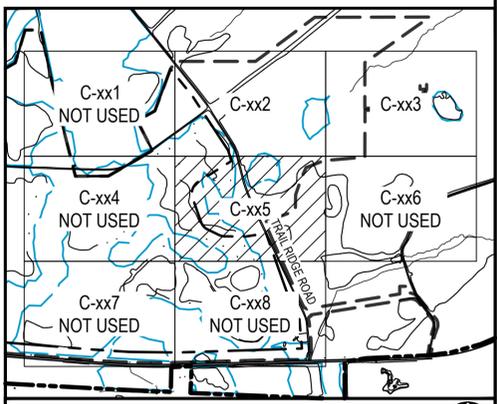
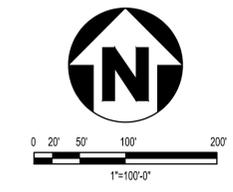
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MARK FOWLER: (205) 403-5287



KEY PLAN
SCALE: NONE



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APPROVED FOR			
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PROJECT PHASE: PERMITTING			
PROJECT NO. 7382224061	BY DES 07FEB22	DDMMYY DRN 07FEB22	SUBJECT INTERMEDIATE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 5
SCALE AS SHOWN	CHK 07FEB22	APP 07FEB22	

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
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wood.
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SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA: CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.
DRAWING NO. C-415
REV 0

ANSI Z39-18

CAD FILE: W:\ADOC\G-10\INTERMEDIATE EROSION CONTROL PLAN.DWG



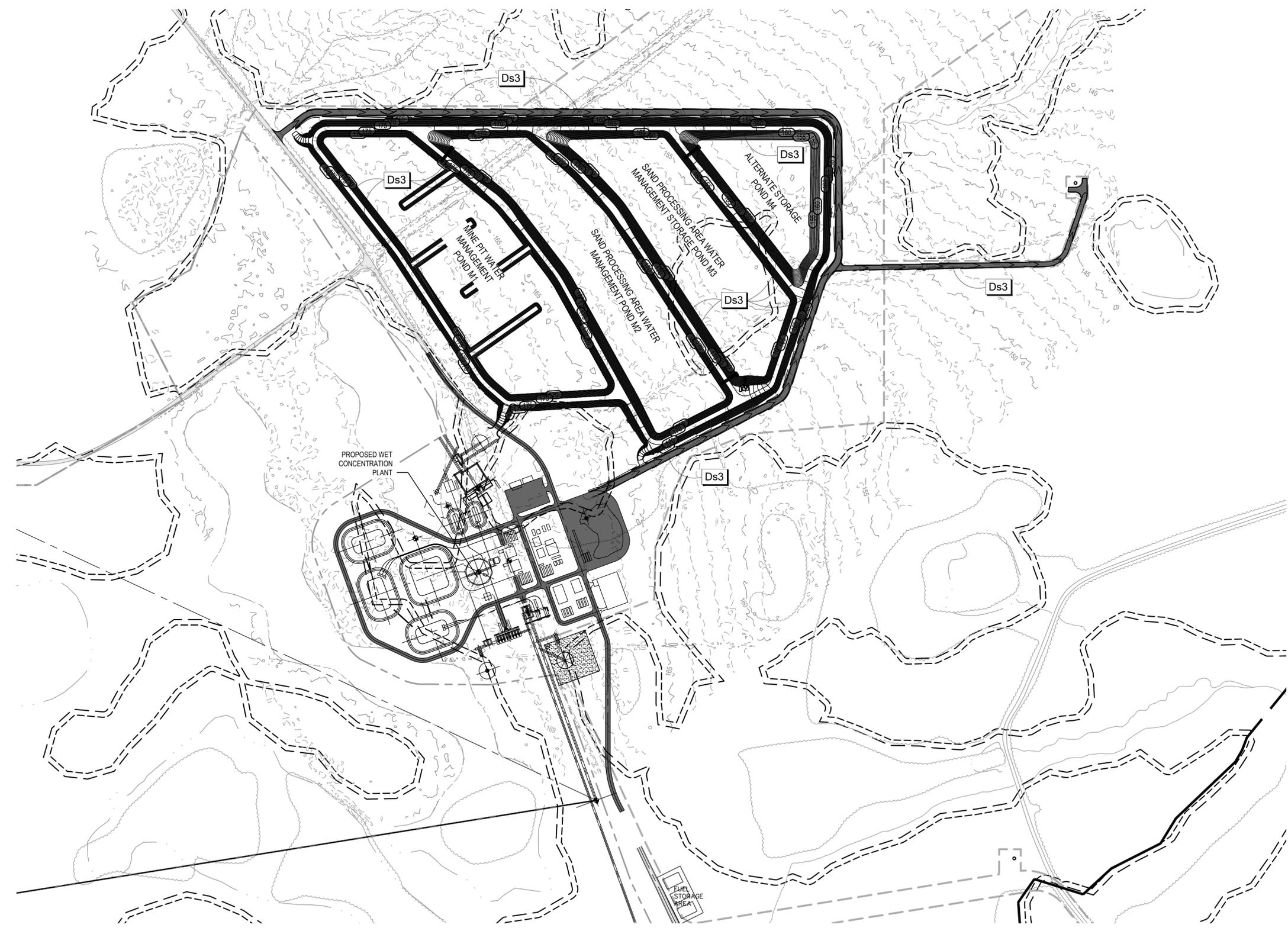
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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR
	STORM DRAIN PIPES
	15'x20' STONE SPLASH PAD

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
Ds3	DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)	Ds3	ESTABLISHING PERMANENT VEGETATIVE COVER SUCH AS TREES, SHRUBS, VINES, GRASSES, SOD OR LEGUMES ON DISTURBED AREAS.

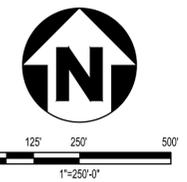


24 HOUR CONTACT PERSON:
MARK FOWLER: (205) 403-5287

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025



REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
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PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
SCALE		
AS SHOWN		

wood

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

CERTIFICATE OF AUTHORIZATION
ECA2221

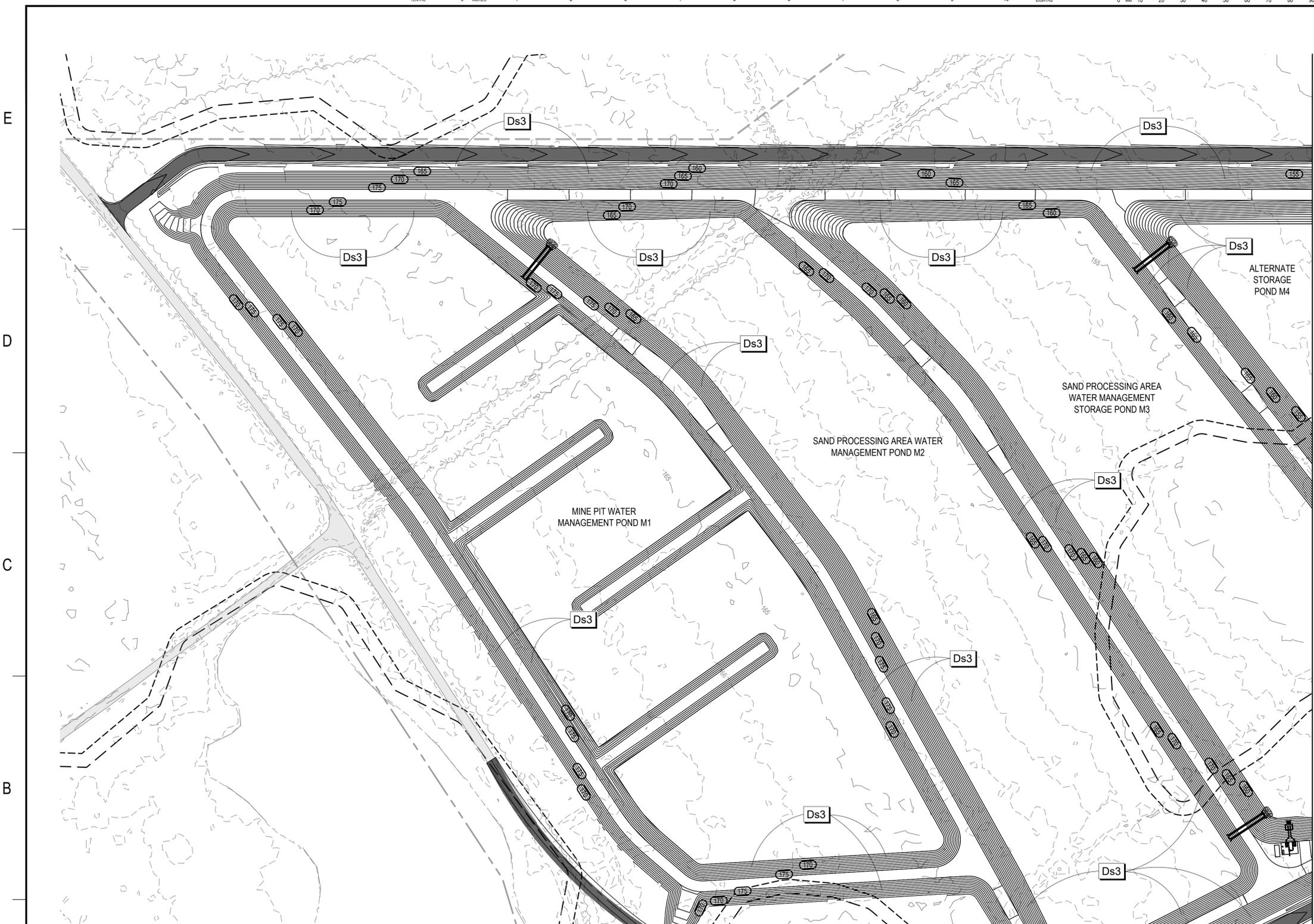
CLIENT DWG NO.

DRAWING NO.
C-420

REV 0

AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO.	C-420
REV	0

ANSI Z39-18



LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR
	STORM DRAIN PIPES
	15'x20' STONE SPLASH PAD

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
Ds3	DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)	Ds3	ESTABLISHING PERMANENT VEGETATIVE COVER SUCH AS TREES, SHRUBS, VINES, GRASSES, SOD OR LEGUMES ON DISTURBED AREAS.



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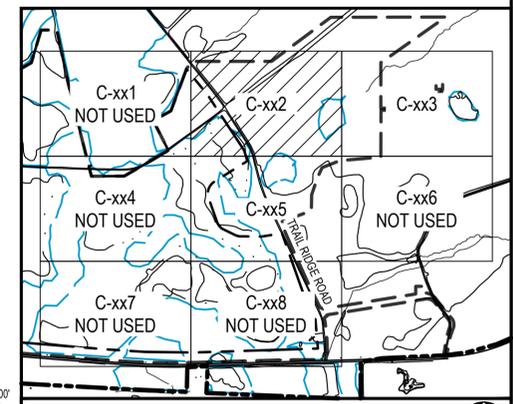


Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025



0 20' 50' 100' 200'
1"=100'-0"



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
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M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR	
PROJECT PHASE PERMITTING			
PROJECT NO. 7382224061	BY DES 07FEB22	DDMMYY 07FEB22	
SCALE AS SHOWN	CHK 07FEB22	APP 07FEB22	

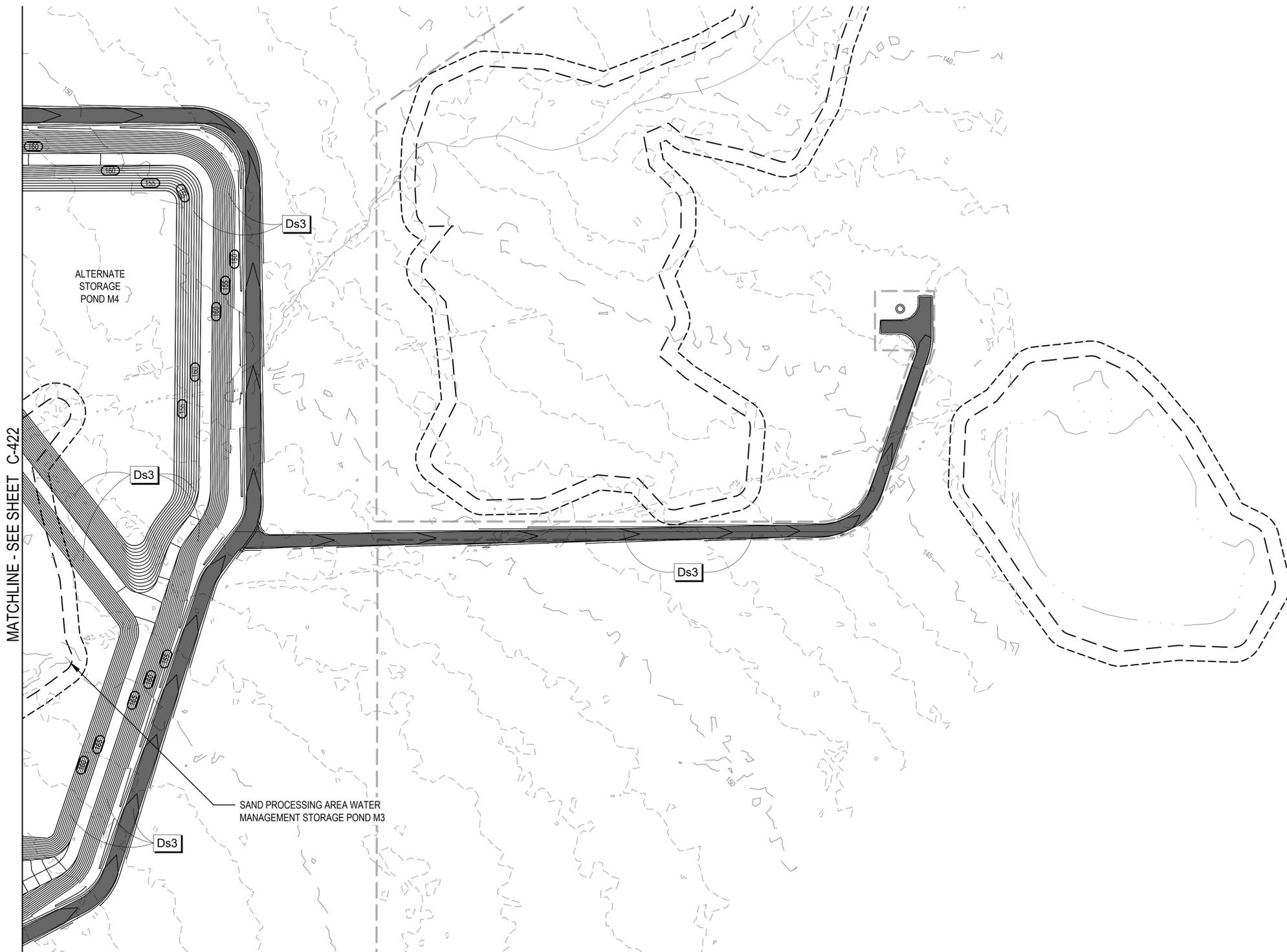
TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO. C.422	REV 0



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MATCHLINE - SEE SHEET C-422

LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
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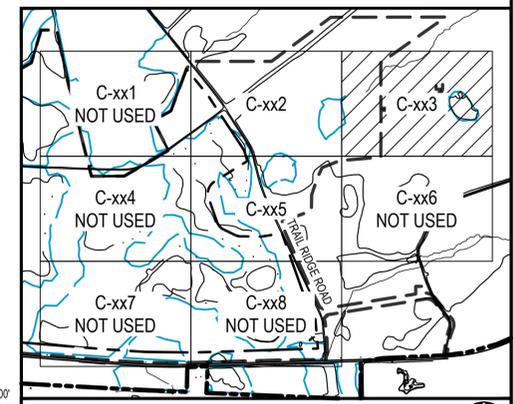
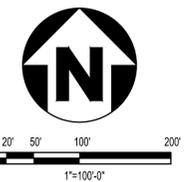


24 HOUR CONTACT PERSON:
MARK FOWLER: (205) 403-5287

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	APP	REF	NUMBER	TITLE
0	8NOV2022	ISSUED FOR PERMITTING											

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PROJECT PHASE: PERMITTING		
PROJECT NO. 7382224061	BY DES 07FEB22 DRN 07FEB22 CHK 07FEB22 APP 07FEB22	DDMMYY
SCALE AS SHOWN		

wood.

