WEST CACHE IRRIGATION COMPANY
BUTTARS LATERAL CANAL PIPING PROJECT

CORNISH, UT

2026

WEST CACHE IRRIGATION COMPANY

Tom Griffin ..... President

Nick Creech ..... Vice President

Ryan Merrill ..... Board Member

Alan Noble ..... Board Member

Mike Spackman ..... Board Member

Dale Buxton ..... Treasurer / Secretary

Mason Gunnell .....Water Master / On Site Supervisor / Manager

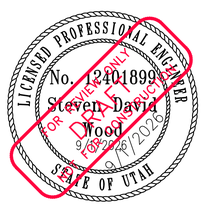
ENGINEERING CONSULTANTS (SE)

Sunrise Engineering

Scott Archibald, P.E. ..... Principal Engineer

Steven Wood, P.E. ..... Project Manager

Haiming Peng, P.E. ..... Project Engineer

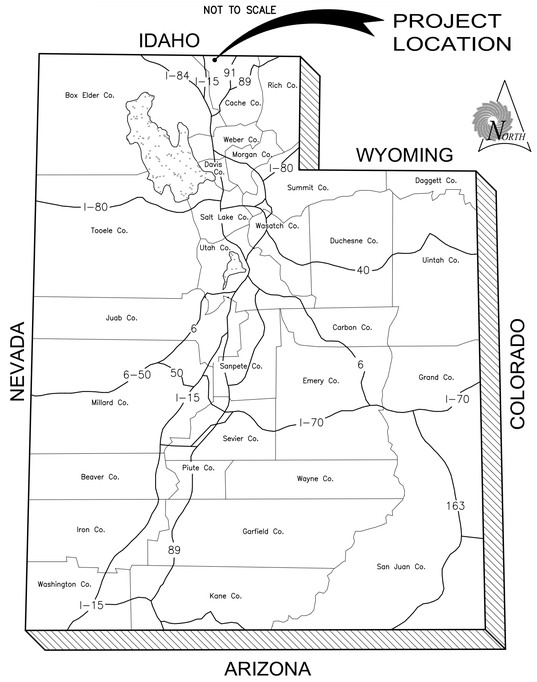


SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
sunrise-eng.com

90% PRELIMINARY PLAN

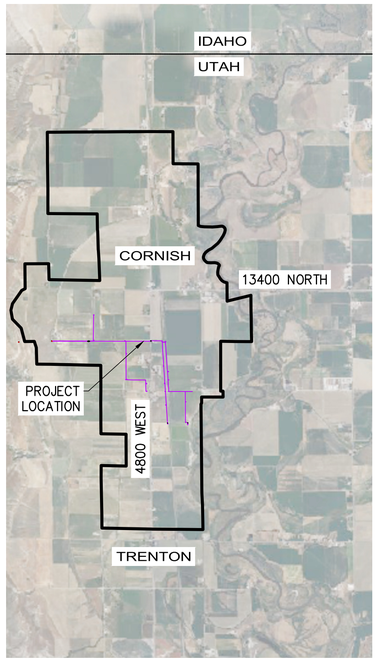
P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-GN1.dwg Sep 01, 2026 11:15am jpiley

AREA MAP



STATE OF UTAH

LOCATION MAP



CACHE VALLEY

SHEET INDEX

1 - GENERAL:	DWG. NO.	SHEET NO.
COVER SHEET	GN1	1
AREA AND LOCATION MAPS AND SHEET INDEX	GN2	2
ABBREVIATIONS AND LEGEND	GN3	3
GENERAL NOTES AND DESIGN CRITERIA	GN4	4
OVERVIEW MAP AND INDEX	GN5	5
OVERALL SITE MAP	GN6	6
2 - DIVERSION STRUCTURE:		
DEMOLITION PLAN	DS1	7
SITE PLAN	DS2	8
GRADING PLAN	DS3	9
SECTION VIEW	DS4	10
3 - PUMP STATION:		
DEMOLITION PLAN	PS1	11
SITE PLAN	PS2	12
GRADING PLAN	PS3	13
MECHANICAL PIPING LAYOUT	PS4-PS5	14-15
4 - ELECTRICAL:		
ELECTRICAL NOTES AND SYMBOLS	E100	16
INLET ONE-LINE & PANEL SCHEDULE	E201	17
INLET SCHEDULES	E202	18
INLET SITE PLAN	E203	19
PUMP STATION ONE-LINE & PANEL SCHEDULES	E301	20
PUMP STATION SCHEDULES	E302	21
PUMP STATION SITE PLAN	E303	22
DETAILS	E401	23
DETAILS	E402	24

5 - CONTROLS:	DWG. NO.	SHEET NO.
LEGEND	I1	25
INTAKE STRUCTURE	I2	26
PUMP STATION	I3	27
6 - ALIGNMENT 1:		
PLAN AND PROFILE	PP1-PP10	28-37
7 - ALIGNMENT 2:		
PLAN AND PROFILE	PP11-PP13	38-40
8 - ALIGNMENT 3:		
PLAN AND PROFILE	PP14-PP17	41-44
9 - ALIGNMENT 4:		
PLAN AND PROFILE	PP18-PP19	45-46
10 - ALIGNMENT 1:		
PLAN AND PROFILE	PP20	47
11 - DETAILS:		
PIPELINE DETAILS	D1-D3	48-50
SERVICE CONNECTION SIZE	D4	51
THRUST BLOCK DETAILS	D5	52

811 Know what's **below.** **Call** before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Woolf 9/01/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
GENERAL
AREA AND LOCATION MAPS AND SHEET INDEX

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	2 of 52	GN2

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-GN2.dwg Sep 01, 2026 11:15am jjolley

ABBREVIATIONS

ABC	AGGREGATE BASE COURSE
AC	ASPHALT CONCRETE
BCF	BRASS CAP FLUSH
BCHH	BRASS CAP IN HAND HOLE
BCR	BEGIN CURB RETURN
BM	BENCHMARK
BSW	BACK OF SIDEWALK
BTM	BOTTOM
CB	CATCH BASIN
C/L	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
CONST	CONSTRUCTION
CY	CUBIC YARD
DI	DUCTILE IRON
D/W	DRIVEWAY
DWG	DRAWING
DTL	DETAIL
E	EAST
ECR	END CURB RETURN
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
ESMT	EASEMENT
EX, EXIST	EXISTING
EG	EXISTING GROUND
FC	FACE OF CURB
FES	FLARED END SECTION
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLANGE
FND	FOUND
FO	FIBER OPTIC
FPS	FEET PER SECOND
FSW	FRONT OF SIDEWALK
FT	FOOT, FEET
G	GAS, GUTTER, GRADE
GB	GRADE BREAK
GPM	GALLONS PER MINUTE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HP	HIGH POINT
HW	HIGHWATER
IN.	INCH, INCHES
INV	INVERT
IRR, IRRIG	IRRIGATION
L	LENGTH
LF	LINEAR FEET
LT	LEFT
MH	MANHOLE
MJ	MECHANICAL JOINT
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO.	NUMBER
OHE	OVERHEAD ELECTRIC
OPNG	OPENING
P/L	PROPERTY LINE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PCC	PORTLAND CEMENT CONCRETE
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
R/W	RIGHT-OF-WAY
RGRCP	RUBBER GASKETED REINFORCED CONCRETE PIPE
RJ	RESTRAINED JOINT
RT	RIGHT
S	SEWER, SLOPE, SOUTH
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FEET
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
SWK	SIDEWALK
SY	SQUARE YARD
TAN	TANGENT
TBC	TOP BACK OF CURB
T, TEL	TELEPHONE
TL	TRUE LENGTH
TOC	TOP OF CONCRETE
TOW	TOP OF WALL
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
UPRR	UNION PACIFIC RAILROAD
VNAE	VEHICLE NON-ACCESS EASEMENT
Vr	VOLUME REQUIRED
Vp	VOLUME PROVIDED
W	WATER, WEST, WITH
XFMR	TRANSFORMER

LEGEND

EXISTING

- EXISTING CONCRETE
- EXISTING PAVEMENT TO BE REMOVED
- EXISTING PAVEMENT TO REMAIN
- irr — EXISTING IRRIGATION LINE
- x"s — EXISTING SEWER LINE
- x"sd — EXISTING STORM DRAIN
- x"w — EXISTING WATER LINE
- ohe — EXISTING OVERHEAD ELECTRIC
- uge — EXISTING UNDERGROUND ELECTRIC
- c — EXISTING CABLE (TV) LINE
- fo — EXISTING FIBER OPTIC LINE
- t — EXISTING UNDERGROUND TELEPHONE
- g — EXISTING GAS LINE
- x — x — EXISTING BARBED WIRE FENCE
- EXISTING EASEMENT
- EXISTING FLOWLINE
- EXISTING PROPERTY LINE
- X 1443.08 — EXISTING SPOT ELEVATION
- 1440 — EXISTING CONTOUR
- EXISTING BRASS CAP MONUMENT
- EXISTING SIGN
- IR — EXISTING IRRIGATION MANHOLE
- EXISTING IRRIGATION VALVE
- EXISTING DRYWELL
- EXISTING SEWER CLEANOUT
- S — EXISTING SEWER MANHOLE
- EXISTING CATCH BASIN
- SD — EXISTING STORM DRAIN MANHOLE
- EXISTING STORM DRAIN W/ STRUCTURE
- W — EXISTING AIR VAC
- EXISTING FIRE HYDRANT
- U — EXISTING UNKNOWN MANHOLE
- EXISTING GATE VALVE
- EXISTING REDUCER
- W — EXISTING WATER MANHOLE (OR WELL)
- WM — EXISTING WATER METER
- C — EXISTING CABLE MANHOLE
- E — EXISTING ELECTRIC MANHOLE
- EXISTING GUY WIRE
- EXISTING LIGHT POLE
- EXISTING POWER POLE
- EJ — EXISTING ELECTRICAL JUNCTION BOX
- ET — EXISTING ELECTRICAL TRANSFORMER
- T — EXISTING TELEPHONE MANHOLE
- T — EXISTING TELEPHONE PEDESTAL
- G — EXISTING GAS MANHOLE
- GM — EXISTING GAS METER
- EXISTING GAS RISER
- EXISTING GAS VALVE
- EXISTING VEGETATION

PROPOSED

- PROPOSED CONCRETE
- PROPOSED PAVEMENT
- X"IRR — EXISTING IRRIGATION LINE
- X"S — PROPOSED SEWER LINE
- X"SD — PROPOSED STORM DRAIN
- X"W — PROPOSED WATER LINE
- OHE — PROPOSED OVERHEAD ELECTRIC
- UGE — PROPOSED UNDERGROUND ELECTRIC
- C — PROPOSED CABLE (TV) LINE
- FO — PROPOSED FIBER OPTIC LINE
- T — PROPOSED UNDERGROUND TELEPHONE
- X"G — PROPOSED GAS LINE
- X — X — PROPOSED BARBED WIRE FENCE
- PROPOSED EASEMENT
- PROPOSED FLOWLINE
- PROPOSED PROPERTY LINE
- X 1443.08 — PROPOSED SPOT ELEVATION
- 1440 — PROPOSED CONTOUR
- PROPOSED (PLACED) BRASS CAP MONUMENT
- PROPOSED SIGN
- IR — PROPOSED IRRIGATION MANHOLE
- PROPOSED IRRIGATION VALVE
- PROPOSED DRYWELL
- PROPOSED SEWER CLEANOUT
- S — PROPOSED SEWER MANHOLE
- PROPOSED CATCH BASIN
- SD — PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN W/ STRUCTURE
- W — PROPOSED AIR VAC
- PROPOSED FIRE HYDRANT
- PROPOSED FITTINGS
- PROPOSED GATE VALVE
- PROPOSED REDUCER
- W — PROPOSED WATER MANHOLE (OR WELL)
- WM — PROPOSED WATER METER
- C — PROPOSED CABLE MANHOLE
- E — PROPOSED ELECTRIC MANHOLE
- PROPOSED GUY WIRE
- PROPOSED LIGHT POLE
- PROPOSED POWER POLE
- T — PROPOSED TELEPHONE MANHOLE
- G — PROPOSED GAS MANHOLE
- GM — PROPOSED GAS METER
- PROPOSED GAS RISER
- PROPOSED GAS VALVE
- PROPOSED VEGETATION

OTHER

- GB — GRADE BREAK
- HIGH WATERLINE
- LOT LINE
- RIGHT-OF-WAY
- ROADWAY CENTERLINE
- SECTION LINE
- SETBACK LINE
- POINT OF VERTICAL INTERSECTION
- B / DT2 — PLAN, SECTION, OR DETAIL LABEL / DRAWING TITLE/SHEET NUMBER
- 6.56 — TBC ELEVATION (x1000')
- 6.3 — LOT ELEVATION (x1000')
- BASIN ULTIMATE OUTFALL LOCATION AND DIRECTION
- GRADE BREAK (PROFILE SYMBOL)

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-GN3.dwg Sep 01, 2026 11:15am jjolley

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER — No. 12401899 — Steven David Wood — 9/01/2026 — STATE OF UTAH — FOR REVIEW ONLY — NOT FOR CONSTRUCTION

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
GENERAL
ABBREVIATIONS AND LEGEND

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	3 of 52	GN3

GENERAL NOTES

1. ALL WORK, TESTING AND MATERIALS SHALL CONFORM TO THE PROJECT CONSTRUCTION PLANS, SPECIFICATIONS, DETAILS, AND CONTRACT DOCUMENTS UNLESS SPECIFICALLY STATED OTHERWISE IN THESE PLANS. ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THESE PLANS AND SPECIFICATIONS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

2. AN APPROVED SET OF PLANS AND SPECIFICATIONS SHALL BE AVAILABLE ON THE JOB SITE AT ALL TIMES AS WELL AS A COPY OF ALL PERMITS AND AGREEMENTS.

3. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF EXISTING PERMITS, RENEWAL OF LAPSED PERMITS, AND OBTAINING ANY NEW PERMITS.

4. CONTRACTOR SHALL PROVIDE FOR INSPECTIONS AND TESTING AS REQUIRED BY THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL COORDINATE TESTING AND NOTIFY THE ENGINEER 24 HOURS PRIOR TO TESTS. ALL TESTING IS TO BE CONDUCTED BY A PROPERLY CERTIFIED, INDEPENDENT 3RD PARTY.

5. THE CONTRACTOR SHALL NOTIFY THE CLIENT AND THE ENGINEER AT LEAST 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION. CONSTRUCTION CONCEALED WITHOUT THE REQUIRED INSPECTIONS / OBSERVATIONS SHALL BE SUBJECT TO EXPOSURE AT THE CONTRACTOR'S EXPENSE.

6. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITIES IN THE WORK AREA. HOWEVER, THE ENGINEER WILL NOT GUARANTEE UTILITY ELEVATIONS OR LOCATIONS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. CALL BLUE STAKES OF UTAH 811 OR 1-800-662-4111 AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION BEGINS.

7. THE CONTRACTOR SHALL FOLLOW GUIDELINES AND REGULATIONS SET FORTH BY O.S.H.A. SUNRISE ENGINEERING, INC. WILL NOT BE RESPONSIBLE FOR JOB-SITE SAFETY PROCEDURES OR CONDITIONS.

8. THE CONTRACTOR IS RESPONSIBLE FOR HIS OWN TAKEOFF QUANTITIES. QUANTITIES SHOWN HEREON ARE ESTIMATES ONLY AND AS SUCH ARE NOT TO BE USED FOR BID PURPOSES.

9. THE CONTRACTOR IS RESPONSIBLE FOR THE NOTIFICATION OF THE PROPER AUTHORITY (OR AUTHORITIES) IF THERE ARE OBSTRUCTIONS TO PROPOSED IMPROVEMENTS AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY EXISTING ITEM REMOVED TO FACILITATE CONSTRUCTION SHALL BE REPLACED IN THE SAME OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.

10. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL ON AND AROUND THE CONSTRUCTION SITE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. ACCESS TO RESIDENTIAL BUILDINGS AND BUSINESSES SHALL BE MAINTAINED AT ALL TIMES

11. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS FOR CLEANING TRUCKS AND/OR OTHER EQUIPMENT OF MUD PRIOR TO ENTERING PUBLIC STREETS, AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS, AND TAKE WHATEVER MEASURES ARE NECESSARY TO ENSURE THAT ALL ROADS ARE MAINTAINED IN A CLEAN, MUD AND DUST FREE CONDITION AT ALL TIMES. NO WORK WILL BE CONSIDERED COMPLETE UNTIL ALL PAVEMENTS HAVE BEEN SWEPT CLEAN OF DIRT AND DEBRIS.

12. FOR UNDERGROUND UTILITY WORK, CONTRACTOR SHALL EXPOSE (POT-HOLE) ALL TIE-IN POINTS TO VERIFY LOCATION AND ELEVATION PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES.

13. ANY AMBIGUITIES OR DEFICIENCIES DISCOVERED ON THESE PLANS ARE TO BE RESOLVED BY SUNRISE ENGINEERING OR ITS APPOINTED REPRESENTATIVE. IF ANYONE MODIFIES THESE DRAWINGS OTHER THAN SUNRISE ENGINEERING OR ITS APPOINTED REPRESENTATIVE, HE OR SHE IS SOLELY RESPONSIBLE FOR THOSE MODIFICATIONS.

14. THE CONTRACTOR CERTIFIES THAT THE CONTRACTOR HAS BEEN PROVIDED FULL OPPORTUNITY TO REVIEW THE CONSTRUCTION DOCUMENTS AND FIELD CONDITIONS SO AS TO ENSURE THAT THE CONTRACTOR FULLY UNDERSTANDS THE DESIGN INTENT SHOWN AND THAT ALL ELEMENTS FOR CONSTRUCTION SHOWN THEREON HAVE BEEN INCLUDED IN THE BID. BY SUBMITTING A BID ON THIS WORK, LABOR AND MATERIAL EXPRESSLY OR IMPLICITLY REQUIRED FOR THE PROJECT AND THAT ANY ERRORS OR OMISSIONS IN THE CONSTRUCTION DOCUMENTS HAVE BEEN BROUGHT TO THE ATTENTION OF THE ENGINEER IN A TIMELY MANNER SO AS TO ALLOW CORRECTIONS TO THE CONSTRUCTION DOCUMENTS BY WAY OF AN ADDENDUM. THE CONTRACTOR AGREES TO WAIVE ANY CLAIM FOR EXTRA COST OR DELAY RELATED TO ANY ERROR OR OMISSION ON THE CONSTRUCTION DOCUMENTS THAT REASONABLY SHOULD HAVE BEEN OBSERVED PRIOR TO COMMENCING WORK ON THE PROJECT.

15. AN EFFORT HAS BEEN MADE TO SHOW THE EXISTING SYSTEM AND THE PROPOSED IMPROVEMENTS AS ACCURATELY AS POSSIBLE. HOWEVER, THE ACTUAL FIELD CONDITIONS MAY VARY. ADDITIONAL WORK MAY BE REQUIRED AND LIKEWISE PROPOSED WORK MAY BE ELIMINATED BASED ON ACTUAL FIELD CONDITIONS. THE ADDITION OR ELIMINATION OF WORK SHALL BE DECIDED BY THE OWNER.

16. THE CONTRACTOR SHALL PROVIDE MEANS OF MANAGING ANY STORM WATER, GROUNDWATER, OR NUISANCE WATER FROM INTERFERING WITH THE CONSTRUCTION OPERATION. COST OF CONTROLLING ALL WATER SHALL BE INCLUDED IN THE CONTRACT PRICE FOR RELATED BID ITEMS.

17. THE CONTRACTOR SHALL INCLUDE THE COST FOR ALL EXCAVATION, AND DISPOSAL OF EXCESS AND UNSUITABLE MATERIAL IN THE CONTRACT UNIT PRICE FOR THE RELATED BID ITEM.

18. ALL OTHER COSTS ASSOCIATED WITH THIS PROJECT SHALL BE INCLUDED IN THE PRICES INDICATED IN THE BID SCHEDULE FOR THE VARIOUS APPURTENANT ITEMS OF WORK.

19. ALL DAMAGE TO EXISTING ROADWAYS OTHER THAN THAT REPLACED AS PART OF THE CONSTRUCTION PROCESS SHALL BE REPLACED OR REPAIRED AT THE CONTRACTORS EXPENSE.

20. ALL DITCHES SHALL BE RESTORED TO PRE CONSTRUCTION CONDITIONS AND SHALL NOT BE DISTURBED DURING IRRIGATION SCHEDULES WITHOUT APPROVAL OF OWNER.

21. IRRIGATION SYSTEM SHALL BE IN OPERATION BY IRRIGATION SEASON, WHICH BEGINS (APRIL 15 – OCTOBER 15).

22. FENCES REMOVED FOR THE WORK SHALL BE REPLACED IN KIND. TEMPORARY FENCING MAY BE REQUIRED TO CONTROL LIVESTOCK. WHEN REMOVING A FENCE THE CONTRACTOR SHALL CONTROL AND PREVENT LIVESTOCK FROM ESCAPING.

23. CLASS 3500 CONCRETE IS REQUIRED FOR ALL CONCRETE PLACED IN THE PROJECT.

24. ALL BENCHMARKS AND SURVEY CONTROL STAKES PROVIDED BY THE OWNER'S ENGINEER FOR THE CONSTRUCTION OF THE PROJECT SHALL BE PROTECTED FROM DISTURBANCE. IF CONTROL STAKES ARE DISTURBED OR REMOVED PREMATURELY, THE WORK OF RE-STAKING SHALL BE DONE BY THE OWNER'S ENGINEER AT THE CONTRACTOR'S EXPENSE.

25. COMPACTION OF ALL MATERIALS SHALL BE IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS.

26. CONTRACTOR TO FIELD VERIFY ALL THRESHOLD ELEVATIONS, EXIT ELEVATIONS AND CONNECTION ELEVATIONS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF DISCREPANCIES OCCUR BETWEEN THE PLANS AND FIELD MEASUREMENTS BEFORE INSTALLATION OF THE GATES.

27. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL ENCROACHMENT PERMITS REQUIRED BY UDOT, UNION PACIFIC RAILROAD, CORNISH TOWN, AND / OR CACHE COUNTY.

DESIGN CRITERIA

PUMP STATION DESIGN REQUIREMENTS

THE MINIMUM REQUIREMENTS USED TO GENERATE THIS DESIGN ARE AS FOLLOWS:

- SCREEN DESIGN FLOW: 36.8 CFS
- SCREEN SAFETY FACTOR: 2.0
- PUMP STATION DESIGN FLOW: 30.1 CFS
- PUMP DESIGN FLOW: 20.1 CFS

IRRIGATION PIPE DESIGN REQUIREMENTS

NINE (9) DIFFERENT MAIN-LINE CARRIER PIPES WILL BE UTILIZED IN THIS PROJECT AND EACH WILL REQUIRE A MINIMUM RATING OF 125 PSI. THE PIPELINES WERE SIZED WITH A MAX AVERAGE VELOCITY OF 5 FT/SEC WITH AN ABSOLUTE MAX OF 6.5 FT/SEC. ALL PIPE SHALL BE PVC P.I.P. DR-32.5 PIPE, HDPE P.I.P. DR-17 PIPE, OR APPROVED EQUAL. MINIMUM BURST PRESSURE SHALL BE 400 PSI IN ACCORDANCE WITH ASTM D2241. THE PIPE SHALL HAVE A JOINT DEFLECTION OF 1.5° OR MORE.

PIPE SIZE	MATERIAL	SPECIFICATION	PRESSURE RATING	MAXIMUM CAPACITY (GPM) @ 5 FT/S
2	HDPE	P.I.P. DR 17	125 PSI	48
4	PVC	P.I.P. DR 32.5	125 PSI	196
6	PVC	P.I.P. DR 32.5	125 PSI	440
8	PVC	P.I.P. DR 32.5	125 PSI	783
10	PVC	P.I.P. DR 32.5	125 PSI	1223
12	PVC	P.I.P. DR 32.5	125 PSI	1762
15	PVC	P.I.P. DR 32.5	125 PSI	2752
24	PVC	P.I.P. DR 32.5	125 PSI	7046
30	PVC	P.I.P. DR 32.5	125 PSI	11010

SEED MIXTURE FOR RE-SEEDING DISTURBED GROUND

SPECIES	VARIETY	PLS RATE LBS/ACRE	BULK RATE LBS/ACRE	% OF MIX
SAINFOIN	ESKI	1.7	1.87	5%
BURNET, SMALL	DELAR	1.3	1.52	5%
WHEATGRASS, INTERMEDIATE	RUSH	3.5	4.09	40%
WHEATGRASS, CRESTED	HIGH	1.75	2.17	40%
WILDRYE, BASIN	MAGNAR	0.8	1.18	10%
TOTAL		9.05	10.83	100%

811 Know what's **below.** **Call** before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12301899 Steven David Wood 9/5/2025 STATE OF UTAH — NOT FOR CONSTRUCTION

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
GENERAL
GENERAL NOTES AND DESIGN CRITERIA

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	4 of 52	GN4

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-GN4.dwg Sep 01, 2026 11:15am jpilley

90% PRELIMINARY PLAN

GENERAL NOTES

DRAINAGE DIRECTION

DRAIN LOCATION

NORTH

PP19
PP18
PP1
PP2
PP3
PP4
PP5
PP6
PP7
PP8
PP9
PP10
PP11
PP12
PP13
PP14
PP15
PP16
PP17
PP20
DS1
DS2
DS3
PS1
PS2
PS3
13000 NORTH
12600 NORTH
12300 NORTH
4800 WEST
400 WEST
4400 WEST
UNION PACIFIC RAILROAD
WEST CACHE CANAL

SCALE
0 350' 700'
HORIZ: 1" = 350' : 22 x 34
HORIZ: 1" = 700' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER
No. 12401899
Steven David Wood
9/01/2026
STATE OF UTAH
NOT FOR CONSTRUCTION

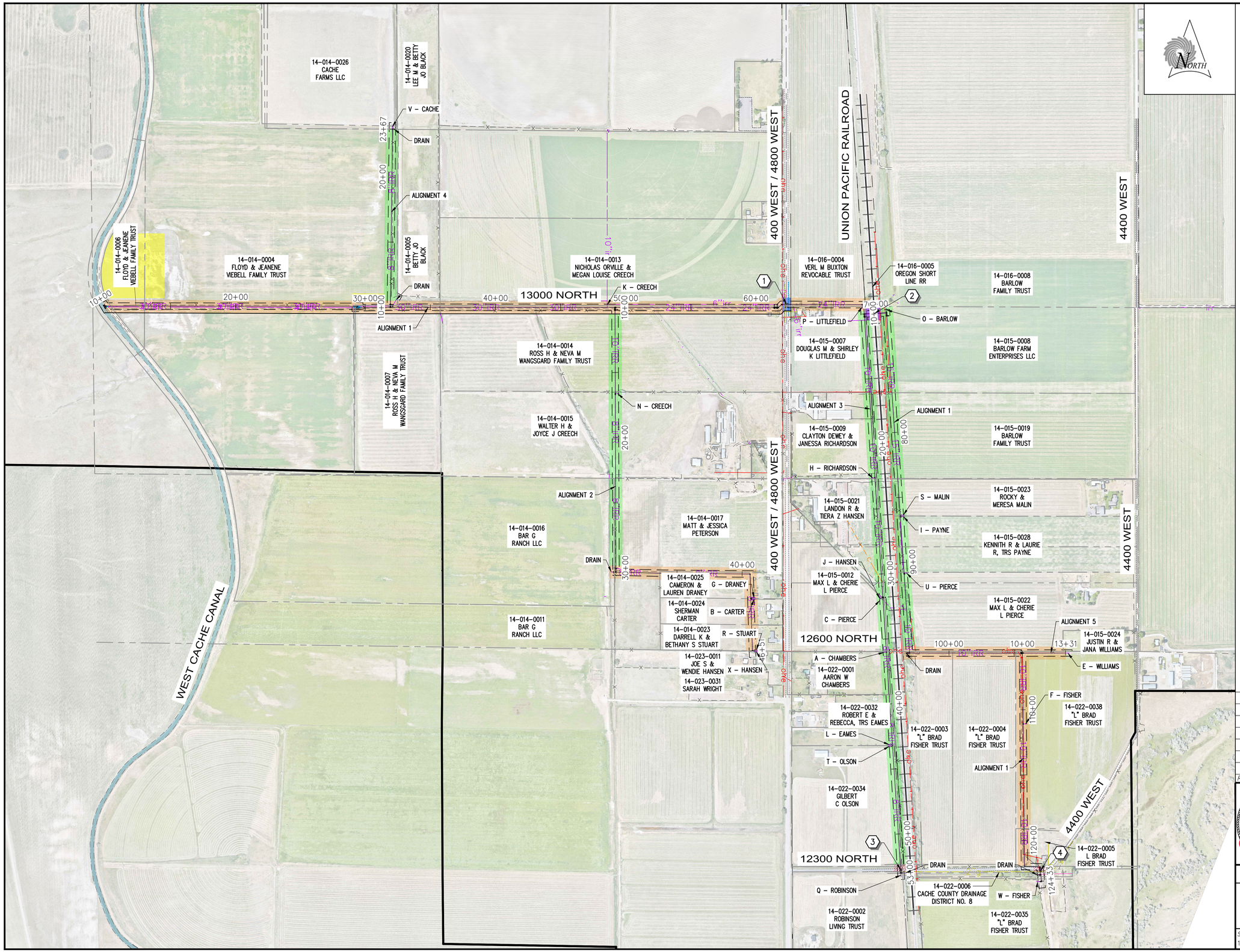
SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
GENERAL
OVERVIEW MAP AND INDEX

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	5 of 52	GN5

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-GN5.dwg Sep 01, 2026 11:17am jipley



GENERAL NOTES

- STAGING AREAS
- RECLAIM EXISTING CANAL 10,993 LINEAR FEET
- OPEN FIELD INSTALLATION 8,808 LINEAR FEET
- UDOT ROAD CROSSING 66 LINEAR FEET
- UPRR CROSSING 120 LINEAR FEET
- LOCAL ROAD CROSSING 102 LINEAR FEET

PERPETUAL EASEMENT WIDTH: 25'

CONSTRUCTION EASEMENT WIDTH: 50'

ROAD CROSSING PERMITS

1. UDOT ROAD CROSSING @ 4800 WEST AT APPROXIMATELY 13000 NORTH
2. UNION PACIFIC RAILROAD CROSSING @ APPROXIMATELY 60' SOUTH OF 13000 NORTH
3. MINOR CORNISH ROAD CROSSING @ 12300 NORTH AT APPROXIMATELY RAILROAD
4. MINOR CORNISH ROAD CROSSING @ 12300 NORTH AT APPROXIMATELY 4500 NORTH

SCALE
0 350' 700'
HORIZ: 1" = 350' : 22 x 34
HORIZ: 1" = 700' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/1/2026 STATE OF UTAH FOR REVIEW ONLY NOT FOR CONSTRUCTION

