

LETTING DATE
 09-15-2020
REVETMENT
NHSN-030-4(103)--2R-08

BOONE CO.



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
BOONE COUNTY
REVTMENT

0.5 mi E of Des Moines River to 0.25 mi W of Snedden Dr
(Various Locations)

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



REVISIONS

TOTAL

46

PROJECT IDENTIFICATION NUMBER

19-00-030-080

PROJECT NUMBER

NHSN-030-4(103)-2R-08

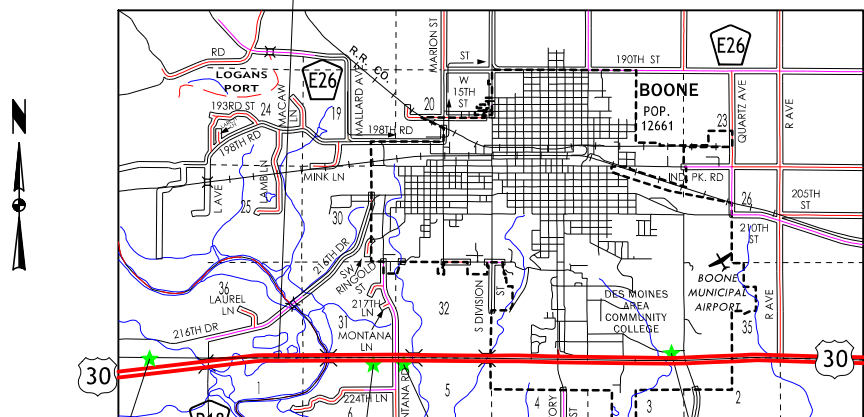
R.O.W. PROJECT NUMBER

NHSN-030-4(104)--2R-08

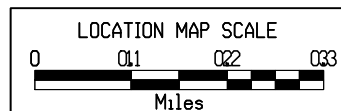
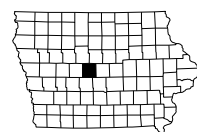
INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1	Project Description
C.1	Estimated Project Quantities
C.1	Estimate Reference Information
C.2	Standard Road Plans
C.2	Index of Tabulations
C.2	General Notes
C.3 - 4	Pollution Prevention Plan
C.5	Tabulations
D Sheets	Mainline Plan and Profile Sheets
* D.1	Legend Sheet
* D.2 - 9	Ditch Plan Sheets
* D.10 - 11	Ditch Profiles
G Sheets	Survey Sheets
G.1 - 3	Survey Info/ Reference Ties and Bench Marks
J Sheets	Traffic Control and Staging Sheets
* J.1	Traffic Control Plan
T Sheets	Earthwork Quantity Sheets
T.1 - 5	Earthwork Quantity Sheets
U Sheets	500 Series, Mod.Stds. and Detail Sheets
U.1 - 5	500 Series, Modified Standards and Detail Sheets
W Sheets	Mainline Cross Sections
W.1 - 14	Cross Sections

Equ.
 Sta. 2785+47.3 BK =
 Sta. 787+70.9 AH



SITE 4	SITE 1	SITE 2	SITE 3
R.L. 129.8	R.L. 132.0	R.L. 132.3	R.L. 135.0
Sta. 2733+00±	Sta. 847+00±	Sta. 866+00±	Sta. 1006+00±



DESIGN DATA RURAL

20 16 AADT	15,300	V.P.D.
20 36 AADT	21,235	V.P.D.
20 DHV		V.P.H.
TRUCKS	5.03	%
Total		
Design ESALs	2,903,974	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Tony J. Gustafson	Primary Signature Block

PROFESSIONAL ENGINEER
TONY J. GUSTAFSON
12851
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature _____ Date _____
 Tony J. Gustafson

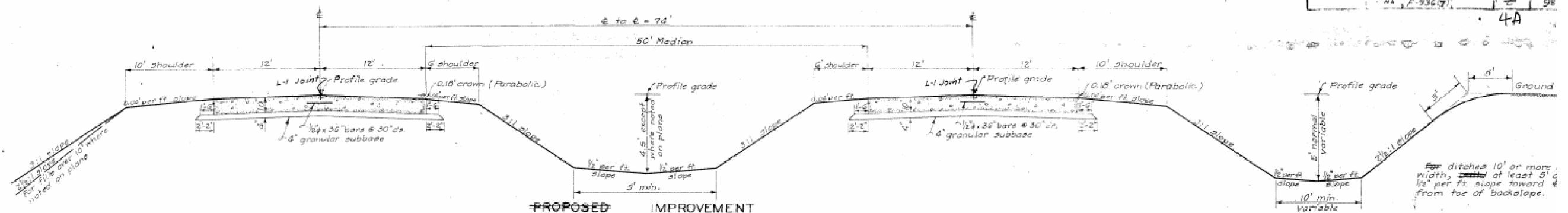
Printed or Typed Name _____

My license renewal date is December 31, 20 21.

Pages or sheets covered by this seal: A.1, B.1, C.1-C.5, D.1-D.9, G.1-G.3, J.1, T.1-T.5, U.1-U.5, and W.1-W.14

TYPICAL CROSS SECTIONS

FED. ROAD DIST. NO.	PROJECT NO.	SCALE	SHEET NO.
	9369		98



PROPOSED		IMPROVEMENT	
STA 826 + 28.25	TO PC. STA. 857 + 13.40	PT. STA. 1017 + 24.85	TO PC. STA. 1053 + 64.65
PT. STA. 863 + 13.40	TO PC. STA. 906 + 00.98	PT. STA. 1062 + 47.99	TO PC. STA. 1099 + 57.42
PT. STA. 912 + 18.58	TO PC. STA. 923 + 04.64	PT. STA. 1105 + 70.74	TO TS. STA. 1157 + 67.90
PT. STA. 929 + 04.76	TO PC. STA. 946 + 13.25	ST. STA. 1181 + 90.40	TO TS. STA. 1190 + 33.43
PT. STA. 952 + 25.00	TO PC. STA. 1010 + 74.80	ST. STA. 1202 + 02.60	TO TS. STA. 1214 + 25.36

For Information Only

4201
 MODIFIED

TYPICAL CROSS SECTION LINED DITCH

* - Refer to Site 3 cross sections for slopes and ditch bottom widths

ROADWAY LOCATION		DITCH REFERENCE		WIDTH (W)
STATION to STATION	SIDE	STATION to STATION		
SITE 1a		1846+10.00	1848+14.63	10
SITE 1b	849+02.00 850+75.40	RT	1849+02.00 1850+76.69	8
SITE 2	864+72.70 867+38.38	RT	2864+72.72 2867+86.18	10
*SITE 3	1005+63.89 1006+10.16	LT	5+50.00 6+47.04	*
SITE 4	2732+04.78 2734+49.82	LT	0+00.00 2+57.05	10

100-1D 10-18-05
PROJECT DESCRIPTION
Project includes 4 sites of erosion issues on HWY U.S. 30 in Boone county. Sites 1, 2, and 4 will be re-ditched, reshaped and armored with Tied Concrete Block Mat (TCBM). Site 3 has a failed let down and will be reshaped and lined with riprap. Existing culvert pipes on site 4 will also be removed.

100-0A 10-28-97					
ESTIMATED ROADWAY QUANTITIES (1 DIVISION PROJECT)					
Item No.	Item Code	Item	Unit	Total	As Built Qty.
1	2101-0850001	CLEARING AND GRUBBING	ACRE	1.5	
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	3,985.0	
3	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	10,165.0	
4	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	3,025.0	
5	2401-6750001	REMOVALS, AS PER PLAN	LS	1.00	
6	2507-3250005	ENGINEERING FABRIC	SY	594.0	
7	2507-6800061	REVTMENT, CLASS E	TON	326.3	
8	2507-8029000	EROSION STONE	TON	104.4	
9	2528-8445110	TRAFFIC CONTROL	LS	1.00	
10	2533-4980005	MOBILIZATION	LS	1.00	
11	2599-9999014	('SQUARE FEET' ITEM) TIED CONCRETE BLOCK MAT	SF	7097	
12	2601-2643412	TURF REINFORCEMENT MAT, TYPE 2	SQ	71.0	
13	2602-0000020	SILT FENCE	LF	3,162.5	
14	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	1,581.3	
15	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	316.3	

100-4A 10-29-02		
ESTIMATE REFERENCE INFORMATION		
Item No.	Item Code	Description
1	2101-0850001	CLEARING AND GRUBBING Refer to Tab. 110-17 on Sheet C.5 and locations on Sheets U.3 to U.5.
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW Refer to T Sheets.
3	2102-2710090	EXCAVATION, CLASS 10, WASTE Refer to T Sheets.
4	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD Refer to Tab. 103-10 on Sheet C.5 and the T Sheets.
5	2401-6750001	REMOVALS, AS PER PLAN Refer to Tab. 110-2 on Sheet C.3.
6	2507-3250005	ENGINEERING FABRIC Refer to Tab. 100-23 on Sheet C.5. Use material specified for embankment erosion control according to Article 4196.01, B, 3. Material will be measured in sq. yds. of actual area covered.
7	2507-6800061	REVTMENT, CLASS E Refer to Tab. 100-23 on Sheet C.5. The tabulation includes estimated locations for placement of "Revetment, Class E" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 30% additional quantity for other locations of erosion.
8	2507-8029000	EROSION STONE Refer to Tab. 100-23 on Sheet C.5. The tabulation includes estimated locations for placement of "Erosion Stone" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 30% additional quantity for other locations of erosion.
9	2528-8445110	TRAFFIC CONTROL Refer to Traffic Control Plan on Sheet J.1.
10	2533-4980005	MOBILIZATION
11	2599-9999014	('SQUARE FEET' ITEM) TIED CONCRETE BLOCK MAT Refer to Tab. 100-09 on Sheet C.5 and D and U Sheets for additional information. Prior to placement of mat: Grade a uniform subgrade. All subgrade surfaces prepared for placement of mats shall be smooth and free of sticks, roots, or debris of any kind. The prepared surface shall provide a firm unified foundation for the mats. Prepare seedbed: prep, fertilize, and seed the ditch according to Article 2601.03, C, 3, and Section 4169 of the Standard Specifications. Refer to Table 2601.03-3: Permanent Seed Rates, Rural Areas. Place a 16-foot wide mat down the centerline of the ditch. Method of measurement is square feet. Basis of payment is for full compensation for TCBM, preparation and materials, seed, fertilizer, and anchors.
12	2601-2643412	TURF REINFORCEMENT MAT, TYPE 2 Refer to Tab. 100-22 on Sheet C.5
13	2602-0000020	SILT FENCE Refer to Tab. 100-17 on Sheet C.5. The tabulation includes estimated locations for placement of "Silt Fence" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.
14	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS Refer to Tab. 100-17 on Sheet C.5. This item is included for silt fence and silt fence for ditch check removal required for staging reasons, removal to allow for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth.
15	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK Refer to Tab. 100-17 on Sheet C.5. This item is included for clean-out and repair of the silt fence and silt fence for ditch checks during the project.

POLLUTION PREVENTION PLAN

This project is regulated by the requirements of the Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 OR an Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) individual storm water permit. The Contractor shall carry out the terms and conditions of this permit and the Pollution Prevention Plan (PPP).

This Base PPP includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed per plan revisions or by contract modification, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The prime contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITIES

- A. Designer:
 1. Prepares Base PPP included in the project plan.
 2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
 3. Is signature authority on the Base PPP.
- B. Contractor:
 1. Signs a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
 2. Designates a Water Pollution Control Manager (WPCM), who has the duties and responsibilities as defined in Section 2602 of the Standard Specifications.
 3. Submits an Erosion Control Implementation Plan (ECIP) and ECIP updates according to Section 2602 of the Standard Specifications.
 4. Installs and maintains appropriate controls. This work may be subcontracted.
 5. Supervises and implements good housekeeping practices.
 6. Conducts joint required inspections of the site with inspection staff. When Contractor is not mobilized on site, Contractor may delegate this responsibility to a trained or certified subcontractor. Contracting Authority also may waive joint inspection requirement during winter shutdown. In both circumstances, WPCM (or trained or certified delegate from the Contractor) is still responsible to review and sign inspection reports.
 7. Complies with training and certification requirements of Section 2602 of the Standard Specifications.
- C. Subcontractors:
 1. Sign a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP if responsible for sediment or erosion controls or involved in land disturbing activities. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
 2. Implement good housekeeping practices.
- D. RCE/Project Engineer:
 1. Is Project Storm Water Manager.
 2. On projects where DOT is the Contracting Authority, is current with erosion control training or certification.
 3. Takes actions necessary to ensure compliance with storm water requirements including, where appropriate, issuing stop work orders, and directing additional inspections at construction project sites that are experiencing problems with achieving permit compliance.
 4. Orders the taking of measures to cease, correct, prevent, or minimize the consequences of non-compliance with the storm water requirements of the Applicable Permit.
 5. Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors.
 6. Requires employees, contractors, and subcontractors to take appropriate responsive action to comply with storm water requirements, including requiring any such person to cease or correct a violation of storm water requirements, and to order or recommend such other actions as necessary to meet storm water requirements.
 7. Is familiar with the Project PPP and storm water site map.
 8. On projects where DOT is Contracting Authority, is responsible for monitoring inspection reports on a monthly basis, to determine whether deficiencies identified in inspection reports were adequately and timely addressed, and if not, has the authority and responsibility to direct immediate actions to correct the deficiencies.
 9. Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements.
 10. Is signature authority on Notice of Discontinuation.
- E. Inspector:
 1. Updates PPP whenever there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants from the project.
 2. Maintains an up-to-date record that identifies contractors and subcontractors as co-permittees.
 3. Makes these plans available to the DNR upon their request.
 4. Conducts joint required inspections of the site with the contractor/subcontractor.
 5. Completes an inspection report after each inspection.
 6. Is signature authority on storm water inspection reports.

II. PROJECT SITE DESCRIPTION

- A. This Pollution Prevention Plan (PPP) is for the construction of a drainage ditches on U.S. 30 in Boone Co.
- B. This PPP covers approximately 10.32 acres with an estimated 1.75 acres being disturbed. The portion of the PPP covered by this contract has 1.75 acres disturbed.
- C. The PPP is located in an area of Clarion - Nicollet - Webster soil types. The estimated weighted average runoff coefficient number for this PPP after completion will be .20
- D. Storm Water Site Map - Multiple sources of information comprise the base storm water site map including:
 1. Drainage Patterns - Plan and Profile sheets and Situation plans.
 2. Proposed Slopes - Cross Sections.
 3. Areas of Soil Disturbance - Construction limits shown on Plan and Profile sheets.
 4. Location of Structural Controls - Tabulations in C sheets.
 5. Locations of Non-structural Controls - Tabulations in C sheets.
 6. Locations of Stabilization Practices - Generally within construction limits shown on Plan and Profile sheets.
 7. Surface Waters (including wetlands) - Project Location Map and Plan and Profile sheets.
 8. Locations where Storm Water is Discharged - Plan and Profile sheets.

POLLUTION PREVENTION PLAN

- E. The base storm water site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries.
- F. Runoff from this work will flow into roadway ditches to the Boone River.

III. CONTROLS

- A. The Contractor's ECIP specified in Article 2602.03 of the Standard Specifications for accomplishment of storm water controls should clearly describe the intended sequence of major activities, and for each activity define the control measure and the timing during the construction process that the measure will be implemented.
- B. Preserve vegetation in areas not needed for construction.
- C. Sections 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used and installed locations may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water monitoring inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B of the Standard Specifications.
- 1. EROSION AND SEDIMENT CONTROLS
 - a. Stabilization Practices
 - 1) Site plans will ensure that existing vegetation or natural buffers are preserved where attainable and disturbed portions of the site will be stabilized.
 - 2) Initialize stabilization of disturbed areas immediately after clearing, grading, excavating, or other earth disturbing activities have:
 - a) Permanently ceased on any portion of the site, or
 - b) Temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days.
 - 3) Staged permanent and/or temporary stabilizing seeding and mulching shall be completed as the disturbed areas are completed. Incomplete areas shall be stabilized according to paragraph III, C, 1, a, 2, b above.
 - 4) Permanent and Temporary Stabilization practices to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the C sheets.
 - 5) Preservation of existing vegetation within right-of-way or easements will act as vegetative buffer strips.
 - 6) Preservation of topsoil: Bid items to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets. Additional information may be found in Tabulations in the C or T sheets or is referenced in Section 2105 of the Standard Specifications.
 - b. Structural Practices
 - 1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Additionally, structural practices may include: silt basins that provide 3600 cubic feet of storage per acre drained or equivalent sediment controls, outlet structures that withdraw water from surface when discharging basins, and controls to direct storm water to vegetated areas.
 - 2) Structural practices to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found in the B sheets or are referenced in the Standard Road Plans Tabulation (105-4) located in the C sheets.
 - c. Storm Water Management
 - 1) Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. This may include velocity dissipation devices at discharge locations and along lengths of outfall channel as necessary to provide a non-erosion velocity flow from structure to water course. If included with this project, these items are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the C sheets. The installation of these devices may be subject to Section 404 of the Clean Water Act.
- 2. OTHER CONTROLS
 - a. Contractor disposal of unused construction materials and construction material wastes shall comply with all applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.
 - 1) Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
 - 2) Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
 - 3) Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
 - 4) Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
 - 5) Spill Prevention and Control - Implement chemical spill and leak prevention and response procedures to contain and clean-up spills and prevent material discharges to the storm drain system and waters of the state.
 - 6) Concrete Residuals and Washout Wastes - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events.
 - 7) Concrete Grooving/Grinding Slurry - Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project.
 - 8) Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environmental laws such as proper storage of onsite fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
 - 9) Litter Management - Ensure employees properly dispose of litter. Minimize exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants.
 - 10) Dewatering - Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point.
- 3. APPROVED STATE OR LOCAL PLANS

During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

POLLUTION PREVENTION PLAN

IV. MAINTENANCE PROCEDURES

The Contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS

- A. Inspections shall be made jointly by the Contractor and the Contracting Authority at least once every seven calendar days. Storm water monitoring inspections will include:
 1. Date of the inspection.
 2. Summary of the scope of the inspection.
 3. Name and qualifications of the personnel making the inspection.
 5. Review of erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
 6. Major observations related to the implementation of the PPP.
 7. Identification of corrective actions required to maintain or modify erosion and sediment control measures.
- B. Include storm water monitoring inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3 calendar days of the inspection and complete within 7 calendar days following the inspection. If it is determined that making the corrections less than 72 hours after the inspection is impracticable, it should be documented why it is impracticable and indicate an estimated date by which the corrections will be made.

