IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE: District 1 **DATE:** February 14, 2014

ATTENTION: Scott A. Dockstader **PROJECT:** Jasper County
Proj # STPN-224-1(12)—2J-50

FROM: Jeremey J. Vortherms PIN: 11-50-224-010

OFFICE: District 1

SUBJECT: Field Exam Review (D2)

On February 11, 2014, the field exam to review the improvement of Ia 224 from I-80 to US 6, and at 3 culvert location north of Kellogg was held. Those in attendance were:

District 1
Tony Gustafson
Jeremey Vortherms
Cy Quick
Gary Pickett
Jeremy Purvis

Matt Gogerty – ROW
Terri Abbett – OLE
Kevin Muxfeldt – Preliminary Bridge

This project involves work in three distinct areas as noted below.

Within the I-80 & Ia 224 Interchange
Proposed work includes milling and resurfacing 3" on the existing roadway, and paving 8' wide shoulders.

From North Ramp Terminals to US 6
Proposed work is to reconstruct the existing roadway, including re-grading the side slopes and ditches, culvert replacements, and placement of new PCC pavement.

North of Kellogg
At three locations, culvert repairs are proposed.

The following notes were made about the proposed plans:

- Traffic will be maintained within the interchange area and at the culvert repair locations.
- Traffic will be detoured for the reconstruction from the interchange north to US6. Traffic will be detoured via I-80 to Speedway Drive east of Newton and back along US 6 to the junction with Ia 224.
- Earthwork will be completed by the District to determine any borrow needs.
- Soils will be contacted to determine the subgrade slope (1% in a single direction or 2% crowned).

- ROW is required for the project.
- Agreements will be required with the City of Newton for the detour, with Jasper County for paving of side road approaches, and with Central Iowa Water Association for utility relocations. District will initiate agreements with these agencies.
- Utilities within the ROW will need to be relocated at the company's expense.
- Passing sight distance needs to be checked by the District for the proposed profile.
- District recommends using Reinforced Concrete Pipe for all new culvert locations.
- Slope protection and guardrail upgrades are required at the I-80 overpass bridges.
- Aggregate and millings from are requested to be taken to a Maintenance facility.
- A maintenance of local access plan is required as per AGC. It is likely additional temporary easement and surfacing material will be necessary.
- Two access locations are proposed to be closed and aligned with existing locations. District will review existing access permits for additional details of existing entrances.
- 4' paved shoulders will be added to the reconstructed pavement approaching the intersection of US 6 & Ia 224.
- Additional survey is needed at the culvert repair locations. District to work with Marshalltown RCE Office to define the limits of the additional survey.
- Construction survey was requested by the Marshalltown RCE Office. However, point preservation responsibilities need to be reviewed with District Survey, and may be added to the Construction Survey if requested.

It is requested the Marshalltown RCE Office provide the following information to the District Office:

- Inventory of guardrail
- Patching quantities
- Clearing and grubbing quantities

No plan sheets are included with this submittal, but are available for review at the following location:

Projects\5022401011\DistrictDesign\(12) D2 Items\

The current cost estimate for this project is $2,650,000 and is scheduled for a December 15, 2015 letting.

JV

cc:

M. J. Kennerly	S. J. Gent	N. L. McDonald
K. D. Nicholson	T. Crouch	G. A. Novey
R. L. Stanley	W. Sorenson	D. R. Claman
M. D. Masteller	E.C. Wright	S. C. Marler
D. L. Maifield	B. Bradley	B. Hofer
C. B. Brakke	Jeff McCollough	V. Brewer
T. J. Gustafson	M. J. Sankey	Donna Matulac
J. Tibodeau	D. A. Widick	D. R. Tebben
C. Quick	T. L. Gettings	M. A. Swenson
J. Lavine	D. A. Popp	J. W. Smith
J. Purvis		F. Todey
G. Pickett		

LETTING DATE
Dec. 15, 2015

PCC PAVEMENT - GRADE & REPLACE
STPN-224-1(12)--2J-50

JASPER Co.

IOWA DOT
Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

JASPER COUNTY

PCC PAVEMENT - GRADE AND REPLACE

From I-80 north to US 6

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

REVISIONS

TOTAL
??
PROJECT IDENTIFICATION NUMBER
11-50-224-010
PROJECT NUMBER
STPN-224-1(12)--2J-50
R.O.W. PROJECT NUMBER
STPN-224-1(13)--2J-50

INDEX OF SHEETS

MILEAGE SUMMARY 105-1 09-27-94

Div.	Location	Lin. Ft.	Miles
	Sta. 496+21.162 to Sta. 513+50	1728.84	
	Sta. 513+50 to Sta. 576+00	6250.00	
	Length of Project	7979.84	1.51

For Project Location Map
Refer to Sheet A.2

DESIGN DATA RURAL

2015 AADT	1000	V.P.D.
2035 AADT	1500	V.P.D.
2035 DHV	150	V.P.H.
TRUCKS	14	%
Total Design ESALs	--	

INDEX OF SEALS

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

D0 - Concept	1/18/12	Complete
D2 - Field Exam	2/12/14	Due
D3 - Bridge Submittal	2/14/12	Due
D5 - ROW Submittal	3/14/14	Scheduled
DM5 - Review Plans	9/1/15	Scheduled
D8 - Contracts Submittal	10/6/15	Scheduled
L3 - Letting	12/15/15	Scheduled

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN – Date: 2/12/14

ENGLISH	IOWA DOT	DESIGN TEAM Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER STPN-224-1(12)--2J-50	SHEET NUMBER A.1

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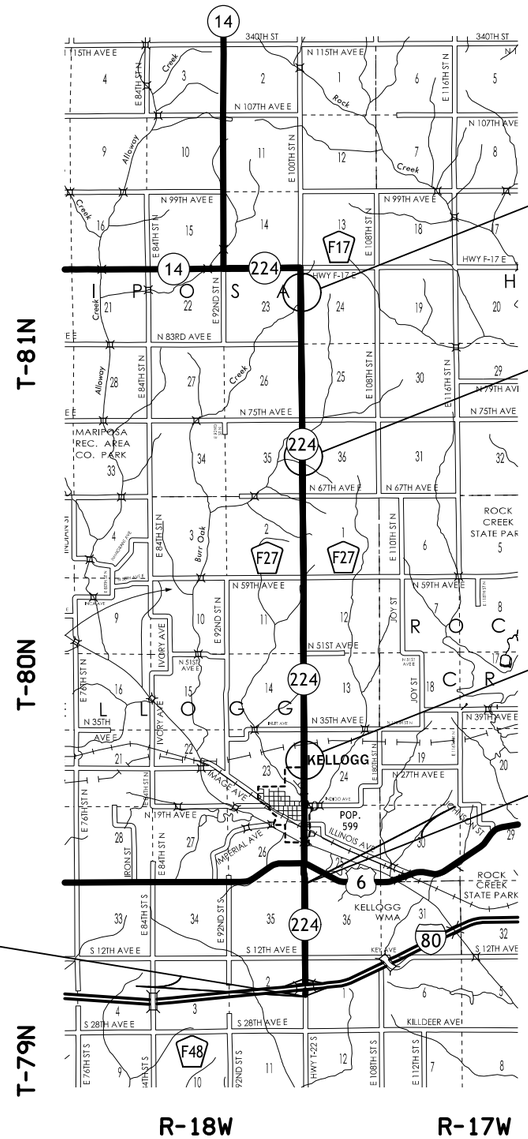


STA. 365+27.91
CULVERT EXTENSION

STA. 251+54.45
CULVERT EXTENSION

STA. 42+97.26
CULVERT EXTENSION

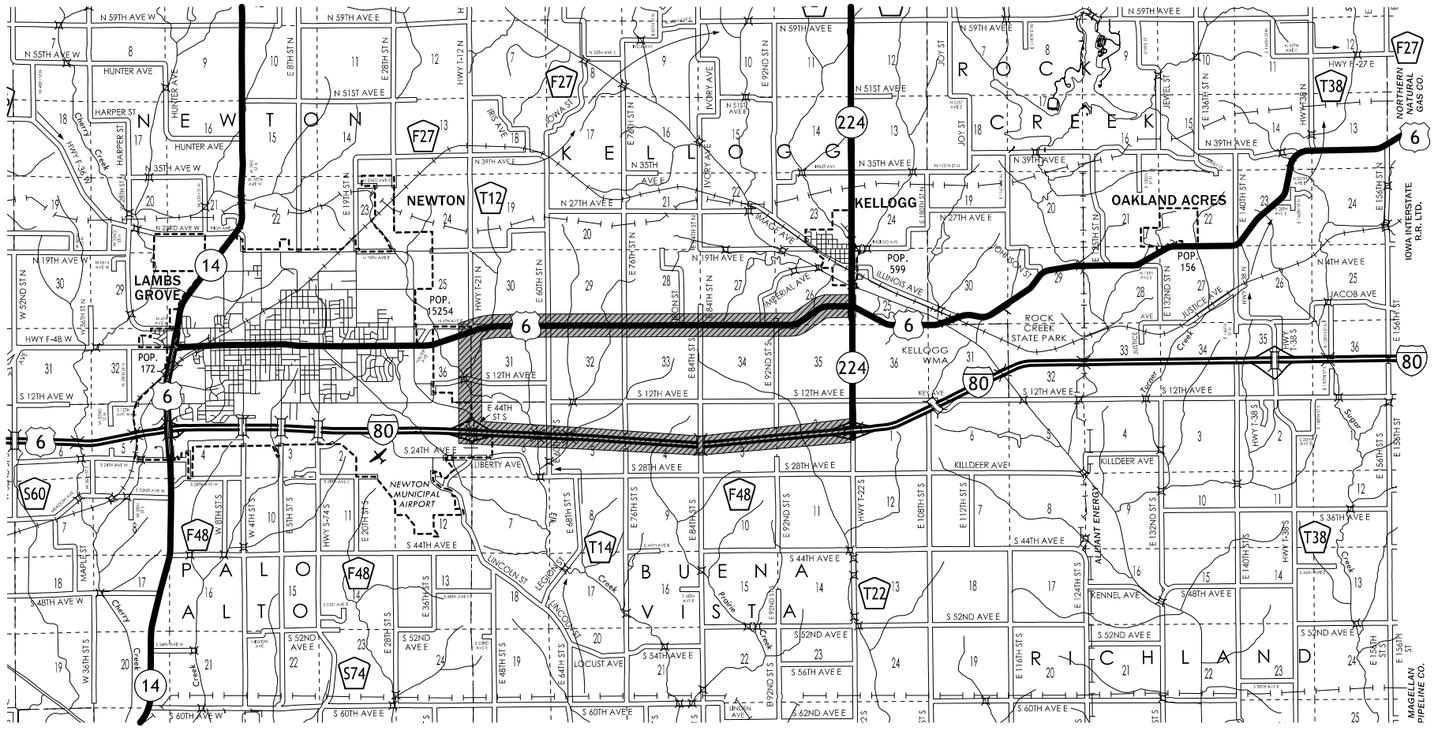
STA. 576+00
END PROJECT
MP-1.70

STA. 496+21.162
BEGIN PROJECT
MP-0.00

LOCATION MAP SCALE
0 1 2 3
Miles

Project Location Map

ENGLISH	IOWA DOT	DESIGN TEAM Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER STPN-224-1(12)--2J-50	SHEET NUMBER A.2



Detour Map

ENGLISH	IOWA DOT	DESIGN TEAM Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER STPN-224-1(12)--2J-50	SHEET NUMBER A.3

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CLEAR ZONE DISTANCES

(in feet from edge of traveled way)

Design Speed (mph)	Design ADT	Fill Slopes (fs)			Cut Slopes (cs)		
		fs ≥ 6:1	4:1 ≤ fs < 6:1	fs < 4:1	cs < 4:1	4:1 ≤ cs < 6:1	cs ≥ 6:1
40mph or less	ADT < 750	7-10	7-10	---**	7-10	7-10	7-10
	750 ≤ ADT < 1500	10-12	12-14	---**	10-12	10-12	10-12
	1500 ≤ ADT < 6000	12-14	14-16	---**	12-14	12-14	12-14
	ADT ≥ 6000	14-16	16-18	---**	14-16	14-16	14-16
45-50 mph	ADT < 750	10-12	12-14	---**	8-10	8-10	10-12
	750 ≤ ADT < 1500	14-16	16-20	---**	10-12	12-14	14-16
	1500 ≤ ADT < 6000	16-18	20-26	---**	12-14	14-16	16-18
	ADT ≥ 6000	20-22	24-28	---**	14-16	18-20	20-22
55 mph	ADT < 750	12-14	14-18	---**	8-10	10-12	10-12
	750 ≤ ADT < 1500	16-18	20-24	---**	10-12	14-16	16-18
	1500 ≤ ADT < 6000	20-22	24-30	---**	14-16	16-18	20-22
	ADT ≥ 6000	22-24	26-32 *	---**	16-18	20-22	22-24
60 mph	ADT < 750	16-18	20-24	---**	10-12	12-14	14-16
	750 ≤ ADT < 1500	20-24	26-32 *	---**	12-14	16-18	20-22
	1500 ≤ ADT < 6000	26-30	32-40 *	---**	14-18	18-22	24-26
	ADT ≥ 6000	30-32 *	36-44 *	---**	20-22	24-26	26-28
65-70 mph	ADT < 750	18-20	20-26	---**	10-12	14-16	14-16
	750 ≤ ADT < 1500	24-26	28-36 *	---**	12-16	18-20	20-22
	1500 ≤ ADT < 6000	28-32 *	34-42 *	---**	16-20	22-24	26-28
	ADT ≥ 6000	30-34 *	38-46 *	---**	22-24	26-30	28-30

*Where a site specific investigation indicates a high probability of continuing accidents, or such occurrences are indicated by accident history, the designer may provide clear zone distances greater than 30 feet as indicated. Clear zones may be limited to 30 feet for practicality and to provide a consistent roadway template if previous experience with similar projects or designs indicates satisfactory performance.

**Since recovery is less likely on the unshielded, traversable 3:1 slopes, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of high-speed vehicles that encroach beyond the edge of the shoulder may be expected to occur beyond the toe of slope. Determination of the width of the recovery area at the toe of slope should take into consideration right-of-way availability, environmental concerns, economic factors, safety needs, and accident histories. Also, the distance between the edge of the travel lane and the beginning of the 3:1 slope should influence the recovery area provided at the toe of slope.

OTHER ITEMS

1. Contractor to obtain borrow materials (Y) (N)
2. FDP to be PCC (Y) (N)
3. Patching to be doweled (Y) (N)
4. District to determine subdrain locations (Y) (N)
5. Pollution Prevention Plan needed (Y) (N)
6. Field Offices (Y) (N)
7. Construction Survey (see #27 adjacent) (Y) (N)
8. Survey by Design Office (Y) (N)
9. Any special construction times required (night time?) (Y) (N)
10. Any RWIS or Auto. Traffic Recorder sites within the project limits? (Y) (N)

FIELD EXAM CHECKLIST + NEEDED INFORMATION

English

1. Duration of Project?
2. Posted Speed Limit(s) and if different during construction.
3. Any sight distance a problems?
4. Patching quantities, who provides, any need to extend project limits (Full / Partial Depth, Surf. electronically tabulated).
5. Strengthening and leveling areas (Sta-Sta).
6. Survey of culvert extensions (for RCB extensions 100' each side of RCB and 100' Lt. and Rt. of centerline at 25' intervals and provide 20-scale drawing).
7. Survey of safety dikes (100' each side of proposed dike and to 100' from centerline of roadway).
8. Survey and 20-scale of proposed right-turn lanes (from centerline of sideroad back 400' and to 75' from centerline of roadway. Cross section every 50').
9. Survey of horizontal curves (at least three locations within full super. Edges and centerline).
10. Embankment and pipe quantities for sideslopes (National Highway System (NHS) routes only). Items to be tabbed by location.
11. Any known utilities potentially needing relocated (Temp. or Permanently)?
12. Names and addresses of affected utility companies.
13. Locations of entrances to be reshaped.
14. Any existing drainage issues?
15. Any suspected wetland or envirnmental impacts?
16. Condition of existing culverts needed, obtained by whom?
17. Any existing subdrain locations?
18. Names of affected special events.
19. Locations of mailboxes to be relocated to a minimum of 8' from pavement edge.
20. Survey trees within the roadside recovery area (trees within ____ft from edge of roadway are to be removed. Those outside ____ft will be reviewed from survey data).
21. Number and location of EF joints.
22. Disposition of bridge handrail and guardrail and posts.
23. Inventory of Existing Guardrail.
24. Longitudinal joint repair locations.
25. Listing of adjustment of fixtures.
26. Clearing and Grubbing quantities - by unit or area?
27. If this is a resurf. proj., is Dist. Survey able to preserve Section Corners & points (if no then add these items under Construction Survey).

IOWA DEPARTMENT OF TRANSPORTATION

To: District 1 **Date:** January 18, 2012

Attention: Scott Dockstader **Project:** Jasper County
STP-224-1(11)--2C-50
From: Jesse Tibodeau STP-224-1(12)--2C-50
PIN: 11-50-224-010
Office: District 1

Subject: 3R Project Concept – **FINAL**

Project Location Map: See page 7 or click here.
Date Of Field Review: October 27, 2011
Participants: Tony Gustafson, Wes Musgrove, Cy Quick, Jesse Tibodeau, and Nancy Woody from District 1

Project Data
ROUTE: IA 224 from I-80 North to IA 14 (MP 0 to 10.5)
LENGTH: 10.5 miles
PLANNING CLASSIFICATION: 4
MAINTENANCE SERVICE LEVEL: C
NATIONAL HIGHWAY SYSTEM ROUTE?: NO
TRAFFIC (I-80 to US 6): 2015 --- 1,430 AADT with 12% trucks
2035 --- 2,070 AADT with 12% trucks
TRAFFIC (US 6 to Blair St.): 2015 --- 2,230 AADT with 7% trucks
2035 --- 3,210 AADT with 8% trucks
TRAFFIC (Blair St. to IA 14): 2015 --- 900 AADT with 15% trucks
2035 --- 1,270 AADT with 16% trucks
PAVEMENT SURFACE: ACC
PAVEMENT WIDTH: 22 feet
SHOULDER WIDTHS:

- I-80 to US 6: 1 to 2 feet wide granular each side
- US 6 to Homdahl St.: 8 feet wide granular each side
- Homdahl St. to IA 14: 4 feet wide each side (3 feet granular/1 foot earth)

			Poor = 2.5 ↑ Target = 2.5 ↓ Excellent = 0.5	1 50 ↑ 100
MP to MP	**Direction**	**Type**	**IRI** (International Roughness Index) (m/km)	**2009 PCI** (Pavement Condition Index)
0 to 1.7	Both	8" ACC	3.60	0
1.7 to 10.5	Both	5.5" ACC	2.69	16
• NOTES: Does not reflect 2010 overlay (2") by maintenance from MP 0 to 1.7. Pavement cores were taken by the district on 1/11/2012: (W:\Projects\5022401011\DistrictDesign\DOCS\IA 224 Pavement Core Pictures\Cores STP-224-1(11)--2C-50.xls)				

Pavement History (MP 0 to 1.7):

- 2.5" ACC on 6" rolled stone base & 6" granular sub-base in 1957
- 3" ACC in 1982
- 2.5" ACC in 2010 (by state forces)
- Pavement cores indicate the pavement is between 7.5 and 9 inches: (W:\Projects\5022401011\DistrictDesign\DOCS\IA 224 Pavement Core Pictures\Cores STP-224-1(11)--2C-50.xls)

Pavement History (MP 1.7 to 10.5):

- 2.5" ACC on 6" rolled stone base & 4" soil aggregate sub-base in 1960
- Bituminous seal coat in 1983
- 3" ACC in 1993
- Pavement cores indicate the pavement is between 6 and 10 inches: (W:\Projects\5022401011\DistrictDesign\DOCS\IA 224 Pavement Core Pictures\Cores STP-224-1(11)--2C-50.xls)

Course Aggregate Source:

- LeGrand crushed limestone (1982) – MP 0 to 1.7
- Sully mine crushed limestone (1993) – MP 1.7 to 10.5

Existing Conditions and Causes Of Distress:
The pavement is very rough and in very poor shape with significant cracking and rutting. A 2" HMA overlay was placed by maintenance in 2010 to address the worst portion of this roadway. The south leg of the US 6/IA 224 intersection was reconstructed in 1994 as part of the safety project TSF-224-1(4)--92-50. A SB right turn lane was added in 2008 to the US 6/IA 224 intersection as part of the US 6 resurfacing project STP-6-4(141)--2C-50.

Safety Consideration:
One crest vertical curve is below 55 mph stopping site distance criteria (MP 0 to 1.7). Seventeen crest vertical curves are below 55 mph stopping site distance criteria (MP 1.7 to 10.5). All crest vertical curves meet or exceed 35 mph 3R stopping site distance criteria.

There are no horizontal curves within the project location that require super elevation.

The foreslopes generally appear to be 2:1 from MP 0 to 1.7 and 3:1 from MP 1.7 to 10.56.

Two T intersections along this route that do not have safety ramps:

- NE 51st Avenue East – This is a low maintenance road so a safety ramp is not needed.
- NE 83rd Avenue East – A safety ramp will be added with this project. Cy will contact the property owner to have the metal pipe fence post removed.

There is one bridge located within the project limits: FHWA #30831/IDOT Bridge 50001.9S224 over N. Skunk River (328' x 40'). The following bridge related work is proposed as part of this project:

- Updating guardrail
- EF joints will be replaced

There are several culverts marked with a Type 2 object marker, which will be extended with this project. There are numerous drop inlets in need of repair along the east side of this route which will be repaired with this project. Preliminary Bridge will review these drop inlets with the district in spring 2012. Maintenance will review culverts along this route in spring 2012 to determine if other culvert repairs are necessary.

Turn lane warrants were reviewed for intersections with paved roads (except in the City of Kellogg where posted speeds are lower). The following warrants were met:

- US 6 Intersection
  Warrant was met for NB left turn lane. There is right turn slip lane present at this intersection so a left turn lane will not be built.
- County Road F27 Intersection
  Warrant was barely met for NB minor right turn lane. This turn lane will be added with this project. District survey will be requested for this turn lane.
- IA 14 Intersection
  Warrant was met for WB IA 224 minor right turn lane. This turn lane will be constructed in 2011-2012 as part of project STPN-14-4(48)--2J-50.

This route does not meet 4' wide paved shoulders according to section 3C-4 of the IDOT Design Manual. The pavement will be widened to 28' wide per Section 7D-8.

Centerline rumble strips will not be utilized on this project since the current AADT is less than 3,000 vehicles per day and the route is not on the 5% cross centerline crash corridor.

Safety Consideration – Crashes (MP 0 to 1.7 / I-80 to US 6, includes US 6 intersection):
During the five-year study period from January 1, 2006 through December 31, 2010, there were 16 crashes including: 1 fatal crash, 0 major injury crashes, 2 minor injury crashes, 3 possible/unknown injury crashes, and 10 property damage only crashes. The crash rate for this project is 244 crashes per hundred million vehicle miles travelled (HMVMT). The statewide Rural Primary Iowa Highway average crash rate is 100 crashes per HMVMT.

The injury crash rate for this project is 91 crashes per HMVMT. The statewide Rural Primary Iowa Highway average injury crash rate is 29 crashes per HMVMT. Injury crashes include major, minor, and possible/unknown injuries.

The intersection crash rates were evaluated for the five-year period from January 1, 2006 through December 31, 2010. The statewide average crash rates for these intersections (rural primary intersections with secondary roads or primary roads with ADT between 1,000 and 2,499 vehicles per day) are between 0.8 and 1.2 crashes per million entering vehicles (MEV). The intersection of US 6 and IA 224 has a rate of 0.8 per MEV.

The crash rates from I-80 to US 6 are over two to three times the statewide averages. Since crashes tend to occur more frequently at intersections, having 2 major intersections within 1-½ miles may have skewed the crash rate along this relatively low traffic volume route. The very narrow shoulders (2'), steep fore slopes (2:1), and poor pavement could be contributing factors in some of these crashes. This segment of IA 224 will be reconstructed.

Safety Consideration – Crashes (MP 1.7 to 10.5/US 6 to IA 14):
During the five-year study period from January 1, 2006 through December 31, 2010, there were 17 crashes including: 0 fatal crashes, 0 major injury crashes, 0 minor injury crashes, 4 possible/unknown injury crashes, and 13 property damage only crashes. The crash rate for this project is 112 crashes per hundred million vehicle miles travelled (HMVMT). The statewide Rural Primary Iowa Highway average crash rate is 100 crashes per HMVMT.

The injury crash rate for this project is 27 crashes per HMVMT. The statewide Rural Primary Iowa Highway average injury crash rate is 29 crashes per HMVMT. Injury crashes include major, minor, and possible/unknown injuries.

The intersection crash rates were evaluated for the five-year period from January 1, 2006 through December 31, 2010. The statewide average crash rates for these intersections (rural primary intersections with secondary roads or primary roads with ADT between 1,000 and 2,499 vehicles per day) are between 0.8 and 1.2 crashes per million entering vehicles (MEV). The intersection with Blair Street has a rate of 0.8 per MEV. The intersection with County Road F27 has a rate of 1.0 per MEV. The other intersections have rates below 0.8 per MEV. As stated above, a NB minor right turn lane will be added to the F27 intersection with this project. The Blair Street intersection in Kellogg will be reconstructed to remove the sharp curve in this intersection (district survey will be requested for this intersection).

Other Consideration:
The current sub-drain coverage is about 7% along this route according to as-builts. Soils Design recommends 100% sub-drain coverage for full depth reclamation and reconstruction alternates and 70% coverage for resurfacing alternates.

The granular shoulders under the I-80 bridge are a maintenance concern. These shoulders drain poorly as well. Full width paved shoulders and sub-drains will be added under the bridge.

ADA compliant sidewalk ramps will be added along this route within the City of Kellogg (district survey will be requested for these ramps).

Tree clearing and grubbing will be needed along this route.

Feasible Alternates (I-80 to US 6):
A review of two alternates was performed between I-80 and US 6: PCC Reconstruction & HMA Reconstruction.

Pavement structural analysis indicates a minimum of 10.5 inches of asphalt or 9 inches of PCC are needed for these alternates. Both should include a single 12 inch layer of modified sub-base under both options to serve as pavement support and sub-grade treatment layer.

Alternate 1 (PCC Reconstruction) -
This alternate includes removing the existing pavement, flattening the fore slopes, placing 12" of modified sub-base, placing 9" of PCC 28-feet wide, and adding 6' granular shoulders on each side (effective shoulder width of 8'). The segment thru the I-80 interchange will not be reconstructed so that traffic can be maintained. This segment, about 1,600', will be milled (3") and resurfaced (3") with 8' wide paved shoulders. The anticipated cost for this alternate is

$2,222,275. Traffic north of the I-80 interchange would be detoured during construction. The segment just south of US 6 (1,400') was paved in 1994 and will remain as it is in good condition (2' wide paved shoulders will be added through this segment).

Alternate 2 (HMA Reconstruction) -
This alternate includes removing the existing pavement, flattening the fore slopes, placing 12" of modified sub-base, placing 10.5" of HMA 28-feet wide, and adding 6' granular shoulders on each side (effective shoulder width of 8'). The segment thru the I-80 interchange will not be reconstructed so traffic can be maintained. This segment, about 1,600', will be milled (3") and resurfaced (3") with 8' wide paved shoulders. The anticipated cost for this alternate is $2,282,335. Traffic north of the I-80 interchange would be detoured during construction. The segment just south of US 6 (1,400') was paved in 1994 and will remain as it is good condition (2' wide paved shoulders will be added through this segment).

Feasible Alternates (US 6 to IA 14):
A review of two alternates was performed between US 6 and IA 14: HMA Resurfacing with Cold in Place Recycling & Full Depth Reclamation.

Pavement structural analysis indicates a minimum of 3 inches of asphalt is needed over cold in place recycling and 4.5 inches of asphalt is needed over full depth reclamation alternate.

Alternate 3 (HMA Resurfacing with Cold in Place Recycling) -
This alternate includes cold in place recycling 3 inches of the existing asphalt, widening the pavement from 24 feet to 28 feet, and placing 3 inches of HMA. The segment in Kellogg between Blair Street and Main Street has curb on both sides and the grade cannot be raised without curb replacement. This segment, about 1,100', will be milled (3") and resurfaced (3"). The segment adjacent to the Skunk River bridge (850') was paved in 1992 and will remain as it is good condition. Traffic will be maintained during construction. The anticipated cost for this alternate is $4,167,185.

Alternate 4 (Full Depth Reclamation) -
This alternate includes 12" of full depth reclamation (5.5 inches of the existing asphalt, 6" of the stone base, and 0.5" of the soil aggregate sub-base), widening the pavement from 24 feet to 28 feet, and placing 4.5 inches of HMA. The segment in Kellogg between Blair Street and Main Street has curb on both sides and the grade cannot be raised without curb replacement. This segment, about 1,100', will be milled (3") and resurfaced (3"). Traffic would be detoured during construction. The segment adjacent to the Skunk River bridge (850') was paved in 1992 and will remain as it is good condition. Additional testing would be required to determine if some of the asphalt surface should be milled prior to reclamation and if addition pavement support is required. The anticipated cost for this alternate is $6,382,695.

Recommendation:
The recommended alternate from I-80 to US 6 is PCC reconstruction in 2016 as project STP-224-1(12)--2C-50. The pavement should be widened from 24 feet to 28 feet. The fore slopes will be flattened and the roadway top will be widened. This future project will include small culvert repairs, longitudinal sub-drains, excavation, modified sub-base, and full depth PCC. Traffic north of the I-80 interchange will be detoured during construction (using IA 14 or Iowa Speedway Drive, US 6, and IA 146). Traffic thru the I-80 interchange will be maintained during

construction by milling and filling between the ramp terminals. Survey and right of way will be needed to develop this project.

The recommended alternate from US 6 to IA 14 is HMA Resurfacing with Cold in Place Recycling in 2015 as project STP-224-1(11)--2C-50. The pavement will be widened from 24 feet to 28 feet. The widening will include a safety edge. This project includes small culvert repairs, longitudinal sub-drains, 3" cold in place recycling, HMA base widening, and 3" HMA. Traffic will be maintained during construction.

Estimated Cost: STP-224-1(12)--2C-50 (I-80 to US 6): $2,222,275
STP-224-1(11)--2C-50 (US 6 to IA 14): $4,167,185

Funds Programmed:
These proposed 3R projects are not currently in the 2012-2016 District 1 3R Program. Project STP-224-1(11)--2C-50 is scheduled for FY 2015 (completion in calendar year 2015). Project STP-224-1(12)--2C-50 is scheduled for FY 2016 (completion in calendar year 2016).

Project Agreements:
1. Right of way WILL be required for STP-224-1(12)--2C-50.
2. City agreement MAY be required with City of Kellogg (for possible city work) for STP-224-1(11)--2C-50.
3. Detour agreements MAY be required with Newton for STP-224-1(12)--2C-50.
4. Railroad agreement will NOT be required.

Project Schedule, STP-224-1(11)--2C-50
D0 (Concept) – January 18, 2012
D2 (Field Exam) – May 2, 2012
D7 (Final Plans) – September 2, 2014
L2 (Letting) – November 18, 2014

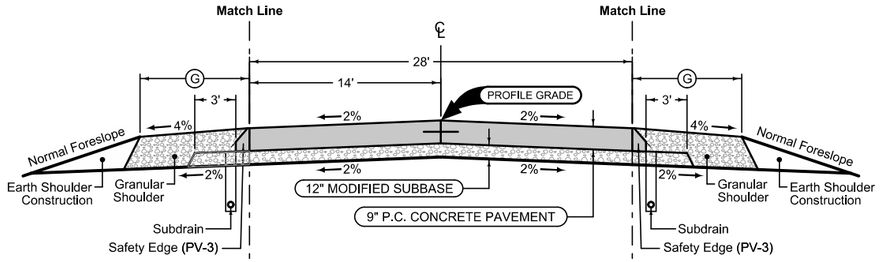
Project Schedule, STP-224-1(12)--2C-50
D0 (Concept) – January 18, 2012
D2 (Field Exam) – November 1, 2013
D7 (Final Plans) – October 6, 2015
L2 (Letting) – December 15, 2015

cc:

J. F. Adam	J. R. Selmer	M. J. Dillavou
M. J. Kennerly	K. D. Nicholson	D. E. Ohman
C. B. Brakke	F. W. Todey	R. L. Stanley
M. D. Masteller	D. L. Maifield	A. A. Welch
N. L. McDonald	G. A. Novey	A. Loonan
N. M. Miller	E. C. Wright	T. D. Crouch
M. J. Sankey	M. A. Swenson	J. W. Smith
R. A. Younie	S. J. Gent	D. E. Sprengeler
J. Vortherms	C. C. Poole	S. P. Anderson
B. D. Hofer	J. P. Rost	S. C. Marler
L. C. Funnell	D. L. Newell	E. J. Ranney
D. R. Tebben	J. R. Berger	T. D. Hanson
S. A. Schram	T. J. Gustafson	W. W. Musgrove
M. J. Krohn	M. Clayton	C. Quick
J. D. LaVine	G. Pickett	N. Woody
E. J. Engle	T. L. Nicholson	A. Wilson, FHWA

Granular Shoulder with Safety Edge

		2_G_ Modified
STATION TO STATION		Ⓖ Feet
513+50.000	576+00.000	6



Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2

	2P_ 10-19-10
STATION TO STATION	
513+50.000	576+00.000

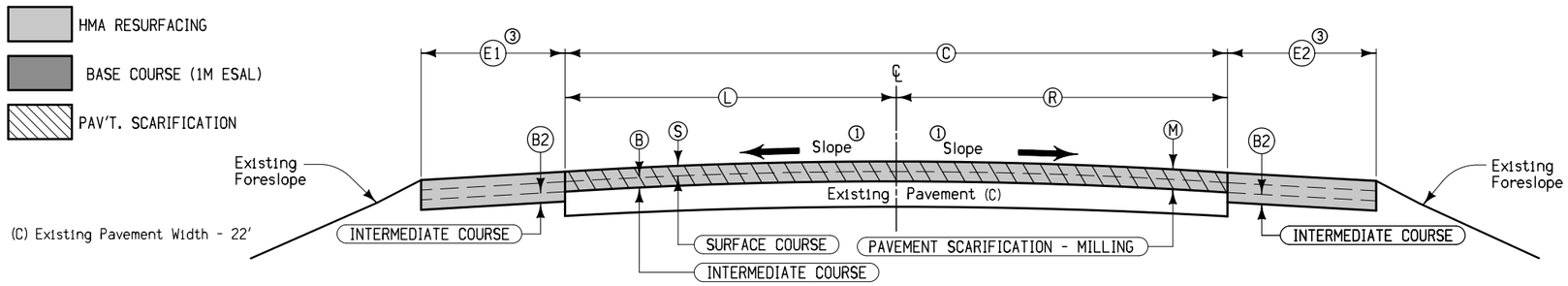
Granular Shoulder with Safety Edge

		2_G_ Modified
STATION TO STATION		Ⓖ Feet
513+50.000	576+00.000	6

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

IA 224 RECONSTRUCTION TYPICAL



Notes:

1. Finished slope shall match existing pavement except that the maximum allowable slope is 3.0%, minimum allowable slope is 2.0%. Section may be modified as directed by the Engineer through areas of special shaping.

   Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.
2. Tack Coat estimated for 2 applications.
3. Class 13 Excavation - Depth = 6" and Width = 8'
4. Rate includes left and right sides.

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu. ft.
Intermediate Course	145 lbs./cu. ft.
Base Course	145 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.

Design Quantities Per Station

Location			S	B	B2	M	C	L	R	E1	E2	Tack Coat (2)	Asphalt Binder	Hot Mix Asphalt (Tons)			Class 13 Excavation	Pavement Scarification
Road Identification	Station To Station		Inches	Inches	Inches	Inches	Feet	Feet	Feet	Feet	Feet	Gallons	Tons	Surface	Intermediate	Base (4)	Cu. Yds. (4)	Sq. Yds.
IA 224	496+21.162	513+50.000 (C)	1.5	1.5	3.0	3.0	22.0	11.0	11.0	8.0	8.0	-----	------	-----	-----	-----	-----	-----

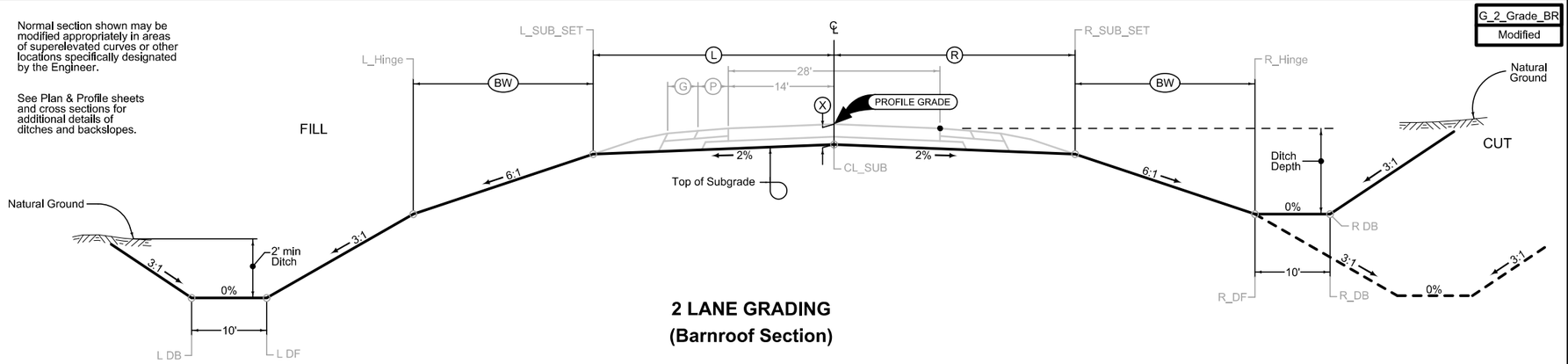
TYPICAL CROSS SECTION HMA RESURFACING & PAVEMENT SCARIFICATION

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet
IA 224	513+50.000	576+00.000			21	

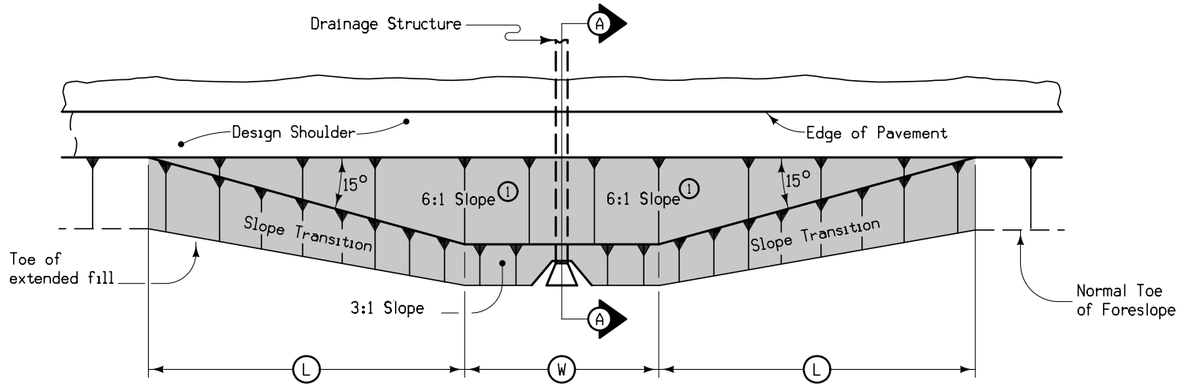
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.