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

4000 MEADOW LAKE DRIVE
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(205) 980-6402

AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO. C.423	REV 0

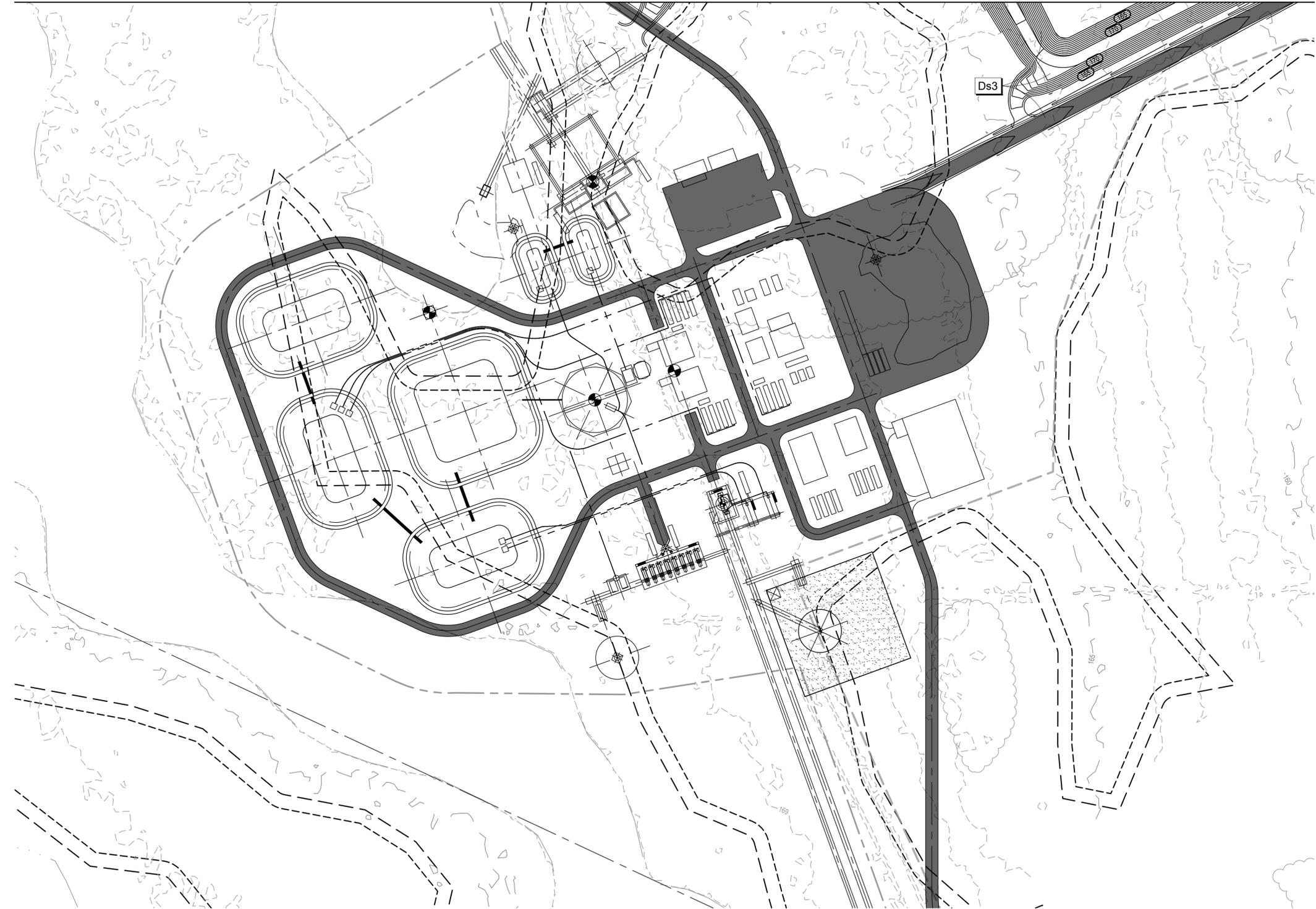
ANSI Z39-18

CAD FILE: W:\ADDC\407 FINAL EROSION CONTROL PLAN.DWG



MATCHLINE - SEE SHEET C-422

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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
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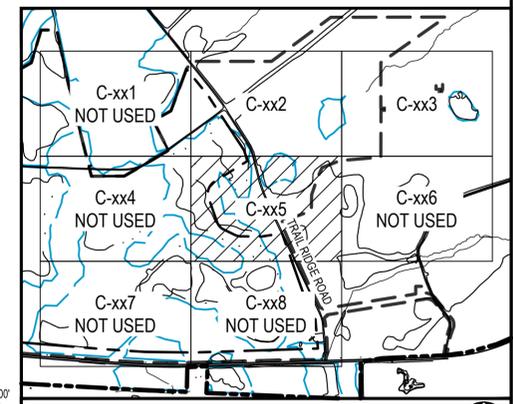
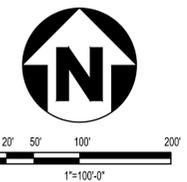
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Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
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KEY PLAN
SCALE: NONE

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PROJECT PHASE			
PERMITTING			
PROJECT NO.	BY	DDMMYY	SUBJECT
7382224061	DES	07FEB22	FINAL EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHEET 5
SCALE	DRN	07FEB22	
	CHK	07FEB22	
	APP	07FEB22	
AS SHOWN			

wood.

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C.425

wood.

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

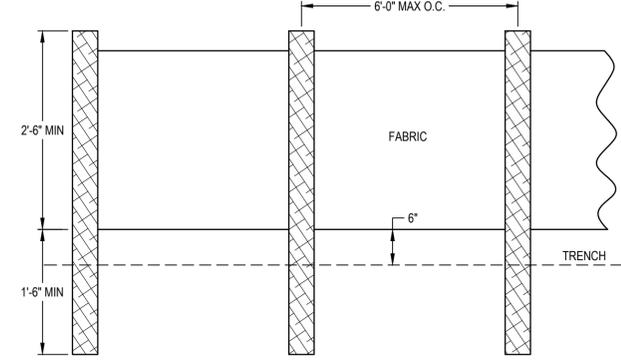
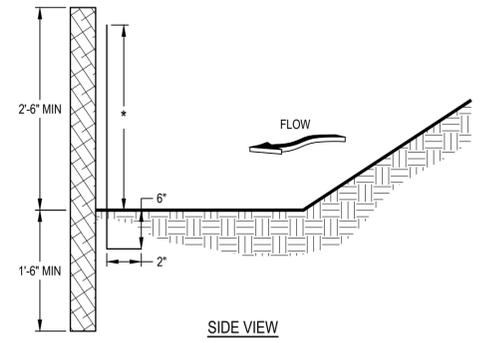
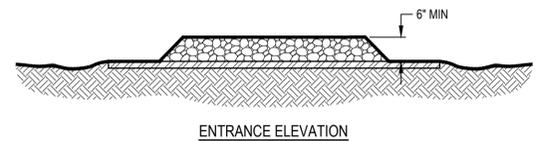
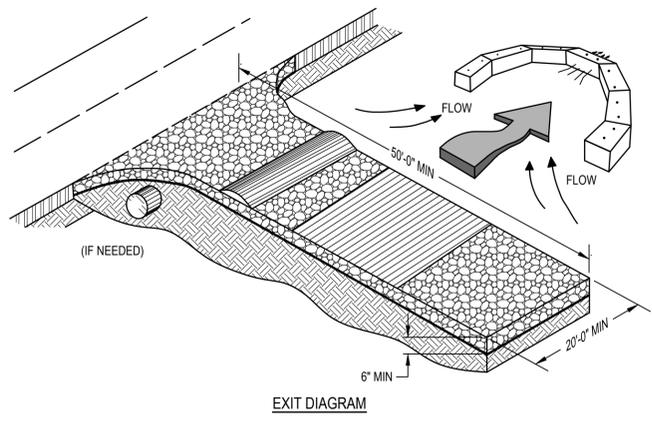
CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C.425

REV 0

ANSI Z39-18



- 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 (1-1/2" TO 3-1/2" STONE).
 4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
 5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'-0".
 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 WILL REMOVE 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 CRUSHED STONE CONSTRUCTION EXIT

- NOTES:**
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
 2. HEIGHT (") IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

Sd1 SILT FENCE - TYPE A

MULCHING APPLICATION REQUIREMENTS

MATERIAL	INSTALLATION
STRAW OR HAY	2' TO 4" DEPTH
GEOTEXTILES, JUTE MATTING, NETTING, ETC.	SEE MANUFACTURER'S RECOMMENDATIONS

Ds1 DISTURBED AREA STABILIZATION (WITH MULCH ONLY)

TABLE 1
PLANT, PLANTING RATE AND PLANTING DATE FOR TEMPORARY COVER OR COMPANION CROPS¹

SPECIES	BROADCAST RATES (PLS) ^{2,4}		RESOURCE AREA ³	PLANTING DATES BY RESOURCE AREA												REMARKS				
	RATES PER ACRE	PLS RATES PER 1,000 SQ. FT.		SOLID LINE INDICATE OPTIMUM DATES, DOTTED LINES INDICATE PERMISSIBLE BUT MARGINAL DATES																
						J	F	M	A	M	J	J	A	S	O	N	D			
BARLEY																				
ALONE	3 BU (144 LBS)	3.3 LBS	M-L															14,000 SEED PER POUND. WINTER HARDY. USE ON PRODUCTIVE SOILS.		
MIXTURE	1/2 BU (24 LBS)	0.6 LBS	P																	
			C																	
LESPEDEZA, ANNUAL (SCARIFIED)																				
ALONE	40 LBS	0.9 LB	M-L															200,000 SEED PER POUND. MAY VOLUNTEER FOR SEVERAL YEARS. USE INOCULANT EL.		
MIXTURE	10 LBS	0.2 LB	P																	
			C																	
LOVEGRASS, WEEPING																				
ALONE	4 LBS	0.1 LBS	M-L															1,500,000 SEED PER POUND. MAY LAST FOR SEVERAL YEARS.		
MIXTURE	2 LBS	0.05 LBS	P																	
			C																	
MILLET, BROWNTOP																				
ALONE	40 LBS	0.9 LBS	M-L															137,000 SEED PER POUND. QUICK DENSE COVER. WILL PROVIDE EXCESSIVE COMPETITION IN MIXTURES IF SEEDED AT HIGH RATE.		
MIXTURE	10 LBS	0.02 LBS	P																	
			C																	
MILLET, PEARL																				
ALONE	50 LBS	1.1 LBS	M-L															88,000 SEED PER POUND. QUICK DENSE COVER. MAY REACH 5 FEET IN HEIGHT. NOT RECOMMENDED FOR MIXTURES.		
			P																	
			C																	
OATS																				
ALONE	4 BU (128 LBS)	2.9 LBS	M-L															13,000 SEED PER POUND. USE ON PRODUCTIVE SOILS. NOT AS A WINTER HARDY AS RYE OR BARLEY.		
MIXTURE	1 BU (32 LBS)	0.7 LBS	P																	
			C																	
RYE																				
ALONE	3 BU (168 LBS)	3.9 LBS	M-L															18,000 SEED PER POUND. QUICK COVER. DROUGHT TOLERANT AND WINTER HARDY.		
MIXTURE	1/2 BU (28 LBS)	0.6 LBS	P																	
			C																	
RYEGRASS, ANNUAL																				
ALONE	40 LBS	0.9 LBS	M-L															227,000 SEED PER POUND. DENSE COVER. VERY COMPETITIVE AND IS NOT TO BE USED IN MIXTURES.		
			P																	
			C																	
SUDANGRASS																				
ALONE	60 LBS	1.4 LBS	M-L															55,000 SEED PER POUND. GOOD ON DROUGHTY SITES. NOT RECOMMENDED FOR MIXTURES.		
			P																	
			C																	
TRITICALE																				
ALONE	3 BU (144 LBS)	3.3 LBS	C															USE ON LOWER PART OF SOUTHERN COASTAL PLAIN AND ATLANTIC COASTAL FLATWOODS ONLY.		
MIXTURE	1/2 BU (24 LBS)	0.6 LBS	C																	
WHEAT																				
ALONE	3 BU (180 LBS)	4.1 LBS	M-L															15,000 SEED PER POUND. WINTER HARDY.		
MIXTURE	1/2 BU (30 LBS)	0.7 LBS	P																	
			C																	

1. TEMPORARY COVER CROPS ARE VERY COMPETITIVE AND WILL CROWD OUT PERENNIALS IF SEEDED TOO HEAVILY.
2. REDUCE SEEDING RATES BY 50% WHEN DRILLED.
3. M-L REPRESENTS THE MOUNTAIN; BLUE RIDGE; AND RIDGES AND VALLEYS MLRAs. P REPRESENTS THE SOUTHERN PIEDMONT MLRA. C REPRESENTS SOUTHERN COASTAL PLAIN; SAND HILLS; BLACK LANDS; AND ATLANTIC COAST FLATWOODS MLRAs.
4. PLS IS AN ABBREVIATION FOR PURE LIVE SEED.

- GENERAL NOTES:**
1. UNUSUAL SITE CONDITIONS MAY REQUIRE HEAVIER SEEDING RATES.
 2. SEEDING DATES MAY NEED TO BE ALTERED TO FIT TEMPERATURE VARIATIONS AND LOCAL CONDITIONS.
 3. RE-SEED AREAS WHERE AN ADEQUATE STAND OF TEMPORARY VEGETATION FAILS TO EMERGE OR WHERE A POOR STAND EXISTS.

Ds2 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025

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APPROVED FOR _____

M. FOWLER CLIENT PROJECT MGR P. MARCUM TECHNICAL MGR M. ABDALLA PROJECT MGR

PROJECT PHASE PERMITTING

PROJECT NO. 738224061

SCALE AS SHOWN

STAMP/SEAL

GEORGIA REGISTERED PROFESSIONAL
No. PE030489
18 NOV 2022

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

EROSION SEDIMENTATION AND POLLUTION CONTROL DETAILS SHEET 1

AREA CERTIFICATE OF AUTHORIZATION ECA2221

CLIENT DWG NO.

DRAWING NO. C-441

REV 0

wood

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

SAVED: 10-Jun-22 11:10 AM PLOTTED: 18-Nov-22 2:48 PM USER: NICHOLSON, PETER



TABLE 1
PLANT, PLANTING RATE AND PLANTING DATE FOR PERMANENT COVER OR COMPANION CROPS¹

SPECIES	BROADCAST RATES (PLS) ^{1,2}		RESOURCE AREA ³	PLANTING DATES BY RESOURCE AREA												REMARKS
	RATES PER ACRE	PLS RATES PER 1,000 SQ. FT.		SOLID LINE INDICATE OPTIMUM DATES, DOTTED LINES INDICATE PERMISSIBLE BUT MARGINAL DATES												
				J	F	M	A	M	J	J	A	S	O	N	D	
BAHIA, PENSACOLA																
ALONE OR WITH TEMPORARY COVER	60 LBS	1.4 LBS	P												166,00 SEED PER POUND. LOW GROWING. SOD FORMING. SLOW TO ESTABLISH. PLANT WITH A COMPANION CROP. WILL SPREAD INTO BERMUDA PASTURES AND LAWNS. MIX WITH SERICEA LESPEDEZA OR WEEPING LOVEGRASS.	
WITH OTHER PERENNIALS	30 LBS	0.7 LBS	C													
BAHIA, WILMINGTON																
ALONE OR WITH TEMPORARY COVER	60 LBS	1.4 LBS	M-L												SAME AS ABOVE	
WITH OTHER PERENNIALS	30 LBS	0.7 LBS	P													
BERMUDA, COMMON																
HULLED SEED ALONE	10 LBS 6	0.2 LBS	P												1,787,000 SEED PER POUND. QUICK COVER. LOW GROWING AND SOD FORMING. FULL SUN. GOOD FOR ATHLETIC FIELDS.	
WITH OTHER PERENNIALS	LBS	0.7 LBS	C													
BERMUDA, COMMON																
UNHULLED SEED WITH TEMPORARY COVER	10 LBS 6	0.2 LBS 0.1	P												PLANT WITH WINTER ANNUALS PLANT WITH TALL FESCUE	
WITH OTHER PERENNIALS	LBS	LBS	C													
BERMUDA SPRIGS																
COASTAL, COMMON, MIDLAND, OR TIFT 44	40 CU. FT. 0.9 CU. FT. OR SOD PLUGS 3'x3'		M-L												A CUBIC FOOT CONTAINS APPROXIMATELY 650 SPRIGS. A BUSHEL CONTAINS 1.25 CU. FT. OR APPROXIMATELY 800 SPRIGS.	
COASTAL, COMMON OR TIFT 44			P													
TIFT 78			C													
CENTIPEDE																
BLOCK SOD ONLY			P												DROUGHT TOLERANT. FULL SUN OR PARTIAL SHADE. EFFECTIVE ADJACENT TO CONCRETE AND IN CONCENTRATED FLOW AREAS. IRRIGATION IS NEEDED UNTIL FULLY ESTABLISHED. DO NOT PLANT NEAR PASTURES. WINTER HARDY AS FAR NORTH AS ATHENS AND ATLANTA.	
			C													
CROWN VETCH																
WITH WINTER ANNUALS OR COOL SEASON GRASSES	15 LBS	0.3 LBS	M-L												100,000 SEED PER POUND. DENSE GROWTH. DROUGHT TOLERANT AND FIRE RESISTANT. ATTRACTIVE ROSE, PINK AND WHITE BLOSSOMS SPRING TO LATE FALL. MIX WITH 30 POUNDS OF TALL FESCUE OR 15 POUNDS OF RYE. INOCULATE SEED WITH M INOCULANT. USE FROM NORTH ATLANTA AND NORTHWARD.	
			P													
FESCUE, TALL																
ALONE	50 LBS 30	1.1 LBS	M-L												227,000 SEED PER POUND. USE ALONE ONLY ON BETTER SITES. MIX WITH PERENNIAL LESPEDEZA OR CROWN VETCH. APPLY TOP DRESSING IN SPRING FOLLOWING FALL PLANTINGS. NOT FOR HEAVY USE AREAS OR ATHLETIC FIELDS.	
WITH OTHER PERENNIALS	LBS	0.7 LBS	P													

¹ REDUCE SEEDING RATES BY 50% WHEN DRILLED.
² PLS IS AN ABBREVIATION FOR PURE LIVE SEED.
³ M-L REPRESENTS THE MOUNTAIN; BLUE RIDGE; AND RIDGES AND VALLEYS MLRAs.
P REPRESENTS THE SOUTHERN PIEDMONT MLRA.
C REPRESENTS SOUTHERN COASTAL PLAIN; SAND HILLS; BLACK LANDS; AND ATLANTIC COAST FLATWOODS MLRAs.