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

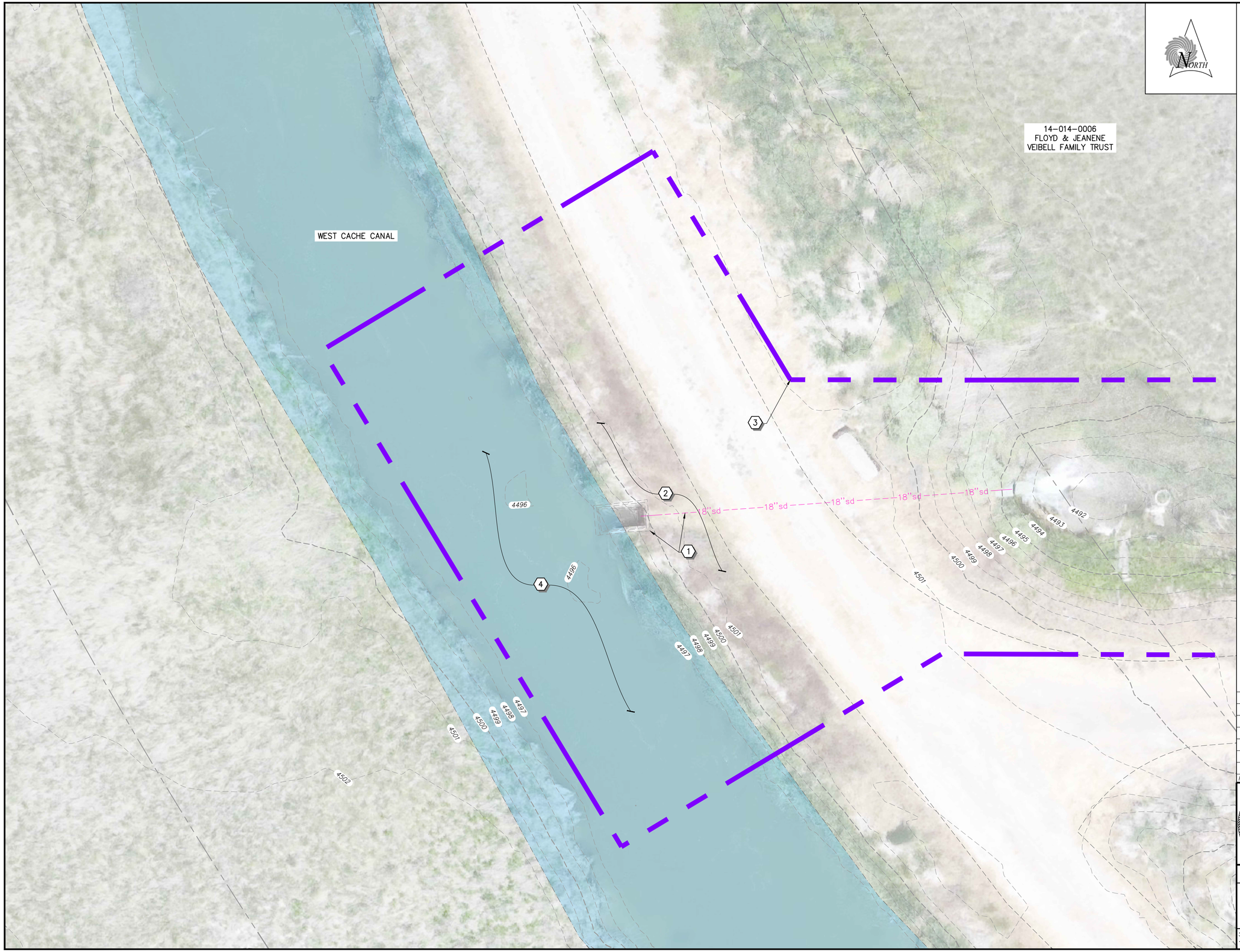
WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
GENERAL
OVERALL SITE MAP

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	6 of 52	GN6

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-GN6.dwg Sep 01, 2026 11:19am jpilley



DEMOLITION NOTES

1. EXISTING DIVERSION STRUCTURE AND ASSOCIATED PIPELINES TO BE REMOVED
2. CLEAR AND GRUB AREA WITHIN THE CONSTRUCTION LIMITS
3. CONSTRUCTION LIMITS
4. CLEAN AND DREDGE CANAL SECTION – SEE SHEET DS3 AND DETAIL A/DS4 FOR EXTENTS

SCALE
0 5' 10'
HORIZ: 1" = 5' : 22 x 34
HORIZ: 1" = 10' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven Davis Wood 9/30/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

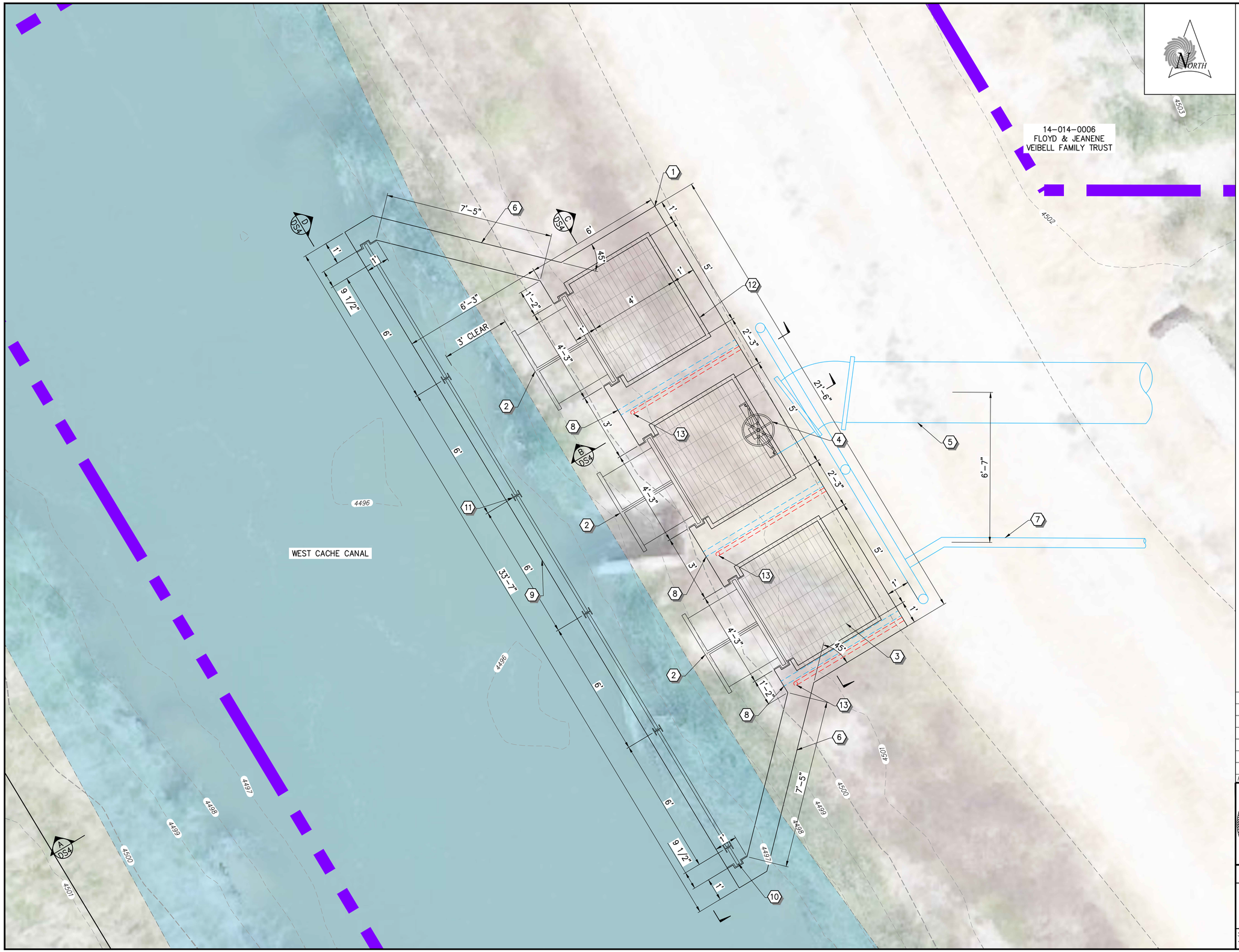
WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
DIVERSION STRUCTURE
DEMOLITION PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	7 of 52	DS1

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-DS1.dwg Sep 01, 2026 11:20am jjolley



CONSTRUCTION NOTES

1. INSTALL INTAKE STRUCTURE AS SHOWN
2. FURNISH AND INSTALL 42"ø SELF-CLEANING ROTARY DRUM SCREEN
3. INSTALL METAL GRADING AS SHOWN
4. INSTALL 30" HEADGATE AT 30" PVC OUTLET PIPE CONNECTION
5. INSTALL 30" PVC PIPE – SEE SHEET PP1 FOR PIPE ALIGNMENT AND PROFILE
6. INSTALL EXTENDED WING WALL
7. INSTALL 4" C900 PVC PIPE DR-32.5 FROM PUMP STATION – SEE SHEET PS4 AND PS5
8. INSTALL 3" CONDUIT CAST IN PLACE FOR 2" POLY PIPE – 3" BELOW TOW – CONNECT THE 2" POLY LINE TO THE ROTARY DRUM SCREEN
9. INSTALL 6" CONCRETE PAD
10. INSTALL WOOD STOP BOARD WITH STEEL CHANNEL GUIDES
11. INSTALL W4x13 I-BEAMS @ 6' O.C. UNLESS NOTED OTHERWISE
12. INSTALL 2"x2"x1/4" ANGLE
13. INSTALL 2" ELECTRICAL CONDUIT CAST IN PLACE – 24" BELOW TOW – USE SWEEPING 90° FOR TURN – LEAVE 1" SPACE IN CENTER OF CONCRETE WALL / BEAM BETWEEN ELECTRICAL CONDUIT AND WATER CONDUIT – CONNECT ELECTRICAL TO THE ROTARY DRUM SCREEN

SCALE
0 2' 4'
HORIZ: 1" = 2' : 22 x 34
HORIZ: 1" = 4' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/01/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

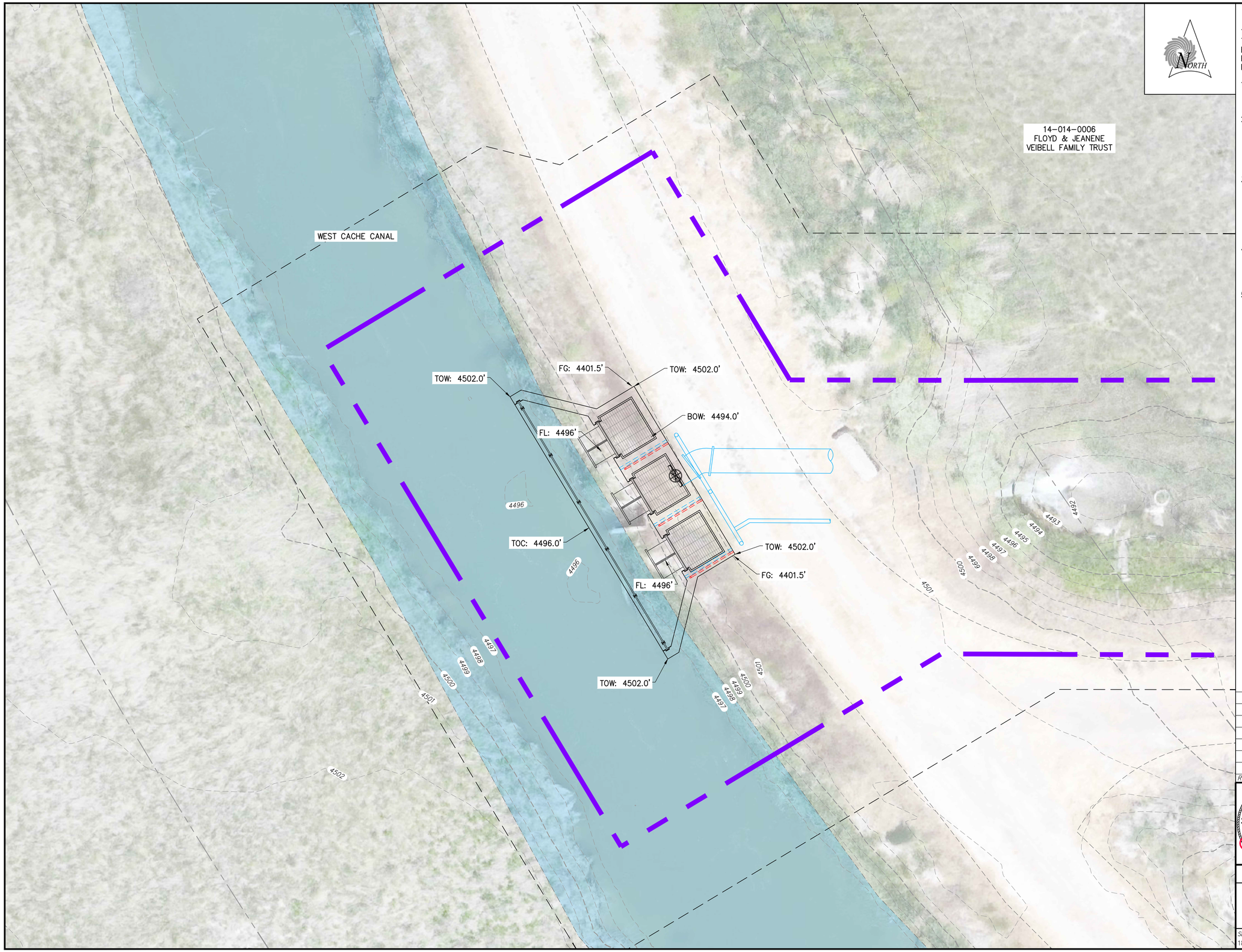
WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
DIVERSION STRUCTURE
SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	8 of 52	DS2

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-DS2.dwg Sep 01, 2026 11:20am jjolley



GRADING NOTES

TOC = TOP OF CONCRETE
TOW = TOP OF WALL
BOW = BOTTOM OF WALL
FG = FUTURE GRADE
FL = FLOW LINE

1. AN APPROVED GRADING PLAN SHALL BE ON THE JOB SITE AT ALL TIMES – DEVIATIONS FROM THE PLAN MUST BE PRECEDED BY AN APPROVED PLAN REVISION
2. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTOR DITCHES, PIPES, PROTECTIVE BERMS, CONCRETE CHANNELS OR OTHER MEASURES DESIGNED TO PROTECT ADJACENT BUILDINGS OR PROPERTY FROM STORM RUNOFF MUST BE COMPLETED PRIOR TO STRUCTURE CONSTRUCTION
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES IN ADVANCE OF TRENCHING – THE ENGINEER WILL NOT GUARANTEE ANY ELEVATIONS AT LOCATIONS OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS
4. THE EXISTING TOPOGRAPHY IS REPRESENTED WITH MINOR CONTOURS EVERY 1' AND MAJOR CONTOURS EVERY 5' – THE PROPOSED TOPOGRAPHY IS REPRESENTED WITH MINOR CONTOURS EVERY 1' AND MAJOR CONTOURS EVERY 5'
5. CONTRACTOR TO ENSURE ALL GRADE CHANGES ARE TO BE COMPLETED IN A SMOOTH MANNER – INDIVIDUAL VERTICAL CURVES ARE NOT SHOWN FOR CLARITY

SCALE
0 5' 10'
HORIZ: 1" = 5' : 22 x 34
HORIZ: 1" = 10' : 11 x 17

811 Know what's **below.** **Call** before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER
No. 12401899
Steven David Wood
9/01/2026
STATE OF UTAH
SIGNED 9/1/2026

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

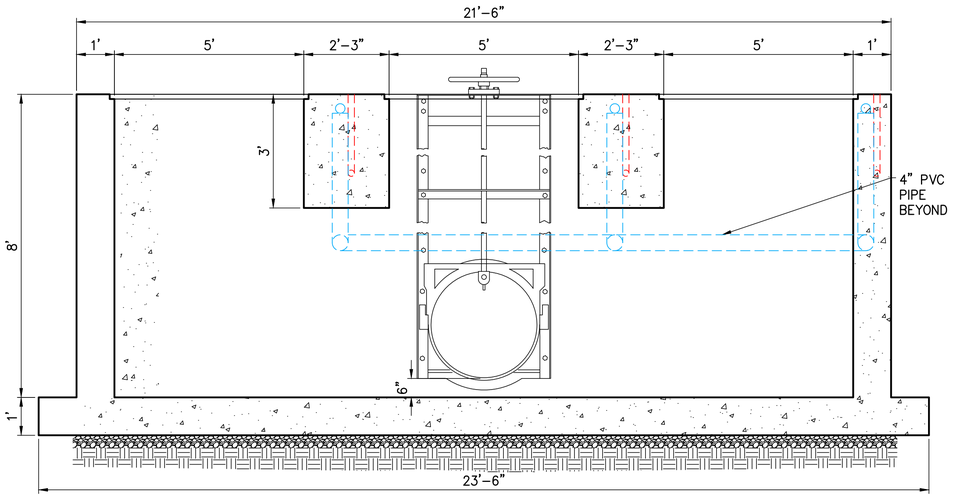
WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
DIVERSION STRUCTURE
GRADING PLAN

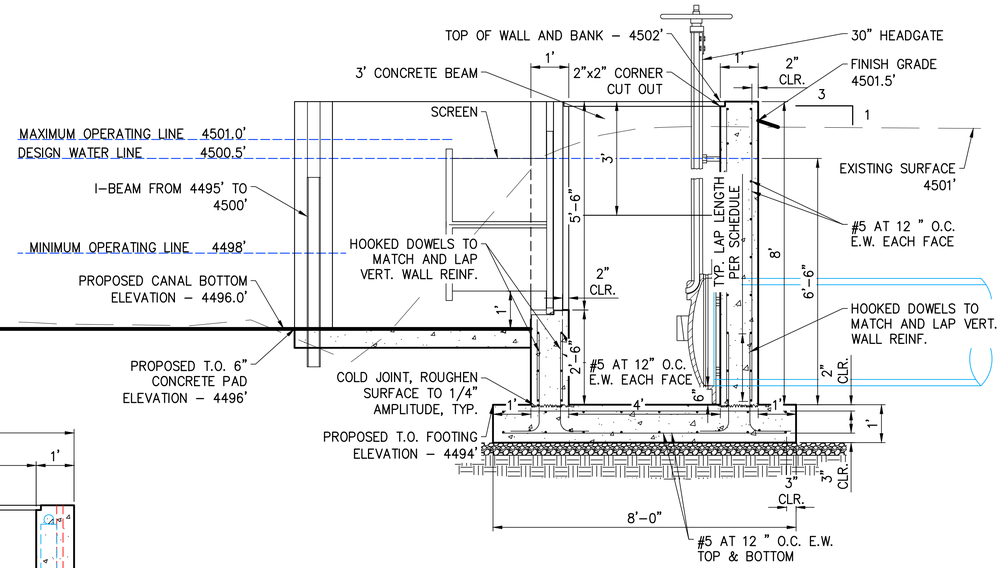
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	9 of 52	DS3

90% PRELIMINARY PLAN

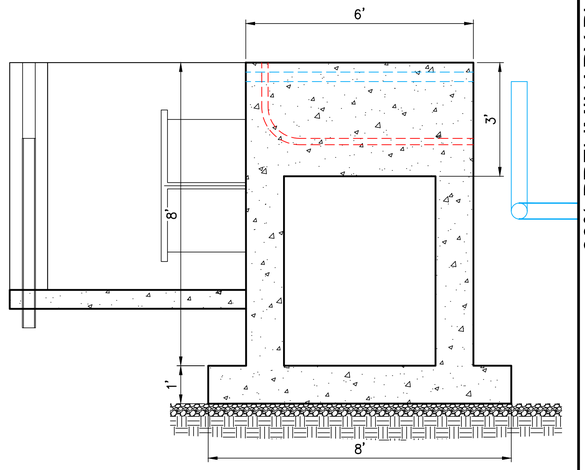
P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS - DS3.dwg Sep 01, 2026 11:21am jpiley



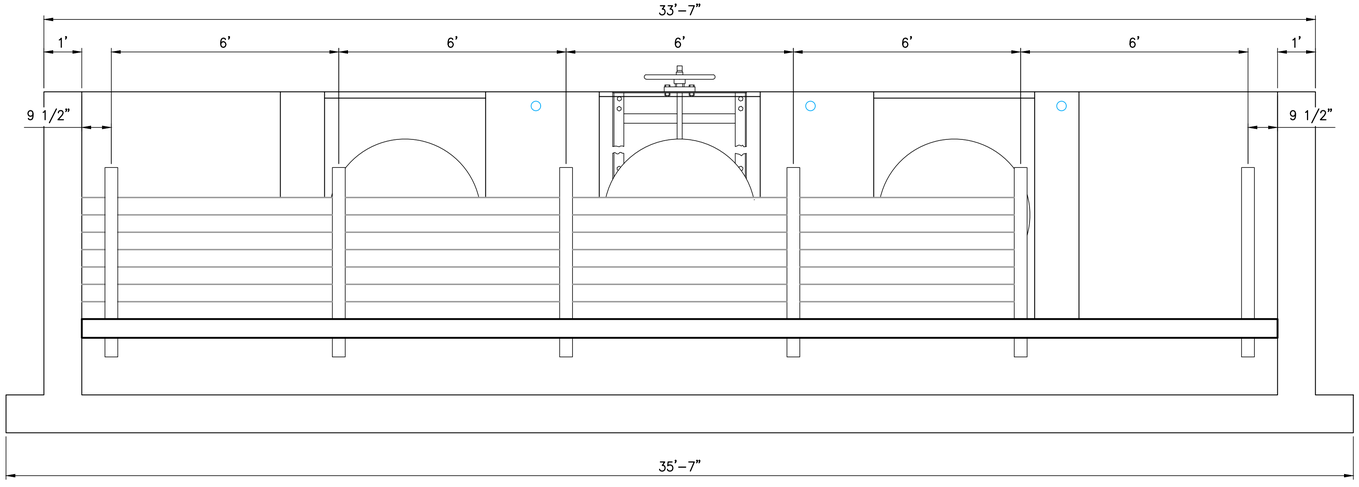
C SECTION - DIVERSION STATION
1" = 2'-0"



A SECTION - DIVERSION STATION CROSS SECTION
1" = 2'-0"



B SECTION - DIVERSION STATION CROSS SECTION
1" = 2'-0"



D ELEVATION - DIVERSION STATION
1" = 2'-0"

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/08/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
DIVERSION STRUCTURE
SECTION VIEW

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	10 of 52	DS4

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-DS4.dwg Sep 01, 2026 11:21am jjolley

14-014-0004
FLOYD & JEANENE
VEIBELL FAMILY TRUST

14-014-0007
ROSS H & NEVA M
WANGSGARD FAMILY TRUST

13000 NORTH

4485
4486
4487
4487
4486
4486
4487
4488
4487

12"sd
12"sd
12"sd
12"sd
12"sd

irr

1
2

NORTH

DEMOLITION NOTES

1. EXISTING DIVERSION STRUCTURE AND ASSOCIATED PIPELINES TO BE REMOVED
2. CLEAR AND GRUB AREA WITHIN THE CONSTRUCTION LIMITS

SCALE
0 5' 10'
HORIZ: 1" = 5' : 22 x 34
HORIZ: 1" = 10' : 11 x 17

811 Know what's **below.** **Call** before you dig.
1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER
No. 12401899
Steven David Wood
9/02/2026
STATE OF UTAH
FOR PRELIMINARY REVIEW ONLY

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
PUMP STATION
DEMOLITION PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	11 of 52	PS1

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-PS1.dwg Sep 01, 2026 11:21am jjolley

14-014-0004
FLOYD & JEANENE
VEIBELL FAMILY TRUST

PROTECT EXISTING
DRAINAGE CHANNEL

4485
4486
4487
33'
1'
1'
15'
23'
30'
10'
10'
4488
4487
4487
4486
4486
4487
12"sd
12"sd
12"sd
12"sd
13
CI

13000 NORTH

PROTECT EXISTING
DRAINAGE CHANNEL

14-014-0007
ROSS H & NEVA M
WANGSGARD FAMILY TRUST

NORTH

CONSTRUCTION NOTES

1. INSTALL A 33'x19'-9" CONCRETE PAD
2. INSTALL PUMP STATION - SEE SHEETS PS4 AND PS5
3. INSTALL 30" PVC PIPELINE - SEE SHEET PP2
4. INSTALL 4" PVC PIPELINE AND CONNECT TO THE PROPOSED ROTARY DRUM SCREEN
5. INSTALL 8" PVC DRAINAGE LINE TO THE EXISTING DRAINAGE CHANNEL - SEE SHEET PP2
6. MAINTAIN AND PROTECT ACCESS ROAD - CONTRACTOR TO GRAVEL ACCESS ROAD AS NEEDED FOR ACCESS
7. PROPERTY LINE

90% PRELIMINARY PLAN

SCALE
0 5' 10'
HORIZ: 1" = 5' : 22 x 34
HORIZ: 1" = 10' : 11 x 17

811 Know what's **below.** **Call** before you dig.
1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER
No. 12401899
Steven David Wood
9/25/2025
STATE OF UTAH
FOR PRELIMINARY REVIEW ONLY

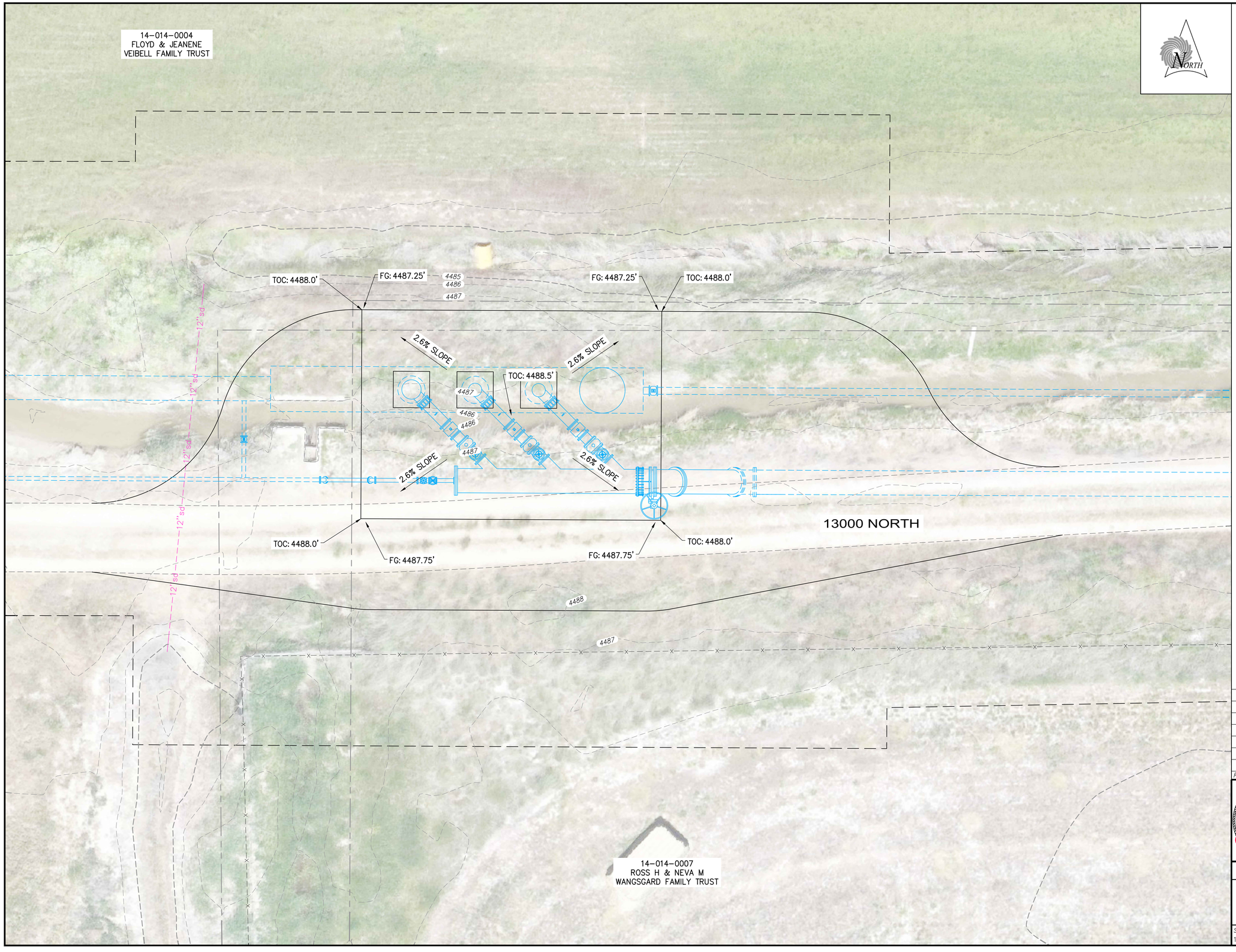
SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
PUMP STATION
SITE PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	12 of 52	PS2

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-PS2.dwg Sep 01, 2026 11:21am jjolley



GRADING NOTES

TOC = TOP OF CONCRETE
TOW = TOP OF WALL
BOW = BOTTOM OF WALL
FG = FUTURE GRADE
FL = FLOW LINE

1. AN APPROVED GRADING PLAN SHALL BE ON THE JOB SITE AT ALL TIMES – DEVIATIONS FROM THE PLAN MUST BE PRECEDED BY AN APPROVED PLAN REVISION
2. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTOR DITCHES, PIPES, PROTECTIVE BERMS, CONCRETE CHANNELS OR OTHER MEASURES DESIGNED TO PROTECT ADJACENT BUILDINGS OR PROPERTY FROM STORM RUNOFF MUST BE COMPLETED PRIOR TO STRUCTURE CONSTRUCTION
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES IN ADVANCE OF TRENCHING – THE ENGINEER WILL NOT GUARANTEE ANY ELEVATIONS AT LOCATIONS OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS
4. THE EXISTING TOPOGRAPHY IS REPRESENTED WITH MINOR CONTOURS EVERY 1' AND MAJOR CONTOURS EVERY 5' – THE PROPOSED TOPOGRAPHY IS REPRESENTED WITH MINOR CONTOURS EVERY 1' AND MAJOR CONTOURS EVERY 5'
5. CONTRACTOR TO ENSURE ALL GRADE CHANGES ARE TO BE COMPLETED IN A SMOOTH MANNER – INDIVIDUAL VERTICAL CURVES ARE NOT SHOWN FOR CLARITY

SCALE
0 5' 10'
HORIZ: 1" = 5' : 22 x 34
HORIZ: 1" = 10' : 11 x 17

811 Know what's **below.** **Call** before you dig.
1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER
No. 12401899
Steven David Wood
STATE OF UTAH
FOR REVIEW ONLY NOT FOR CONSTRUCTION 2026