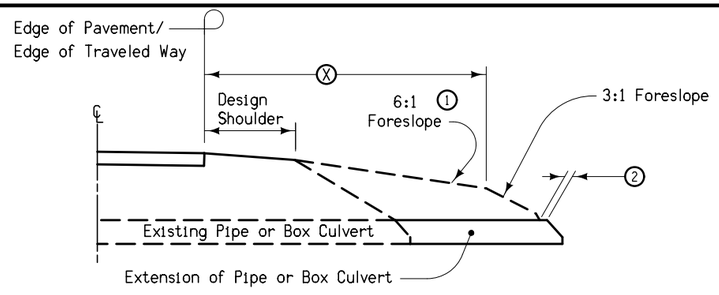
G_2_Grade_BR
Modified



2 LANE GRADING
(Barnroof Section)



PLAN VIEW



SECTION A-A

STRUCTURE LOCATION		(W)	(L)	(X)
STATION	SIDE	Feet	Feet	Feet
42+97.26	Lt	---	---	26
251+54.45	Rt	---	---	26
365+27.91	Rt	---	---	26

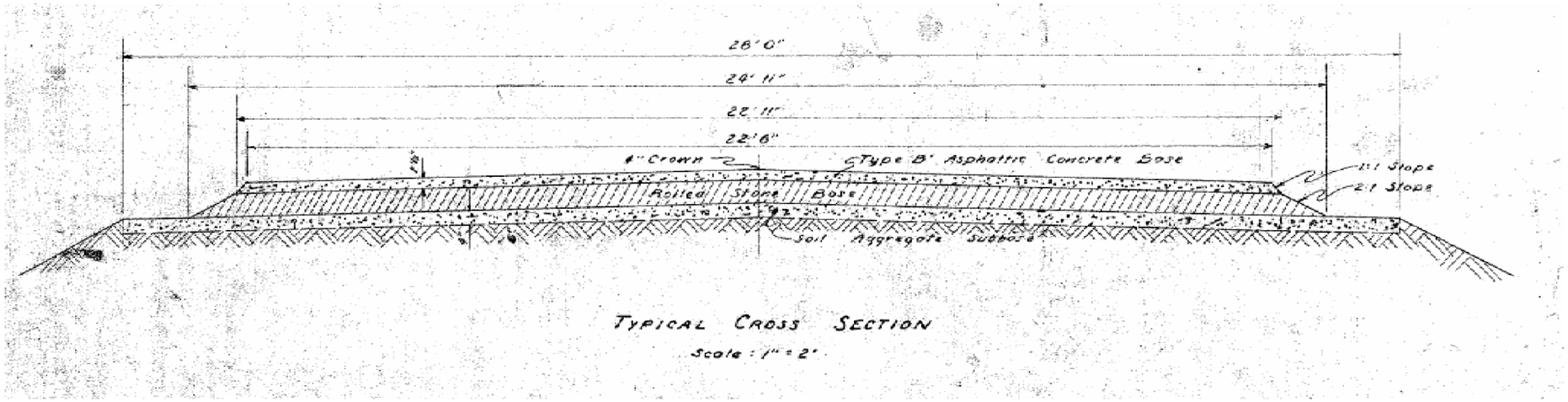
4311
Modified

Notes:

At locations where an extended or newly constructed drainage structure extends beyond the normal foreslope cover, the foreslope shall be flattened as indicated so as to cover the structure. Minimum earth cover is 6".

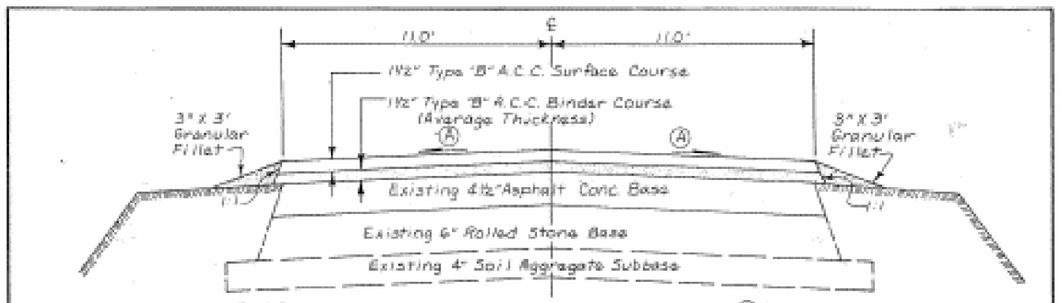
(1) 6:1 Maximum - Slope may be flatter.
(2) 6" Minimum for pipe installations or to top of headwall on R.C.B.
(W) = Pipe or R.C.B. width plus 20 feet each side.

DETAILS OF BARNROOF FORESLOPE AT DRAINAGE STRUCTURE



TYPICAL CROSS SECTION

Scale : 1" = 2'



Section may be modified as directed by the engineer through areas of special shaping.

TYPICAL CROSS SECTION

ASPHALT CEMENT CONCRETE RESURFACING

Ⓐ Finished slope shall match existing except that the maximum allowable slope is 3.0% and the minimum allowable slope is 2.0%.

DESIGN QUANTITIES (Per Station)		
ITEM	RATE	VOLUME
Surface Course	140 lbs. /s.y. ft.	19.36 Tons
Binder Course	140 lbs. /s.y. ft.	19.58 Tons
Tack Coat	0.05 gal. /sq. ft.	24.86 Gals.(1)
Granular Material	--	8.00 Tons(2)

(1) Estimated for two applications, (2) Estimated for two shoulders.

ROAD IDENT.	STATION TO STATION	
Id. No. 224	856+43.70	880+09.20

EXISTING PAVEMENT TYPICALS

SURVEY SYMBOLS

- SH Paved Shoulder
- PIP Pipe Culvert
- PRO Profile Shot
- EG Edge of Gravel Road
- SNP Unpaved Shoulder
- TP TPD Telephone Pedestal
- CUL Culvert
- W WLA Underground Water Line Co.1
- SOP Size of Pipe or Culvert
- SIGN SL Speed Limit Sign
- RET Retaining Walls
- SIGN SI Sign
- LUM Luminaire
- Flg FLG Flag Poles
- MIS Miscellaneous
- LIN Miscellaneous Line
- PPA Power Pole Co.1
- UB UB Utility Box
- STP Stump
- WV WV Water Valve
- FHD Fire Hydrants
- WEL Well
- SHR Shrub
- IN Storm Sewer Intake
- TDC Tree Deciduous
- GP GP Guard Post (Less Than 4 Posts)
- MH Utility Access (Manhole)
- BLD Building or Foundation
- FP FP Filler Pipe
- UST UST Underground Tank
- WH WHD Water Hydrant
- FWD Wood Fence
- FW Wire Fence
- PR Electic Riser Pole
- X LC Lot Corner
- TB TBO Telephone Booth
- Tile TIL Tile Line
- OUT Tile Outlet
- MM MM Mile Marker Post
- EP Edge of Paved Roads (ML or SR)
- GU Gutter In Front of Curb
- CU Back of Curb
- CON Concrete or A/C Slab
- D Centerline Draw or Stream (Down)
- ENP Edge Paved Entrance & Park Lot
- SWK Sidewalk
- ENU Edge Unpaved Entrance & Parking
- ENT Centerline BL of Entrance
- DU Centerline Draw or Stream (Up)
- BNK Stream Bank
- RIP RIP Rip-Rap
- St.S. STA Storm Sewer Line Co.1
- San. SAA Sanitary Sewer Line Co.1
- G GLA Underground Gas Line Co.1
- FO FOA Underground Fiber Optic Co.1
- FO2 FOB Underground Fiber Optic Co.2
- UE Utility Elevation
- BL Topo Breakline
- PLG Location of General Photo
- EB EB Electrical Box
- EW Edge of Water
- FO3 FOC Underground Fiber Optic Co.3
- TV TVA Underground TV Cable Co.1
- Default_Chain Default Chain Feature
- CP Control Point
- W2 WLB Underground Water Line Co.2

UTILITY LEGEND

- W CENTRAL IOWA WATER ASSOCIATION
- W2 CITY OF KELLOGG
- G BLACK HILLS ENERGY
- FO INS
- FO2 PARTNERS COMMUNICATION COOPERATIVE
- FO3 MCI
- TV MEDIACOM
- St.S. CITY OF KELLOGG
- San. CITY OF KELLOGG
- ALLIANT

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
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
- Clearing & Grubbing Area
- Pavement Removal

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Borrow
- Easement (Temporary)
- Easement
- Excess
- A/C Access Control

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

STA. 496+21.162
BEGIN RESURFACING

POT Sta 500+21.16

Guardrail update - Yes or No?
If Yes, W-beam or Concrete?

STA. 508+69.60. 45.01 LT.
2.9 X 2.9 GRATE INTAKE
SKEW NEED'
D.A. = .1 AC - R
U.A.C.

8" x 56' Vit. Tile

STA. 508+86.31.117.50 LT.
36" X 54' CONC PIPE
D.A. = 43 AC - R
U.A.C.
42"
79 CFS
H 5.03

24" x 102' Corrugated Plastic Pipe
Remove

STA. 513+50
END RESURFACING
BEGIN RECONSTRUCTION

15" x 32' C.M.P.
Remove

15" x 24' C.M.P.
Remove

Buena Vista TWP.
T-79N R-18W
SEC. 2

505 510 515 520 525

+70.91 Prop. Type "C" Ent.
+14.01 Prop. Type "C" Ent.
+16.09 Prop. Type "C" Ent.
+07.30 Prop. Type "C" Ent.
+89.96 Prop. Type "C" Ent.
+03.30 Prop. Type "C" Ent.

Shed
House
Garage
Building

Paved SR returns need to be checked with Jasper County

What impacts to entrance?

Sta 524+72.38

STA. 507+00.86
36" X 82' C.M.P.
D.A. = 51 AC - R
U.A.C.
48"
90 CFS
H 4.76'

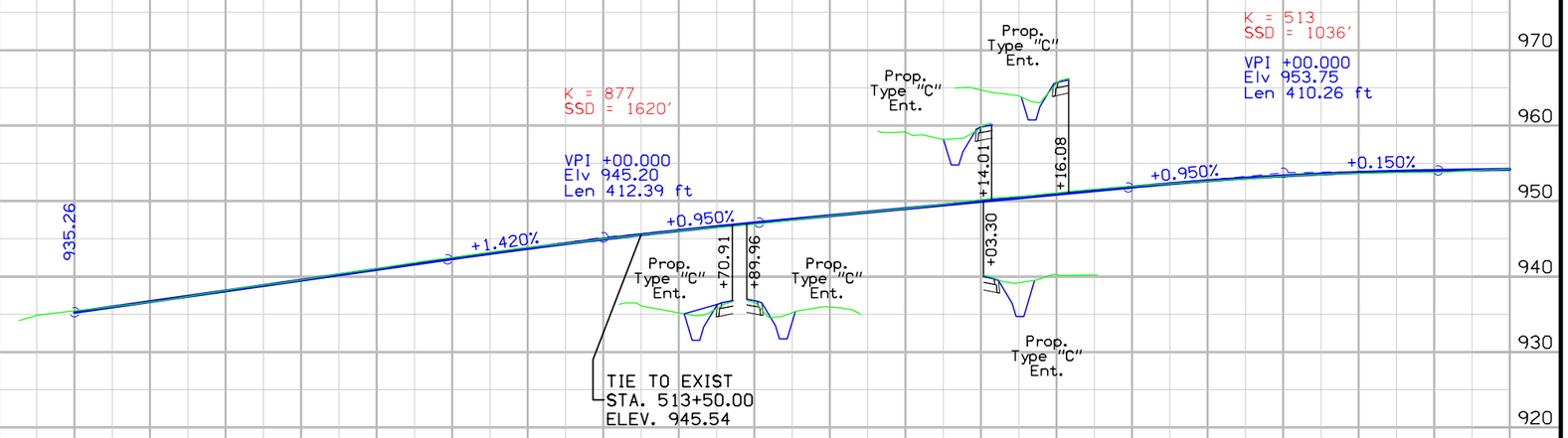
15" x 82' C.M.P. W/ Plastic Pipe Extension
U.A.C.

15" x 24' C.M.P.
Remove

15" C.M.P. W/ 18" Plastic Pipe Extension
Remove

Buena Vista TWP.
T-79N R-18W
SEC. 1

0 100 FEET



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	D.2

STA. 533+25.84
3.0 X 2.5 X 35' RCB
W/ 3.0 X 4.0 X 18' RCB EXT
SKEW 17° 26' 02"
D.A. = 36 AC ± R
42"
69 CFS
H 4.39

Replace with
42"ø Uncl.
Rdwy. Pipe

Kellog TWP.
T-80N R-18W
SEC. 35

STA. 541+31.07
36" X 72' C.M.P.
D.A. = 27 AC ± R
36"
55 CFS
H 4.42

Replace with
36"ø Uncl.
Rdwy. Pipe

STA. 547+71.28
24" X 52' C.M.P.
D.A. = 5 AC ± R
24"
15 CFS
H 2.26

Replace with
24"ø Uncl.
Rdwy. Pipe

Sta 524+72.38

Sta 551+22.10

Shed
Building
Building
House
+16.67 Prop. Type "C" Ent.
+91.52 Prop. Jt. Type "C" Ent.
Building
+58.26 Prop. Type "C" Ent.
House
+16.27 Prop. Type "C" Ent.
Shed
Shed
+37.40 Prop. Type "C" Ent.

15" x 31' C.M.P.
Remove

18" x 79' Plastic Pipe
Remove

ROW
SEC. LINE

Kellog TWP.
T-80N R-18W
SEC. 36

0 100
FEET

K = 195
SSD = 524'
VPI +50.000
Elv 954.73
Len 400.00 ft

K = 167
VPI +50.000
Elv 945.23
Len 450.00 ft

K = 206
SSD = 566'
VPI +50.000
Elv 948.43
Len 350.00 ft

K = 167
VPI +50.000
Elv 943.92
Len 500.00 ft

K = 208
SSD = 527'
VPI +00.000
Elv 955.47
Len 500.00 ft

+0.150%
-1.900%
-1.900%
+0.800%
+0.800%
-0.901%
-0.901%
+2.100%
+2.100%
-0.300%
-0.300

F.L. Lt. 932.26
Rt. 925.73

F.L. Lt. 928.58
Rt. 926.51

F.L. Lt. 946.43
Rt. 945.64

Prop. Type "C" Ent.
Prop. Jt. Type "C" Ent.
Prop. Type "C" Ent.
Prop. Type "C" Ent.
Prop. Type "C" Ent.

525 530 535 540 545 550 555

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	D.3

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STA. 555+56.32
24" X 57' C.M.P.
D.A. = 2 AC - R
24"
10 CFS
H 1.8
Replace with
24"ø Uncl.
Rdwy. Pipe

STA. 563+22.49
24" X 57' C.M.P.
D.A. = 1 AC - F
24"
2 CFS
H 0.9
Replace with
24"ø Uncl.
Rdwy. Pipe

STA. 567+89.69
24" X 53' C.M.P.
D.A. = 2 AC - R
24"
10 CFS
H 1.8
Replace with
24"ø Uncl.
Rdwy. Pipe

Kellog TWP.
T-80N R-18W
SEC. 35

Kellog TWP.
T-80N R-18W
SEC. 26

STA. 576+00
END RECONSTRUCTION

555 560 565 570 575 580 585

+06.04 Prop. Type "C" Ent.
+92.09 Prop. Type "C" Ent.
+86.09 Prop. Type "C" Ent.
+24.81 Prop. Type "C" Ent.
+56.13 Prop. Type "C" Ent.
+56.13 Prop. Type "C" Ent.

PI Sta 570+08.68
(Close)
PC Sta 579+05.20
PI Sta 580+42.42
PT Sta 581+78.81
PC Sta 583+37.23

Building
House

STA. 577+65.83
30" X 104' CONC PIPE
SKEW NEED*
D.A. = 3 AC - H
U.A.C.
24"
13 CFS
H 2.03

24" x 70' C.M.P.
U.A.C.

STA. 580+44.32
42" X 48' CONC PIPE
W/ CMP EXTENSION
SKEW ANG=W 15 06'55"
D.A. = 28 AC - R-H
U.A.C.
42"
66 CFS
H 4.22

15" x 24' C.M.P.
Remove

18" X 40' PLASTIC PIPE
Remove

24" x 20' C.M.P.
Remove

0 FEET 100

Kellog TWP.
T-80N R-18W
SEC. 36

Kellog TWP.
T-80N R-18W
SEC. 25

VPI +00.000
Elv 953.07
Len 400.00 ft
K = 571
SSD = 1149
-1.000%
+05.84
+92.09
+86.09
+24.81
F.L. Lt. 940.84
Rt. 945.27
F.L. Lt. 938.04
Rt. 936.17

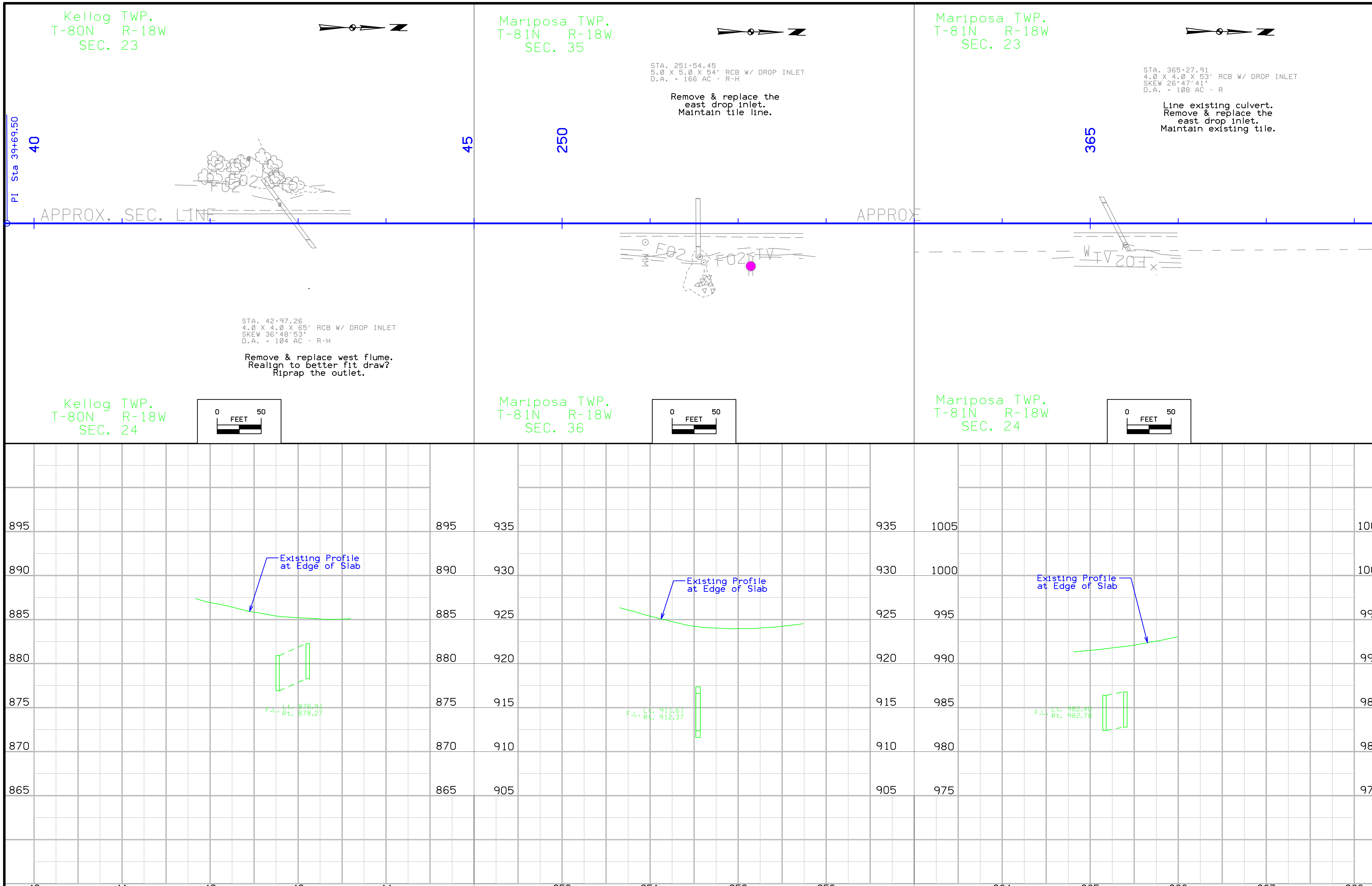
VPI +00.000
Elv 938.07
Len 950.00 ft
K = 156
SSD = 455'
-1.000%
-7.102%
+56.13
+92.17
F.L. Lt. 933.68
Rt. 930.57
902.56
TIE TO EXIST
STA. 576+00.00
ELEV. 902.56
F.L. Lt. 875.78
Rt. 886.51

980 970 960 950 940 930 920
950 940 930 920 910 900 890

953.16 953.03 952.88 952.72 952.56 952.38 952.19 951.99 951.77 951.55 951.32 951.07 950.82 950.57 950.32 950.07 949.82 949.57 949.32 949.07 948.82 948.57 948.32 948.07 947.82 947.57 947.32 947.07 946.82 946.57 946.32 946.07 945.82 945.57 945.32 945.07 944.82 944.57 944.32 944.07 943.82 943.57 943.32 943.07 942.82 942.55 942.24 941.89 941.50 941.07 940.60 940.09 939.54 938.95 938.32 937.64 936.93 936.18 935.39 934.56 933.68 932.77 931.82 930.83 929.79 928.72 927.61 926.45 925.26 924.03 922.75 921.44 920.09 918.69 917.26 915.78 914.27 912.71 911.12 909.48 907.81 906.09 904.34 902.56

555 560 565 570 575

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	D.4



C ENGLISH | IOWA DOT | DESIGN TEAM Tony Gustafson\Gary Mackey | JASPER COUNTY | PROJECT NUMBER STPN-224-1(12)--2J-50 | SHEET NUMBER D.5

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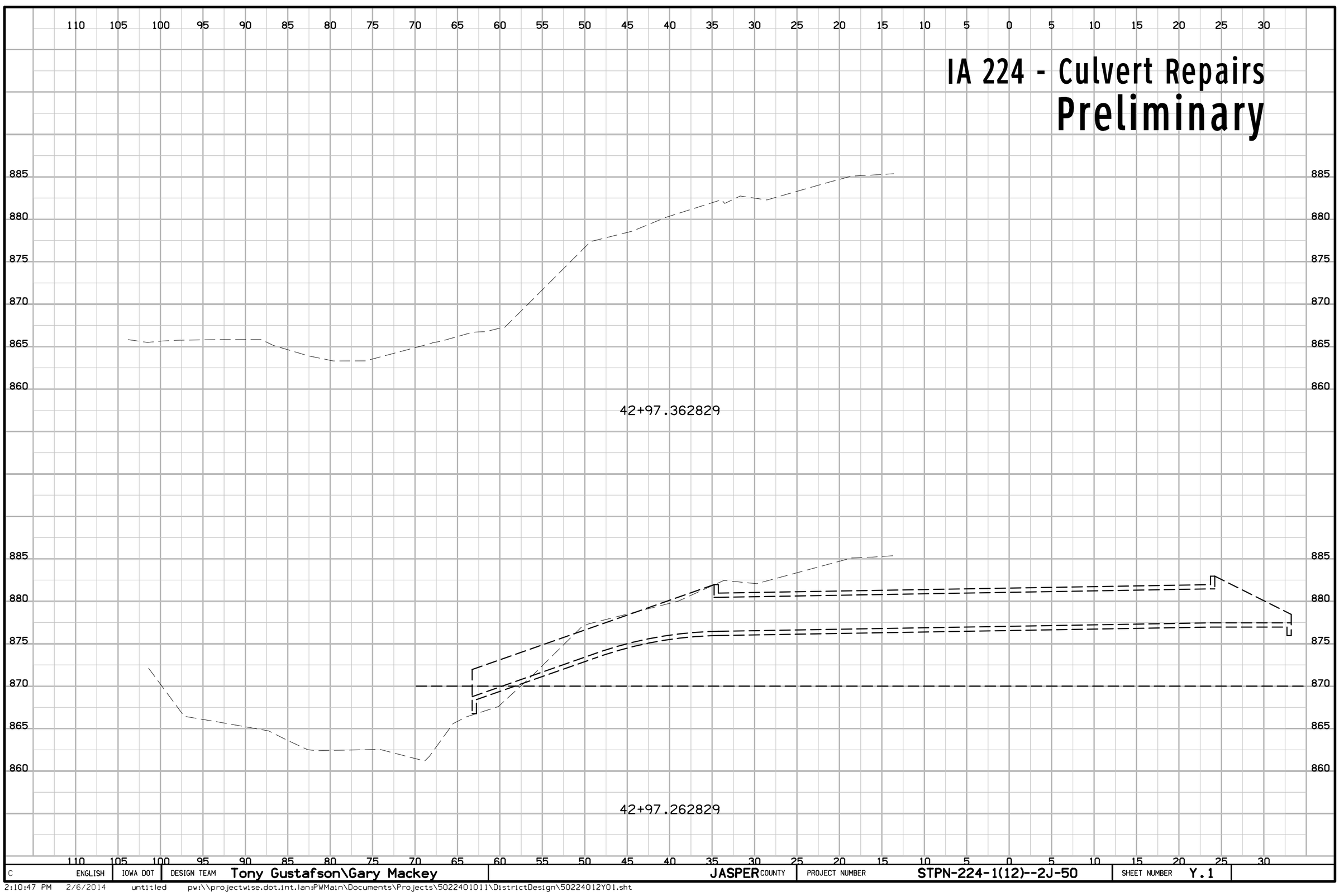
IA 224 - Culvert Repairs

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	Y.1

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IA 224 - Culvert Repairs

Preliminary

365+27.939760

251+54.497876

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	Y.2		

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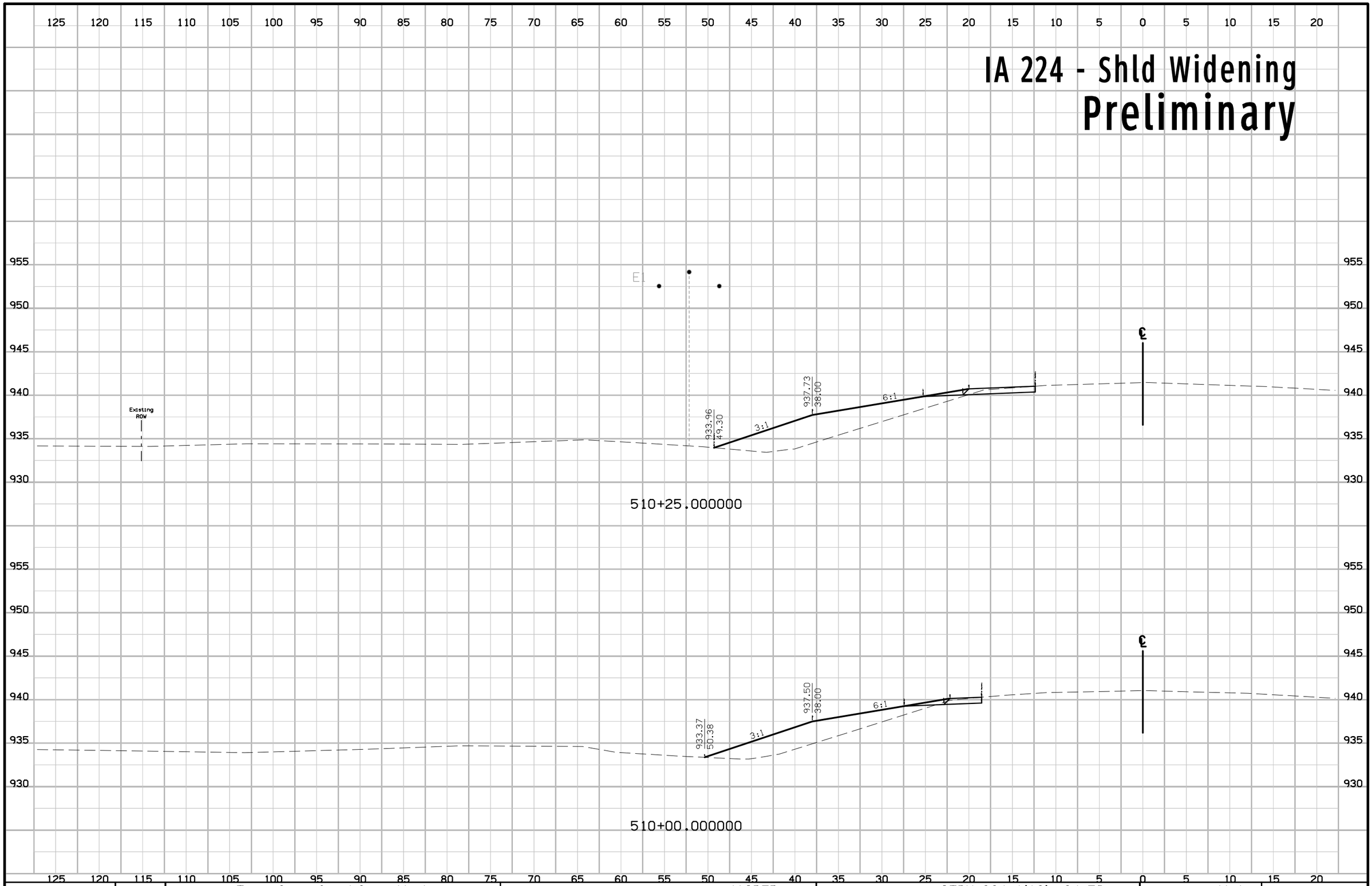
IA 224 - Shld Widening
Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER W.1

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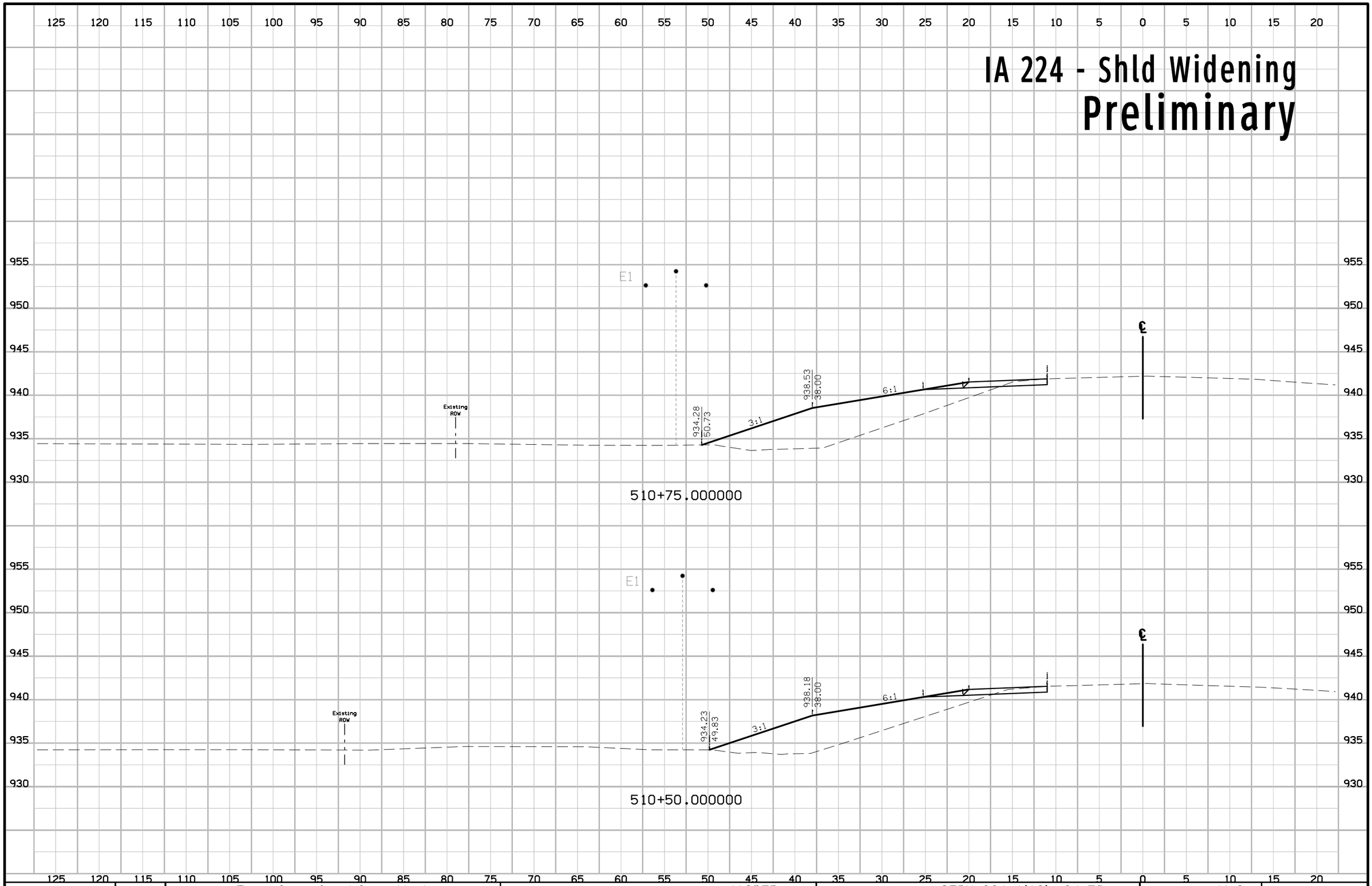
IA 224 - Shld Widening
Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER W.2	

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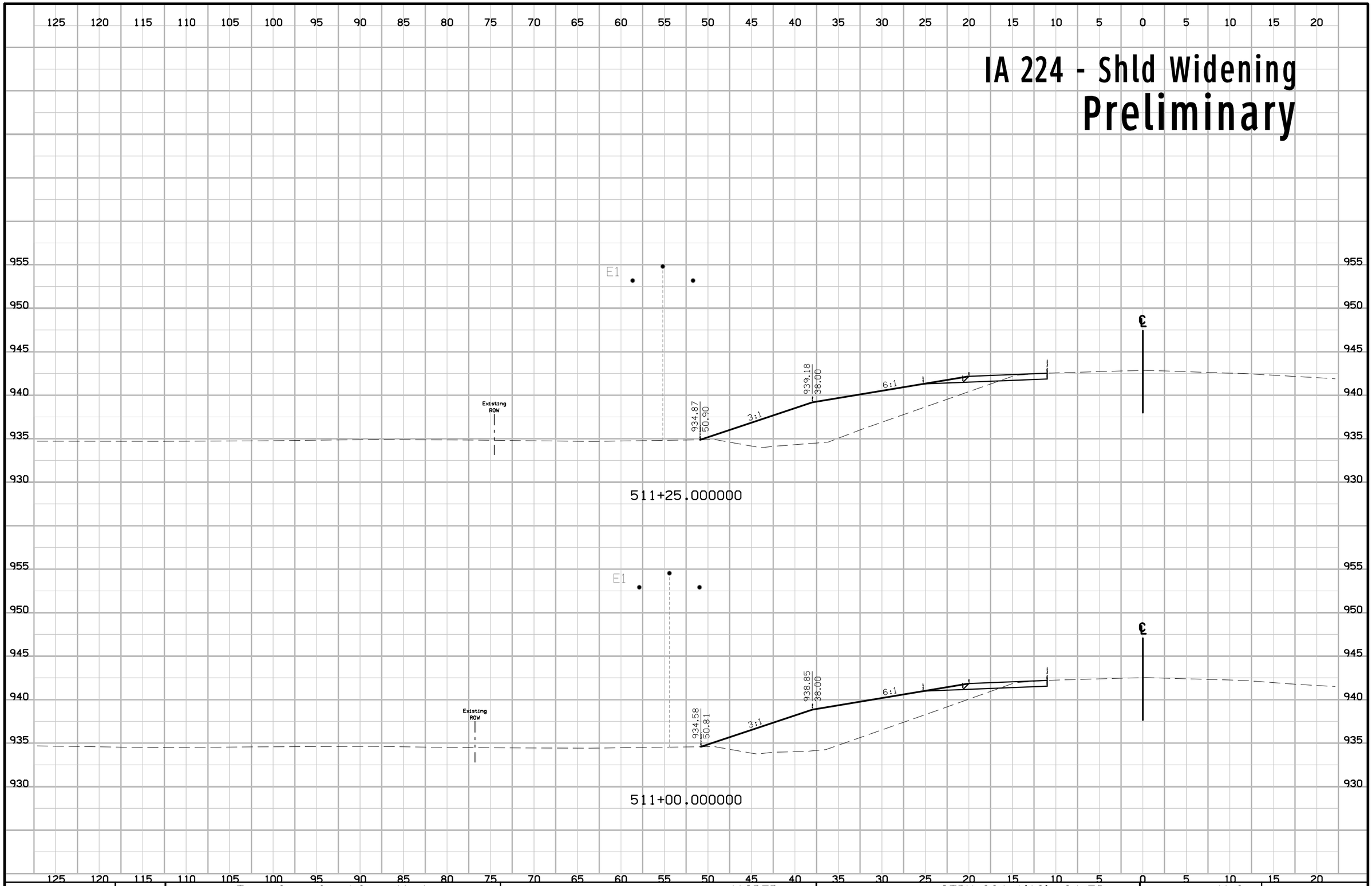
IA 224 - Shld Widening
Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER W.3	