VI. NON-STORM WATER DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of headwalls or blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS

- A. Base PPP - Initial Pollution Prevention Plan.
- B. Amended PPP - May include Plan Revisions or Contract Modifications for new items, storm water monitoring inspection reports, and fieldbook entries made by the inspector.
- C. IDR - Inspector's Daily Report - this contains the inspector's daily diary and bid item postings.
- D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials. Also called Best Management Practices (BMPs).
- E. Signature Authority - Representative authorized to sign various storm water documents.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature

Printed or Typed Name

Signature

110-2 04-16-13		
REMOVAL OF EXISTING STRUCTURES		
Location	Description	Remarks
Site 2	24" CMP - 112ft	
Site 4	3 - 24" CMP's	

103-10 04-18-17						
TOPSOIL STRIPPING AND PLACEMENT						
Location				Topsoil Stripping Thickness	Topsoil Placement Thickness	Remarks
Road Identification	Dir. of Traffic	Begin Station	End Station	IN	IN	
Site 1a	EB	847+75.00	848+60.00	12.0	8.0	
Site 1b	EB	849+02.00	850+75.00	12.0	8.0	
Site 2	EB	864+72.00	867+38.00	12.0	8.0	
Site 3	WB	1005+68.00	1005+94.00	12.0	8.0	
Site 4	WB	2332+07.00	2734+50.00	12.0	8.0	

100-22 04-21-15												
ROLLED EROSION CONTROL												
Refer to EC-101, EC-103 and EC-104												
Location				L FT	W FT	Turf Reinforcement Mat (TRM) (EC-104)				Slope Protection (EC-103) Squares	Special Ditch Control (EC-101) Squares	Remarks
Road Identification	Begin Station	End Station	Side			Type 1 Squares	Type 2 Squares	Type 3 Squares	Type 4 Squares			
Site 1b	849+02.00	850+75.00	Rt	175	8			14				
Site 2	864+72.00	867+38.00	Rt	313	10			31				
Site 4	2332+07.00	2734+50.00	Lt	257	10			26				
				Total				71				

100-09 04-17-18					
TRANSITION MAT					
Refer to EC-105					
Location Station	Side	Length LF	Width LF	Area SF	Remarks
Site 1b	Rt	175	8	1397	
Site 2	Rt	313	10	3130	
Site 4	Lt	257	10	2570	
				7097	

100-23 04-17-18														
ROCK EROSION CONTROL														
Refer to EC-301 and Detail 570-8														
Location				L FT	W FT	Rock Erosion Control (REC)					Material Bid Quantities			Remarks
Road Identification	Begin Station	End Station	Side			Type 1 Rock Ditch Check	Type 2 Rock Ditch	Type 3 Rock Flume	Type 4 Rock Splash Basin	Type 5 Rock Slope Protection	Eng. Fabric SY	Class E Revetment TON	Erosion Stone TON	
U.S. 30 Site 1A	847+75.00	848+60.00	Rt.	72	38			X		304.0	143.6			
U.S. 30 Site 3	1005+68.00	1005+94.00	Lt	87	20			X		290.0	182.7	104.4		
										594.0	326.3	104.4		

100-17 04-20-10				
TABULATION OF SILT FENCES				
Refer to EC-201				
Location			Length LF	Remarks
Begin Station	End Station	Side	LF	
846+10.00	848+50.00	Rt	520.0	Site 1a Both sides
849+00.00	850+75.00	Rt	390.0	Site 1b Both sides
864+75.00	867+75.00	Rt	640.0	Site 2 Both sides
1005+65.00	1005+95.00	Lt	440.0	Site 3 Both sides
2732+00.00	2734+50.00	Lt	540.0	Site 4 Both sides
Tabulation Quantity			2530.0	
Bid Quantity			3162.5	
Maintenance Quantity			316.3	
Removal Quantity			1581.3	

110-17 04-18-17																					
CLEARING AND GRUBBING																					
Location		Work and Material Type	Trees, Stumps, and Logs and Down Timber Material Diameters												All Other Materials		Estimated Quantities			Remarks	
Station to Station or Ref. Loc. Sign to Ref. Loc. Sign or Description	Direction of Travel		3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	Length FT	Width FT	Units	Area Acres		Herbicide Application Each
847+00 Site 1a	EB		Trees - Clearing and Grubbing																		0.5
850+00 Site 1b	EB	Trees - Clearing and Grubbing																	0.2		
866+00 Site 2	EB	Trees - Clearing and Grubbing																	0.4		
1006+00 Site 3	WB	Trees - Clearing and Grubbing																	0.2		
2734+00 Site 4	WB	Trees - Clearing and Grubbing																	0.2		
																		1.5			

SURVEY SYMBOLS

- CP Control Point
- ▲ SCR Section Corner
- SH Paved Shoulder
- EP Edge of Paved Roads (ML or SR)
- GDC Guard Rail Cable
- GR Ground Shot
- SIGN SI Sign
- TDC Tree Deciduous
- - - - - BL Topo Breakline
- PRO Profile Shot
- D Centerline Draw or Stream (Down)
- MIS Miscellaneous
- CUL Culvert
- TLNL Tree Line Left
- TIL Tile Line
- OUT Tile Outlet
- - - - - SNP Unpaved Shoulder
- PIP Pipe Culvert
- DIK Centerline of Dike or Dam
- * TEV Evergreen Tree
- ROW Right of Way Mark
- FW Wire Fence
- RIP Rip-Rap
- DU Centerline Draw or Stream (Up)
- REF Reference Tie Point

UTILITY LEGEND

- E1 - Alliant Energy
Mary Montgomery
PO Box 351
Cedar Rapids, IA 52406-9874
(319) 786-4768
MaryMontgomery@alliantenergy.com
- E2 - Midland Power Cooperative
Bill McKim
1005 E Lincolnway
Jefferson, IA 50129-2063
(515) 386-4111
b.mckim@midlandpower.coop
- F0 - Centurylink
Steve Parker
2103 E. University Ave.
Des Moines, IA 50317
(515) 265-0968
Steven.Parker4@centurylink.com
- F02 - Centurylink
Steve Parker
2103 E. University Ave.
Des Moines, IA 50317
(515) 265-0968
Steven.Parker4@centurylink.com
- F03 - Iowa Communications Network
Mike Broderick
400 E 14th St, Grimes State Office Building
Des Moines, IA 50319
(515) 725-4610
Mike.Broderick@iowa.gov
- F04 - Jefferson Telecom
Duane Russell
105 W Harrison St
Jefferson, IA 50129
(515) 386-4141
duane@jeffersontelecom.com
- G-HP - Alliant Energy
Mary Montgomery
PO Box 351
Cedar Rapids, IA 52406-9874
(319) 786-4768
MaryMontgomery@alliantenergy.com
- T1 - Centurylink
Steve Parker
2103 E. University Ave.
Des Moines, IA 50317
(515) 265-0968
Steven.Parker4@centurylink.com
- T2 - Jefferson Telecom
Duane Russell
105 W Harrison St
Jefferson, IA 50129
(515) 386-4141
duane@jeffersontelecom.com
- T3 - OGDEN
Joel Munson
202 West Walnut Street
Ogden, IA 50212
(515) 275-2050
ogdentel@netins.net
- TV - Jefferson Telecom
Duane Russell
105 W Harrison St
Jefferson, IA 50129
(515) 386-4141
duane@jeffersontelecom.com
- TV2 - OGDEN
Joel Munson
202 West Walnut Street
Ogden, IA 50212
(515) 275-2050
ogdentel@netins.net
- W - Xenia Rural Water District
Kevin Lyons
23998 - 141st Street
Bouton, IA 50039
(515) 676-2117
klyons@xeniawater.org

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	Design Color No.	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

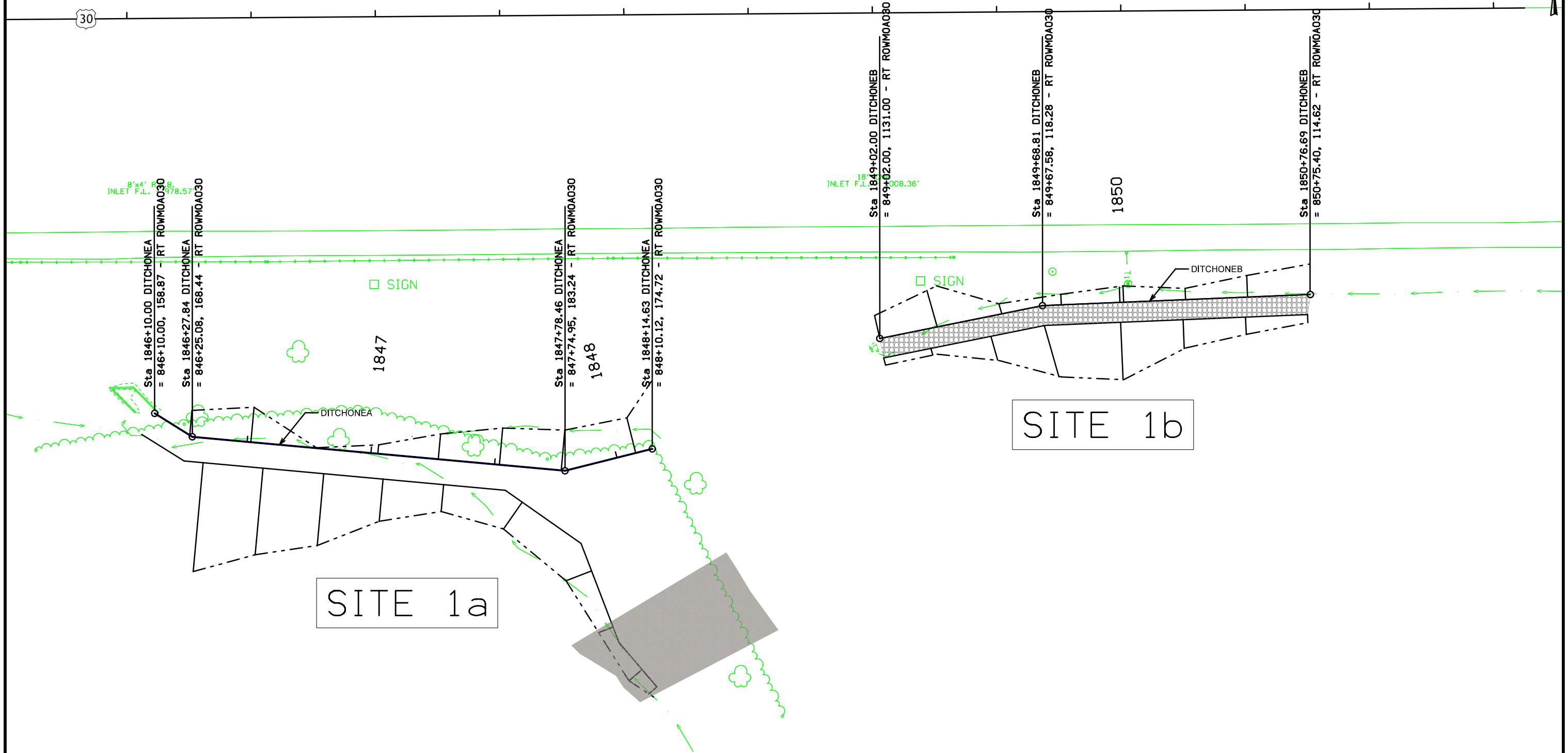
- Reference Point
- Station
 - Survey Line
 - Section Corner
 - Ground Line Intercept
 - Saw Cut
 - Guardrail
 - Trench Drain
 - HighTension Cable Guardrail
 - Sheet Pile
 - Pavement Removal
 - Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

- ▲ Proposed Right-of-Way
- △ Existing Right of Way
- ▲ Existing and Proposed Right-of-Way
- ▲ Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

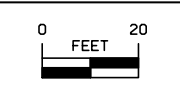
(COVERS SHEET SERIES D, E, F, & K)



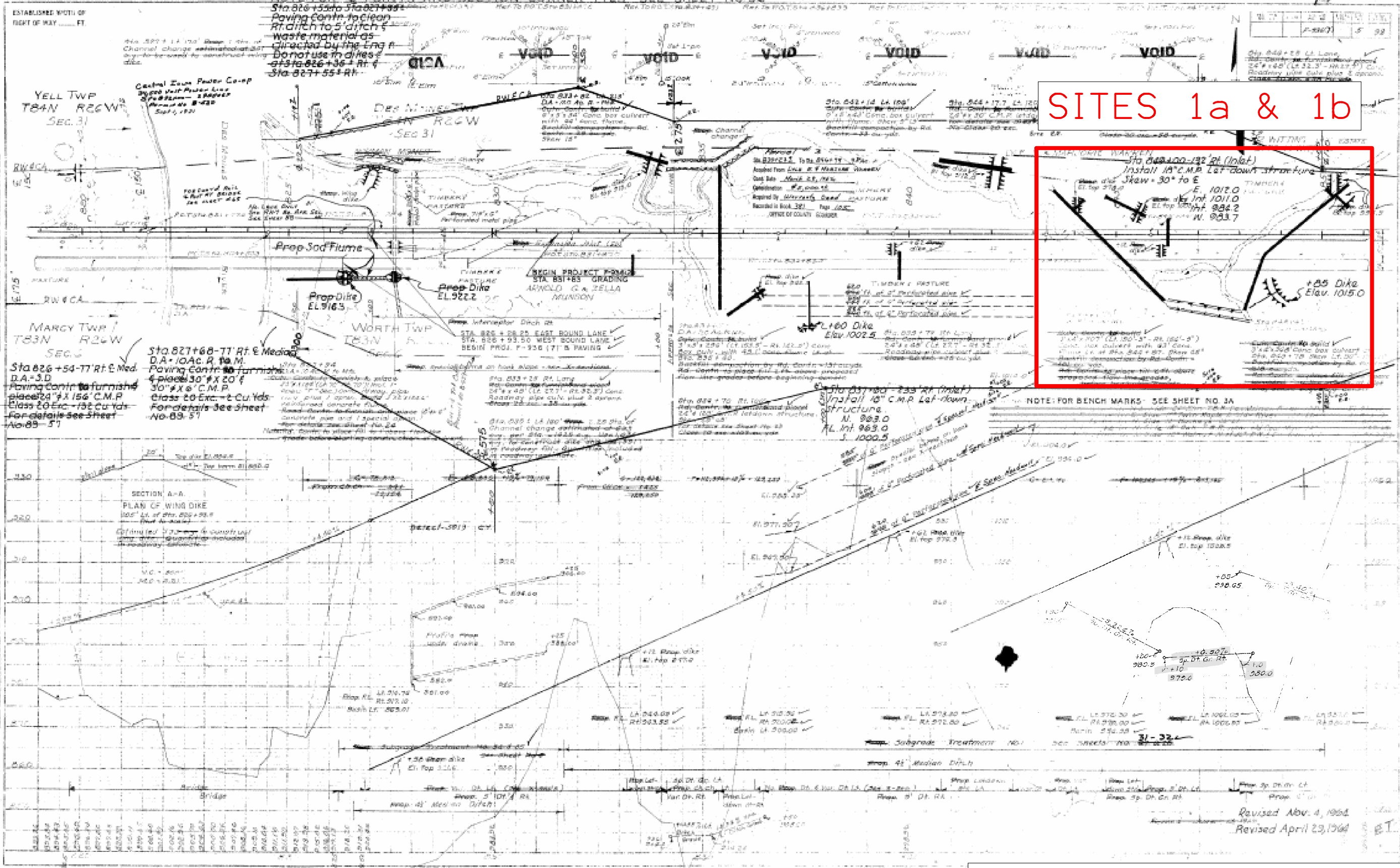
SITE 1a

SITE 1b

SITES 1a & 1b



NOTE FOR POINTS AND SECTION CORNER TIES - SEE SHEET NO. 3C



SITES 1a & 1b

Sta 826+00-132 Rt (Inlet)
Install 18" C.M.P. Let-down structure
Skew = 30° to E
E 1012.0
Int 1011.0
Elev 984.2
N. 983.7

NOTE: FOR BENCH MARKS - SEE SHEET NO. 3A

Revised Apr. 4, 1964
Revised April 23, 1964

FOR INFORMATION ONLY

863

864

865

WORTH TWP.
T-83-N R-26-W
SEC. 5

866

867

868

869

30

PT Sta 863+11.01
1071

24"
INLET F.L. = 1041.77'