TABLE 2

SUGGESTED SEEDBED DEPTHS	
SLOPE	SEEDBED DEPTH
3:1 OR FLATTER	1" TO 4" DEPTH
2:1 TO 3:1	4" DEPTH
2:1 OR STEEPER	DEPRESSIONS EVERY 6" TO 8" HAND-DUG, IF NECESSARY

- GENERAL NOTES:**
- UNUSUAL SITE CONDITIONS MAY REQUIRE HEAVIER SEEDING RATES.
 - SEEDING DATES MAY NEED TO BE ALTERED TO FIT TEMPERATURE VARIATIONS AND LOCAL CONDITIONS.
 - RE-SEED AREAS WHERE AN ADEQUATE STAND OF TEMPORARY VEGETATION FAILS TO EMERGE OR WHERE A POOR STAND EXISTS.

SPECIES	BROADCAST RATES (PLS) ^{1,2}		RESOURCE AREA ³	PLANTING DATES BY RESOURCE AREA												REMARKS
	RATES PER ACRE	PLS RATES PER 1,000 SQ. FT.		SOLID LINE INDICATE OPTIMUM DATES, DOTTED LINES INDICATE PERMISSIBLE BUT MARGINAL DATES												
				J	F	M	A	M	J	J	A	S	O	N	D	
LESPEDEZA SERICEA																
SCARIFIED	60 LBS	1.4 LBS	M-L												350,000 SEED PER POUND. WIDELY ADAPTED. LOW MAINTENANCE. MIX WITH WEEPING LOVEGRASS, COMMON BERMUDA, BAHIA OR TALL FESCUE. TAKES 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED. EXCELLENT ON ROAD BANKS. INOCULATE SEED WITH EL INOCULANT.	
UNSCARIFIED	75 LBS	1.7 LBS	M-L													
SEED-BEARING HAY	3 TONS	1338 LBS	M-L													
LESPEDEZA AMBRO VIRGATA OR APPALOW																
SCARIFIED	60 LBS	1.4 LBS	M-L												300,000 SEED PER POUND. HEIGHT OF GROWTH IS 18 TO 24 INCHES. ADVANTAGEOUS IN URBAN AREAS. SPREADING-TYPE GROWTH. NEW GROWTH HAS BRONZE COLORATION. MIX WITH WEEPING LOVEGRASS, COMMON BERMUDA, BAHIA, TALL FESCUE OR WINTER ANNUALS. DO NOT MIX WITH SERICEA LESPEDEZA. SLOW TO DEVELOP SOLID STANDS. INOCULATE SEED WITH EL INOCULANT.	
UNSCARIFIED	75 LBS	1.7 LBS	M-L													
			C													
LESPEDEZA, SHRUB																
PLANTS		3'x3'	M-L												PROVIDE WILDLIFE FOOD AND COVER.	
LOVEGRASS, WEEPING																
ALONE	4 LBS	0.1 LBS	M-L												1,500,000 SEED PER POUND. QUICK COVER. DROUGHT TOLERANT. GROWS WELL WITH SERICEA LESPEDEZA ON ROAD BANKS.	
WITH OTHER PERENNIALS	2 LBS	0.05 LBS	C													
MAIDENCANE																
SPRIGS	2'x3' SPACING	ALL													FOR VERY WET SITES. MAY CLOG CHANNELS. DIG SPRIGS FROM LOCAL SOURCES. USE ALONG RIVER BANKS AND SHORELINES.	
PANICGRASS, ATLANTIC COASTAL																
	20 LBS	0.5 LBS	P												GROWS WELL ON COASTAL SAND DUNES, BORROW AREAS AND GRAVEL PITS. PROVIDES WINTER COVER FOR WILDLIFE. MIX WITH SERICEA LESPEDEZA EXCEPT ON SAND DUNES.	
REED CANARY GRASS																
ALONE	50 LBS 30	1.1 LBS	M-L												GROWS SIMILAR TO TALL FESCUE.	
WITH OTHER PERENNIALS	LBS	0.7 LBS	P													
SUNFLOWER, 'AZTEC' MAXIMILLIAN																
	10 LBS	0.2 LBS	M-L												227,000 SEED PER POUND. MIX WITH WEEPING LOVEGRASS OR OTHER LOW GROWING GRASSES OR LEGUMES.	

TABLE 3
FERTILIZER REQUIREMENTS FOR PERMANENT VEGETATION

TYPES OF SPECIES	PLANTING YEAR	ANALYSIS OR EQUIVALENT (N-P-K)	RATE (LBS./ACRE)	N TOP DRESSING RATE (LBS./ACRE)
COOL SEASON GRASSES	FIRST	6-12-12	1500	50-100 1/2/
	SECOND MAINTENANCE	6-12-12 10-10-10	1000 400	30
COOL SEASON GRASSES AND LEGUMES	FIRST	6-12-12 0-10-10	1500	0-50 1/
	SECOND MAINTENANCE	6-12-12 0-10-10	1000 400	--
GROUND COVERS	FIRST	10-10-10 10-10-10	1300 3/ 1300	--
	SECOND MAINTENANCE	10-10-10	3/ 1100	--
PINE SEEDINGS	FIRST	20-10-5	ONE21-GRAM PELLET PER SEEDING PLACED IN THE CLOSING HOLE	--
SHRUB LESPEDEZA	FIRST MAINTENANCE	10-10-10 10-10-10	700 700 4/	--
TEMPORARY COVER CROPS SEEDED ALONE	FIRST	10-10-10	500	30 5/
WARM SEASON GRASSES	FIRST	6-12-12 6-12-12	1500	50-100 2/6/
	SECOND MAINTENANCE	10-10-10	800 400	50-100 2/ 30
WARM SEASON GRASSES AND LEGUMES	FIRST	6-12-12 0-10-10	1500	50 6/
	SECOND MAINTENANCE	0-10-10	1000 400	--

- LIME**
- AGRICULTURAL LIME IS REQUIRED AT THE RATE OF 2 TONS PER ACRE.
 - AGRICULTURAL LIME SHALL BE WITHIN THE SPECIFICATIONS OF THE GEORGIA DEPARTMENT OF AGRICULTURE.
 - LIME SPREAD BY CONVENTIONAL EQUIPMENT SHALL BE "GROUND LIMESTONE". GROUND LIMESTONE IS CALCITIC OR DOLOMITIC LIMESTONE GROUND SO THAT 90% OF THE MATERIAL WILL PASS THROUGH A 10-MESH SIEVE, NOT LESS THAN 50% WILL PASS THROUGH A 50-MESH SIEVE AND NOT LESS THAN 25% WILL PASS THROUGH A 100-MESH SIEVE.
 - AGRICULTURAL LIME SPREAD BY HYDRAULIC SEEDING EQUIPMENT SHALL BE "FINELY GROUND LIMESTONE". FINELY GROUND LIMESTONE IS CALCITIC OR DOLOMITIC LIMESTONE GROUND SO THAT 98% OF THE MATERIAL WILL PASS THROUGH A 20-MESH SIEVE AND NOT LESS THAN 70% WILL PASS THROUGH A 100-MESH SIEVE.
- 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 TO GRASS SPECIES ONLY.
6/ APPLY WHEN PLANTS GROW TO A HEIGHT OF 2 TO 4 INCHES.

Ds3 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

GSWCC GEORGIA SOIL AND WATER CONSERVATION COMMISSION

Philip W Marcum
Level II Certified Design Professional

CERTIFICATION NUMBER 0000010833
ISSUED: 01/31/2022 EXPIRES: 01/31/2025

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REF	NUMBER	TITLE	REFERENCES
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M. FOWLER CLIENT PROJECT MGR P. MARCUM TECHNICAL MGR M. ABDALLA PROJECT MGR

PROJECT PHASE PERMITTING

PROJECT NO. 738224061

SCALE AS SHOWN

STAMP/SEAL

GEORGIA REGISTERED PROFESSIONAL ENGINEER
No. PE030489
18 NOV 2022

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

wood
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

EROSION SEDIMENTATION AND POLLUTION CONTROL DETAILS SHEET 2

AREA CERTIFICATE OF AUTHORIZATION ECA2221

CLIENT DWG NO.

DRAWING NO. C-442

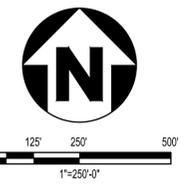
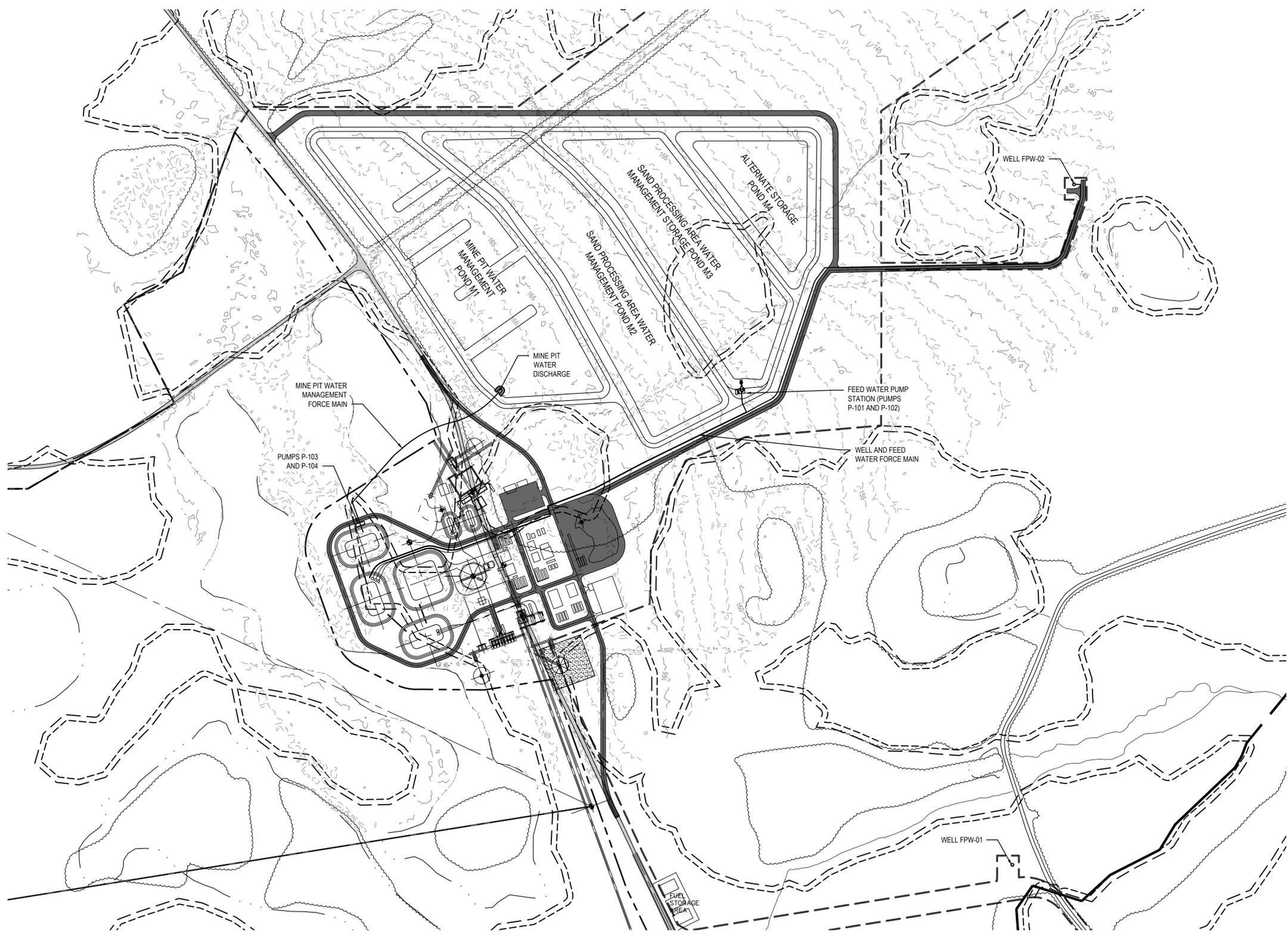
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PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-500

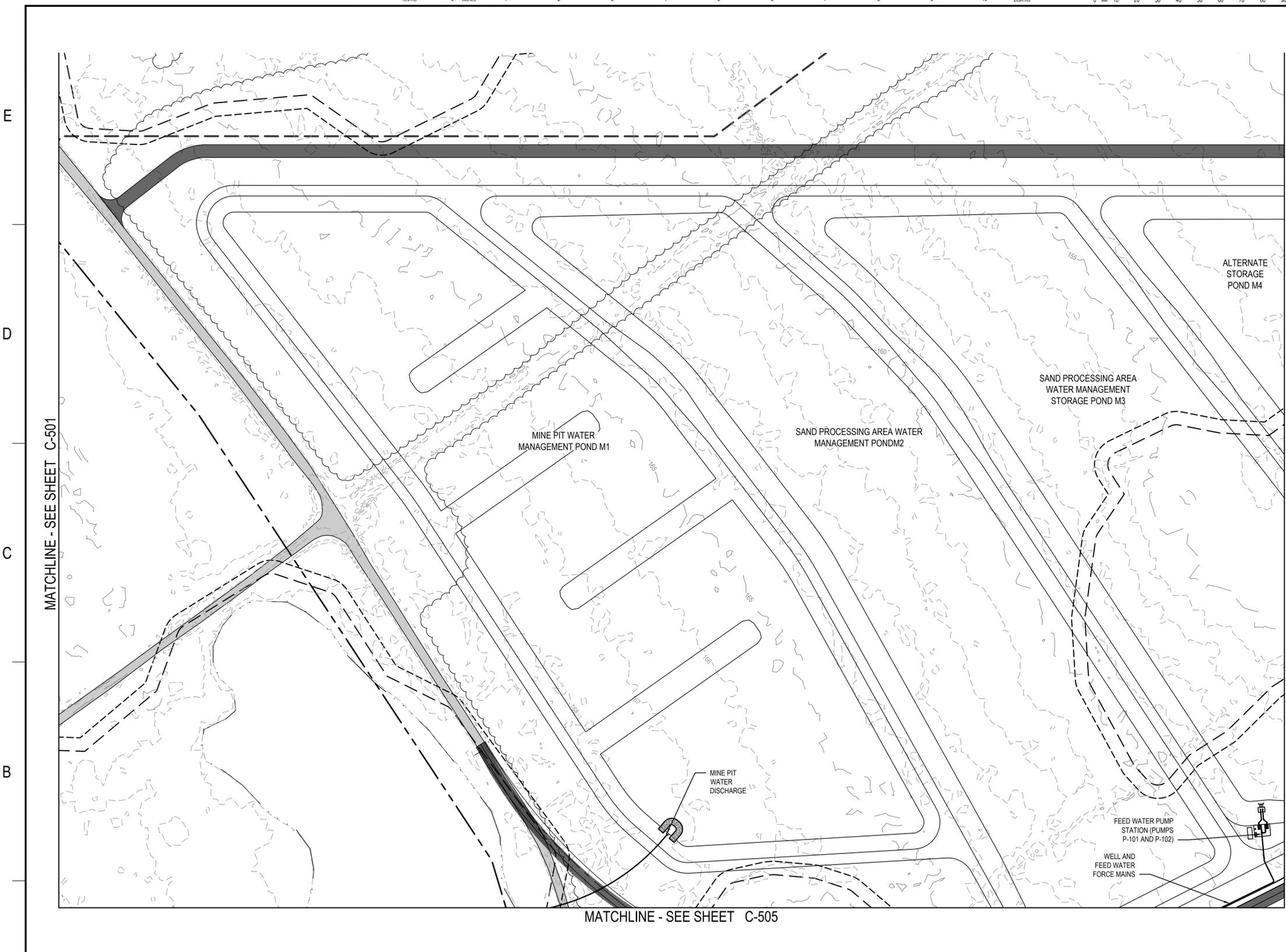
OVERALL UTILITY PLAN

AREA	CERTIFICATE OF AUTHORIZATION
ECA2221	
CLIENT DWG NO.	
DRAWING NO.	REV
C-500	0

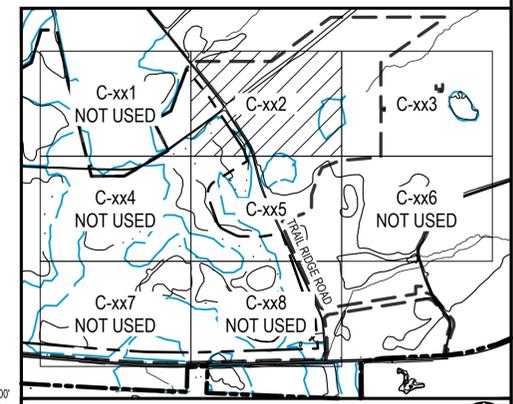
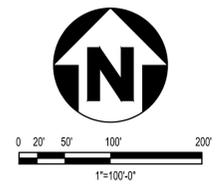
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KEY PLAN
SCALE: NONE