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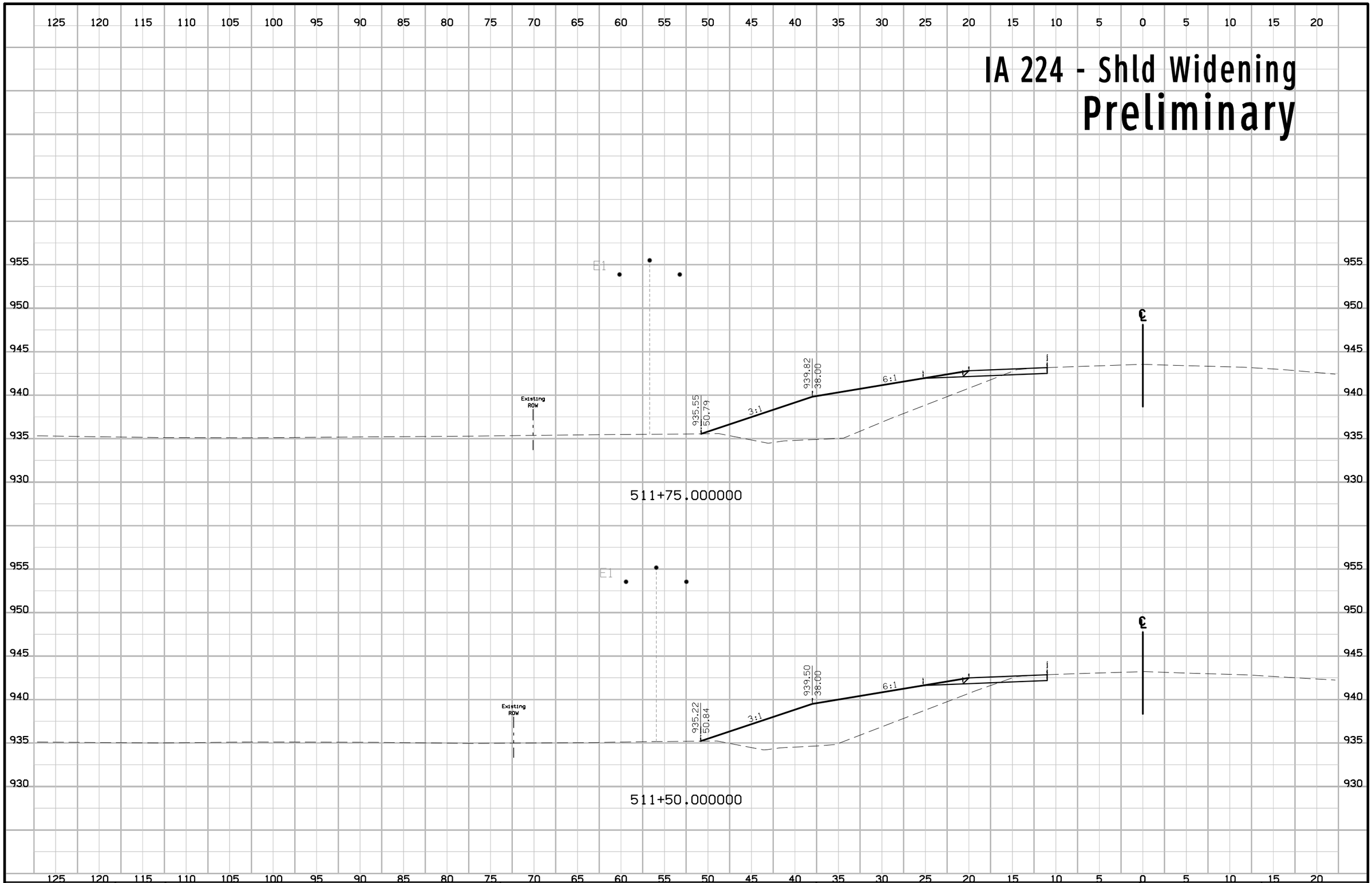
IA 224 - Shld Widening

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER STPN-224-1(12)--2J-50	SHEET NUMBER W.4		

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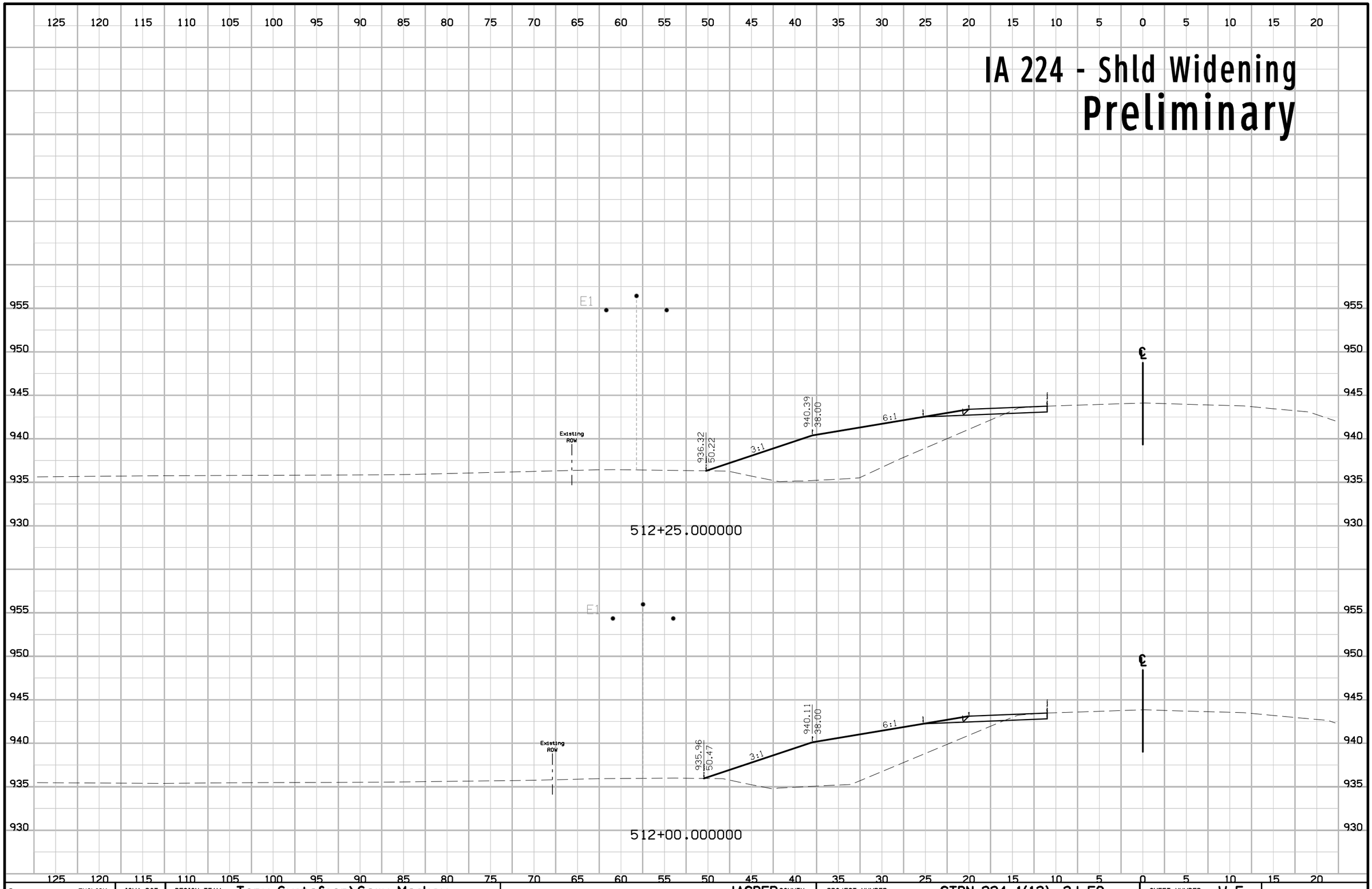
IA 224 - Shld Widening
Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	W.5

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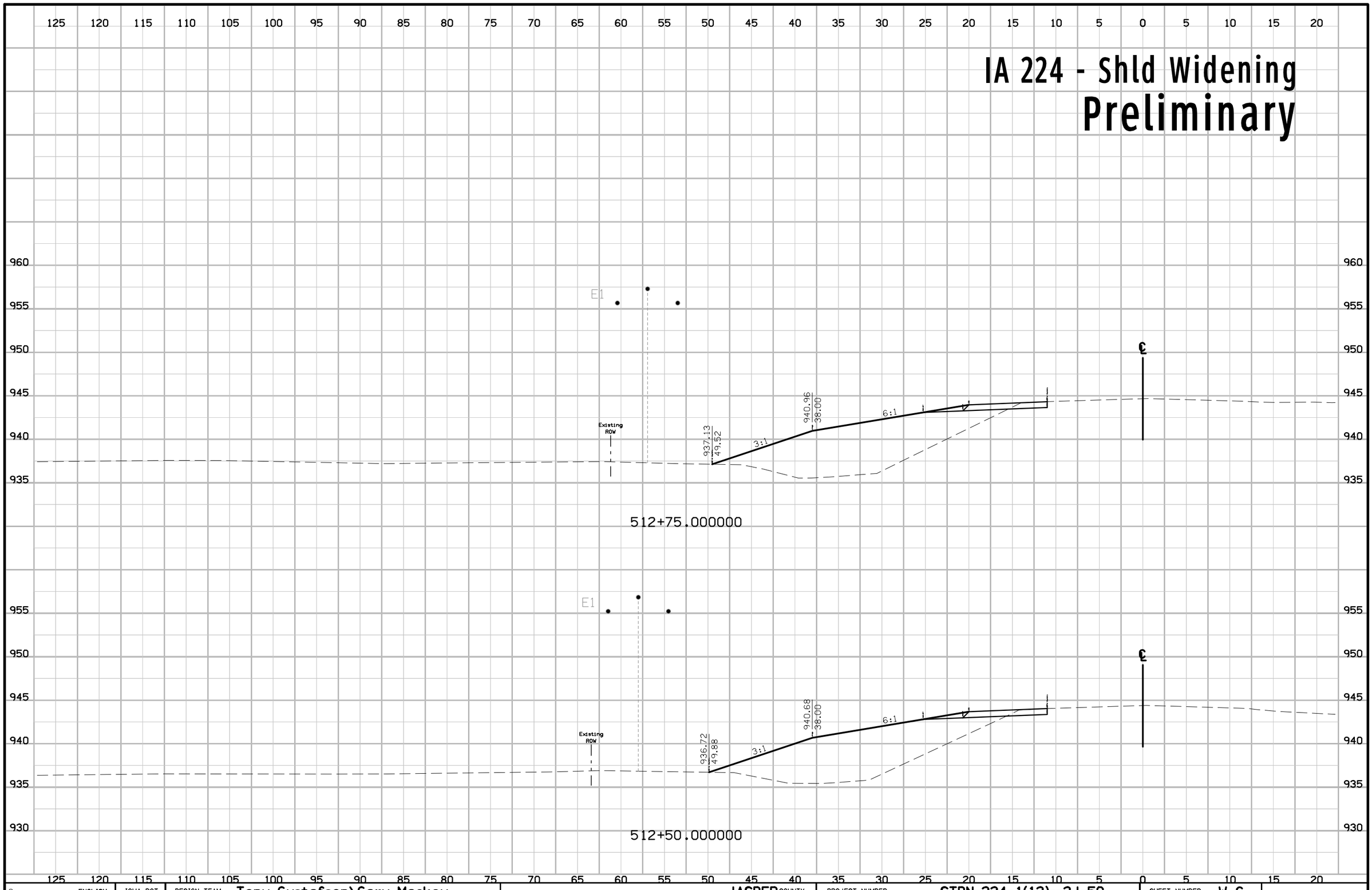
IA 224 - Shld Widening
Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	W.6

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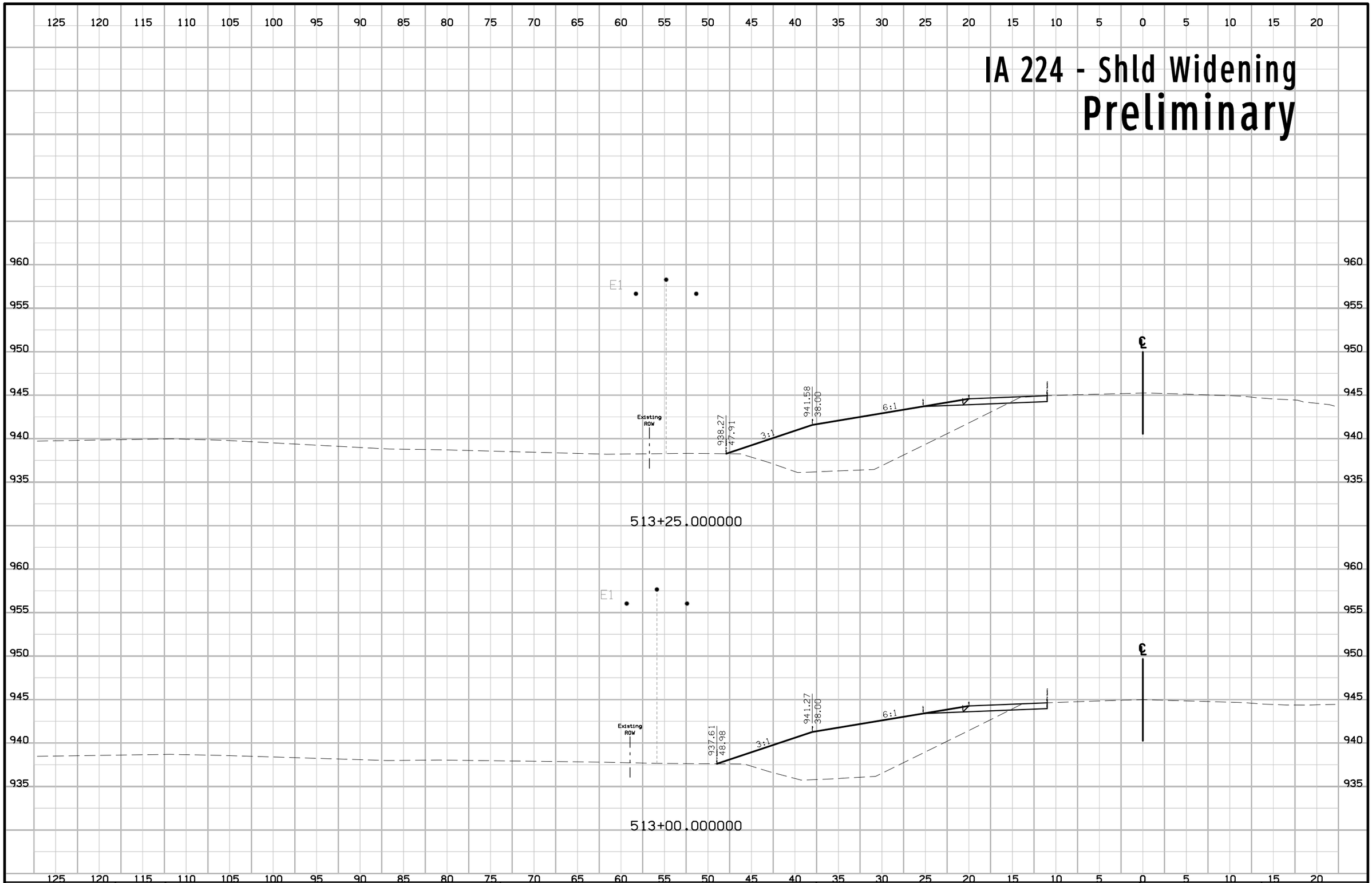
IA 224 - Shld Widening

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	W.7

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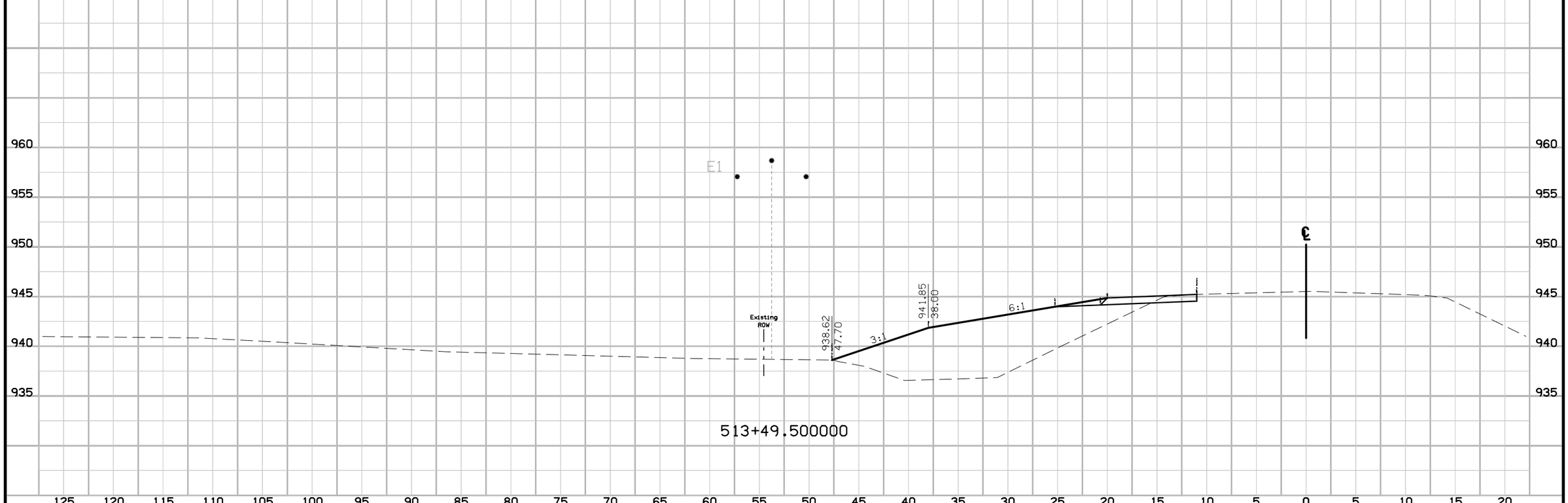
IA 224 - Shld Widening

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	W.8

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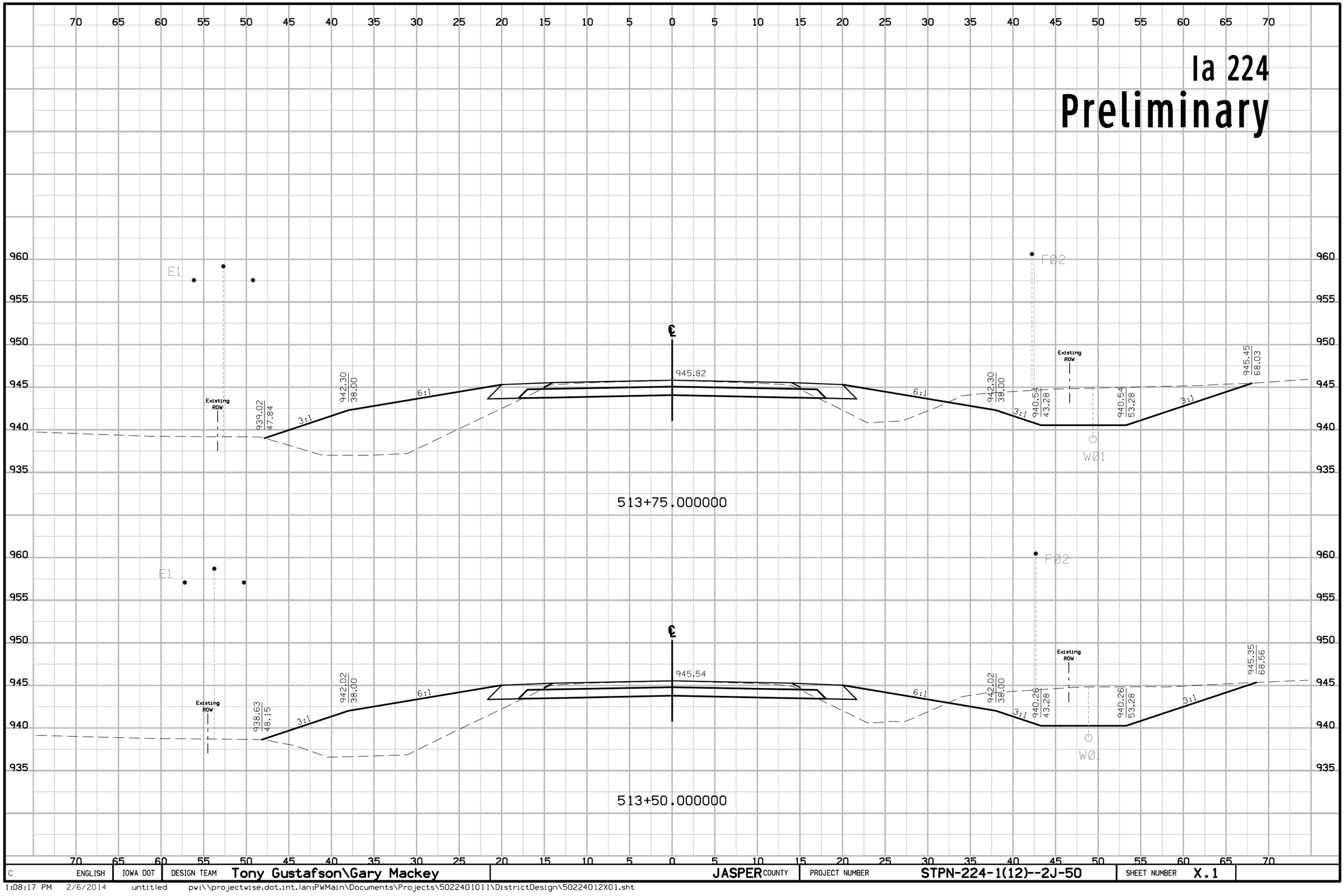
Ia 224
Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.1

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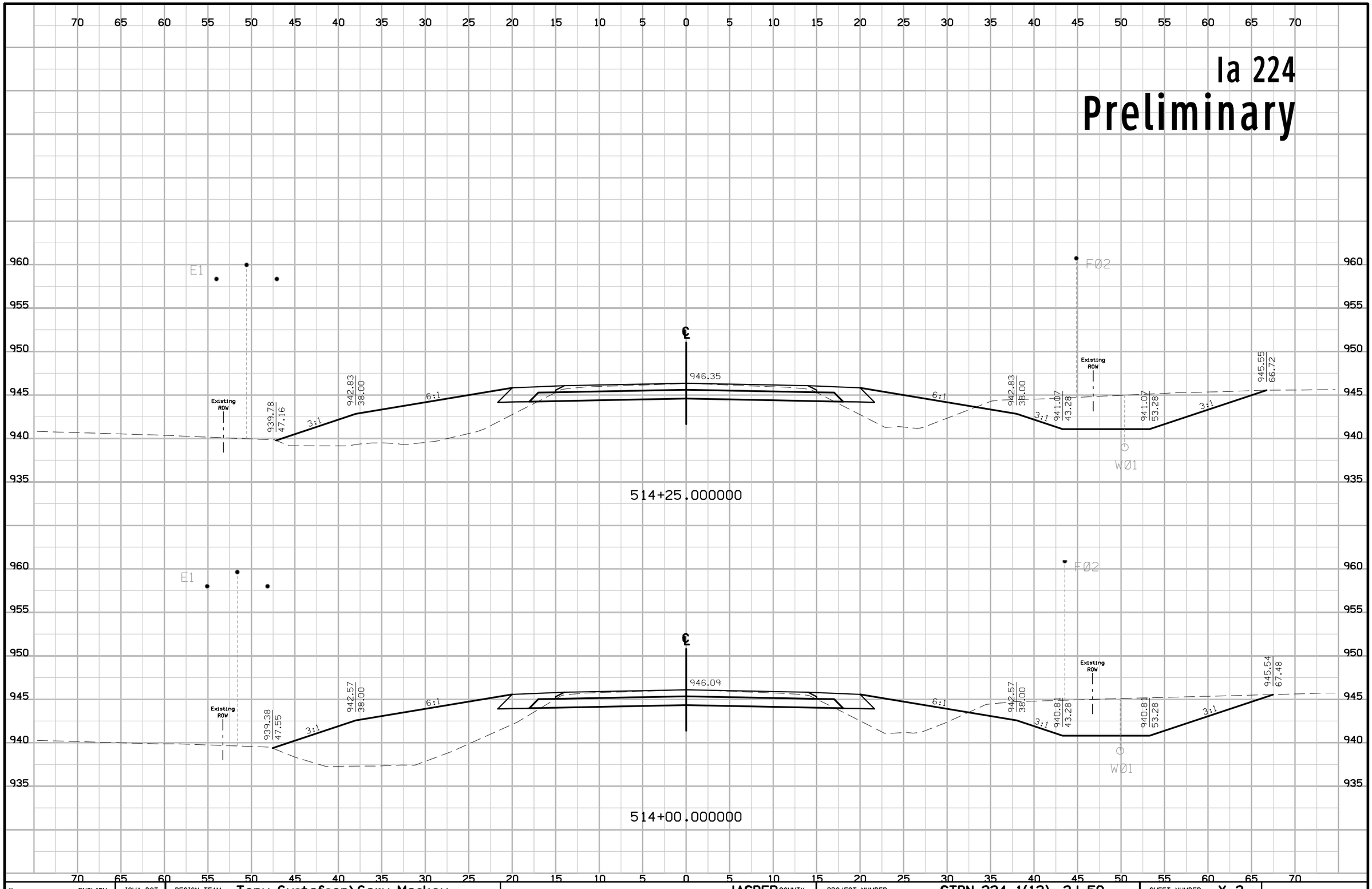
Ia 224
Preliminary



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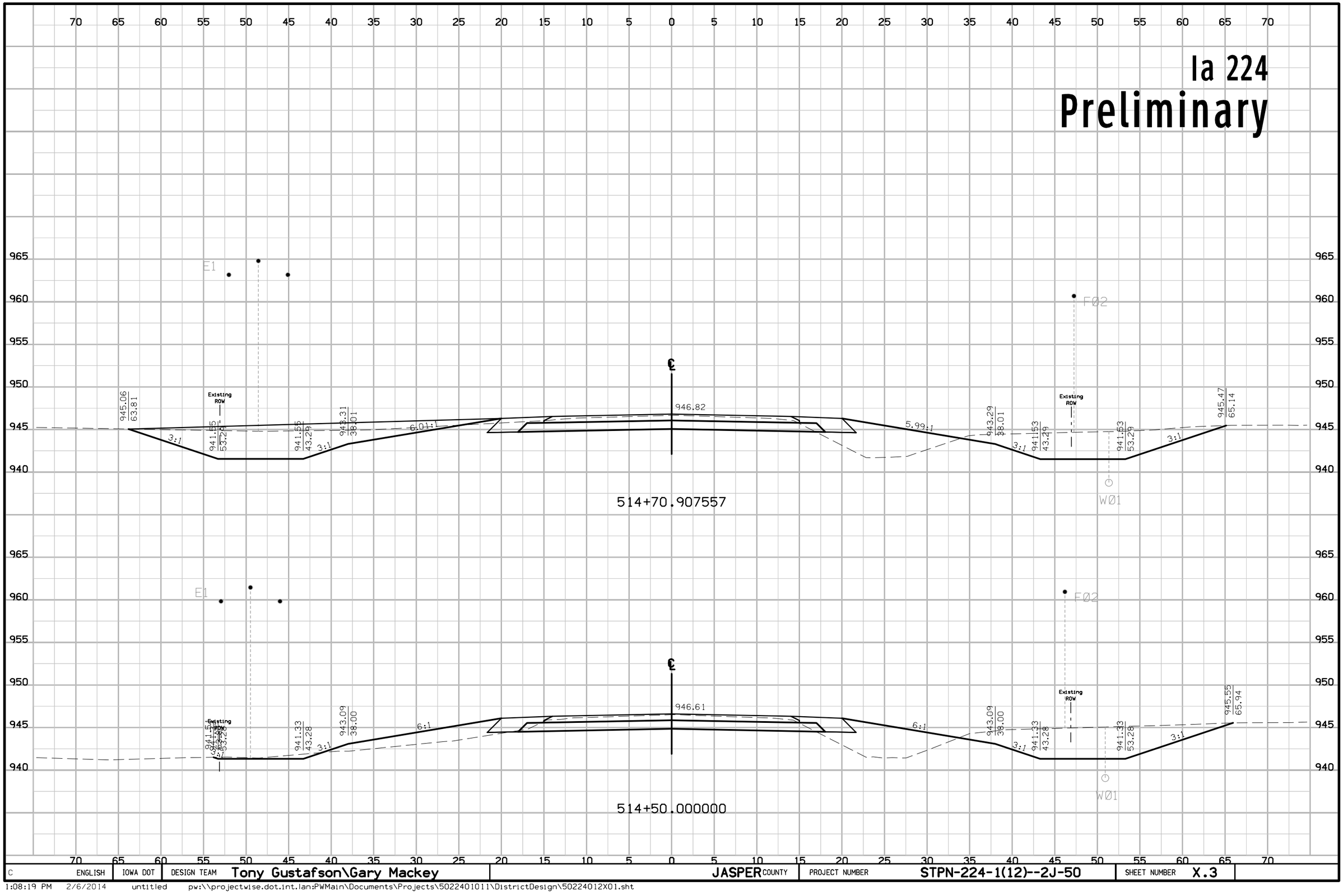
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey		JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.3

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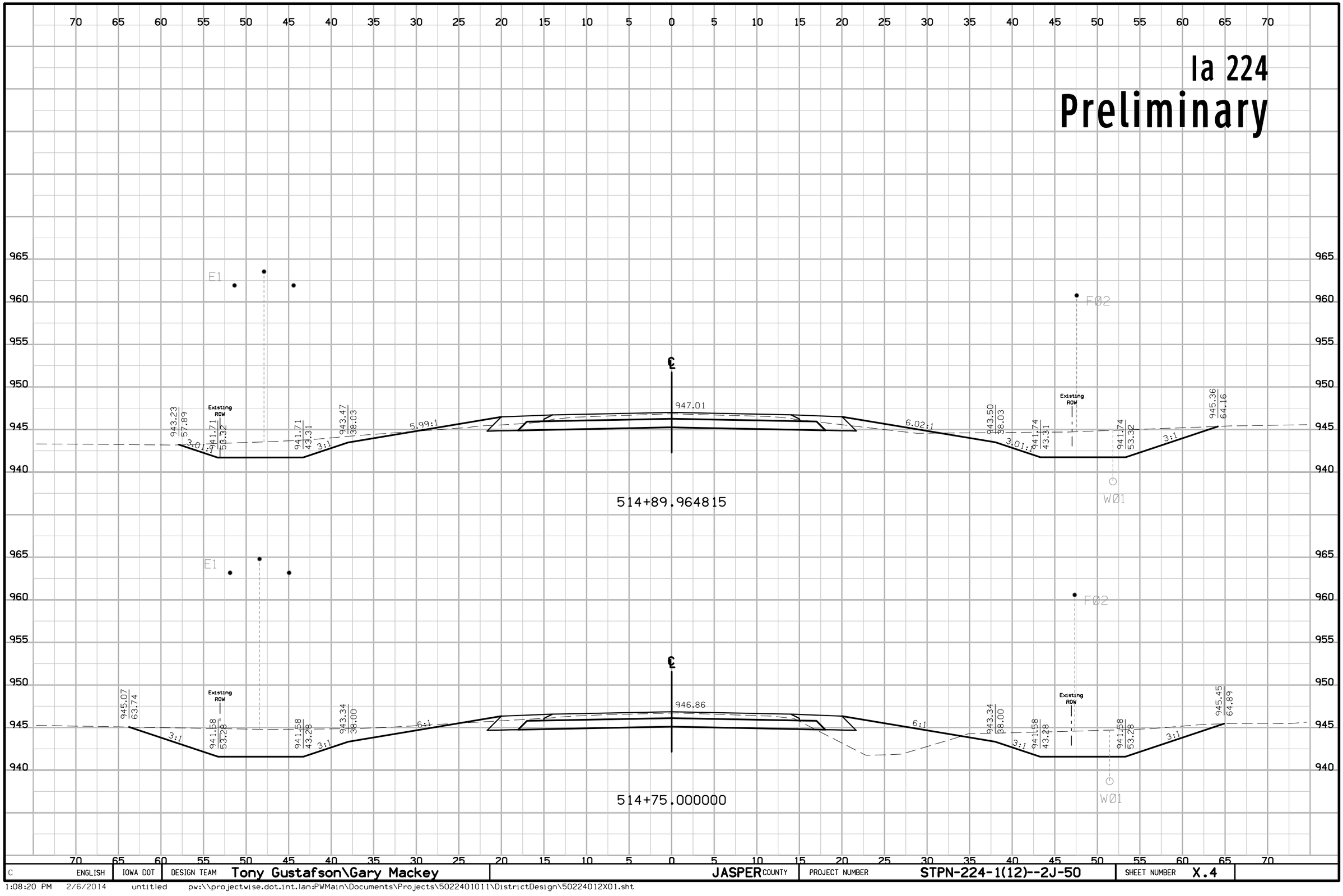
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.4

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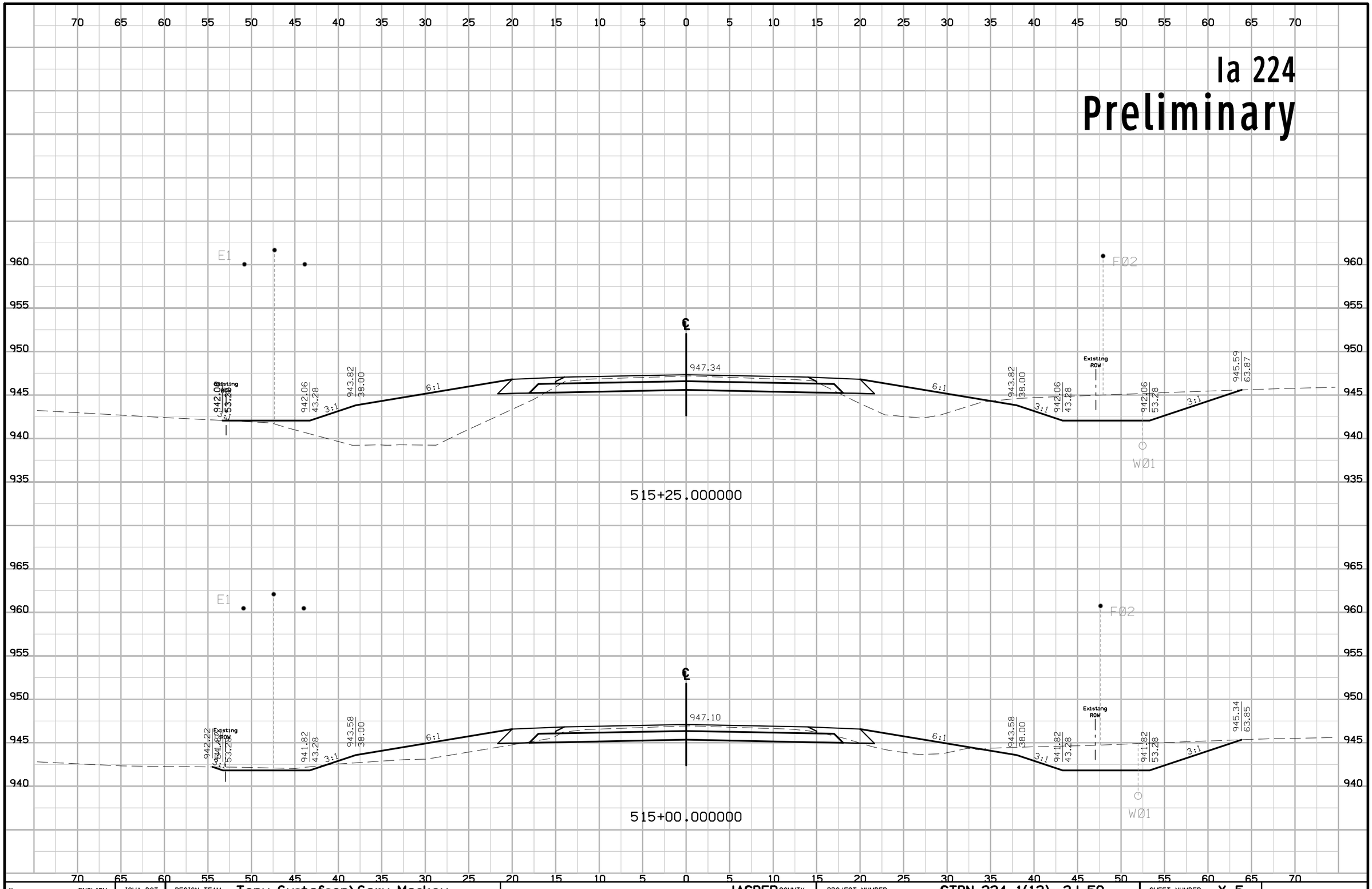
Ia 224

Preliminary



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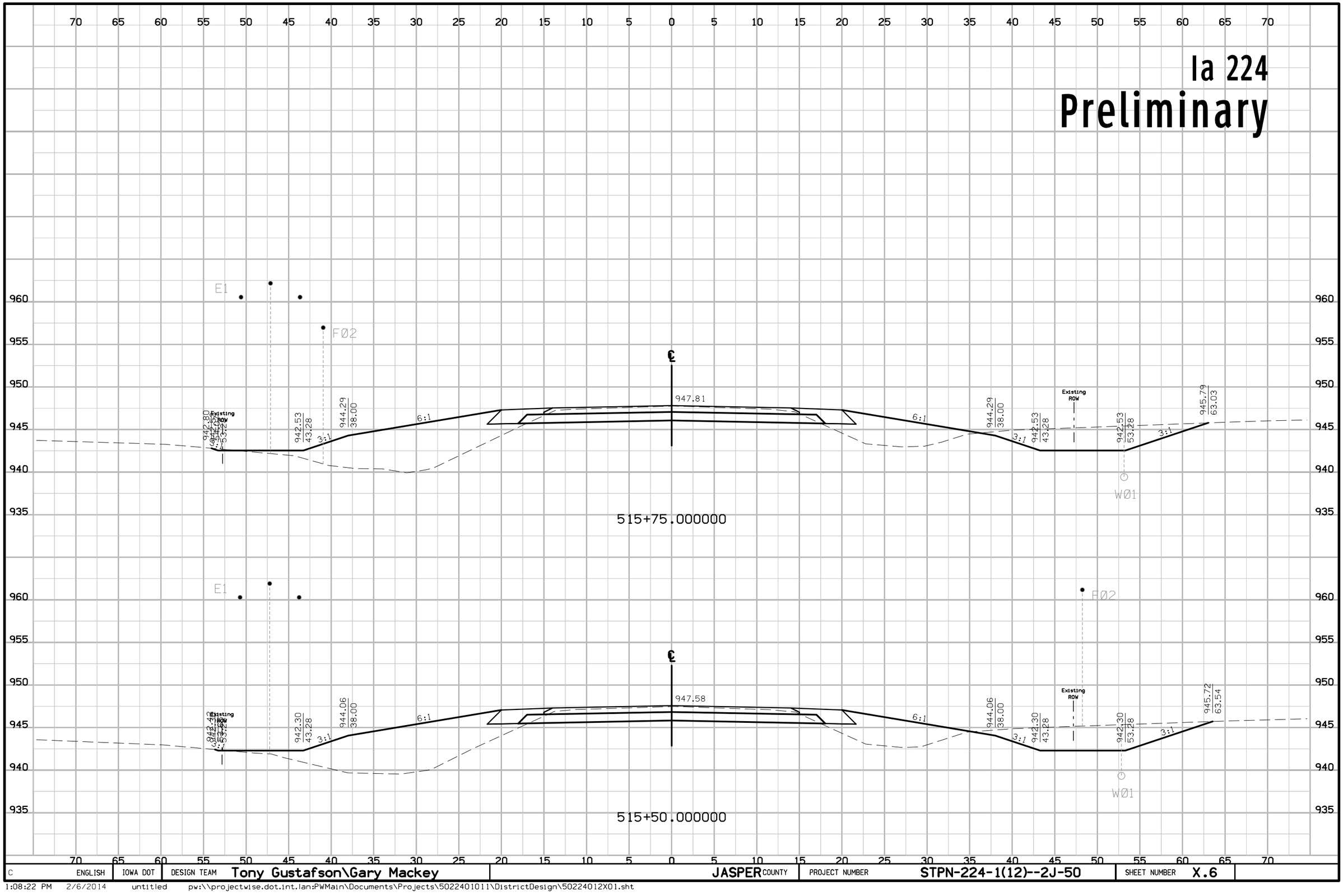
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.6

