



October 10, 2023

Patrick Lennberg
Division of Reclamation, Mining & Safety
1313 Sherman Street, Room 215
Denver, CO 80203

RE: Permit No. M-2016-054 – Irwin/Thomas Mine
Slurry Wall Notice/Timeline Commitment

Holcim – WCR, Inc. submitted the site specific engineered design and specifications for the slurry wall to DRMS on October 3, 2023 to satisfy conditions specified in Technical Revision 1 (TR-01). Following the October 3rd submittal, the DRMS requested inlet/outlet structure design. Holcim commits to providing the additional design of the inlet/outlet structure within 90 days following completion of the slurry wall construction activities as Technical Revision 2 (TR-02).

Additionally, Holcim commits to providing the DRMS an extension request if unforeseen circumstances arise causing a delay in receiving the inlet/outlet and hydraulic demonstration design plans.

If you have any questions, please feel free to contact me at 702-379-4623.

Sincerely,

A handwritten signature in black ink, appearing to read 'Wyatt R. Webster', written over a horizontal line.

Wyatt R. Webster
Environmental & Land Manager

P:\20212 NCC AI Slurry Wall Irwin Thomas Property\Drawings\Plan Sheets\Slurry Wall\JT-Irwin Slurry Cover.dwg, Cover Sheet, 8/22/2023 3:50:41 PM

NORTHERN COLORADO CONSTRUCTORS, Inc.

IRWIN-THOMAS SLURRY WALL

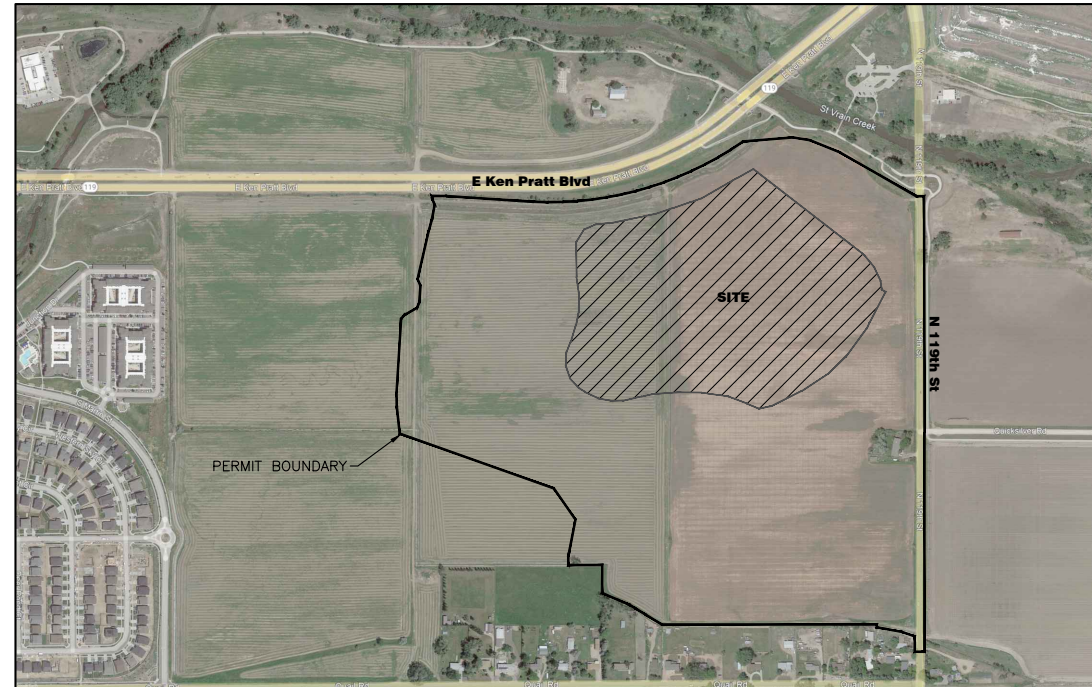
LOCATED IN
PART OF SOUTHEAST 1/4 AND EAST 1/2 SECTION 11, T2N, R69W OF THE 6TH P.M.
COUNTY of BOULDER, STATE of COLORADO
JUNE, 2023

GENERAL NOTES:

- THESE CONSTRUCTION PLANS ARE TO BE USED IN CONJUNCTION WITH THE TECHNICAL SPECIFICATIONS PREPARED BY J&T CONSULTING, INC., AND GEOTECHNICAL INVESTIGATION AND ENGINEERING DESIGN RECOMMENDATIONS PREPARED BY CMT TECHNICAL SERVICES.
- COMPLY WITH ALL REQUIREMENTS OF OWNER OBTAINED PROJECT PERMITS: INCLUDING, BUT NOT LIMITED TO, PERMITS FROM THE U.S. ARMY CORPS OF ENGINEERS AND COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT. CONTRACTOR SHALL OBTAIN ALL OTHER PERMITS NECESSARY FOR CONSTRUCTION OF THE WORK.
- PROTECT ALL EXISTING WETLANDS.
- THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIMES DURING CONSTRUCTION.
- ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE STATE OF COLORADO PERMITTING PROCESS FOR "STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY." FOR INFORMATION, PLEASE CONTACT THE COLORADO DEPARTMENT OF HEALTH, WATER QUALITY CONTROL DIVISION, 4300 CHERRY DRIVE SOUTH, DENVER, COLORADO 80246-1530. ATTENTION: PERMITS SECTION. PHONE 303-692-3500.
- IF DEWATERING IS REQUIRED, A STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT IS REQUIRED FOR DISCHARGES TO A STORM SEWER, CHANNEL, IRRIGATION DITCH, ANY STREET THAT IS TRIBUTARY TO THE AFOREMENTIONED FACILITIES, OR ANY WATER OF THE UNITED STATES.
- PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITIES TO COORDINATE SCHEDULES.
- THE CONTRACTOR SHALL REGULARLY PATROL THE PUBLIC LANDS ADJACENT TO THE PROJECT, REMOVE CONSTRUCTION DEBRIS AND KEEP AREAS CLEAN AND SAFE.
- THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND IMPLEMENTING A SEQUENCE AND SCHEDULE FOR COMPLETION OF THE WORK IN ACCORDANCE WITH APPLICABLE PROVISIONS OF THE CONTRACT DOCUMENTS.
- READ THOROUGHLY AND BECOME FAMILIAR WITH THE SPECIFICATIONS AND INSTALLATION DETAILS FOR THIS RELATED WORK PRIOR TO CONSTRUCTION.
- VERIFY SITE ELEVATIONS PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES AND FEES INCLUDING, BUT NOT LIMITED TO, ALL INSPECTION CHARGES OF AGENCIES HAVING APPROPRIATE JURISDICTION.
- CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS OF ENTIRE PROJECT, AS SPECIFIED, UPON FINAL COMPLETION OF PROJECT.