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PROJECT PHASE			
PERMITTING			
PROJECT NO.		BY	DDMMYY
7382224061		DES	07FEB22
		DRN	07FEB22
		CHK	07FEB22
		APP	07FEB22
SCALE			
AS SHOWN			

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-502

UTILITY PLAN SHEET 2

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA CERTIFICATE OF AUTHORIZATION
ECA2221

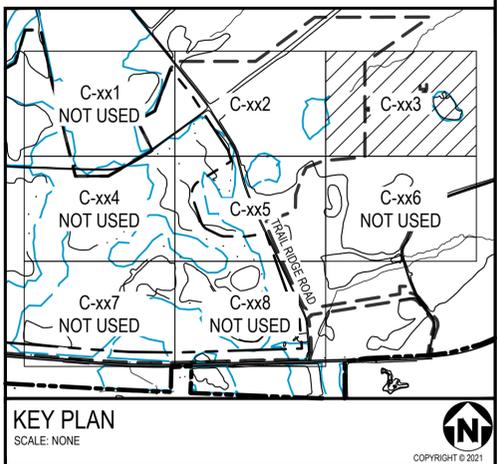
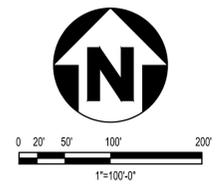
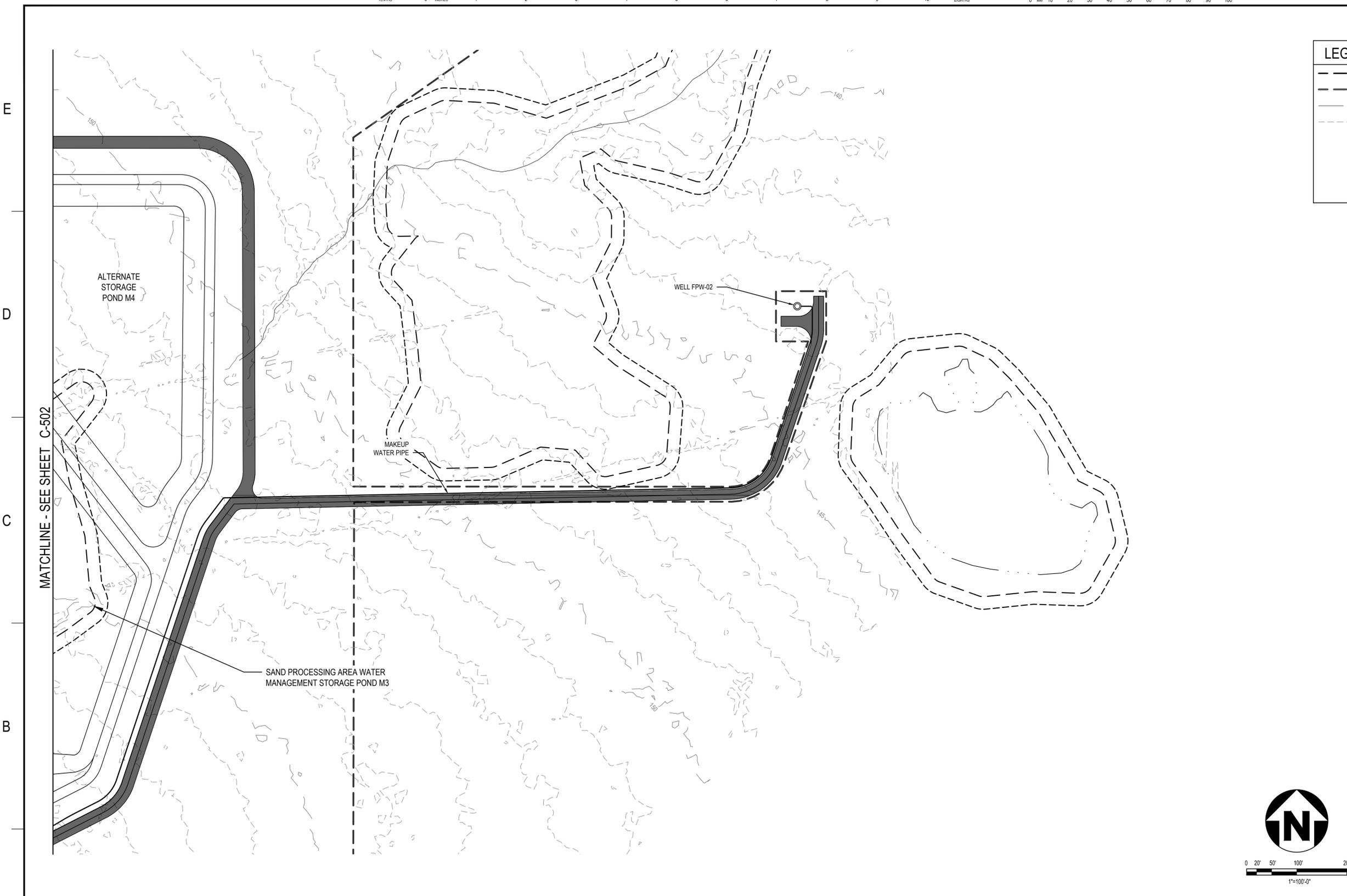
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TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA
CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-503

UTILITY PLAN SHEET 3

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA
CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-503

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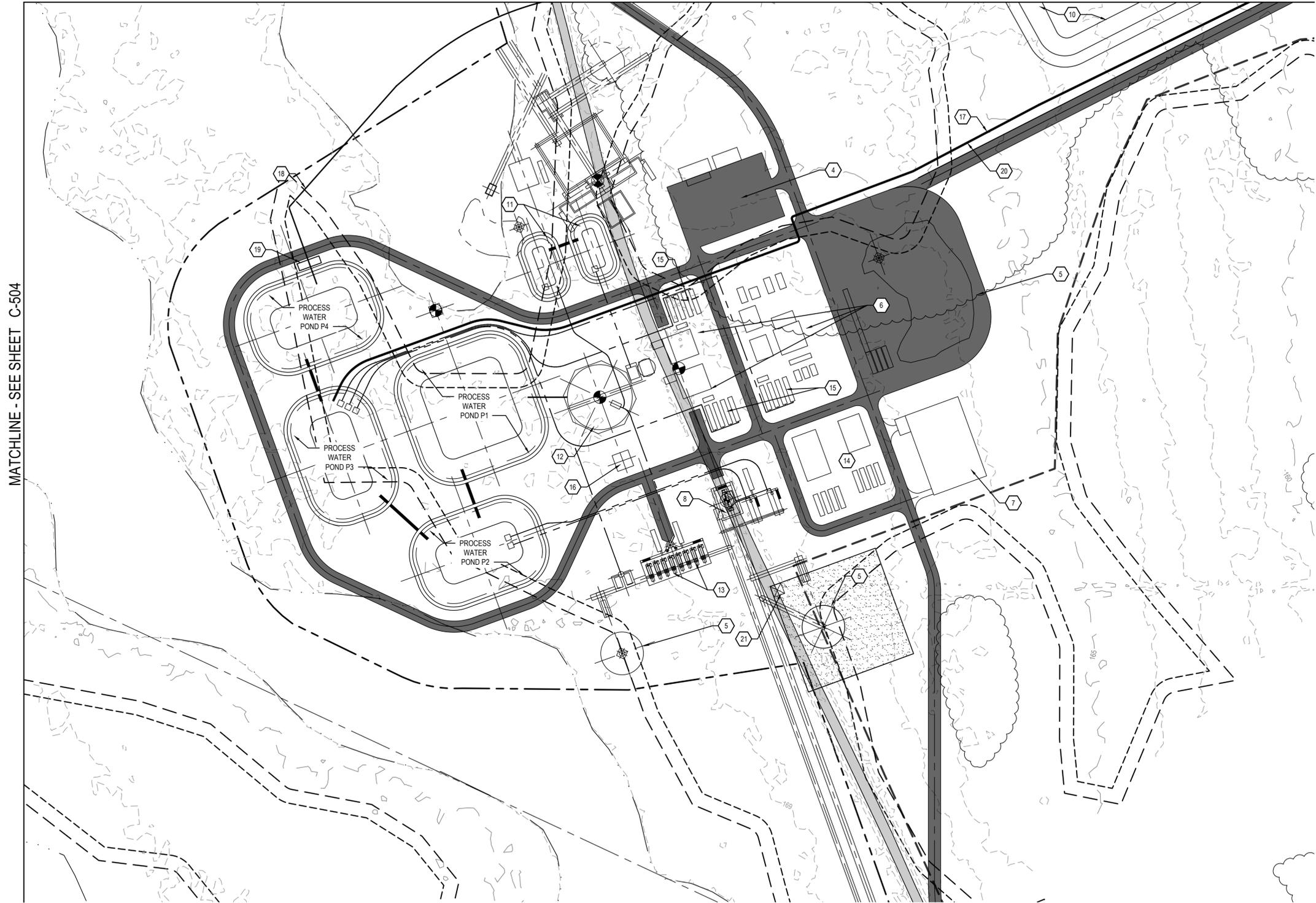
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MATCHLINE - SEE SHEET C-502



LEGEND

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- EXISTING INDEX CONTOUR
- - - EXISTING INTERMEDIATE CONTOUR

KEYNOTES (#)

1. NOT USED
2. NOT USED
3. NOT USED
4. PARKING AND OFFICES
5. STOCKPILE
6. PCP/WCP PLANT
7. SUBSTATION
8. COVERED FACILITY
9. NOT USED
10. SAND PROCESSING AREA WATER MANAGEMENT POND
11. TEMPORARY THICKENER UNDERFLOW PONDS
12. THICKENER
13. CENTRIFUGES
14. MAINTENANCE YARD
15. PROCESS WATER TANKS
16. FLOC. BUILDING
17. FEED WATER FORCE MAIN
18. MINE PIT WATER MANAGEMENT FORCE MAIN
19. PUMPS P-103 AND P-104
20. MAKEUP WATER WELL PIPE
21. CONTAINMENT AREA SUMP

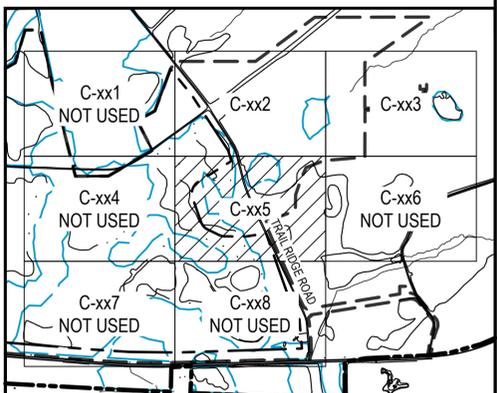
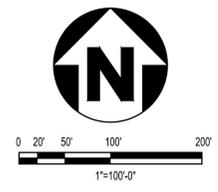
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KEY PLAN
SCALE: NONE

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SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

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BIRMINGHAM, AL 35242
(205) 980-6402

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CLIENT DWG NO.

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C-505

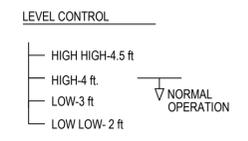
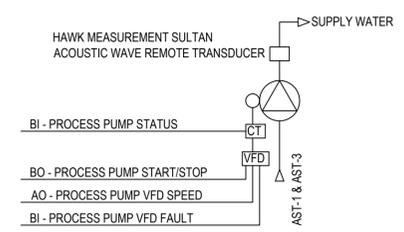
UTILITY PLAN SHEET 5

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CLIENT DWG NO.	
DRAWING NO. C-505	REV 0

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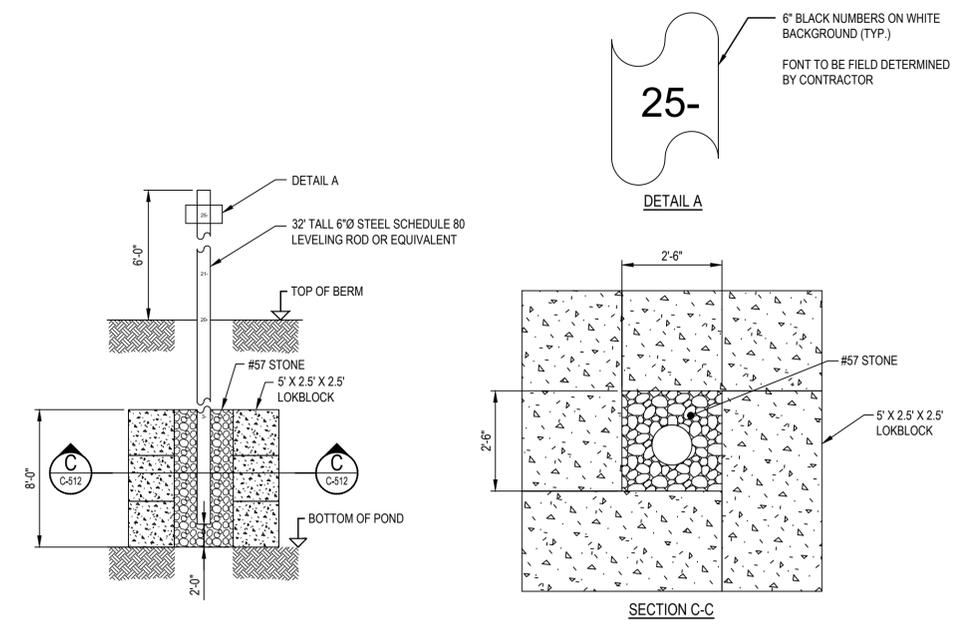


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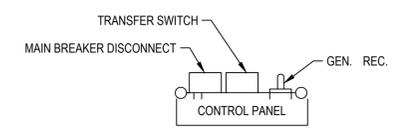


NOTES:
 LOW LOW LEVEL - ALARMS SOUND AND ALL PUMPS ARE OFF
 LOW LEVEL - P-101 PUMP PUMP TURNS OFF
 HIGH LEVEL - P-102 PUMP TURNS ON
 HIGH HIGH LEVEL - ALARMS SOUND AND BOTH PUMPS ARE ON

C8 ACOUSTIC LEVEL CONTROL
 C-512 SCALE: N.T.S.



D4 SITE LEVEL DETAIL
 C-512 SCALE: N.T.S.



CONTROL PANEL INFORMATION PLATES
 NOTE: THE CONTRACTOR SHALL INCLUDE A SCHEMATIC FOR THE CONTROL PANEL COMPONENTS LAMINATED ON BOTH SIDES PLACED IN A POCKET ATTACHED TO THE INSIDE OF THE PANEL DOOR. THE ABOVE PUMP AND MOTOR INFORMATION PLATE SHALL BE PERMANENTLY AFFIXED TO THE INSIDE OF THE PANEL DOOR.

ALUMINUM PLATE WITH PUMP INFORMATION STAMPED IN PLATE TO BE ATTACHED TO INSIDE OF CONTROL PANEL DOOR IN PLAIN VIEW.

PUMP H.P.	_____
CAPACITY GPM	_____
TOTAL DYNAMIC HEAD	_____
OPERATING RPM	_____
IMPELLER NO.	_____
VOLTS	_____
AMPS	_____
PHASE	_____
MANUFACTURER	_____
MODEL NO.	_____
STN #1 _____ SIN #2 _____	

ALUMINUM PLATE WITH PUMP INFORMATION STAMPED IN PLATE TO BE ATTACHED TO INSIDE OF CONTROL PANEL DOOR IN PLAIN VIEW

CONTROL PANEL INFORMATION PLATES

NOTE: THE CONTRACTOR SHALL INCLUDE A SCHEMATIC FOR THE CONTROL PANEL COMPONENTS LAMINATED ON BOTH SIDES PLACED IN A POCKET ATTACHED TO THE INSIDE OF THE PANEL DOOR. THE ABOVE PUMP AND MOTOR INFORMATION PLATE SHALL BE PERMANENTLY AFFIXED TO THE INSIDE OF THE PANEL DOOR.

A4 PUMP CONTROL PANEL
 C-512 SCALE: N.T.S.

0	8NOV2022	ISSUED FOR PERMITTING	MJL	MMA	PWM
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PROJECT PHASE: PERMITTING		
PROJECT NO. 7382224061	BY DES 07FEB22 DRN 07FEB22 CHK 07FEB22 APP 07FEB22	DDMMYY
SCALE AS SHOWN	SUBJECT UTILITY DETAILS SHEET 2	

TWIN PINES MINERALS LLC
 SAUNDERS DEMONSTRATION MINE
 MINE ID 2073
 WATER MANAGEMENT PONDS

AREA: CERTIFICATE OF AUTHORIZATION
 ECA2221

CLIENT DWG NO.