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

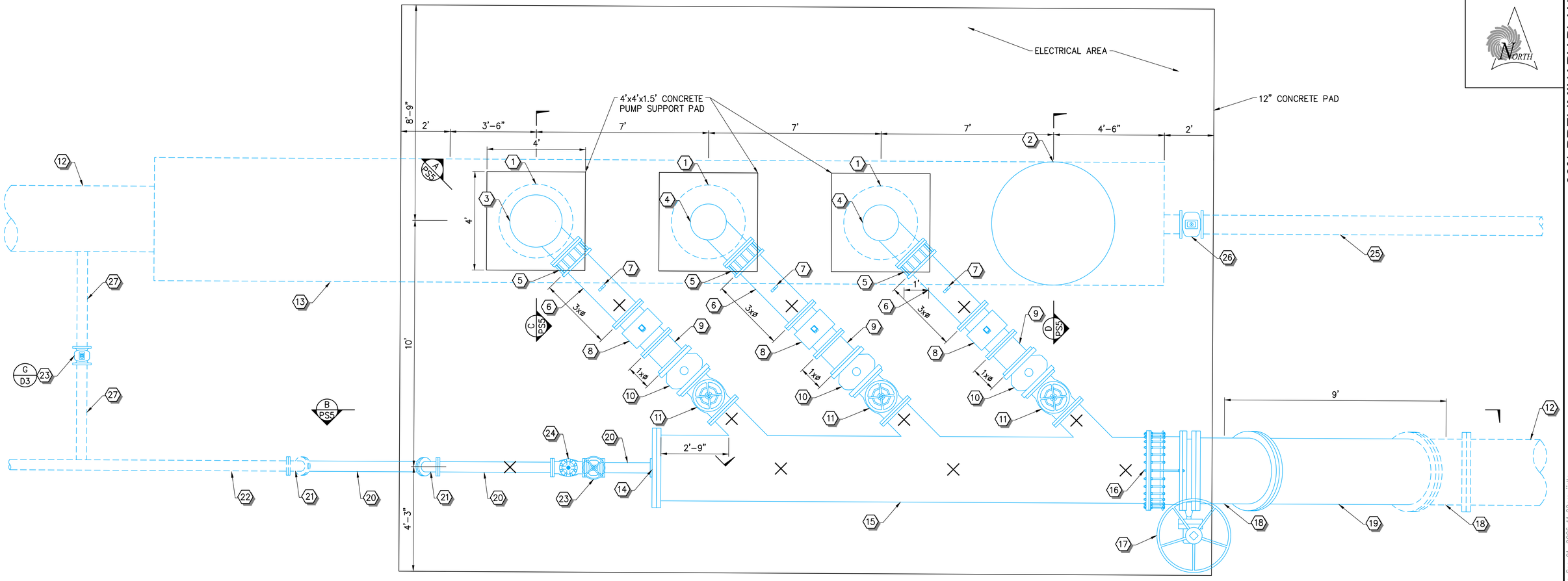
WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
PUMP STATION
GRADING PLAN

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	13 of 52	PS3

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-PS3.dwg Sep 01, 2026 11:22am jjolley



PIPING LAYOUT SCHEDULE

NO.	DESCRIPTION	SIZE	QTY.	REMARKS	NO.	DESCRIPTION	SIZE	QTY.	REMARKS
1	PUMP CAN	36"	3	CARBON STEEL PIPE, 0.375" MIN. WALL, FLxPE	15	D.I. SPOOL	30"	1	FLxPE
2	SEDIMENTS MANHOLE	60"	1	CARBON STEEL PIPE, 0.375" MIN. WALL, FLxPE	16	DISMANTLING JOINT	30"	1	ROMAC JOINT-STYLE DJ400 CLASS D FLANGE OR EQUIVALENT
3	PUMP	25.5"	1	250 HP VERTICAL BOOSTER PUMP	17	BUTTERFLY VALVE	30"	1	FLANGED
4	PUMP	17.5"	2	125 HP VERTICAL BOOSTER PUMP	18	ELBOW 45°	30"	1	FLANGED
5	DISMANTLING JOINT	12"	3	ROMAC JOINT-STYLE DJ400 CLASS D FLANGE OR EQUIVALENT	19	D.I. SPOOL	30"	1	FLANGED
6	D.I. SPOOL	12"	3	FLxPE	20	D.I. SPOOL	4"	3	FLANGED
7	PRESSURE GAUGE	N/A	3	0 TO 200 PSI RANGE	21	ELBOW 45°	4"	2	FLANGED
8	MAGNETIC FLOW METER	12"	3	F D3	22	PIPE	4"	1	C900 PVC PIPE DR-32.5 - TO DIVERSION STRUCTURE
9	D.I. SPOOL	12"	3	FLANGED	23	GATE VALVE	4"	2	FLANGED
10	CHECK VALVE	12"	3		24	PRV	4"	1	FLANGED
11	GATE VALVE	12"	3	FLANGED	25	PIPE	8"	1	C900 PVC PIPE @ 0.4" SLOPE TO OPEN DITCH
12	PIPE	30"	2	C900 PVC PIPE DR-32.5 PC 125	26	GATE VALVE	8"	1	E D3
13	PIPE	60"	1	CARBON STEEL PIPE, 0.375" MIN. WALL	27	PIPE	4"	2	C900 PVC PIPE DR-32.5
14	BLIND FLANGE	30"	1	W/ 4" FLANGED OUTLET FOR D.I. SPOOL CONNECTION	X	PIPE SUPPORT		10	D D3

NOTES:
1) ALL FITTINGS, VALVES, FLANGES AND SPOOLS SHALL BE EPOXY COATED OR GALVANIZED.
2) ALL FASTENERS, HARDWARE, BOLTS, NUTS, AND ACCESSORIES SHALL BE STAINLESS STEEL, GALVANIZED STEEL, OR PLATED STEEL.
3) SLOPE FLOOR TO FLOOR DRAIN AT 1/2% SLOPE FROM ALL DIRECTIONS AS POSSIBLE.
4) IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE BUTTERFLY VALVES WILL OPERATE PROPERLY. FLANGE ADAPTERS, BACK-UP RINGS, AND VALVE SPACERS SHALL BE INSTALLED AS REQ'D AND SHALL BE INCIDENTAL TO THE INSTALLATION OF THE BUTTERFLY VALVE. ALL BUTTERFLY VALVES SHALL HAVE A GEAR BOX OF 25:1 MIN RATIO.
5) SEE STRUCTURAL SHEETS FOR FRAMING DETAILS.
6) PROVIDE A DEDICATED SWITCH FOR PRIMING PUMP-SEE ELECTRICAL.

90% PRELIMINARY PLAN

SCALE
0 2' 4'
HORIZ: 1" = 2' : 22 x 34
HORIZ: 1" = 4' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/30/2025 STATE OF UTAH

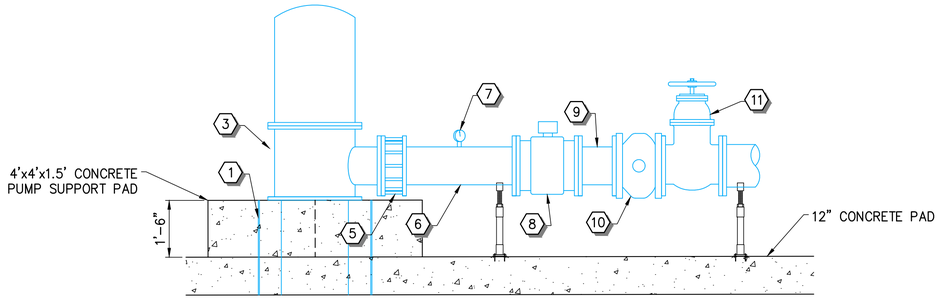
SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

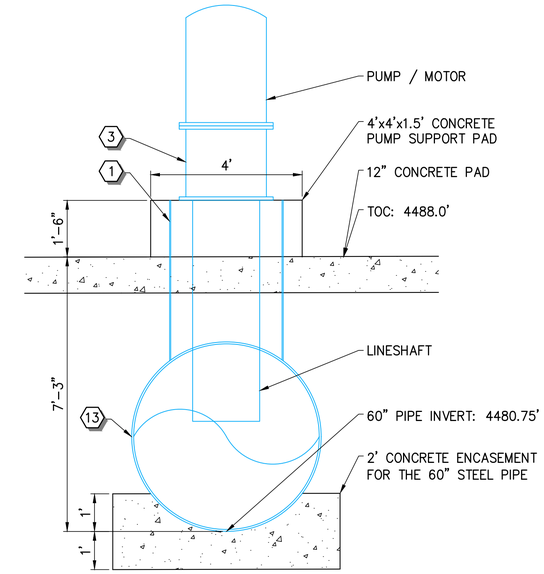
BUTTARS LATERAL
PUMP STATION
MECHANICAL PIPING LAYOUT

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	14 of 52	PS4

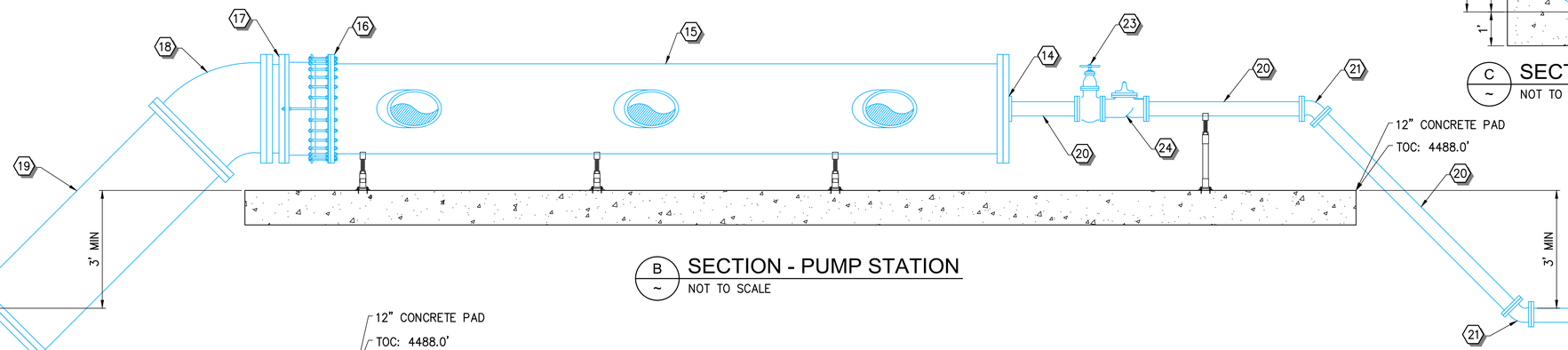
P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-PS4.dwg Sep 01, 2026 11:22am jjolley



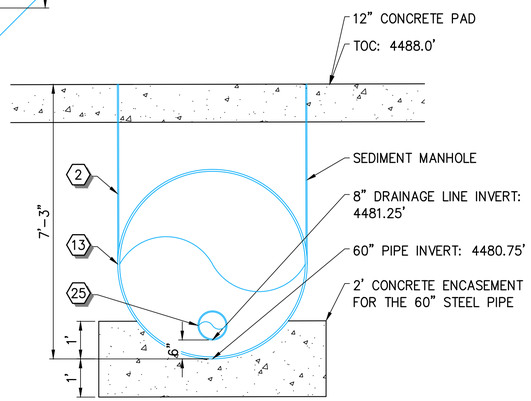
A ~ SECTION - PUMP STATION
NOT TO SCALE



C ~ SECTION - PUMP CONFIGURATION
NOT TO SCALE



B ~ SECTION - PUMP STATION
NOT TO SCALE



D ~ SECTION - SEDIMENT MANHOLE
NOT TO SCALE

NOTES:
1) ALL FITTINGS, VALVES, FLANGES AND SPOOLS SHALL BE EPOXY COATED OR GALVANIZED.
2) ALL FASTENERS, HARDWARE, BOLTS, NUTS, AND ACCESSORIES SHALL BE STAINLESS STEEL, GALVANIZED STEEL, OR PLATED STEEL.
3) SLOPE FLOOR TO FLOOR DRAIN AT 1/2% SLOPE FROM ALL DIRECTIONS AS POSSIBLE.
4) IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE BUTTERFLY VALVES WILL OPERATE PROPERLY. FLANGE ADAPTERS, BACK-UP RINGS, AND VALVE SPACERS SHALL BE INSTALLED AS REQ'D AND SHALL BE INCIDENTAL TO THE INSTALLATION OF THE BUTTERFLY VALVE. ALL BUTTERFLY VALVES SHALL HAVE A GEAR BOX OF 25:1 MIN RATIO.
5) SEE STRUCTURAL SHEETS FOR FRAMING DETAILS.
6) PROVIDE A DEDICATED SWITCH FOR PRIMING PUMP-SEE ELECTRICAL.

PIPING LAYOUT SCHEDULE

NO.	DESCRIPTION	SIZE	QTY.	REMARKS	NO.	DESCRIPTION	SIZE	QTY.	REMARKS
1	PUMP CAN	36"	3	CARBON STEEL PIPE, 0.375" MIN. WALL, FLxPE	15	D.I. SPOOL	30"	1	FLxPE
2	SEDIMENTS MANHOLE	60"	1	CARBON STEEL PIPE, 0.375" MIN. WALL, FLxPE	16	DISMANTLING JOINT	30"	1	ROMAC JOINT-STYLE DJ400 CLASS D FLANGE OR EQUIVALENT
3	PUMP	25.5"	1	250 HP VERTICAL BOOSTER PUMP	17	BUTTERFLY VALVE	30"	1	FLANGED
4	PUMP	17.5"	2	125 HP VERTICAL BOOSTER PUMP	18	ELBOW 45°	30"	1	FLANGED
5	DISMANTLING JOINT	12"	3	ROMAC JOINT-STYLE DJ400 CLASS D FLANGE OR EQUIVALENT	19	D.I. SPOOL	30"	1	FLANGED
6	D.I. SPOOL	12"	3	FLxPE	20	D.I. SPOOL	4"	3	FLANGED
7	PRESSURE GAUGE	N/A	3	0 TO 200 PSI RANGE	21	ELBOW 45°	4"	2	FLANGED
8	MAGNETIC FLOW METER	12"	3	F / D3	22	PIPE	4"	1	C900 PVC PIPE DR-32.5 - TO DIVERSION STRUCTURE
9	D.I. SPOOL	12"	3	FLANGED	23	GATE VALVE	4"	2	FLANGED
10	CHECK VALVE	12"	3		24	PRV	4"	1	FLANGED
11	GATE VALVE	12"	3	FLANGED	25	PIPE	8"	1	C900 PVC PIPE @ 0.4" SLOPE TO OPEN DITCH
12	PIPE	30"	2	C900 PVC PIPE DR-32.5 PC 125	26	GATE VALVE	8"	1	E / D3
13	PIPE	60"	1	CARBON STEEL PIPE, 0.375" MIN. WALL	27	PIPE	4"	2	C900 PVC PIPE DR-32.5
14	BLIND FLANGE	30"	1	W/ 4" FLANGED OUTLET FOR D.I. SPOOL CONNECTION	X	PIPE SUPPORT		10	D / D3

SCALE
0 2' 4'
HORIZ: 1" = 2' : 22 x 34
HORIZ: 1" = 4' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/05/2025 STATE OF UTAH
DO NOT USE FOR CONSTRUCTION

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

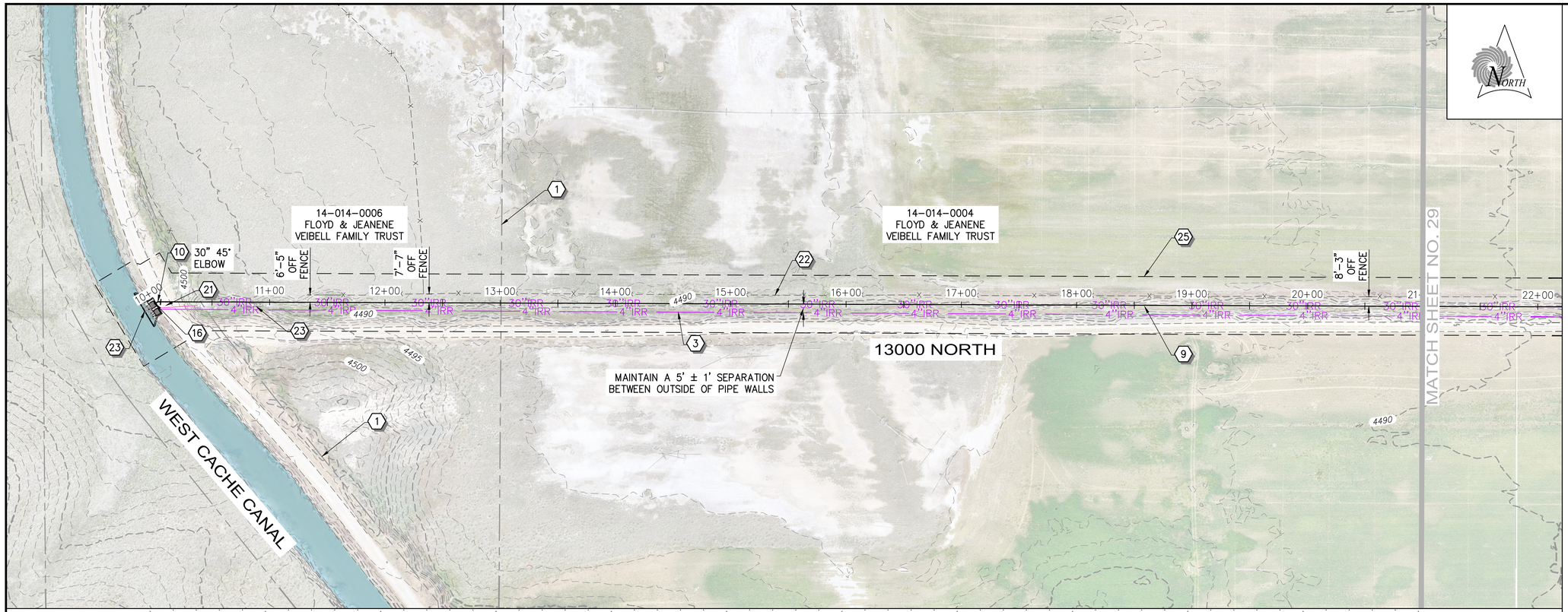
WEST CACHE IRRIGATION COMPANY

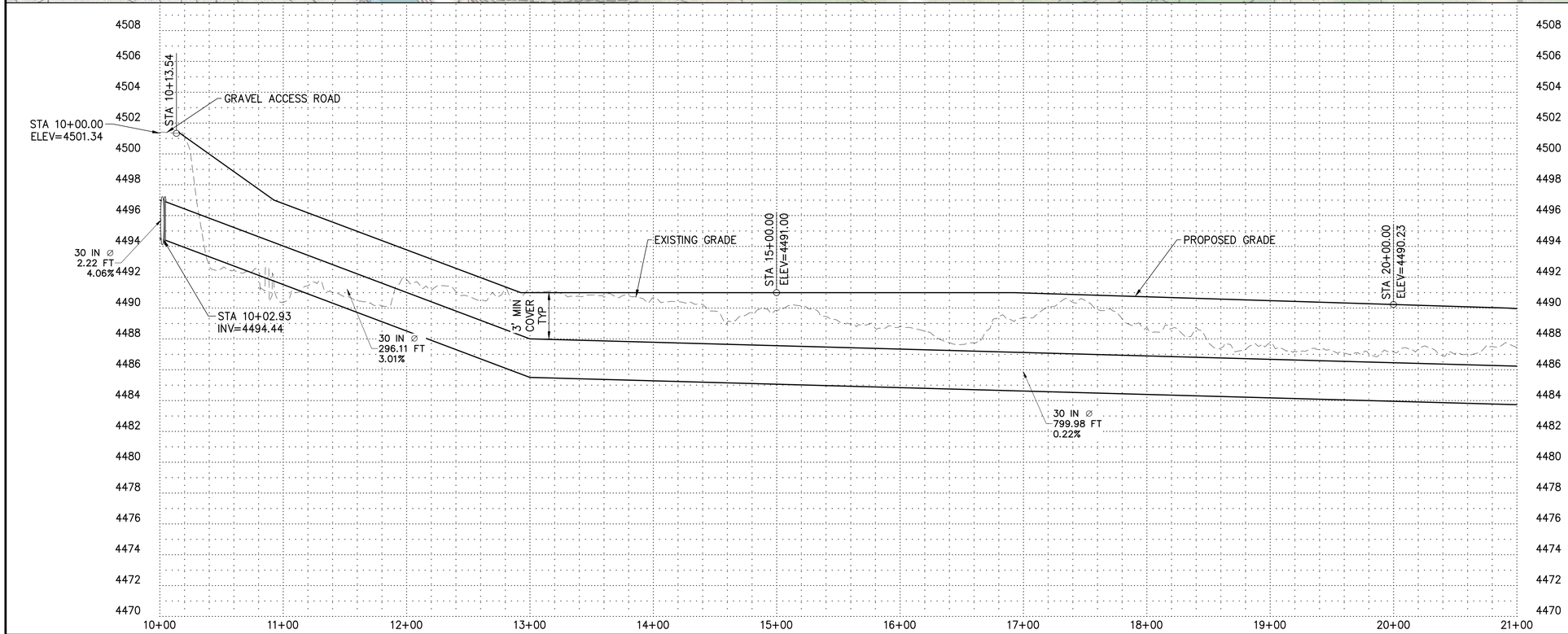
BUTTARS LATERAL
PUMP STATION
MECHANICAL PIPING LAYOUT

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	PS5
18538	HP	JJ	SDW	15 of 52	

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-PS5.dwg Sep 01, 2026 11:22am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – X SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/02/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

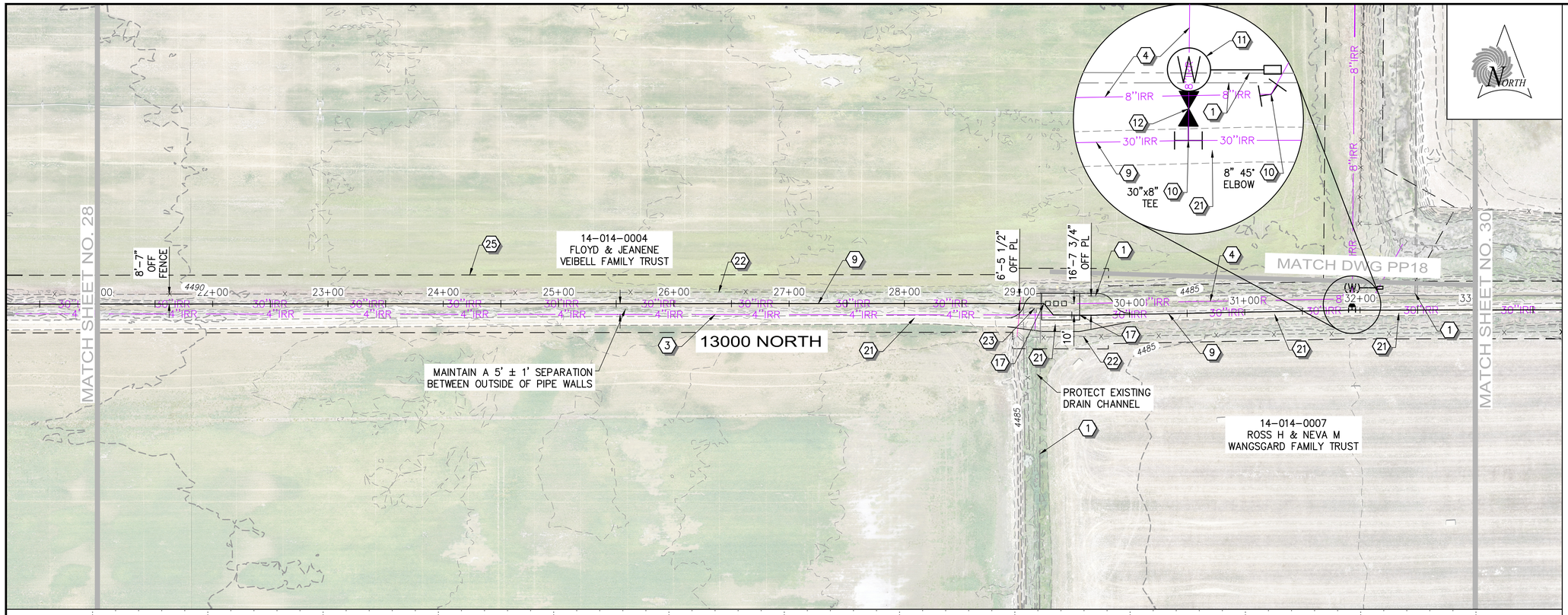
WEST CACHE IRRIGATION COMPANY

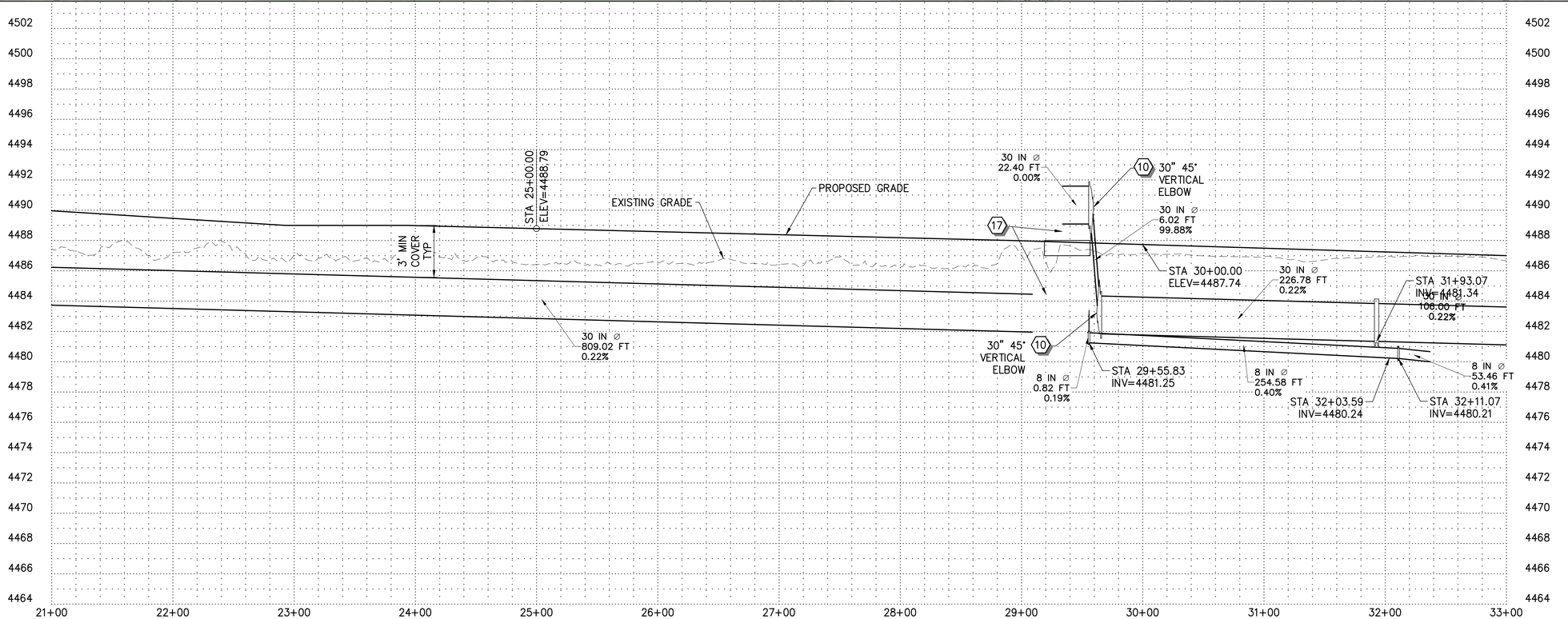
BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	28 of 52	PP1

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 1-PP1.dwg Sep 01, 2026 11:23am jpilley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – X SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven Davis Wood 9/30/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

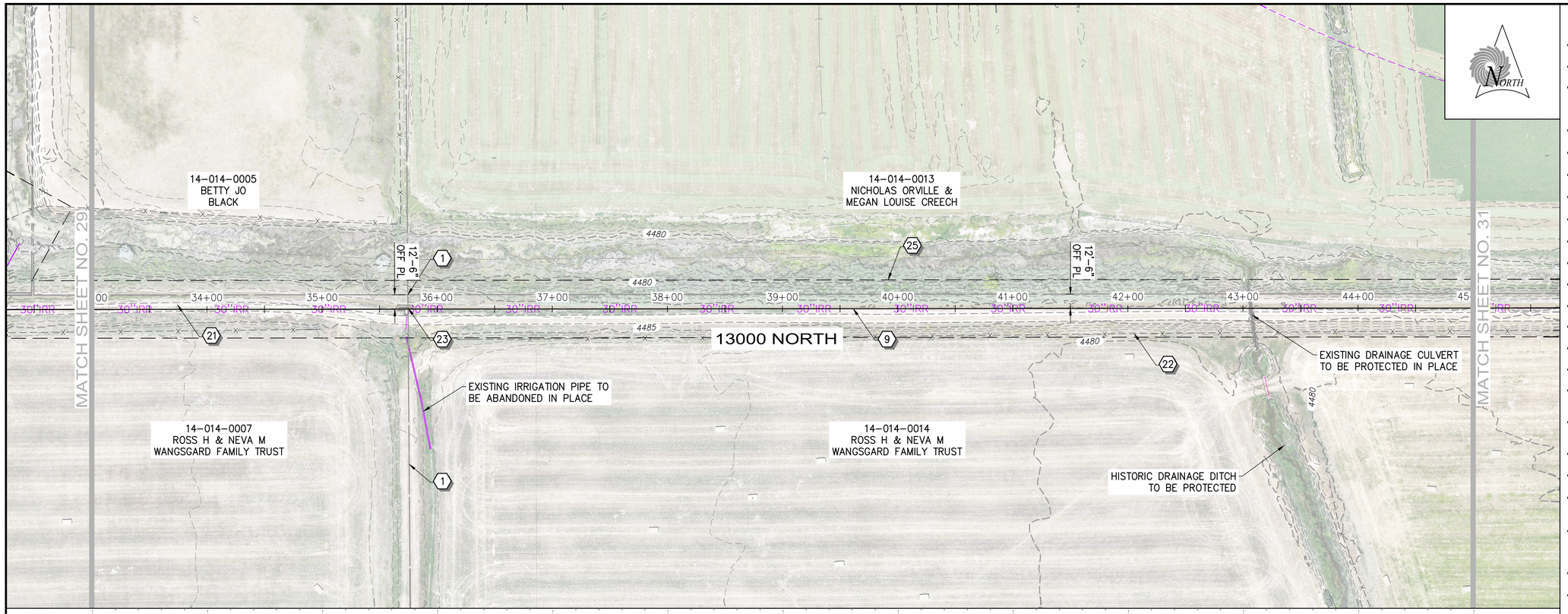
WEST CACHE IRRIGATION COMPANY

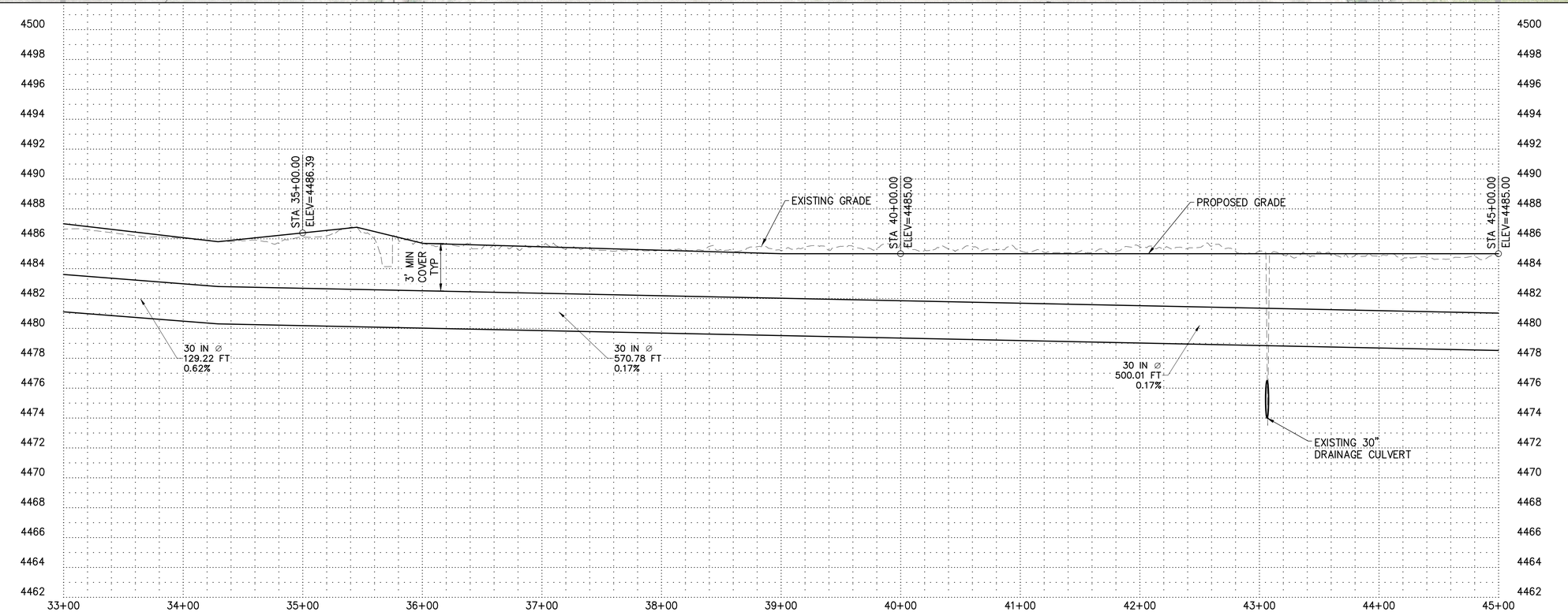
BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	29 of 52	PP2