Sta 2864+72.70 DITCHTWO
= 864+72.70, 115.88 - RT ROWMLA030

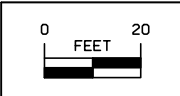
2865

2866

DITCHTWO

2867

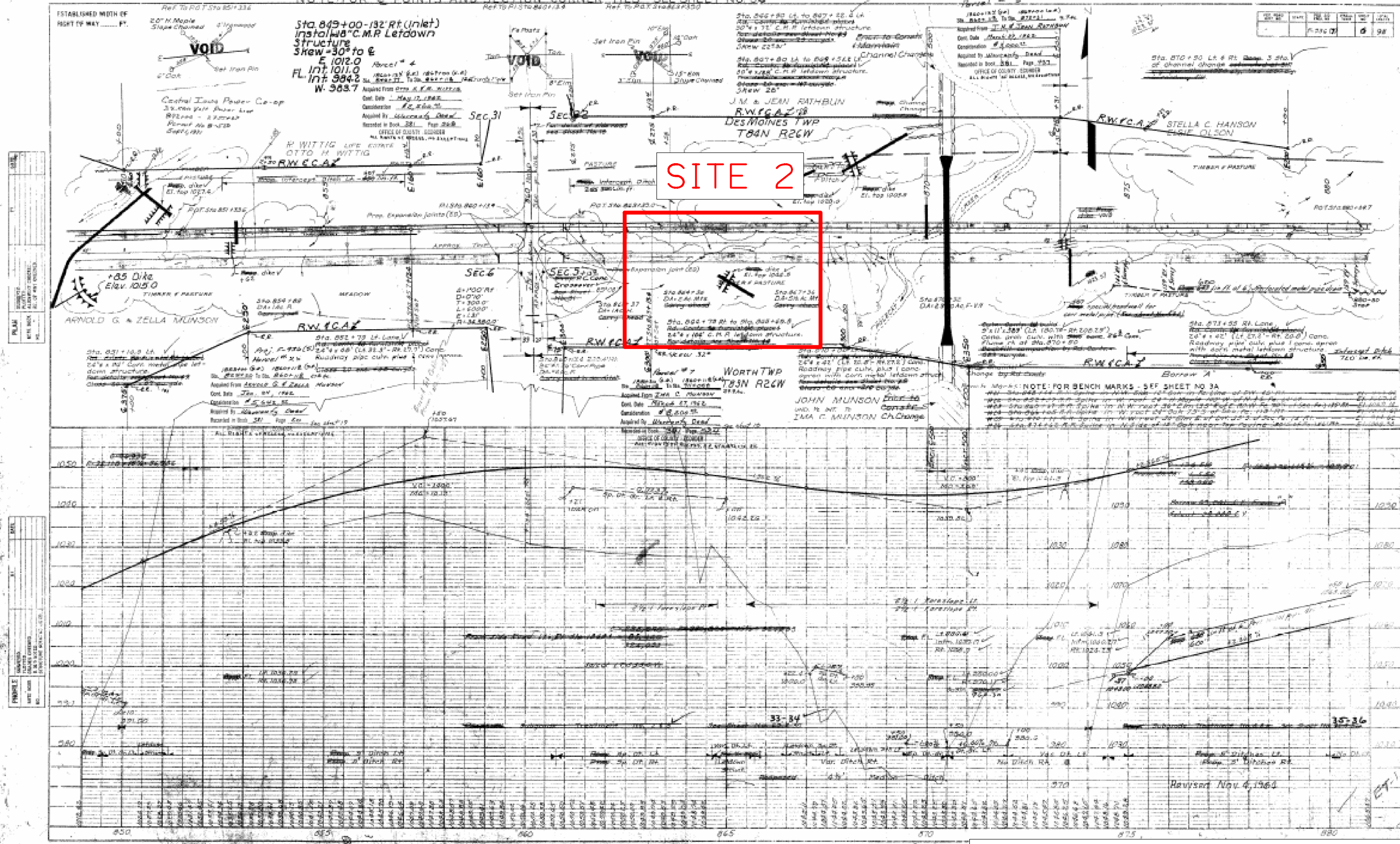
Sta 2867+86.18 DITCHTWO
= 867+38.38, 282.26 - RT ROWMLA030



SITE 2

NOTE: FOR C POINTS AND SECTION CORNER TIES - SEE SHEET NO 3C

6

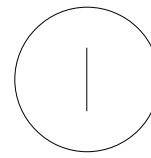


SITE 2

FOR INFORMATION ONLY

STONE, JULIA ANN

OVERBECK, JUDITH ANN



JUDITH ANN OVERBECK

EASEMENT TO CONSTRUCT AND MAINTAIN
LETDOWN STRUCTURE.
SILAS N. & VELMA M. TOMPKINS
CONDEMNATION BOOK 385 PAGE 473

EQUATION:
Sta 6+81.44 BK =
Sta 6+47.04 AH

Sta 6+47.04 DITCHTHREE
= 1005+93.71, 166.00 - LT ROWMLB030

ROW

ROW

F02
F02

DITCHTHREE

Sta 5+51.31 DITCHTHREE
= 1005+67.94, 82.43 - LT ROWMLB030

Erosion Stone
Class E Revetment

1004

1005

POT Sta 5+00.00



1006

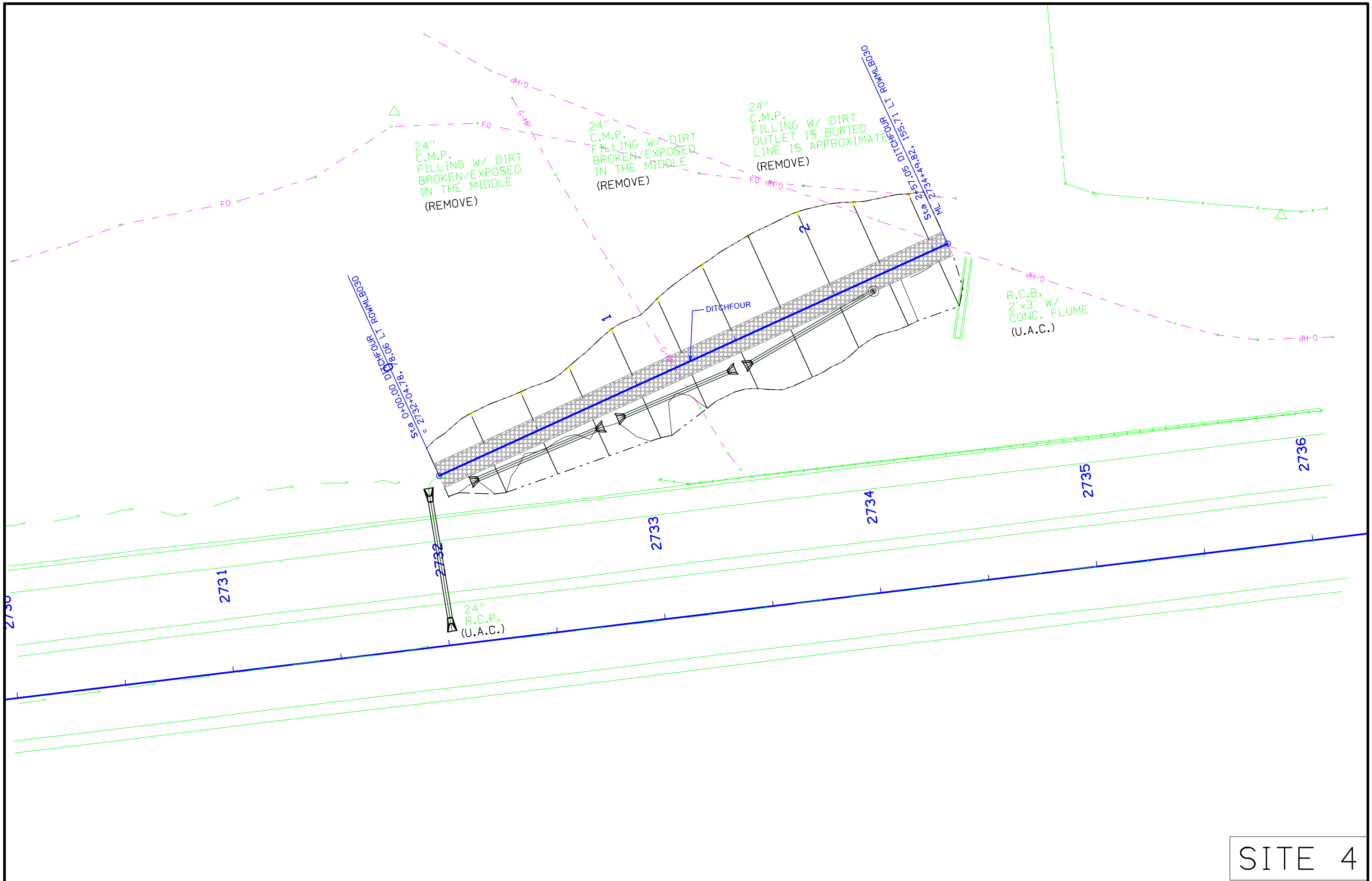
1007

1008

1009



SITE 3

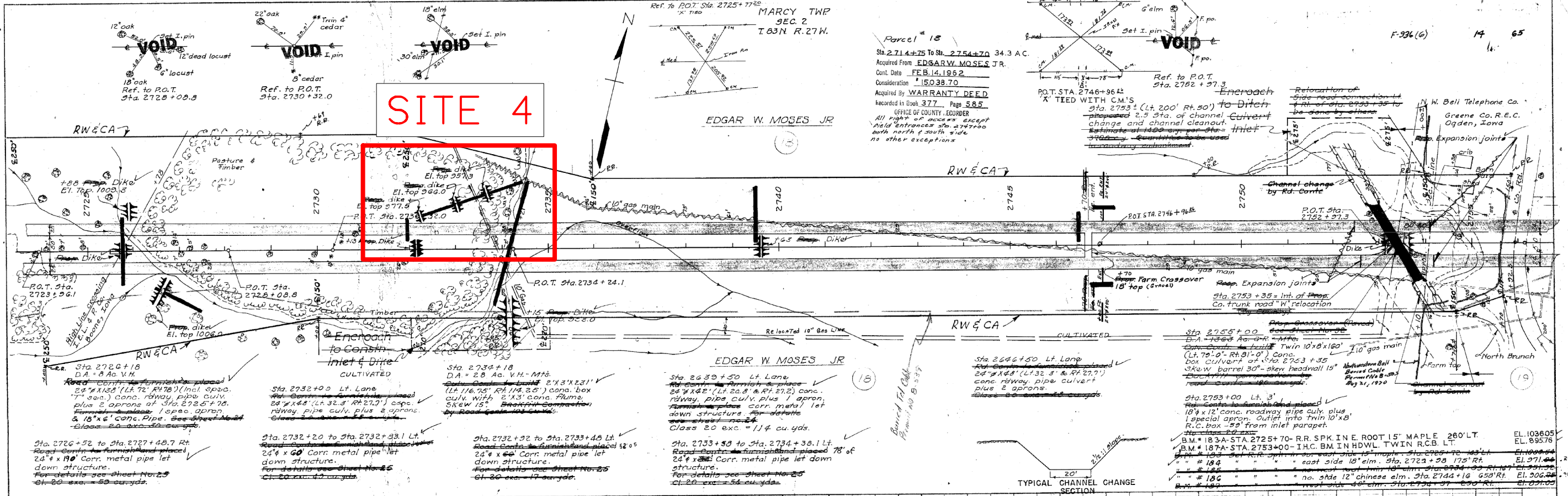


SITE 4

MARCY TWP
SEC. 2
T.83N R.27W

Parcel # 15
Sta. 2714+75 to Sta. 2754+70 34.3 AC.
Acquired From EDGAR W. MOSES JR.
Cont. Date FEB. 14, 1962
Consideration \$150,387.00
Acquired By WARRANTY DEED
Recorded in Book 377, Page 585
OFFICE OF COUNTY CLERK
All right of access except
field entrances sta. 2747+00
with north & south side
no other exceptions

SITE 4



PLAN
SCALE: AS SHOWN
NOTE: BOOK NO. 377, PAGE 585
DATE: 11/17/08

PROFILE
SCALE: AS SHOWN
NOTE: BOOK NO. 377, PAGE 585
DATE: 11/17/08

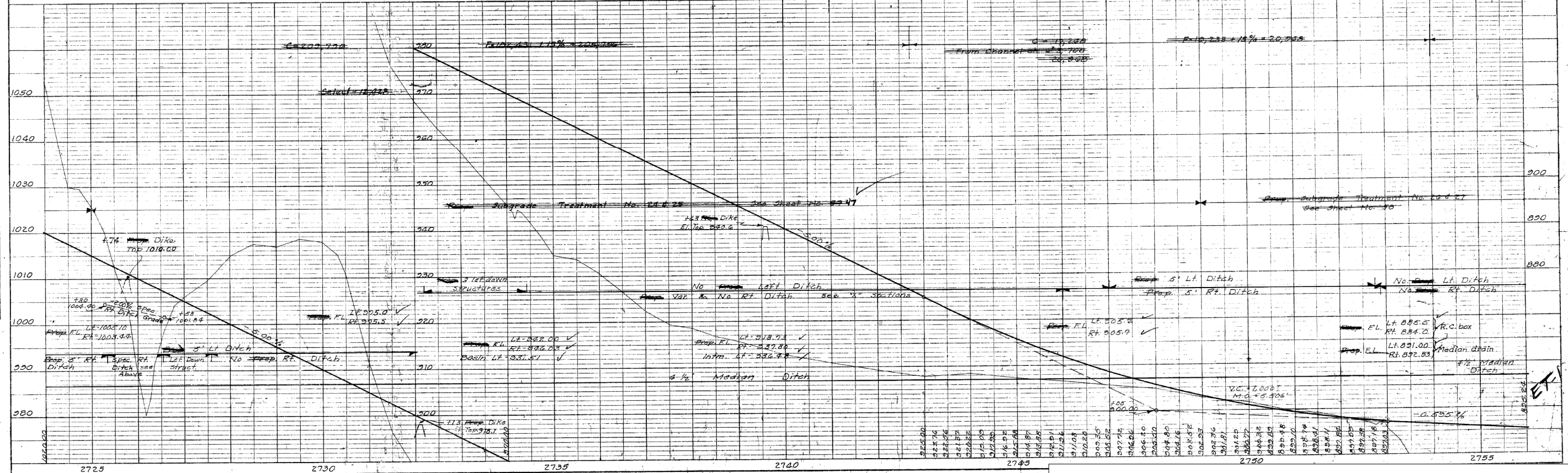
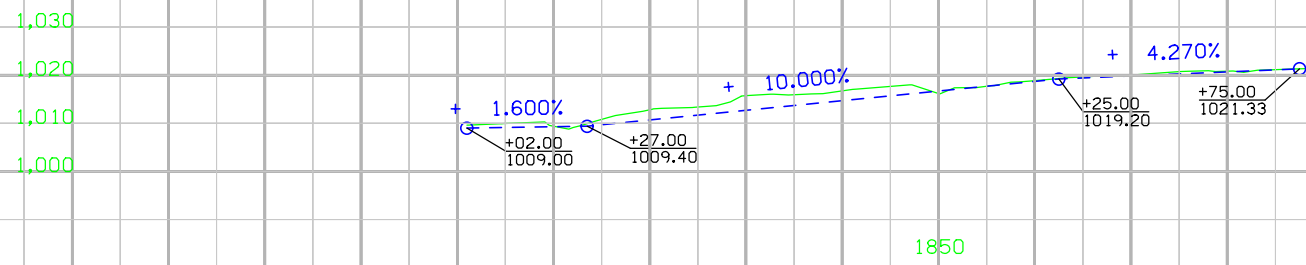
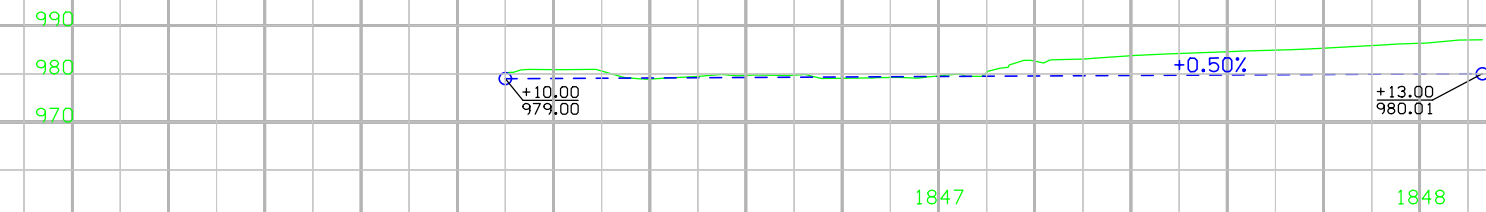