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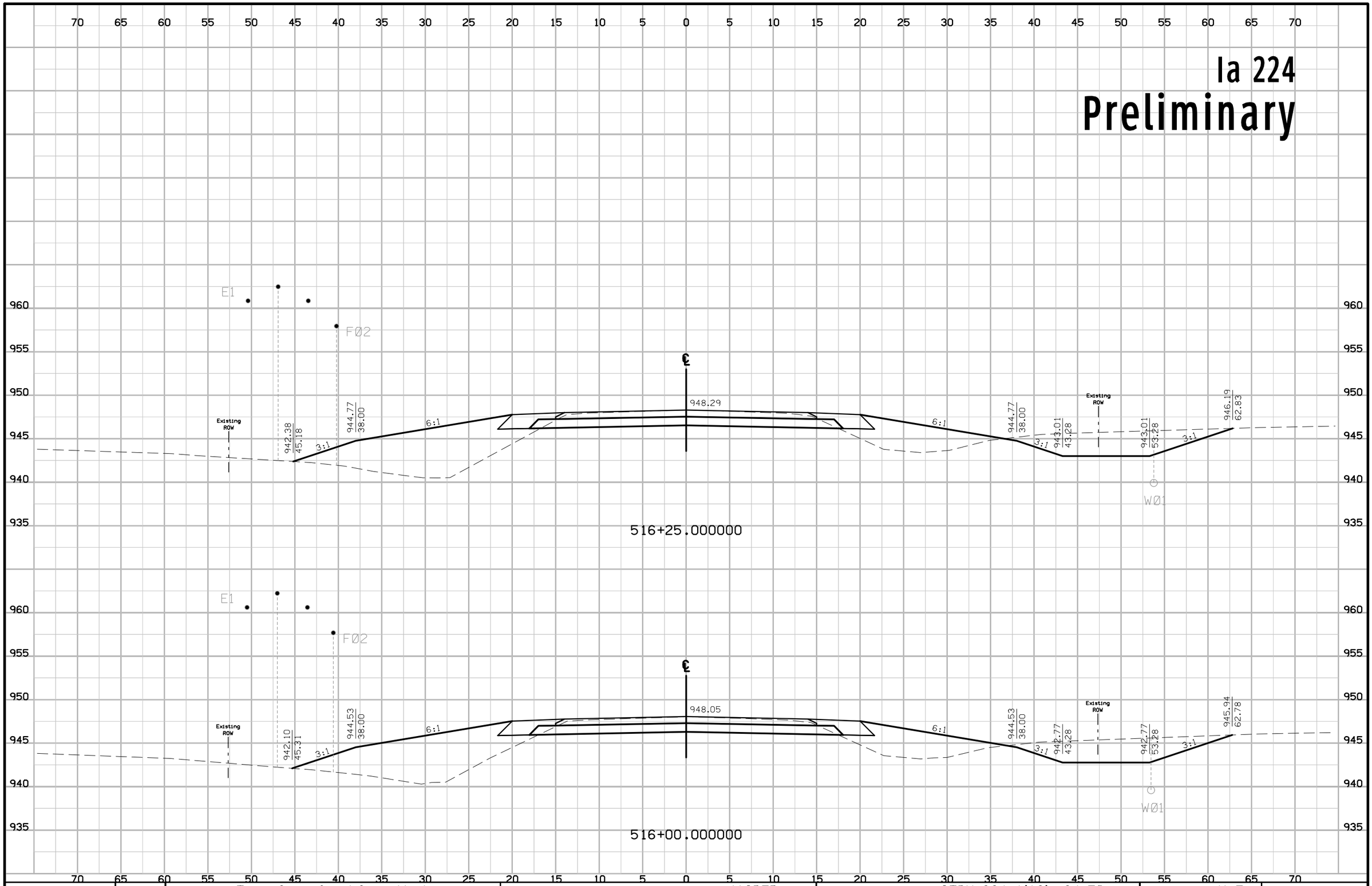
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.7

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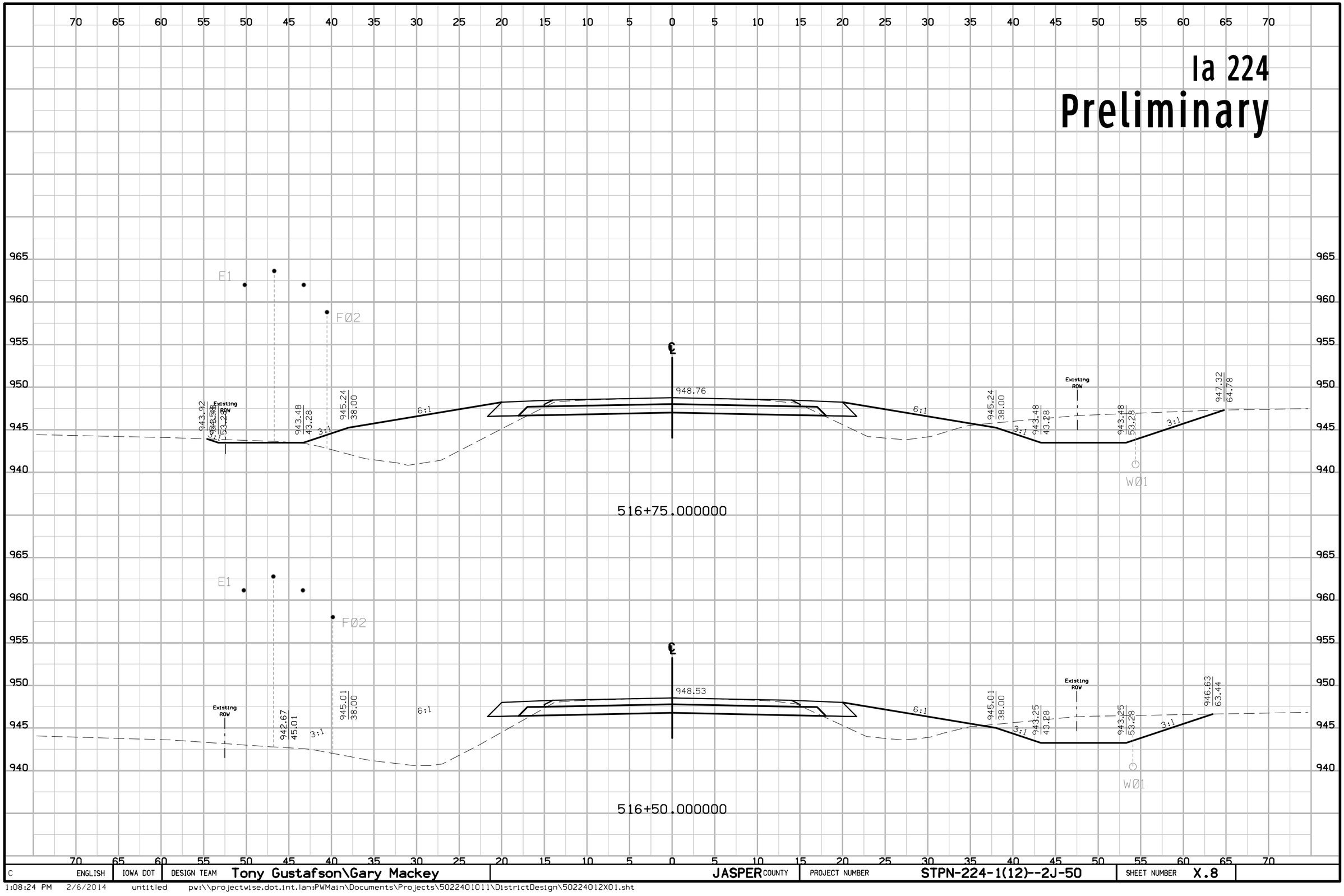
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.8

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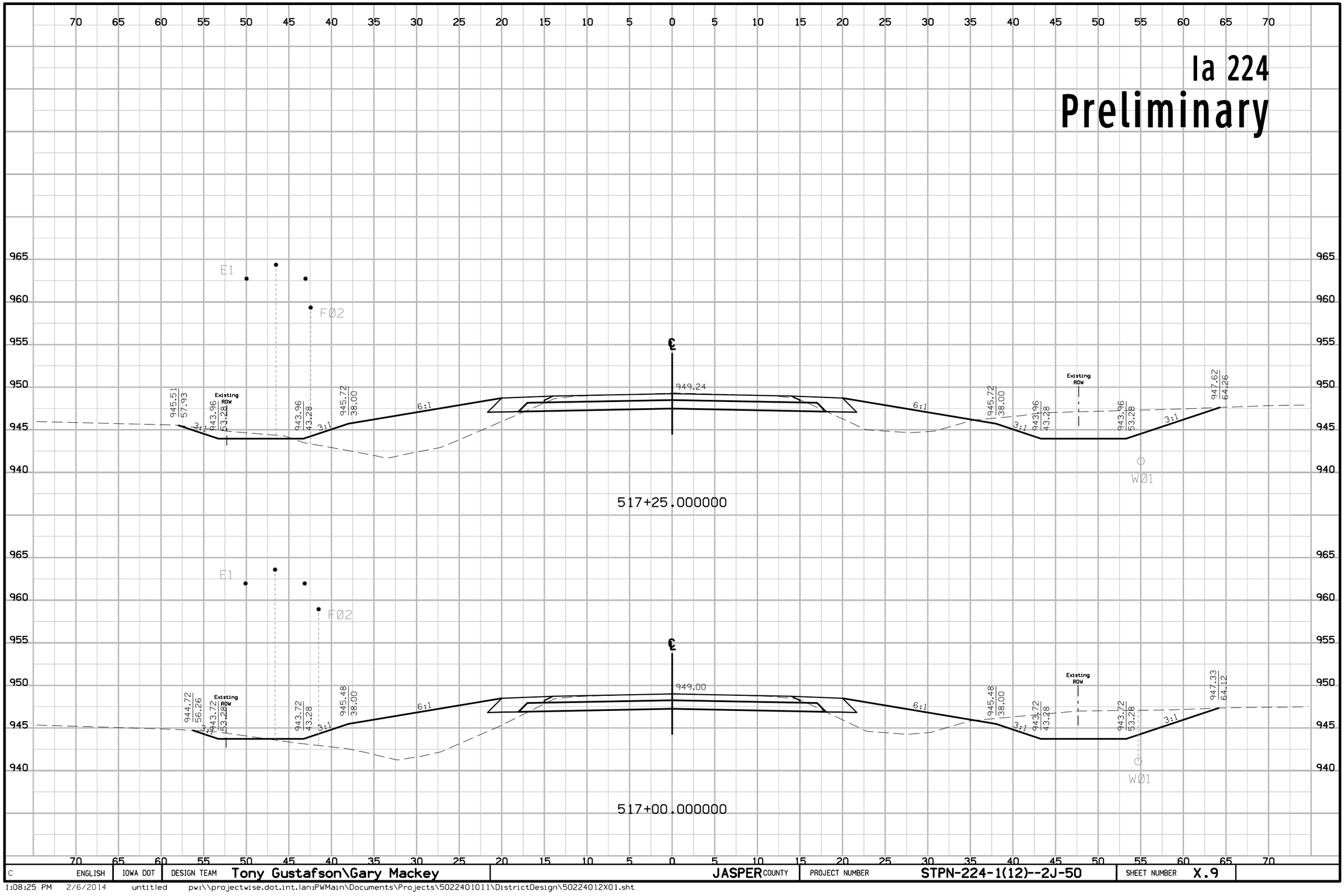
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.9

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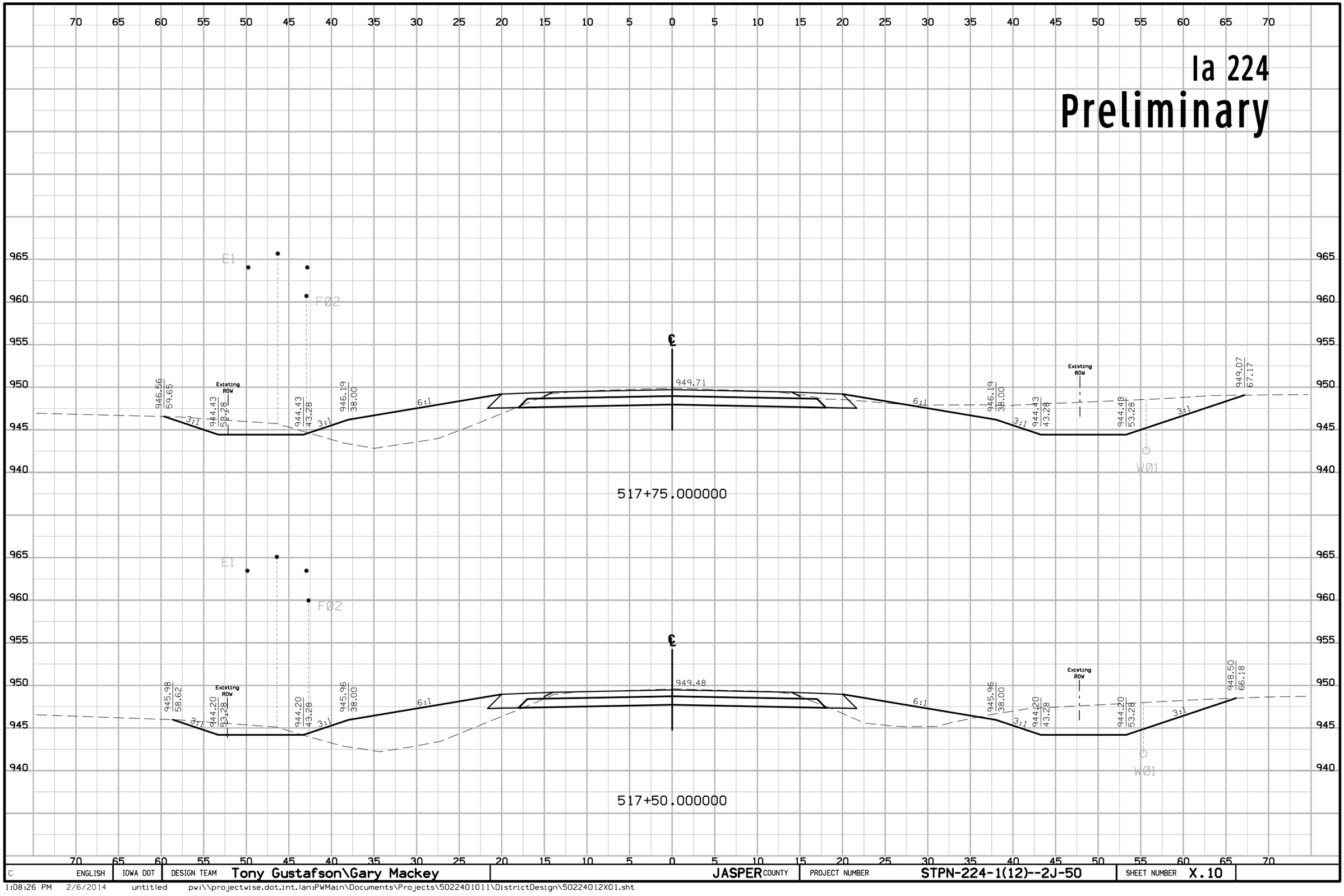
Ia 224

Preliminary



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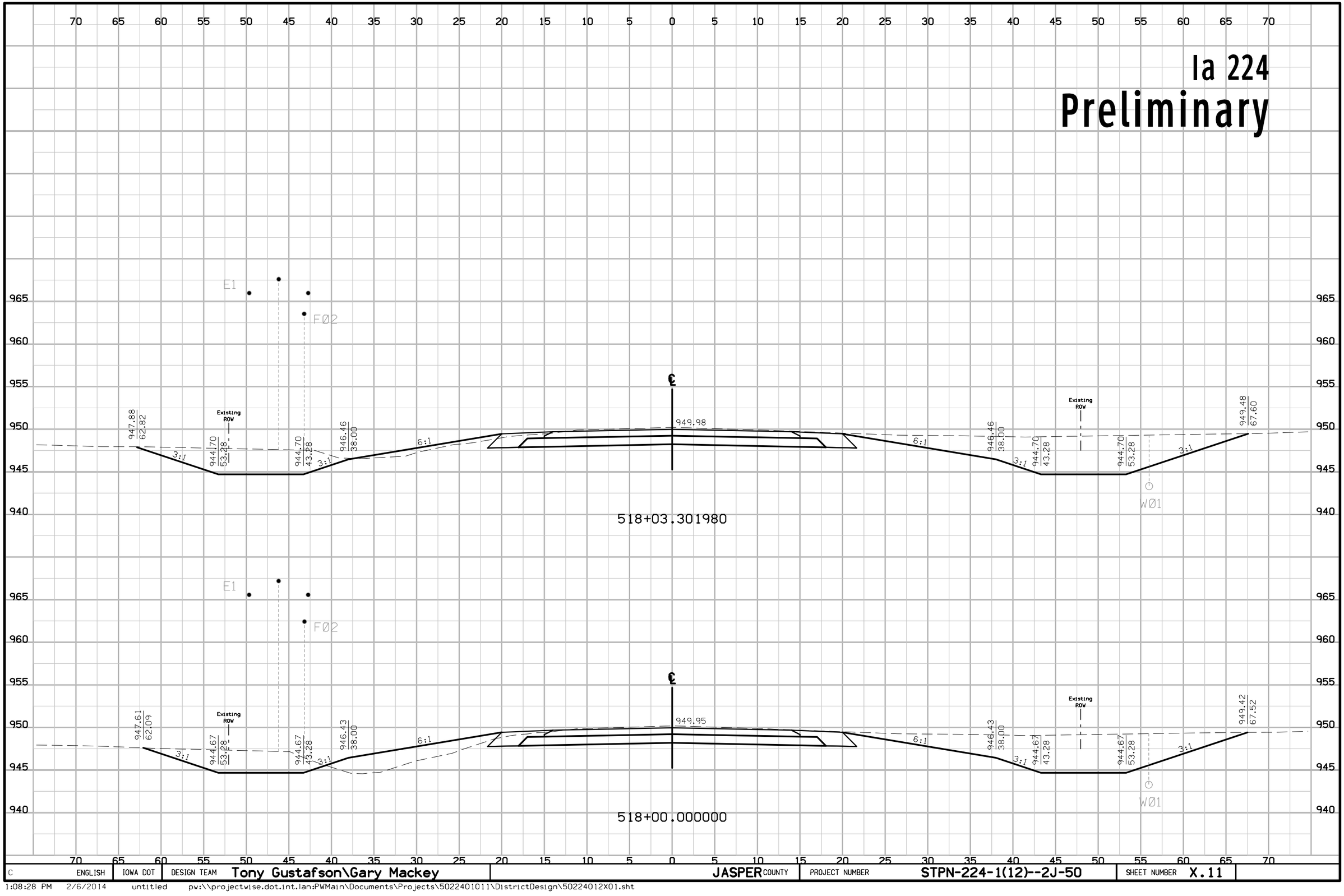
Ia 224
Preliminary



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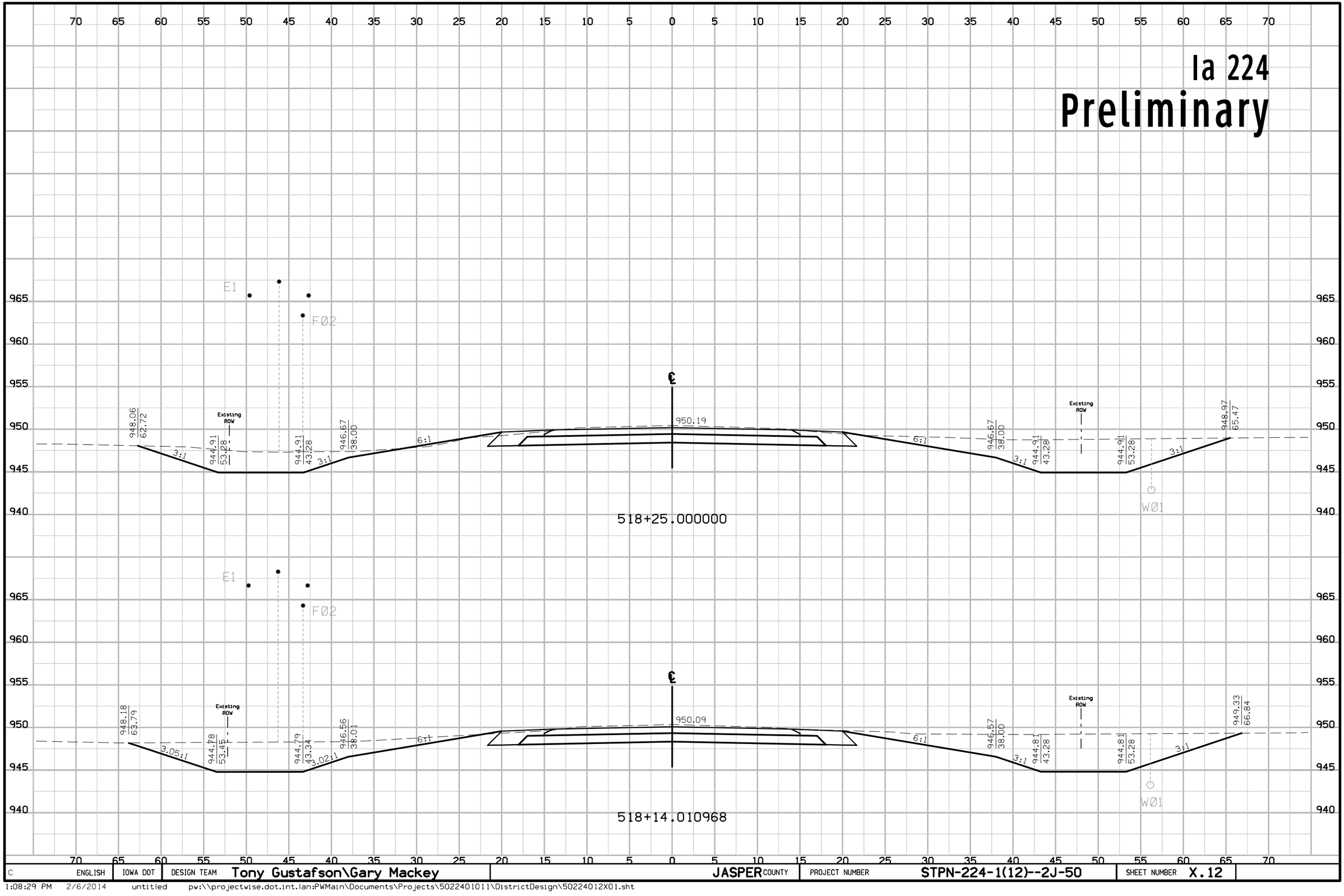
Ia 224

Preliminary



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Ia 224
Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

965 960 955 950 945 940

E1

F02

948.76
63.42

3:1

945.38
53.28

Existing
ROW

945.38
43.28

3:1

947.14
38.00

6:1

℄

950.66

6:1

947.14
38.00

3:1

945.38
43.28

Existing
ROW

945.38
53.28

3:1

947.84
60.65

W01

518+75.000000

E1

F02

948.24
62.56

3:1

945.15
53.28

Existing
ROW

945.15
43.28

3:1

946.91
38.00

6:1

℄

950.43

6:1

946.91
38.00

3:1

945.15
43.28

Existing
ROW

945.15
53.28

3:1

947.92
61.60

W01

518+50.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey		JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.13

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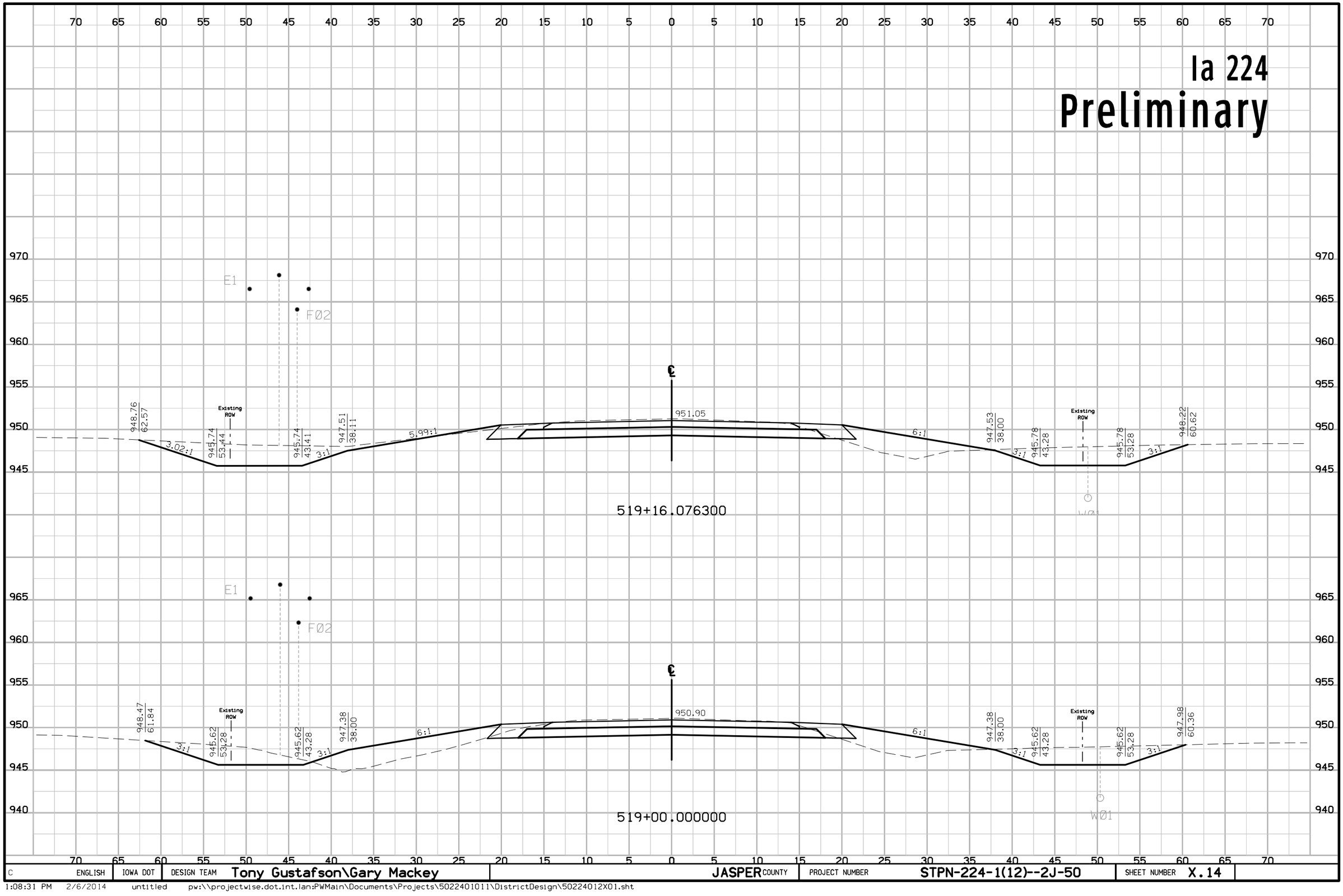
Ia 224

Preliminary



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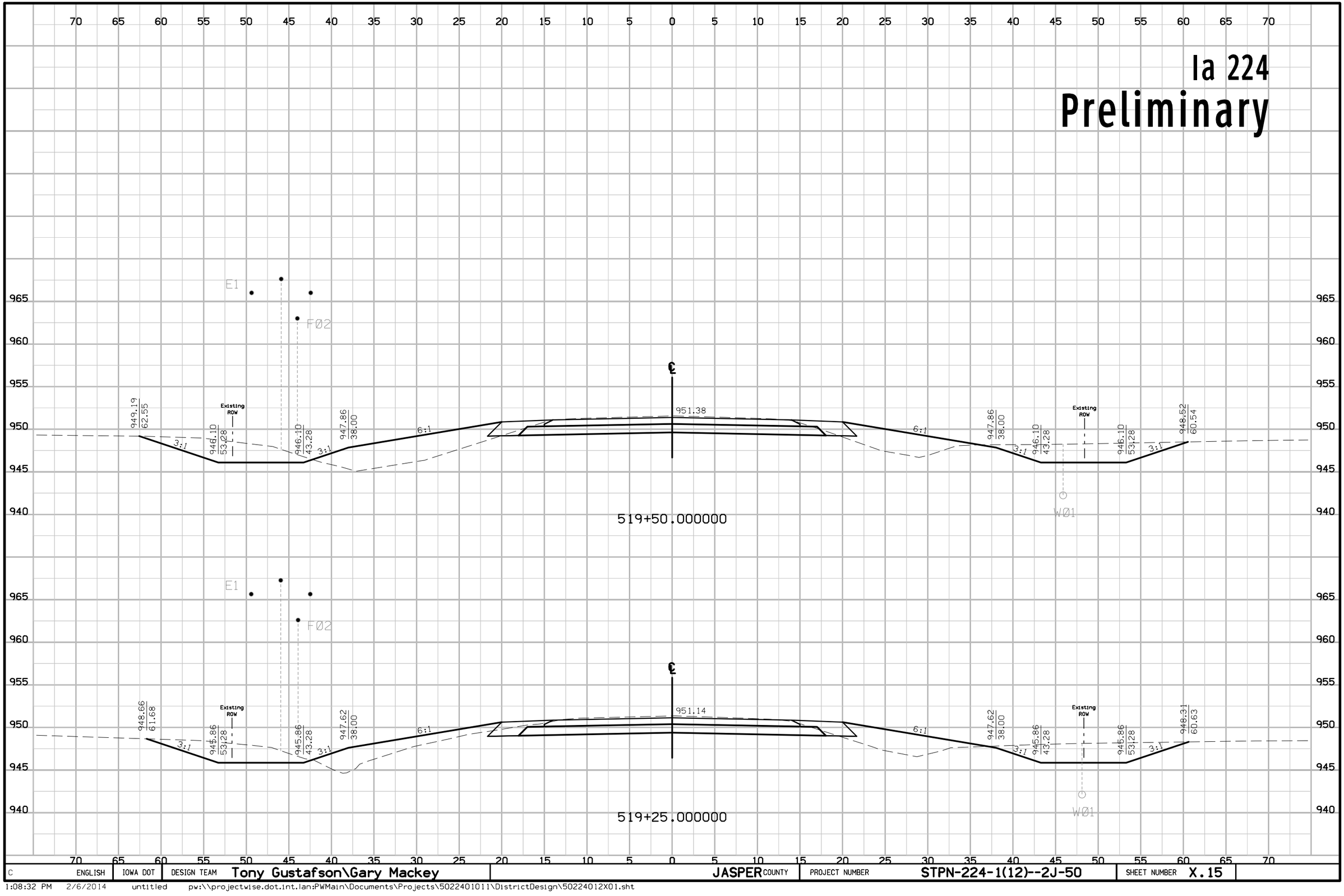
Ia 224

Preliminary



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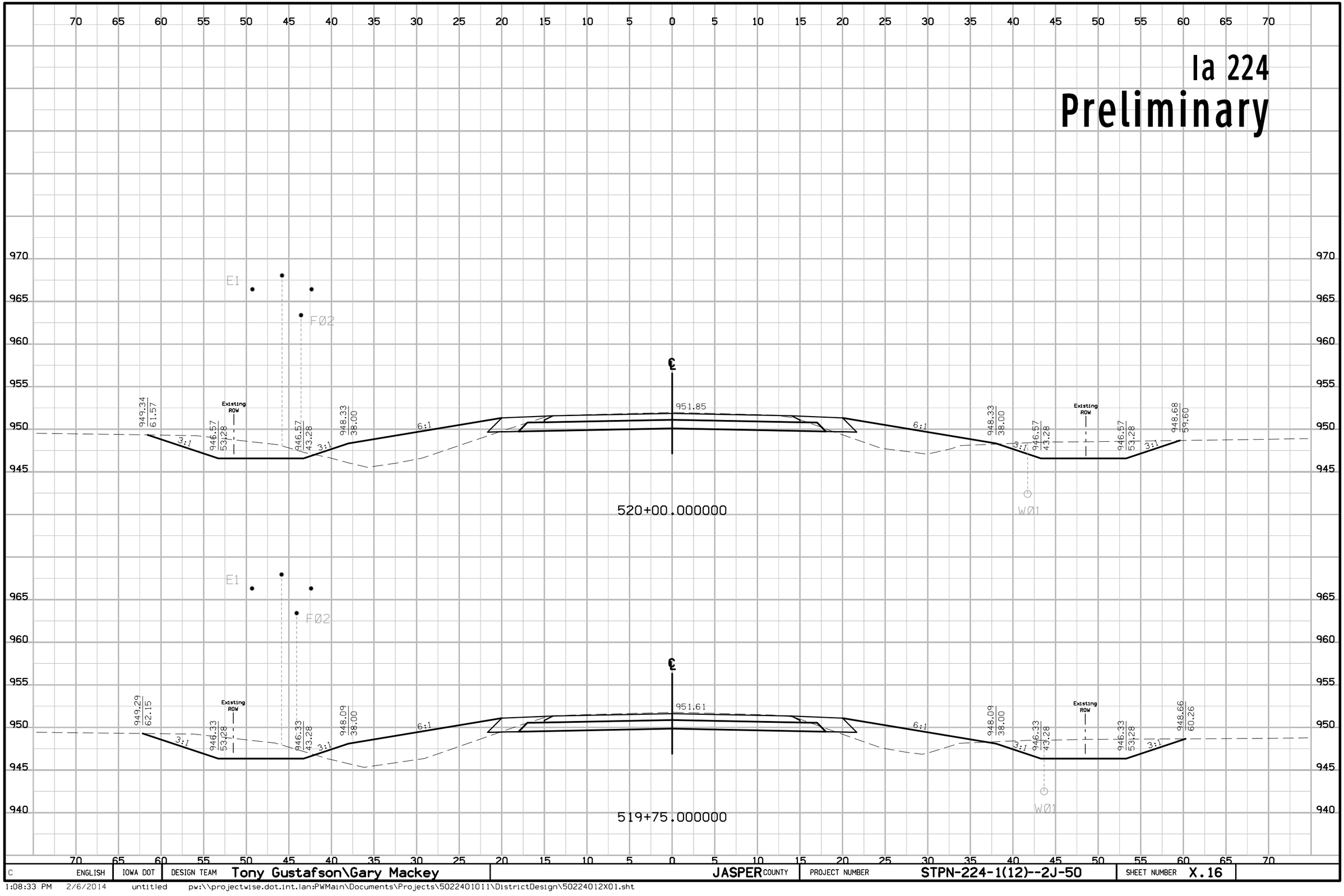
Ia 224
Preliminary



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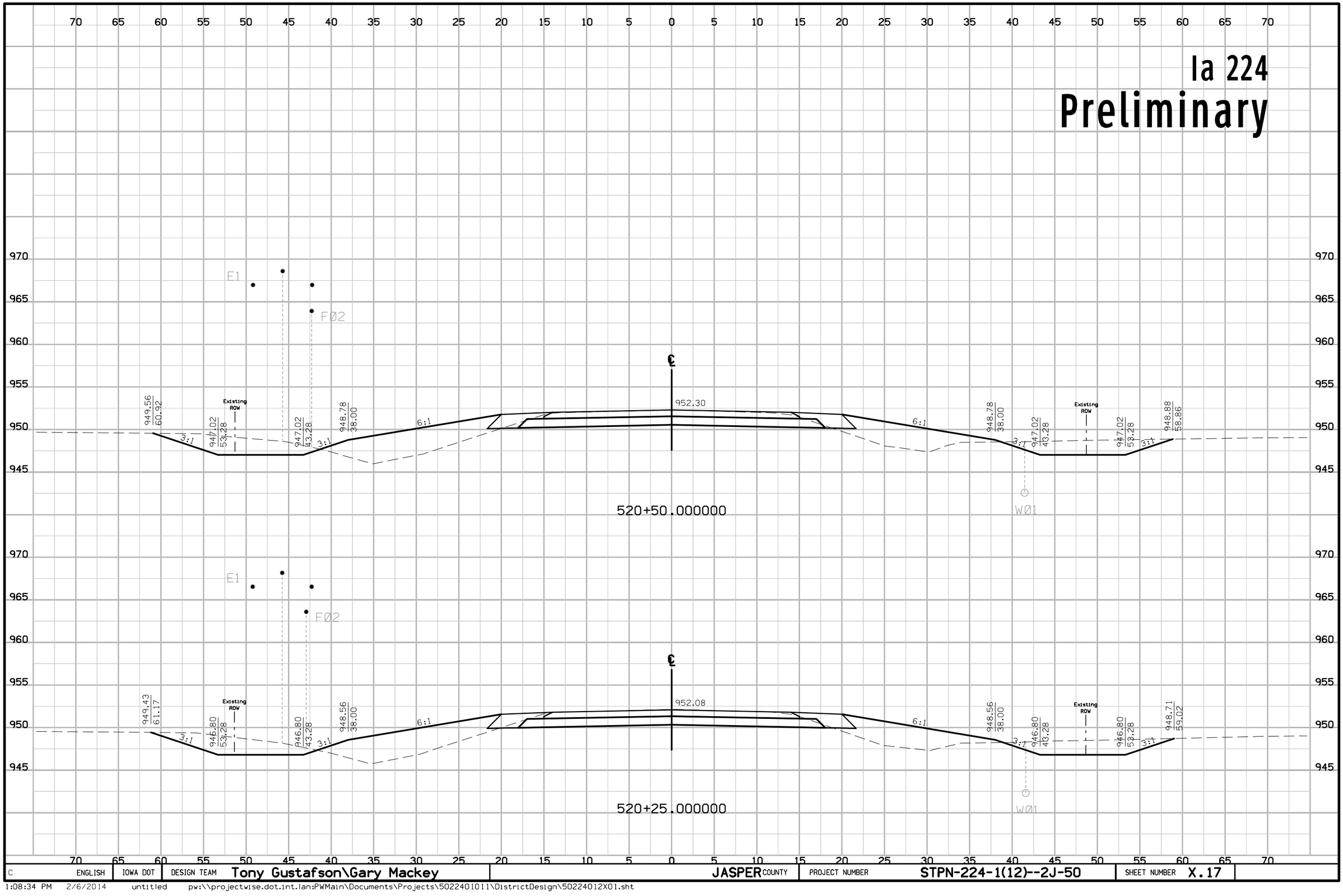
Ia 224