SEDIMENT AND EROSION CONTROL:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEDIMENT AND EROSION CONTROL AT THE SITE THROUGHOUT CONSTRUCTION.
- BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE USED AS NECESSARY TO ADDRESS SEDIMENT AND DUST FROM SITE DISTURBANCE. ADDITIONAL MEASURES MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.
- BMP'S MAY INCLUDE, BUT ARE NOT LIMITED TO:
 - MINIMAL DISTURBANCE FOR MINIMAL TIME PERIODS
 - GRAVEL CONSTRUCTION ENTRIES
 - SILT FENCE, STRAW BALE OR SAND BAG BARRIERS, ROCK CHECK DAMS
 - STORM SEWER INLET PROTECTION
 - SEDIMENT CAPTURE PONDS
 - SITE WATERING FOR DUST SUPPRESSION
- BMP'S SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL INSPECT BMP'S WEEKLY AND AFTER SIGNIFICANT (GREATER THAN 0.1" PRECIPITATION) STORM EVENTS. THE MAINTENANCE AND REPAIR SHALL BE COMPLETED IN A TIMELY MANNER. SEDIMENT AND DEBRIS SHALL BE REMOVED WHEN THEY REACH HALF THE BMP HEIGHT OR IMPACT THE FUNCTION OF THE BMP.
- SOIL STOCKPILES SHALL BE PROTECTED FROM SEDIMENT TRANSPORT BY SURFACE ROUGHENING, WATERING AND PERIMETER SILT FENCING. SOILS THAT WILL BE STOCKPILED FOR MORE THAN 30 DAYS SHALL BE MULCHED AND SEEDED WITH A GRASS COVER WITHIN 14 DAYS OF STOCKPILE CONSTRUCTION.
- THE CONTRACTOR SHALL INSURE THAT ALL LOADS OF CUT AND FILL SOILS IMPORTED TO OR EXPORTED FROM THE SITE ARE PROPERLY LOADED AND COVERED TO PREVENT LOSS DURING TRANSPORT.
- THE CONTRACTOR SHALL REMOVE ALL SEDIMENT, MUD, AND CONSTRUCTION DEBRIS RESULTING FROM THIS PROJECT FROM FLOWLINES AND PAVEMENT OF PUBLIC STREETS IN A TIMELY MANNER.
- SOILS EXPOSED DURING LAND DISTURBING ACTIVITY SHALL BE KEPT IN A ROUGHENED CONDITION BY RIPPING OR DISCING ALONG LAND CONTOURS UNTIL MULCH, VEGETATION OR OTHER PERMANENT EROSION CONTROL IS IN PLACE. NO SOILS SHALL REMAIN EXPOSED BY LAND DISTURBING ACTIVITY FOR MORE THAN THIRTY (30) DAYS BEFORE REQUIRED TEMPORARY OR PERMANENT EROSION CONTROL IS INSTALLED UNLESS OTHERWISE APPROVED.
- ALL TEMPORARY SEDIMENT CONTROLS WILL BE REMOVED WITHIN 30 DAYS AFTER THE FINAL STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, WHICHEVER OCCURS FIRST.
- NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHENEVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS AND FOR THE SHORTEST PRACTICAL PERIOD OF TIME.



VICINITY MAP
SCALE 1" = 500'



OWNER

Northern Colorado Constructors, Inc.
Chris Zadel
9075 County Road 10
Fort Lupton, CO 80621
303-857-1754

ENGINEER

J&T Consulting, Inc.
J.C. York
305 Denver Ave., Ste. D
Fort Lupton, CO 80621
303-857-6222

SURVEYOR

American West Land Surveying Co.
331 South 4th Avenue
P.O. Box 129
Brighton, CO 80601
303-659-1532

GEOTECHNICAL/SOIL INVESTIGATIONS

CMT Technical Services
7108 SOUTH ALTON WAY, BLDG. B
CENTENNIAL, CO 80112
303-220-0300



SHEET INDEX

- Cover Sheet**
- Horizontal Control Plan**
- Geotechnical Plan**
- Reservoir Grading Plan**
- Slurry Wall Plan & Profile Sta 0+00 to 14+00**
- Slurry Wall Plan & Profile Sta 14+00 to 28+00**
- Slurry Wall Plan & Profile Sta 28+00 to 39+00**
- Slurry Wall Plan & Profile Sta 39+00 to 46+46**