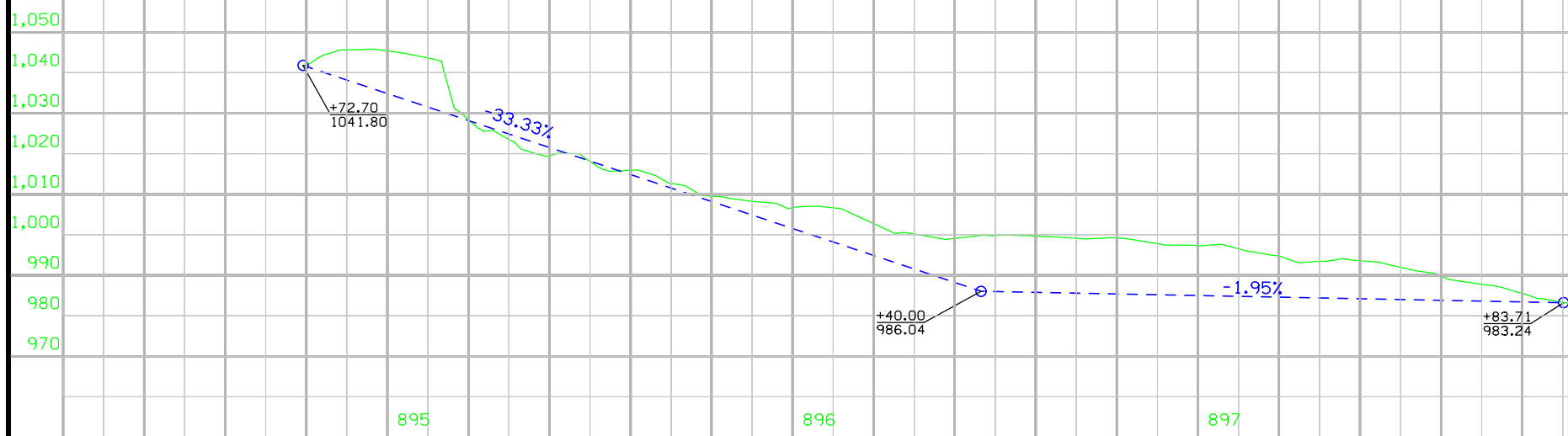
PLATE 1 - PLAN - PROFILE & R.R.E. STANDARD
KUEFFEL & ESSER CO., NEW YORK

FOR INFORMATION ONLY

SITE 1

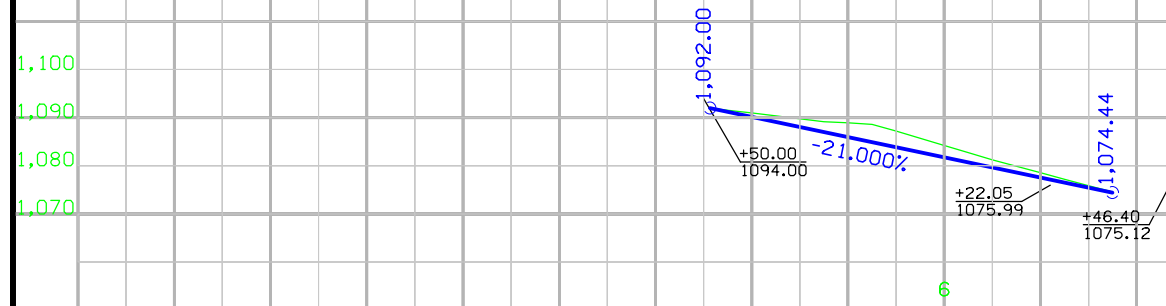


SITE 2

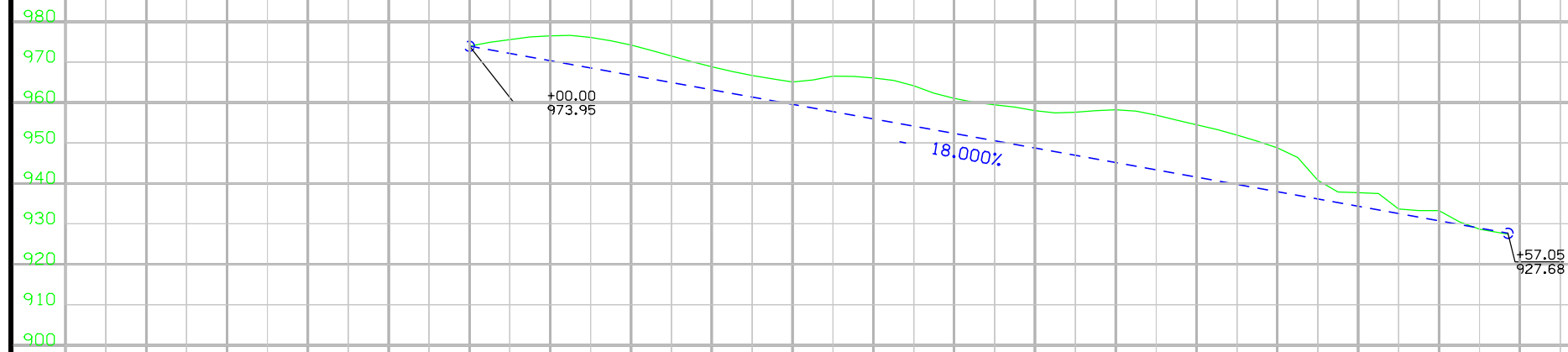


PROFILES

SITE 3



SITE 4



PROFILES

Survey Information

County: Boone
PIN: 19-08-030-020
Project Number: NHSN-030-4(103)--2R-08
Location: Various locations around U.S. 30 from 0.5 mile east of Des Moines River to 0.25 mile west of Snedden Drive in Boone County, Iowa.
Type of Work: Revetment
Project Directory: 0803002019

General Information

Measurement units for this survey are U.S. survey feet. This survey was completed to assist in the reshaping and revetment design of ditches at three sites (Sta. 845+50+/- to 851+00+/- (right side), 860+50+/- to 869+00+/- (right side), and 1004+00+/- to 1009+50+/- (left side)) around U.S.30 in Boone Co., Iowa.

Vertical Control

The vertical datum for this survey is NAVD88. The vertical control for this project is relative to said datum, computed using GEOID 12a, and is dependent on the Iowa Real-Time Network (IaRTN) reference stations. Control point elevations were established by 5 redundantly averaged RTK GPS shots utilizing the IaRTN.

Horizontal Control

The horizontal project coordinate system basis for this survey is from the Iowa Regional Coordinate System Zone 8 projection. The Geodetic Datum is NAD83 (2011) EPOCH 2010.0. Control Point horizontal coordinate positions were established by 5 redundantly averaged RTK GPS shots utilizing the Iowa Real-Time Network.

Alignment Information

Two horizontal alignments of U.S. 30 were developed for this project because of horizontal offsets along the corridor. Both alignments are retracements from as-built plans for project F-936(7)(2).

The first alignment starts at P.I. Sta. 2781+13.30 to P.T. Sta. 2785+47.3 at which point there is a horizontal offset of 37.00' (LT). At the horizontal offset point an equation station of P.O.T. 787+70.9 was held and ran ahead without further equations. Survey stationing relates to as-built stationing as follows:

P.I. Sta. 2781+13.30 (F-936(7)(2)) = P.I. Sta. 2781+13.30 (this survey)
Found ½" iron pin (6"deep)

P.T. Sta. 2785+47.3 (F-936(7)(2)) = P.T. Sta. 2785+47.3 (this survey)
Nothing found or set

P.O.T. Sta. 787+70.9 (F-936(7)(2)) = P.O.T. Sta. 787+70.9 (this survey)
Nothing found or set

P.I. Sta. 860+13.40 (F-936(7)(2)) = P.I. Sta. 860+11.01 (this survey)
Found P-K nail in crossover.

P.O.T. Sta. 906+00.98 (F-936(7)(2)) = P.O.T. Sta. 905+95.53 (this survey)
Nothing found or set

The second alignment starts at the 37.00' (RT) horizontal offset of P.O.T. Sta. 906+00.98 which is P.C. 906+00.98. The stationing was held at P.C. 1010+74.88 and ran forward and backward without equation. Survey stationing relates to as-built stationing as follows:

P.C. Sta. 906+00.98 (F-936(7)(2)) = P.C. Sta. 906+06.55 (this survey)
Nothing found or set

P.I. Sta. 909+09.80 (F-936(7)(2)) = P.I. Sta. 909+15.36 (this survey)
Found ½" iron pin (8"deep)

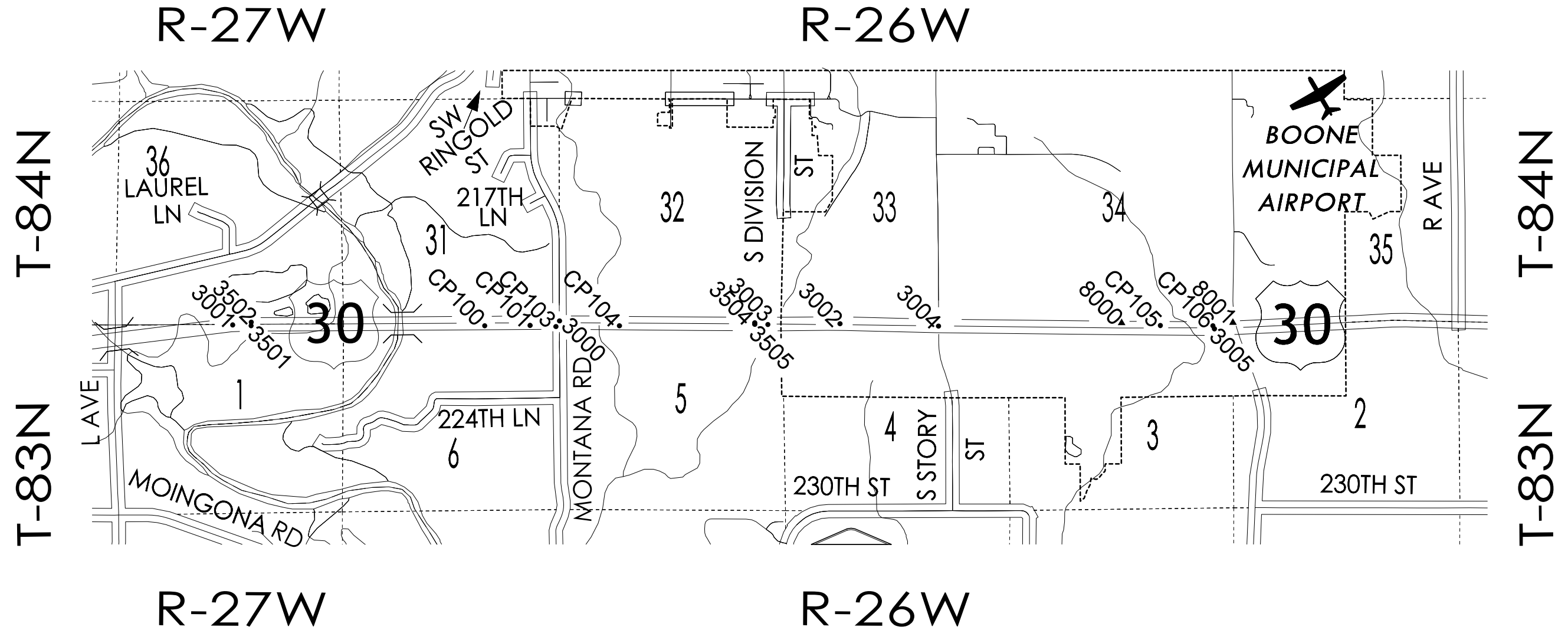
P.I. Sta. 926+04.76 (F-936(7)(2)) = P.I. Sta. 926+08.20 (this survey)
Found ½" iron pin (8"deep)

P.I. Sta. 949+19.12 (F-936(7)(2)) = P.I. Sta. 949+21.53 (this survey)
Set hinge nail

P.I. Sta. 1014+00.0 (F-936(7)(2)) = P.I. Sta. 1014+00.0 (this survey)
Found ½" iron pin (6"deep)

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points
 Primary control is for use with RTK base stations and for RTN validation.
 Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 8

Coordinate listing from next sheet will be used with 1aRTN for monument recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 8

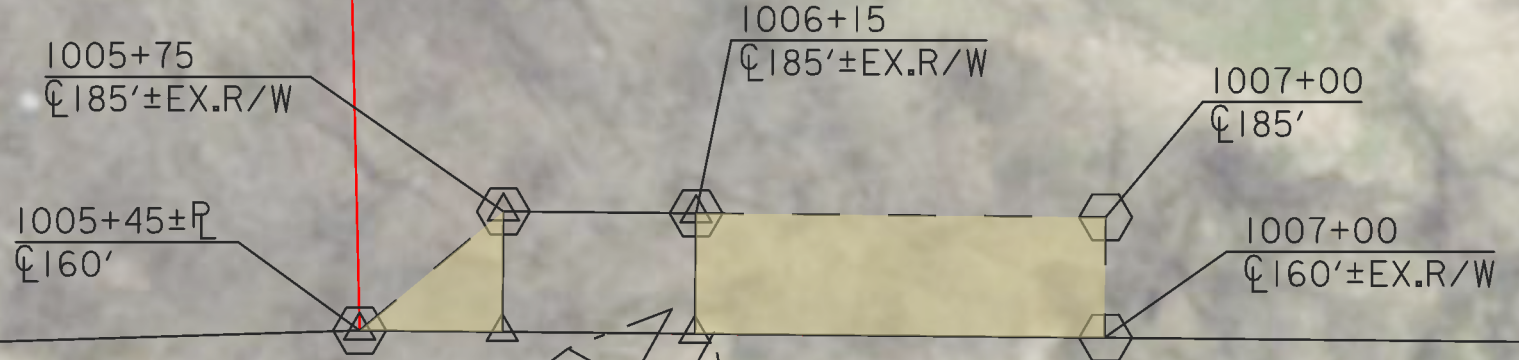
Point Name	Description	Northing	Easting	Elevation
3000	P.I. STA. 860+13.40 FOUND "P-K" NAIL (FLUSH)	7650436.98	18446818.63	
3001	P.I. STA. 2781+13.30 FOUND 1/2" IRON PIN (6" DEEP)	7650341.52	18439144.12	
3002	P.I. STA. 926+04.76 FOUND 1/2" IRON PIN (8" DEEP)	7650370.93	18453404.15	
3003	P.I. STA. 909+09.80 FOUND 1/2" IRON PIN (8" DEEP)	7650352.35	18451711.38	
3004	P.I. STA. 949+19.12 SET HINGE NAIL IN A/C MAT.	7650314.00	18455716.84	
3005	P.I. STA. 1014+00.0 FOUND 1/2" IRON PIN (6" DEEP)	7650250.44	18462195.00	
3501	P.T. STA. 2785+47.3 NOTHING FOUND OR SET	7650344.83	18439579.00	
3502	P.O.T. STA. 787+70.9 NOTHING FOUND OR SET	7650381.83	18439578.72	
3504	P.C. STA. 906+00.98 NOTHING FOUND OR SET	7650355.36	18451402.58	
3505	P.O.T. STA. 906+00.98 NOTHING FOUND OR SET	7650392.35	18451402.94	
8000	N1/4 3-83N-26W FOUND I.D.O.T. ALUM. MON. (3" EXPOSED)	7650388.20	18460016.69	
8001	NE COR. 3-83N-26W FOUND SCM (6" DEEP)	7650395.60	18462629.43	
CP100	SET 5/8" RE-ROD (FLUSH)	7650322.55	18445066.02	988.60
CP101	SET 5/8" RE-ROD (FLUSH)	7650330.48	18446127.40	1035.09
CP103	SET 5/8" RE-ROD (FLUSH)	7650303.66	18446733.92	1047.06
CP104	SET 5/8" RE-ROD (FLUSH)	7650322.45	18448224.81	1045.86
CP105	SET 5/8" RE-ROD (FLUSH)	7650328.30	18460925.66	1102.01
CP106	SET 5/8 RE-ROD (FLUSH)	7650321.57	18462160.37	1094.00

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

TEMPORARY EASEMENT
TO SHAPE

SEC. 34
T-84-N R-26-W

JUDITH ANN OVERBECK



1004

1005



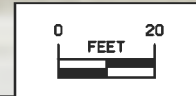
1006

1007

1008

SITE 3

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
 ROW Team: LARSON/CUVA
 ROW #: NHSN-030-4(104)--2R-08
 Plan Date: 2-11-2020
 Color Legend:
 [Red line with cross-ticks] Property Lines
 [Yellow shaded area] Temporary Easement
 [Cyan shaded area] Permanent Acquisition



108-23A
08-01-08

TRAFFIC CONTROL PLAN

All four lanes of US 30 traffic shall be maintained at all times. Short-term shoulder closures for deliveries will be permitted.