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 1-PP2.dwg Sep 01, 2026 11:23am jpilley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – X SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven Davis Wood 9 DEC 2025 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

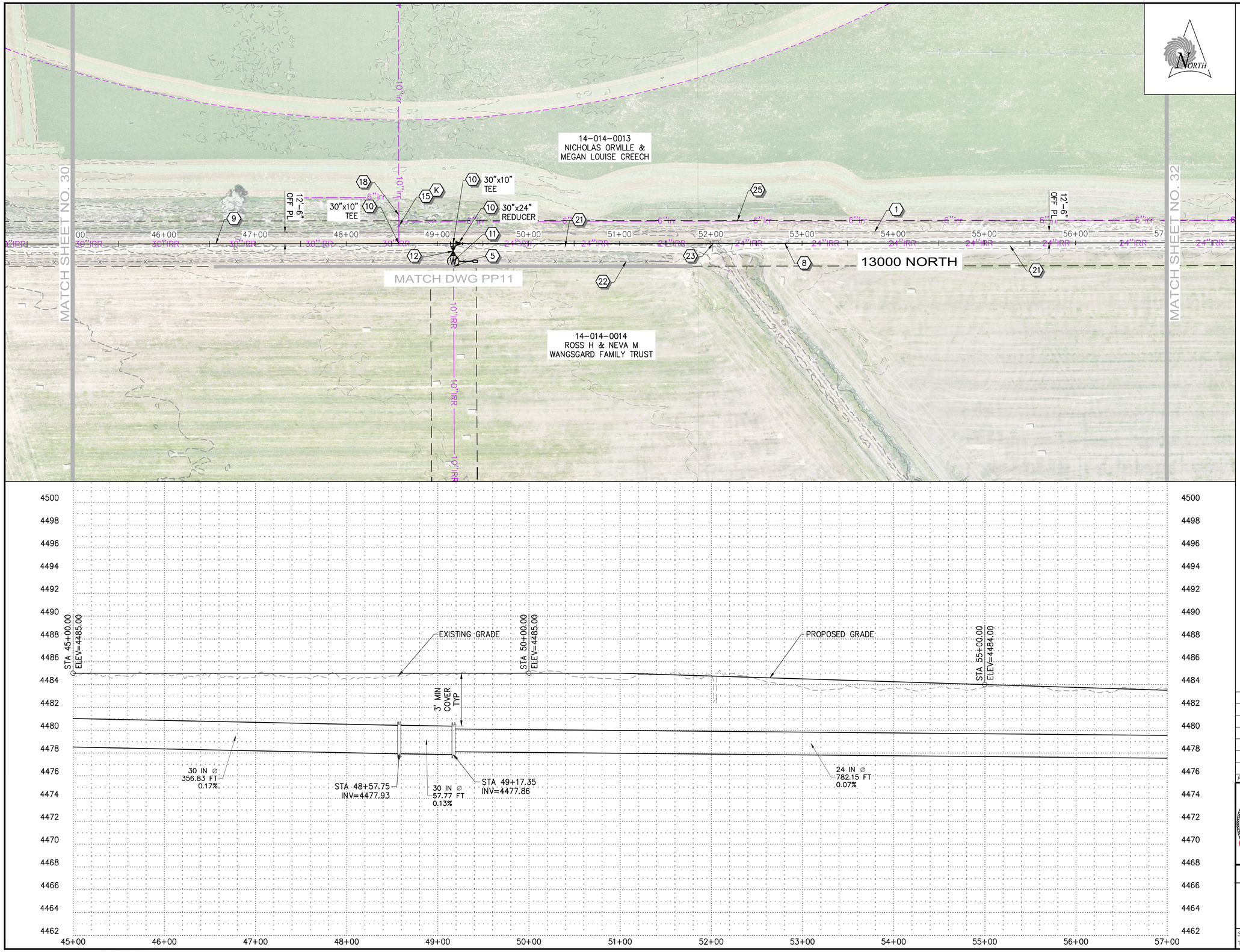
WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	30 of 52	PP3

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 1-PP3.dwg Sep 01, 2026 11:24am jpilley



CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – X SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'

HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven Davis Wood 9/02/2024 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

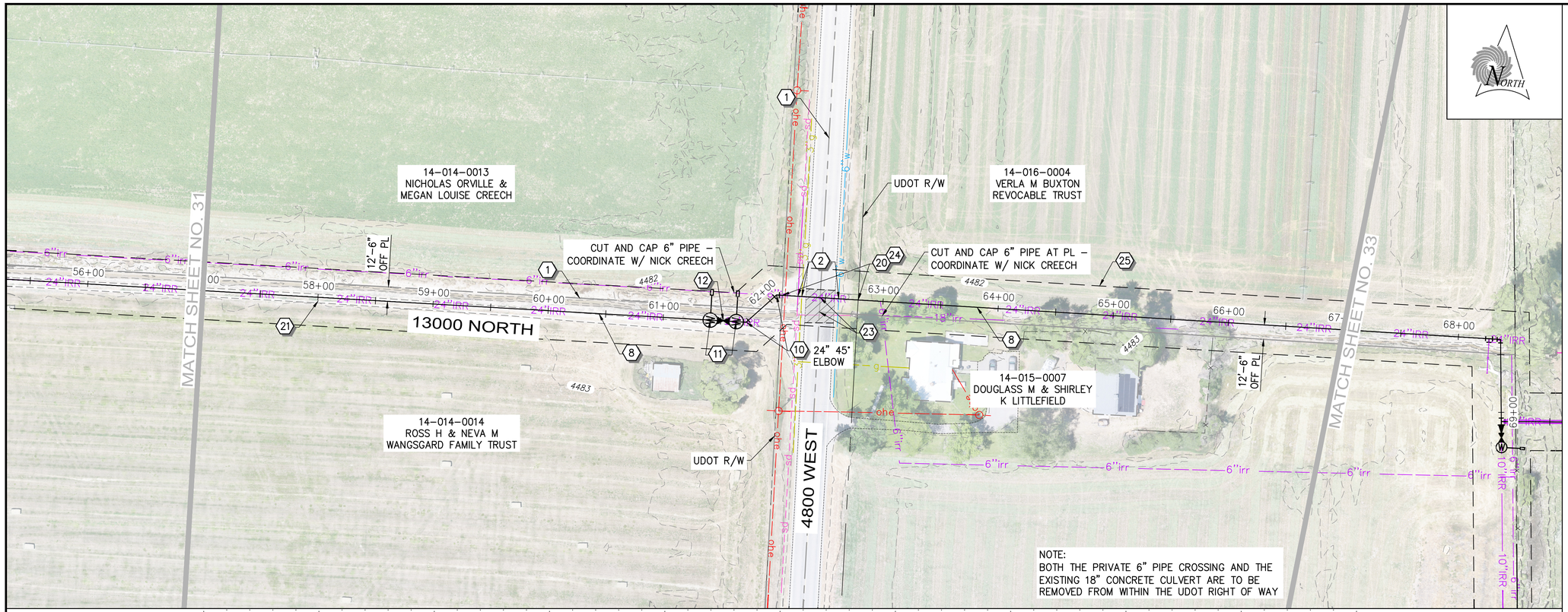
WEST CACHE IRRIGATION COMPANY

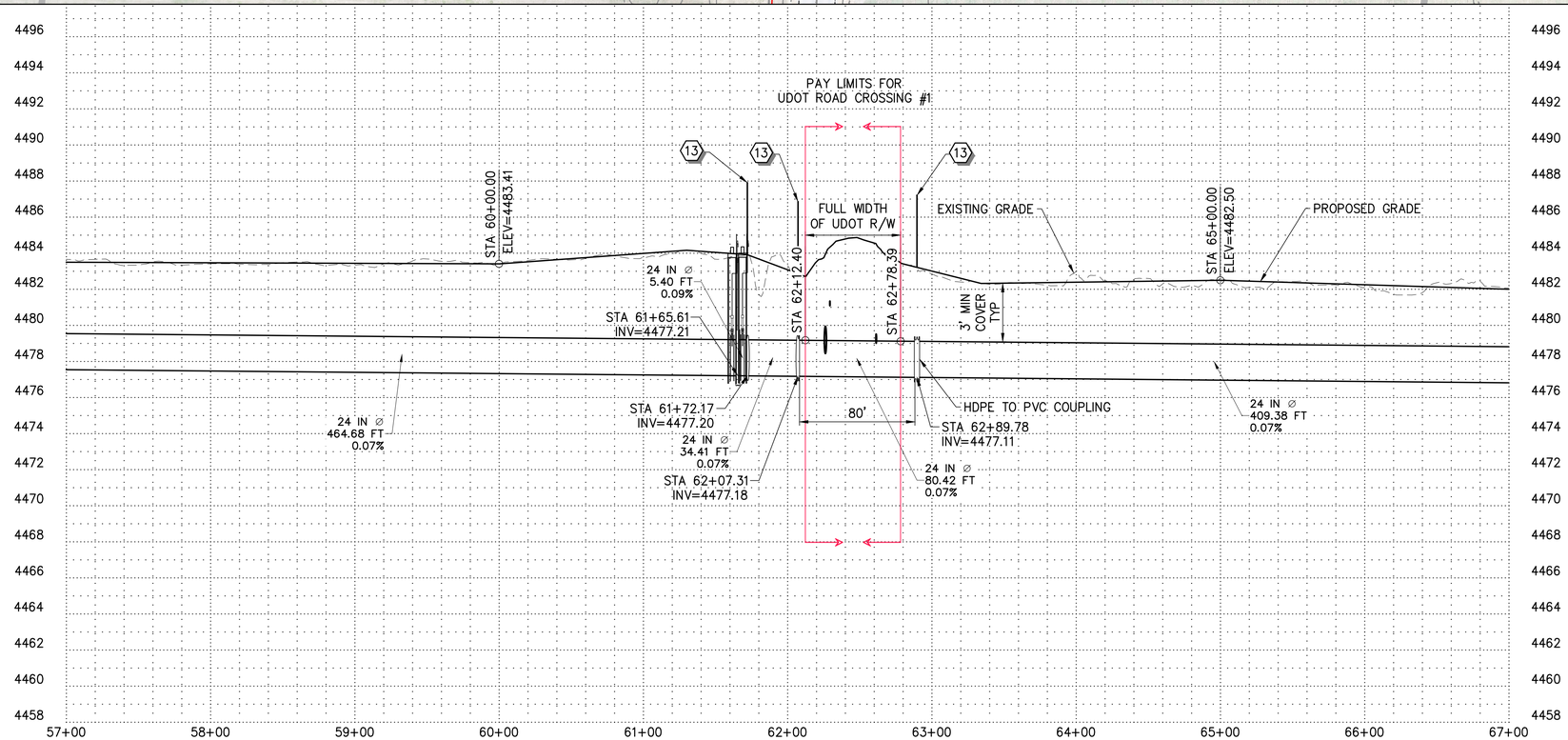
BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	31 of 52	PP4

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 1-PP4.dwg Sep 01, 2026 11:24am jolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 - ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A. (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE - SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION - SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING - SAWCUT AND REMOVE ASPHALT - REPLACE ASPHALT SURFACE AND SUBGRADE (A D2) (C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB - REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'

HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9 DEC 2024 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

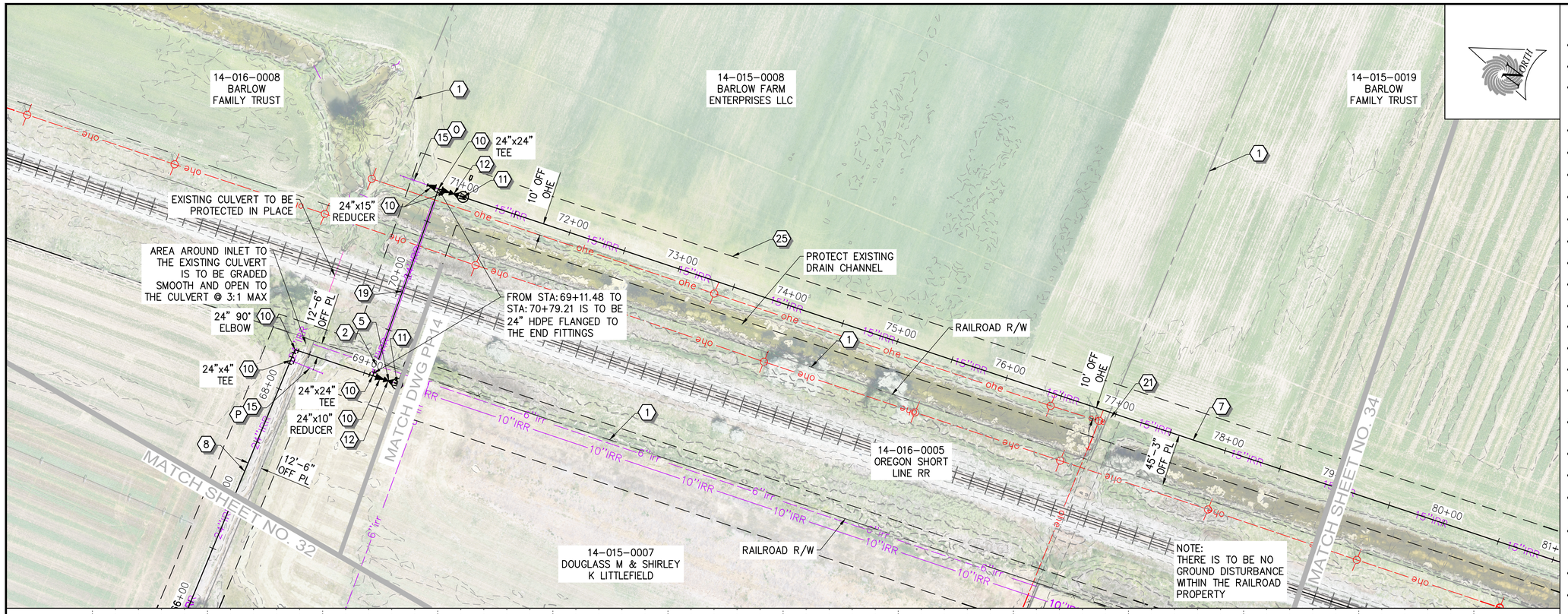
WEST CACHE IRRIGATION COMPANY

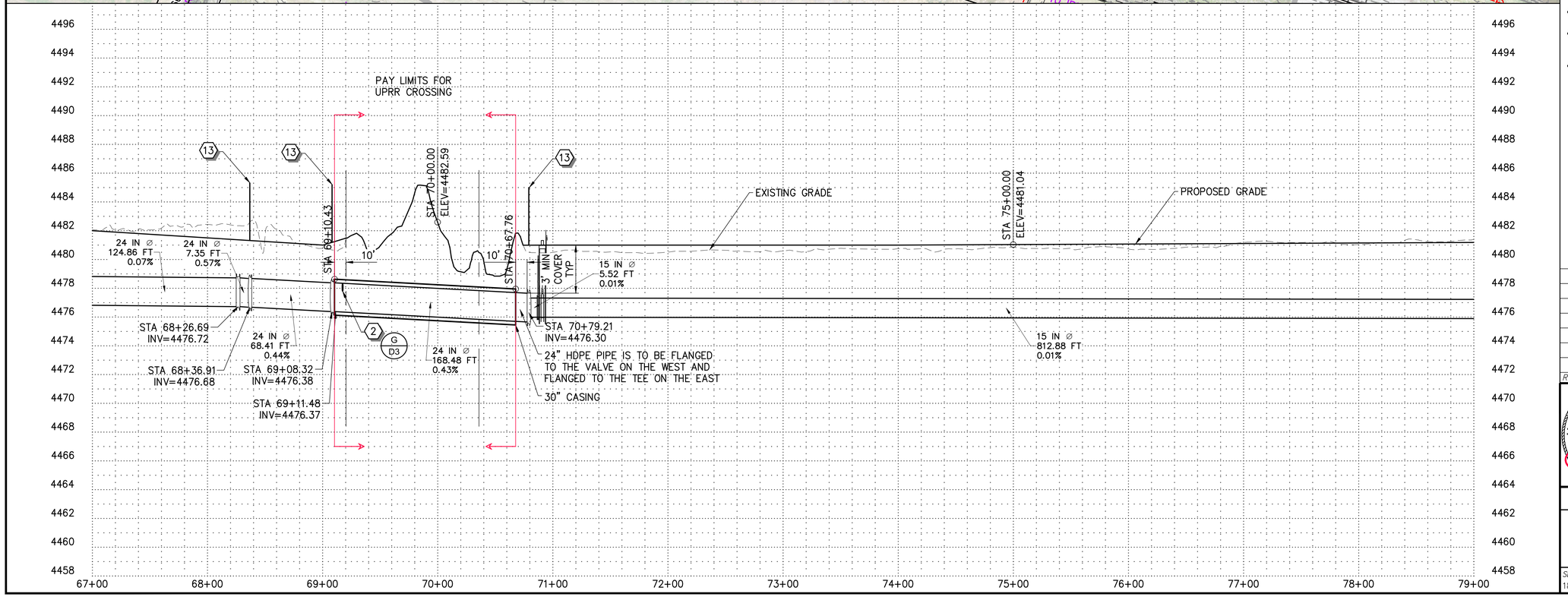
BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	32 of 52	PP5

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 1-PP5.dwg Sep 01, 2026 11:25am jpiley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven Davis Wood 9 APR 2024 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

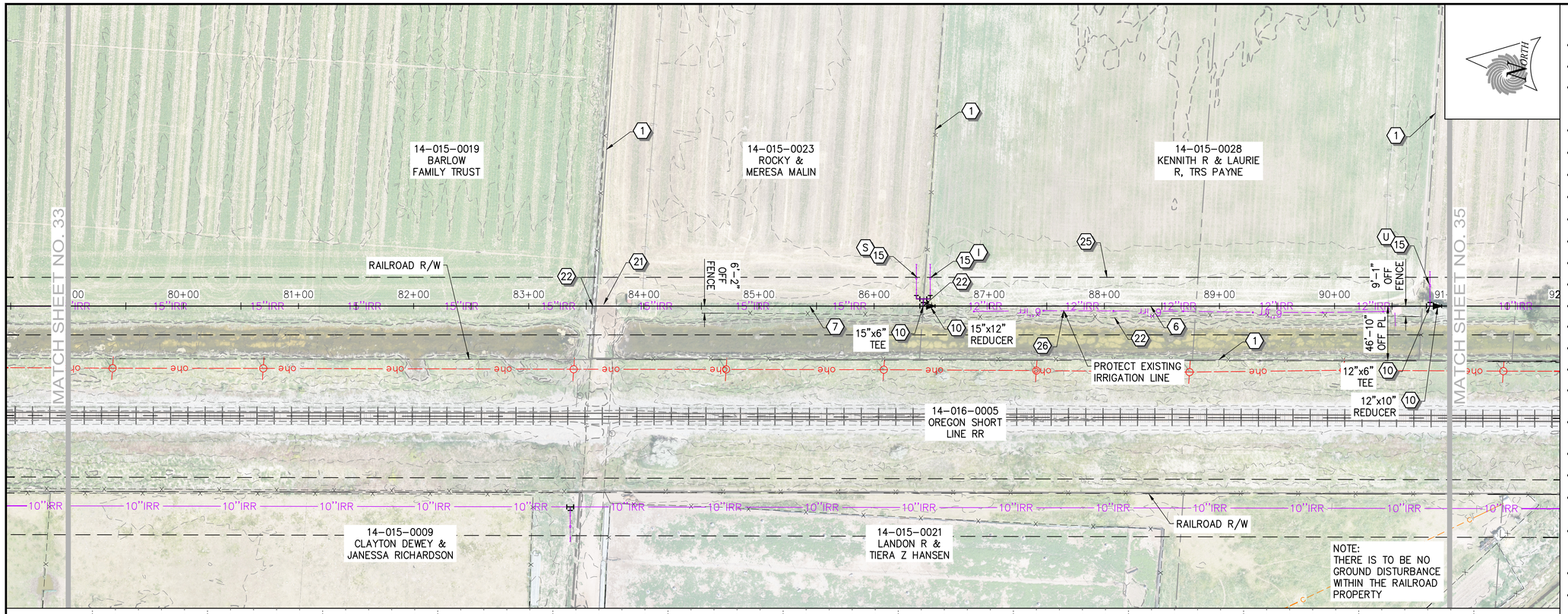
WEST CACHE IRRIGATION COMPANY

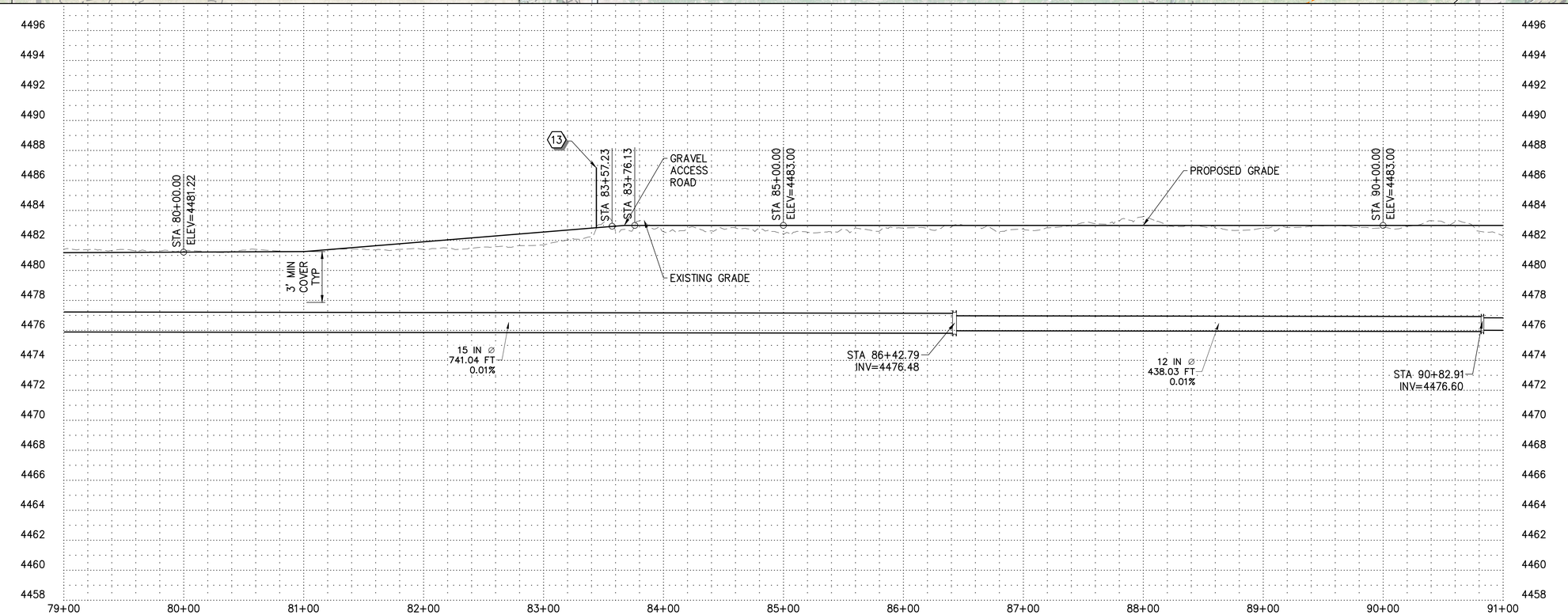
BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	33 of 52	PP6

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 1-PP6.dwg Sep 01, 2026 11:26am jpiley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
A. (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's **below.** **Call** before you dig.
1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER
No. 12401899
Steven Davis Wood
9/30/2026
STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

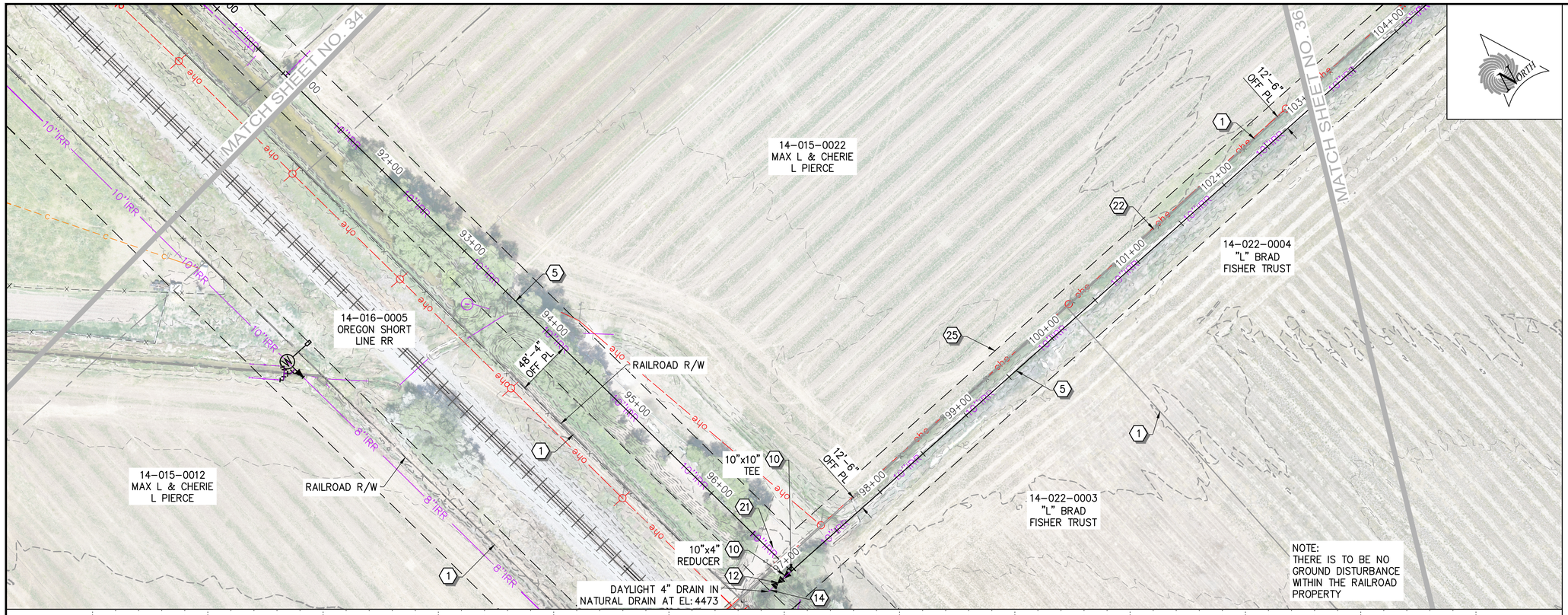
WEST CACHE IRRIGATION COMPANY

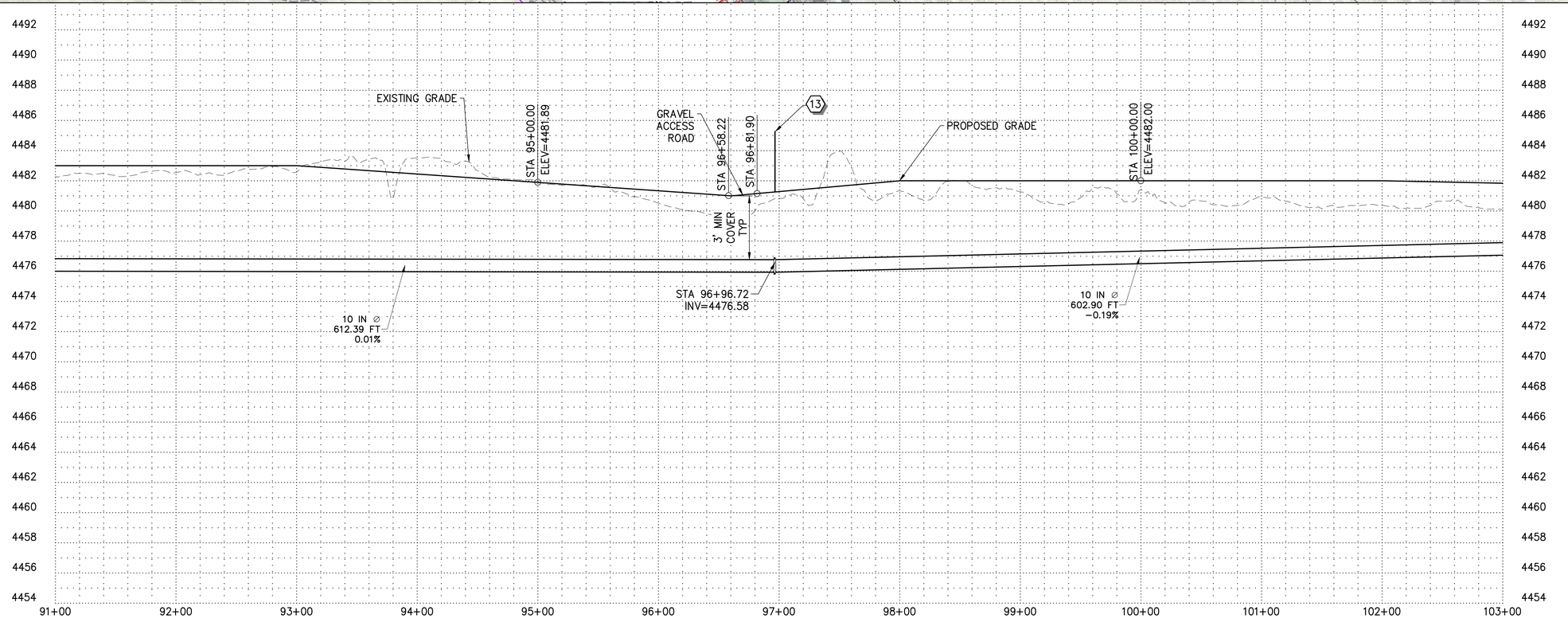
BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	34 of 52	PP7