LEGEND:

---	4920	---	EXISTING CONTOURS
---	4920	---	PROPOSED CONTOURS
---		---	EXISTING RIGHT-OF-WAY
---		---	EXISTING GRAVEL ROADS
---		---	EXISTING EASEMENT
---		---	EXISTING RIGHT-OF-WAY
---		---	SECTION LINES
X		X	EXISTING FENCE
			EXISTING POWER POLE
---	OE	---	EXISTING OVERHEAD ELECTRIC
---	FO	---	EXISTING FIBER OPTIC
---	W	---	EXISTING WATER
---	ST	---	EXISTING STORM SEWER
---	G	---	EXISTING GAS
---	IRR	---	EXISTING IRRIGATION CHANNEL
			JT-B1 (Blow Counts)
---		---	SLURRY WALL
---		---	MINING CELL BOUNDARY

Engineer's Certification

I hereby certify that these plans for the construction of the Irwin-Thomas Slurry Wall were prepared by me or under my direct supervision for Northern Colorado Constructors, Inc.

James C. York
James C. York, P.E.
Colorado Registration No. 36846

J&T Consulting, Inc.



305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222
www.jtconsulting.com

Irwin-Thomas Slurry Wall

Cover Sheet

Northern Colorado Constructors

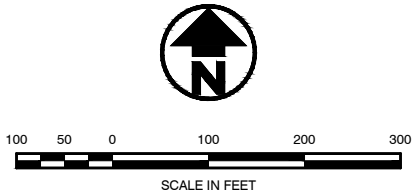
ISSUED FOR CONSTRUCTION

REVISIONS			
No	Date	By	Description



Job #	22012
Date	8.22.23
Drawn By	KUL
Designed By	TPY
Checked By	JCY
File	JT-Irwin Slurry Cover.dwg
Scale	As Shown

Sheet: 1 of 8



Line Table				
Line #	Length	Direction	Start Point	End Point
L1	203.52	N79° 40' 33.85"E	N: 1298833.95 E: 3118156.10	N: 1298870.42 E: 3118356.33
L2	120.30	N60° 14' 42.60"E	N: 1299043.90 E: 3118831.94	N: 1299103.61 E: 3118936.39
L3	636.05	S52° 33' 14.84"E	N: 1299096.18 E: 3119046.82	N: 1298709.46 E: 3119551.79
L4	58.26	S24° 46' 53.40"E	N: 1298597.03 E: 3119641.76	N: 1298544.14 E: 3119666.18
L5	108.63	S26° 59' 45.63"W	N: 1298456.83 E: 3119664.49	N: 1298360.03 E: 3119615.18
L6	141.09	S63° 05' 53.08"W	N: 1297965.97 E: 3119220.46	N: 1297902.13 E: 3119094.64
L7	53.20	N69° 11' 12.82"W	N: 1297897.83 E: 3119013.86	N: 1297916.73 E: 3118964.14
L8	94.87	S77° 12' 40.41"W	N: 1297953.14 E: 3118445.13	N: 1297932.14 E: 3118352.61
L9	33.61	N64° 45' 29.09"W	N: 1297953.34 E: 3118158.27	N: 1297967.67 E: 3118127.88
L10	143.98	N16° 48' 48.92"E	N: 1298182.55 E: 3118032.33	N: 1298320.38 E: 3118073.98
L11	51.36	N8° 02' 26.42"W	N: 1298492.03 E: 3118087.15	N: 1298542.89 E: 3118079.96
L12	141.08	N0° 49' 39.22"W	N: 1298593.06 E: 3118076.07	N: 1298734.12 E: 3118074.03

Curve Table							
Curve #	Radius	Length	Chord Direction	Chord Length	Delta	Start Point	End Point
C1	1500.00	508.70	N69° 57' 38"E	506.27	19.43	N: 1298870.4224 E: 3118356.3283	N: 1299043.9024 E: 3118831.9433
C2	100.00	117.29	S86° 09' 16"E	110.68	67.20	N: 1299103.6077 E: 3118936.3854	N: 1299096.1848 E: 3119046.8155
C3	300.00	145.42	S38° 40' 04"E	144.00	27.77	N: 1298709.4619 E: 3119551.7896	N: 1298597.0311 E: 3119641.7599
C4	100.00	90.37	S1° 06' 26"W	87.33	51.78	N: 1298544.1393 E: 3119666.1787	N: 1298456.8305 E: 3119664.4912
C5	900.00	567.09	S45° 02' 49"W	557.76	36.10	N: 1298360.0348 E: 3119615.1798	N: 1297965.9663 E: 3119220.4637
C6	100.00	83.28	S86° 57' 20"W	80.89	47.72	N: 1297902.1280 E: 3119094.6419	N: 1297897.8318 E: 3119013.8634
C7	900.00	527.82	N85° 59' 16"W	520.29	33.60	N: 1297916.7334 E: 3118964.1388	N: 1297953.1368 E: 3118445.1284
C8	300.00	199.13	N83° 46' 24"W	195.49	38.03	N: 1297932.1371 E: 3118352.6139	N: 1297953.3404 E: 3118158.2743
C9	180.00	256.26	N23° 58' 20"W	235.16	81.57	N: 1297967.6717 E: 3118127.8764	N: 1298182.5510 E: 3118032.3307
C10	400.00	173.52	N4° 23' 11"E	172.16	24.85	N: 1298320.3778 E: 3118073.9787	N: 1298492.0317 E: 3118087.1460
C11	400.00	50.36	N4° 26' 03"W	50.32	7.21	N: 1298542.8859 E: 3118079.9620	N: 1298593.0591 E: 3118076.0714
C12	100.00	140.50	N39° 25' 26"E	129.23	80.50	N: 1298734.1234 E: 3118074.0338	N: 1298833.9485 E: 3118156.1010