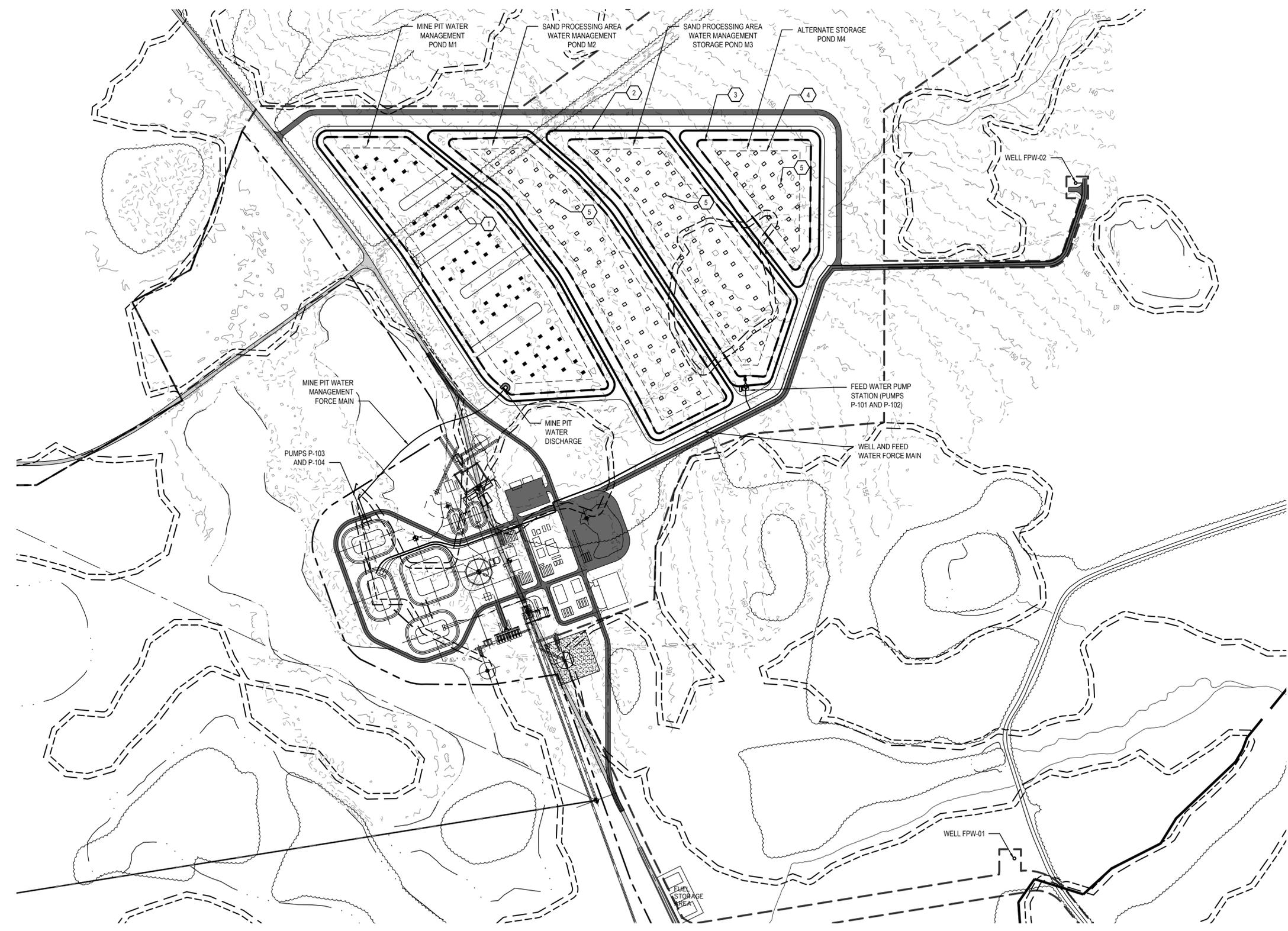
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C-512

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CLIENT DWG NO.	
DRAWING NO.	C-512
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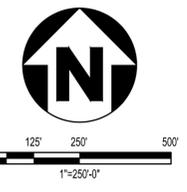


LEGEND

- POND M1 EVAPORATOR LOCATIONS (55 TOTAL)
- POTENTIAL ALTERNATIVE EVAPORATOR LOCATIONS
- WATER MANAGEMENT PONDS TO NORMAL POOL
- SHORELINE BUFFER (50 FEET)
- WATER MANAGEMENT POND OUTLINES TO HIGH WATER

KEYNOTES 5

1. EVAPORATOR UNIT(S)
 AN ARRAY OF VARIMAX-40 (OR EQUAL) FLOATING EVAPORATORS WILL BE INSTALLED TO MANAGE WATER IN THE PONDS. THE UNITS ARE MOBILE AND WILL BE POSITIONED AS NECESSARY TO MANAGE WATER. AS DETAILED IN THE WATER USE MANAGEMENT PLAN, A SUFFICIENT NUMBER OF UNITS WILL BE INSTALLED TO EVAPORATE 1.44 MGD. BASED ON THE MANUFACTURER'S RECOMMENDATIONS, 167 UNITS WILL BE INSTALLED INITIALLY, BUT 26 ADDITIONAL UNITS (FOR A TOTAL OF 193 UNITS) MAY BE INSTALLED IF NEEDED. THE LOCATIONS DEPICTED ARE CONCEPTUAL AND ARE INTENDED TO SHOW THE RELATIVE POSITION OF THE UNITS IN THE PONDS WITH THE REQUIRED SPACING AT MAXIMUM CAPACITY (193 UNITS).
2. WATER MANAGEMENT POND - HIGH WATER
3. WATER MANAGEMENT POND - NORMAL POOL
4. SHORLINE BUFFER (50 FEET)
5. ALTERNATE LOCATION(S)



REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
0	8NOV2022	ISSUED FOR PERMITTING																			

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APPROVED FOR

M. FOWLER
CLIENT PROJECT MGR

P. MARCUM
TECHNICAL MGR

M. ABDALLA
PROJECT MGR

PROJECT PHASE
PERMITTING

PROJECT NO.
7382224061

SCALE
AS SHOWN

BY
DES 07FEB22
DRN 07FEB22
CHK 07FEB22
APP 07FEB22

STAMP/SEAL

APPROVED FOR		M. FOWLER CLIENT PROJECT MGR		P. MARCUM TECHNICAL MGR		M. ABDALLA PROJECT MGR		
PROJECT PHASE		PERMITTING						
PROJECT NO.	7382224061	BY	DES	07FEB22	DRN	07FEB22	CHK	07FEB22
SCALE	AS SHOWN	APP	07FEB22					

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-530

OVERALL EVAPORATOR LAYOUT

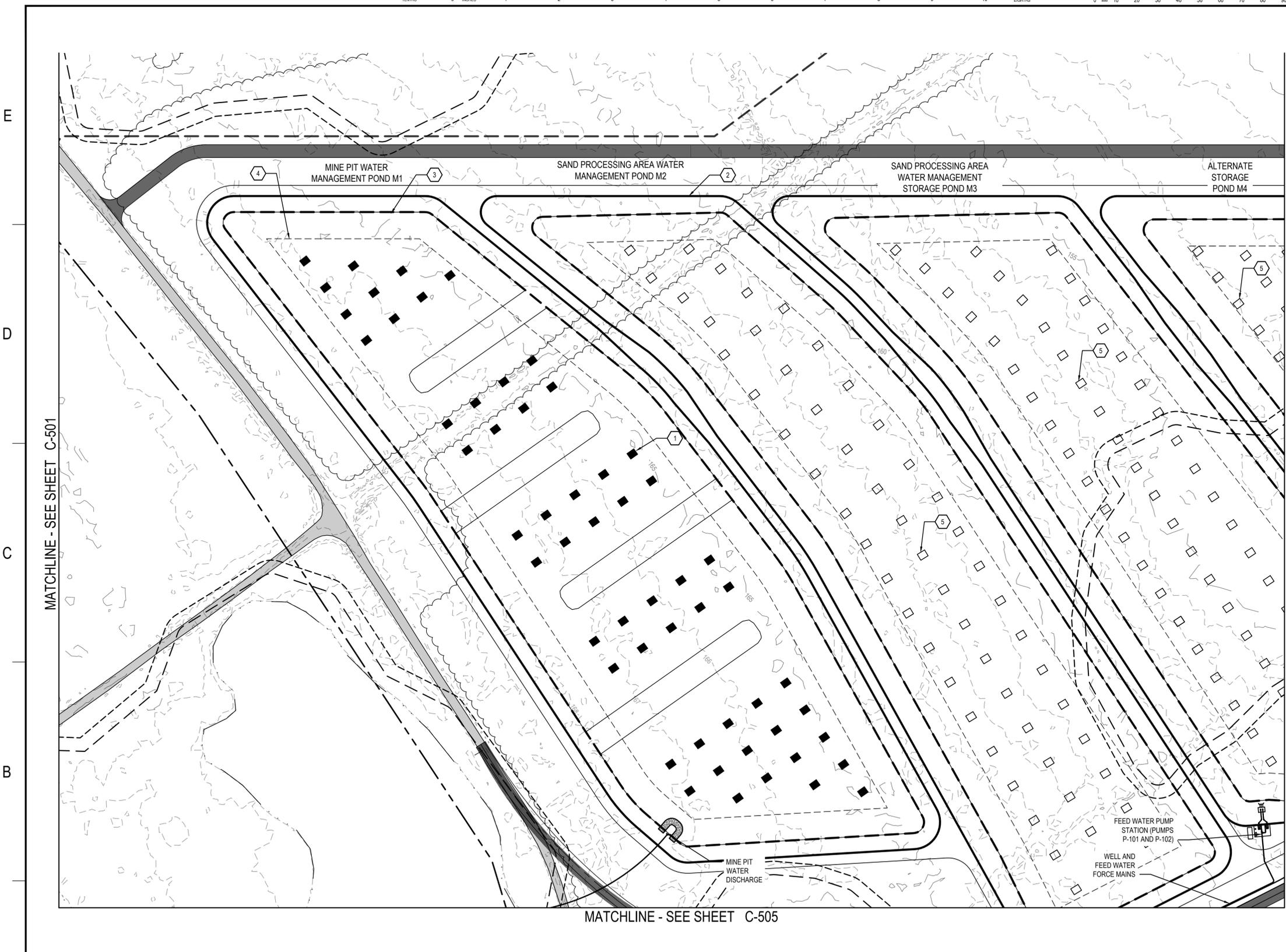
AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO.	C-530
REV	

ANSI D 2024

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C:\USERS\JOHN.MCKENZIE\WORK\TWIN PINES MINERALS\CA2221\C-530 EVAPORATORS.DWG

SAVED: 14-Dec-22 10:07 AM PLOTTED: 14-Dec-22 10:10 AM USER: MCKENZIE, JOHN V.



LEGEND

- POND M1 EVAPORATOR LOCATIONS (55 TOTAL)
- POTENTIAL ALTERNATIVE EVAPORATOR LOCATIONS
- WATER MANAGEMENT PONDS TO NORMAL POOL
- SHORELINE BUFFER (50 FEET)
- WATER MANAGEMENT POND OUTLINES TO HIGH WATER

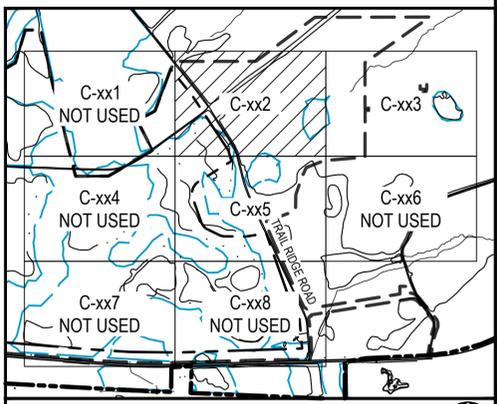
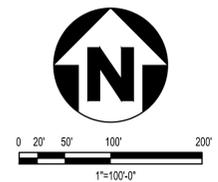
KEYNOTES 5

1. EVAPORATOR UNIT(S)
AN ARRAY OF VARIMAX-40 (OR EQUAL) FLOATING EVAPORATORS WILL BE INSTALLED TO MANAGE WATER IN THE PONDS. THE UNITS ARE MOBILE AND WILL BE POSITIONED AS NECESSARY TO MANAGE WATER. AS DETAILED IN THE WATER USE MANAGEMENT PLAN, A SUFFICIENT NUMBER OF UNITS WILL BE INSTALLED TO EVAPORATE 1.44 MGD. BASED ON THE MANUFACTURER'S RECOMMENDATIONS, 167 UNITS WILL BE INSTALLED INITIALLY, BUT 26 ADDITIONAL UNITS (FOR A TOTAL OF 193 UNITS) MAY BE INSTALLED IF NEEDED. THE LOCATIONS DEPICTED ARE CONCEPTUAL AND ARE INTENDED TO SHOW THE RELATIVE POSITION OF THE UNITS IN THE PONDS WITH THE REQUIRED SPACING AT MAXIMUM CAPACITY (193 UNITS).
2. WATER MANAGEMENT POND - HIGH WATER
3. WATER MANAGEMENT POND - NORMAL POOL
4. SHORLINE BUFFER (50 FEET)
5. ALTERNATE LOCATION(S)

MATCHLINE - SEE SHEET C-501

MATCHLINE - SEE SHEET C-503

MATCHLINE - SEE SHEET C-505



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	REF	NUMBER	REFERENCES	TITLE
	0	8NOV2022									ISSUED FOR PERMITTING									

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APPROVED FOR

M. FOWLER
CLIENT PROJECT MGR

P. MARCUM
TECHNICAL MGR

M. ABDALLA
PROJECT MGR

PROJECT PHASE: PERMITTING

PROJECT NO. 738224061

SCALE: AS SHOWN

BY: DES 07FEB22, DRN 07FEB22, CHK 07FEB22, APP 07FEB22

STAMP/SEAL:

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA: CERTIFICATE OF AUTHORIZATION ECA2221

CLIENT DWG NO.

DRAWING NO. C-532

REV

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

EVAPORATOR PLAN SHEET 2

SAUNDERS DEMONSTRATION MINE WATER MANAGEMENT PONDS

EVAPORATOR PLAN SHEET 2

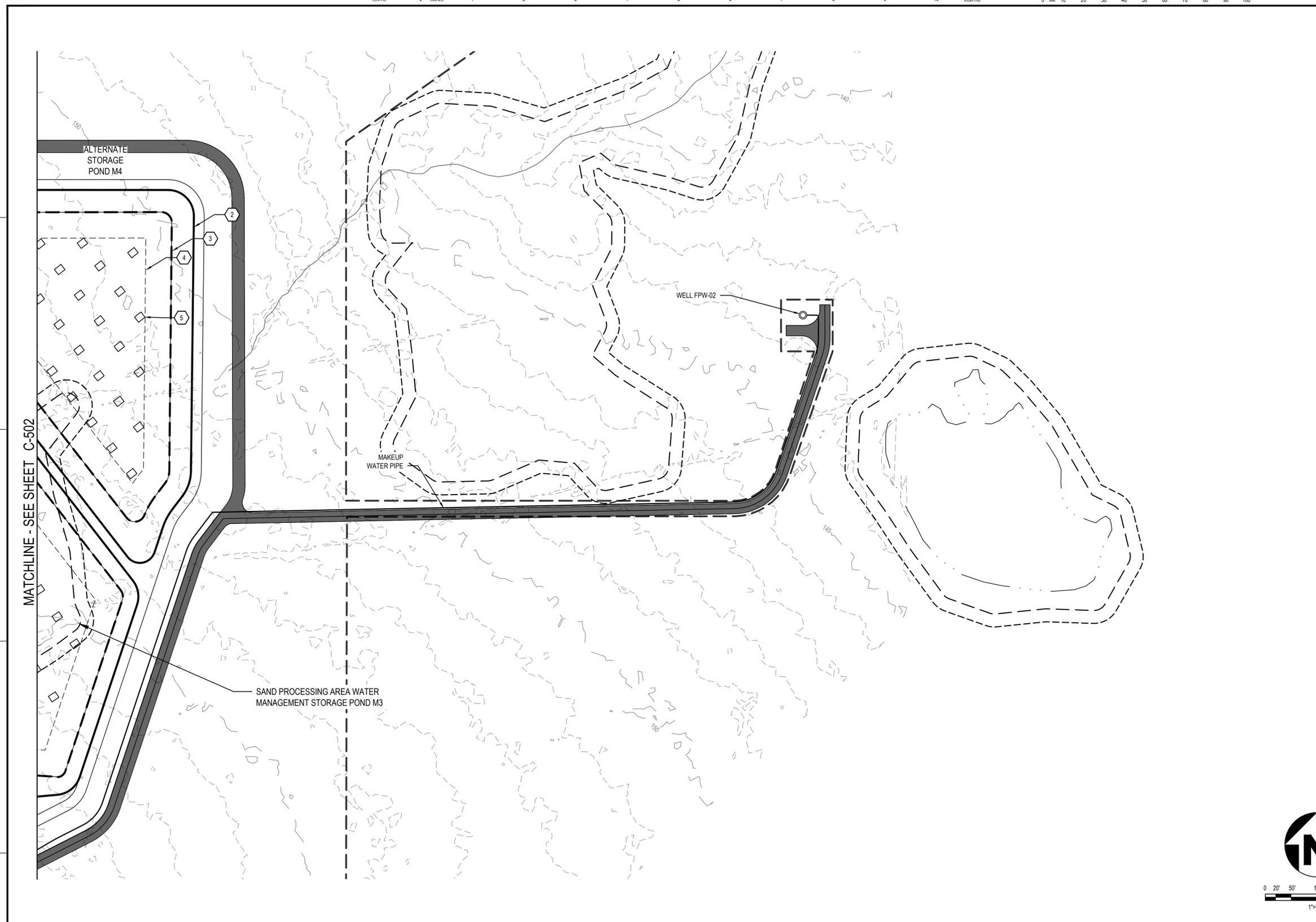
REV

ANSI 8.29:2018

CAD FILE: C:\SERVICES\JOHN\MCKENZIE\WME\WOOD\PROJECTS\MINERALS\2073\2022\2073-TWIN PINES MINERALS\CAD\CIVIL\EVAPORATORS.DWG