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 1-PP7.dwg Sep 01, 2026 11:26am jpilley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – X SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/02/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

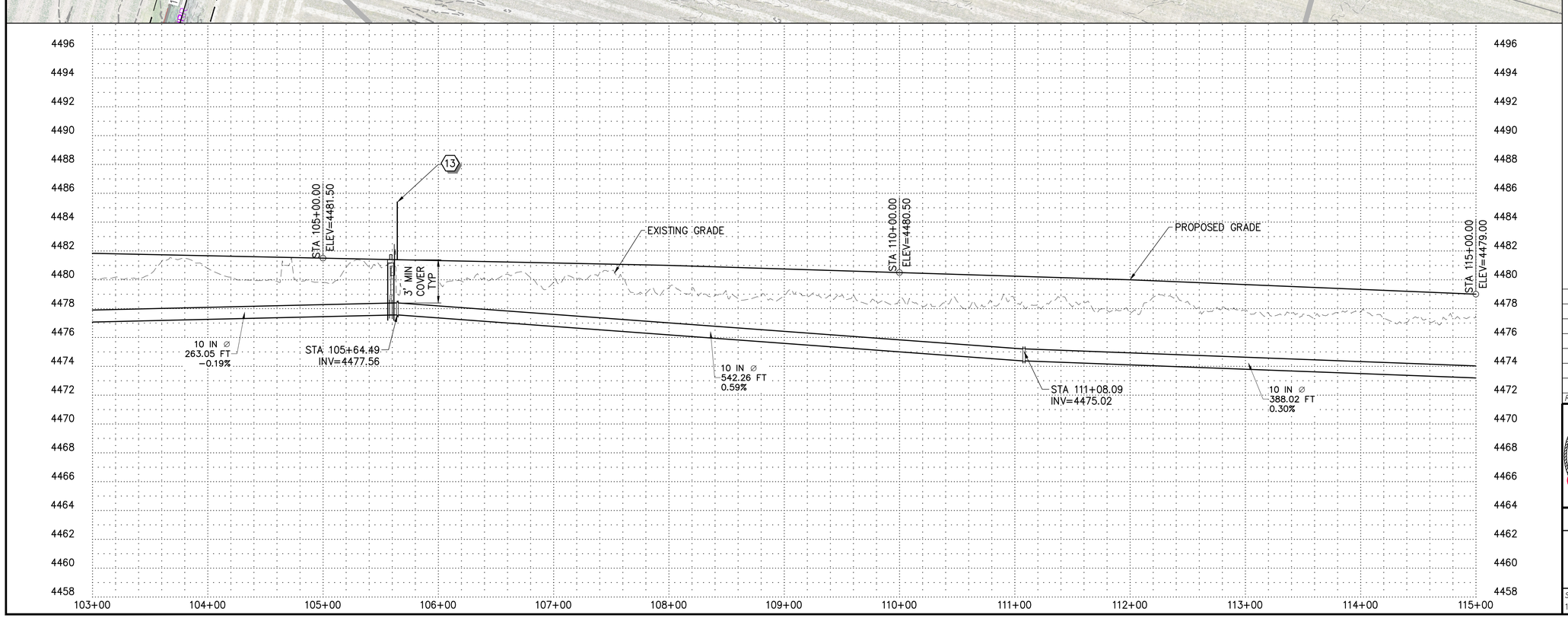
BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	35 of 52	PP8

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Latera\DWG\Sheets\BUTTARS 1-PP8.dwg Sep 01, 2026 11:27am jpiley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 - ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C / D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C / D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C / D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C / D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C / D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C / D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C / D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D / D1)
12. INSTALL ISOLATION VALVE (E / D1)
13. INSTALL PIPELINE MARKER (F / D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B / D2)
15. INSTALL SERVICE CONNECTION TYPE A (C / D2)
- A - (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A / D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE - SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION - SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C / D3)
20. INSTALL OPEN CUT ROAD CROSSING - SAWCUT AND REMOVE ASPHALT - REPLACE ASPHALT SURFACE AND SUBGRADE (A / D2, C / D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B / D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB - REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C / D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'

HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's **below.** **Call** before you dig.
1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER
No. 12401899
Steven David Wood
9/30/2026
STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

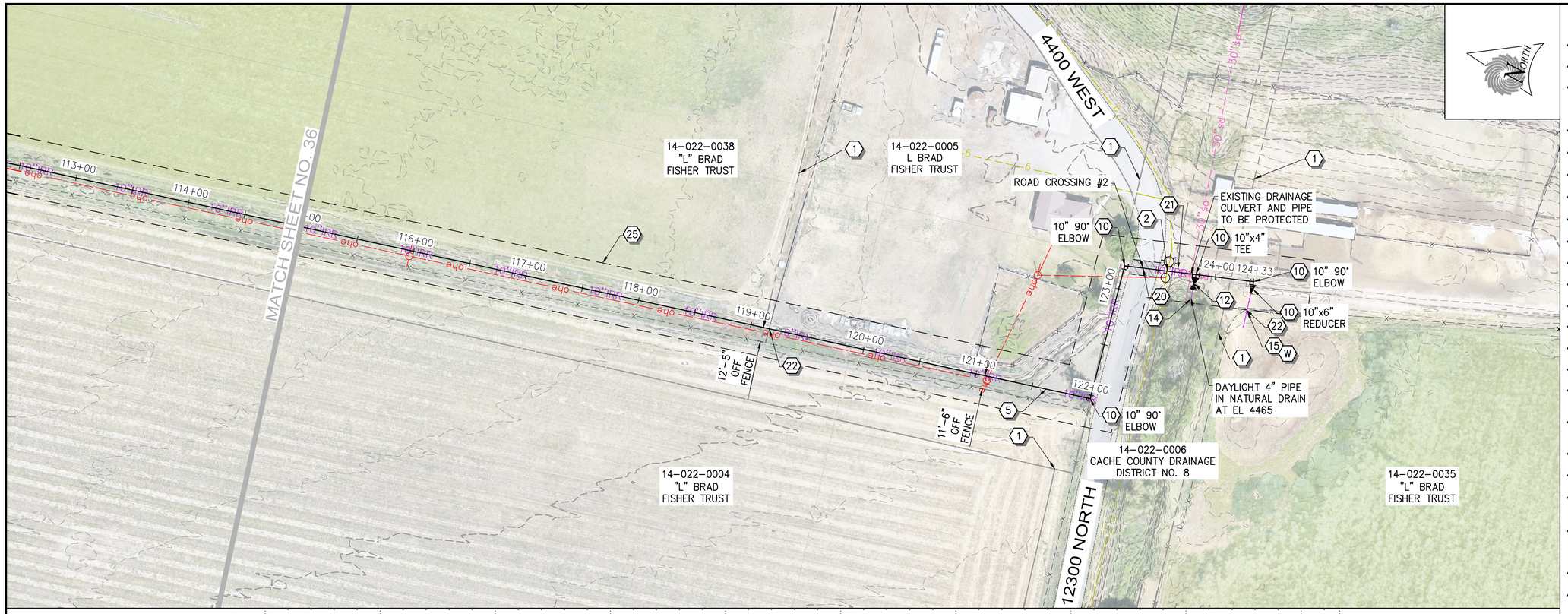
WEST CACHE IRRIGATION COMPANY

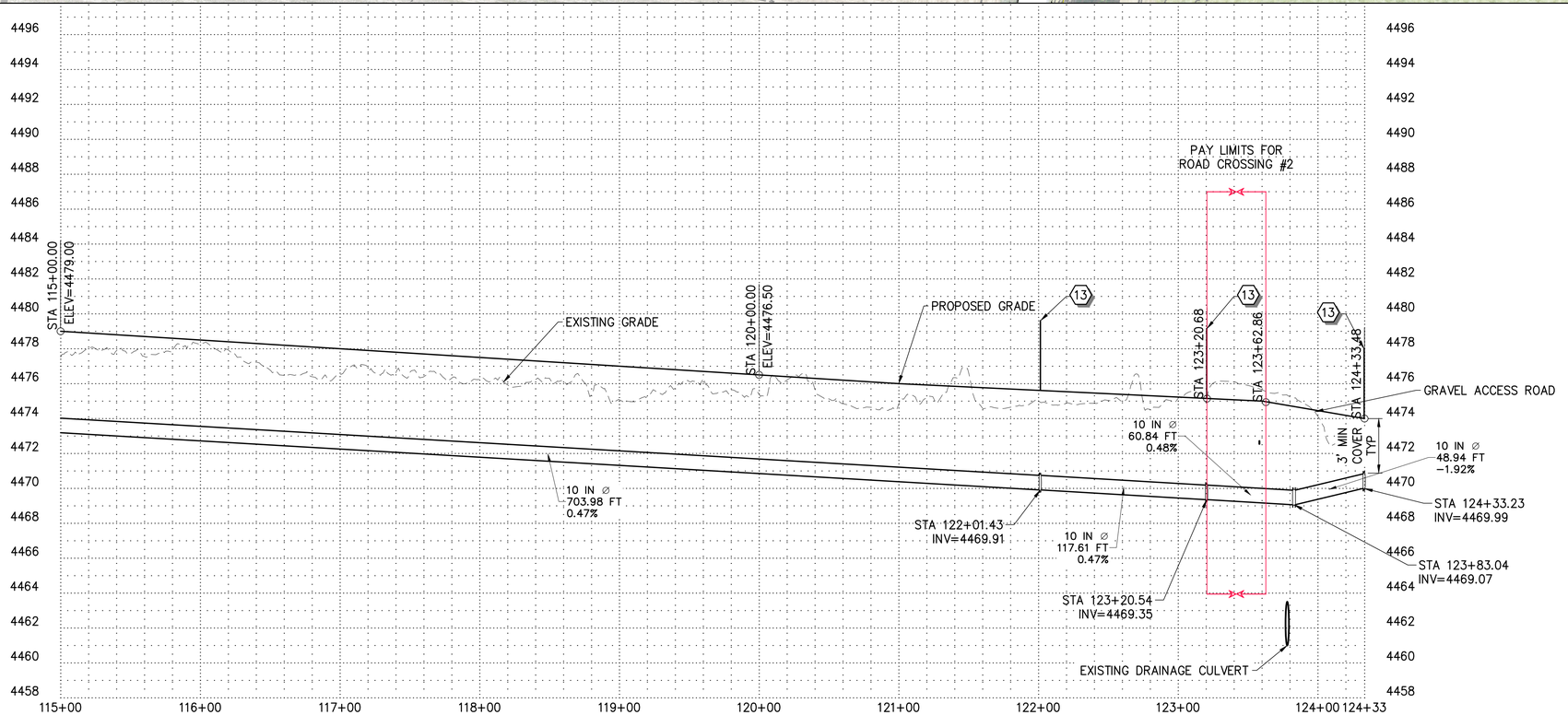
BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	36 of 52	PP9

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 1-PP9.dwg Sep 01, 2026 11:28am jpiley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – X – SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven Davis Wood 9 DEC 1986 2024 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

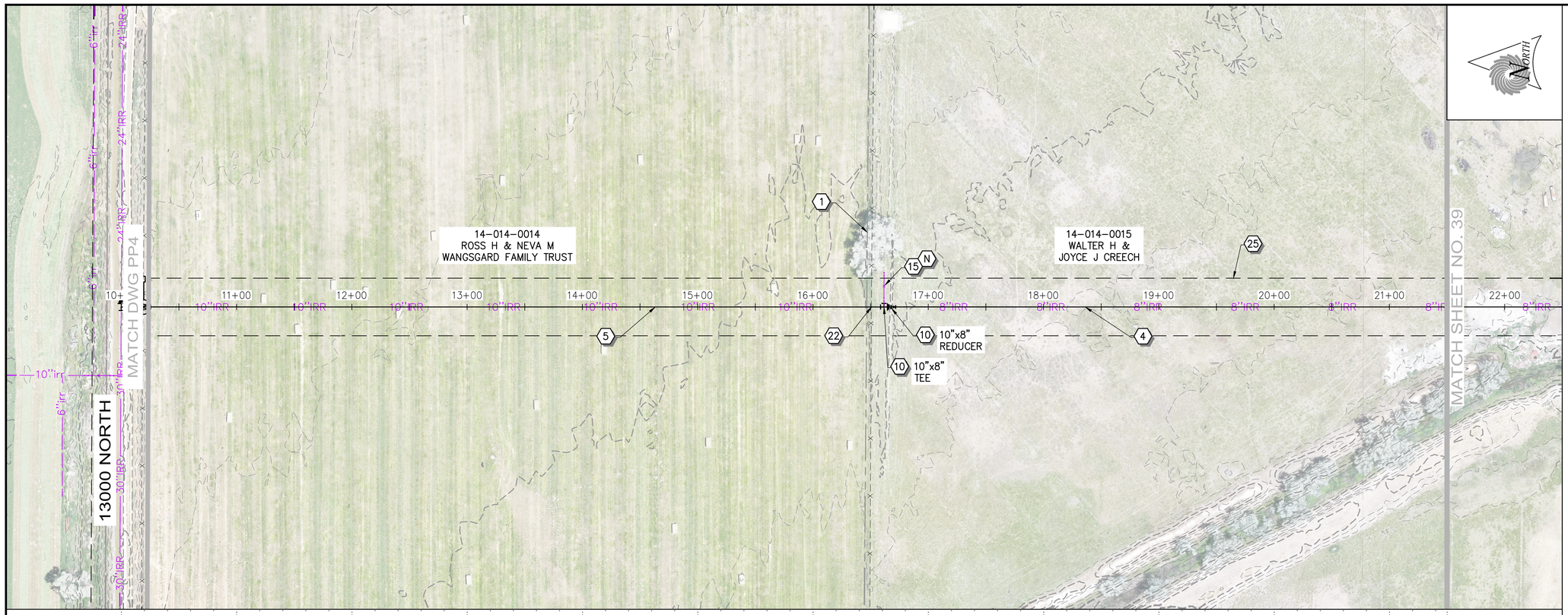
WEST CACHE IRRIGATION COMPANY

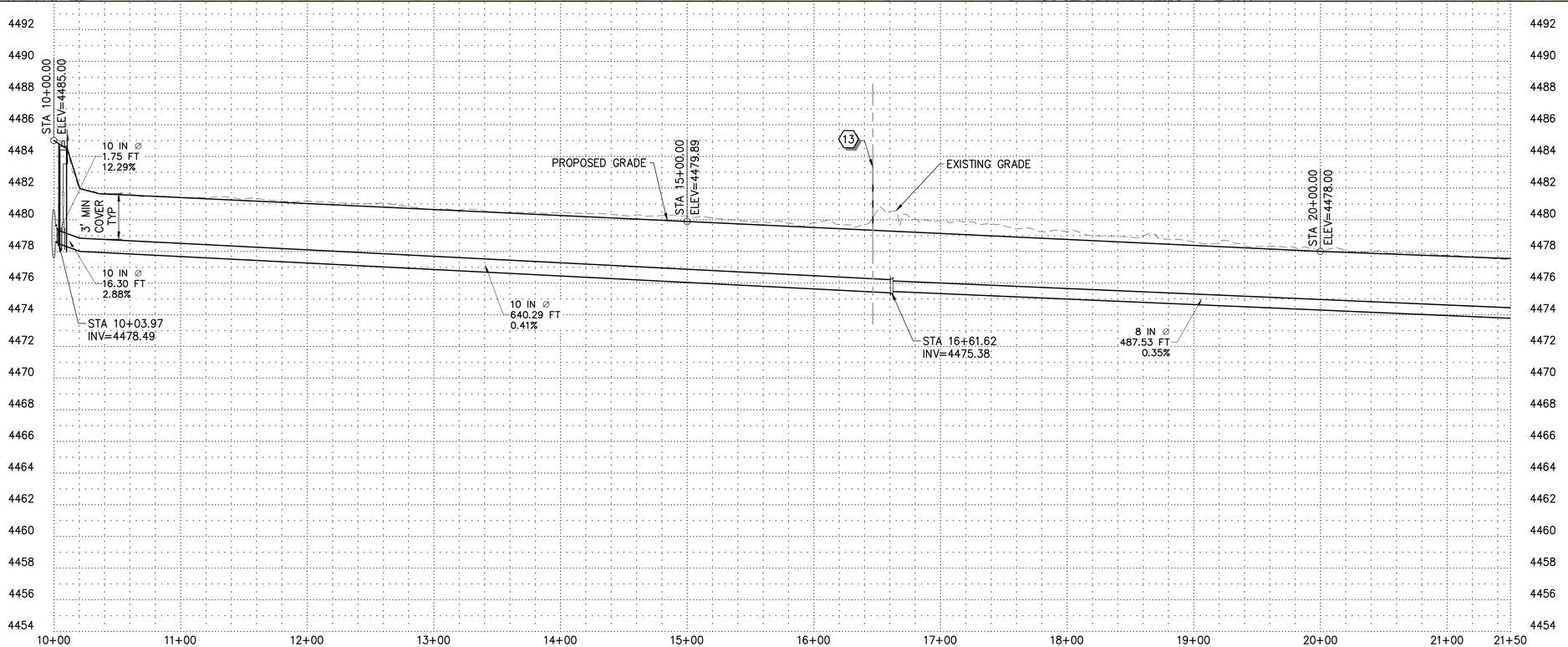
BUTTARS LATERAL
ALIGNMENT 1
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	37 of 52	PP10

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 1-PP10.dwg Sep 01, 2026 11:28am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
A. (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven Davis Wood 9/30/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

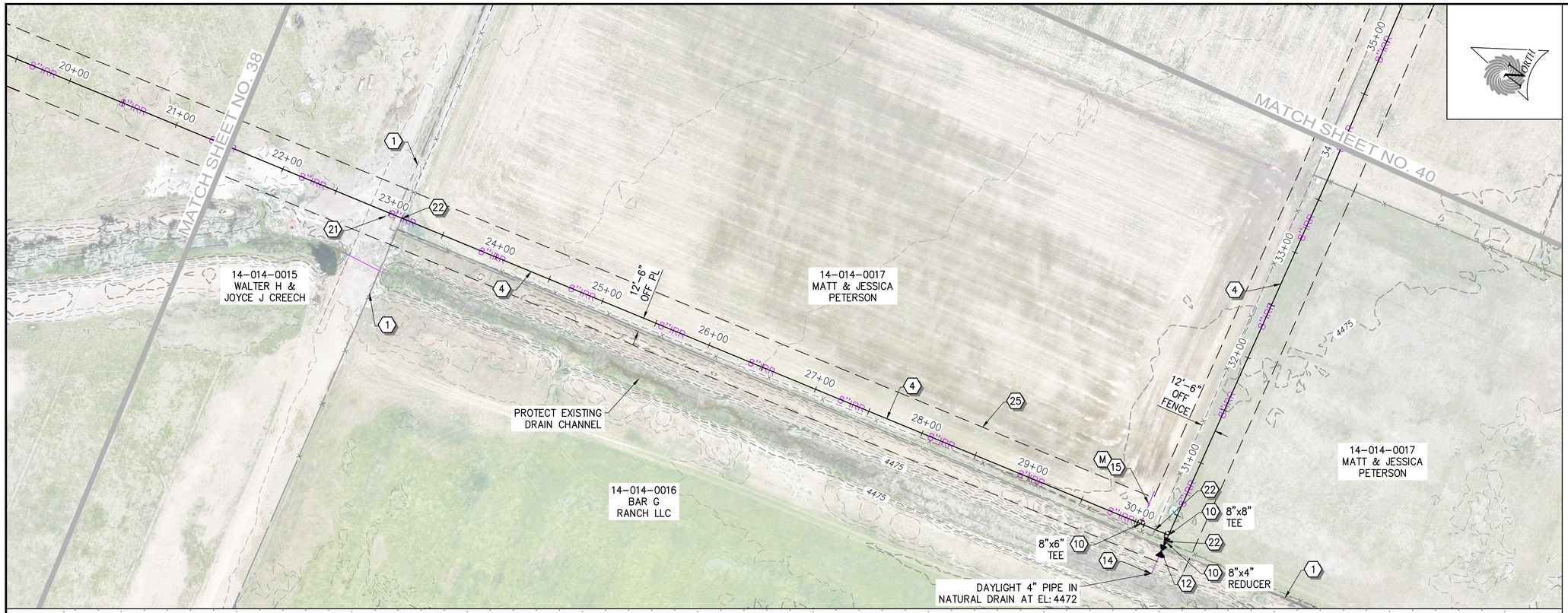
WEST CACHE IRRIGATION COMPANY

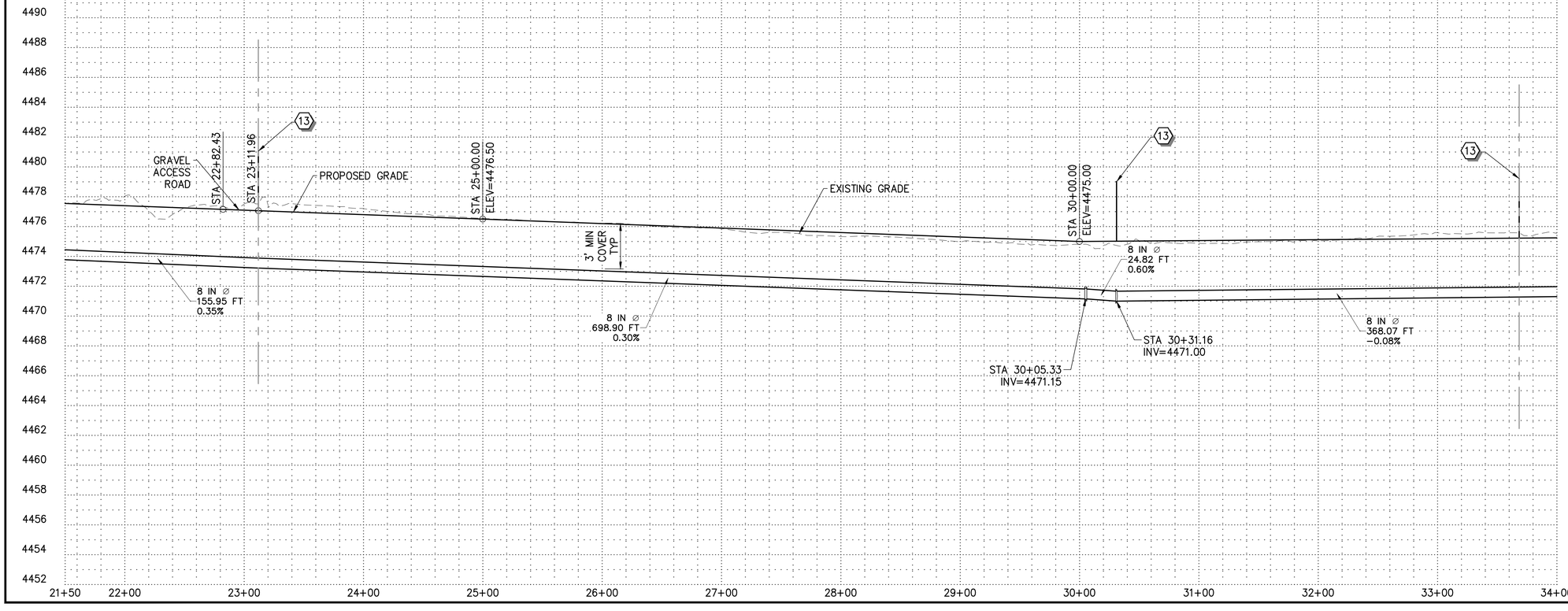
BUTTARS LATERAL
ALIGNMENT 2
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	38 of 52	PP11

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 2-PP11.dwg Sep 01, 2026 11:29am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's **below.** **Call** before you dig.
1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER
No. 12401899
Steven David Woon
9/29/2026
STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

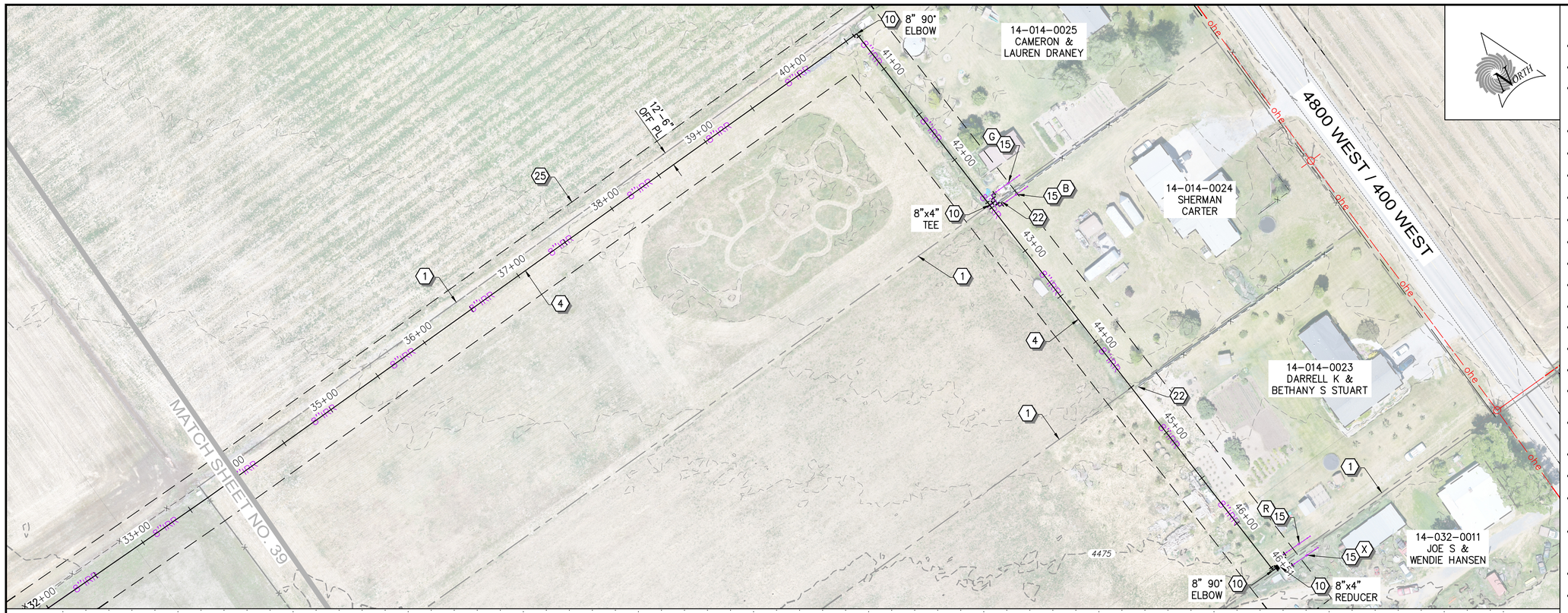
WEST CACHE IRRIGATION COMPANY

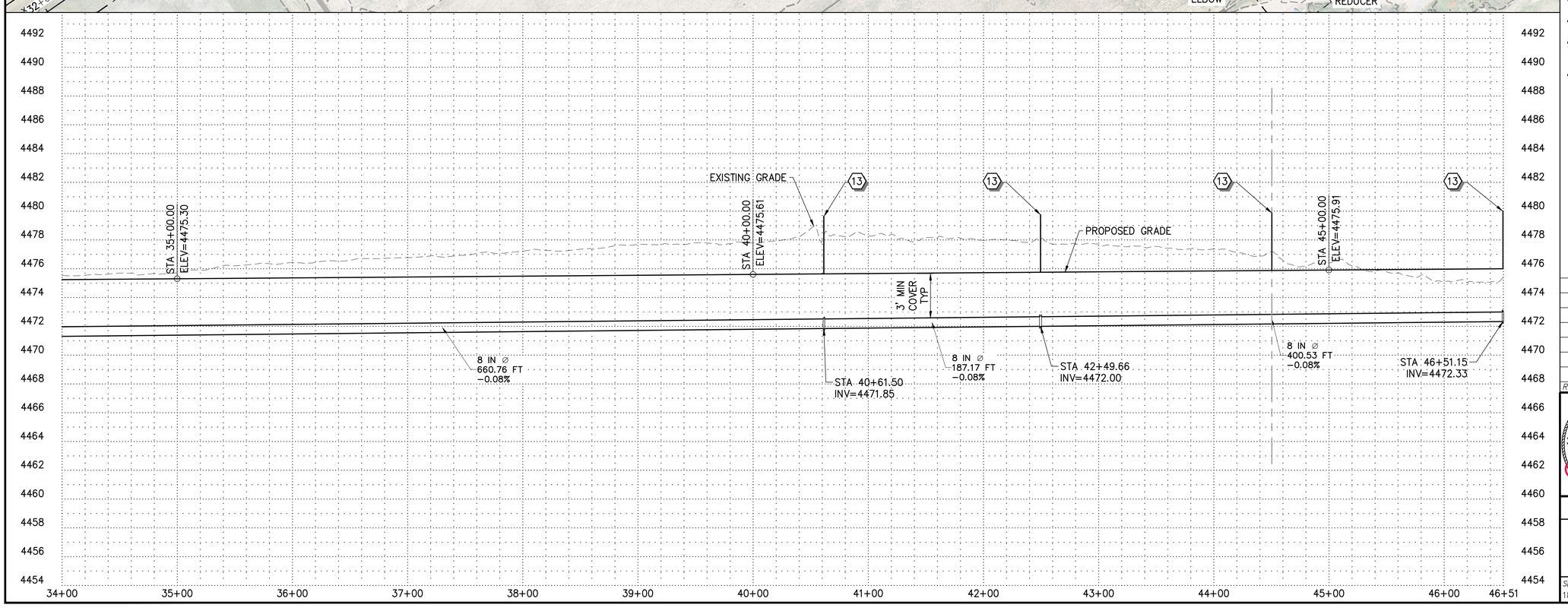
BUTTARS LATERAL
ALIGNMENT 2
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	39 of 52	PP12