Preliminary



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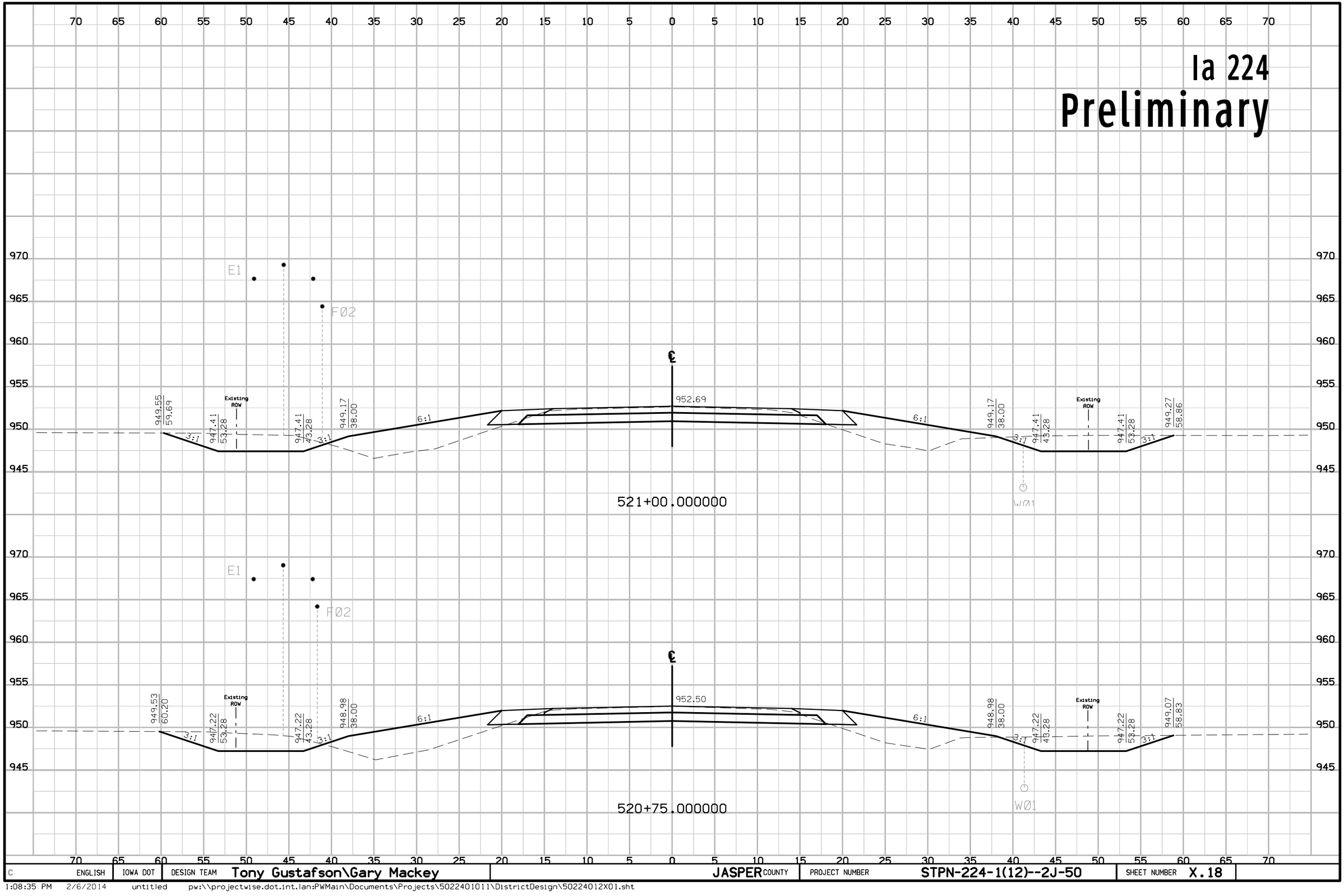
Ia 224

Preliminary



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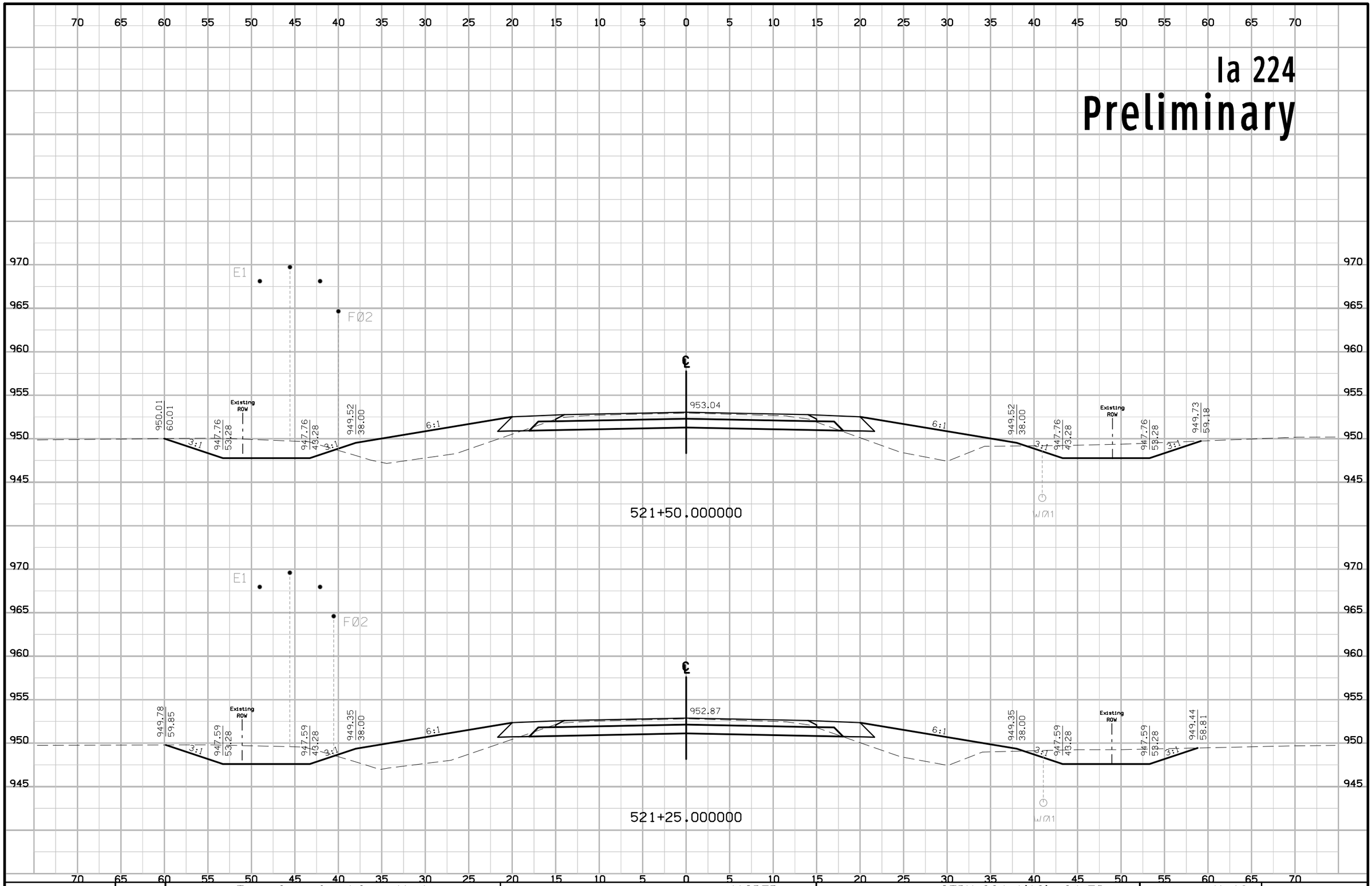
Ia 224

Preliminary



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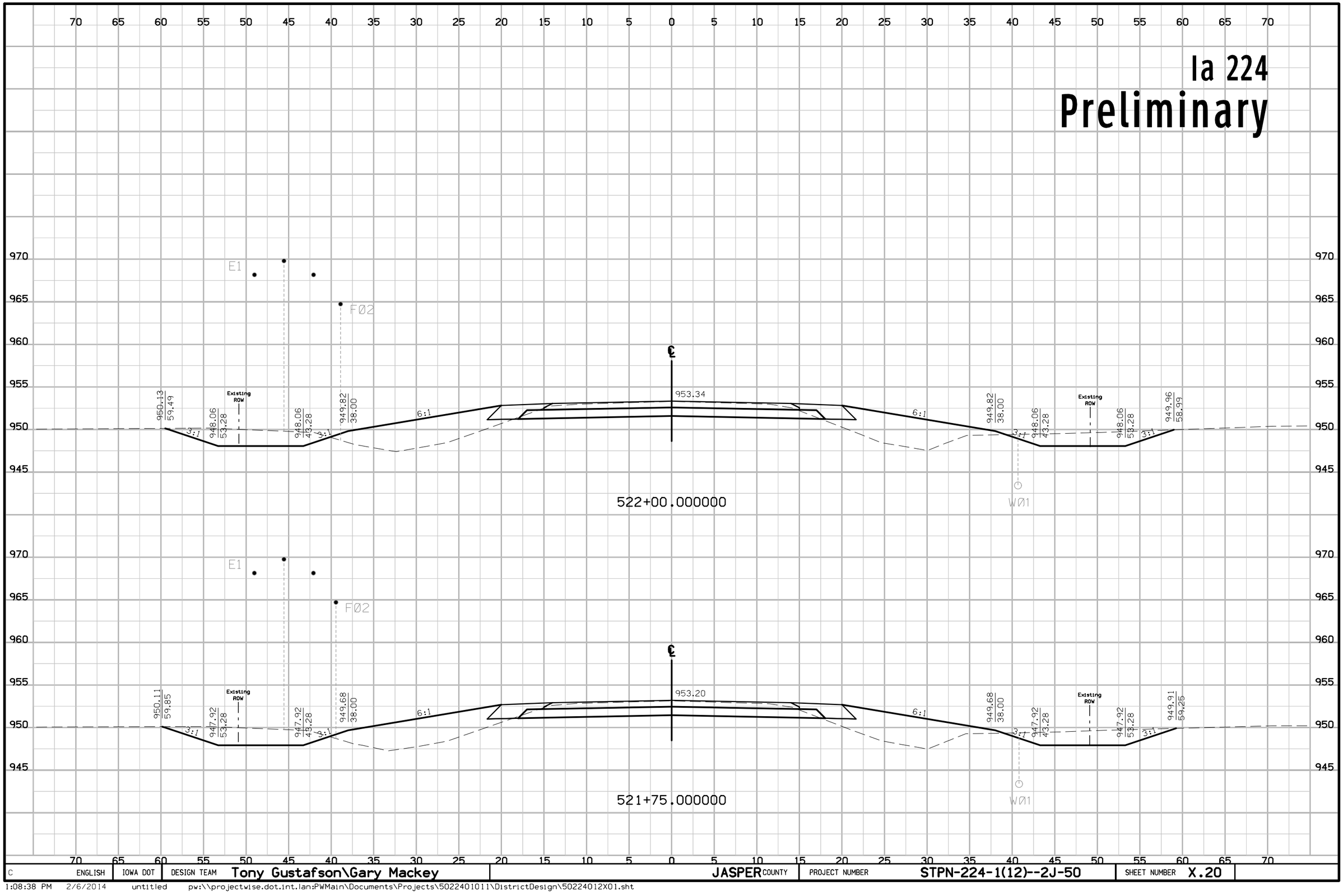
Ia 224

Preliminary



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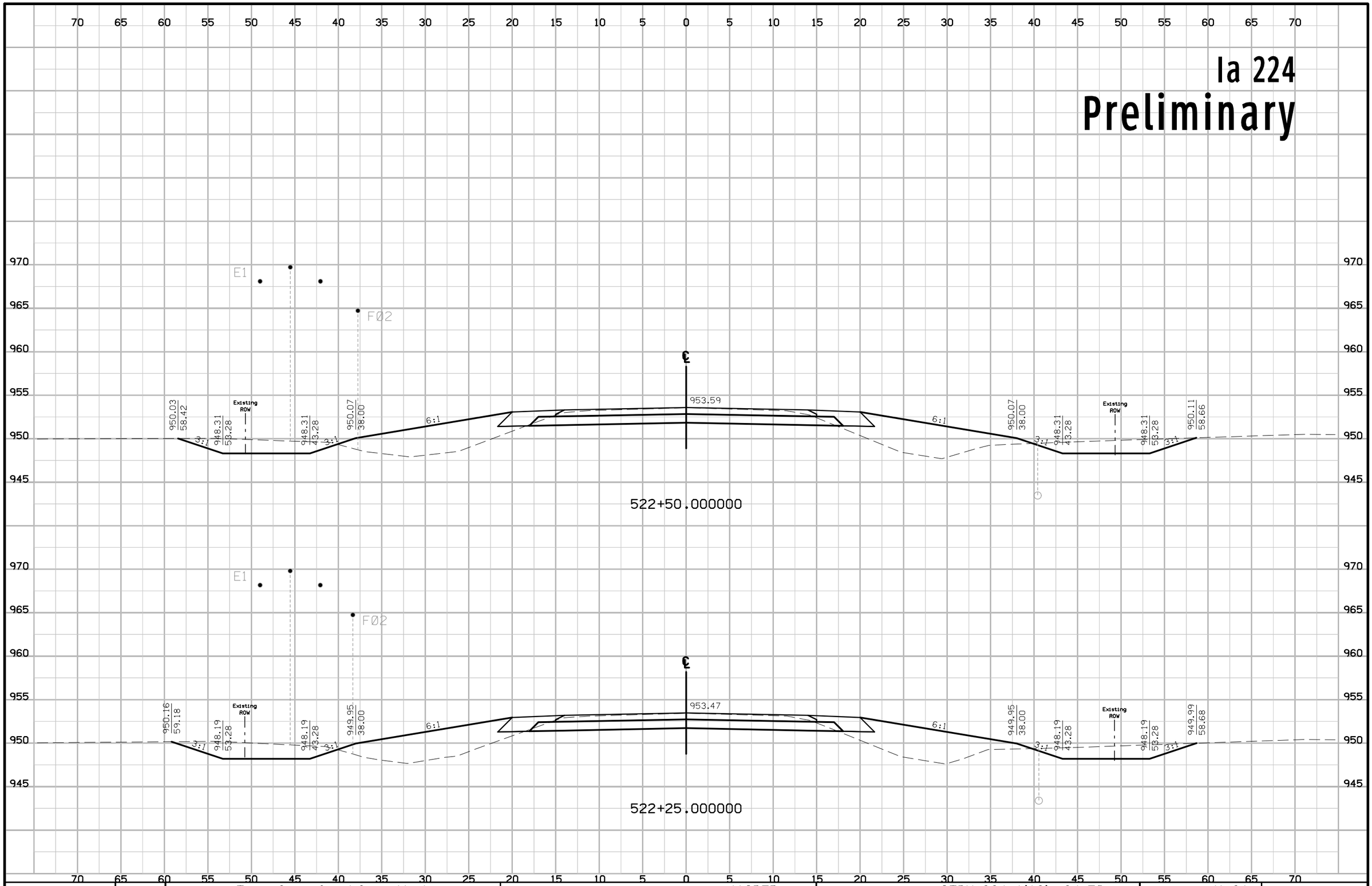
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.21

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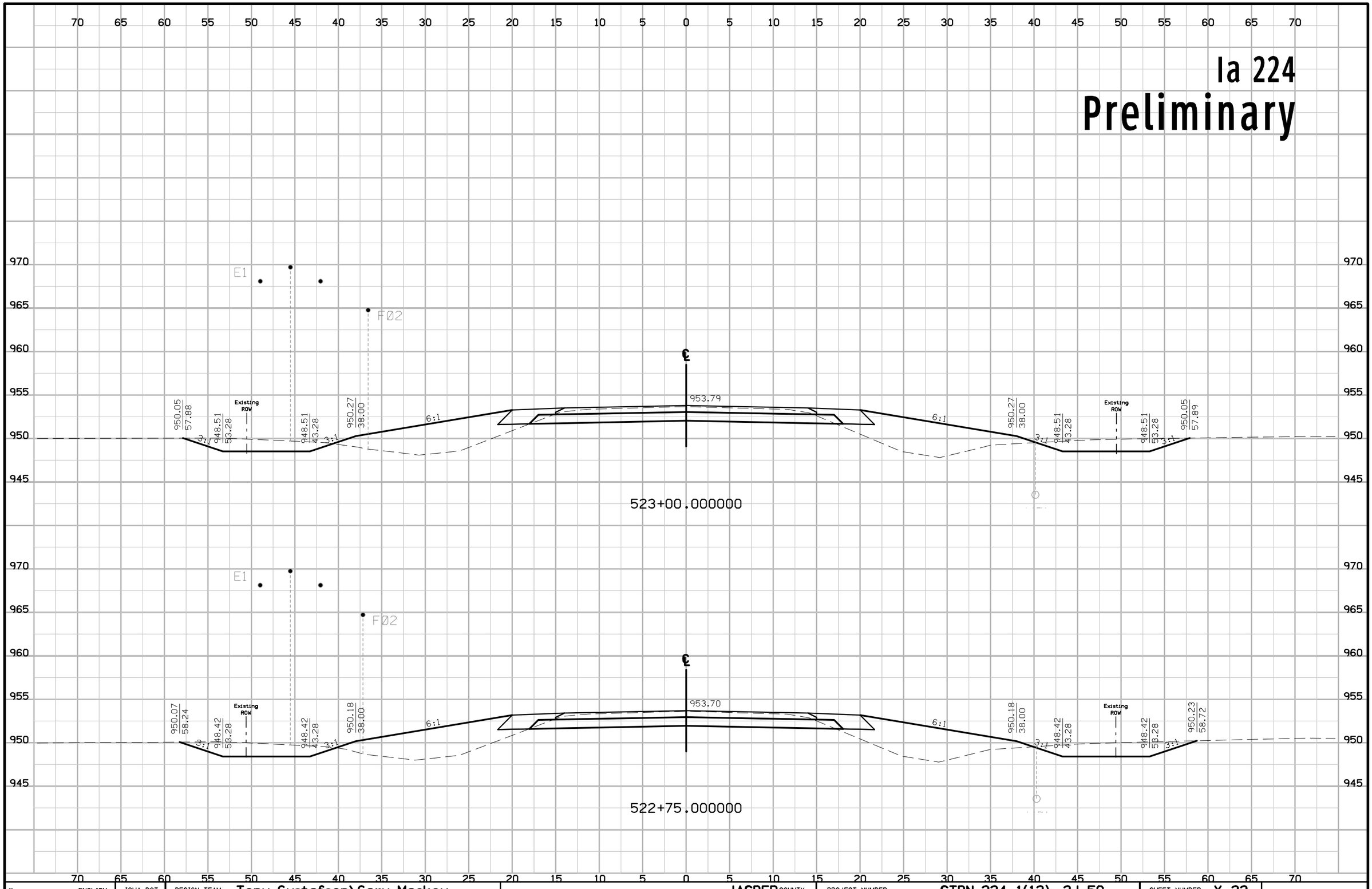
Ia 224

Preliminary



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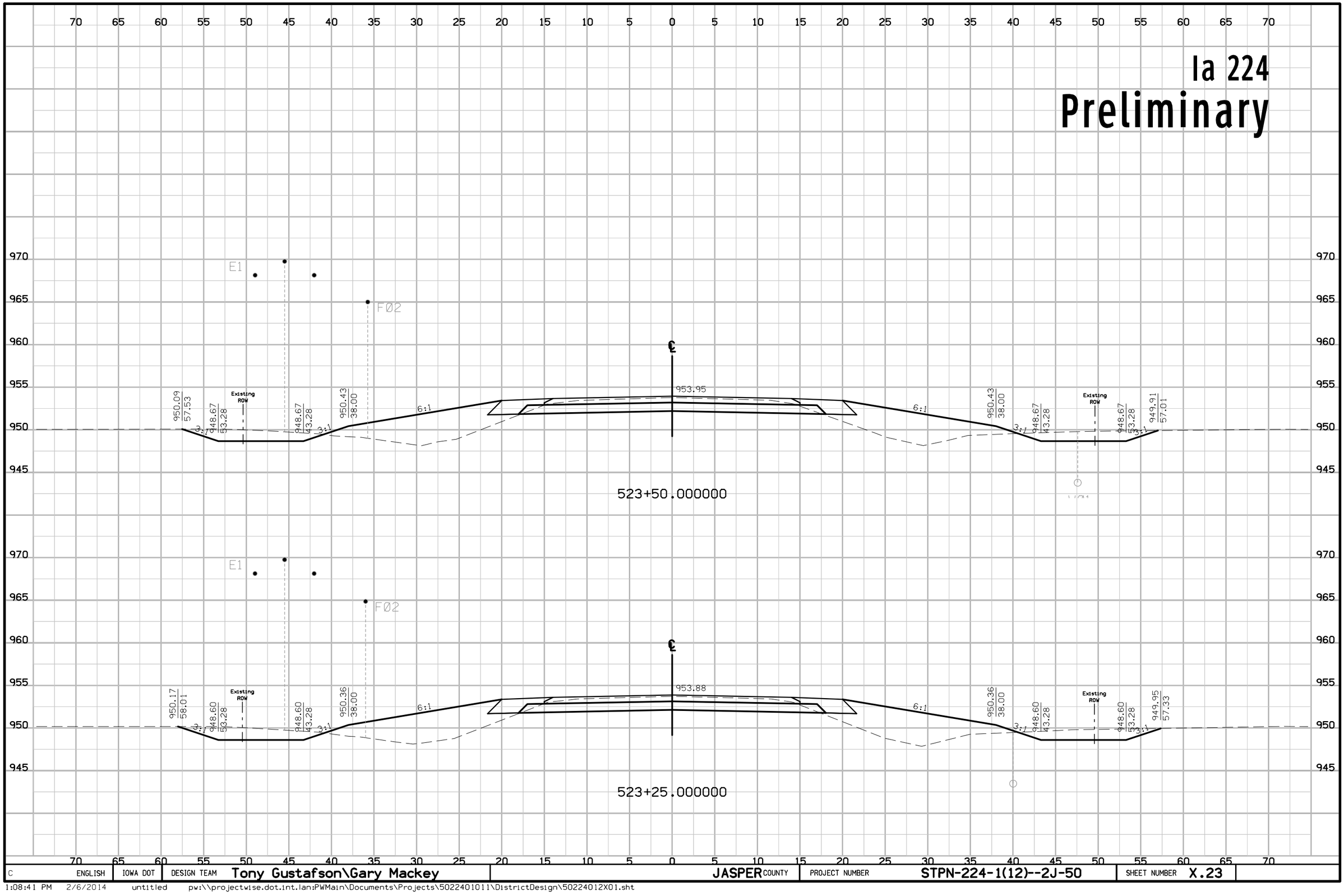
Ia 224

Preliminary



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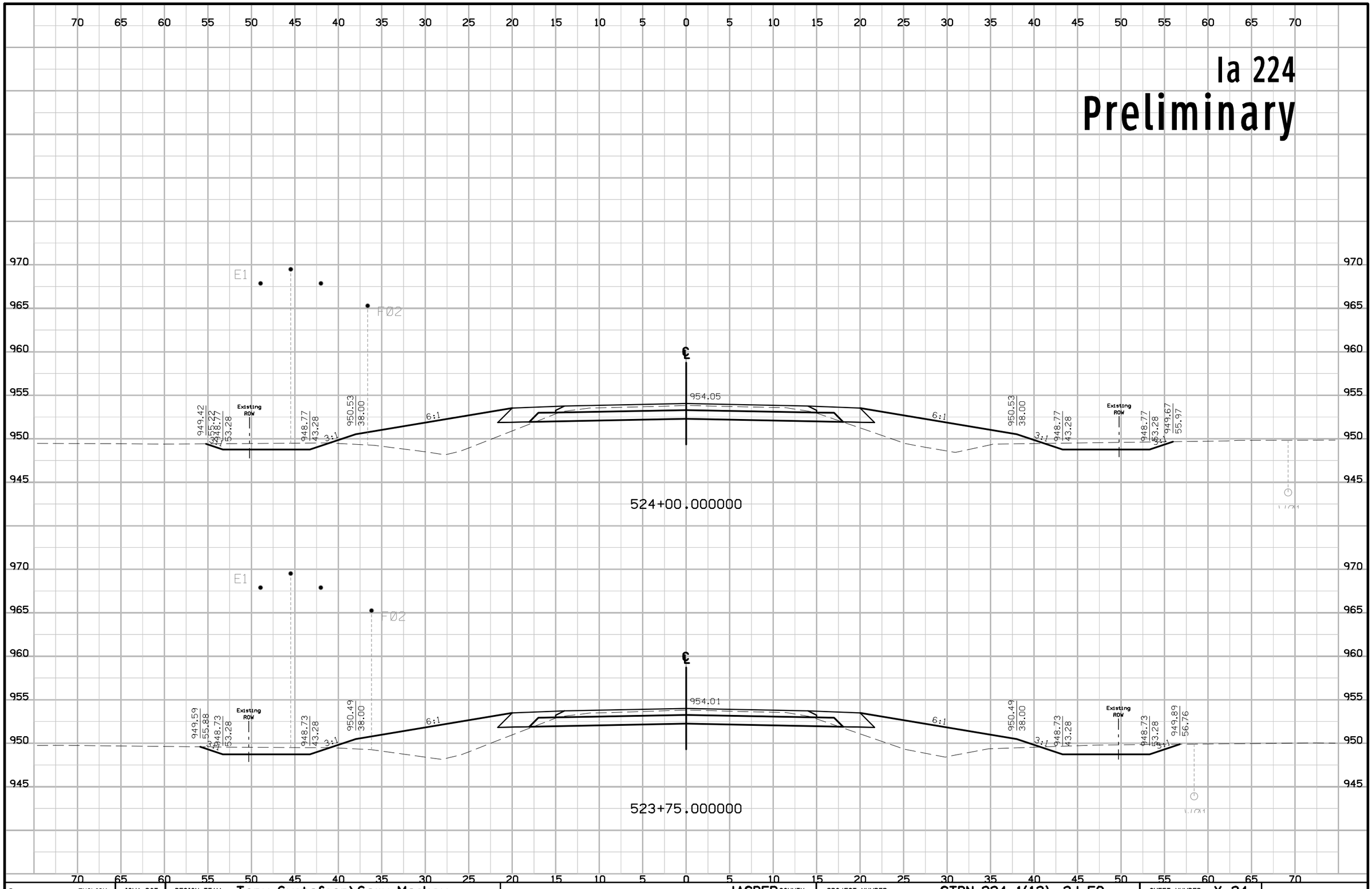
Ia 224

Preliminary



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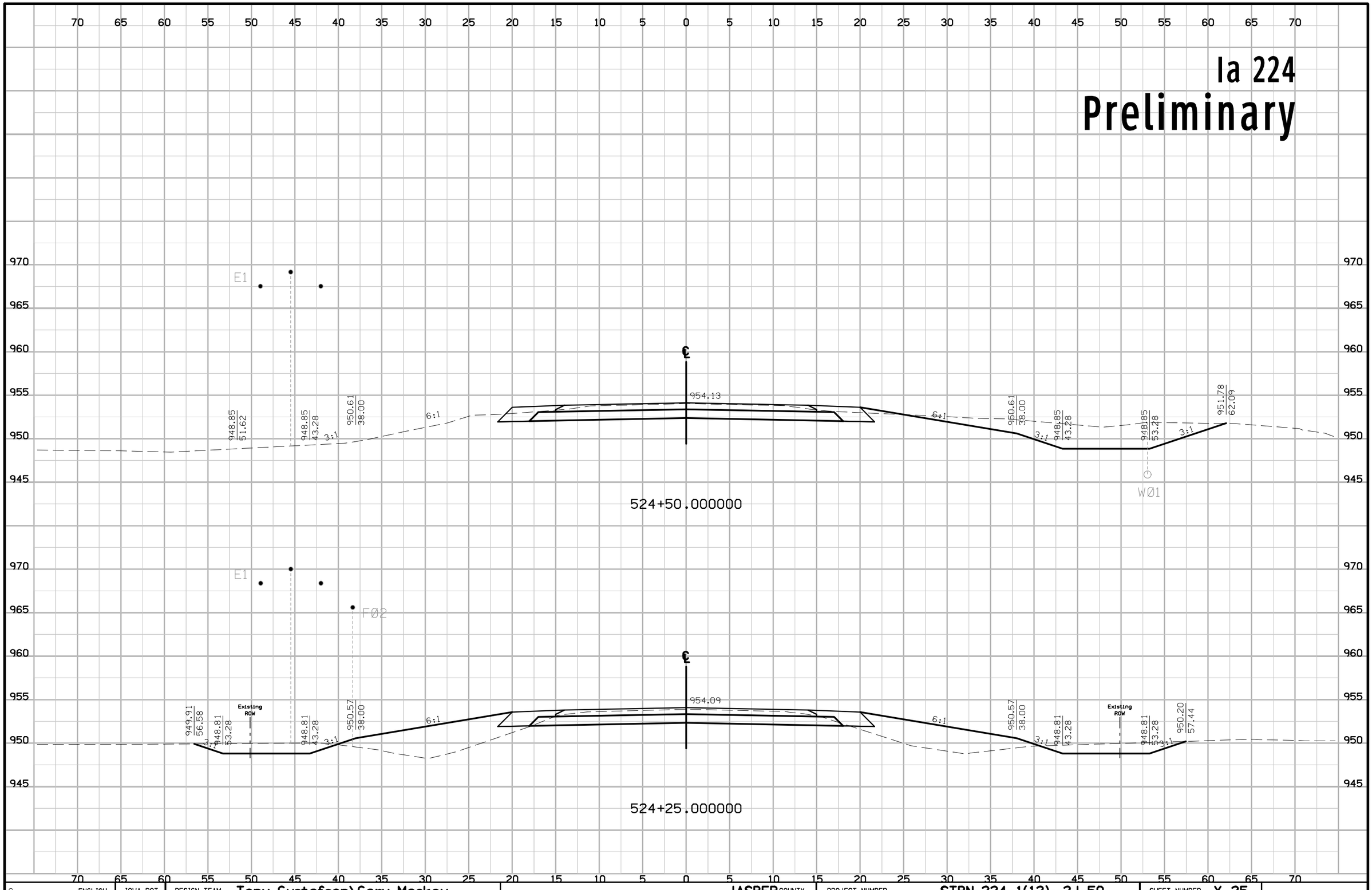
Ia 224

Preliminary



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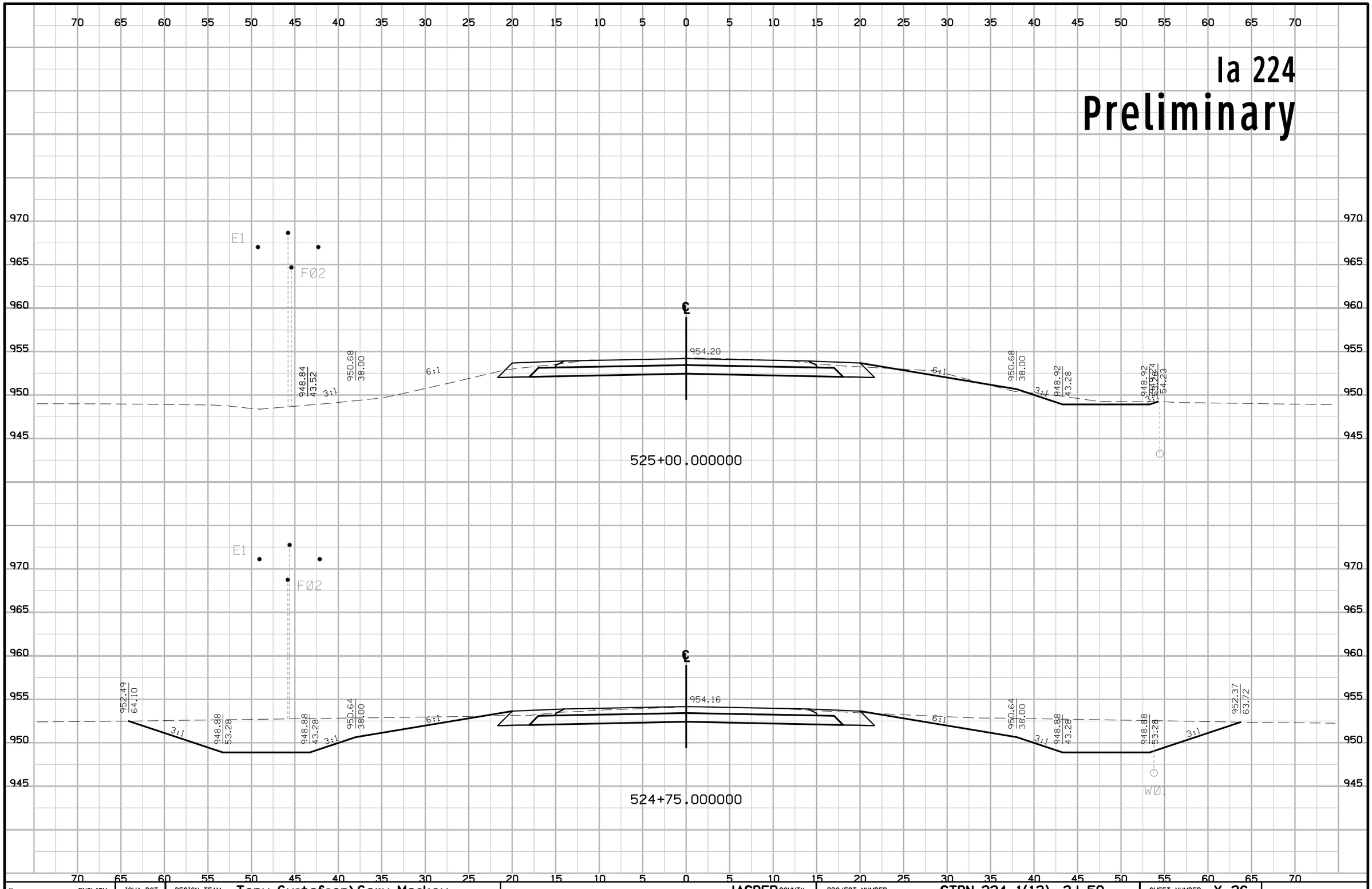
Ia 224

Preliminary



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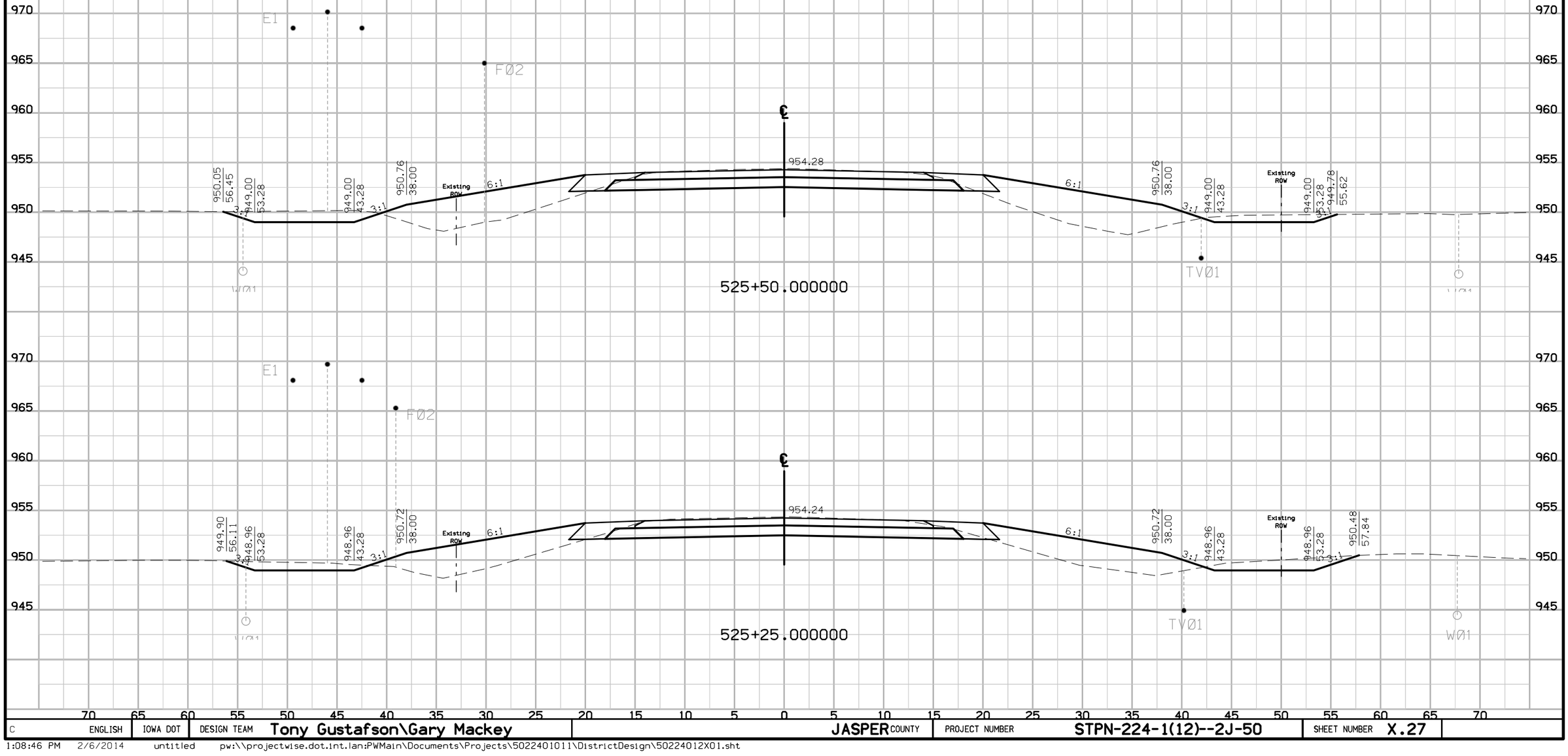
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.27

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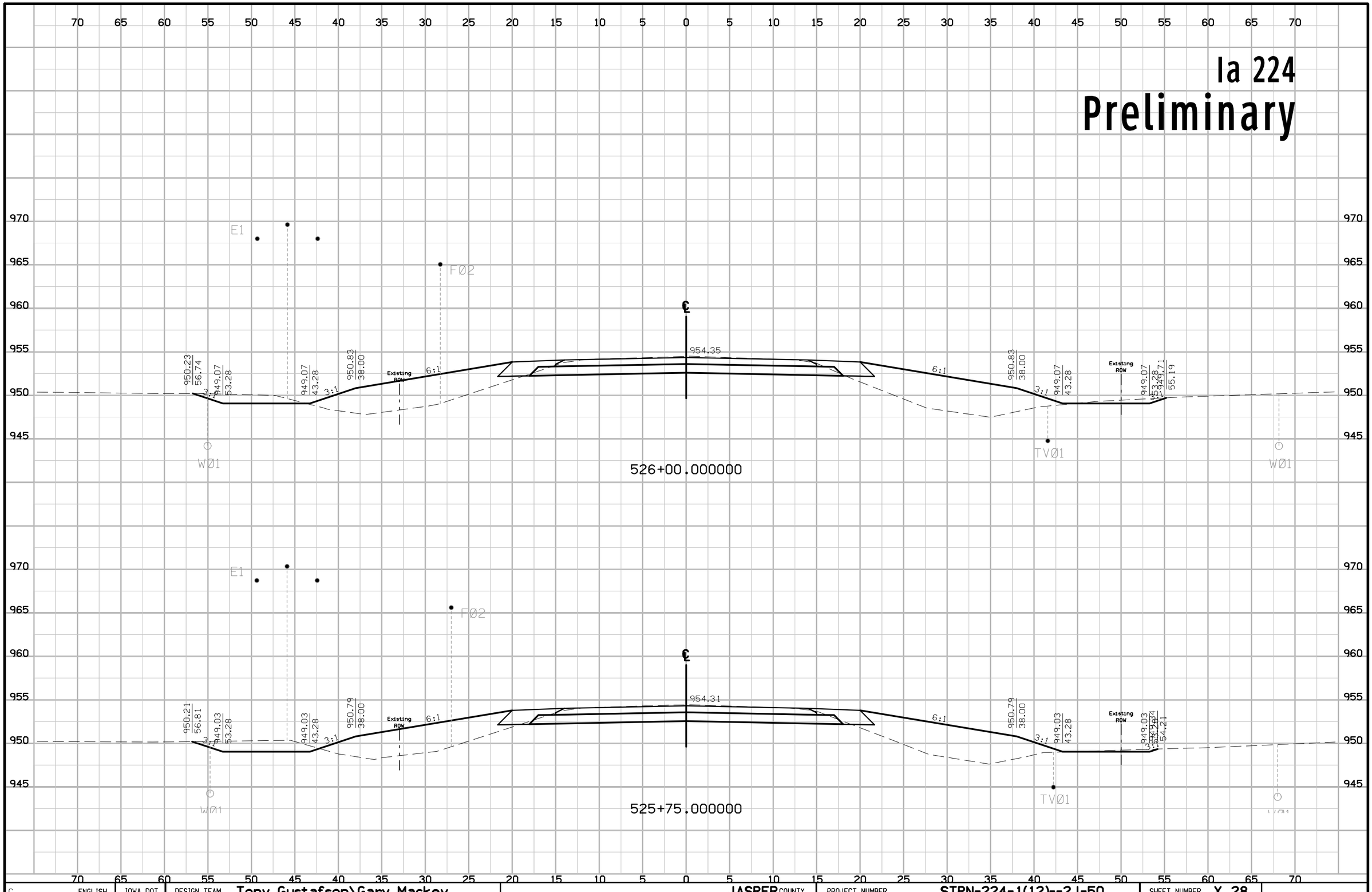
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.28