108-25
10-21-14

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
US 30	EB/WB	BOONE	No Restrictions Anticipated									

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut				Fill					Checks (EW-102)		Topsoil				[17]	[18]	[19]	[20]	[21]	[22]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]						
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Rock Undercut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
SITE1																						
846+10.00	61	30	31	0	30	0	31	31	40	-10	0	0	31	0	0	31						
846+25.00	84	42	42	0	42	0	42	42	55	-13	0	0	42	0	0	42						
846+50.00	65	31	34	0	31	0	34	34	44	-13	0	0	34	0	0	34						
846+75.00	56	27	29	0	27	0	29	29	38	-11	0	0	29	0	0	29						
847+00.00	65	41	24	0	41	0	24	24	31	10	0	0	24	0	0	24						
847+25.00	125	95	30	0	95	0	30	30	39	56	0	0	30	0	0	30						
847+50.00	208	161	47	0	161	0	47	47	61	100	0	0	47	0	0	47						
847+75.00	382	307	75	0	307	0	75	75	98	210	0	0	75	0	0	75						
848+00.00	221	182	39	0	182	0	39	39	51	131	0	0	39	0	0	39						
848+10.00	1,143	923	220	0	923	0	220	220	286	637	0	0	220	25	35	185						
849+00.00	67	43	24	0	43	0	24	24	31	12	0	0	24	16	22	2						
849+25.00	86	61	25	0	61	0	25	25	33	29	0	0	25	17	24	1						
849+50.00	108	80	28	0	80	0	28	28	36	44	0	0	28	19	27	1						
849+75.00	122	86	36	0	86	0	36	36	47	39	0	0	36	24	34	2						
850+00.00	88	56	32	0	56	0	32	32	42	14	0	0	32	21	29	3						
850+25.00	57	34	23	0	34	0	23	23	30	4	0	0	23	16	22	1						
850+50.00	57	34	23	0	34	0	23	23	30	4	0	0	23	16	22	1						
850+75.00																						
SITE1																						
Totals:	2,995	2,233	762	0	2,233	0	762	762	991	1,243	0	0	762	154	216	547						

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut					Fill					Checks (EW-102)		Topsoil				[17]	[18]	[19]	[20]	[21]	[22]		
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]								
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Rock Undercut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink								
SITE2																								
894+80.00	354	304	50	0	304	0	50	50	65	239	0	0	50	36	50	0								
895+00.00	527	454	73	0	454	1	73	74	96	358	0	0	73	48	67	6								
895+20.00	460	383	77	0	383	0	77	77	100	283	0	0	77	49	69	9								
895+40.00	398	322	76	0	322	0	76	76	99	223	0	0	76	49	69	8								
895+60.00	416	336	80	0	336	0	80	80	104	232	0	0	80	52	73	7								
895+80.00	566	476	90	0	476	0	90	90	117	359	0	0	90	60	84	6								
896+00.00	790	686	104	0	686	0	104	104	135	551	0	0	104	71	99	5								
896+20.00	1,129	1,009	120	0	1,009	0	120	120	156	853	0	0	120	83	116	4								
896+40.00	1,168	1,051	117	0	1,051	0	117	117	152	899	0	0	117	81	113	4								
896+60.00	849	755	94	0	755	0	94	94	122	633	0	0	94	65	91	3								
896+80.00	628	552	76	0	552	0	76	76	99	453	0	0	76	53	74	2								
897+00.00	459	397	62	0	397	0	62	62	81	316	0	0	62	43	60	2								
897+20.00	340	287	53	0	287	4	53	57	74	213	0	0	53	36	50	3								
897+40.00	202	161	41	0	161	4	41	45	59	103	0	0	41	28	39	2								
897+60.00																								
SITE2 Totals:	8,286	7,173	1,113	0	7,173	9	1,113	1,122	1,459	5,715	0	0	1,113	754	1,056	58								

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut					Fill					Checks (EW-102)		Topsoil				[17]	[18]	[19]	[20]	[21]	[22]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Rock Undercut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
SITE3																							
+00.00	117	81	36	18	99	13	36	49	64	35	0	0	36	12	17	19							
+15.00	192	145	47	28	173	3	47	50	65	108	0	0	47	19	27	20							
+30.00	243	194	49	28	222	0	49	49	64	158	0	0	49	20	28	21							
+45.00	246	200	46	28	228	0	46	46	60	168	0	0	46	19	27	19							
+60.00	184	145	39	28	173	0	39	39	51	122	0	0	39	14	20	19							
+75.00																							
SITE3																							
Totals:	982	765	217	130	895	16	217	233	303	593	0	0	217	84	118	100							

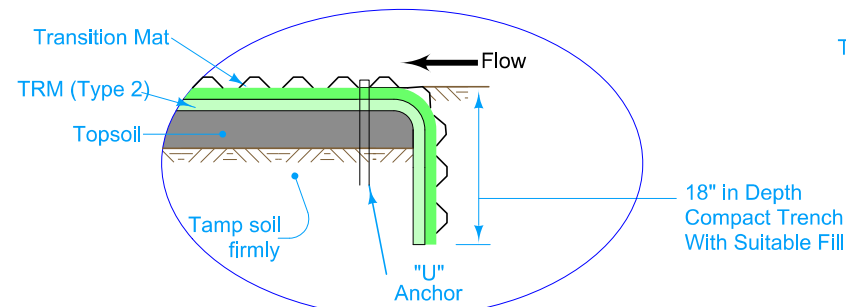
TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut				Fill					Checks (EW-102)		Topsoil				[17]	[18]	[19]	[20]	[21]	[22]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]						
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Rock Undercut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
SITE4																						
+00.00	243	172	71	0	172	10	71	81	105	67	0	0	71	44	62	9						
+50.00	568	471	97	0	471	10	97	107	139	332	0	0	97	65	91	6						
1+00.00	816	705	111	0	705	0	111	111	144	561	0	0	111	80	112	-1						
1+50.00	927	802	125	0	802	0	125	125	163	640	0	0	125	89	125	1						
2+00.00	761	621	140	0	621	10	140	150	195	426	0	0	140	89	125	15						
2+50.00	71	51	20	0	51	2	20	22	29	22	0	0	20	11	15	5						
2+57.05																						
SITE4																						
Totals:	3,386	2,822	564	0	2,822	32	564	596	775	2,048	0	0	564	378	530	35						

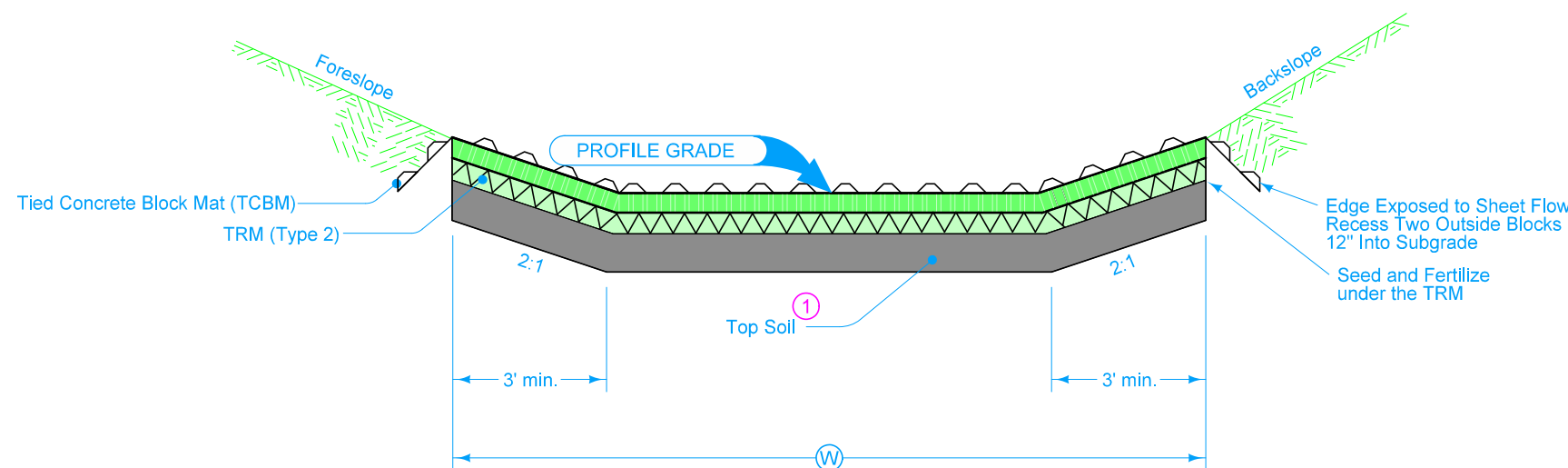
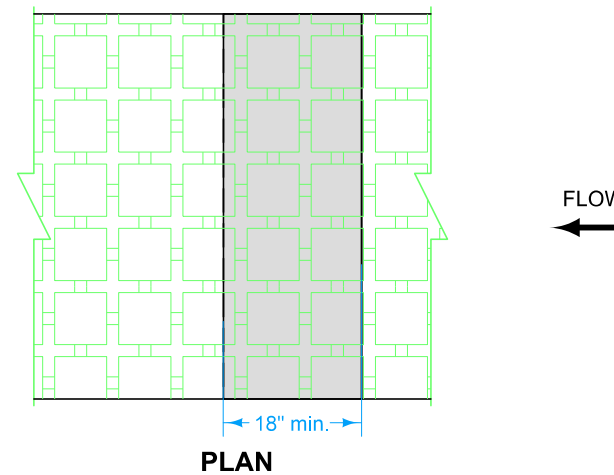
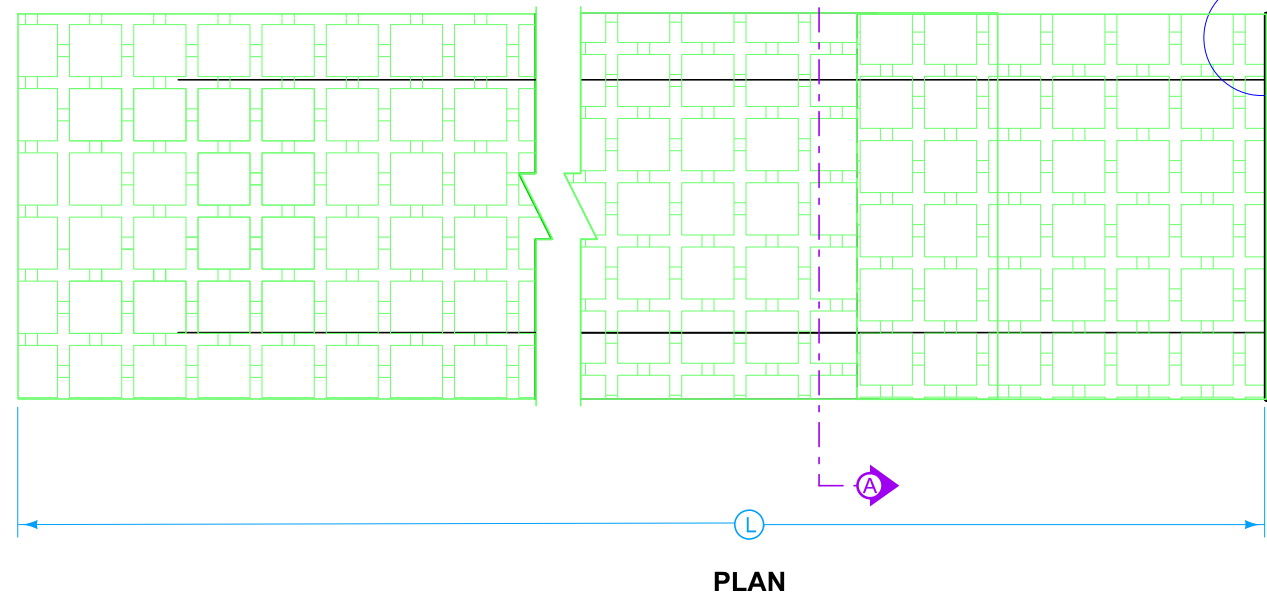
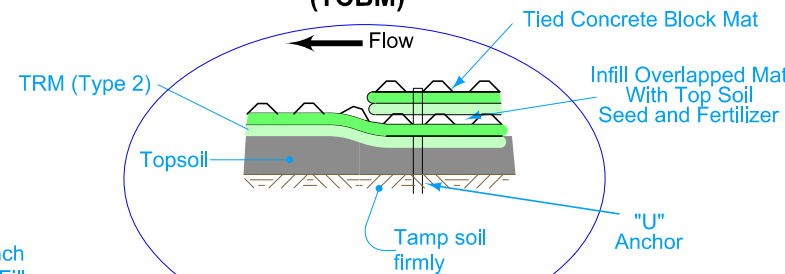
CONSTRUCTION NOTES:

- Grade channel so that water will flow down the center of the channel and be contained to the channel. All subgrade surfaces prepared for placement of mats shall be smooth and free of all rocks, sticks, roots, other protrusions, or debris of any kind. The prepared surface shall provide a firm unyielding foundation for the mats.
- Apply seed directly to the prepared soil prior to mat installation. Use seed per project specifications.
- Install 16' wide mat roll as recommended to reduce longitudinal seams.
 - To achieve wider widths, install mats adjacent to one another. Bridge longitudinal seam with underlayment underlayment seam. 15" of underlayment shall be under each mat and directly against the subgrade.
 - Flip mat sections back into place so that they fit tightly.
 - Install 18" U-anchors or stainless steel zip ties in 3' increments the length of the longitudinal seam. U-Anchors consist of #3 rebar shaped into a U shape with 18" legs.
- At the beginning of channel, the initial leading edge of mat exposed to concentrated flows shall be embedded 18" vertically into the sub grade to serve as an anchor trench. The trench shall be filled and compacted with suitable fill.
- Install 18" U-anchors in 2' increments behind the first row of blocks extending from anchor trench. Install anchors directly behind blocks.
- For additional sections of mat, over lap the downstream section 18" with upstream section of mat. Prior to installing overlap, flip upstream mat back 24". Excavate 2.25" of soil 18" from end of upstream mat. Downstream section is laid in the shallow trench. Lightly spread topsoil and seed over initial edge. Flip end of upstream mat over the soil covered initial leading edge of downstream mat.
- Outside edges of the mat exposed to surface flow shall have the outside block recessed 12" in subgrade.
- At the end of the armored channel, embed mat 18" in termination trench.

START OF PROTECTION



LAP JOINT (TCBM)



TCBM

TRM (Type 2) ②

① Place at a minimum 4 inch thickness.

② Refer to Standard Road Plan EC-104 for the placement of the TRM.