E
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C
B
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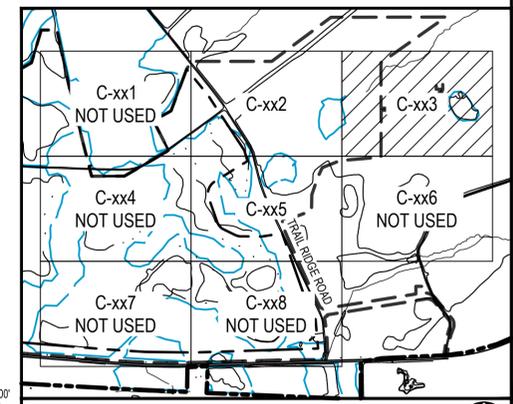
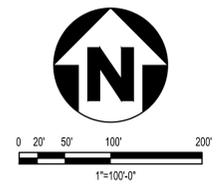


LEGEND

- POND M1 EVAPORATOR LOCATIONS (55 TOTAL)
- POTENTIAL ALTERNATIVE EVAPORATOR LOCATIONS
- WATER MANAGEMENT PONDS TO NORMAL POOL
- SHORLINE BUFFER (50 FEET)
- WATER MANAGEMENT POND OUTLINES TO HIGH WATER

KEYNOTES

1. EVAPORATOR UNIT(S)
AN ARRAY OF VARIMAX-40 (OR EQUAL) FLOATING EVAPORATORS WILL BE INSTALLED TO MANAGE WATER IN THE PONDS. THE UNITS ARE MOBILE AND WILL BE POSITIONED AS NECESSARY TO MANAGE WATER. AS DETAILED IN THE WATER USE MANAGEMENT PLAN, A SUFFICIENT NUMBER OF UNITS WILL BE INSTALLED TO EVAPORATE 1.44 MGD. BASED ON THE MANUFACTURER'S RECOMMENDATIONS, 167 UNITS WILL BE INSTALLED INITIALLY, BUT 26 ADDITIONAL UNITS (FOR A TOTAL OF 193 UNITS) MAY BE INSTALLED IF NEEDED. THE LOCATIONS DEPICTED ARE CONCEPTUAL AND ARE INTENDED TO SHOW THE RELATIVE POSITION OF THE UNITS IN THE PONDS WITH THE REQUIRED SPACING AT MAXIMUM CAPACITY (193 UNITS).
2. WATER MANAGEMENT POND - HIGH WATER
3. WATER MANAGEMENT POND - NORMAL POOL
4. SHORLINE BUFFER (50 FEET)
5. ALTERNATE LOCATION(S)



KEY PLAN
SCALE: NONE

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE	REFERENCES
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APPROVED FOR _____

M. FOWLER CLIENT PROJECT MGR P. MARCUM TECHNICAL MGR M. ABDALLA PROJECT MGR

PROJECT PHASE: PERMITTING

PROJECT NO. 7382224061

SCALE: AS SHOWN

BY: DES 07FEB22
DRN 07FEB22
CHK 07FEB22
APP 07FEB22

STAMP/SEAL:

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA: CERTIFICATE OF AUTHORIZATION ECA2221

CLIENT DWG NO. _____

DRAWING NO. C-533

REV: _____

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

EVAPORATOR PLAN SHEET 3

SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA: CERTIFICATE OF AUTHORIZATION ECA2221

CLIENT DWG NO. _____

DRAWING NO. C-533

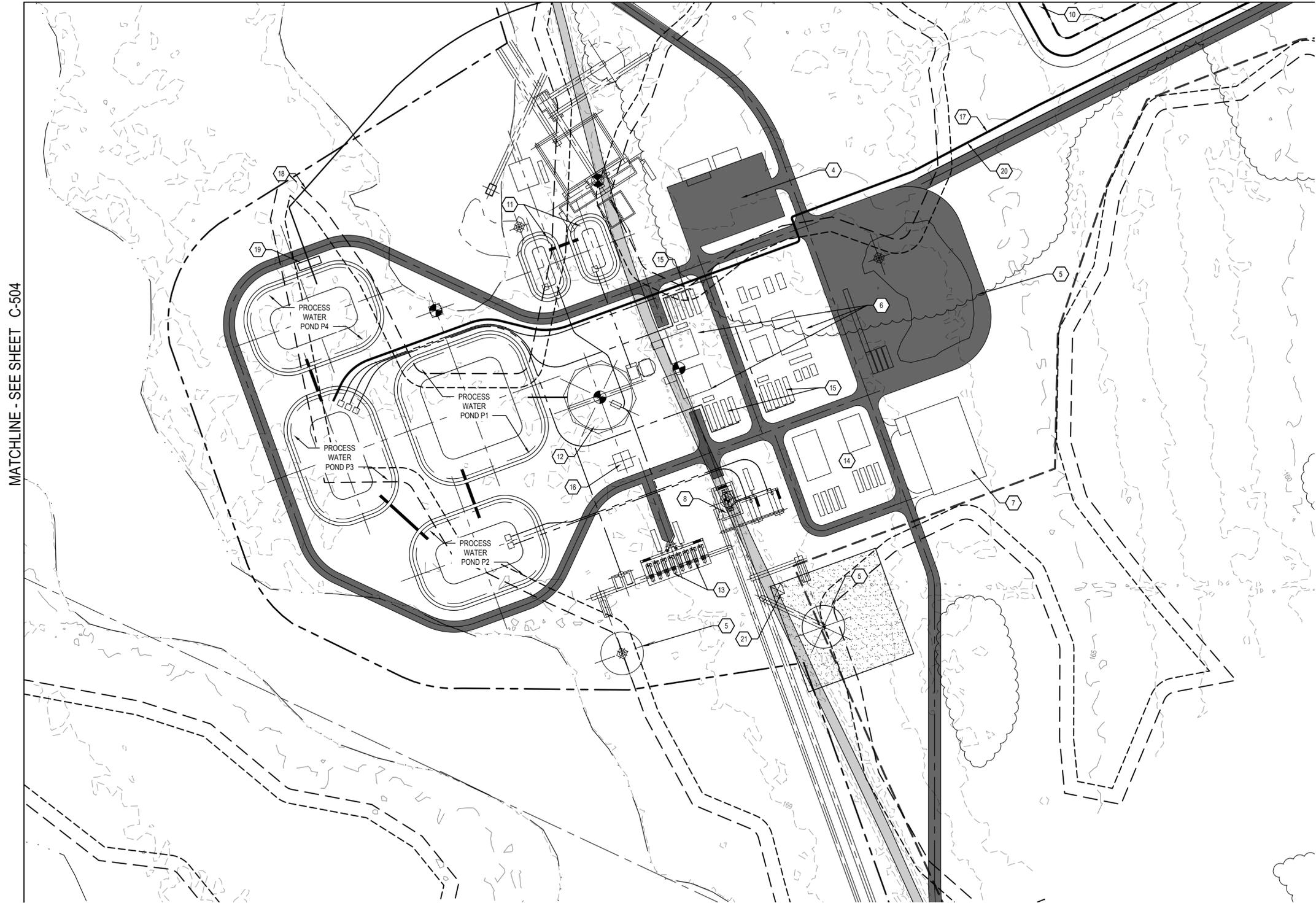
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ANSI D 2024

CAD FILE: C:\USERS\JANMCKENZIE\WORK\PROJECTS\MINERALS\2073\2073-TWIN PINES MINERALS\CAD\CIVIL\301-1-1-2024\EVAPORATORS.DWG



MATCHLINE - SEE SHEET C-502



LEGEND

- MINE BOUNDARY
- - - PERMIT BOUNDARY
- EXISTING INDEX CONTOUR
- - - EXISTING INTERMEDIATE CONTOUR

KEYNOTES #

1. NOT USED
2. NOT USED
3. NOT USED
4. PARKING AND OFFICES
5. STOCKPILE
6. PCP/WCP PLANT
7. SUBSTATION
8. COVERED FACILITY
9. NOT USED
10. SAND PROCESSING AREA WATER MANAGEMENT POND
11. TEMPORARY THICKENER UNDERFLOW PONDS
12. THICKENER
13. CENTRIFUGES
14. MAINTENANCE YARD
15. PROCESS WATER TANKS
16. FLOC. BUILDING
17. FEED WATER FORCE MAIN
18. MINE PIT WATER MANAGEMENT FORCE MAIN
19. PUMPS P-103 AND P-104
20. MAKEUP WATER WELL PIPE
21. CONTAINMENT AREA SUMP

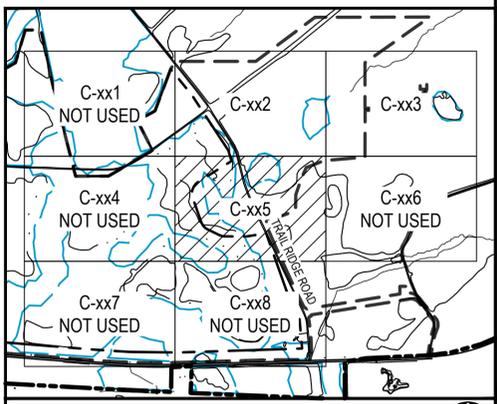
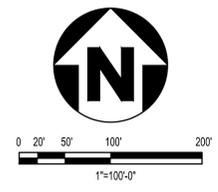
MATCHLINE - SEE SHEET C-504

E

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KEY PLAN
SCALE: NONE

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0	8NOV2022	ISSUED FOR PERMITTING																	

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APPROVED FOR

M. FOWLER
CLIENT PROJECT MGR

P. MARCUM
TECHNICAL MGR

M. ABDALLA
PROJECT MGR

PROJECT PHASE
PERMITTING

PROJECT NO.
7382224061

SCALE
AS SHOWN

BY
DES 07FEB22
DRN 07FEB22
CHK 07FEB22
APP 07FEB22

STAMP/SEAL

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA
CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-535

REV

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

EVAPORATOR PLAN SHEET 5

SAVED: 28-Nov-22 8:27 AM PLOT/ED: 28-Nov-22 8:29 AM USER: MCKENZIE, JOHN V.

8

7

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ANSI 8.2024

C:\USERS\JOHN\MCKENZIE\WORK\PROJECTS\MINERALS\WOOD\PROJECTS\MINERALS\CAAC\31\EVAPORATORS.DWG



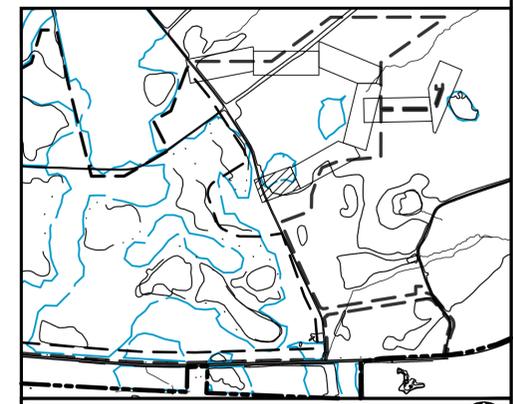
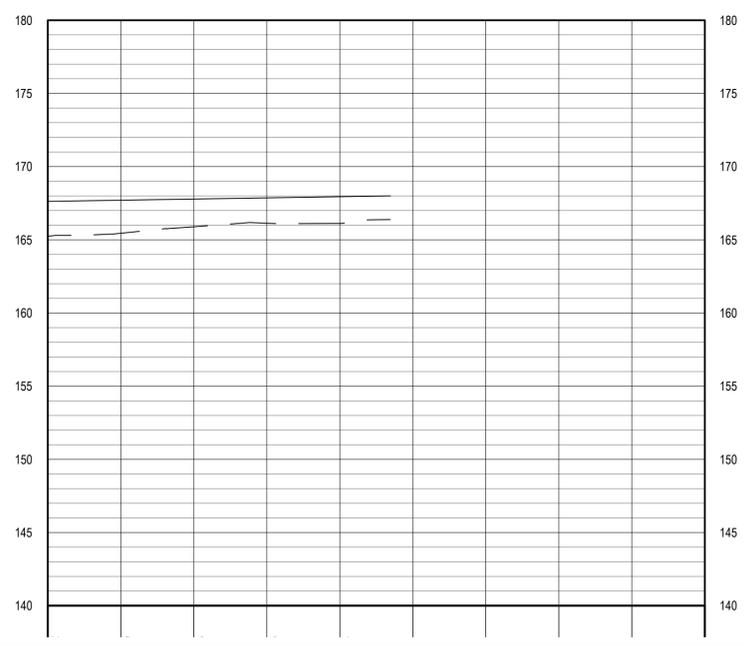
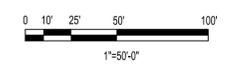
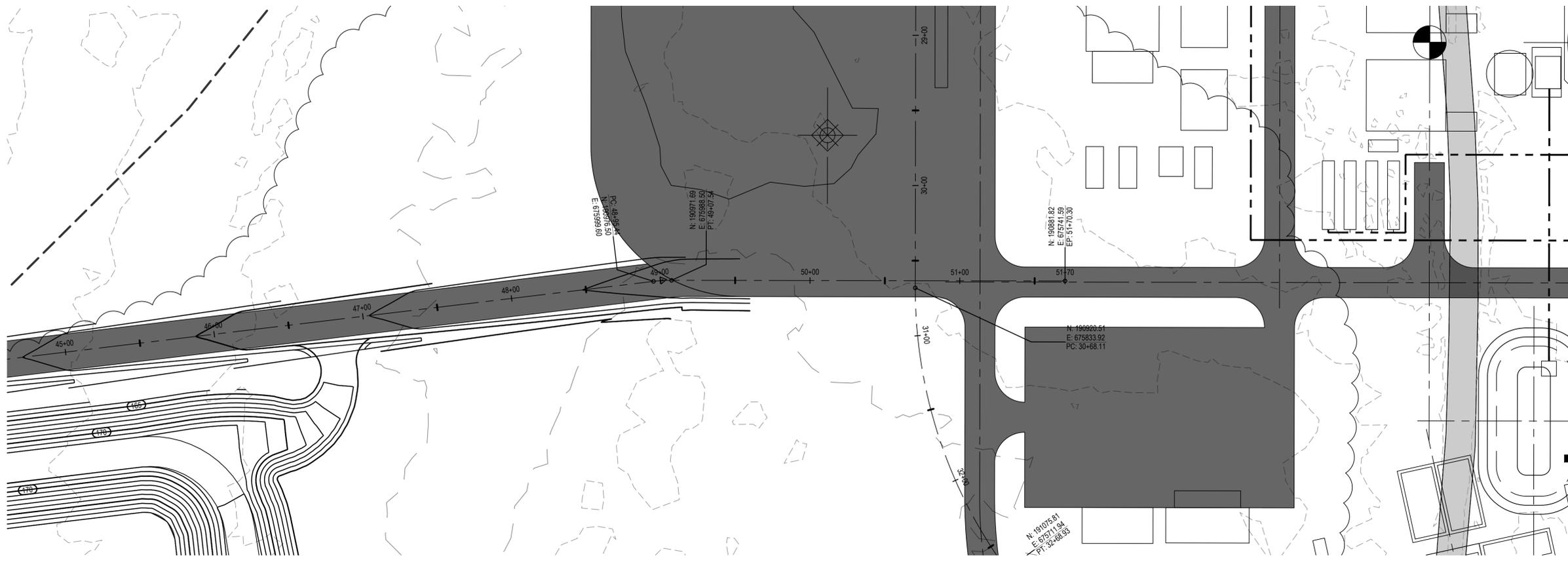
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KEY PLAN
SCALE: NONE



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STAMP/SEAL



APPROVED FOR

M. FOWLER
CLIENT PROJECT MGR

P. MARCUM
TECHNICAL MGR

M. ABDALLA
PROJECT MGR

PROJECT PHASE
PERMITTING

PROJECT NO.	BY	DDMMYY	SUBJECT
7382224061	DES	07FEB22	PERIMETER ROAD PLAN AND PROFILE SHEET 6
	DRN	07FEB22	
	CHK	07FEB22	
	APP	07FEB22	

SCALE
AS SHOWN



TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

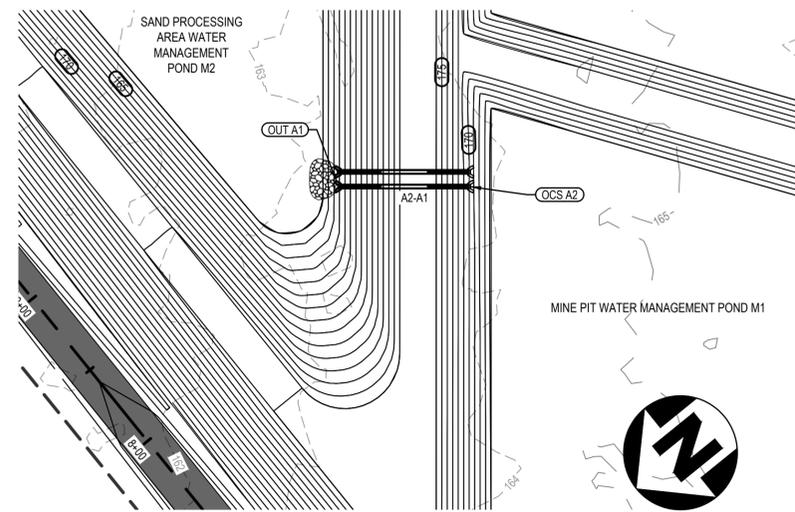
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CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