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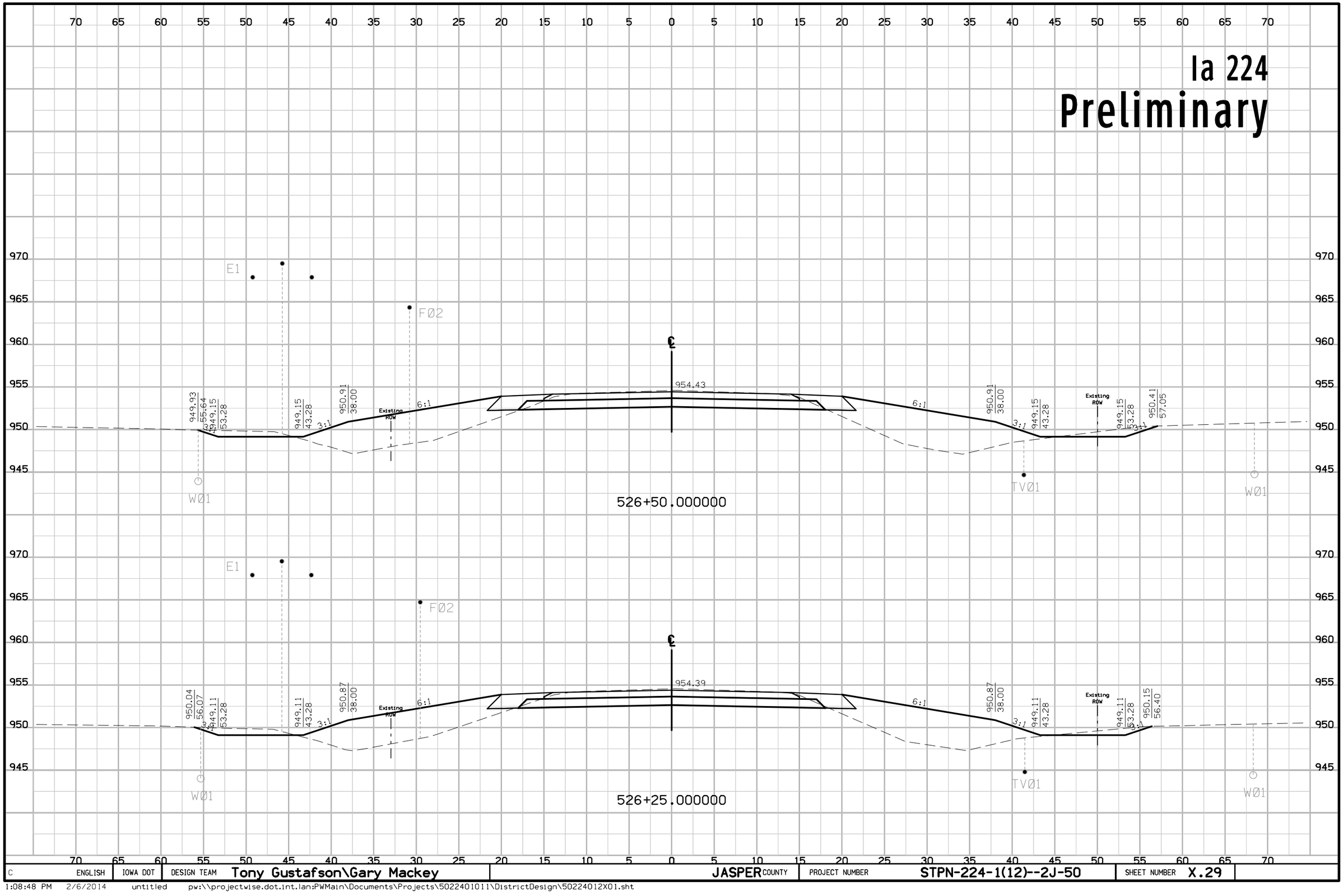
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.29

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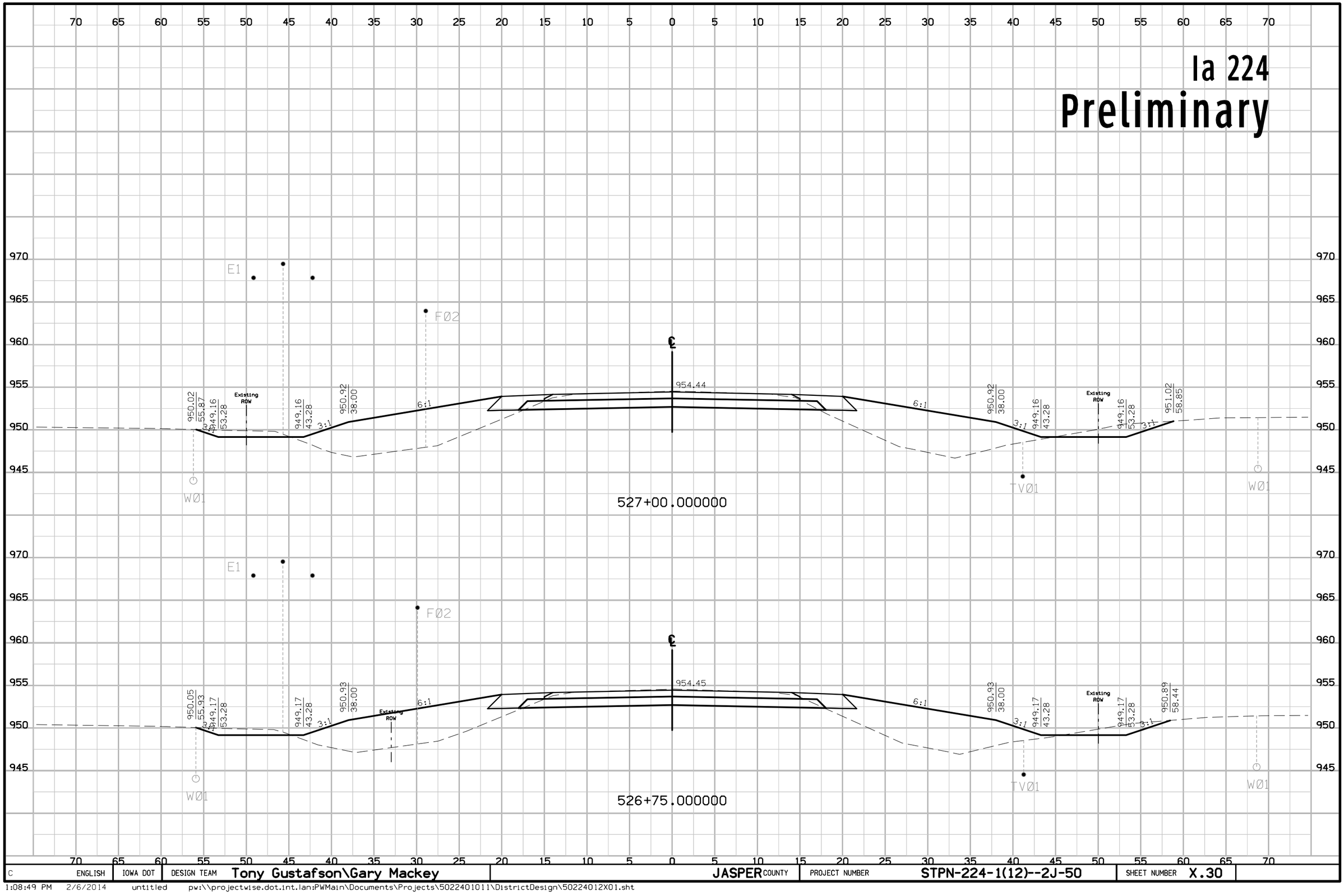
Ia 224

Preliminary



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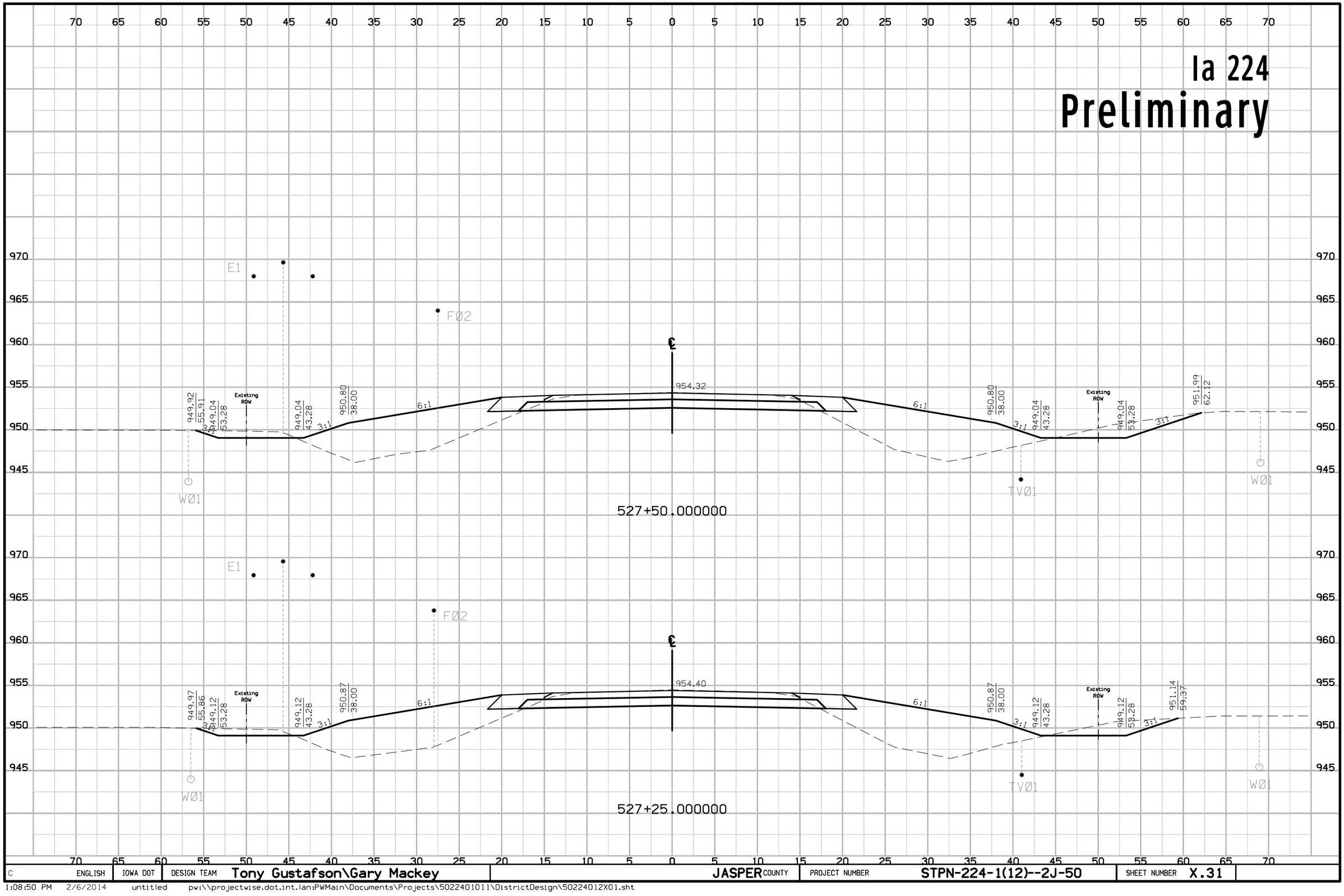
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.31

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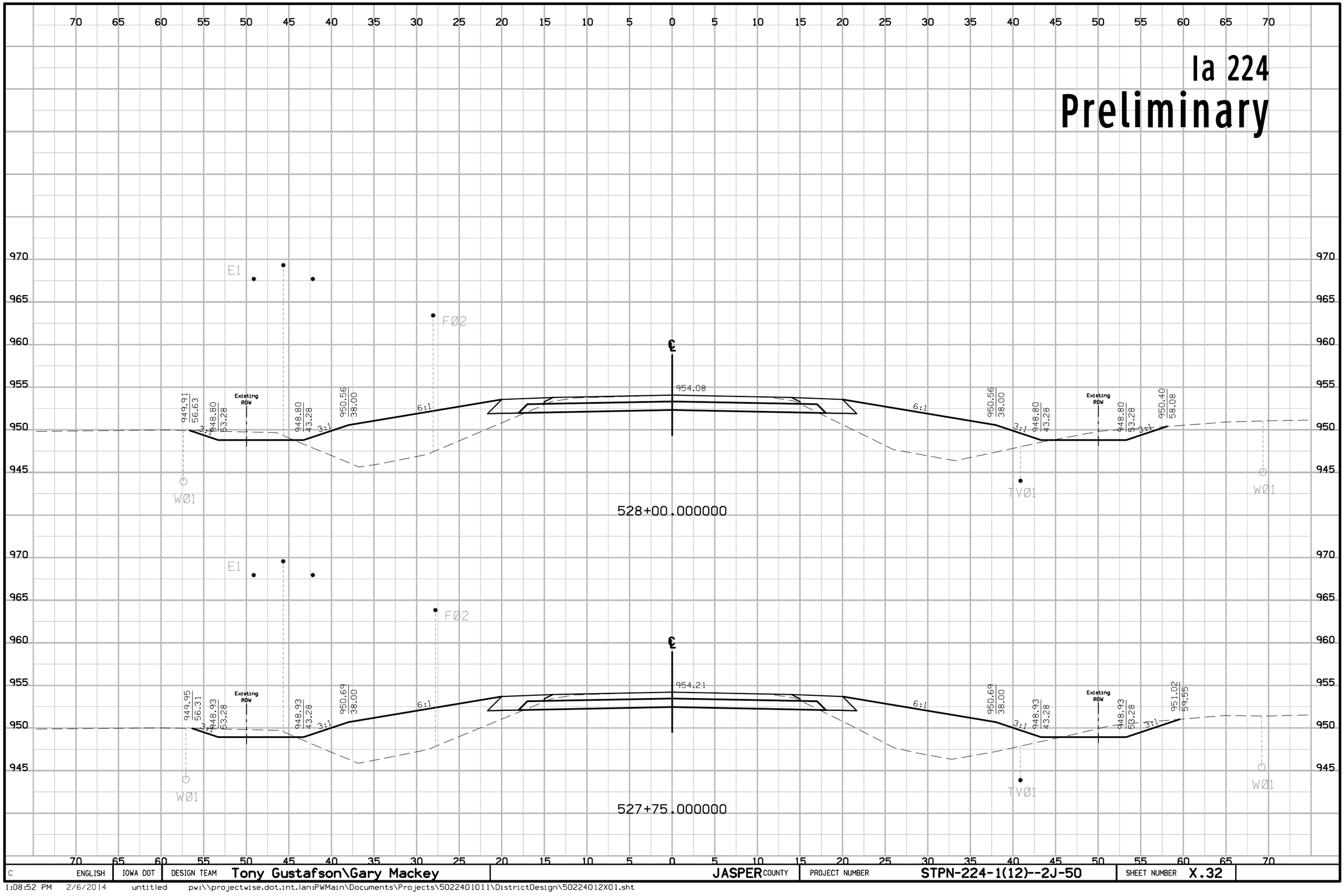
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.32

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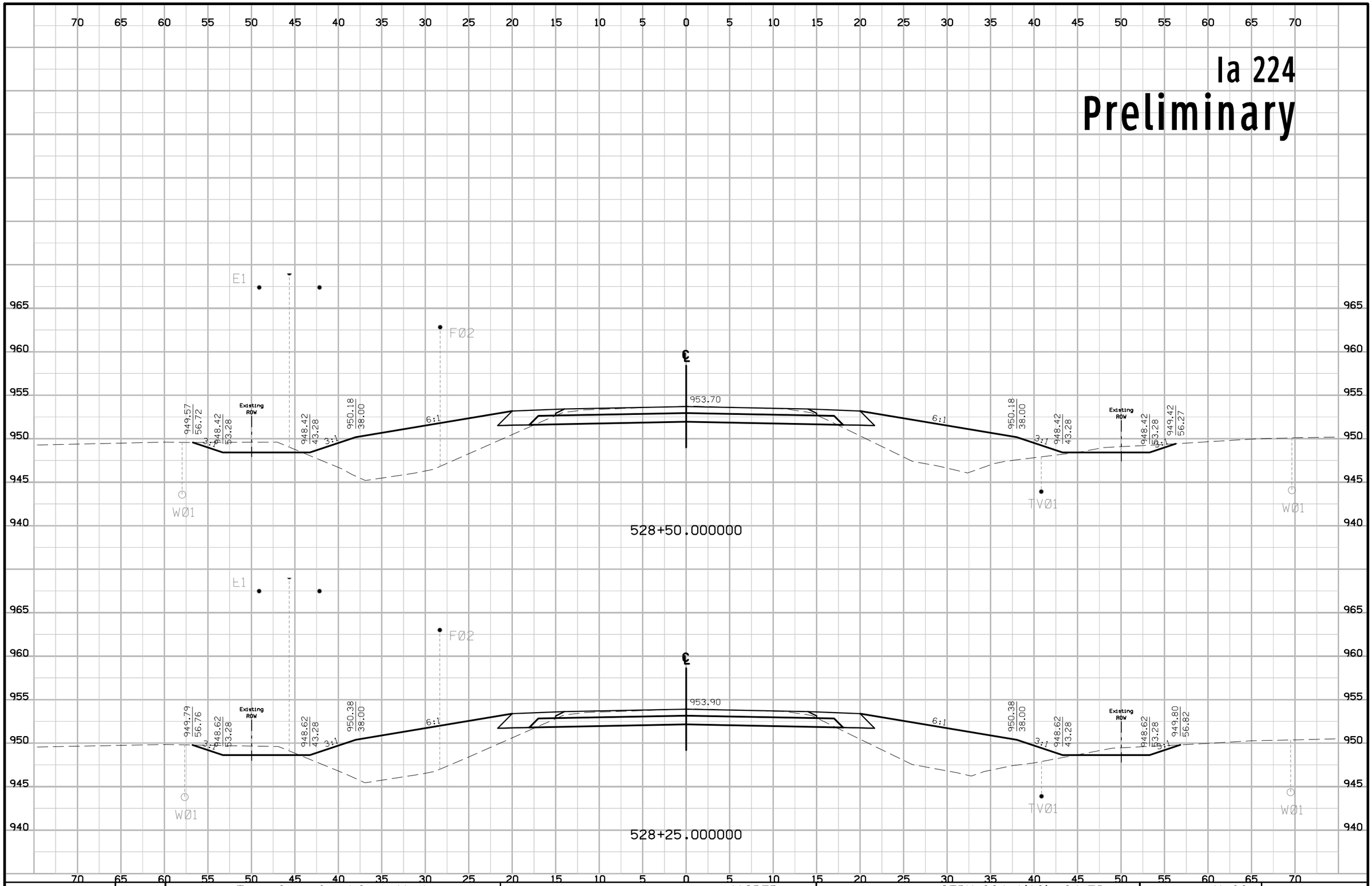
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.33

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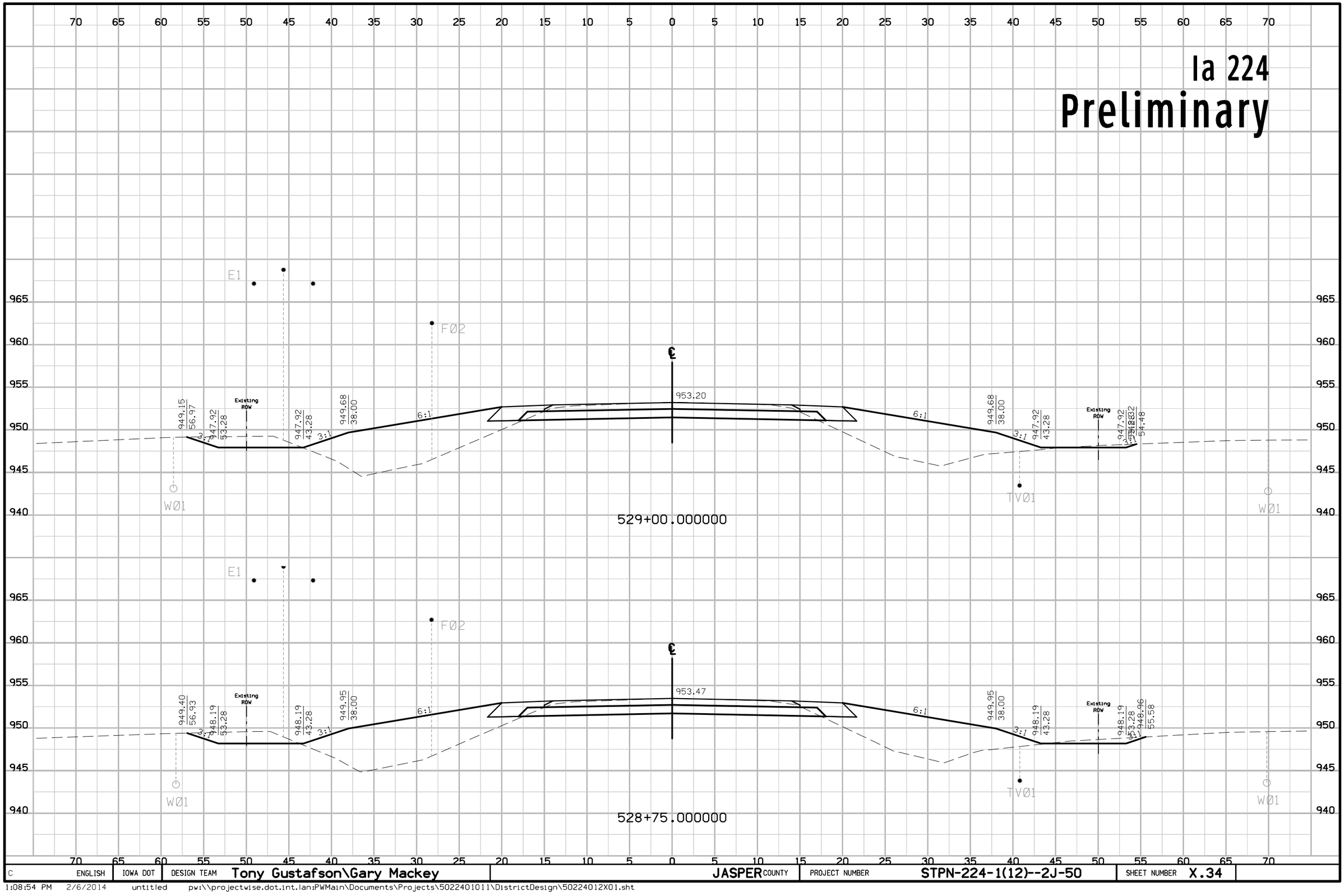
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.34

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

965 960 955 950 945 940

E1 F02 ℄ 952.57

948.17 55.90 | 947.29 53.28 | Existing ROW | 947.29 43.28 | 3:1 | 949.05 38.00 | 6:1 | 6:1 | 949.05 38.00 | 3:1 | 947.29 43.28 | Existing ROW | 947.29 53.28

WØ1 TVØ1 WØ1

529+50.000000

E1 F02 ℄ 952.90

948.72 56.58 | 947.62 53.28 | Existing ROW | 947.62 43.28 | 3:1 | 949.38 38.00 | 6:1 | 6:1 | 949.38 38.00 | 3:1 | 947.62 43.28 | Existing ROW | 947.62 54.27

WØ1 TVØ1 WØ1

529+25.000000

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.35

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

965 960 955 950 945 940

E1 F02 WØ1 TVØ1 WØ1

℄

951.81

947.16 | 55.63 | 946.53 | 53.28 — Existing ROW — 946.53 | 43.28 — 3:1 — 948.29 | 38.00 — 6:1 — 6:1 — 948.29 | 38.00 — 3:1 — 945.86 | 45.29 — Existing ROW

530+00.000000

E1 F02 WØ1 TVØ1 WØ1

℄

952.21

947.72 | 55.67 | 946.93 | 53.28 — Existing ROW — 946.93 | 43.28 — 3:1 — 948.69 | 38.00 — 6:1 — Existing ROW — 946.76 | 49.68

529+75.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.36

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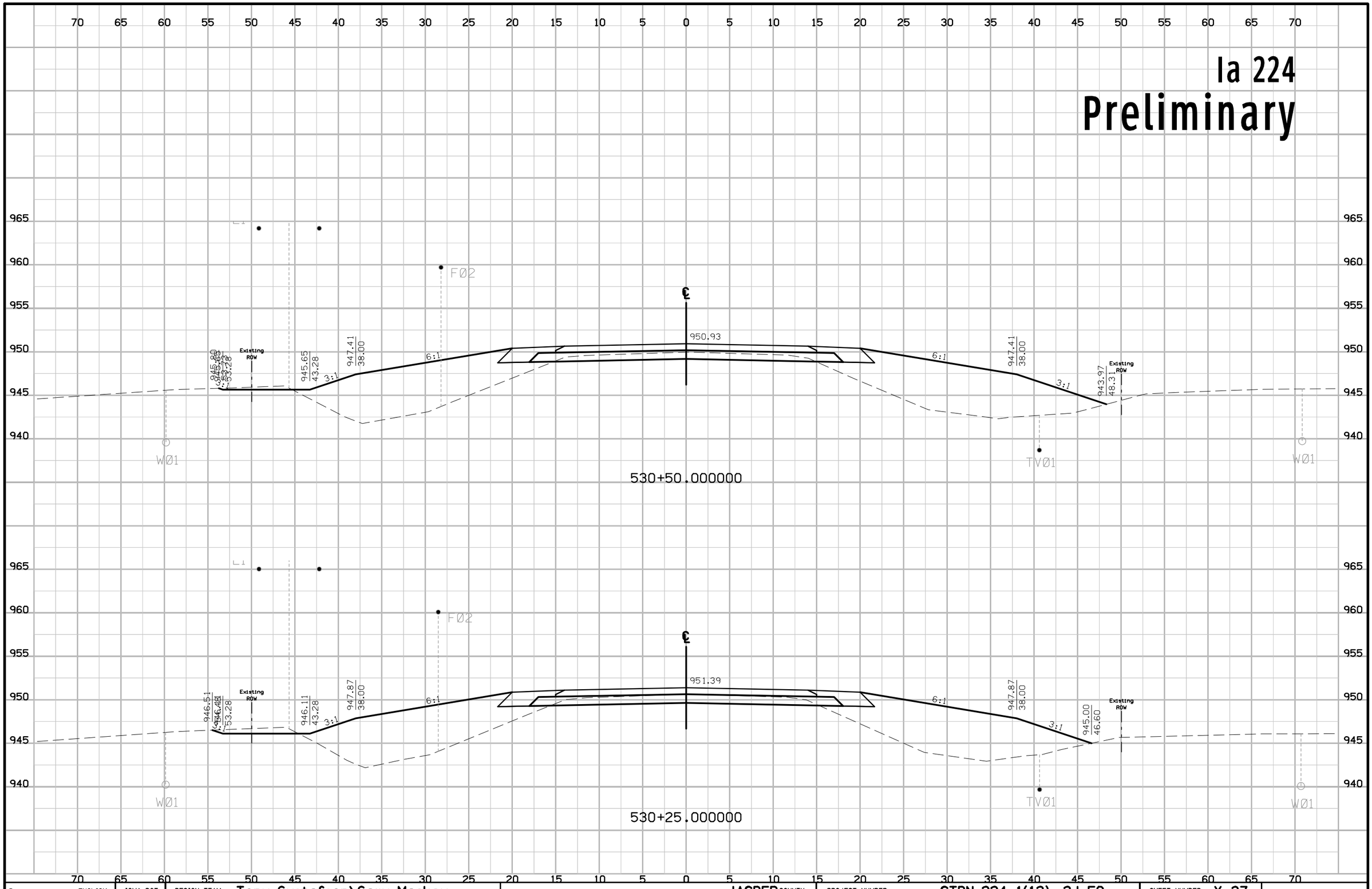
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.37

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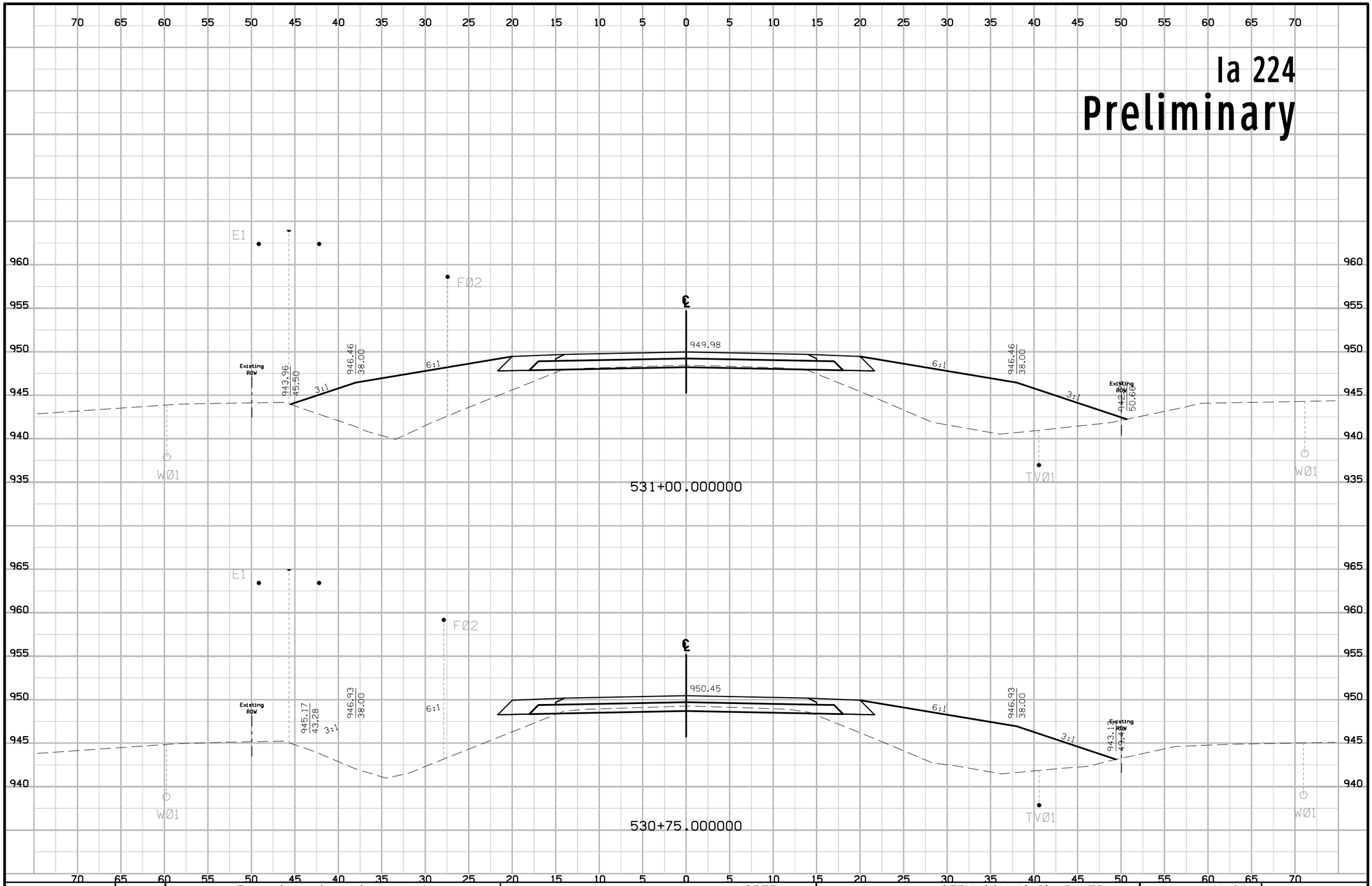
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.38

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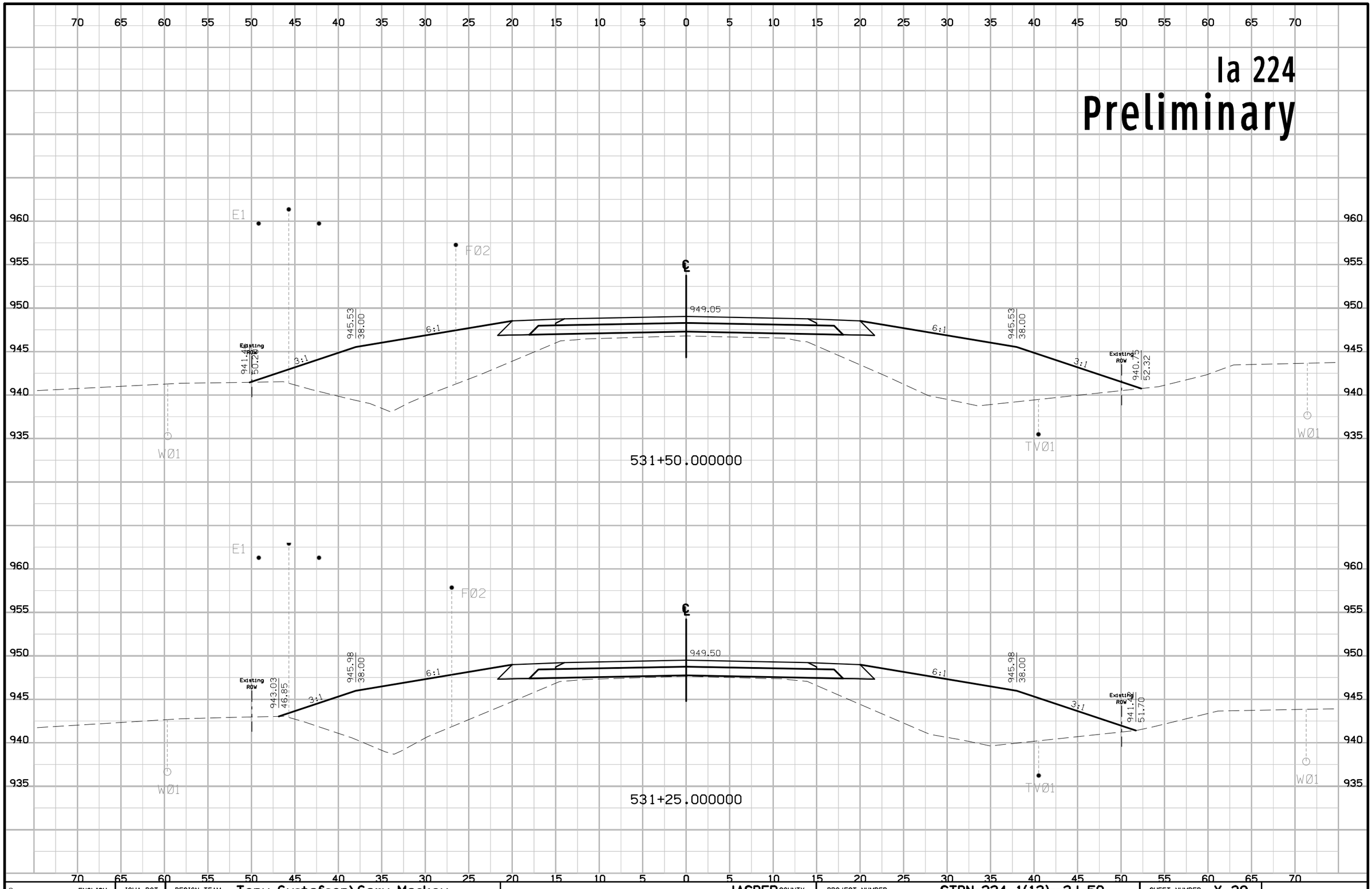
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.39

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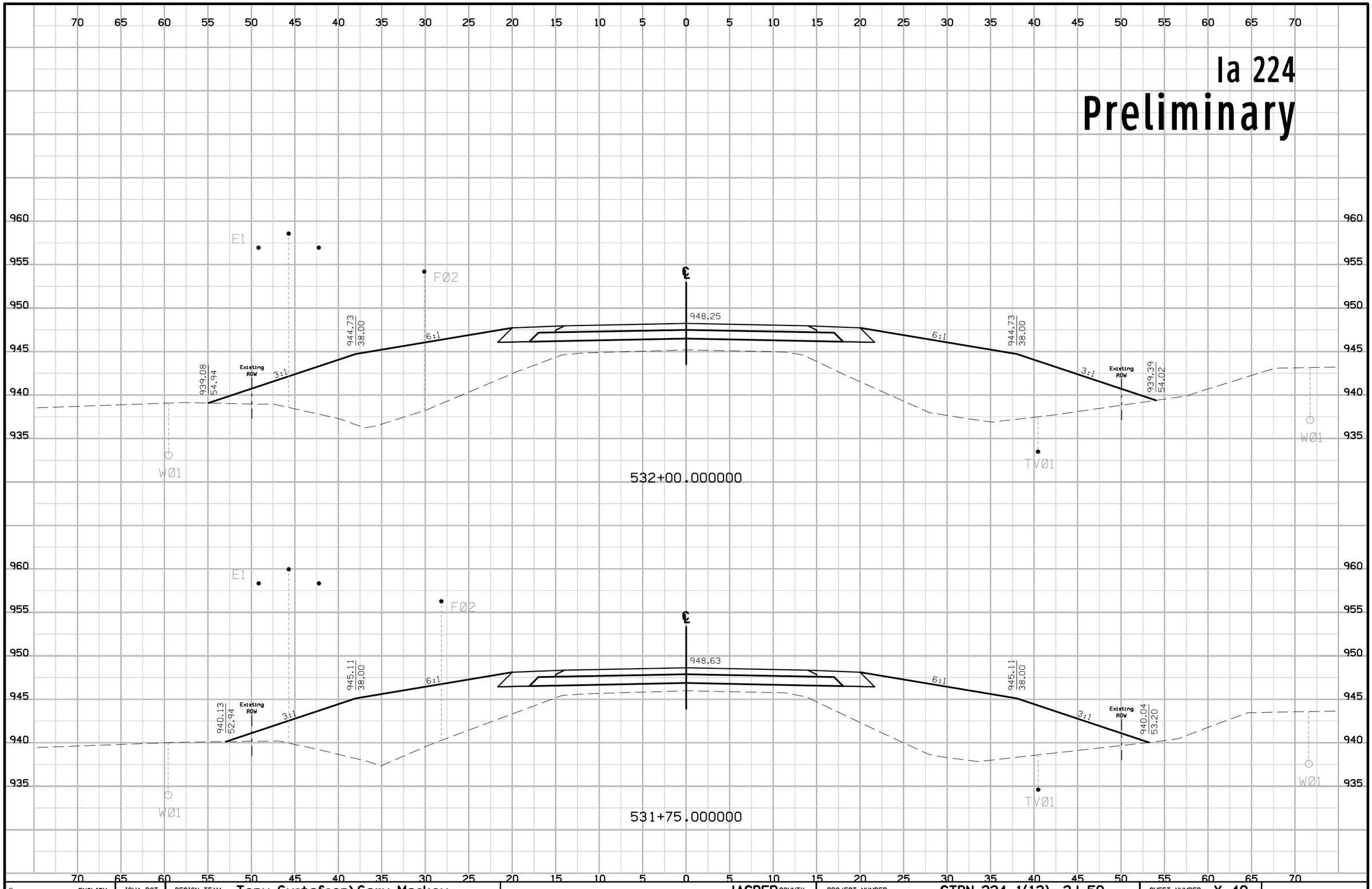
Ia 224