<h1>SPECIAL ROAD PLAN</h1>	REVISION
	EC-106
	SHEET 1 of 1
MODIFICATIONS:	
<h2>TIED CONCRETE BLOCK MAT (TCBM)</h2>	

846

847

848

WORTH TWP.
T-83-N R-26-W
SEC. 6

849

850

851



30

30 WBL

30 EBL

Sta 1846+10.00 DITCHONEA
= 846+10.00, 158.87 - RT ROWM0A030

Sta 1846+27.84 DITCHONEA
= 846+25.08, 168.44 - RT ROWM0A030

Sta 1847+78.46 DITCHONEA
= 847+74.95, 183.24 - RT ROWM0A030

Sta 1848+14.63 DITCHONEA
= 848+10.12, 174.72 - RT ROWM0A030

Sta 1849+02.00 DITCHONEB
= 849+02.00, 1131.00 - RT ROWM0A030

Sta 1849+68.81 DITCHONEB
= 849+67.58, 118.28 - RT ROWM0A030

Sta 1850+76.69 DITCHONEB
= 850+75.40, 114.62 - RT ROWM0A030

1847

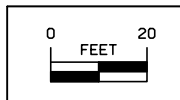
1848

1850

DITCHONEB

Site1b - .2 Acres

Site 1a - .5 Acres



Clearing &
Grubbing Details

864

865