ISSUED FOR CONSTRUCTION

REVISIONS				Description
No	Date	By	Chk	

Job # 22012
Date 8.22.23
Drawn By TPY
Designed By TPY
Checked By JCY
File JT-Irwin-Slurry.dwg
Scale As Shown

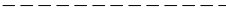
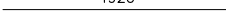
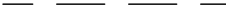
Sheet: 2 of 8

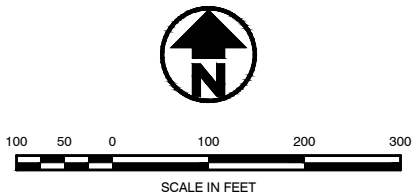
Northern Colorado Constructors

Irwin-Thomas Slurry Wall

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303.857.6222 Fax: 303.857.6224
www.jtconsulting.com

Horizontal Control Plan

	EXISTING CONTOURS
	PROPOSED CONTOURS
	EXISTING RIGHT-OF-WAY
	EXISTING GRAVEL ROADS
	EXISTING EASEMENT
	EXISTING RIGHT-OF-WAY
	SECTION LINES
	EXISTING FENCE
	EXISTING POWER POLE
	EXISTING OVERHEAD ELECTRIC
	EXISTING FIBER OPTIC
	EXISTING WATER
	EXISTING STORM SEWER
	EXISTING GAS
	EXISTING IRRIGATION CHANNEL
 JT-B1 (Blow Counts)	BORING LOCATION
	SLURRY WALL
	MINING CELL BOUNDARY

[illegible]

Job #	22012
Date	8.22.23
Drawn By	KJL
Designed By	TPY
Checked By	JCY
File	JT-Irwin-Slurry.dwg
Scale	As Shown

Sheet: **3** Of: **8**

Irwin-Thomas Slurry Wall

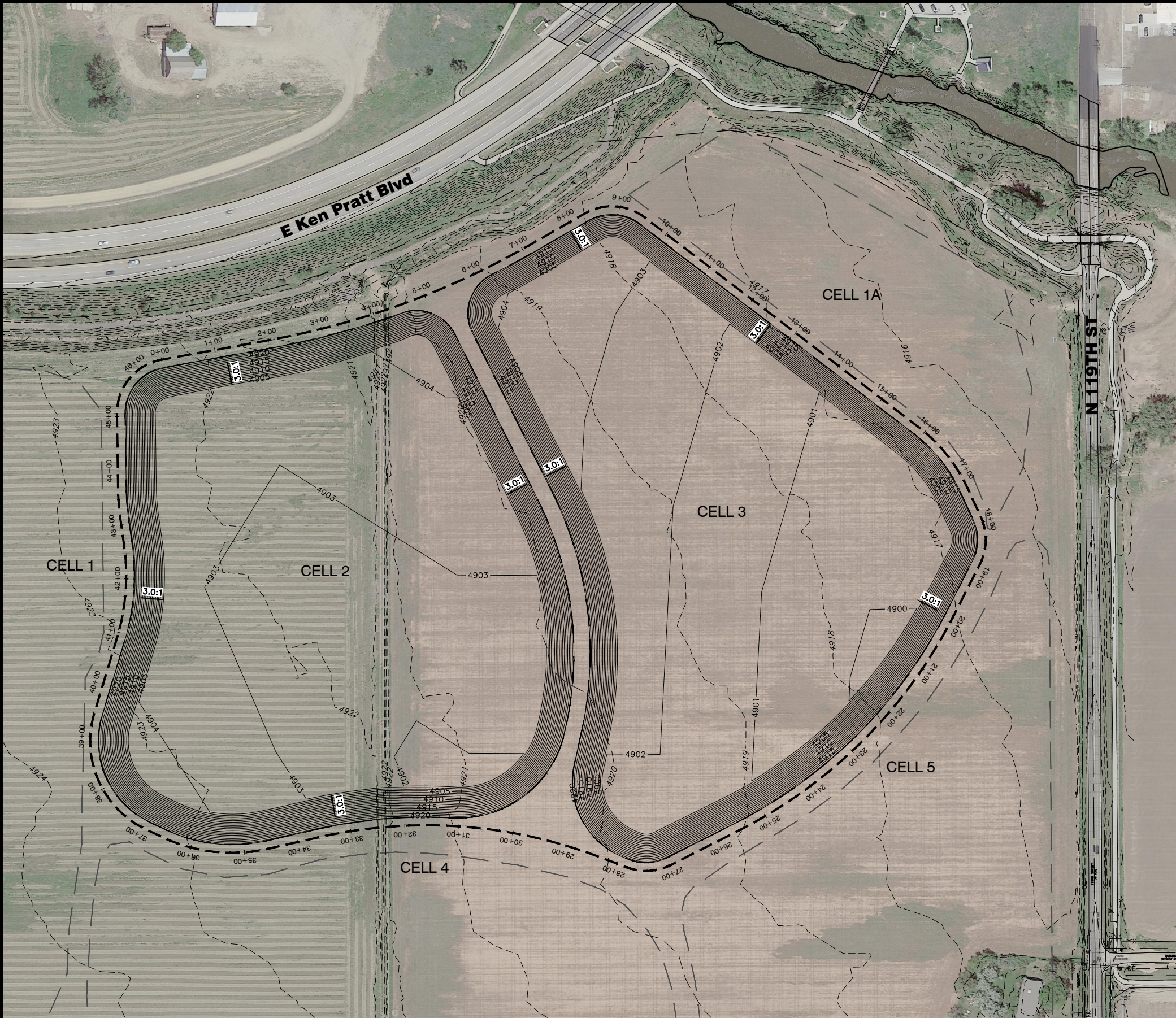
Irwin-Thomas Slurry Wall

Northern Colorado Constructors

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222 Fax: 303-857-6224
www.j-tconsulting.com