Preliminary



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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

955 950 945 940 935 930

E1

FØ2

℄

947.60

944.08
38.00

6:1

936.49
60.76

Existing ROW

944.08
38.00

6:1

3

Existing ROW

937.10
58.94

TVØ1

WØ1

532+50.000000

960 955 950 945 940 935

E1

FØ2

℄

947.90

944.38
38.00

6:1

938.51
55.62

Existing ROW

3:1

944.38
38.00

6:1

3:1

Existing ROW

938.58
55.41

WØ1

TVØ1

WØ1

532+25.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.41

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

955 950 945 940 935 930

E1

FØ2

℄

947.10

943.58
38.00

6:1

3:1
Existing
ROW

937.11
57.41

WØ1

943.58
38.00

6:1

3:1
Existing
ROW

935.46
62.35

TVØ1

WØ1

533+00.000000

E1

FØ2

℄

947.33

943.81
38.00

6:1

3:1
Existing
ROW

936.07
61.22

WØ1

943.81
38.00

6:1

3:1
Existing
ROW

937.04
58.30

TVØ1

WØ1

532+75.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.42

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

940 935 930 925 920 915

937.31
59.32
Existing ROW
3.17:1
WØ1
TVØ1
Existing ROW
3.13:1

533+25.840000

950 945 940 935 930 925

FØ2
946.90
943.38
38.00
6:1
6:1
943.38
38.00
937.28
56.30
Existing ROW
3:1
3:1
931.62
73.28
Existing ROW
WØ1
TVØ1
WØ1

533+25.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.43

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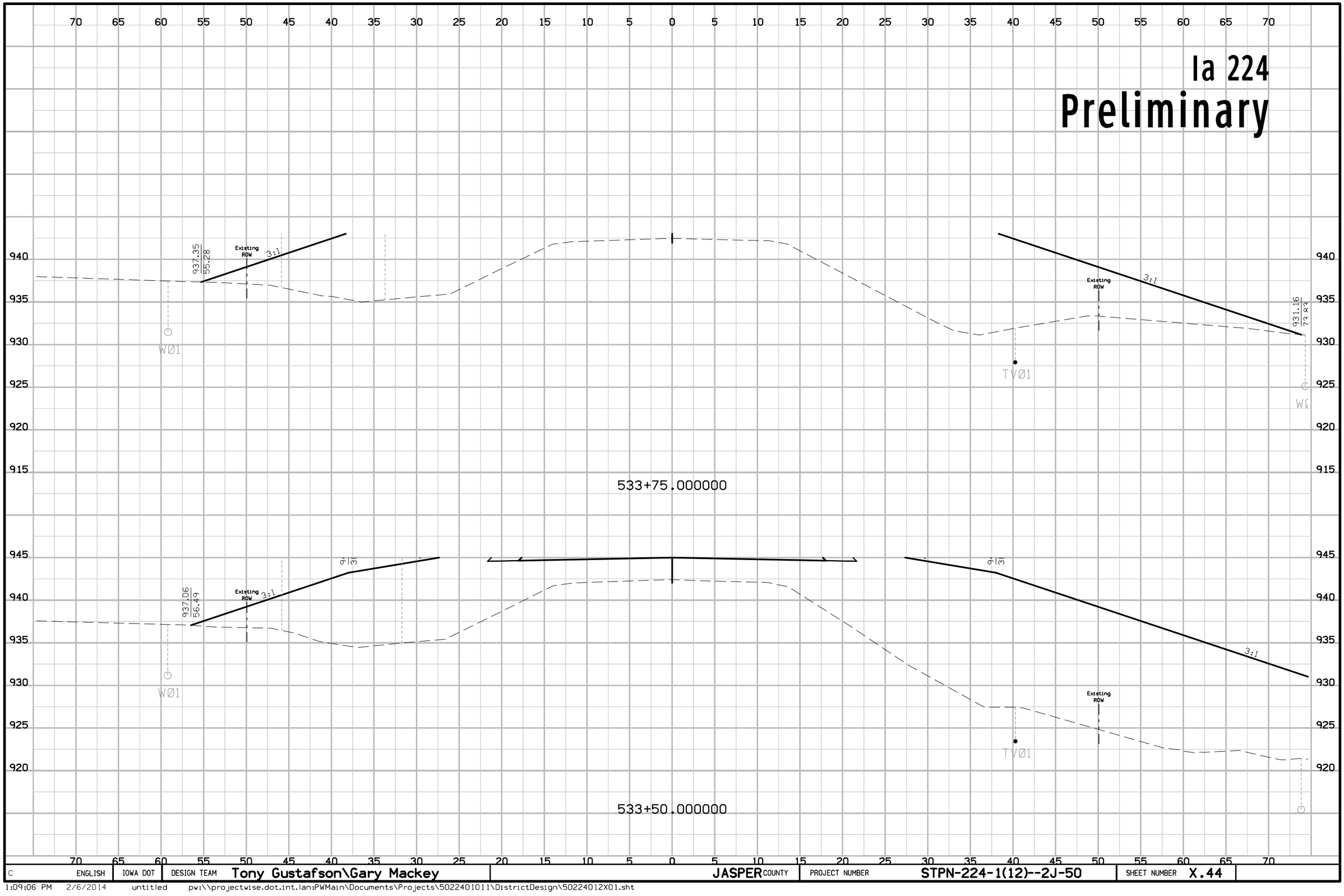
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.44

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

950 945 940 935 930 925

F02

℄

946.50

942.98
38.00

6:1

937.80
53.56

Existing ROW

3:1

6:1

942.98
38.00

Existing ROW

3:1

933.59
66.19

WØ1

TVØ1

W℄

534+25.000000

946.55

943.03
38.00

6:1

937.53
54.48

Existing ROW

3:1

6:1

943.03
38.00

Existing ROW

3:1

932.69
69.02

WØ1

TVØ1

W℄

534+00.000000

950 945 940 935 930 925 920

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.45

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

955 950 945 940 935 930

F02

℄

946.53

943.01
38.00

6:1

938.51
51.49
Existing ROW

3:1

6:1

943.01
38.00

3:1

Existing ROW

937.22
55.36

W01

TV01

W01

534+75.000000

955 950 945 940 935 930

F02

℄

946.50

942.98
38.00

6:1

938.18
52.38
Existing ROW

3:1

6:1

942.98
38.00

Existing ROW

935.60
60.13

W01

TV01

W0

534+50.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.46

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

960 955 950 945 940 935

F02

℄

946.70

941.56
53.26
Existing ROW
941.42
43.28
3:1
943.18
38.00
6:1

941.28
49.25
Existing ROW

W01

TV01

W01

535+25.000000

E1

F02

℄

946.60

943.08
38.00
6:1
Existing ROW
939.36
48.84
3:1

943.08
38.00
6:1
939.47
48.80
Existing ROW
3:1

W01

TV01

W01

535+00.000000

960 955 950 945 940 935 930

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.47

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

960 955 950 945 940 935

947.04 / 69.15 — 3:1 — 941.75 / 53.28 — Existing ROW — 941.75 / 43.28 — 3:1 — 943.51 / 38.00 — 6:1 — ℄ 947.03 — 6:1 — 943.51 / 38.00 — 3:1 — 941.75 / 43.28 — Existing ROW — 941.75 / 53.28 — 3:1 — 943.84 / 59.56

F02 W01 TV01 W01

535+75.000000

944.88 / 63.22 — 3:1 — 941.57 / 53.28 — Existing ROW — 941.57 / 43.28 — 3:1 — 943.33 / 88.00 — 6:1 — ℄ 946.85 — 6:1 — 943.33 / 38.00 — 3:1 — 941.57 / 43.28 — Existing ROW — 941.57 / 53.28 — 3:1 — 942.55 / 56.24

F02 W01 TV01 W01

535+50.000000

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.48

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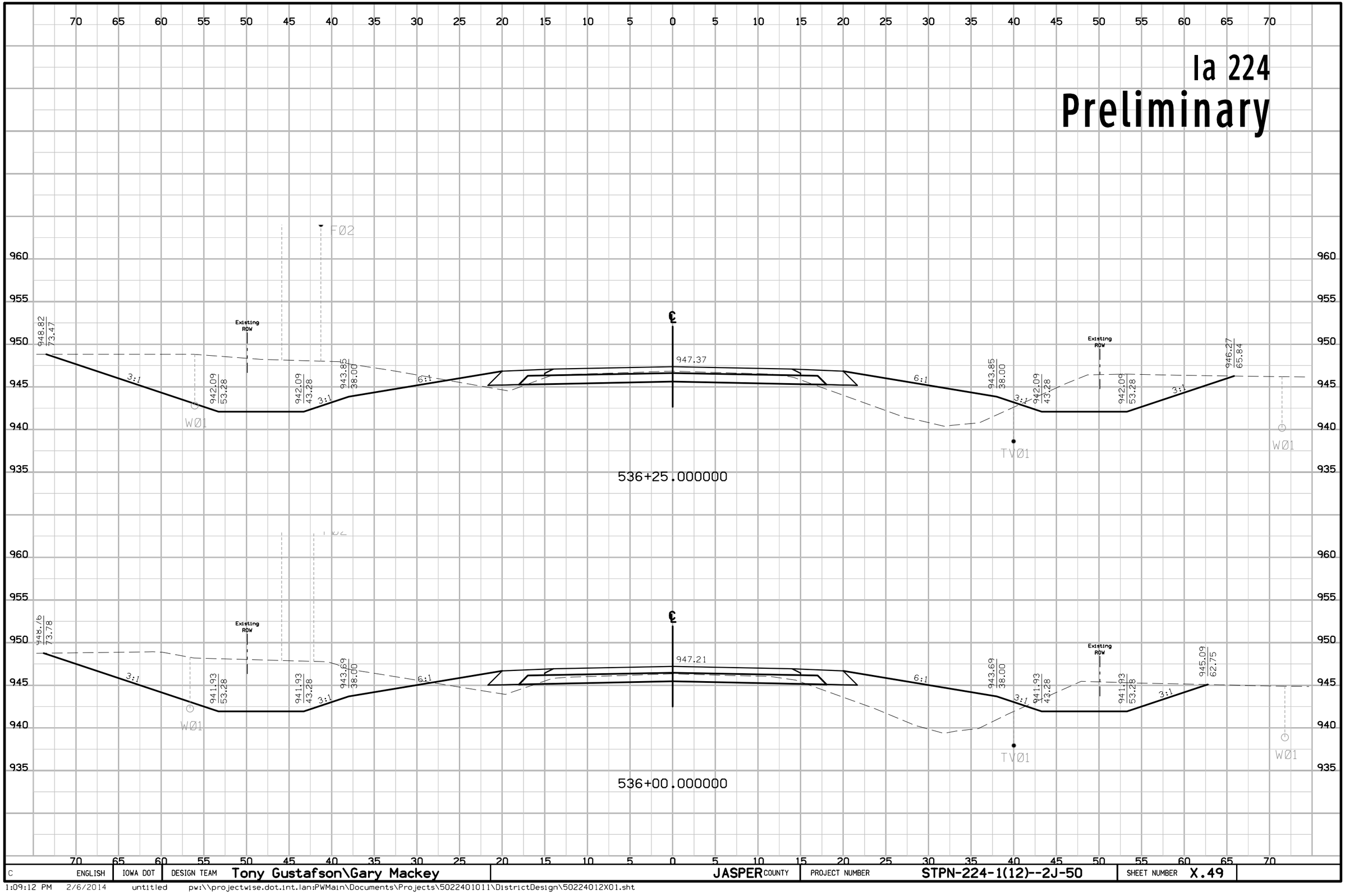
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.49

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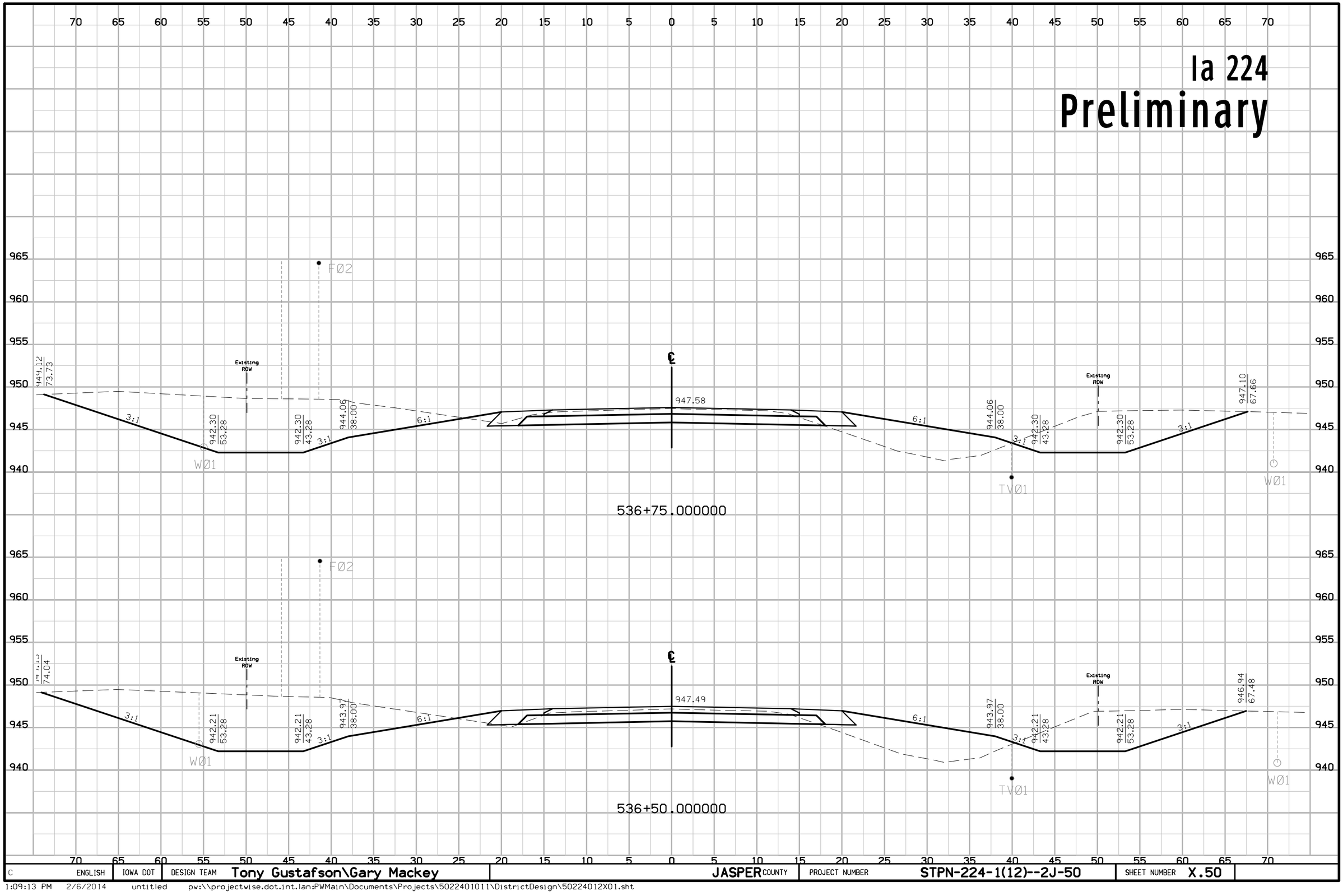
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.50

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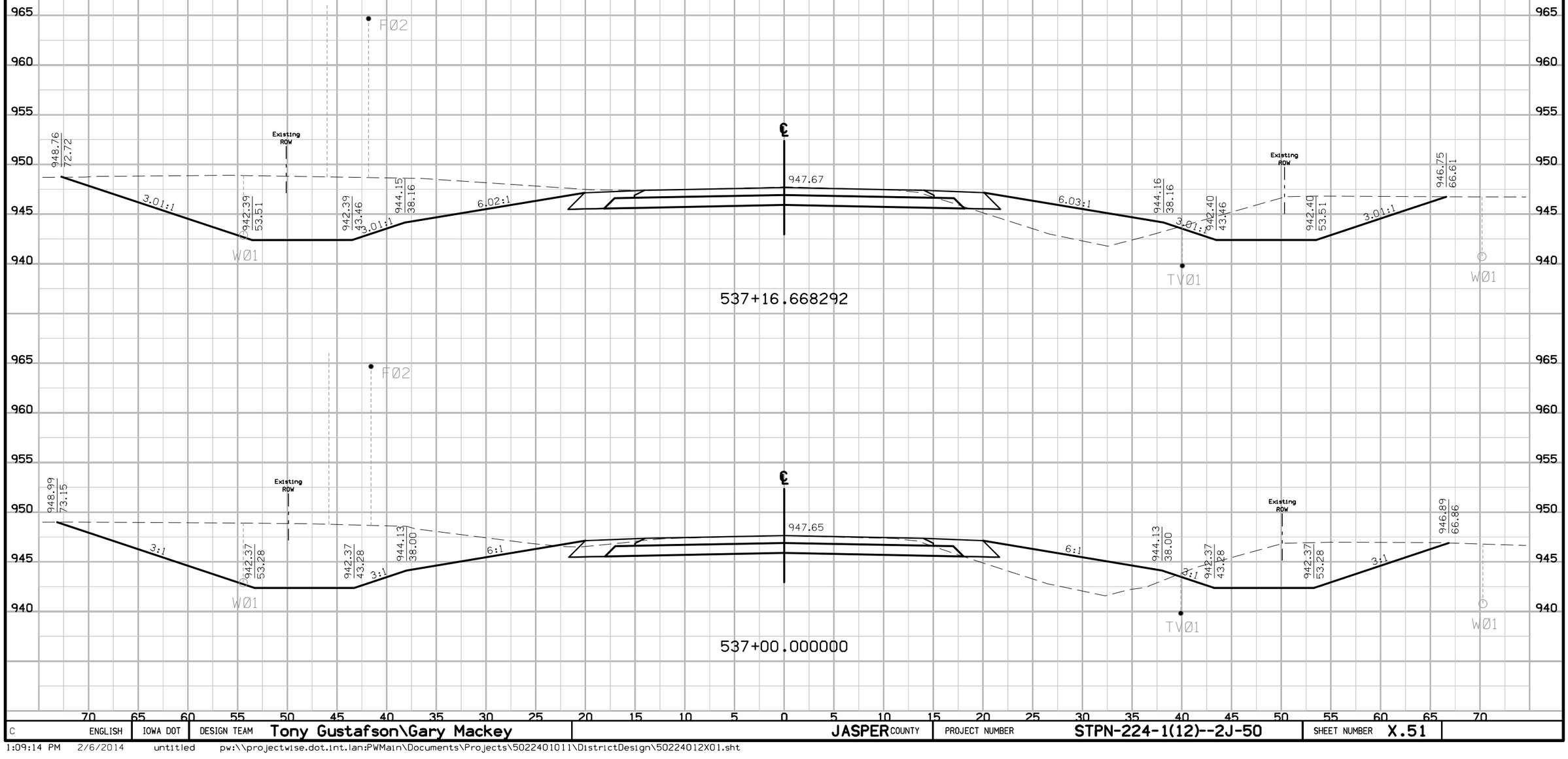
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.51

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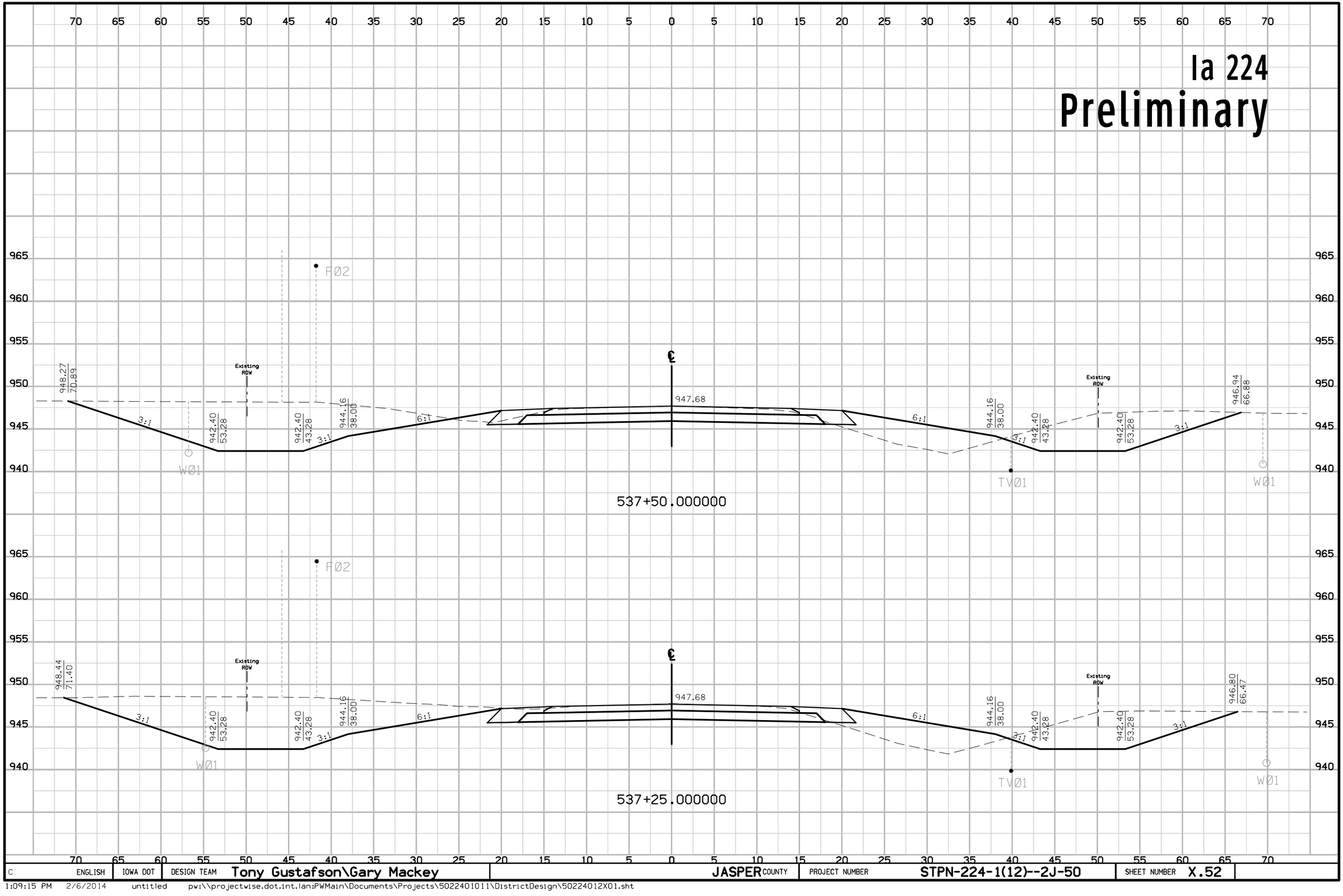
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.52

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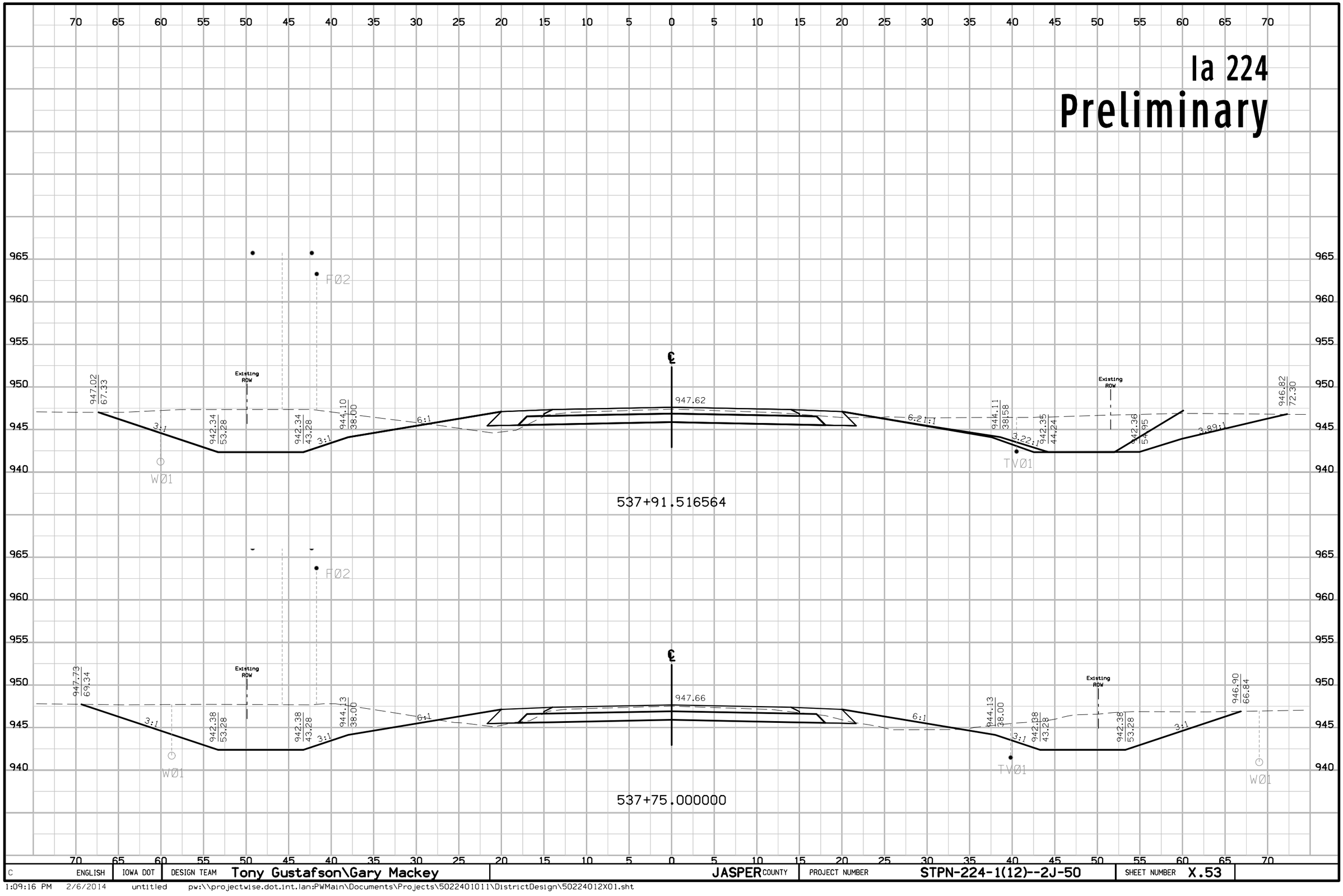
Ia 224

Preliminary



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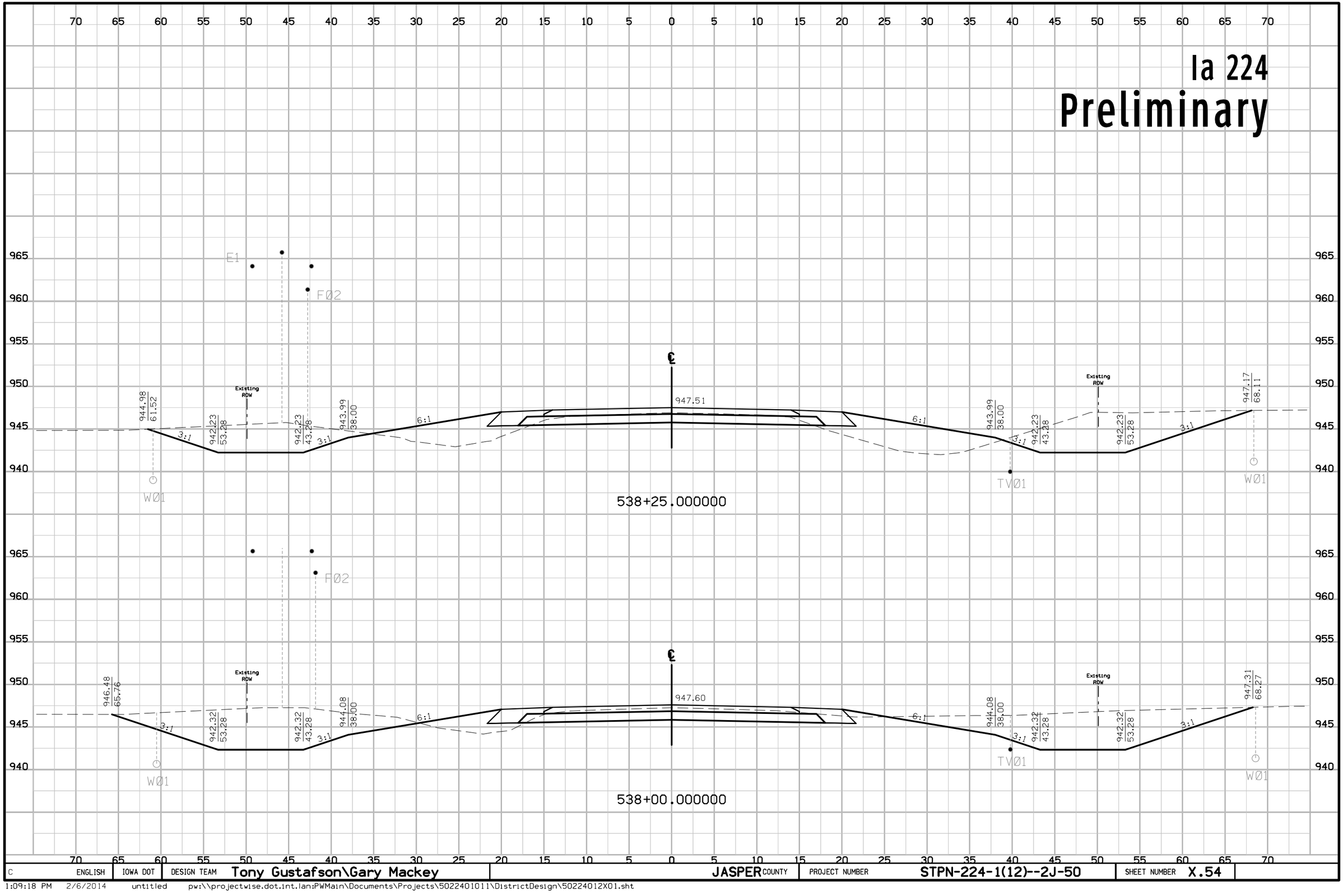
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.54

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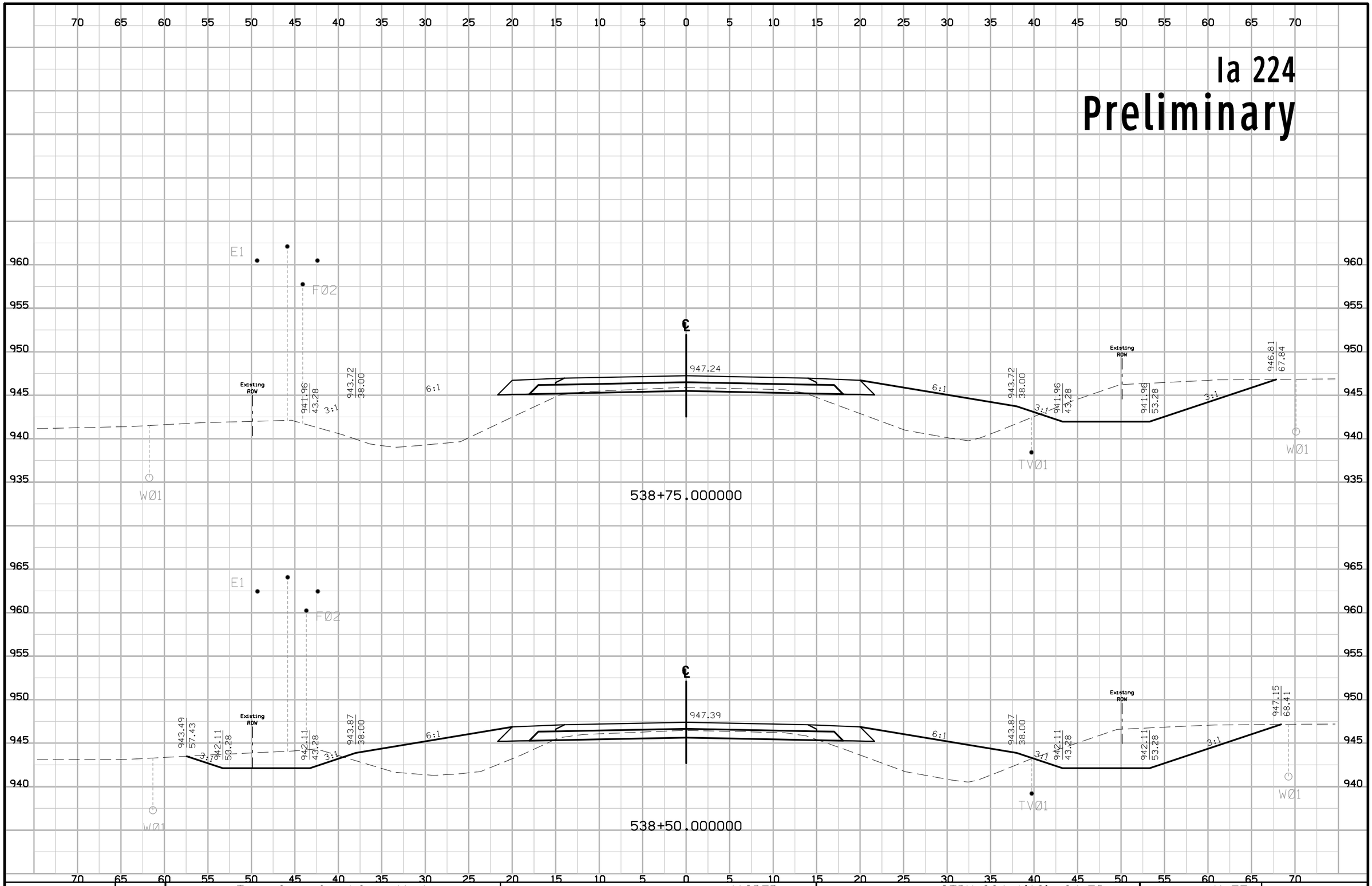
Ia 224
Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.55

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Ia 224

Preliminary

539+25.000000

539+00.000000

946.85

947.06

E1

FØ2

WØ1

TVØ1

Existing ROW

6:1

3:1

943.33 38.00

938.18 53.46

941.57 43.28

941.57 53.28

945.56 65.25

943.54 38.00

939.75 48.75

941.78 43.28

941.78 53.28

946.37 67.04

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.56

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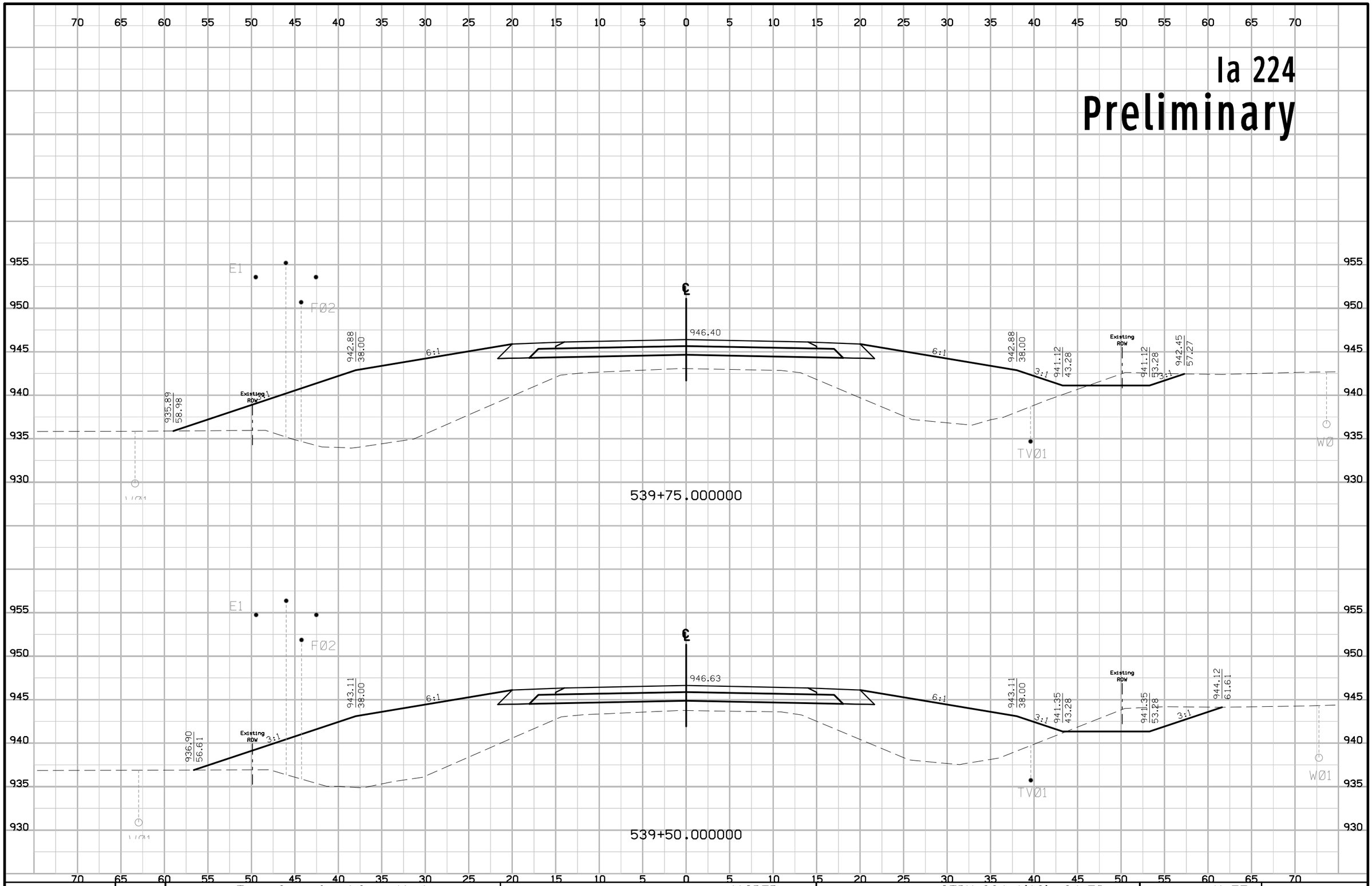
Ia 224
Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.57