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 2-PP12.dwg Sep 01, 2026 11:29am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – X SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Woon 9/30/2025 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

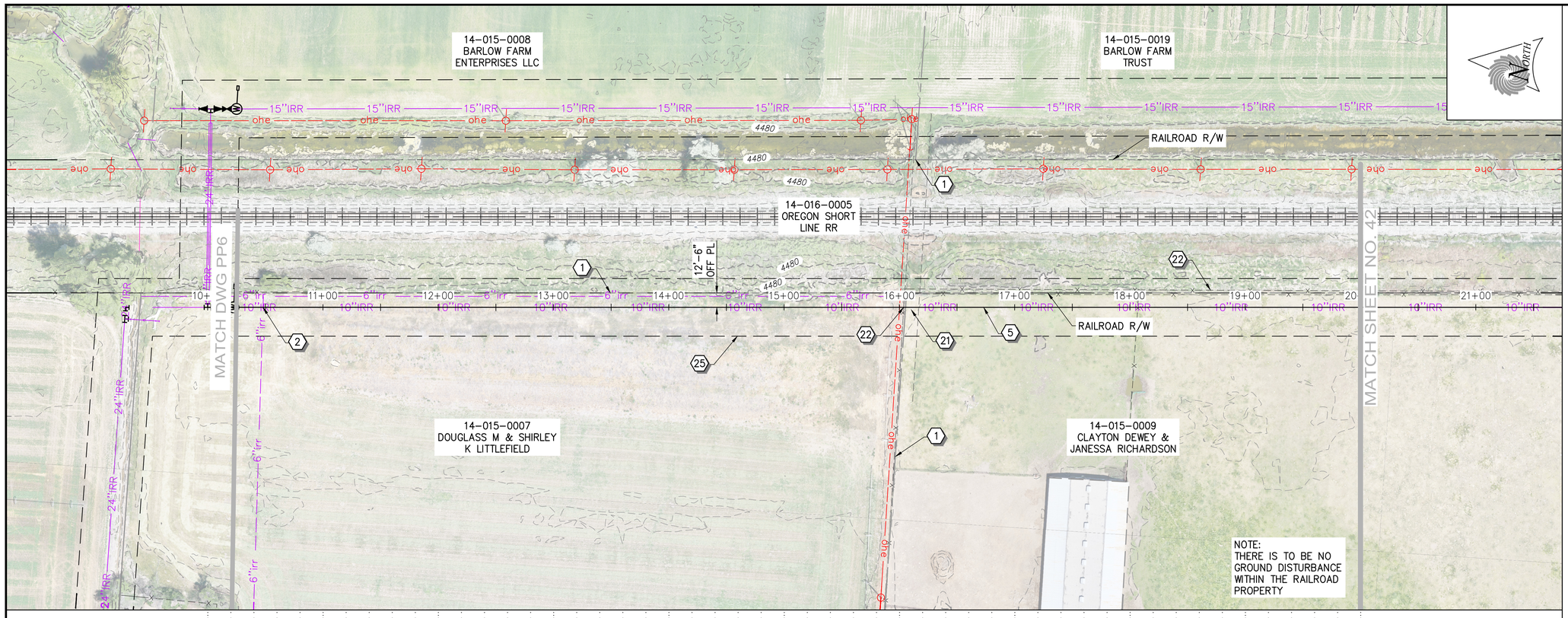
WEST CACHE IRRIGATION COMPANY

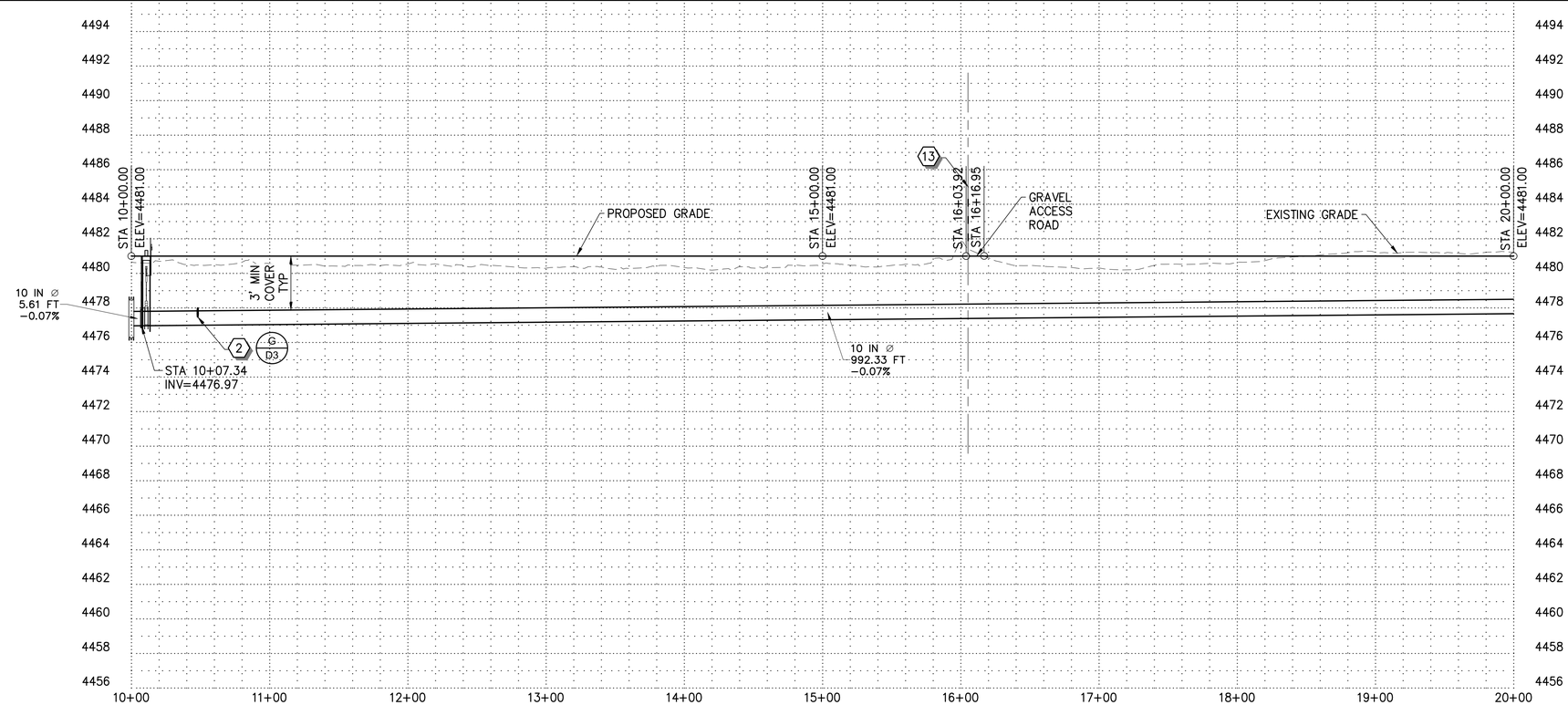
BUTTARS LATERAL
ALIGNMENT 2
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	40 of 52	PP13

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 2-PP13.dwg Sep 01, 2026 11:30am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A. (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's **below.** **Call** before you dig.
1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Woolf 9/01/2026 STATE OF UTAH FOR REVIEW ONLY

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

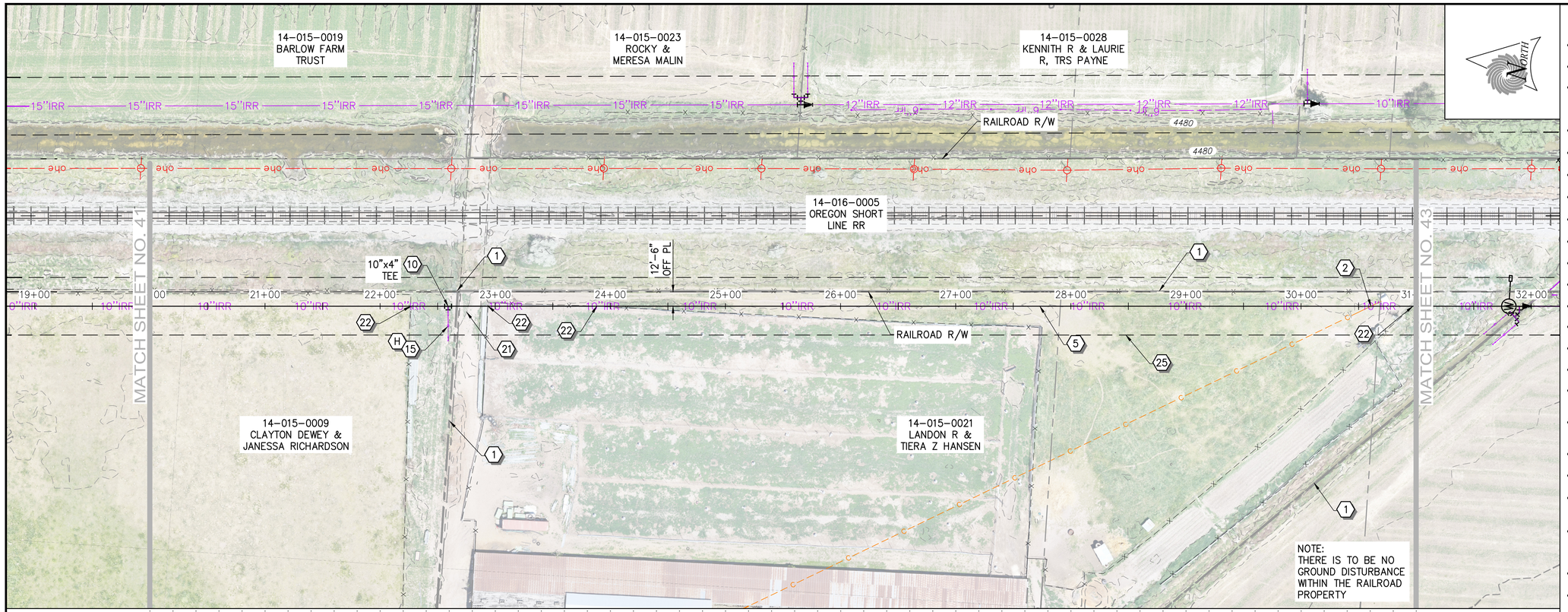
WEST CACHE IRRIGATION COMPANY

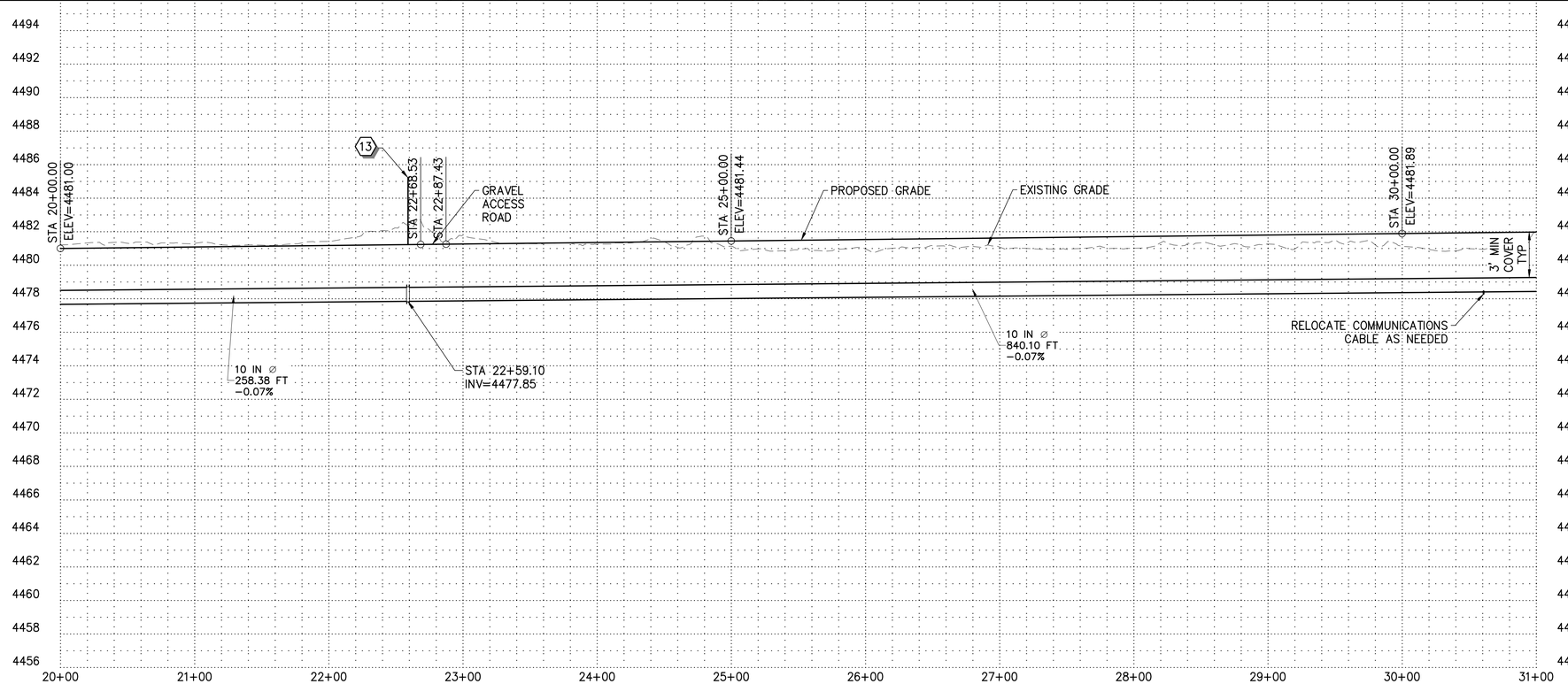
BUTTARS LATERAL
ALIGNMENT 3
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	41 of 52	PP14

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Laterel\DWG\Sheets\BUTTARS 3-PP14.dwg Sep 01, 2026 11:30am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
A. (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Woolf 9/02/2026 STATE OF UTAH FOR REVIEW ONLY NOT FOR CONSTRUCTION

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

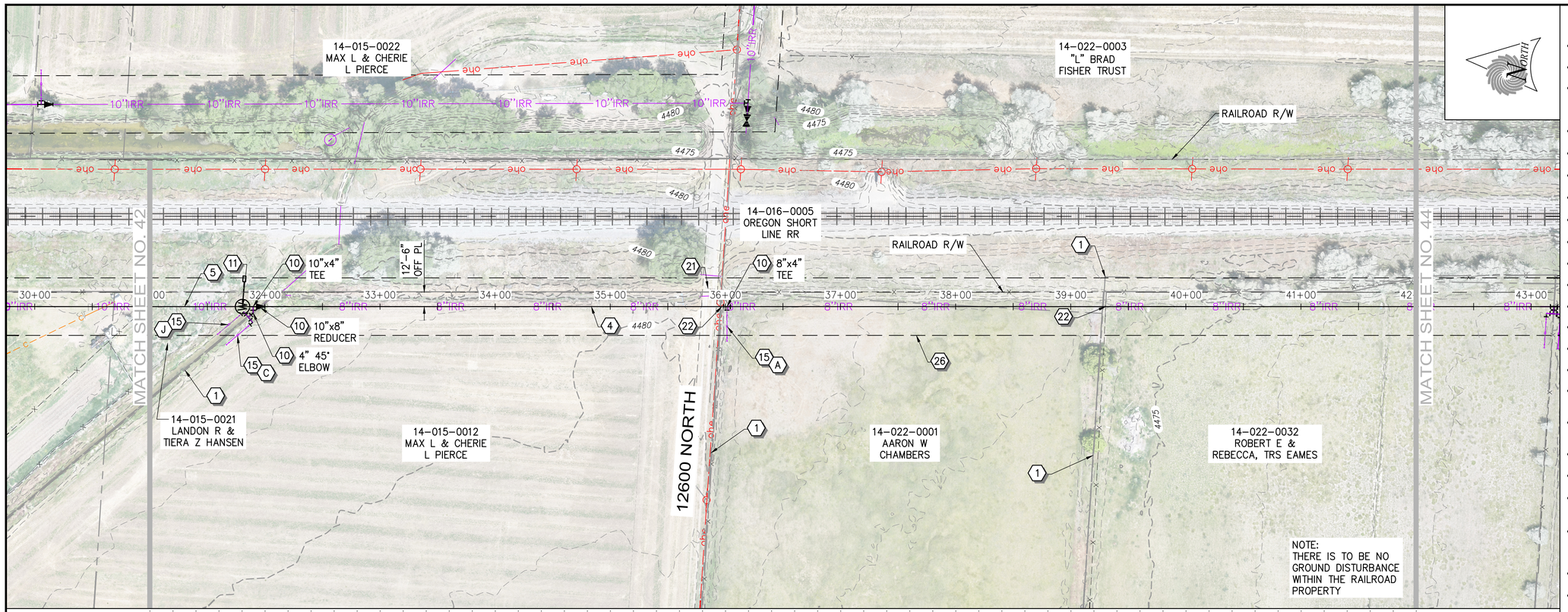
BUTTARS LATERAL
ALIGNMENT 3
PLAN AND PROFILE

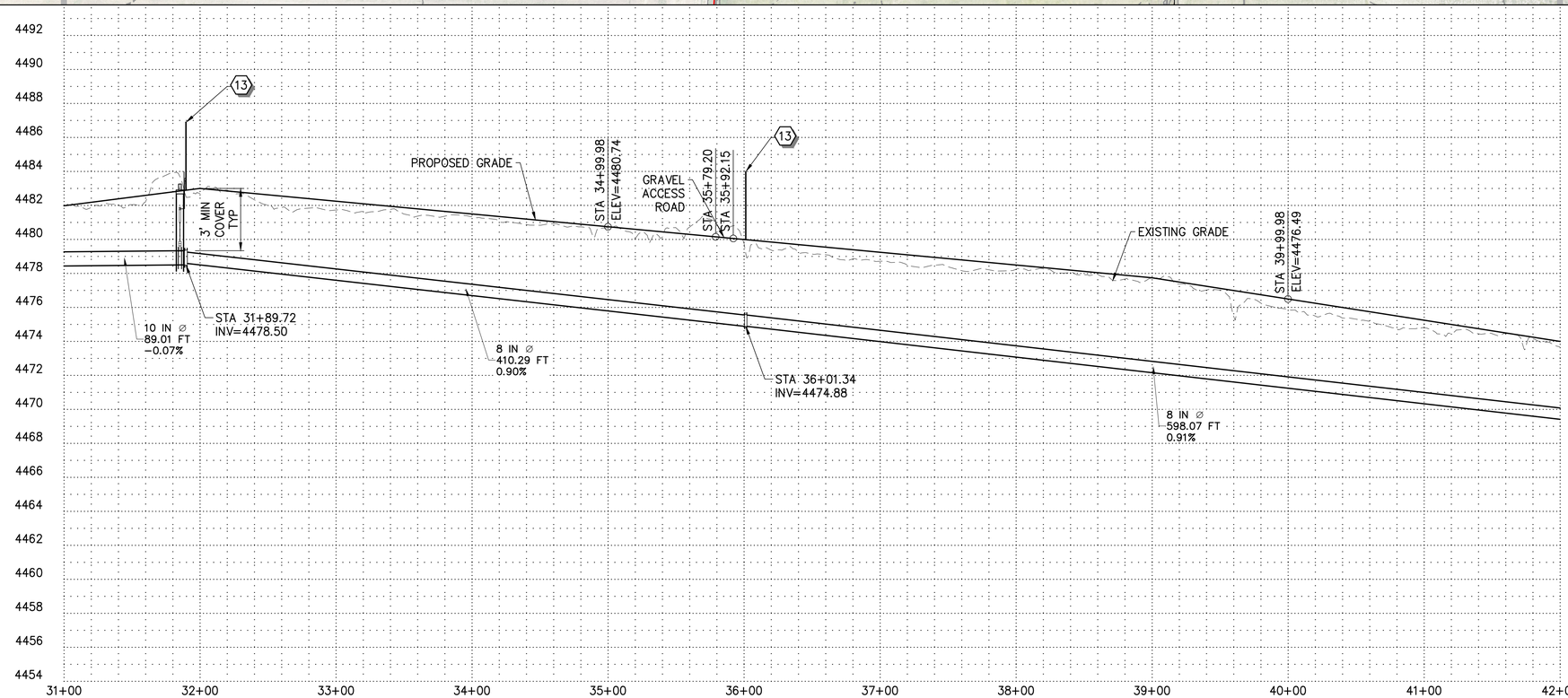
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
18538	HP	JJ	SDW	42 of 52

PP15

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS_3-PP15.dwg Sep 01, 2026 11:31am jpilley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 - ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A - X SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE - SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION - SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING - SAWCUT AND REMOVE ASPHALT - REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB - REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Thorn 9/30/2025 STATE OF UTAH FOR PRELIMINARY REVIEW ONLY

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

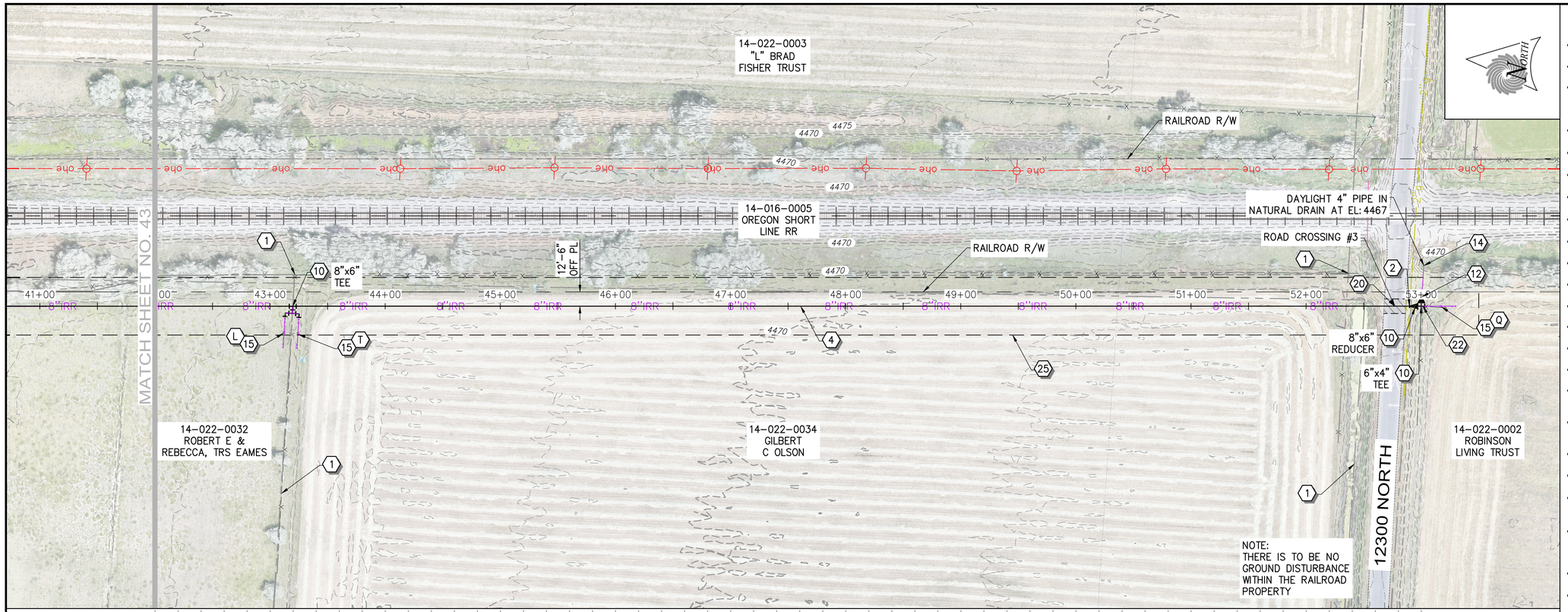
WEST CACHE IRRIGATION COMPANY

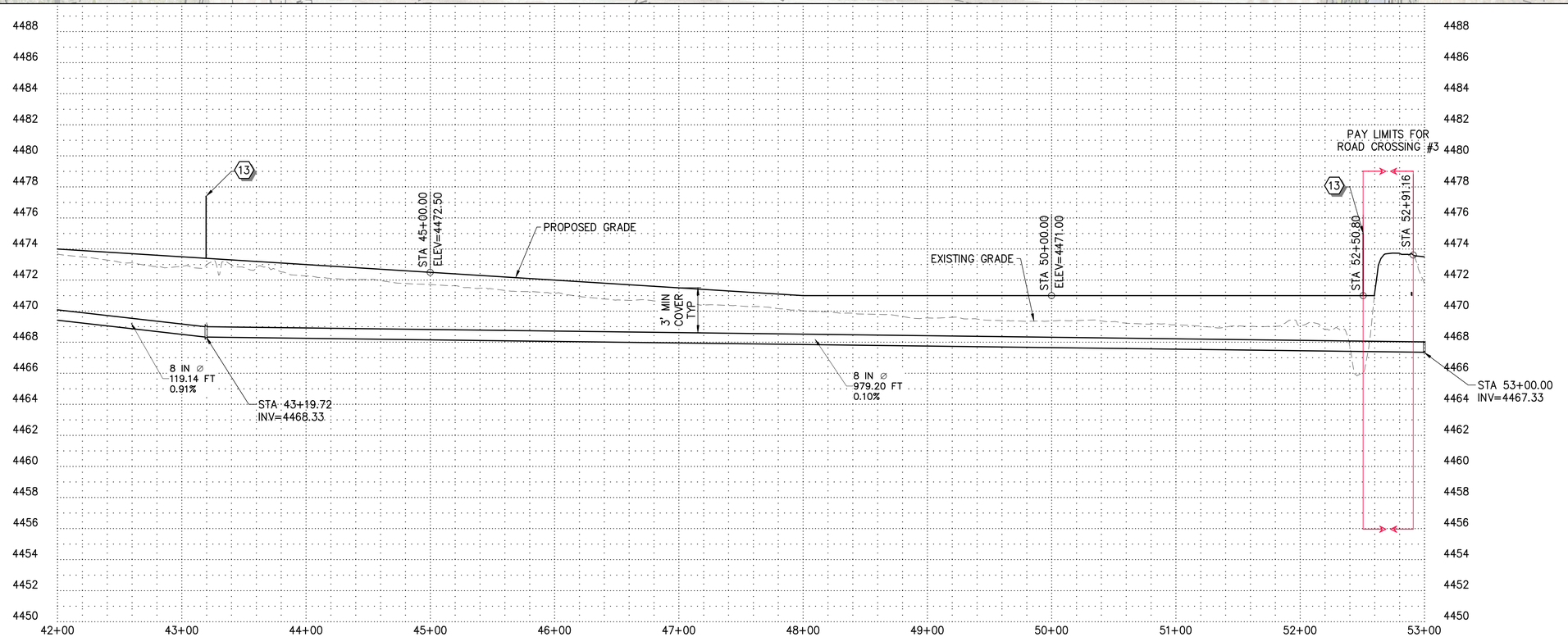
BUTTARS LATERAL
ALIGNMENT 3
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	43 of 52	PP16

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 3-PP16.dwg Sep 01, 2026 11:32am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A – (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Woolf 9/30/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

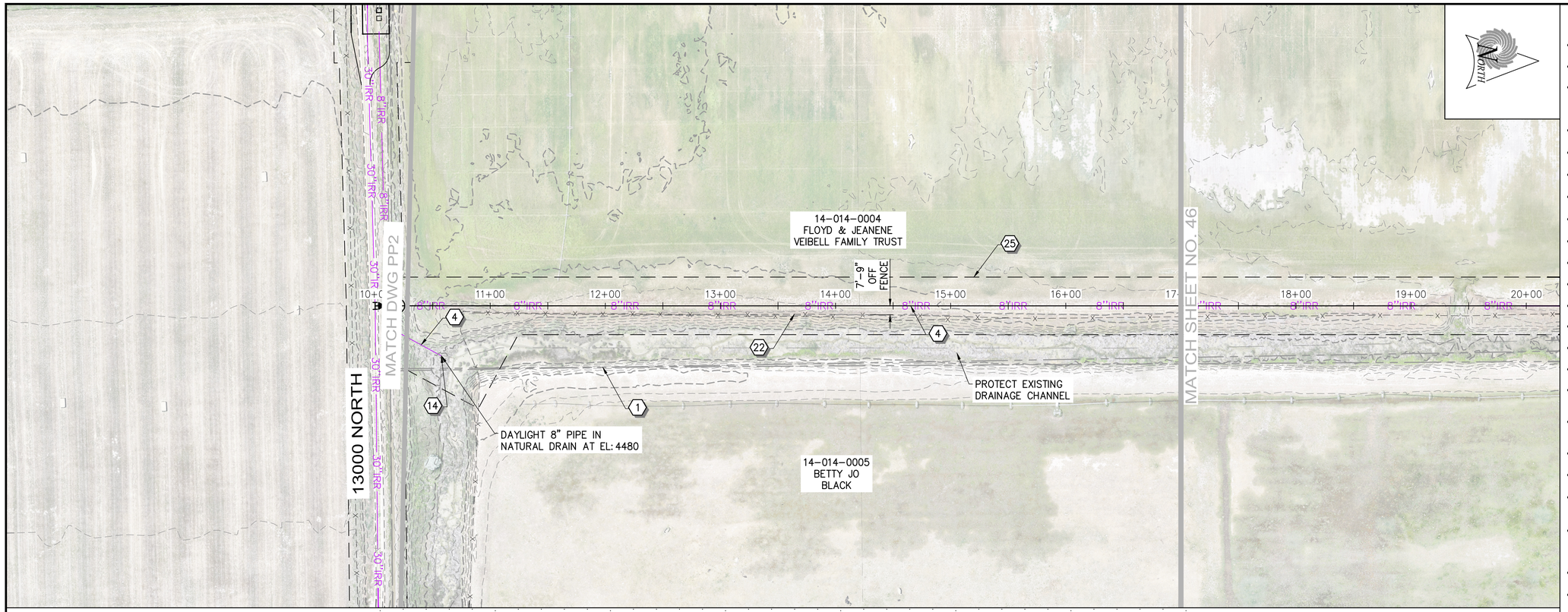
WEST CACHE IRRIGATION COMPANY

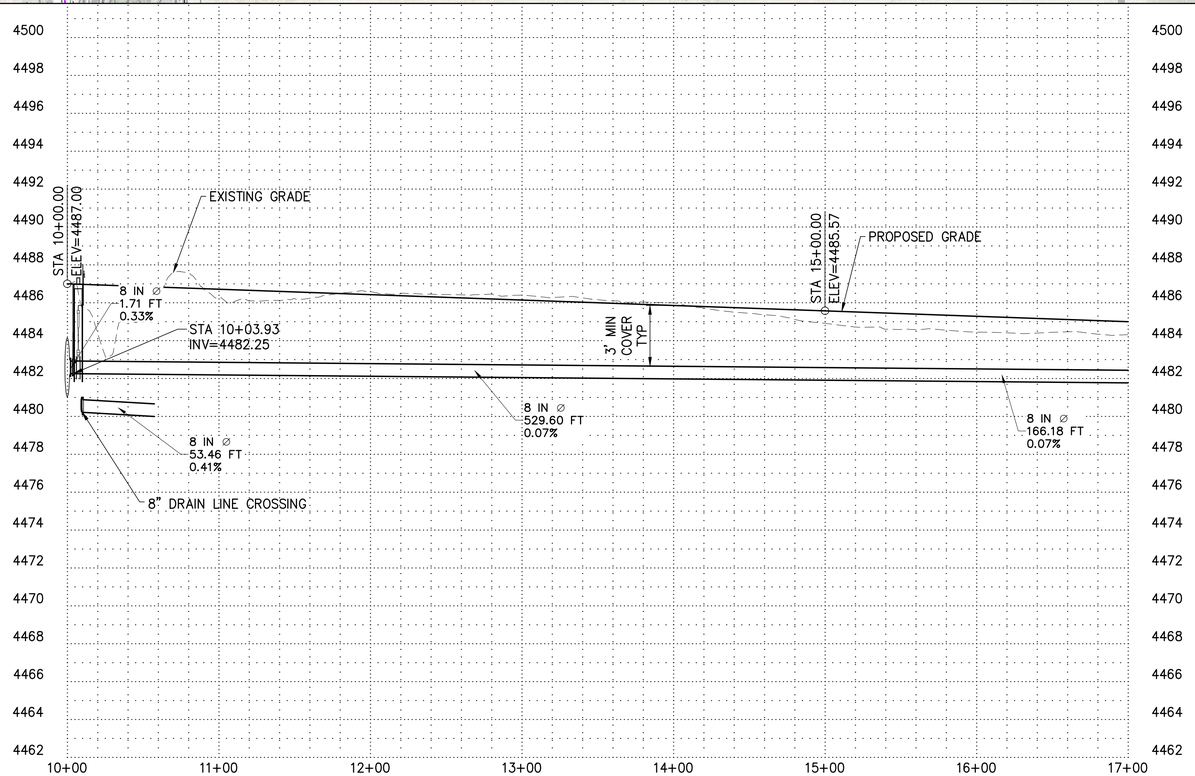
BUTTARS LATERAL
ALIGNMENT 3
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	44 of 52	PP17