Geotechnical Plan

P:\22012 NCC AI Slurry Wall Irwin Thomas Property\Drawings\Plan Sheets\Slurry Wall\JT-Irwin-Slurry.dwg, Reservoir Grading Plan, 8/22/2023 3:51:06 PM



LEGEND:

- 4920--- EXISTING CONTOURS
- 4920--- PROPOSED CONTOURS
- EXISTING RIGHT-OF-WAY
- EXISTING GRAVEL ROADS
- EXISTING EASEMENT
- EXISTING RIGHT-OF-WAY
- SECTION LINES
- X X EXISTING FENCE
- Q EXISTING POWER POLE
- OE EXISTING OVERHEAD ELECTRIC
- FO EXISTING FIBER OPTIC
- W EXISTING WATER
- ST EXISTING STORM SEWER
- G EXISTING GAS
- IRR EXISTING IRRIGATION CHANNEL
- ⊕ JT-B1 (Blow Counts)
- SLURRY WALL
- MINING CELL BOUNDARY



ISSUED FOR CONSTRUCTION

REVISIONS				Description	
No	Date	By	Chk		

Job # 22012
Date 8.22.23
Drawn By KJL
Designed By TPY
Checked By JCY
File JT-Irwin-Slurry.dwg
Scale As Shown

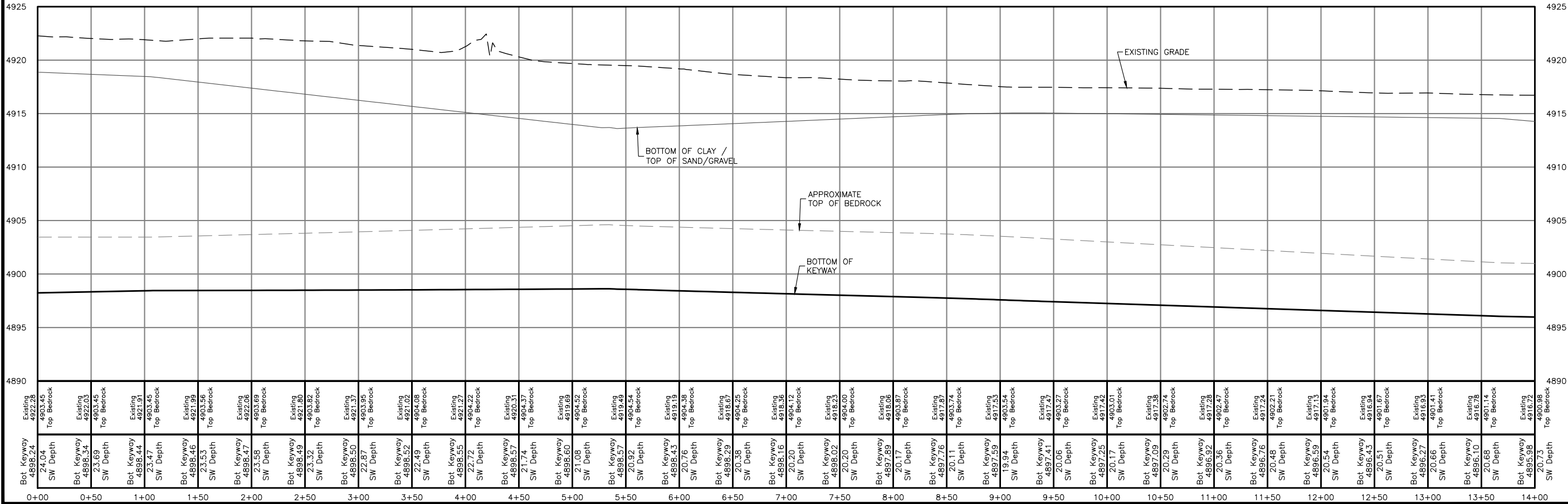
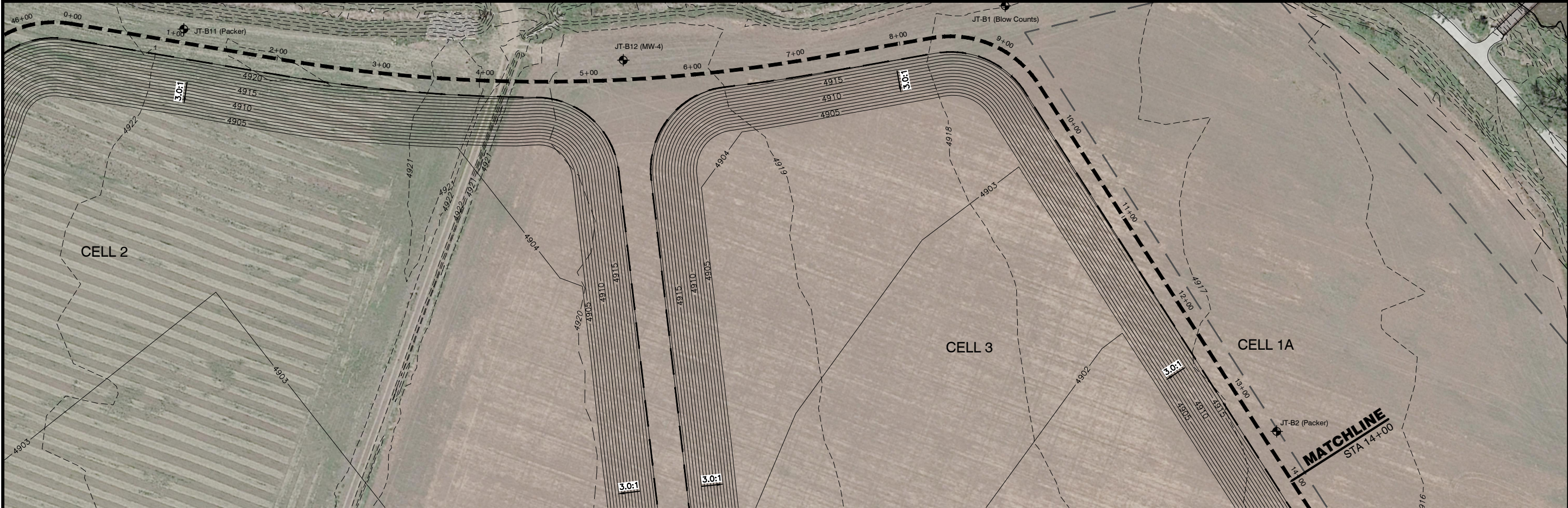
Sheet: 4 of 8