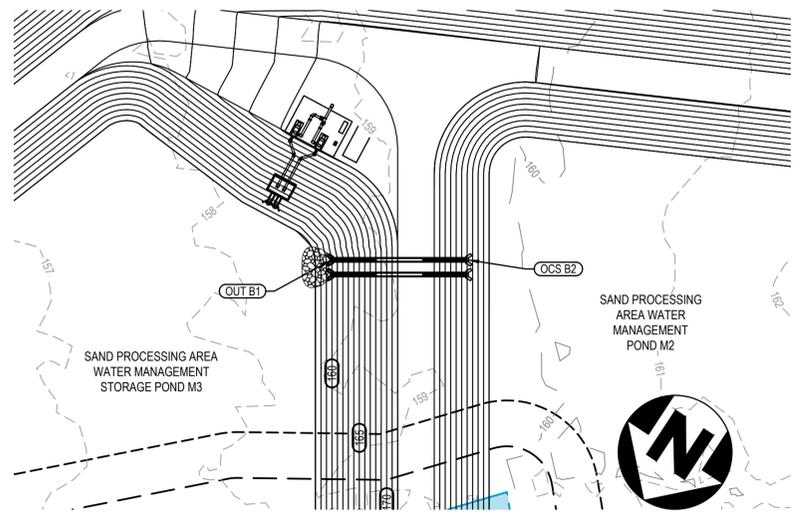
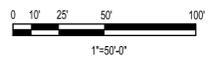
DRAWING NO.
C-606

REV
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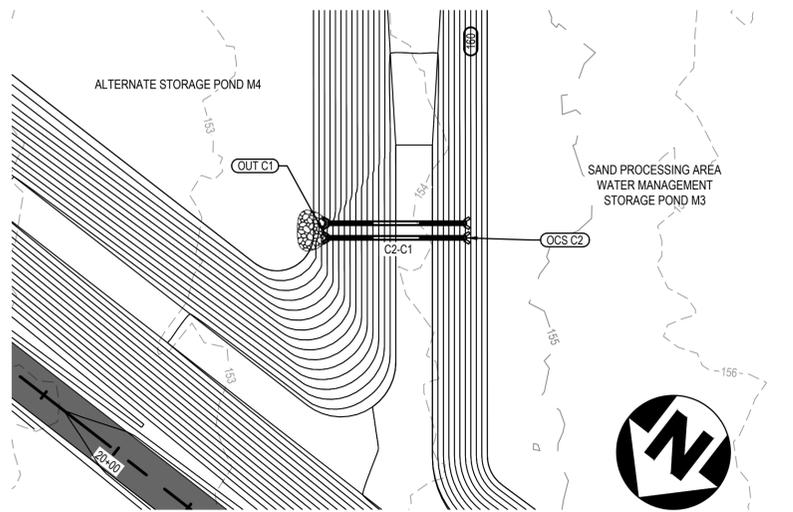
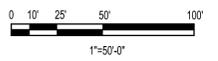
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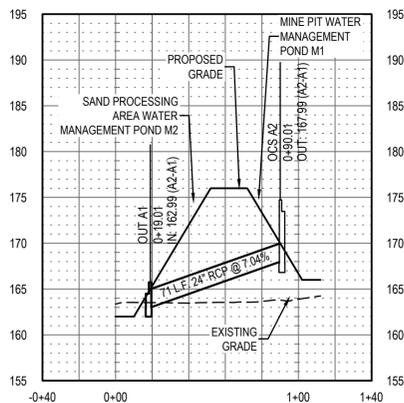
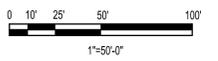
D8 STORM LINE A PLAN
C-621 SCALE: 1" = 50'



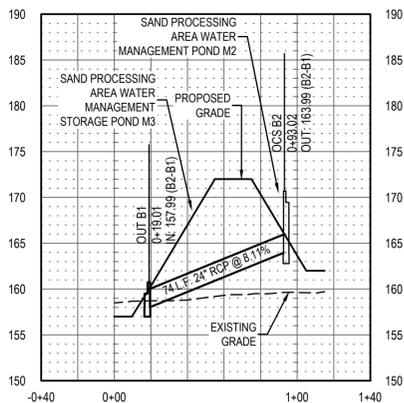
D5 STORM LINE B PLAN
C-621 SCALE: 1" = 50'



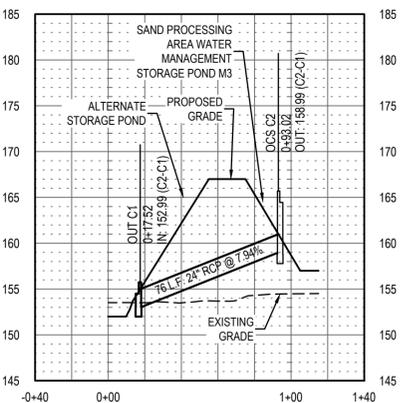
D3 STORM LINE C PLAN
C-621 SCALE: 1" = 50'



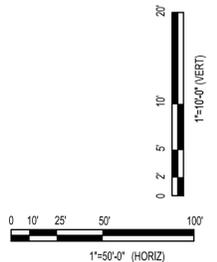
B7 STORM LINE A PROFILE
C-621 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)



B5 STORM LINE B PROFILE
C-621 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)



B2 STORM LINE C PROFILE
C-621 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)



REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REF	NUMBER	TITLE
0	8NOV2022	ISSUED FOR PERMITTING																				

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STAMP/SEAL

APPROVED FOR		
M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

PROJECT NO. 7382224061

BY DES 07FEB22

CHK 07FEB22

APP 07FEB22

AS SHOWN

SUBJECT
STORM DRAIN PLAN AND PROFILE

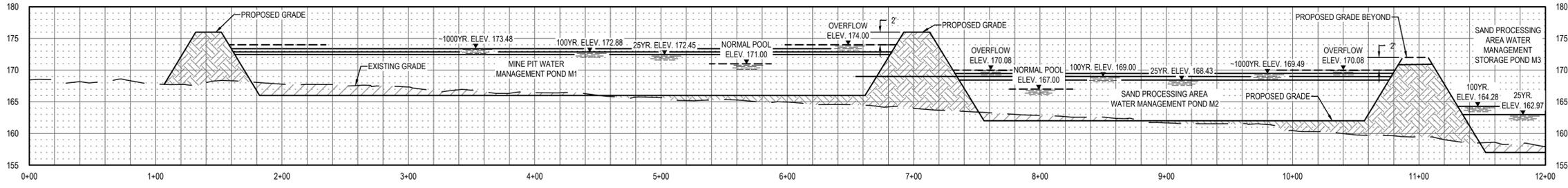
wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

CERTIFICATE OF AUTHORIZATION
ECA2221

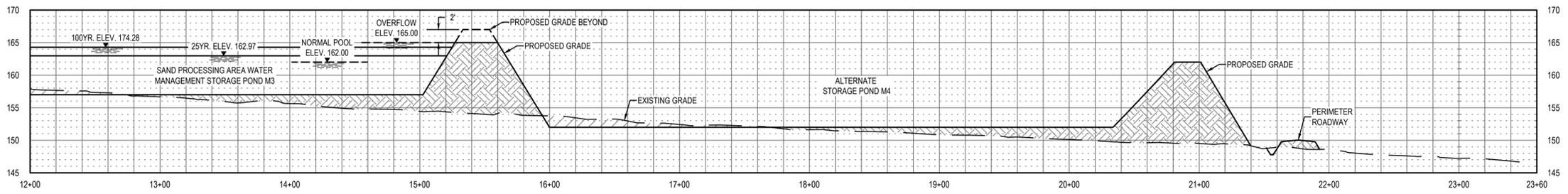
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DRAWING NO.
C-621

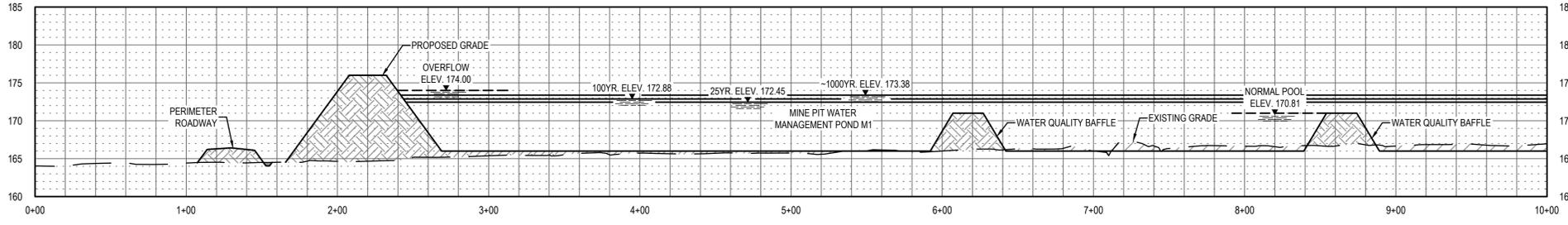
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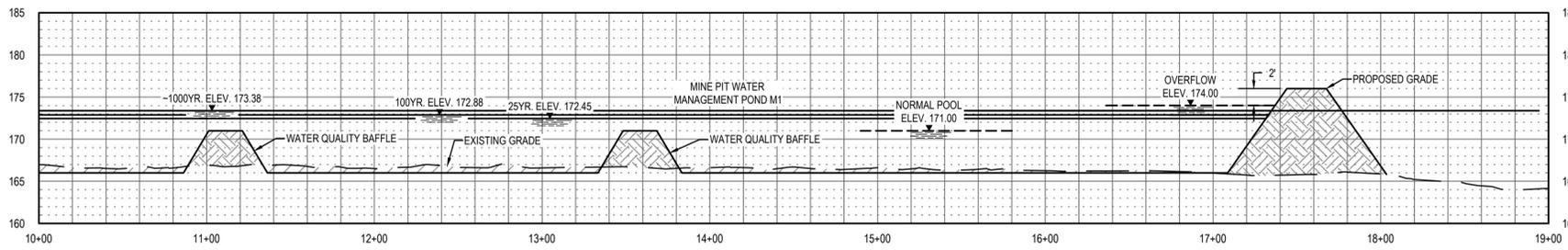
E7 SECTION THROUGH PONDS - STA. 0+00 TO STA 12+00
 C-631 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)



D7 SECTION THROUGH PONDS - STA. 12+00 TO STA 23+60
 C-631 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)



C7 MINE PIT WATER MANAGEMENT POND M1 SECTION - STA. 0+00 TO STA 10+00
 C-631 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)



B7 MINE PIT WATER MANAGEMENT POND M1 SECTION - STA. 10+00 TO STA 19+00
 C-631 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)

REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REF	NUMBER	TITLE
0		ISSUED FOR PERMITTING																				

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APPROVED FOR _____

M. FOWLER CLIENT PROJECT MGR P. MARCUM TECHNICAL MGR M. ABDALLA PROJECT MGR

PROJECT PHASE PERMITTING

PROJECT NO. 7382224061

SCALE AS SHOWN

BY DES 07FEB22 DRN 07FEB22 CHK 07FEB22 APP 07FEB22

STAMP/SEAL

TWIN PINES MINERALS LLC
 SAUNDERS DEMONSTRATION MINE
 MINE ID 2073
 WATER MANAGEMENT PONDS

AREA CERTIFICATE OF AUTHORIZATION
 ECA2221

CLIENT DWG NO.

DRAWING NO. C-631

REV 0

wood.
 4000 MEADOW LAKE DRIVE
 SUITE 121
 BIRMINGHAM, AL 35242
 (205) 980-6402

SITE CROSS SECTIONS SHEET 1

APPROVED FOR _____

M. FOWLER CLIENT PROJECT MGR P. MARCUM TECHNICAL MGR M. ABDALLA PROJECT MGR

PROJECT PHASE PERMITTING

PROJECT NO. 7382224061

SCALE AS SHOWN

BY DES 07FEB22 DRN 07FEB22 CHK 07FEB22 APP 07FEB22

STAMP/SEAL

TWIN PINES MINERALS LLC
 SAUNDERS DEMONSTRATION MINE
 MINE ID 2073
 WATER MANAGEMENT PONDS

AREA CERTIFICATE OF AUTHORIZATION
 ECA2221

CLIENT DWG NO.

DRAWING NO. C-631

REV 0

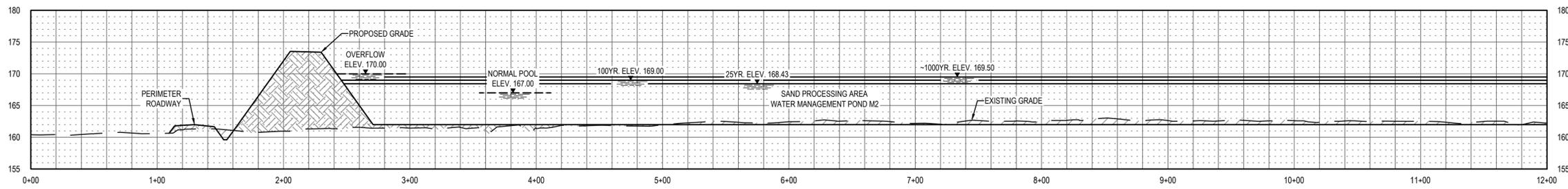
wood.
 4000 MEADOW LAKE DRIVE
 SUITE 121
 BIRMINGHAM, AL 35242
 (205) 980-6402

SITE CROSS SECTIONS SHEET 1

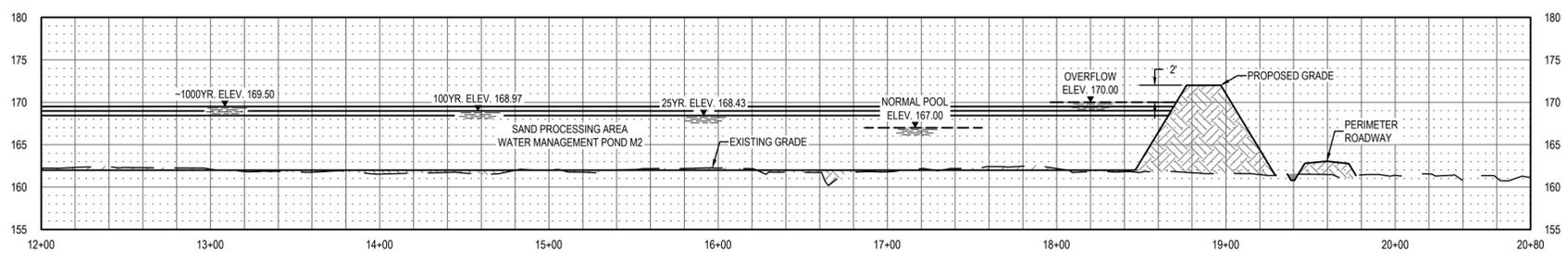
ANSI Z39-18

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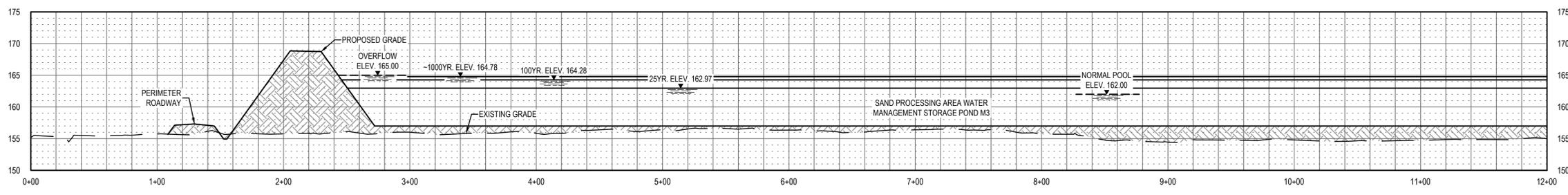
CAD FILE: W:\AD\06\03 SITE CROSS SECTIONS SHEET 1.DWG



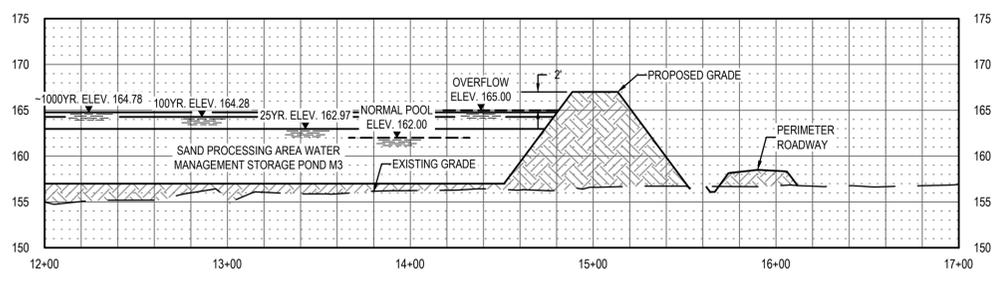
E7 SAND PROCESSING AREA WATER MANAGEMENT POND M2 SECTION - STA. 0+00 TO STA 12+00
 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)



D7 SAND PROCESSING AREA WATER MANAGEMENT POND M2 SECTION - STA. 12+00 TO 20+80
 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)



C7 SAND PROCESSING AREA WATER MANAGEMENT STORAGE POND M3 SECTION STA. 0+00 TO STA 12+00
 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)



B7 SAND PROCESSING AREA WATER MANAGEMENT STORAGE POND M3 SECTION STA. 12+00 TO STA 17+00
 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)

E

D

C

B

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REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
0	8NOV2022	ISSUED FOR PERMITTING																			

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M. FOWLER CLIENT PROJECT MGR	P. MARCUM TECHNICAL MGR	M. ABDALLA PROJECT MGR
PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
 SAUNDERS DEMONSTRATION MINE
 MINE ID 2073
 WATER MANAGEMENT PONDS

wood.
 4000 MEADOW LAKE DRIVE
 SUITE 121
 BIRMINGHAM, AL 35242
 (205) 980-6402

AREA: CERTIFICATE OF AUTHORIZATION
 ECA2221

CLIENT DWG NO.