WORTH TWP.
T-83-N R-26-W
SEC. 5

866

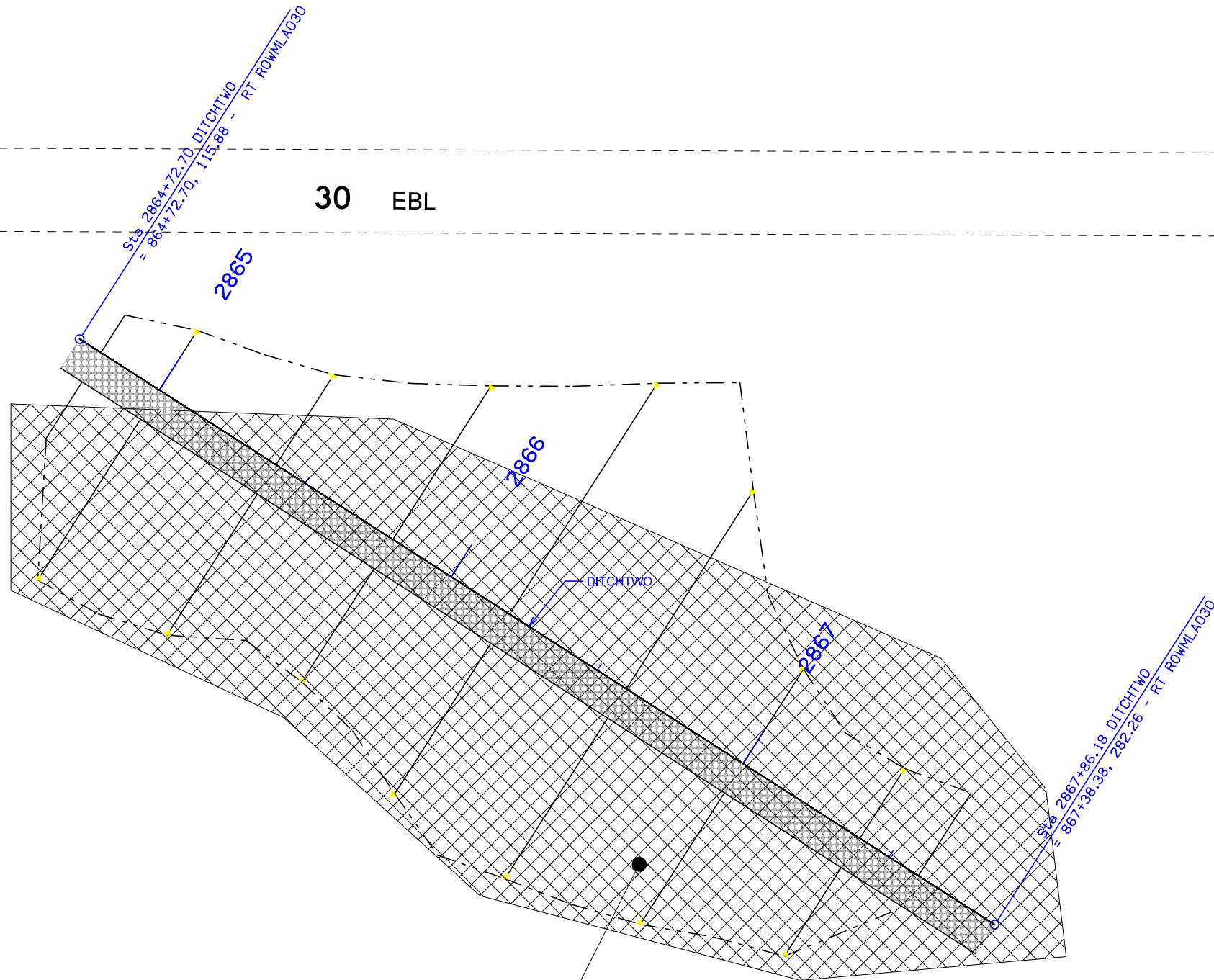
867

868

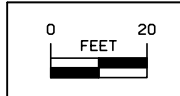
869

30 WBL

30 EBL



Site 2 - .7 Acres



Clearing &
Grubbing Details



EASEMENT TO CONSTRUCT AND MAINTAIN
LETDOWN STRUCTURE.
SILAS N. & VELMA M. TOMPKINS
CONDEMNATION BOOK 385 PAGE 473

EQUATION:
Sta 6+81.44 BK =
Sta 6+47.04 AH

Sta 6+47.04 DITCHTHREE
= 1005+93.71, 166.00 - LT ROWMLB030

Site 3 - .15 Acres
Existing ROW

Sta 5+51.31 DITCHTHREE
= 1005+67.94, 82.43 - LT ROWMLB030

Erosion Stone
Class E Revetment

POT Sta 5+00.00

1004 30 WBL

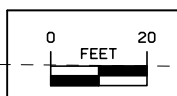
1005

1006

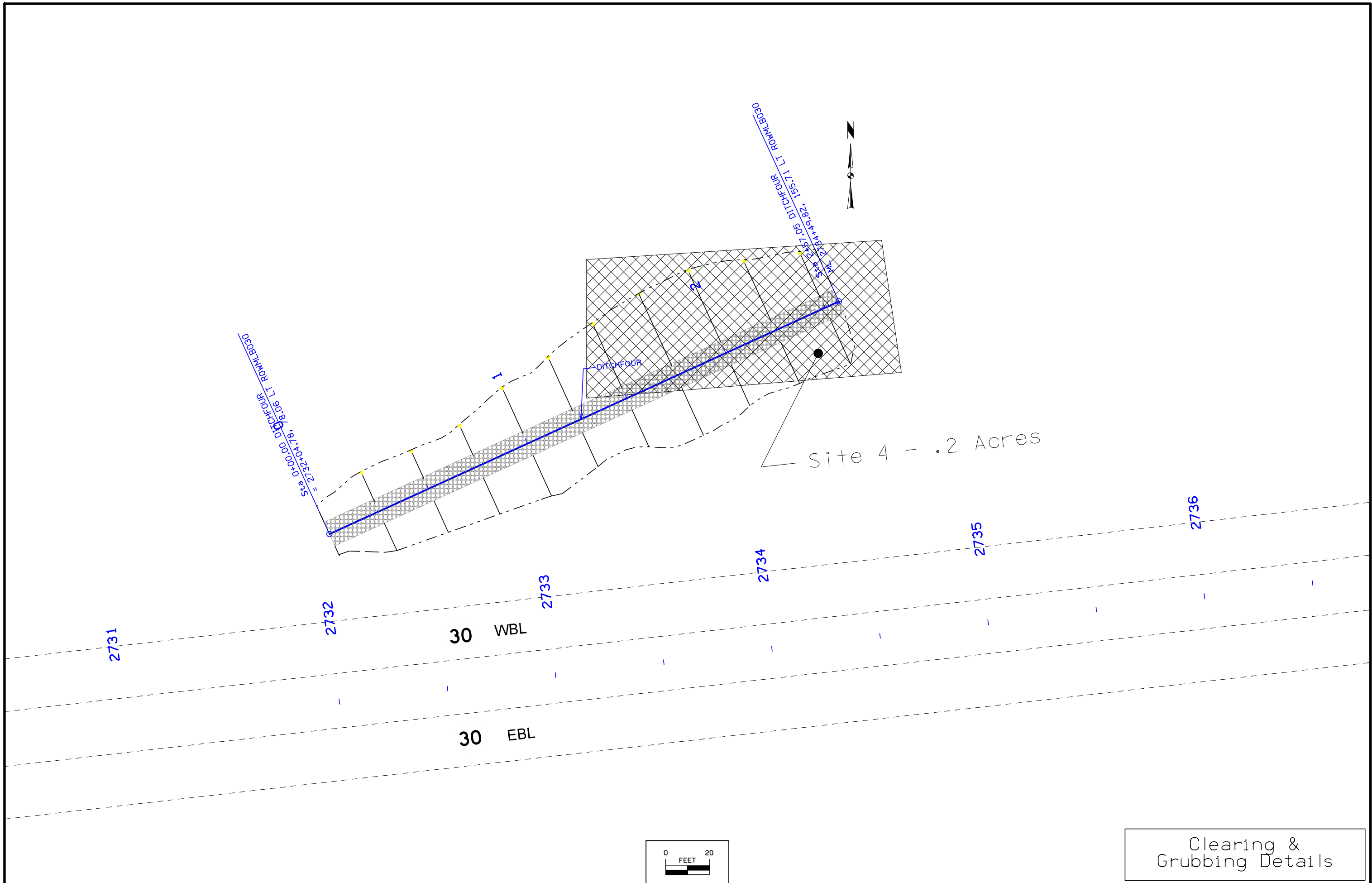
1007

1008

1009



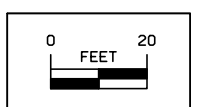
Clearing &
Grubbing Details



Site 4 - .2 Acres