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222 Fax: 303-857-6224
www.jtconsulting.com

Irwin-Thomas Slurry Wall

Northern Colorado Constructors

Geotechnical Plan



ISSUED FOR CONSTRUCTION



Job #	22012
Date	8.22.23
Drawn By	TPY
Designed By	TPY
Checked By	JCY
File	JT-Irwin-Slurry.dwg
Scale	As Shown

Sheet: 5 of 8

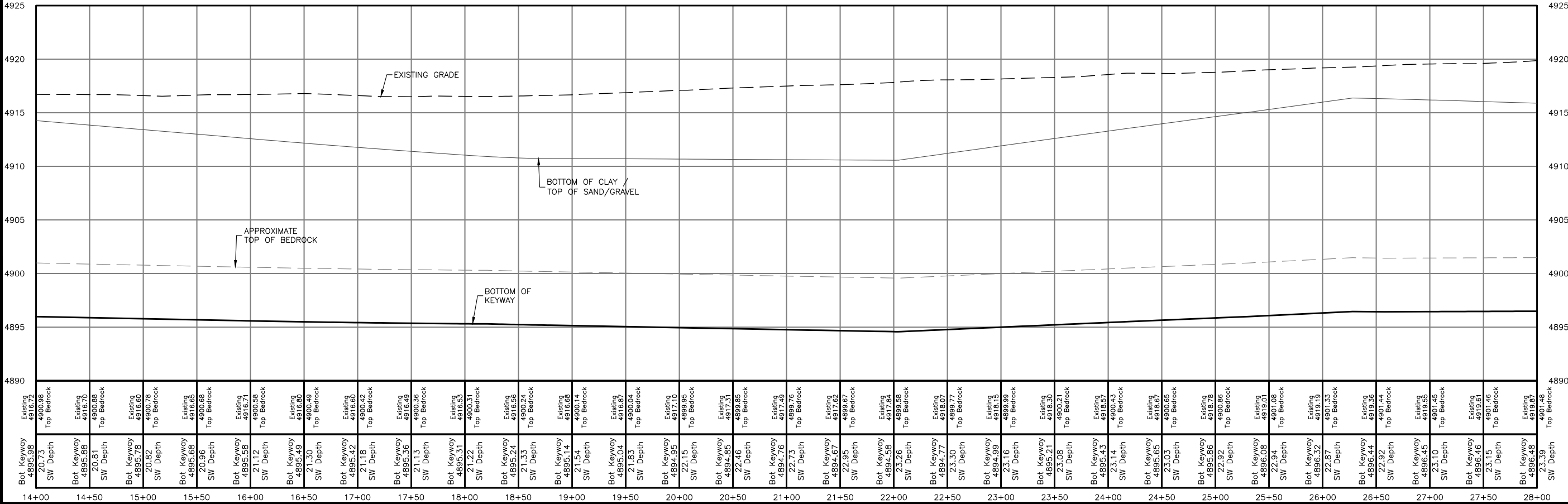
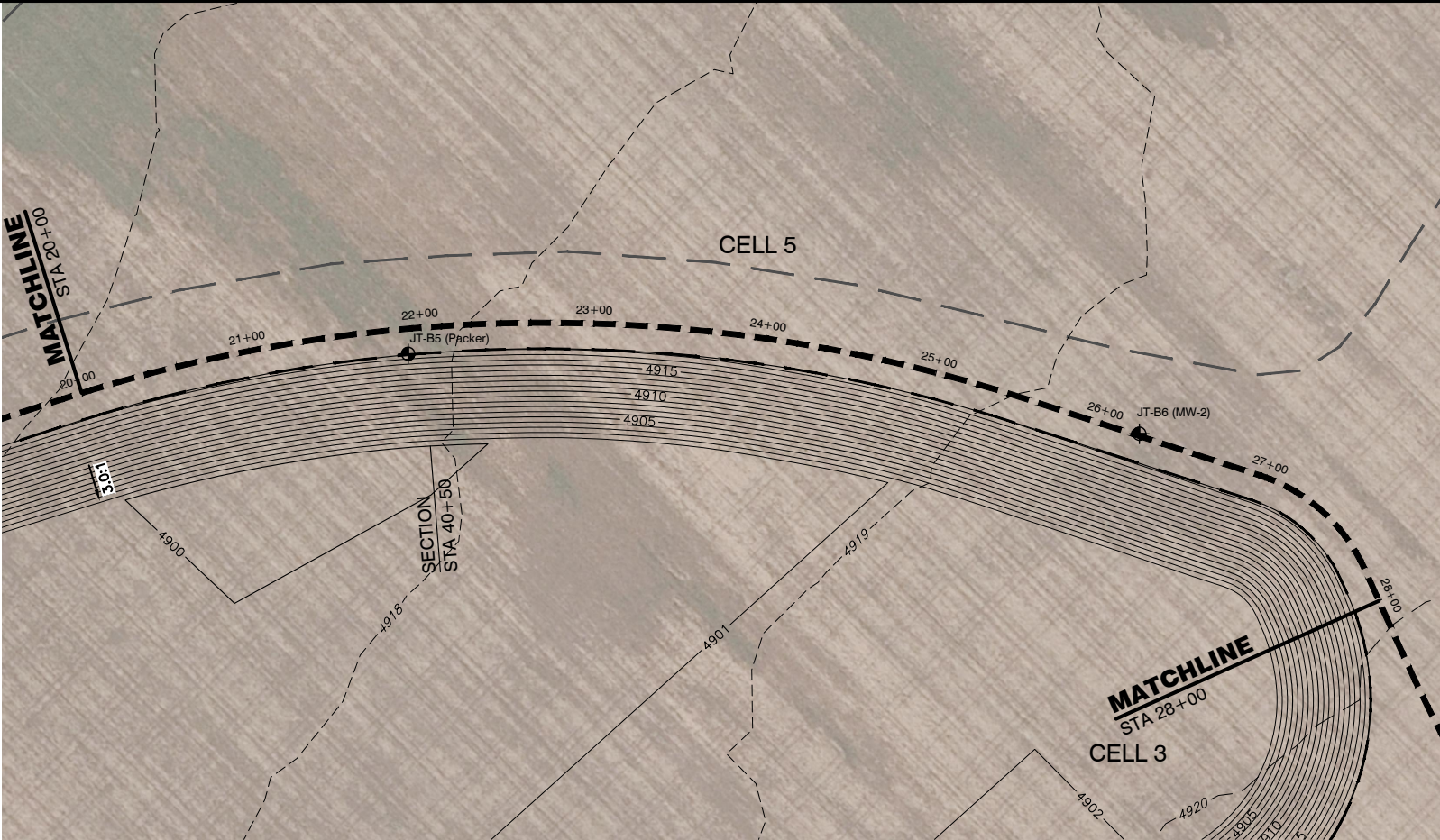
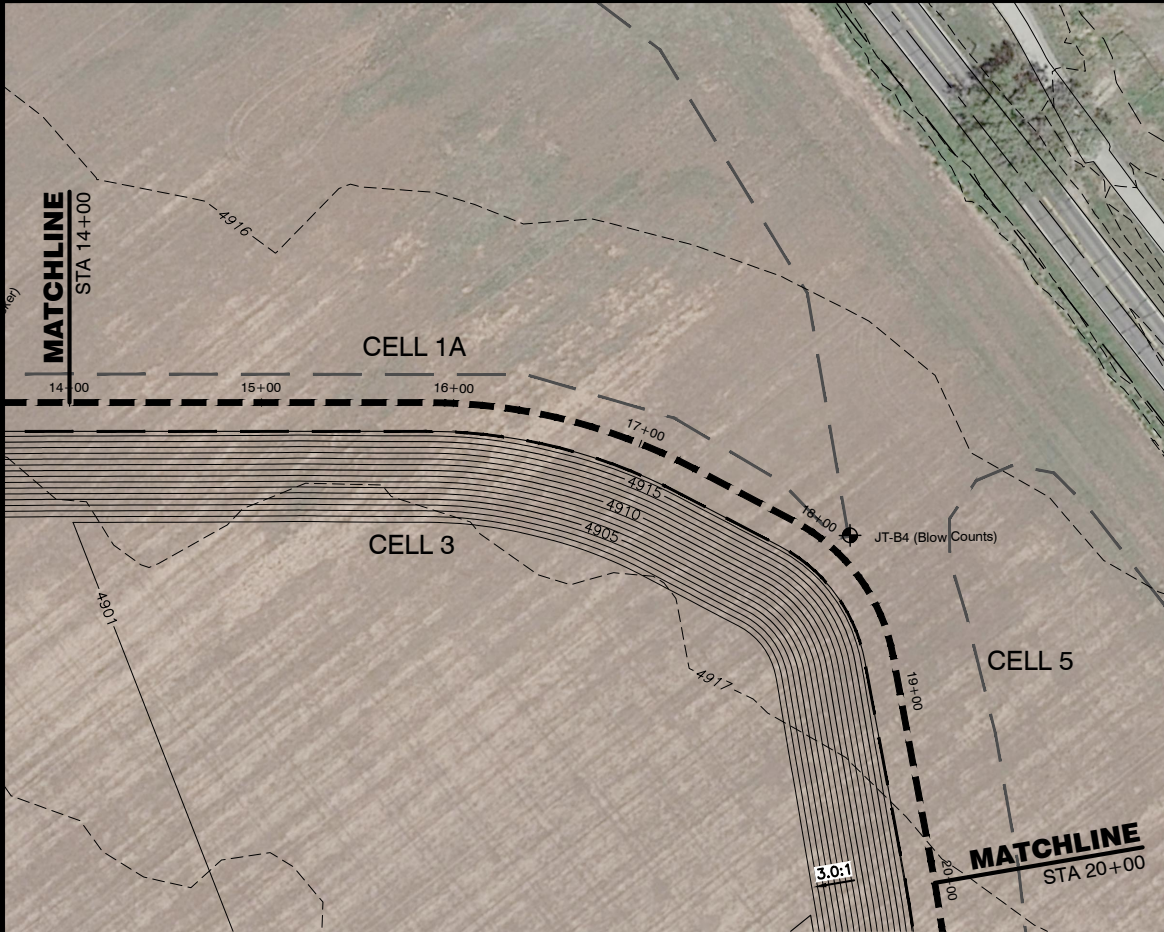
Northern Colorado Constructors