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS_3-PP17.dwg Sep 01, 2026 11:32am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
- A. (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'

HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER — No. 12401899 — Steven David Woolf — 9/05/2024 — STATE OF UTAH — FOR REVIEW ONLY — NOT FOR CONSTRUCTION

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

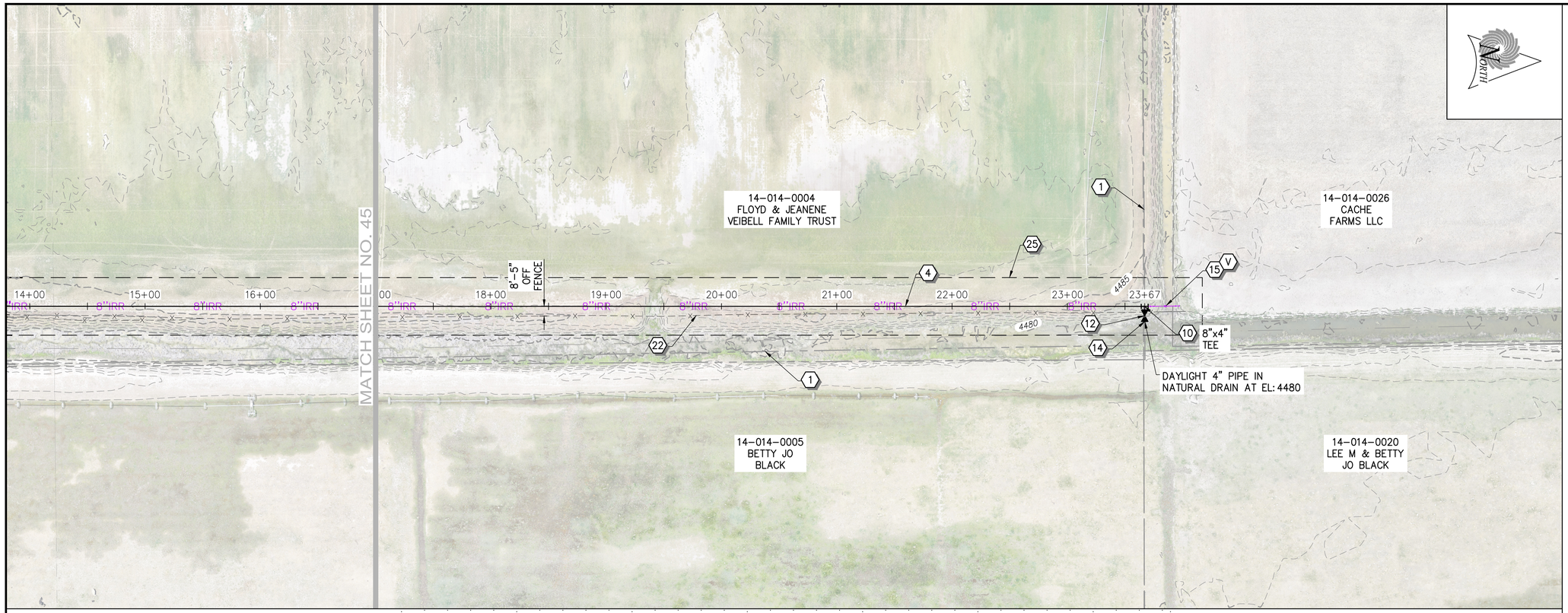
WEST CACHE IRRIGATION COMPANY

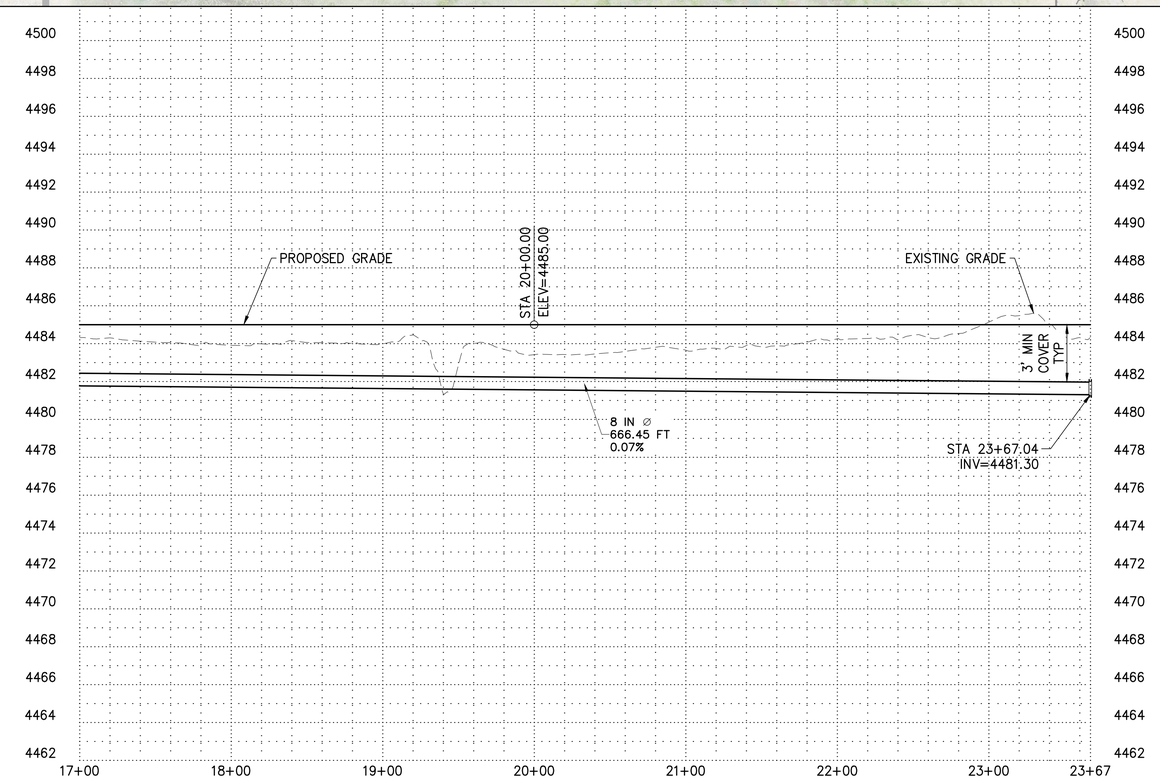
BUTTARS LATERAL
ALIGNMENT 4
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	45 of 52	PP18

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 4-PP18.dwg Sep 01, 2026 11:33am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR–32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4–PS5 (A,B,C / D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR–32.5 PC 125 (A,B,C / D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR–32.5 PC 125 (A,B,C / D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR–32.5 PC 125 (A,B,C / D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR–32.5 PC 125 (A,B,C / D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR–32.5 PC 125 (A,B,C / D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR–32.5 PC 125 (A,B,C / D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D / D1)
12. INSTALL ISOLATION VALVE (E / D1)
13. INSTALL PIPELINE MARKER (F / D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B / D2)
15. INSTALL SERVICE CONNECTION TYPE A (C / D2)
- A – (X) SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A / D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1–DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1–PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C / D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A / D2, C / D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B / D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR–17 PC125 (A,B,C / D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER — No. 12401899 — Steven David Woody — 9 May 2024 — STATE OF UTAH — FOR REVIEW ONLY — NOT FOR CONSTRUCTION

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

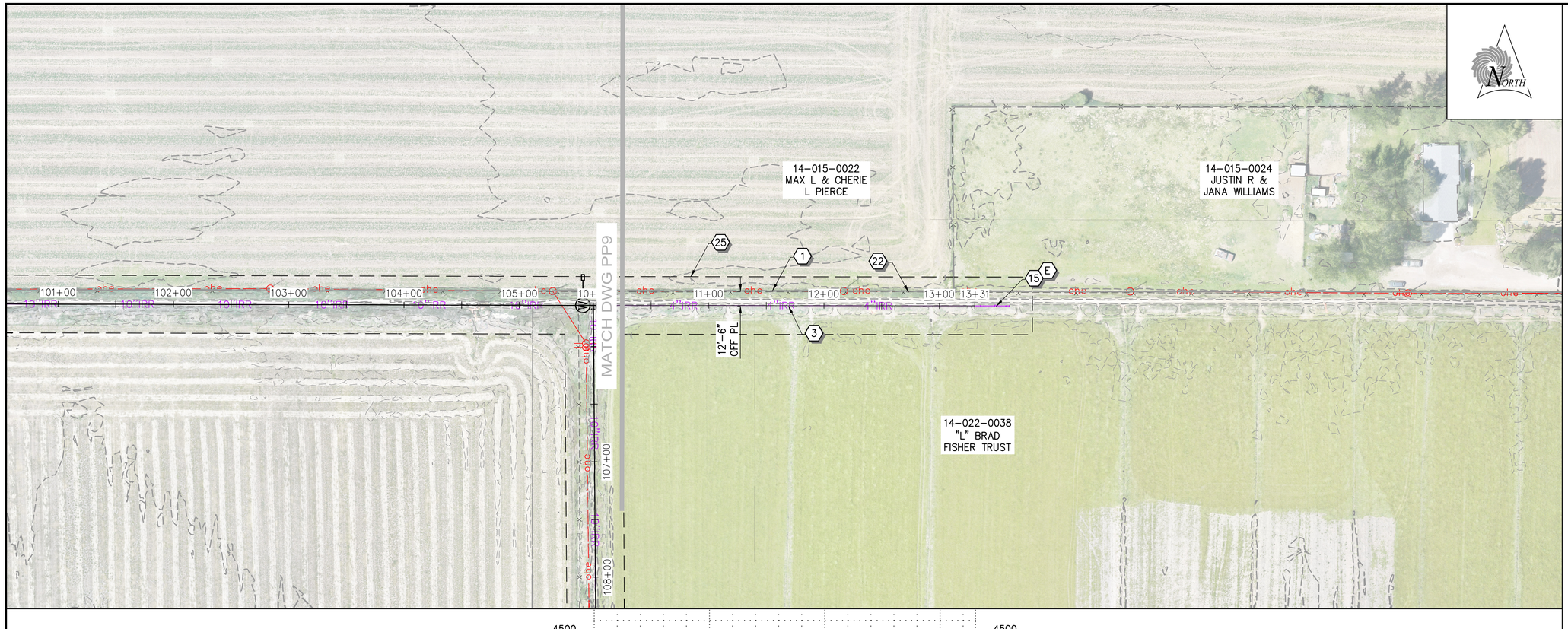
WEST CACHE IRRIGATION COMPANY

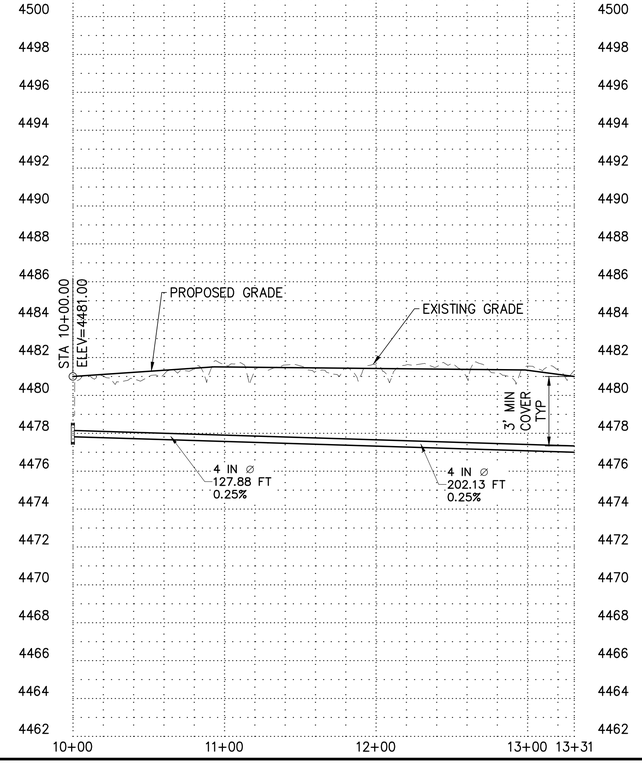
BUTTARS LATERAL
PIPELINES 4
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	46 of 52	PP19

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS 4-PP19.dwg Sep 01, 2026 11:33am jjolley





CONSTRUCTION NOTES

1. PROPERTY LINE
2. LOCATE AND PROTECT EXISTING UTILITY
3. INSTALL 4" AWWA C900 PVC PIPE DR-32.5 PC 125 – ON SHEETS PP1 AND PP2 SEE SHEETS DS2 AND PS4-PS5 (A,B,C D1)
4. INSTALL 8" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
5. INSTALL 10" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
6. INSTALL 12" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
7. INSTALL 15" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
8. INSTALL 24" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
9. INSTALL 30" AWWA C900 PVC PIPE DR-32.5 PC 125 (A,B,C D1)
10. INSTALL FITTING PER PLAN
11. INSTALL AIR/VAC COMBINATION VALVE (D D1)
12. INSTALL ISOLATION VALVE (E D1)
13. INSTALL PIPELINE MARKER (F D1)
14. INSTALL 4" OR 8" DRAIN PER PLAN (B D2)
15. INSTALL SERVICE CONNECTION TYPE A (C D2)
    - A – X SHARE OWNERS. SEE SHARE OWNERS TABLE FOR SERVICE CONNECTION SIZE (A D4)
16. CONNECT 30" PIPE INTO THE UPGRADED INTAKE DIVERSION STRUCTURE – SEE SHEETS DS1-DS4
17. CONNECT TO PUMP STATION – SEE SHEETS PS1-PS5
18. CONNECT TO THE EXISTING 10" PVC IRRIGATION LINE
19. JACK AND BORE INSTALLATION WITH 30" CASING AND 24" HDPE IRRIGATION MAIN LINE (C D3)
20. INSTALL OPEN CUT ROAD CROSSING – SAWCUT AND REMOVE ASPHALT – REPLACE ASPHALT SURFACE AND SUBGRADE (A D2, C D1)
21. PATCH AND REPAIR GRAVEL ROAD / DRIVE (B D1)
22. PROTECT EXISTING FENCE / REPLACE IN KIND IF REMOVED
23. CLEAN AND GRUB – REMOVE EXISTING STRUCTURES
24. INSTALL 24" DIPS PE4710 HDPE PIPE AWWA C906 DR-17 PC125 (A,B,C D1)
25. 50' CONSTRUCTION EASEMENT

SCALE
0 50' 100'
HORIZ: 1" = 50' : 22 x 34
HORIZ: 1" = 100' : 11 x 17
VERT: 1" = 4' : 22 x 34
VERT: 1" = 8' : 11 x 17

811 Know what's **below.** **Call** before you dig.
1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven Davis Woof 9 (20) 2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

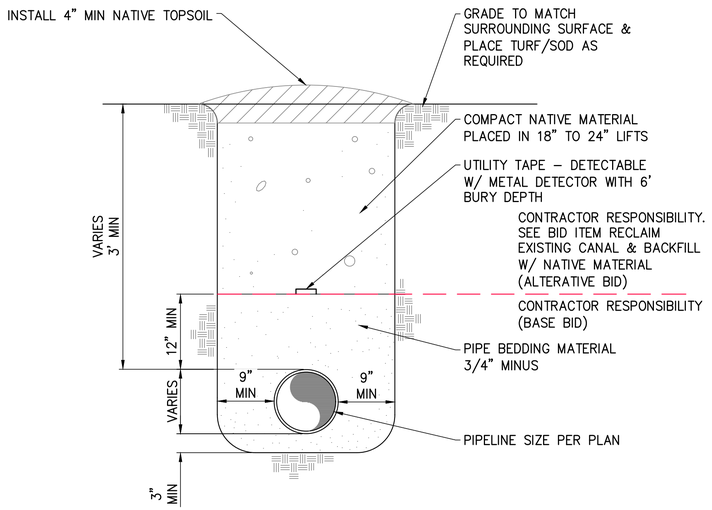
WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
ALIGNMENT 5
PLAN AND PROFILE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	47 of 52	PP20

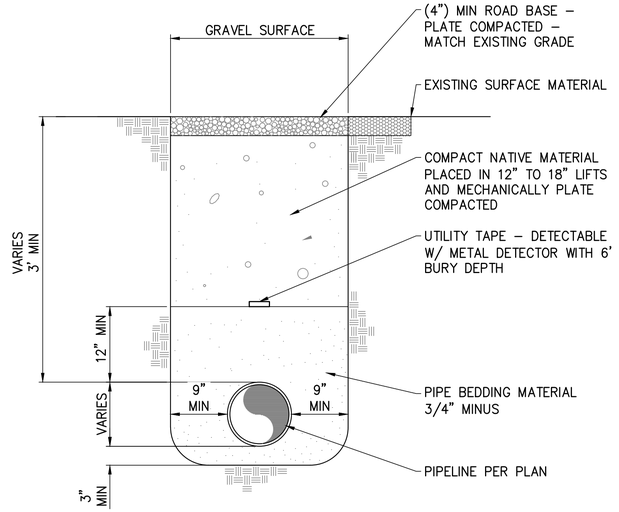
90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Latera\DWG\Sheets\BUTTARS 5-PP20.dwg Sep 01, 2026 11:34am jjolley



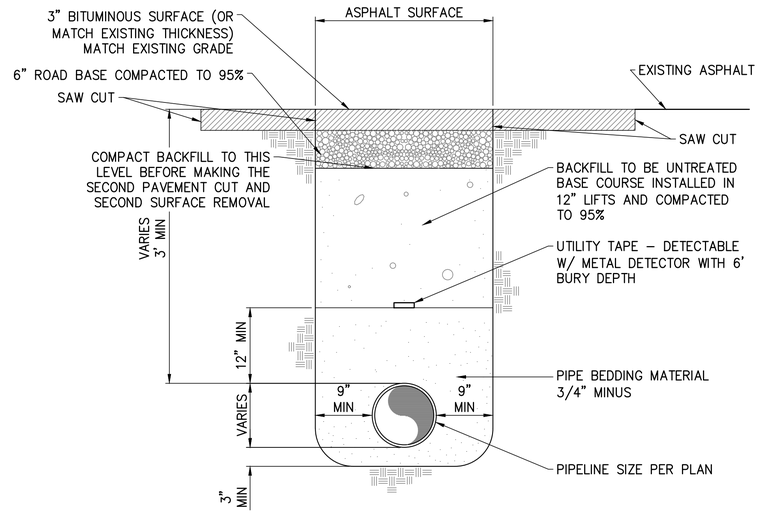
NOTES:
- TRENCH DETAIL OUTSIDE OF TRAVELED ROADWAY SURFACE.
- GRADE SHALL MATCH SURROUNDING SURFACE (SOD, NATIVE TOPSOIL, ETC.).
- SEE TRENCH EXCAVATION AND BACKFILL SPEC 02200 FOR COMPACTION REQUIREMENTS.
- A MAXIMUM 3/4" FOR ALL BEDDING MATERIAL
- ALL PIPE FITTINGS ARE INCIDENTAL TO THE PIPE & WILL BE ACCOUNTED FOR IN THE PIPE BID ITEMS

A ~ DETAIL - TOPSOIL & SOD TRENCH
NOT TO SCALE



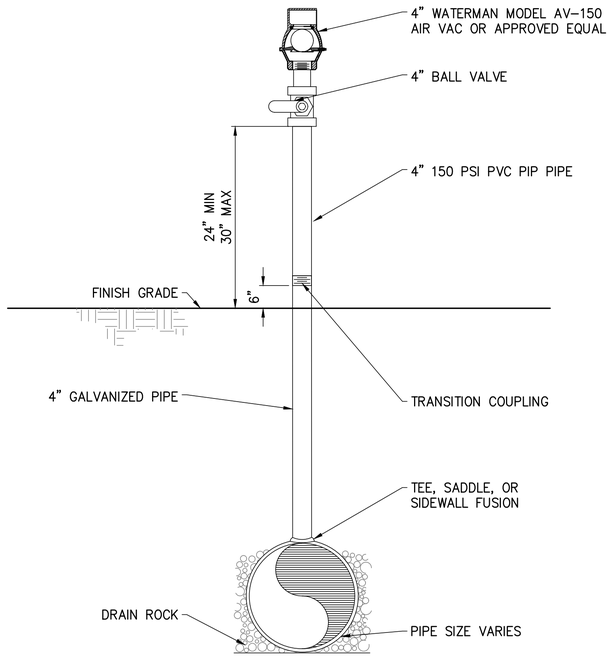
NOTES
- TRENCH DETAIL INSIDE GRAVEL AND DIRT ROADWAYS AND DRIVEWAYS
- SEE TRENCH EXCAVATION AND BACKFILL SPEC 02200 FOR COMPACTION REQUIREMENTS.
- A MAXIMUM 3/4" FOR ALL BEDDING MATERIAL
- GRADE SHALL MATCH SURROUNDING SURFACE
- ALL PIPE FITTINGS ARE INCIDENTAL TO THE PIPE & WILL BE ACCOUNTED FOR IN THE PIPE BID ITEMS

B ~ DETAIL - UNPAVED ROADWAY / DRIVEWAY TRENCH
NOT TO SCALE



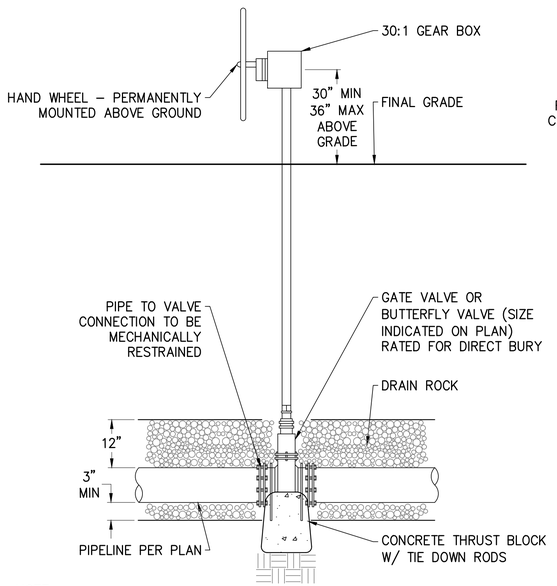
NOTES:
- TRENCH DETAIL INSIDE OF ASPHALT ROADWAYS AND DRIVEWAYS
- ASPHALT ROADS SHALL BE SAW CUT AT TRENCH WIDTH & AGAIN AT 12" OUTSIDE TRENCH WIDTH
- SEE TRENCH EXCAVATION AND BACKFILL SPEC 02200 FOR COMPACTION REQUIREMENTS.
- A MAXIMUM 3/4" FOR ALL BEDDING MATERIAL
- ALL PIPE FITTINGS ARE INCIDENTAL TO THE PIPE & WILL BE ACCOUNTED FOR IN THE PIPE BID ITEMS

C ~ DETAIL - PAVED ROADWAY TRENCH
NOT TO SCALE



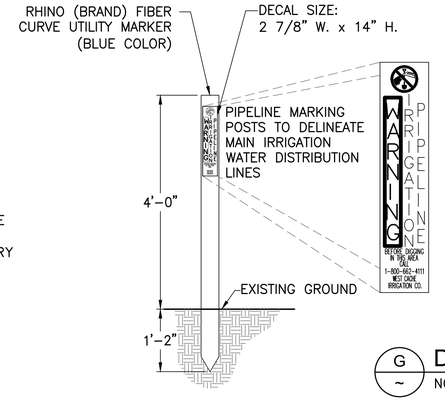
NOTE:
1. EACH AIR AND VACUUM RELIEF VALVE IS TO INCLUDE TWO (2) PIPE BOLLARDS TO BE PLACED INLINE WITH RELIEF VALVE – PERPENDICULAR WITH PIPE

D ~ DETAIL - COMBINATION AIR AND VACUUM RELIEF VALVE
NOT TO SCALE



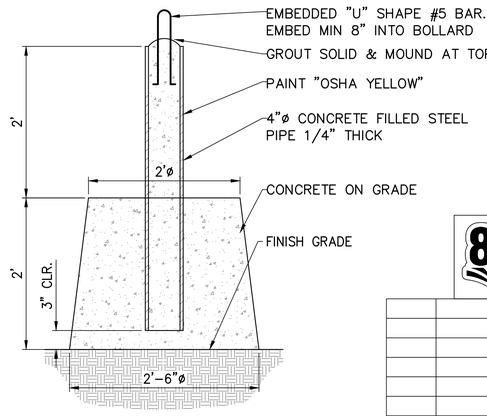
NOTE:
1. EACH ISOLATION VALVE IS TO INCLUDE TWO (2) PIPE BOLLARDS TO BE PLACED INLINE WITH ISOLATION VALVE PERPENDICULAR WITH PIPE – WHEEL TO BE TAGGED WITH A METAL LABEL READING "WEST CACHE IRRIGATION COMPANY"

E ~ DETAIL - TYPICAL ISOLATION VALVE
NOT TO SCALE



NOTE:
1. GENERALLY, MARKERS ARE TO BE PLACED AT ALL INSTANCES WHERE THE PIPELINE CROSSES A FENCE LINE OR PROPERTY LINE WHERE THE MARKER WILL NOT OBSTRUCT FARMING ACTIVITIES
2. PIPELINE MARKER TO BE PLACED AS SHOWN ON DRAWINGS, GENERALLY ON TOP OF EVERY FITTING

F ~ DETAIL - PIPELINE MARKER
NOT TO SCALE



G ~ DETAIL - PORTABLE PIPE BOLLARD
NOT TO SCALE

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/09/2024 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

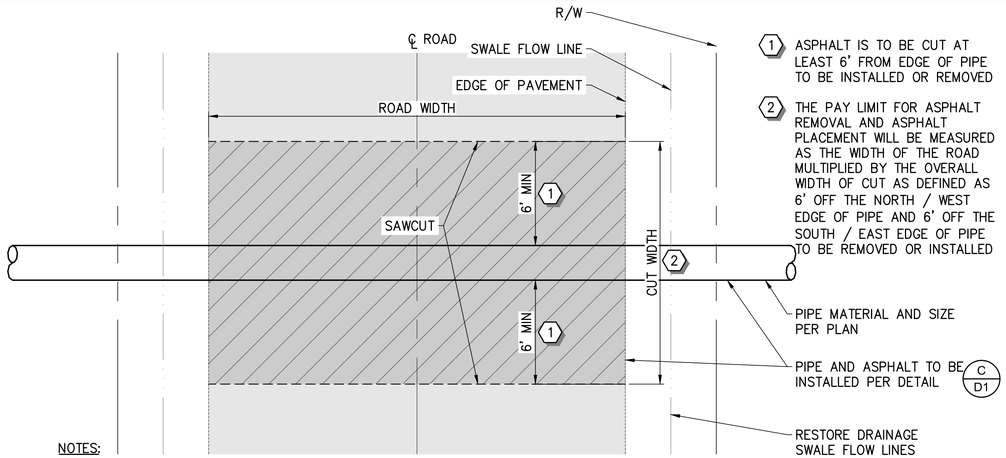
BUTTARS LATERAL
DETAILS
PIPELINE DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.
18538	HP	JJ	SDW	48 of 52

D1

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-D.dwg Sep 01, 2026 11:34am jpilley



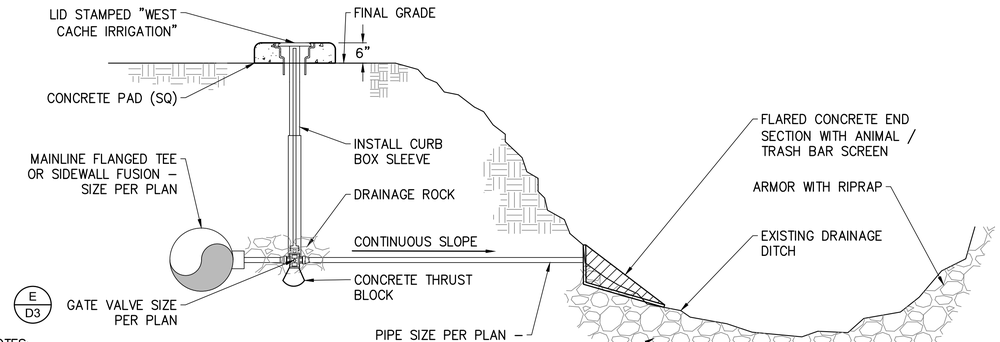
1. ASPHALT IS TO BE CUT AT LEAST 6' FROM EDGE OF PIPE TO BE INSTALLED OR REMOVED
2. THE PAY LIMIT FOR ASPHALT REMOVAL AND ASPHALT PLACEMENT WILL BE MEASURED AS THE WIDTH OF THE ROAD MULTIPLIED BY THE OVERALL WIDTH OF CUT AS DEFINED AS 6' OFF THE NORTH / WEST EDGE OF PIPE AND 6' OFF THE SOUTH / EAST EDGE OF PIPE TO BE REMOVED OR INSTALLED