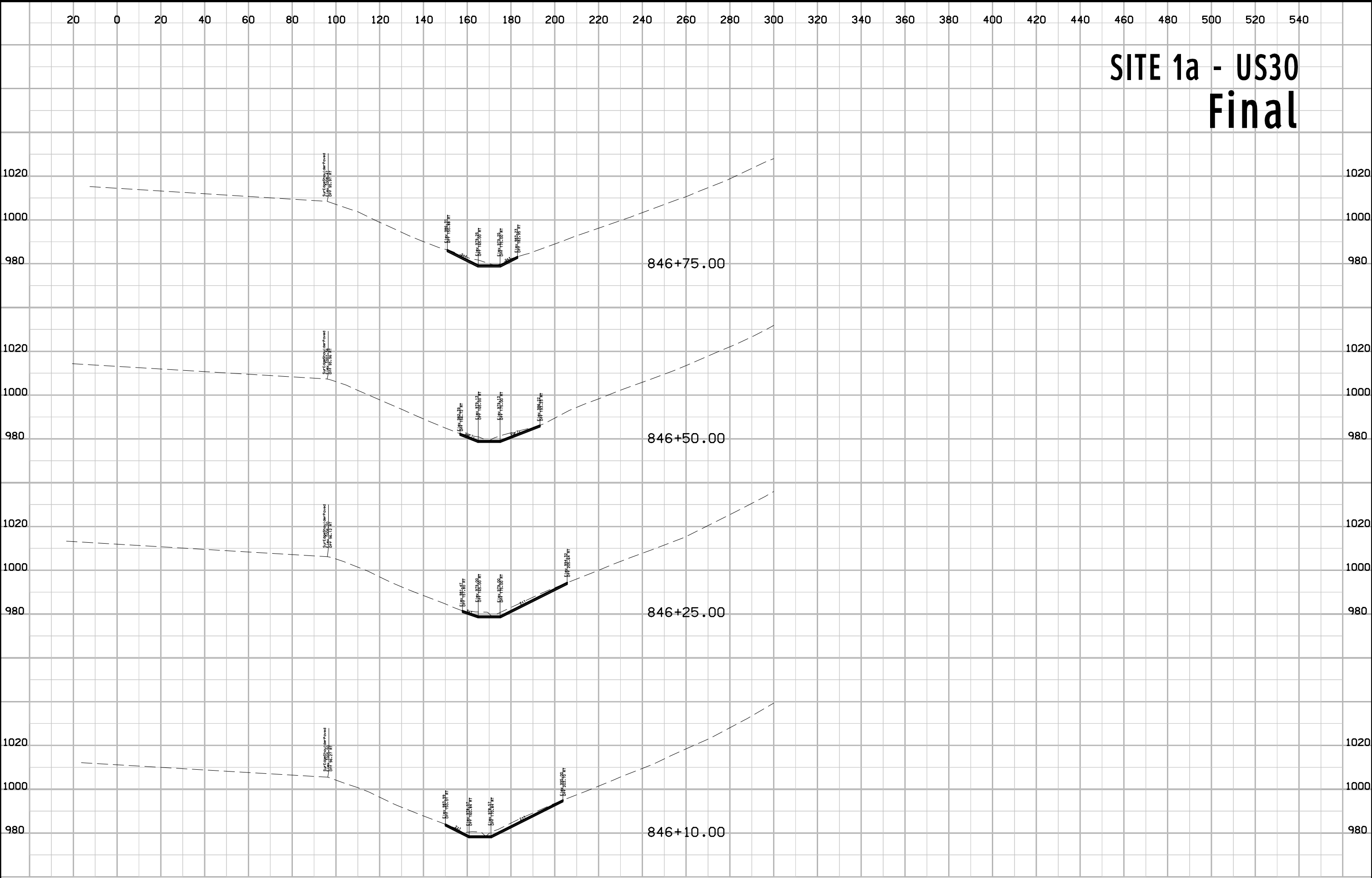
30 WBL

30 EBL

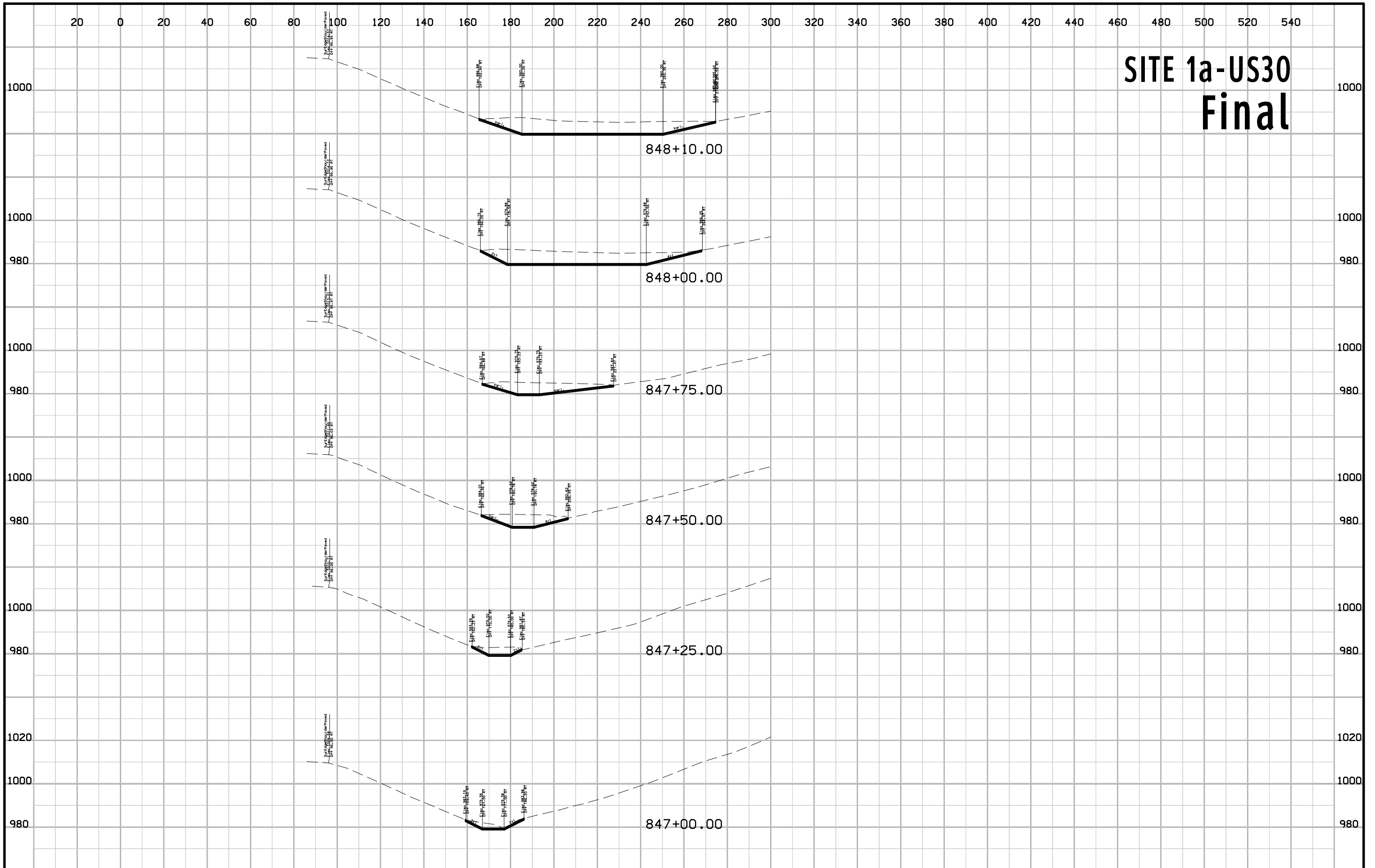


Clearing & Grubbing Details

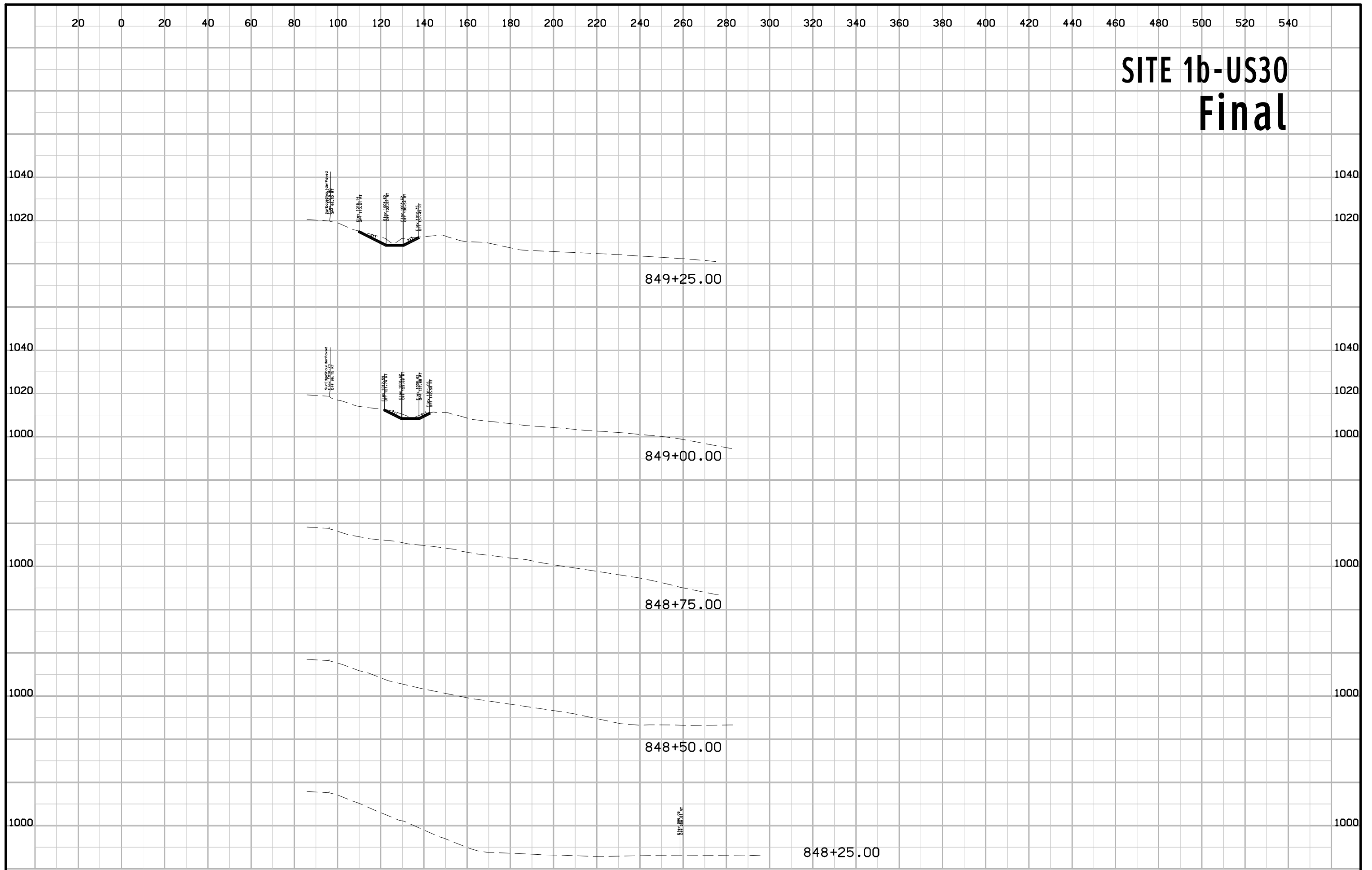
SITE 1a - US30 Final



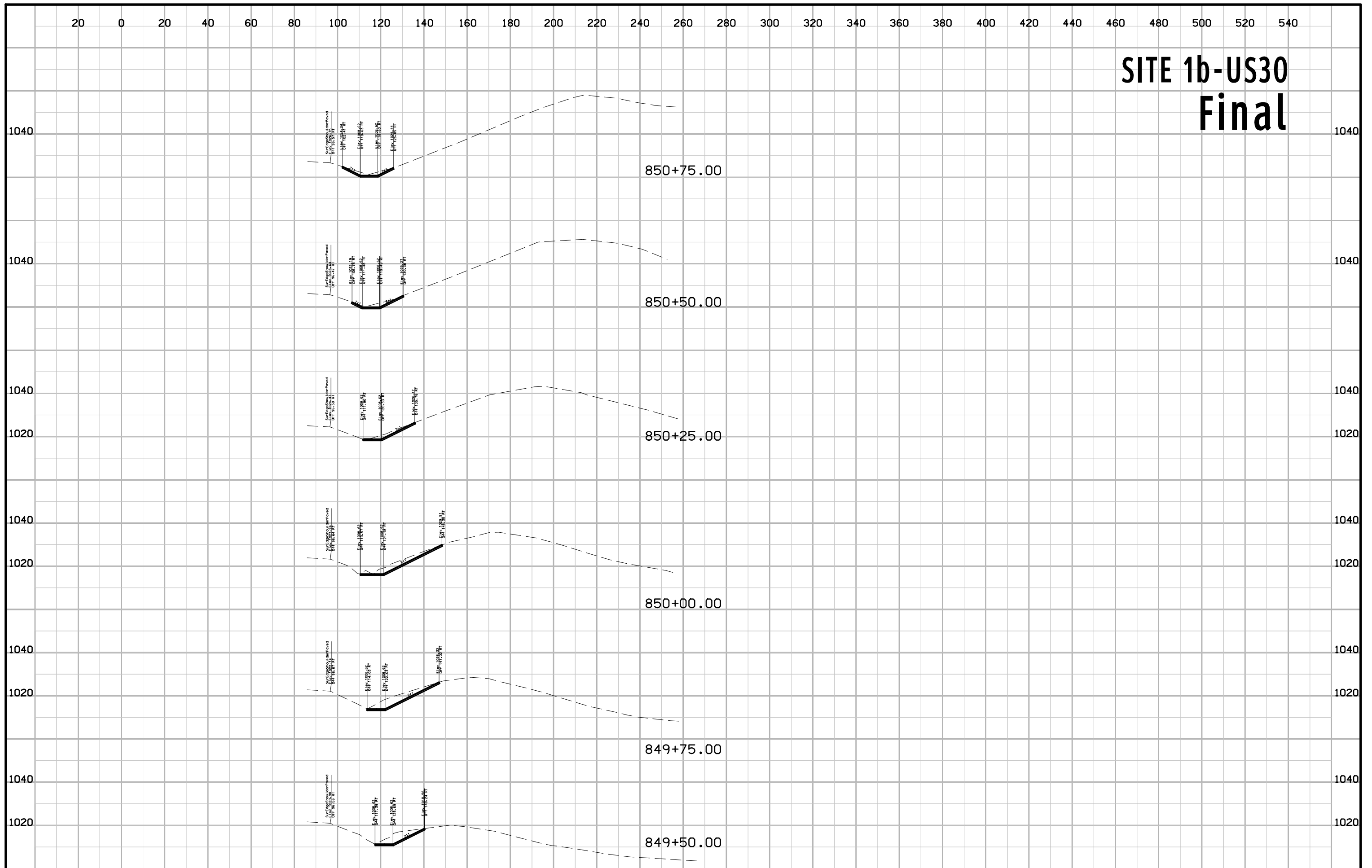
SITE 1a-US30 Final



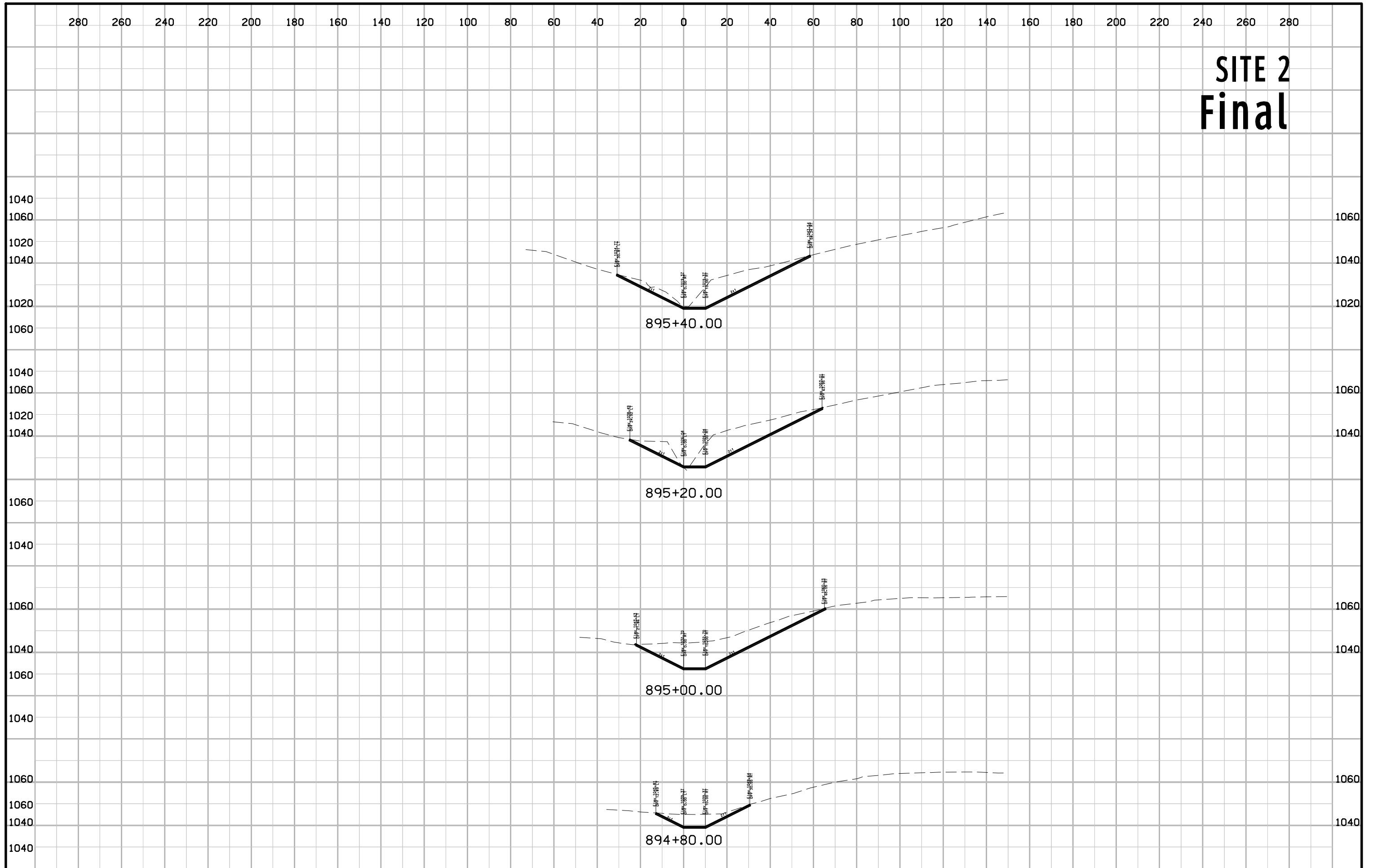
SITE 1b-US30 Final



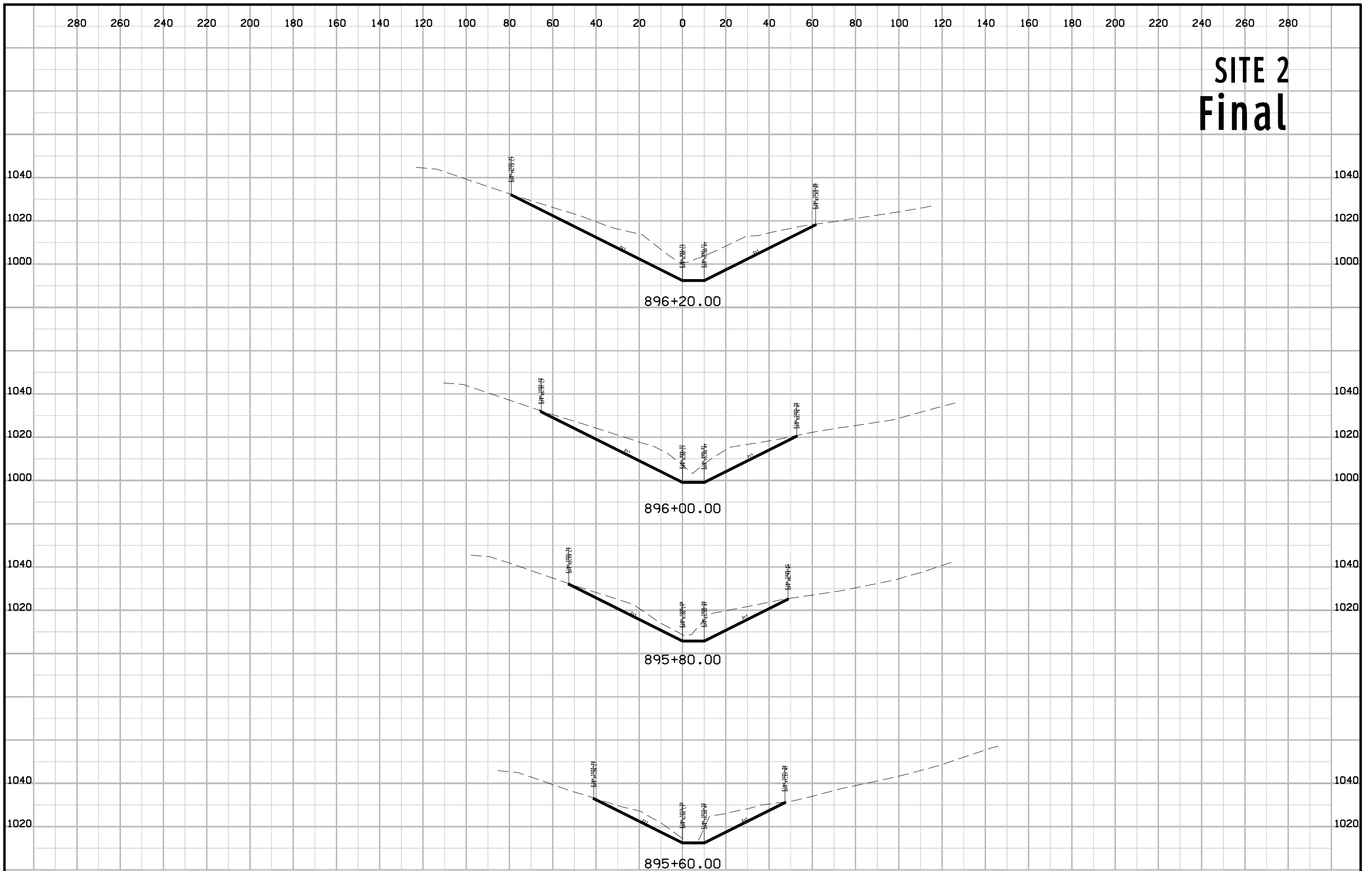
SITE 1b-US30 Final



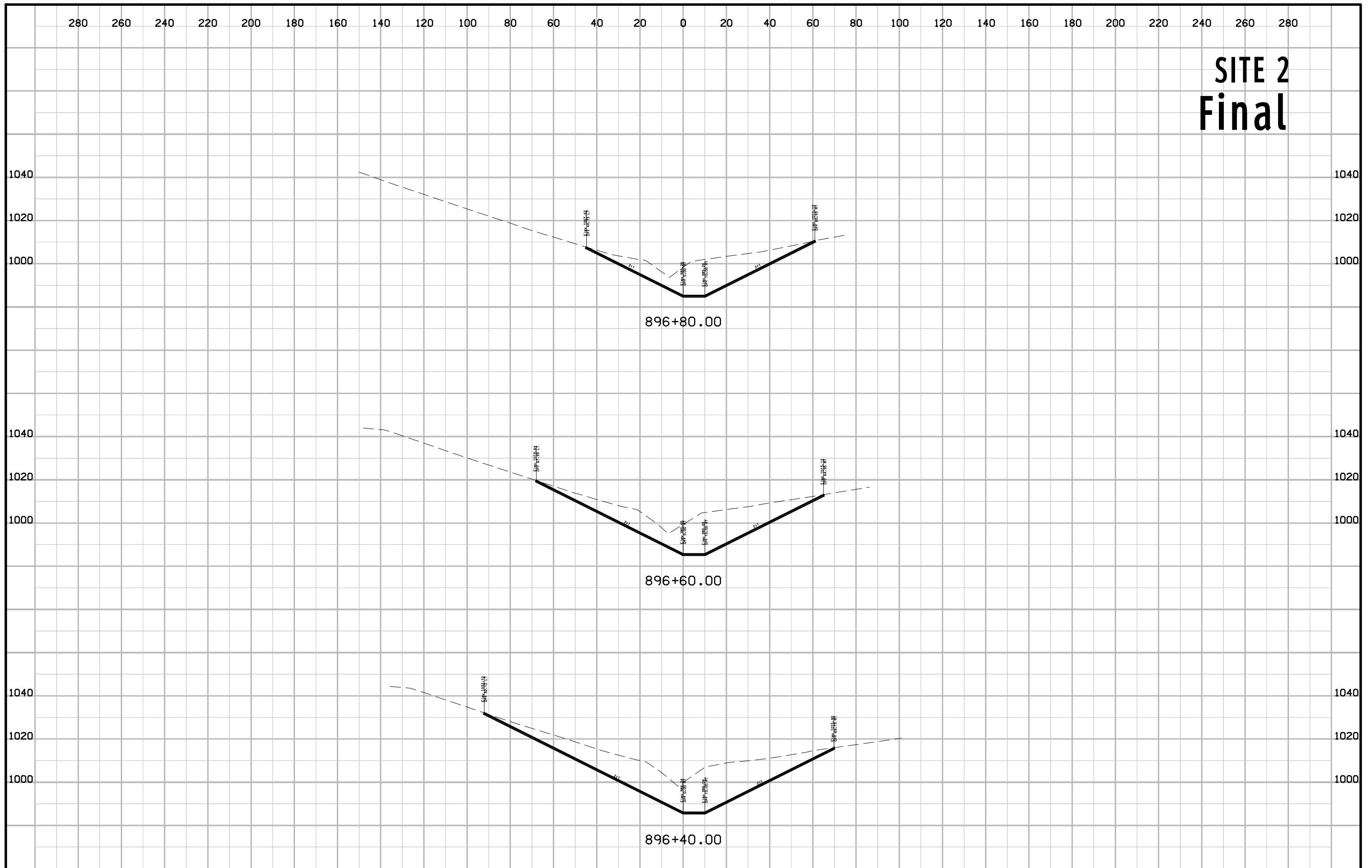
SITE 2 Final



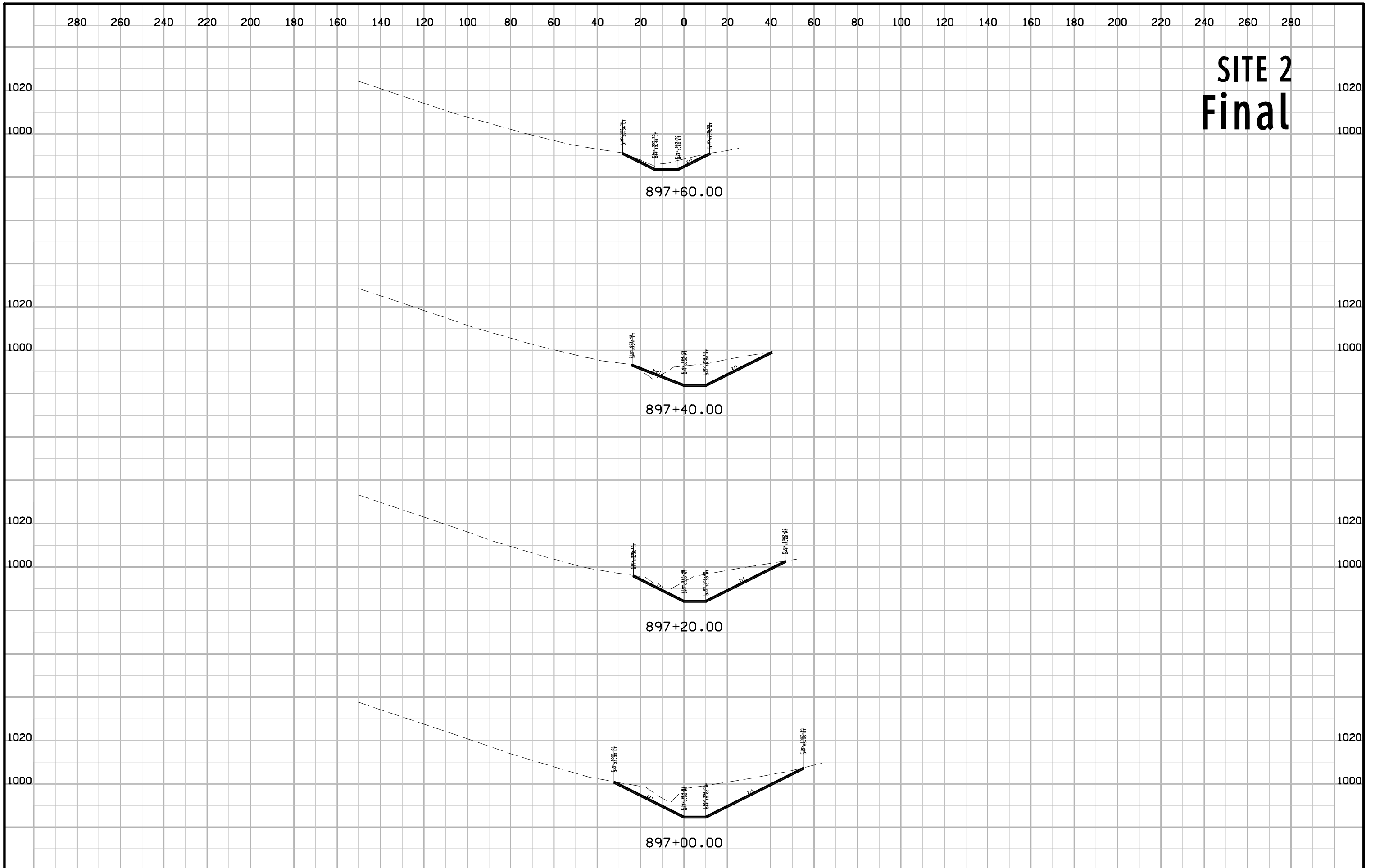
SITE 2 Final



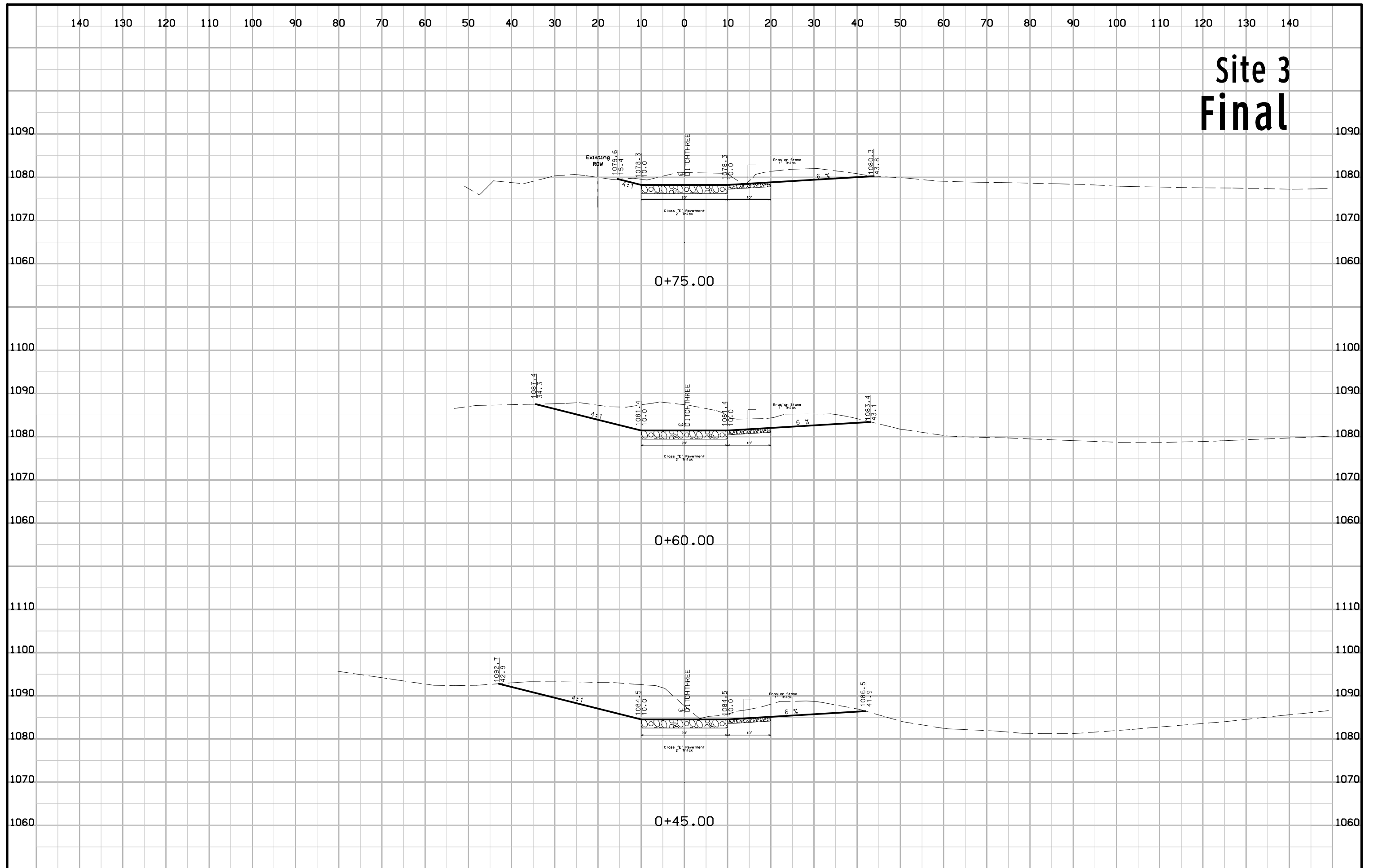
SITE 2 Final



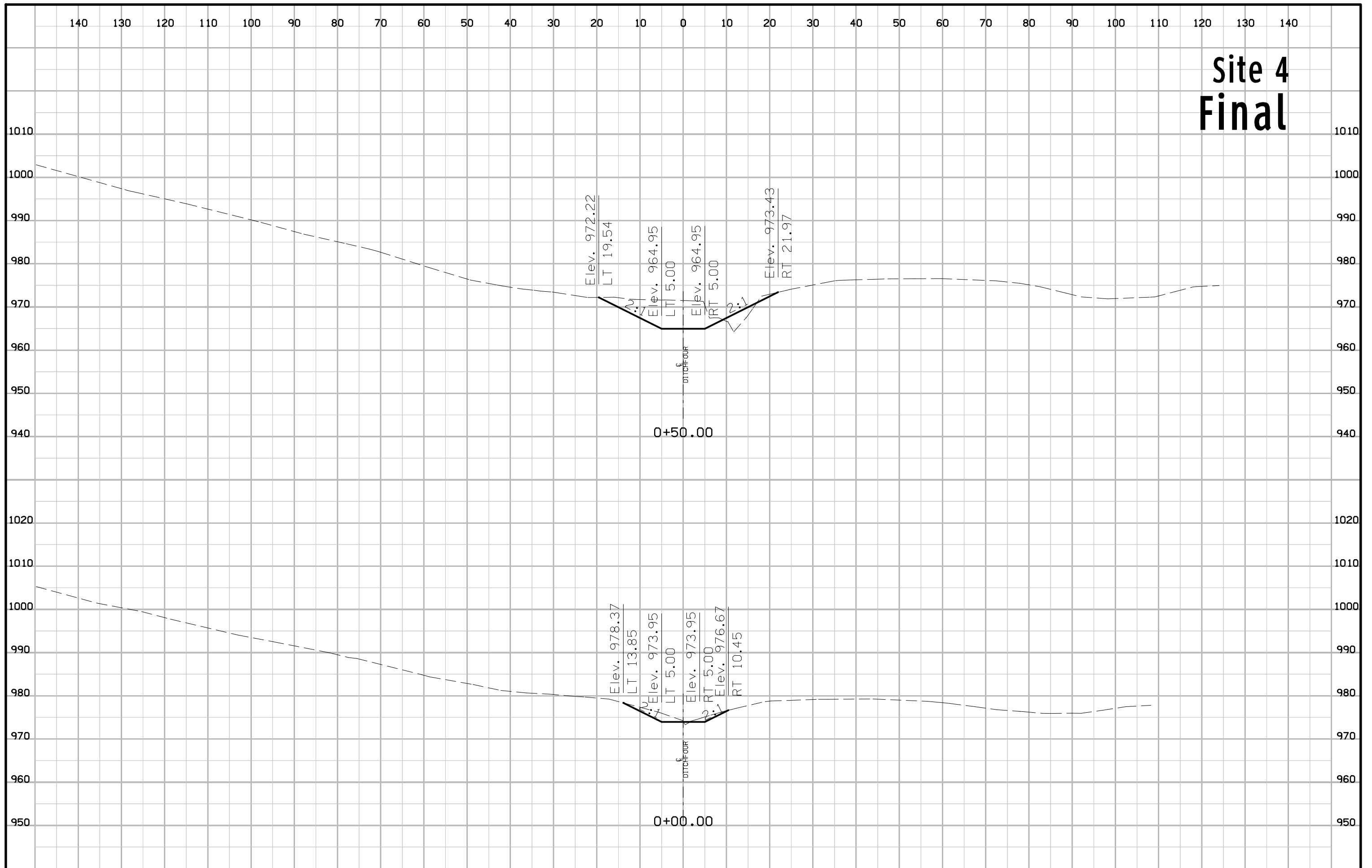
SITE 2 Final



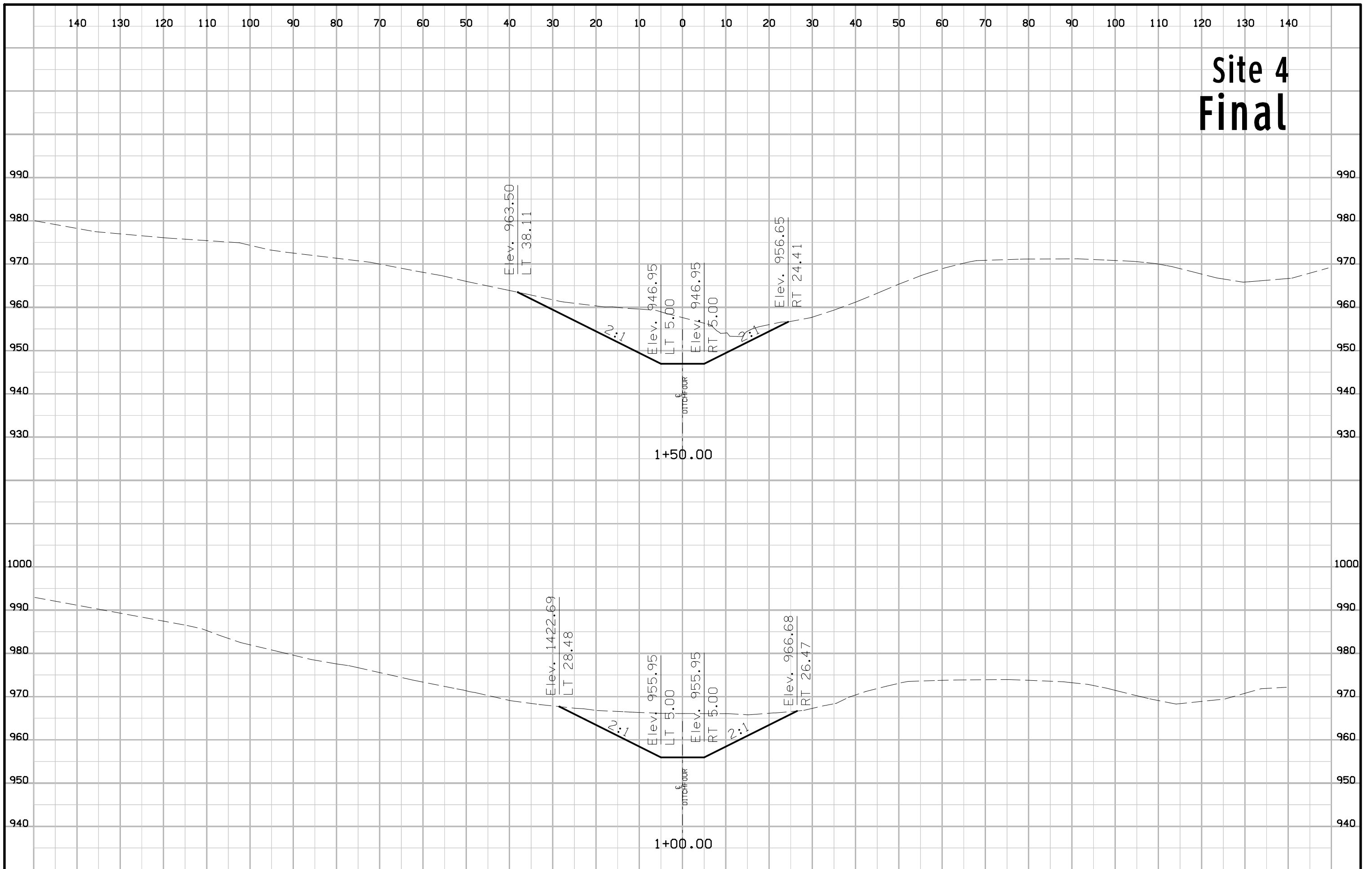
Site 3 Final



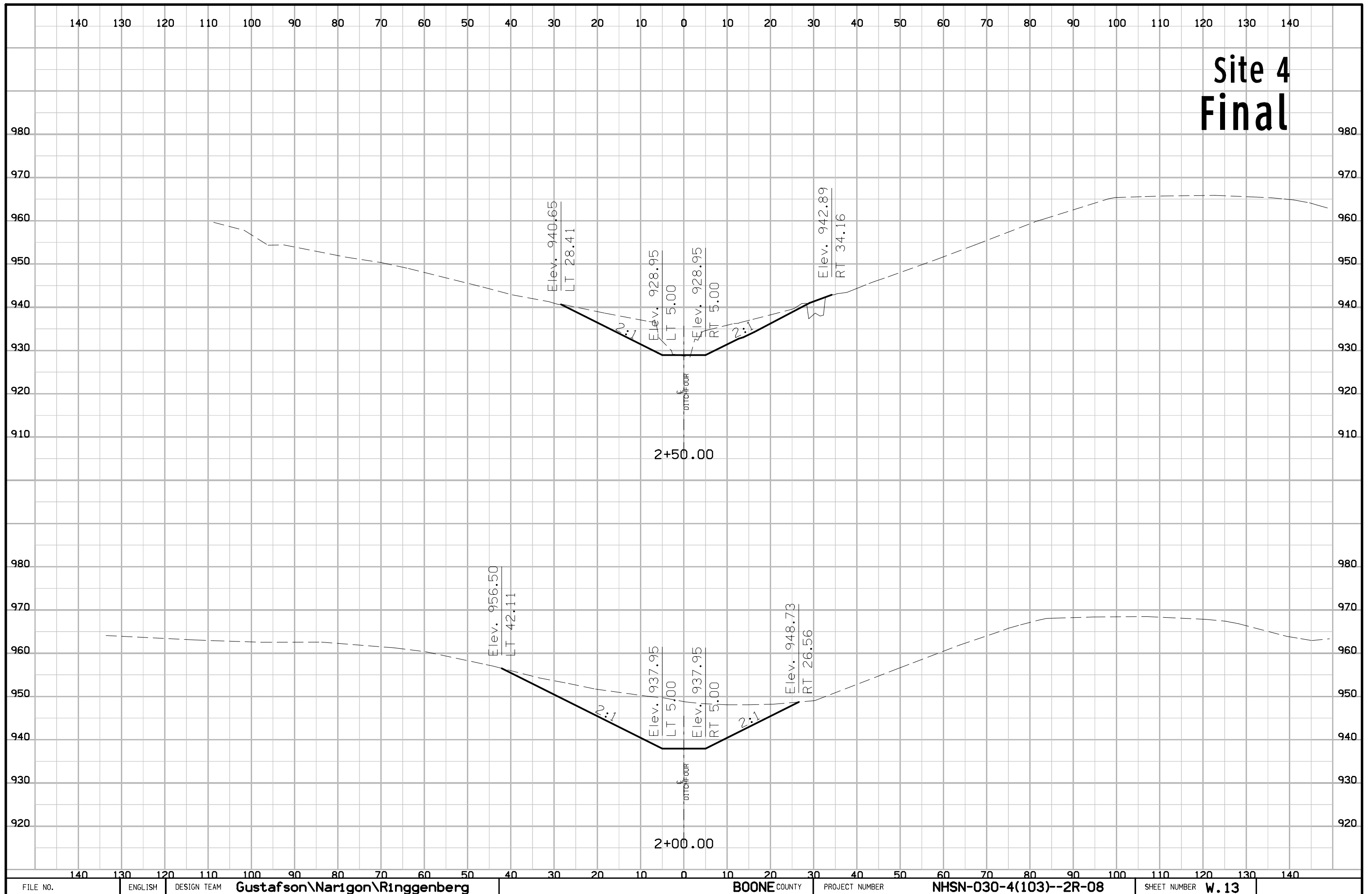
Site 4 Final



Site 4 Final



Site 4 Final



Site 4 Final