Irwin-Thomas Slurry Wall

Slurry Wall Plan & Profile
Sta 0+00 To 14+00

J&T Consulting, Inc.

305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303.857-6222 Fax: 303.857-6224
www.jtconsulting.com



ISSUED FOR CONSTRUCTION

REVISIONS			
No	Date	By	Description



Job #	22012
Date	8.22.23
Drawn By	TPY
Designed By	TPY
Checked By	JCY
File	JT-Irwin-Slurry.dwg
Scale	As Shown

Sheet: 6 of 8

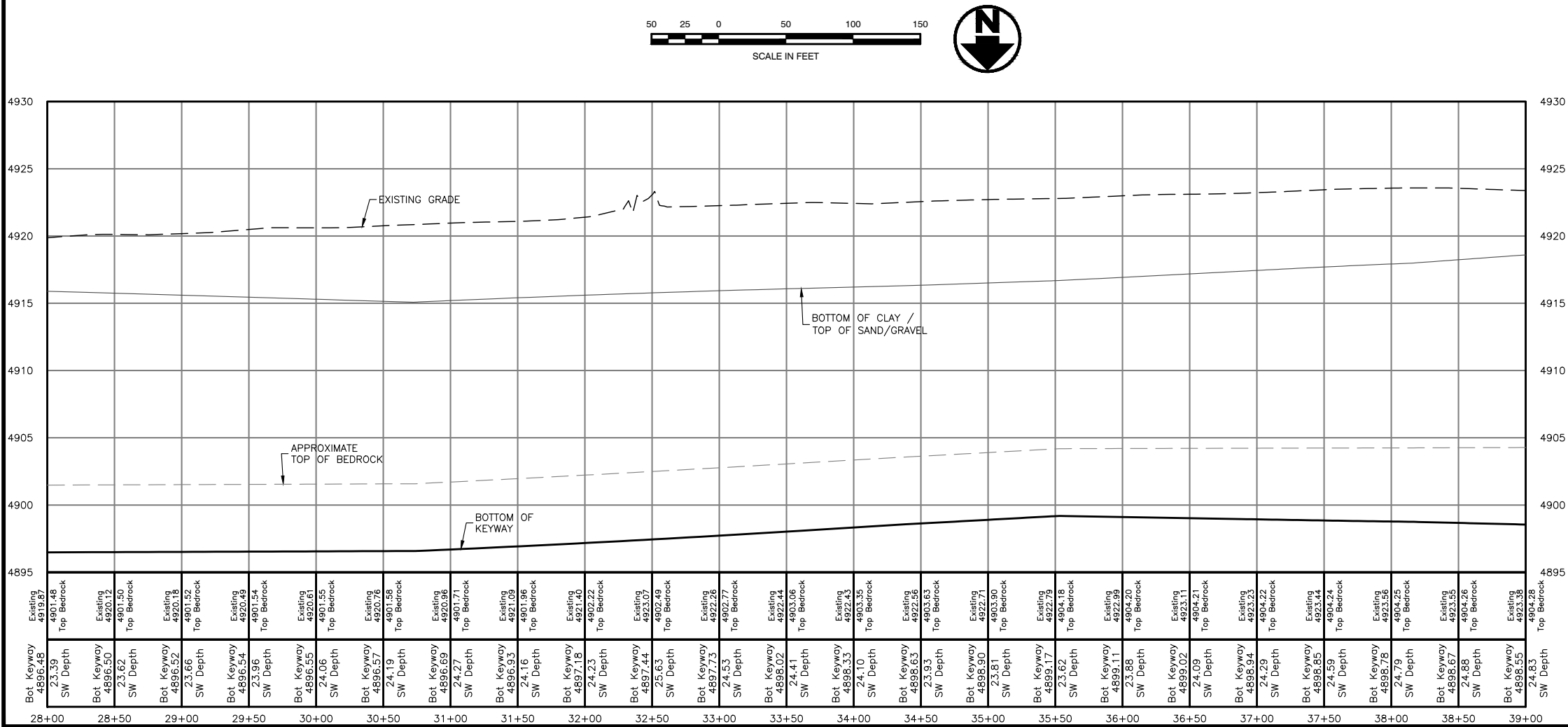
Northern Colorado Constructors

Irwin-Thomas Slurry Wall

Slurry Wall Plan & Profile
Sta 14+00 To 28+00

J&T Consulting, Inc.

305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303.857.6222 Fax: 303.857.6224
www.jtconsulting.com



Slurry Wall Plan & Profile
Sta 28+00 To 39+00

305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222 Fax: 303-857-6224
www.j-tconsulting.com

[illegible]

Northern Colorado Constructors

Irwin-Thomas Slurry Wall

Slurry Wall Plan & Profile
Sta 39+00 To 46+46



J&T Consulting, Inc.

305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222 Fax: 303-857-6224
www.j-tconsulting.com