NOTES:

1. ALL JOINTS OF THE PIPE WITHIN THE R/W ARE TO BE MECHANICALLY RESTRAINED OR WELDED
2. ALL WORK WILL COMPLY WITH THE REQUIREMENTS SET FORTH BY THE AGENCY RESPONSIBLE FOR THE ROAD
3. ALL EARTH MATERIAL WILL BE INSTALLED IN MAX LIFTS OF 12" AND PLATE COMPACTED AT EACH LIFT – THIS IS A MINIMUM AND WILL BE OVER RIDDEN BY AGENCY ROAD REQUIREMENTS OF PIPE ZONE DETAILS
4. ALL WORK SHALL COMPLY WITH REQUIREMENTS FOR CONSTRUCTION WITHIN CORNISH TOWN OR UDOT R/W AS APPOINTMENT – CONTRACTOR SHALL OBTAIN PERMIT PRIOR TO CONSTRUCTION

A ~ DETAIL - OPEN CUT CROSSING

NOT TO SCALE

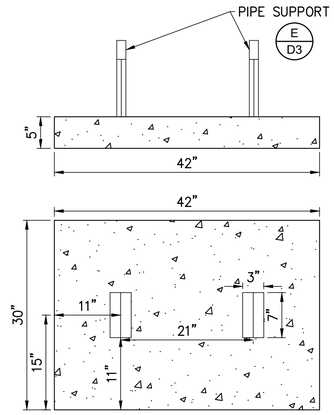


NOTES:

1. DRAIN LINE CAN EXIT SIDE OR END OF PIPE DEPENDING ON LOCATION – REDUCER REQUIRED WHEN EXITING END OF PIPELINE
2. RESTRAIN ALL PIPE
3. EACH PIPELINE DRAIN IS TO INCLUDE (2) TWO PIPE BOLLARDS TO BE PLACED INLINE WITH THE VALVE LID AND PARALLEL WITH THE MAIN LINE

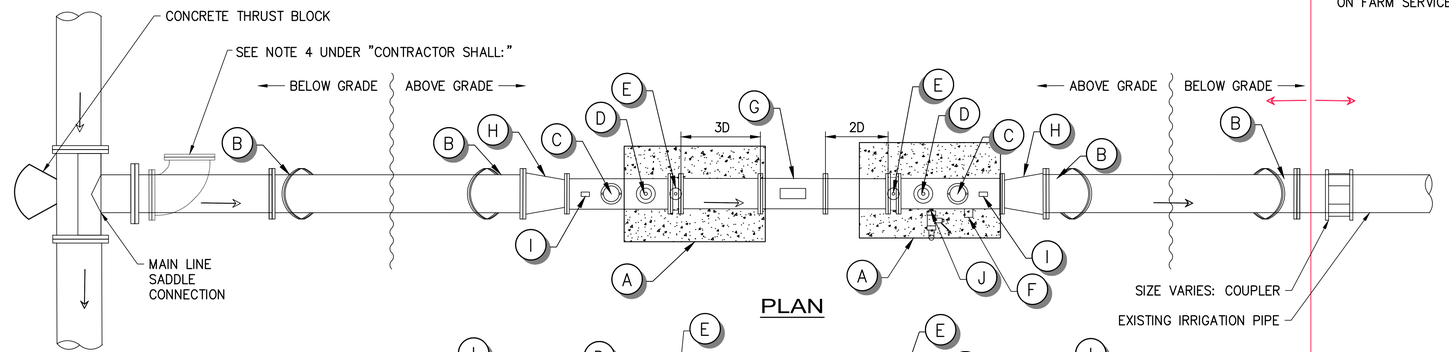
B ~ DETAIL - PIPELINE DRAIN

NOT TO SCALE



D ~ CONCRETE PLATFORM

NOT TO SCALE



C ~ IRRIGATION SERVICE CONNECTION - TYPE A

NOT TO SCALE

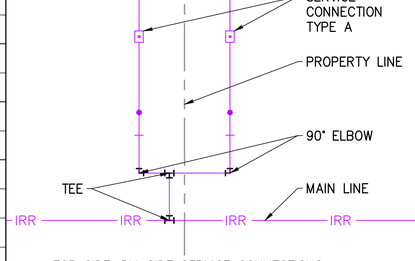
	MATERIALS	
ITEM	QTY	DESCRIPTION
A	2	CONCRETE PLATFORM (D ~)
B	4	45° BEND
C	2	AIR–VAC
D	2	SPRING PRESSURE RELEASE VALVE
E	2	BUTTERFLY VALVE W/ 30:1 GEAR BOX AND WHEEL
F	1	2" THREADED PENETRATION W/ CAP
G	1	METER
H	2	REDUCER
I	2	PRESSURE GAGE (0–150 PSI)
J	1	3/4" PENETRATION W/ HOSE BIB

NOTE:

–THE PIPE MATERIAL, 45° BENDS, AND REDUCERS CAN BE MANUFACTURED AS SINGLE WELDED ITEMS OR AS SEPARATE ITEMS
–SEE SHEET D4 FOR SIZE REFERENCE
–STRAIGHT PIPE MATERIAL IS TO BE GALVANIZED STEEL OR HDPE PLASTIC RATED FOR 150 PSI OR MORE

CONTRACTOR SHALL:

1. PROVIDE ALL VERTICAL & HORIZONTAL BENDS AS REQUIRED TO MAKE THE CONNECTIONS TO THE EXISTING PIPELINES/ PUMP CONNECTIONS
2. REMOVE AND DISPOSE OF ALL CONCRETE STRUCTURES, APPURTENANCES, ETC. TO MAKE THE CONNECTION
3. THIS WORK WILL BE ACCOUNTED FOR UNDER THE BID ITEM " CONNECTION OF SERVICE CONNECTION TO ON FARM SYSTEMS"
4. PROVIDE ONE (1) OPTIONAL FITTING TO BE USED TO ROTATE SERVICE CONNECTION AT 90°, 45°, 22.5°, OR 11.25°



FOR SIDE–BY–SIDE SERVICE CONNECTIONS, USE THIS CONFIGURATION

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Thoen 9/30/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

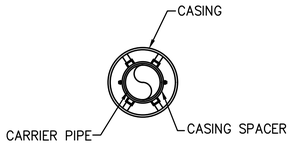
WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
DETAILS
PIPELINE DETAILS

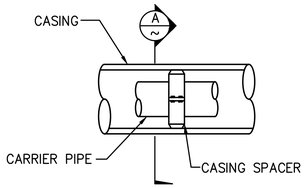
SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	49 of 52	D2

90% PRELIMINARY PLAN

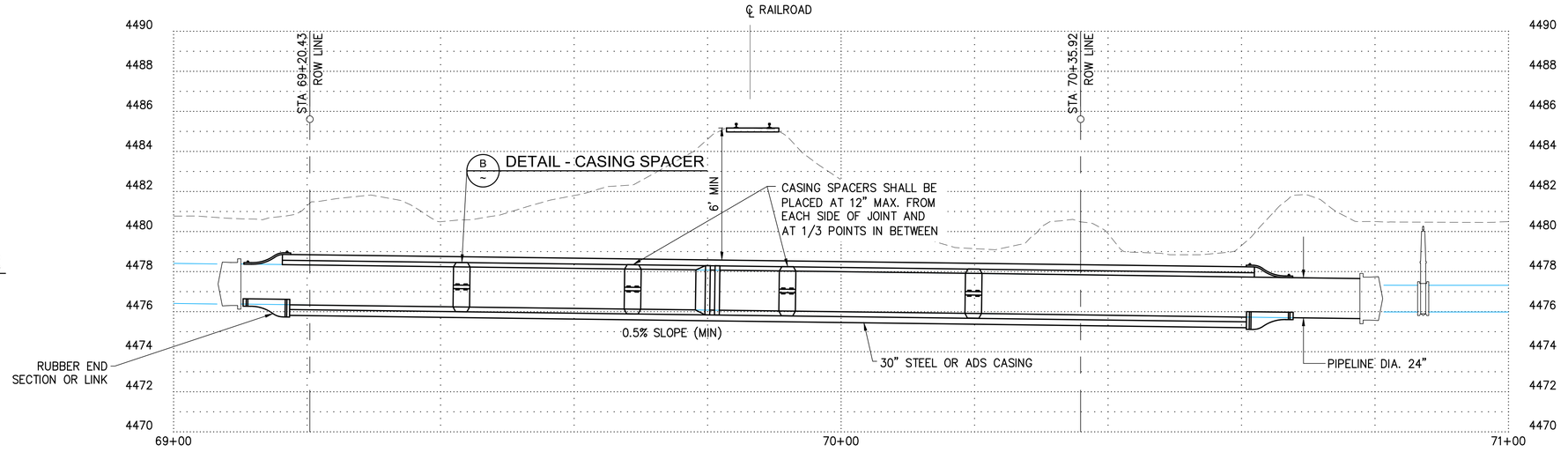
P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-D.dwg Sep 01, 2026 11:34am jjolley



A SECTION - CASING SPACER
NOT TO SCALE



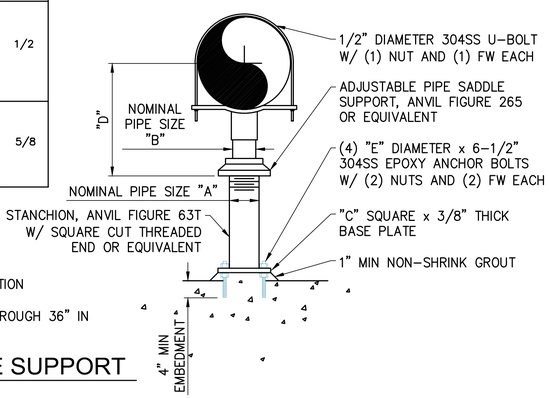
B DETAIL - CASING SPACER
NOT TO SCALE



NOTES:
1. ALL WORK SHALL COMPLY WITH REQUIREMENTS PERTAINING TO THE RAILROAD CROSSING. CONTRACTOR SHALL OBTAIN ENCROACHMENT PERMIT PRIOR TO CONSTRUCTION.
2. INSTALL CASING LEVEL AND STRAIGHT WITH NO DENTS OR BENDS. WALL THICKNESS AND MATERIAL SHALL MEET SPECIFICATIONS.
3. ALL PIPE JOINTS WITHIN THE CASING SHALL BE RESTRAINED
4. SEE SPEC SP 13600 FOR MORE DETAILS

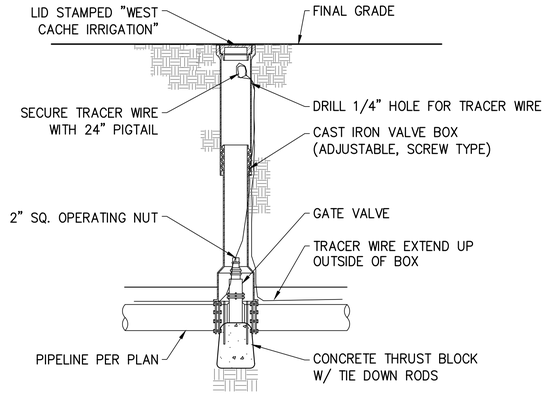
C DETAIL - BORING AND CASING
NOT TO SCALE

ADJUSTABLE PIPE SUPPORT SCHEDULE						
DIMENSIONS IN INCHES						
PIPE SIZE	A	B	C	D MINIMUM	D MAXIMUM	E
4	4	3	8	9 1/2	14	1/2
6				10 3/4	15 1/4	
8				12 1/4	16 3/4	
10				13 3/4	18 1/4	
12				14 5/8	19 1/8	
14				15 13/16	20 5/16	
16				16 13/16	21 5/16	
18	6	3 1/2	10	19 1/8	23 5/8	5/8
20				20 1/8	24 5/8	
24		4		23 5/16	27 13/16	
30				26 7/16	30 15/16	
32				27 7/16	31 15/16	
36				29 7/16	33 15/16	

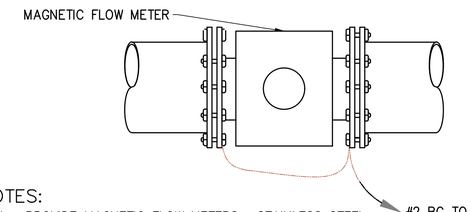


NOTES:
1. HOT DIP GALVANIZE ALL PARTS FOLLOWING FABRICATION
2. THIS PIPE SUPPORT IS LIMITED TO PIPE FROM 4" THROUGH 36" IN DIAMETER INCLUSIVE

D DETAIL - PIPE SUPPORT
NOT TO SCALE

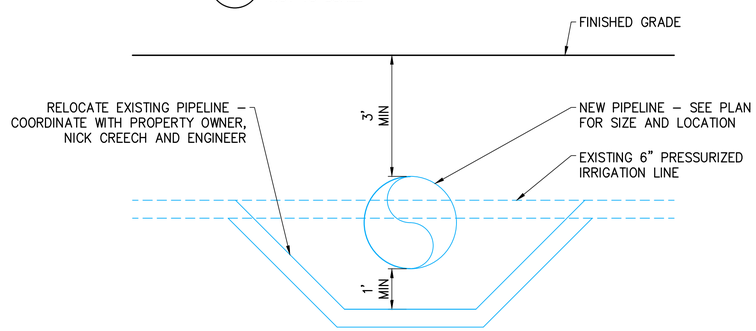


E DETAIL - GATE VALVE
NOT TO SCALE



NOTES:
1. PROVIDE MAGNETIC FLOW METERS. STAINLESS STEEL GROUND RINGS, GROUND CONNECTIONS AND MAKEUP AS PER MANUFACTURER'S RECOMMENDATIONS. 4–20 MA, HERTZ OUTPUT COMPATIBLE

F DETAIL - MAGNETIC FLOW METER
NOT TO SCALE



G DETAIL - EXISTING 6" IRRIGATION CROSSING
NOT TO SCALE

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 2401899 Steven David Wood STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
DETAILS
PIPELINE DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	50 of 52	D3

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-D.dwg Sep 01, 2026 11:34am jpiley

90% PRELIMINARY PLAN

Service Connection Points and Sizing for Buttars Lateral Canal Piping Project

Service Connection	Parcel Number	Owner Name	Shares	Acres	Demand (GPM)	Main Line Size (in)	Service Size (in)	Reducer Size (in)	Butterfly Valve Size (in)	Meter Size (in)	Air Vac Size (in)	Spring PRV Size (in)	Spring PRV Before & After Meter Setting (in)
A	14-022-0001	Aaron W Chambers	2	5.8	81	8	4	4 x 2	2	2	2	2	75
B	14-014-0024	Sherman Carter	2	4.4	62	6	4	4 x 2	2	2	2	2	75
C	14-015-0012	Max L & Cherie L Pierce	17	11.7	163	8	4	4 x 2	2	2	2	2	75
D	14-022-0033	Servando Martinez-Galindo. The water share holder is Augustine Nunez	1	1.0	14	N/A							
E	14-015-0024	Justin R & Jana Williams	2	2.0	28	2	2	2 x 1	1	1	1	1	75
F	14-022-0004, 14-022-0003, 14-022-0038, 14-022-0005	L Brad Fisher Trust	132	64.0	896	10	10	10 x 8	8	8	4	4	75
G	14-014-0025	Cameron & Lauren Draney	2	4.4	62	6	4	4 x 2	2	2	2	2	75
H	14-015-0009	Clayton Dewey & Janessa Richardson	7	9.7	136	10	4	4 x 2	2	2	2	2	75
I	14-015-0028	Kennith R & Laurie R, TRS Payne	18	18.0	252	12	6	6 x 4	4	4	2	2	75
J	14-015-0021	Landon R & Tiera Z Hansen	4.5	8.7	122	10	4	4 x 2	2	2	2	2	75
K	14-014-0013, 14-014-0029	Nicholas Orville & Megan Louise Creech	75	79.1	1107	10	10	10 x 8	8	8	4	4	75
L	14-022-0031, 14-022-0032	Robert E & Rebecca, Trs Eames	5	6.0	84	8	4	4 x 2	2	2	2	2	75
M	14-014-0017	Matt & Jessica Peterson	20	27.3	382	8	6	6 x 4	4	4	2	2	75
N	14-014-0015	Walter H & Joyce J Creech	18	37.7	528	10	8	8 x 6	6	6	3	3	75
O	14-015-0008, 14-016-0008, 14-015-0019, 14-016-0009	Barlow Farm Enterprises LLC	185.5	171.8	2405	15	15	15 x 12	12	12	6	6	75
P	14-015-0007	Douglas M & Shirley K Littlefield	10	9.1	127	30	4	4 x 2	2	2	2	2	75
Q	14-022-0002	Robinson Living Trust	19.5	18.6	261	8	6	6 x 4	4	4	2	2	75
R	14-014-0023	Darrell K & Bethany S Stuart	2.5	4.4	61	6	4	4 x 2	2	2	2	2	75
S	14-015-0023	Rocky & Meresa Malin	12	11.7	164	15	4	4 x 2	2	2	2	2	75
T	14-022-0034	Gilbert C Olson	16.5	17.5	245	8	6	6 x 4	4	4	2	2	75
U	14-015-0022	Max L & Cherie L Pierce	23	23.6	330	12	6	6 x 4	4	4	2	2	75
V	14-014-0026	CACHE FARMS LLC	23	31.0	434	8	8	8 x 6	6	6	3	3	75
W	14-022-035	L Brad Fisher Trust		21.2	297	6	6	6 x 4	4	4	2	2	75
X	14-023-0011	Joe S & Wendie Hansen	2	4.2	59	6	4	4 x 2	2	2	2	2	75

A SHARE OWNERS TABLE
~ NOT TO SCALE

811 Know what's **below.** **Call** before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/30/2026 STATE OF UTAH — NOT VALID UNLESS DIGITALLY SIGNED

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

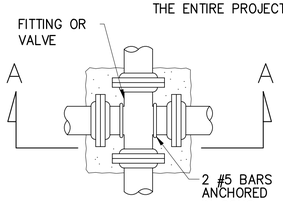
BUTTARS LATERAL
DETAILS
SERVICE CONNECTION SIZE

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	51 of 52	D4

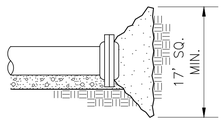
P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-D.dwg Sep 01, 2026 11:35am jpilley

CONCRETE THRUST BLOCK RESTRAINING SYSTEM DETAILS

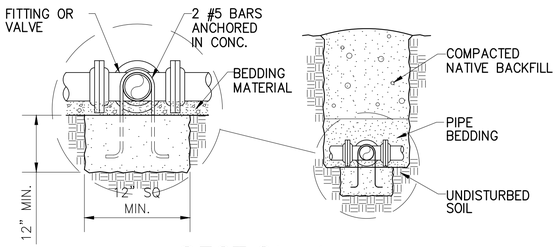
NOTE
CONTRACTOR SHALL USE EITHER MEGALUG OR CONCRETE THRUST RESTRAINING SYSTEM FOR THE ENTIRE PROJECT.



PLAN – THRUST BLOCK



DETAIL – DEAD END THRUST BLOCK



SECTION A–A

THRUST BLOCK BEARING AREA IN SQ. FT.

PIPE SIZE	CROSS	TEE	WYE	DEAD END	VALVE	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4	2.4	1.7	1.7	1.7	1.7	2.4	1.3	1.0	1.0
6	5.4	3.8	3.8	3.8	3.8	5.4	2.9	1.5	1.0
8	9.6	6.8	6.8	6.8	6.8	9.6	5.2	2.7	1.4
10	15.0	10.6	10.6	10.6	10.6	15.0	8.1	4.2	2.1
12	21.5	15.2	15.2	15.2	15.2	21.5	11.7	6.0	3.0
14	29.3	20.7	20.7	20.7	20.7	29.3	15.9	8.1	4.1
16	38.2	27.0	27.0	27.0	27.0	38.2	20.7	10.6	5.3
18	48.4	34.2	34.2	34.2	34.2	48.4	26.2	13.4	6.7
20	59.7	42.2	42.2	42.2	42.2	59.7	32.3	16.5	8.3
24	85.9	60.8	60.8	60.8	60.8	85.9	46.5	23.7	11.9

REDUCER

D2 \ D1	6	8	10	12	14	16	18	20	24
4	2.1	5.1	8.8	13.4	–	–	–	–	–
6	–	3.0	6.7	11.3	16.8	23.1	–	–	–
8	–	–	3.8	8.4	13.8	20.1	27.2	–	–
10	–	–	–	4.6	10.1	16.3	23.5	31.4	–
12	–	–	–	–	5.5	11.7	18.8	26.8	45.2
14	–	–	–	–	–	6.3	13.4	21.3	39.8
16	–	–	–	–	–	–	7.1	15.1	33.5
18	–	–	–	–	–	–	–	8.0	26.3
20	–	–	–	–	–	–	–	–	18.4

NOTES:

1. ALL THRUST BLOCK BEARING FACES SHALL BE PLACED AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. SQUARE ALL EDGES TO RECEIVE CONCRETE.
3. CONCRETE SHALL BE CLASS C.
4. CALCULATED ON 200 PSI TEST PRESSURE AND ALLOWABLE BEARING PRESSURE OF 1500 LBS. PER SQ. FT.
5. IN POORER SOILS SPECIAL DESIGN IS REQUIRED.
6. ALL FITTINGS AND VALVES SHALL BE ANCHORED WITH TWO #5 REBAR. ONLY ONE REQ'D FOR REDUCER
7. CENTER ALL FITTINGS OVER THRUST BLOCKS.

(A) ~ DETAIL - THRUST BLOCK
NOT TO SCALE

NOTE
CONTRACTOR SHALL USE EITHER MEGALUG OR CONCRETE THRUST RESTRAINING SYSTEM FOR THE ENTIRE PROJECT.

MEGALUG THRUST RESTRAINING SYSTEM DETAILS

* CALCULATIONS DERIVED FROM EBAA IRON SALES

BASED ON:
TEST PRESSURE 200 PSI
SOIL TYPE: GM – SILTY GRAVEL, GRAVEL–SAND–SILT MIXTURE
BURIAL DEPTH: 4 FT.

TRENCH TYPE: 5 – PIPE BEDDED IN COMPACTED GRANULAR MATERIAL TO THE CENTER LINE OF PIPE, 4" MIN. UNDER PIPE. COMPACTED GRANULAR OR SELECT MATERIAL TO TOP OF PIPE. (APPROX. 90% STANDARD PROCTOR, AASHTO T-99)
SAFETY FACTOR: 1.5

PVC VERTICLE BEND RESTRAINED LENGTHS IN FT. (L_1,–BEFORE CONNECTION/L_2, AFTER CONNECTION)

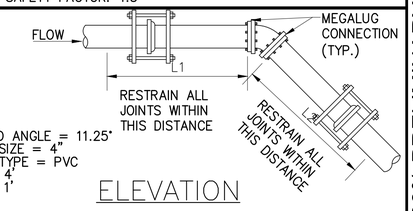
BEND ANGLE	PIPE SIZE 4	6	8	10	12	14	16	18	20	24
11.25	4/1	5/2	7/2	9/3	10/3	12/4	13/4	15/5	16/5	19/6
22.5	8/3	11/4	15/5	17/6	21/7	24/8	27/9	30/9	33/10	38/12
45	16/5	23/8	30/10	36/12	43/14	49/16	56/18	62/20	68/21	79/25

CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT WITH THE CONTOUR OF THE GROUND. FOR TWO WAY FLOW, SUCH AS FOUND IN DISTRIBUTION SYSTEMS, USE L_1 ON BOTH SIDES OF FITTING.

DIP VERTICLE BEND RESTRAINED LENGTHS IN FT. (L_1, BEFORE CONNECTION/L_2,–AFTER CONNECTION)

BEND ANGLE	PIPE SIZE 4	6	8	10	12	14	16	18	20	24
11.25	2/1	4/2	5/2	6/2	7/3	8/3	8/4	9/4	10/4	12/5
22.5	5/2	7/3	9/4	11/5	13/6	15/6	17/7	19/8	21/9	24/10
45	11/5	15/6	20/8	23/10	28/12	32/13	36/15	40/17	43/18	51/21

CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT WITH THE CONTOUR OF THE GROUND.



EXAMPLE:
GIVEN: BEND ANGLE = 11.25°
PIPE SIZE = 4"
PIPE TYPE = PVC
L1 = 4'
L2 = 1'

ELEVATION

PVC HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.

BEND ANGLE	PIPE SIZE 4	6	8	10	12	14	16	18	20	24
11.25	1	2	2	3	3	4	4	5	5	6
22.5	3	4	5	6	7	8	9	9	10	12
45	5	8	10	12	14	16	18	20	21	25
90	13	18	24	29	34	38	43	47	52	60

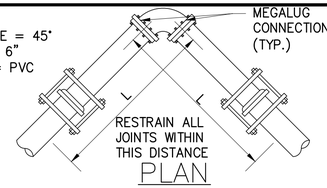
1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

DIP HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.

BEND ANGLE	PIPE SIZE 4	6	8	10	12	14	16	18	20	24
11.25	1	2	2	2	3	3	4	4	4	5
22.5	2	3	4	5	6	6	7	8	9	10
45	5	6	8	10	12	13	15	17	18	21
90	11	15	20	24	28	32	36	40	44	51

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

EXAMPLE:
GIVEN: BEND ANGLE = 45°
PIPE SIZE = 6"
PIPE TYPE = PVC
L = 8'



PLAN

PVC TEE RESTRAINED LENGTHS L, IN FT.

BRANCH SIZE DIA.	RUN SIZE DIAMETER 4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6	–	*	*	*	*	*	*	*	*	*
8	–	–	*	*	*	*	*	*	*	*
10	–	–	–	*	*	*	*	*	*	*
12	–	–	–	–	*	*	*	*	*	*
14	–	–	–	–	–	*	*	*	*	*
16	–	–	–	–	–	–	7	*	*	*
18	–	–	–	–	–	–	–	20	4	*
20	–	–	–	–	–	–	–	–	34	3
24	–	–	–	–	–	–	–	–	–	60

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE

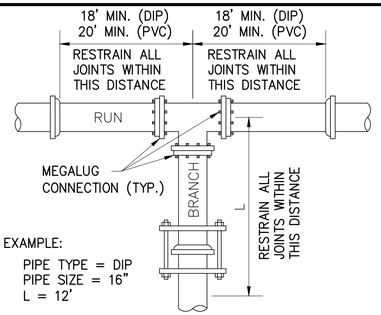
NOTES:
1. RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
2. ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL BE RESTRAINED AND ALL JOINTS WITHIN 18' ON THE RUN SIDE OF THE TEE SHALL BE RESTRAINED.

DIP TEE RESTRAINED LENGTHS L, IN FT.

BRANCH SIZE DIA.	RUN SIZE DIAMETER 4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6	–	*	*	*	*	*	*	*	*	*
8	–	–	*	*	*	*	*	*	*	*
10	–	–	–	*	*	*	*	*	*	*
12	–	–	–	–	*	*	*	*	*	*
14	–	–	–	–	–	*	*	*	*	*
16	–	–	–	–	–	–	12	2	*	*
18	–	–	–	–	–	–	–	21	12	*
20	–	–	–	–	–	–	–	–	30	12
24	–	–	–	–	–	–	–	–	–	47

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE

NOTES:
1. RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
2. ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL BE RESTRAINED AND ALL JOINTS WITHIN 18' ON THE RUN SIDE OF THE TEE SHALL BE RESTRAINED.



EXAMPLE:
PIPE TYPE = DIP
PIPE SIZE = 16"
L = 12'

PLAN

PVC REDUCER RESTRAINED LENGTHS L, IN FT. (SMALL SIDE/LARGE SIDE)

D2 \ D1	6	8	10	12	14	16	18	20	24
4	42/29	100/52	171/71	258/90	–	–	–	–	–
6	–	40/31	88/54	147/75	217/95	297/113	–	–	–
8	–	–	37/29	82/55	135/77	197/98	266/117	–	–
10	–	–	–	36/30	79/56	128/80	183/100	244/120	–
12	–	–	–	–	36/30	77/57	123/80	174/102	293/142
14	–	–	–	–	–	35/30	74/57	118/81	219/124
16	–	–	–	–	–	–	34/30	73/57	161/104
18	–	–	–	–	–	–	–	34/30	111/82
20	–	–	–	–	–	–	–	–	70/57

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

DIP REDUCER RESTRAINED LENGTHS L, IN FT. (SMALL SIDE/LARGE SIDE)

D2 \ D1	6	8	10	12	14	16	18	20	24
4	27/18	65/34	110/46	166/58	–	–	–	–	–
6	–	26/20	57/35	95/48	140/61	192/73	–	–	–
8	–	–	24/19	53/35	87/50	127/63	171/75	–	–
10	–	–	–	23/20	51/36	82/51	118/64	158/77	–
12	–	–	–	–	23/20	49/37	79/52	112/66	188/91
14	–	–	–	–	–	22/20	48/37	76/52	141/80
16	–	–	–	–	–	–	22/19	47/37	103/67
18	–	–	–	–	–	–	–	22/19	72/53
20	–	–	–	–	–	–	–	–	45/37

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

EXAMPLE:
PIPE TYPE = PVC
D_1 = 8"
D_2 = 6"
L_1 = 31'
L_2 = 40'

PVC DEAD END RESTRAINED LENGTHS L, IN FT.

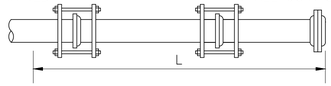
PIPE SIZE 4	6	8	10	12	14	16	18	20	24
39	55	73	88	104	119	134	149	163	192

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

DIP DEAD END RESTRAINED LENGTHS L, IN FT.

PIPE SIZE 4	6	8	10	12	14	16	18	20	24
25	36	47	57	67	76	86	95	105	123

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED



EXAMPLE:
PIPE TYPE = DIP
PIPE SIZE = 10"
L = 57'

(B) ~ DETAIL - MECHANICAL THRUST RESTRAINING SYSTEM DETAILS FOR PRESSURE SYSTEMS
NOT TO SCALE

811 Know what's below. Call before you dig. 1-800-662-4111 UT

REV NO.	COMMENT	DATE

LICENSED PROFESSIONAL ENGINEER No. 12401899 Steven David Wood 9/01/2026 STATE OF UTAH

SUNRISE ENGINEERING
2100 NORTH MAIN STREET
NORTH LOGAN, UTAH 84341
TEL 435.563.3734
www.sunrise-eng.com

WEST CACHE IRRIGATION COMPANY

BUTTARS LATERAL
DETAILS
THRUST BLOCK DETAILS

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
18538	HP	JJ	SDW	52 of 52	D5

90% PRELIMINARY PLAN

P:\West Cache Irrigation\18538 WCIC Buttars Lateral\DWG\Sheets\BUTTARS-D.dwg Sep 01, 2026 11:35am jjolley