DRAWING NO.
 C-632

REV
 0

SUBJECT	
SITE CROSS SECTIONS SHEET 2	
AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO.	C-632
REV	0

ANSI Z39-18

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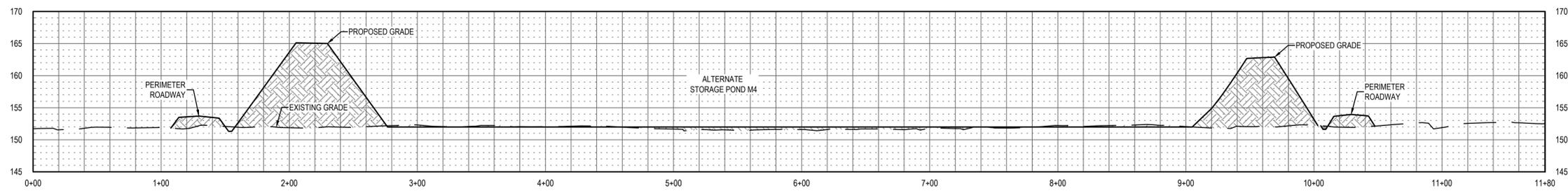
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1



E7 ALTERNATE STORAGE POND M4 SECTION
 C-633 SCALE: 1" = 50' (HORIZ) 1" = 10' (VERT)

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REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	APP	REV	DDMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP	REF	NUMBER	TITLE
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PROJECT PHASE PERMITTING		
PROJECT NO. 7382224061	BY DES 07FEB22	DDMMYY 07FEB22
SCALE AS SHOWN	CHK 07FEB22	
	APP 07FEB22	

 TWIN PINES MINERALS LLC
 SAUNDERS DEMONSTRATION MINE
 MINE ID 2073
 WATER MANAGEMENT PONDS

SUBJECT
 SITE CROSS SECTIONS SHEET 3

	
4000 MEADOW LAKE DRIVE SUITE 121 BIRMINGHAM, AL 35242 (205) 980-6402	
AREA ECA2221	CERTIFICATE OF AUTHORIZATION
CLIENT DWG NO.	
DRAWING NO. C-633	REV 0

ANSI 0:2024

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W:\AD\02\03\1 SITE CROSS SECTIONS SHEET 1.DWG



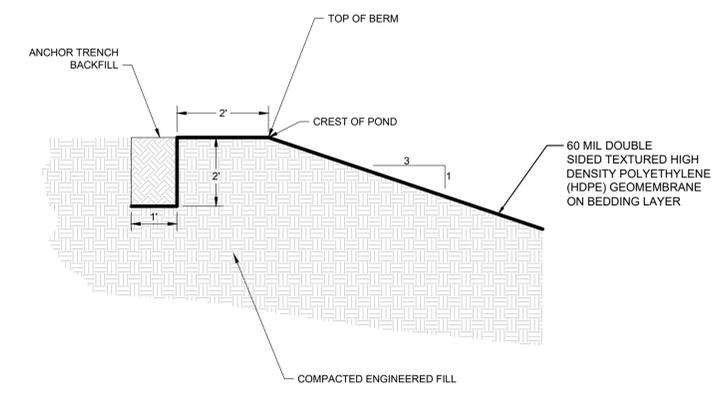
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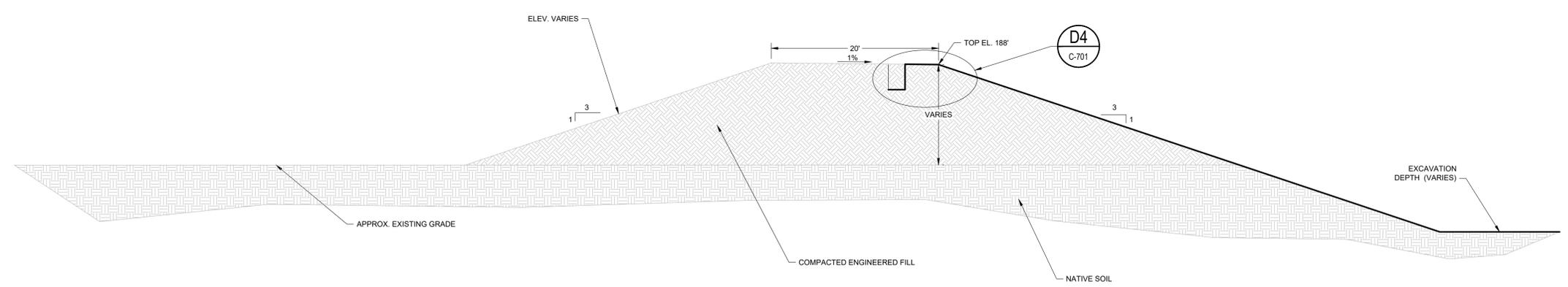
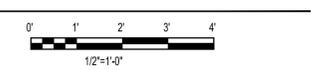
C

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D4 LINER AT TOP OF BERM
C-701 SCALE: 1/2" = 1'-0"



B7 TYPICAL WATER MANAGEMENT POND BERM
C-701 SCALE: 1/4" = 1'-0"



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PROJECT PHASE		PERMITTING		
PROJECT NO.	7382224061	BY	DES	DDMMYY
SCALE	AS SHOWN	DRN	CHK	APP
		APP		07FEB22

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA: CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-701

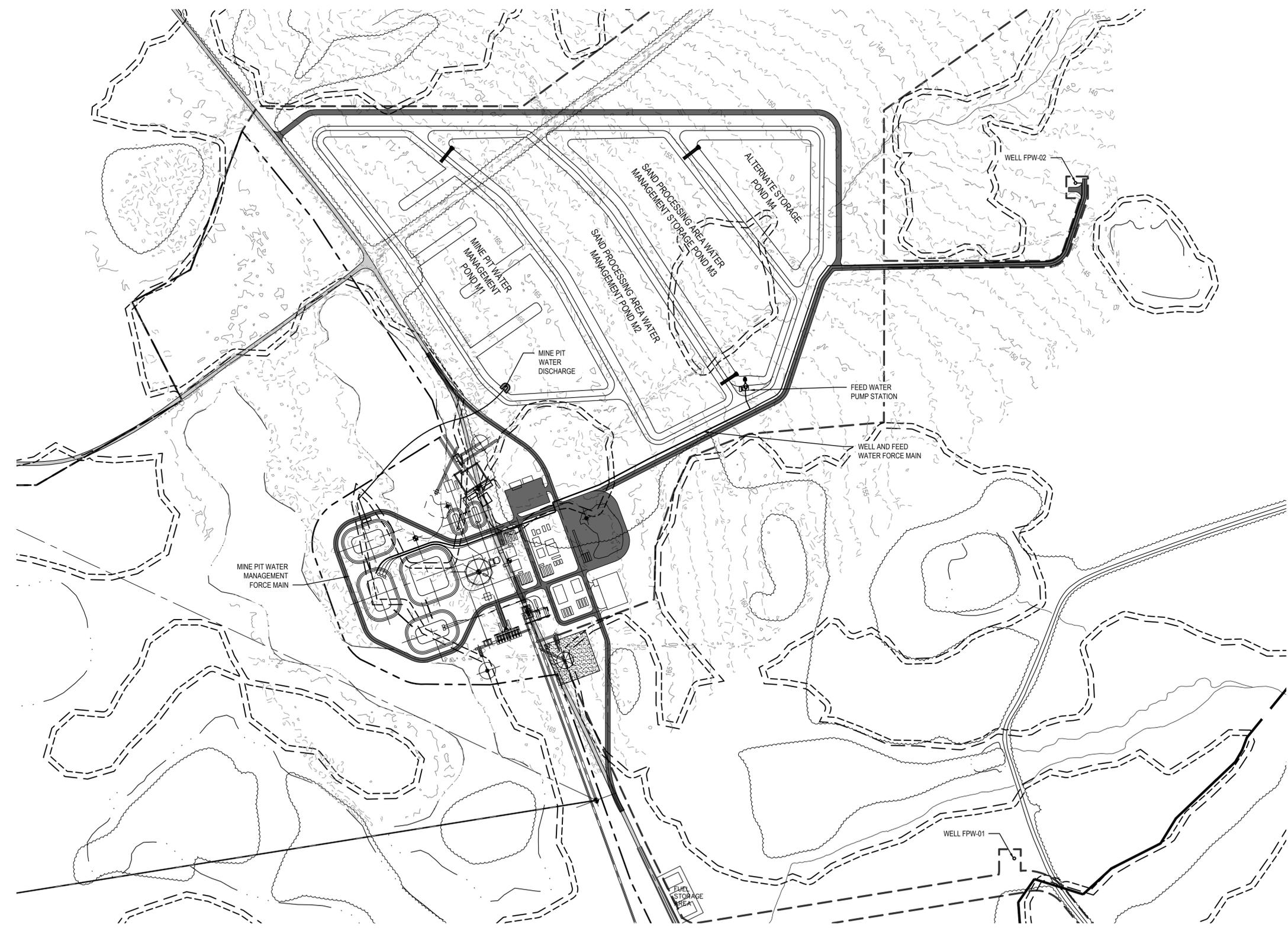
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AREA	CERTIFICATE OF AUTHORIZATION ECA2221
CLIENT DWG NO.	
DRAWING NO.	C-701
REV	0

SAVED: 10-Jun-22 11:17 AM PLOTTED: 18-Nov-22 2:55 PM USER: NICHOLSON, PETER



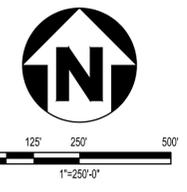
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LEGEND	
	MINE BOUNDARY
	PERMIT BOUNDARY
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR

SAUNDERS DEMONSTRATION MINE CLOSURE PLAN
REFER TO WATER USE MANAGEMENT PLAN FOR THE DETAILED CLOSURE PROCEDURES.

- PHASE 1 - MINE PIT WATER MANAGEMENT POND
- OPEN SLUICE GATES
 - DRAIN MINE PIT WATER MANAGEMENT POND
 - CLOSE SLUICE GATES
 - DECOMMISSION POND
- REMOVE LINER SYSTEM
 - REMOVE SLUICE GATES, HEADWALL AND CULVERT
 - REMOVE BERM
 - RESTORE AREA TO PRE-CONSTRUCTION CONDITIONS
- PHASE 2 - SAND PROCESSING AREA WATER MANAGEMENT POND (1)
- OPEN SLUICE GATES
 - DRAIN SAND PROCESSING AREA WATER MANAGEMENT POND (1)
 - CLOSE SLUICE GATES
 - DECOMMISSION POND
- REMOVE LINER SYSTEM
 - REMOVE SLUICE GATES, HEADWALL AND CULVERT
 - REMOVE BERM
 - RESTORE AREA TO PRE-CONSTRUCTION CONDITIONS
- PHASE 3 - ALTERNATE STORAGE POND
- PUMP ANY STANDING WATER INTO SAND PROCESSING AREA WATER MANAGEMENT POND (2)
 - DECOMMISSION POND
- REMOVE LINER SYSTEM
 - REMOVE BERM
 - RESTORE AREA TO PRE-CONSTRUCTION CONDITIONS
- PHASE 4 - SAND PROCESSING AREA WATER MANAGEMENT POND (2)
- OPEN SLUICE GATES
 - DRAIN SAND PROCESSING AREA WATER MANAGEMENT POND (2)
 - CLOSE SLUICE GATES
 - DECOMMISSION POND
- REMOVE LINER SYSTEM
 - REMOVE SLUICE GATES, HEADWALL AND CULVERT
 - REMOVE BERM
 - RESTORE AREA TO PRE-CONSTRUCTION CONDITIONS



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PROJECT PHASE		
PERMITTING		
PROJECT NO.	BY	DDMMYY
7382224061	DES	07FEB22
SCALE	DRN	07FEB22
	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-801

REV
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wood

4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
C-801

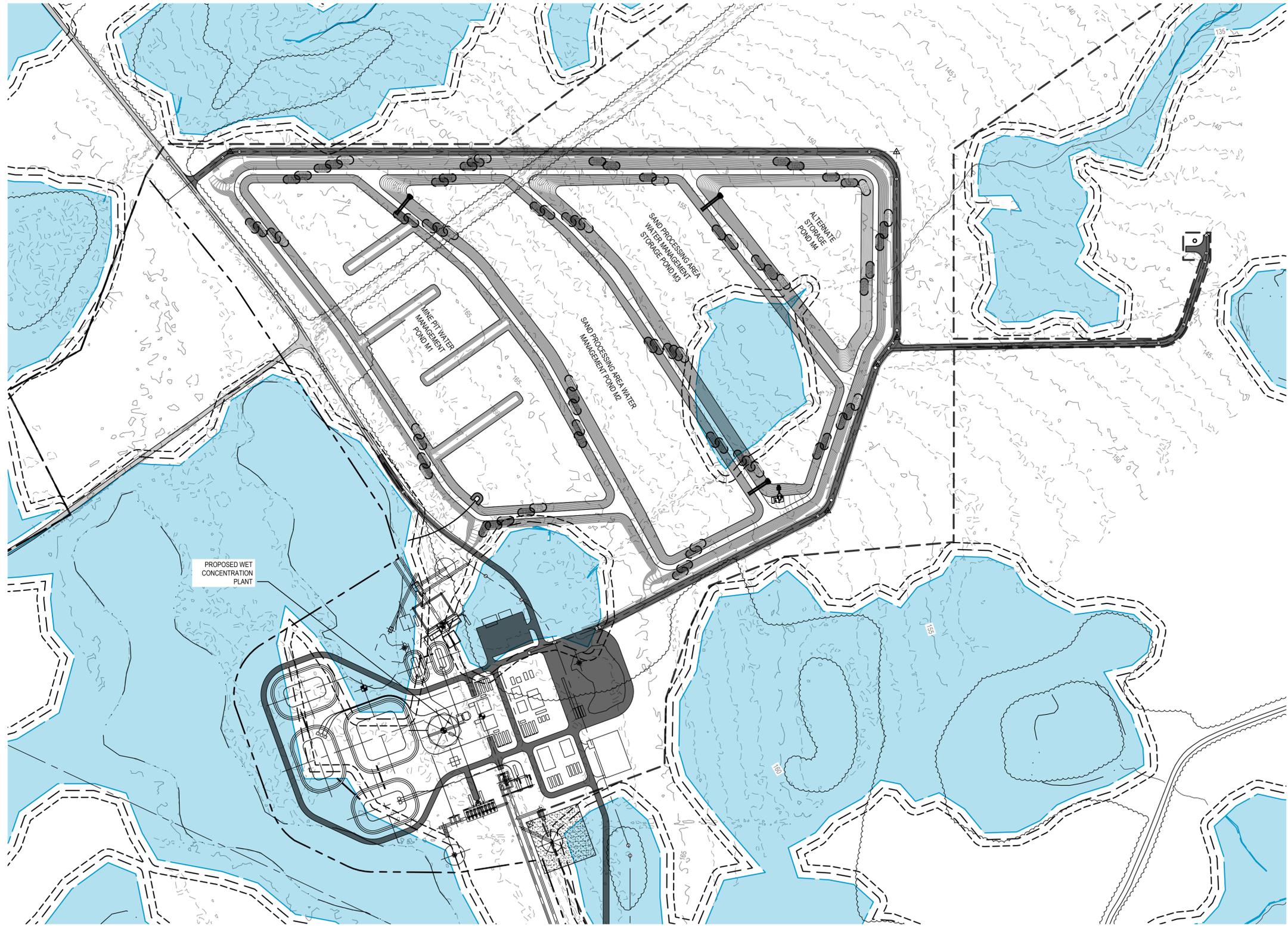
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ANSI D 2024

CAD FILE: W:\AD\02\070 POND CLOSURE PLAN.DWG

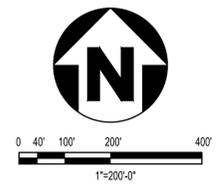


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LEGEND

- MINE BOUNDARY
- PERMIT BOUNDARY
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- WETLANDS WITH 25- AND 50-FOOT BUFFERS SHOWN



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	CHK	07FEB22
	APP	07FEB22
AS SHOWN		

TWIN PINES MINERALS LLC
SAUNDERS DEMONSTRATION MINE
MINE ID 2073
WATER MANAGEMENT PONDS

AREA: CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
FIG 1

REVISIONS

wood.
4000 MEADOW LAKE DRIVE
SUITE 121
BIRMINGHAM, AL 35242
(205) 980-6402

AREA: CERTIFICATE OF AUTHORIZATION
ECA2221

CLIENT DWG NO.

DRAWING NO.
FIG 1

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CAD FILE: W:\DRAWINGS - OVERALL GRADING AND WETLANDS.DWG