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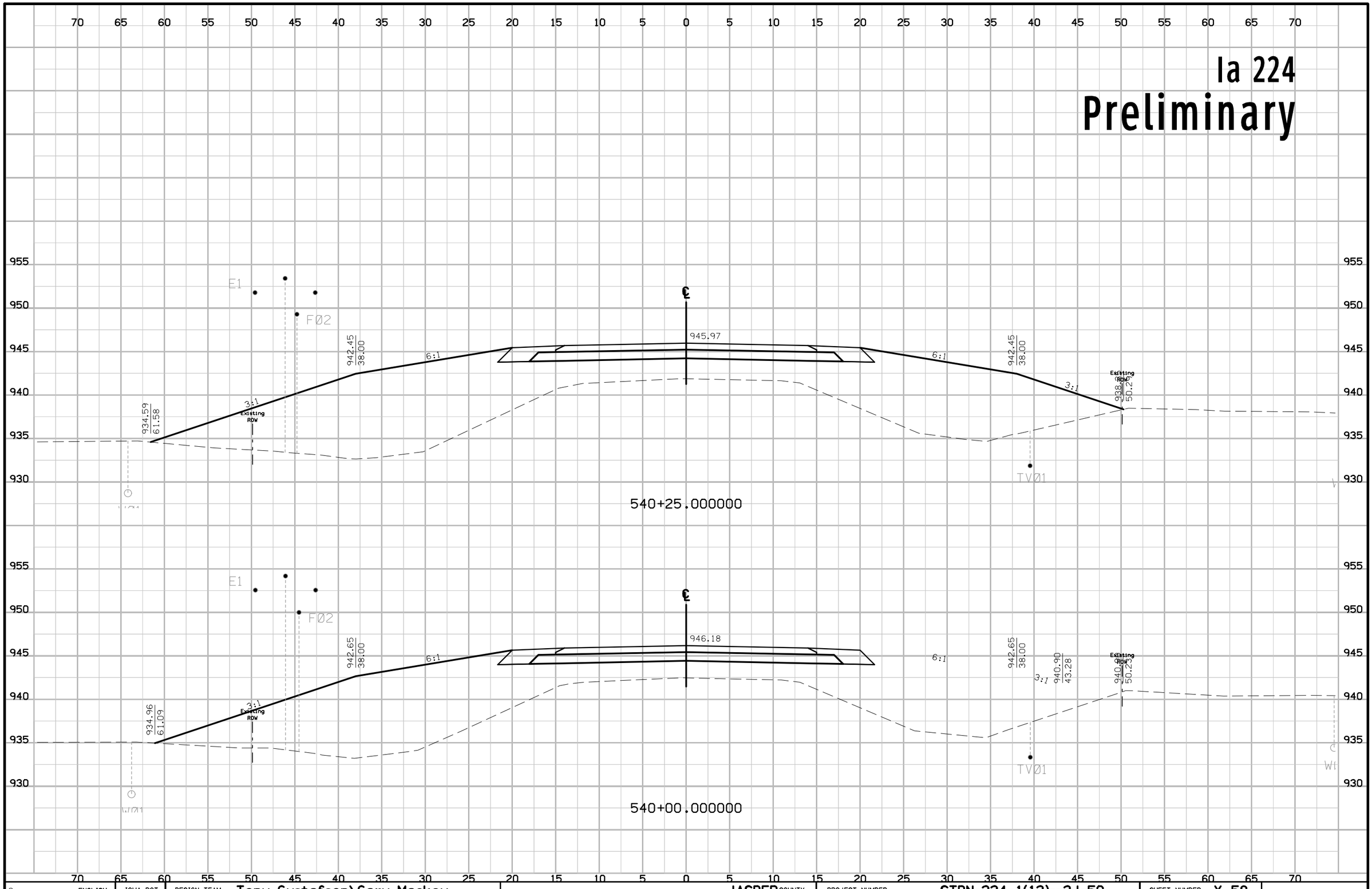
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.58

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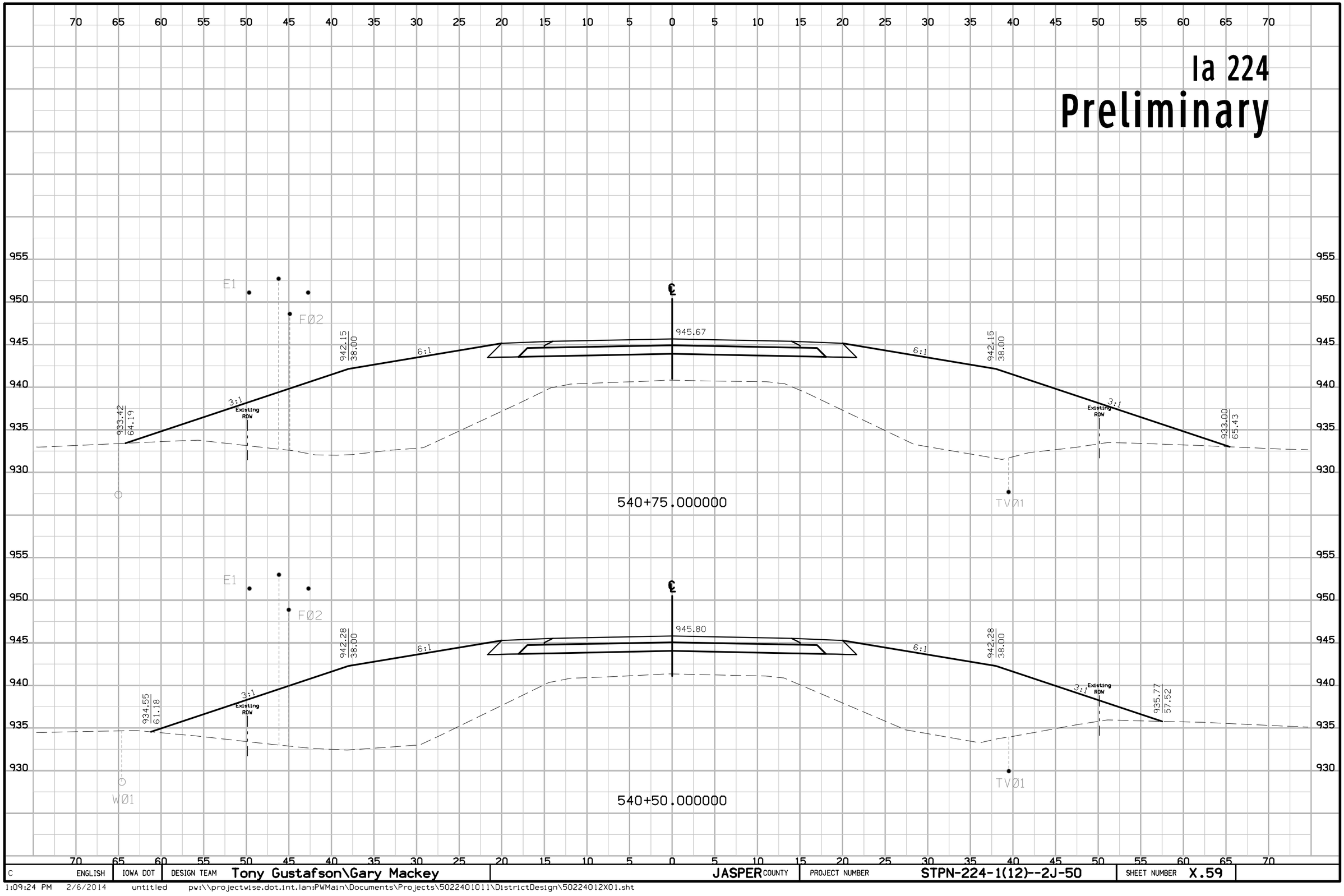
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.59

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

950 945 940 935 930 925

℄

945.52

942.00
38.00

6:1

3:1

934.39
60.82

Existing
ROW

F1

FØ2

WØ1

TVØ1

541+25.000000

945.57

933.35
64.12

931.00
71.17

541+00.000000

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.60

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

945 940 935 930 925 920

F02

941.98
38.00

6:1

945.50

6:1

941.98
38.00

934.40
60.72

3:1

Existing
ROW

3:1

Existing
ROW

W01

TV01

541+50.000000

950 945 940 935 930 925

F02

942.05
39.34

6.24:1

945.54

6.19:1

942.00
39.34

932.89
67.84

3.11:1

Existing
ROW

3.10:1

Existing
ROW

W01

TV01

541+31.070000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.61

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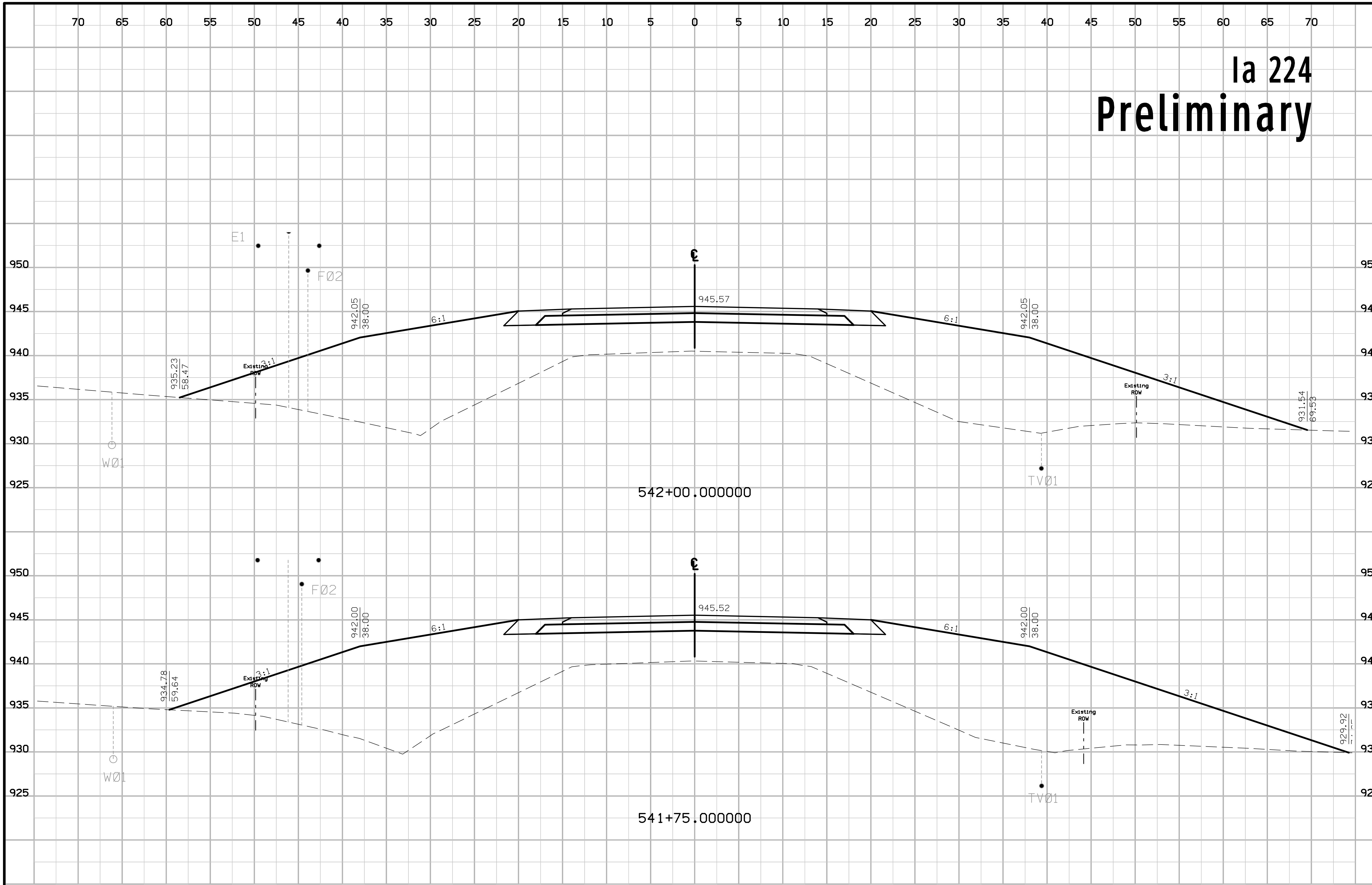

C ENGLISH	IOWA DOT	DESIGN TEAM Tony Gustafson\Gary Mackey		JASPER COUNTY	PROJECT NUMBER STPN-224-1(12)--2J-50	SHEET NUMBER X.62

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

955 950 945 940 935 930

E1 FØ2

℄

945.80

942.28 / 38.00

6:1

936.15 / 56.38

Existing ROW 3:1

942.28 / 38.00

6:1

Existing ROW 3:1

935.27 / 59.02

WØ1 TVØ1

542+50.000000

E1 FØ2

℄

945.67

942.15 / 38.00

6:1

935.62 / 57.58

Existing ROW 3:1

942.15 / 38.00

6:1

Existing ROW 3:1

933.03 / 65.35

WØ1 TVØ1

542+25.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.63

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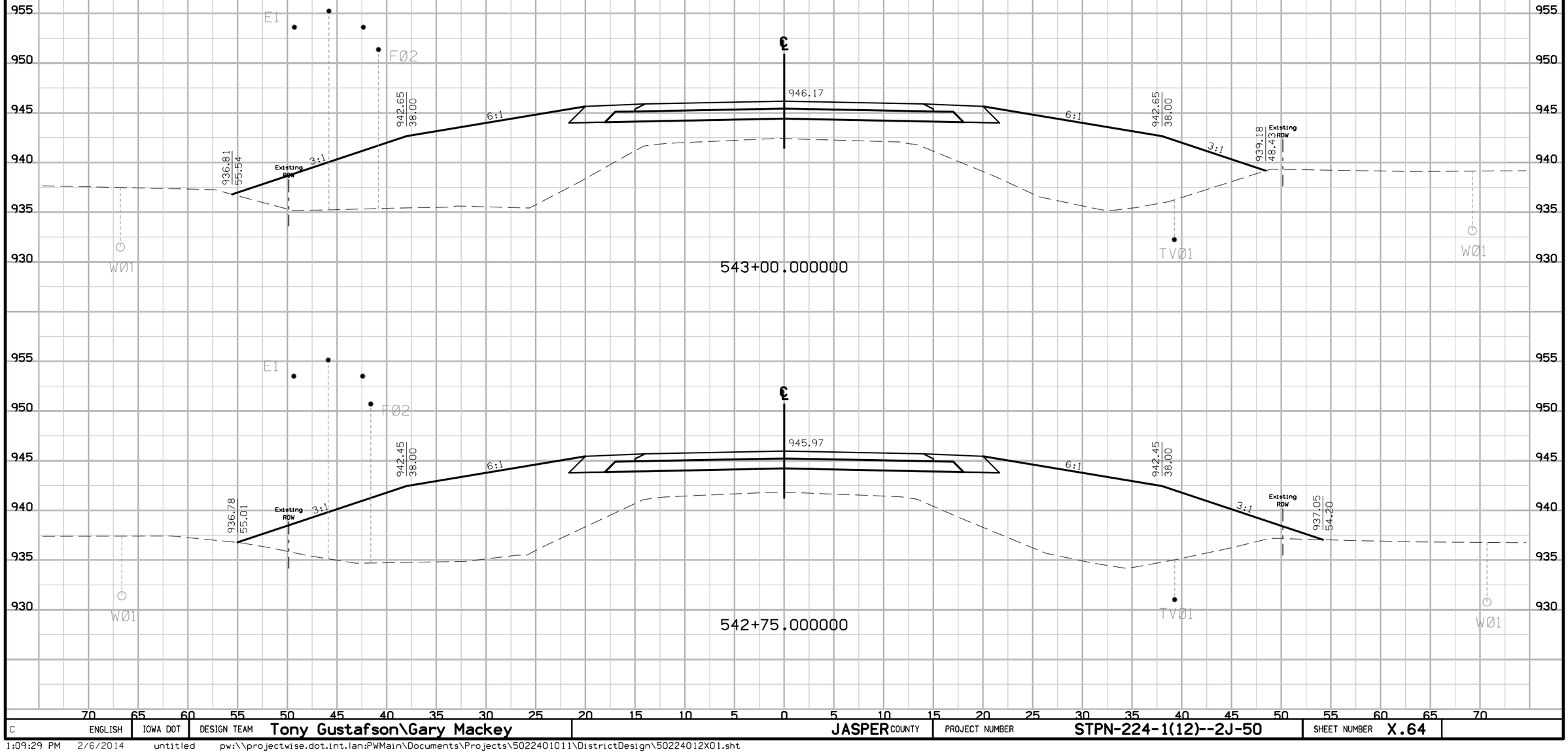
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.64

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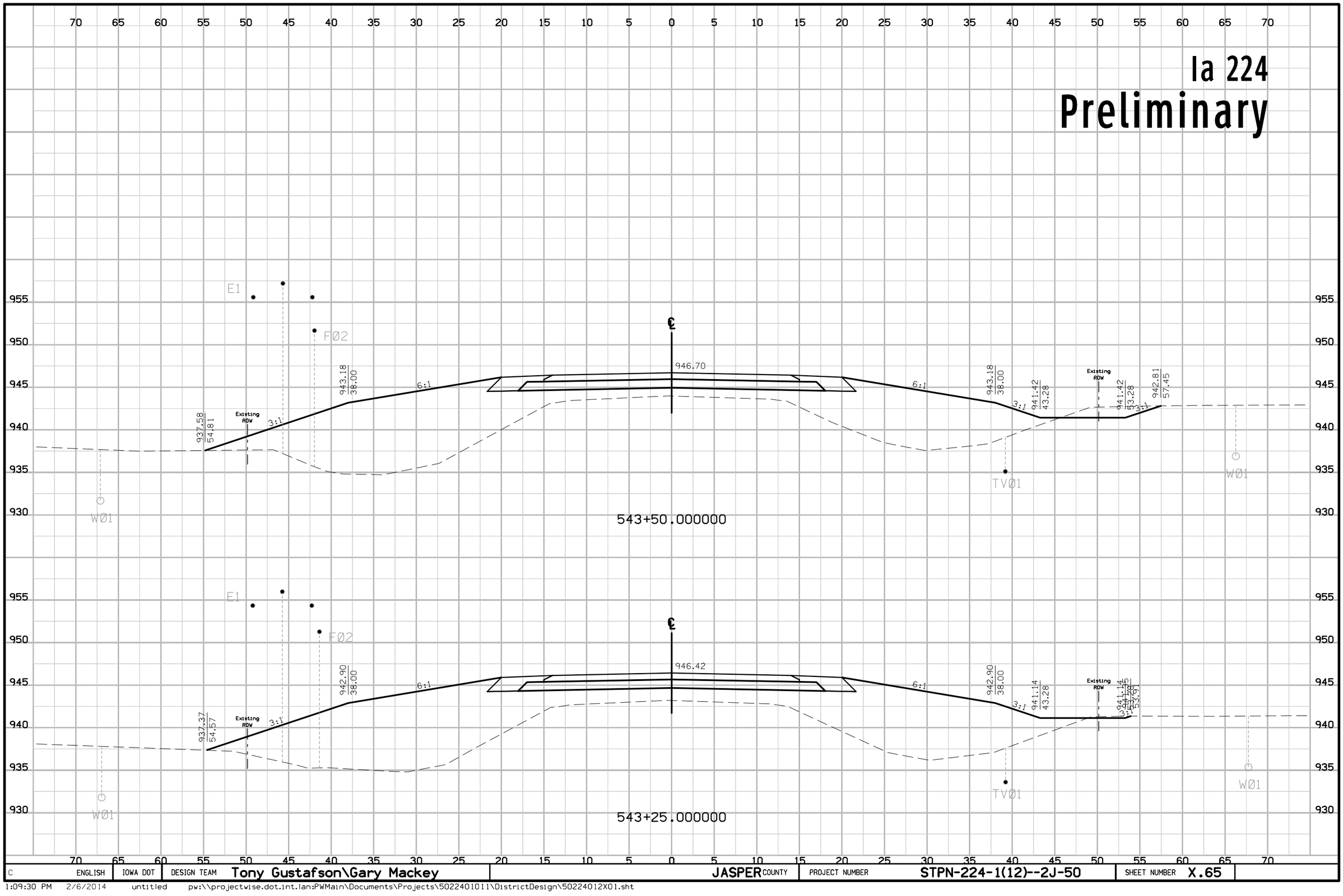
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.65

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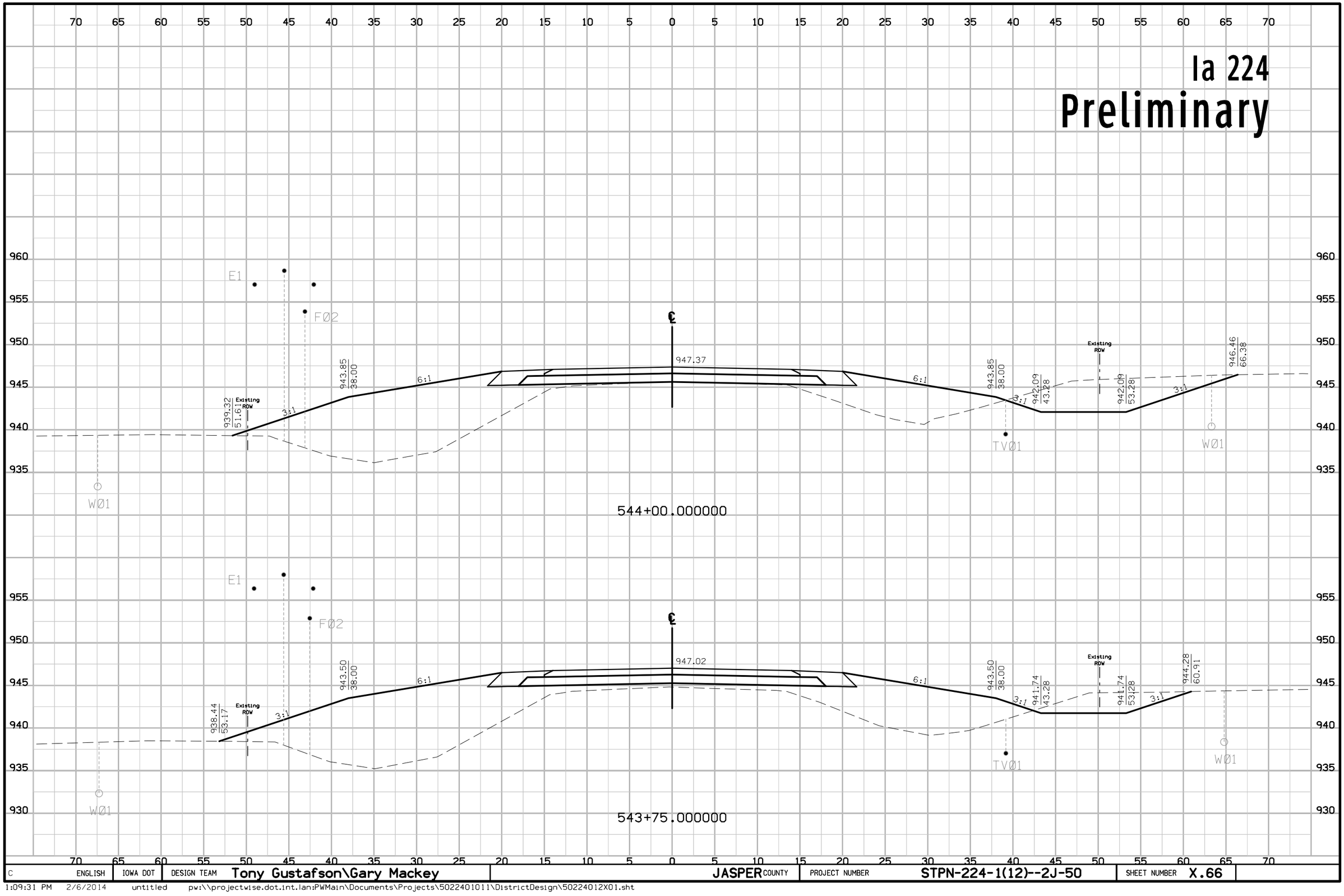
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.66

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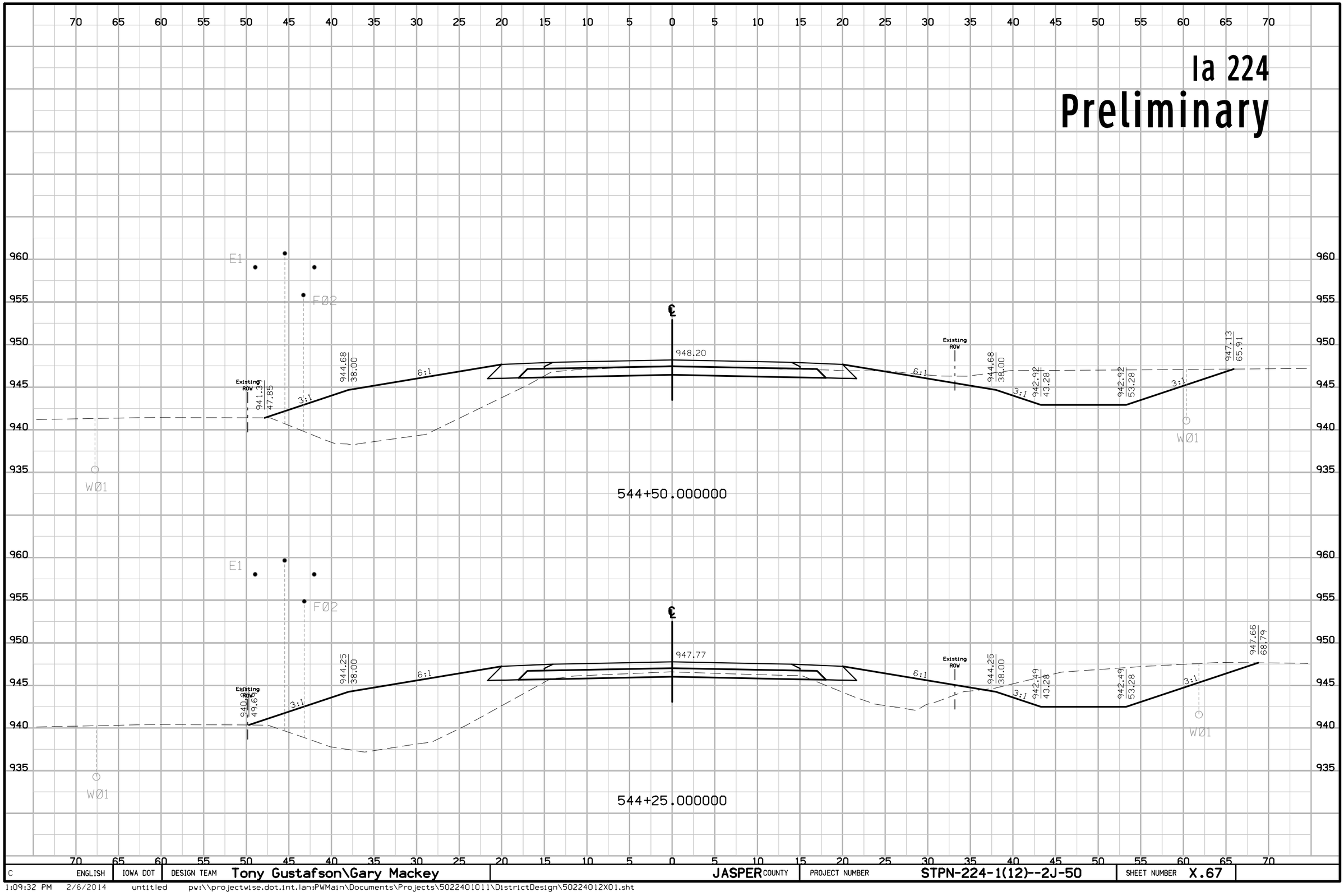
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.67

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

960 955 950 945 940 935

E1

F02

Existing ROW

942.32
46.48

945.15
38.00

3:1

6:1

948.67

℄

6:1

Existing ROW

945.15
38.00

3:1

943.39
43.28

943.39
53.28

3:1

948.65
69.06

W01

W01

544+75.000000

E1

F02

Existing ROW

941.74
47.27

944.83
38.00

3:1

6:1

948.35

℄

5.98:1

Existing ROW

944.81
38.04

3:1

943.08
43.36

943.01
53.45

3.05:1

947.19
66.20

W01

W01

544+58.261769

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.68

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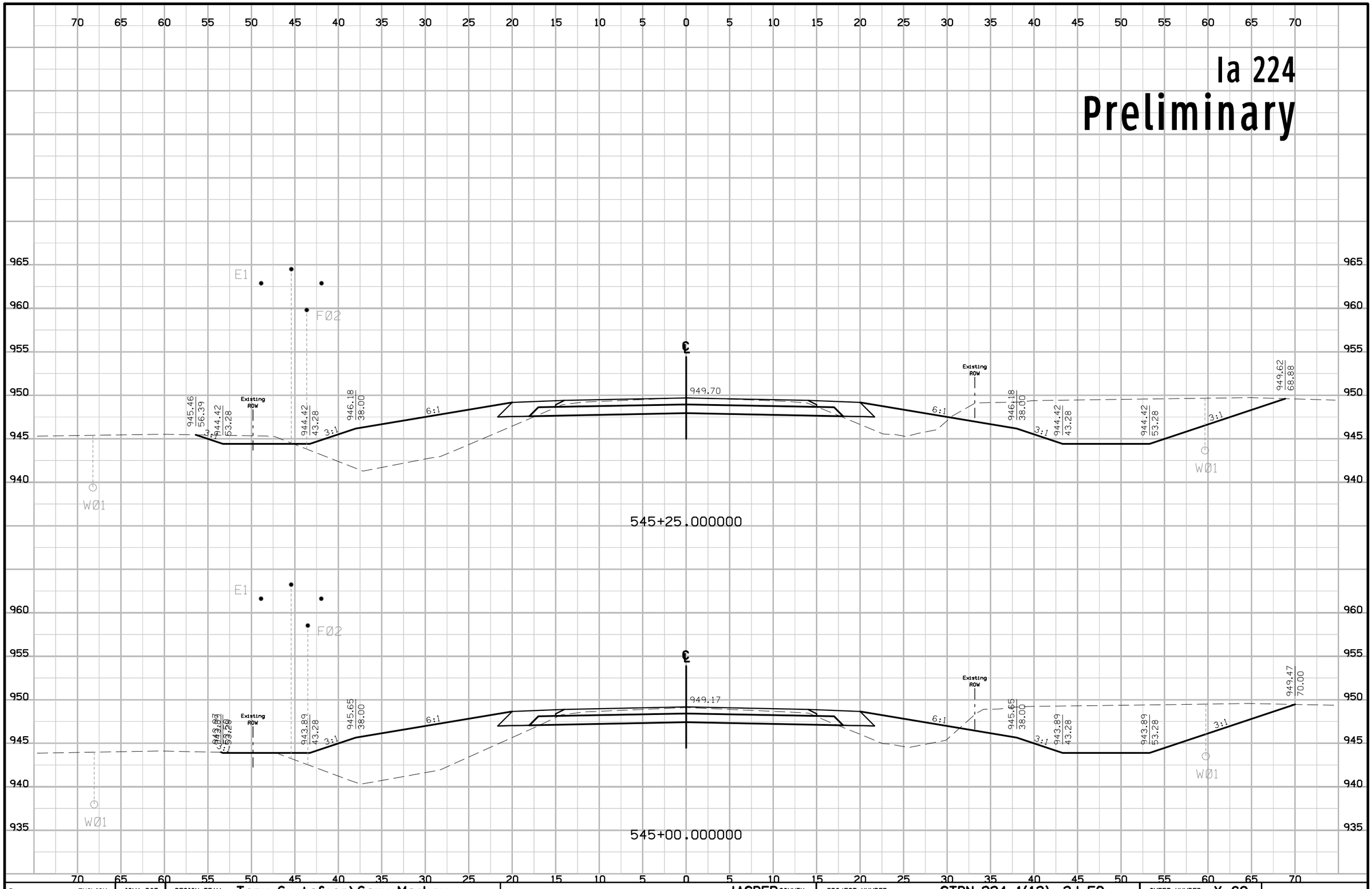
Ia 224

Preliminary



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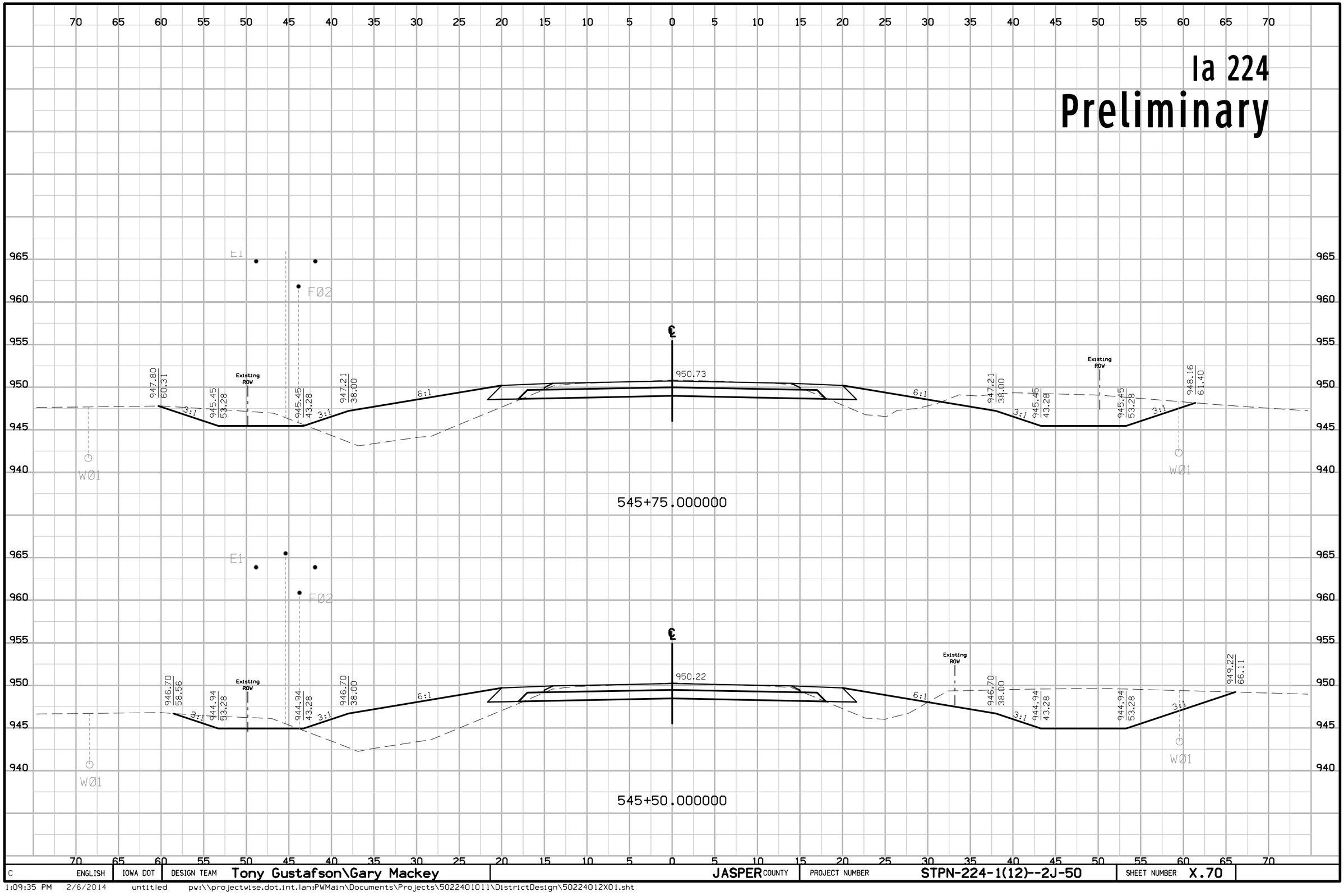
Ia 224

Preliminary



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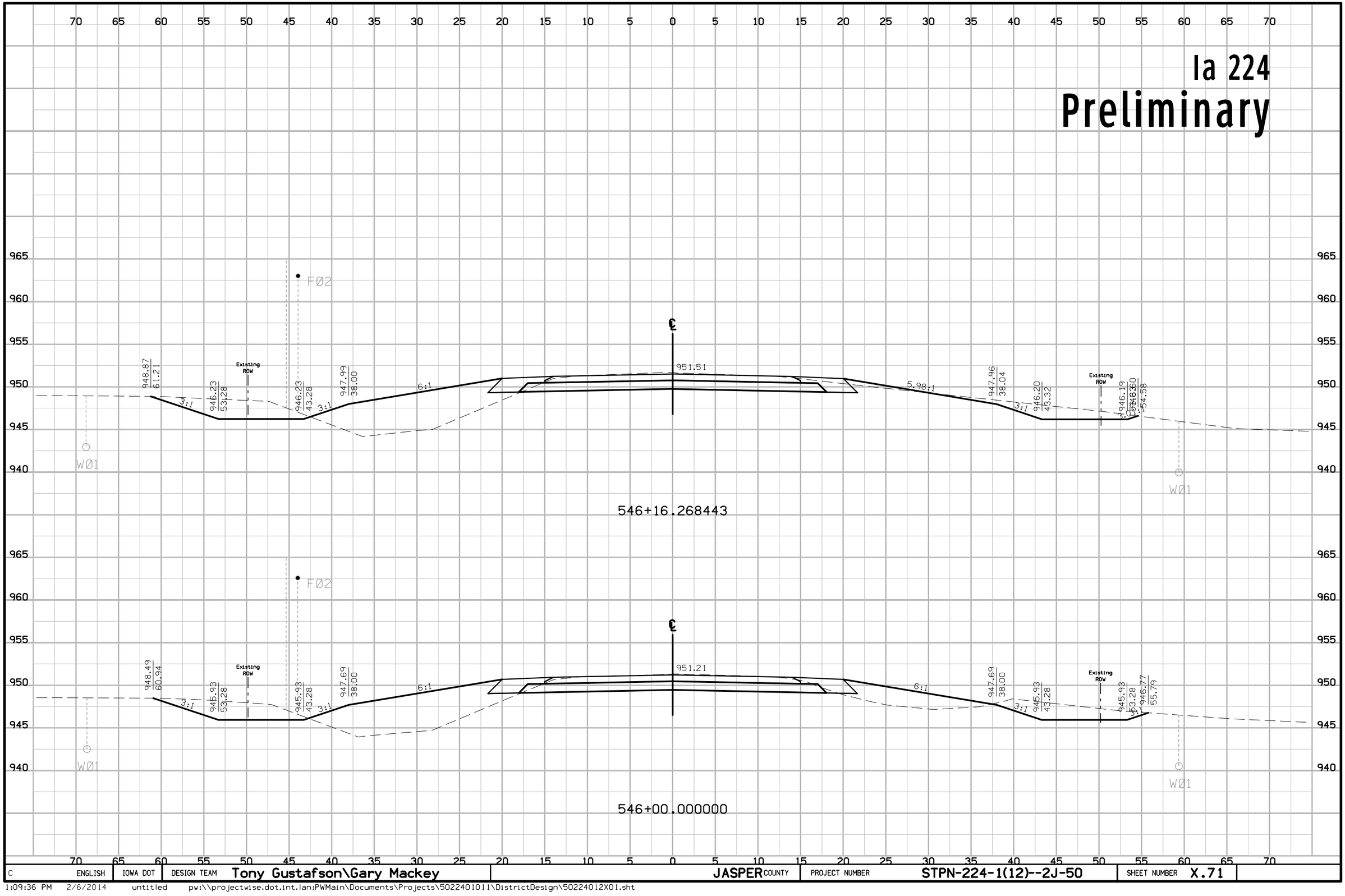
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.71

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Ia 224

Preliminary

546+50.000000

546+25.000000

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.72

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

965 960 955 950 945 940

F02

℄

950.21
61.25

947.55
53.28

Existing ROW

947.55
43.28

949.31
38.00

952.83

949.31
38.00

945.78
48.59

Existing ROW

3:1 6:1 3:1 6:1 3:1

W01

W01

W01

547+00.000000

F02

℄

949.95
61.56

947.19
53.28

Existing ROW

947.19
43.28

948.95
38.00

952.47

948.95
38.00

945.93
47.06

Existing ROW

3:1 6:1 3:1 6:1 3:1

W01

W01

W01

546+75.000000

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.73

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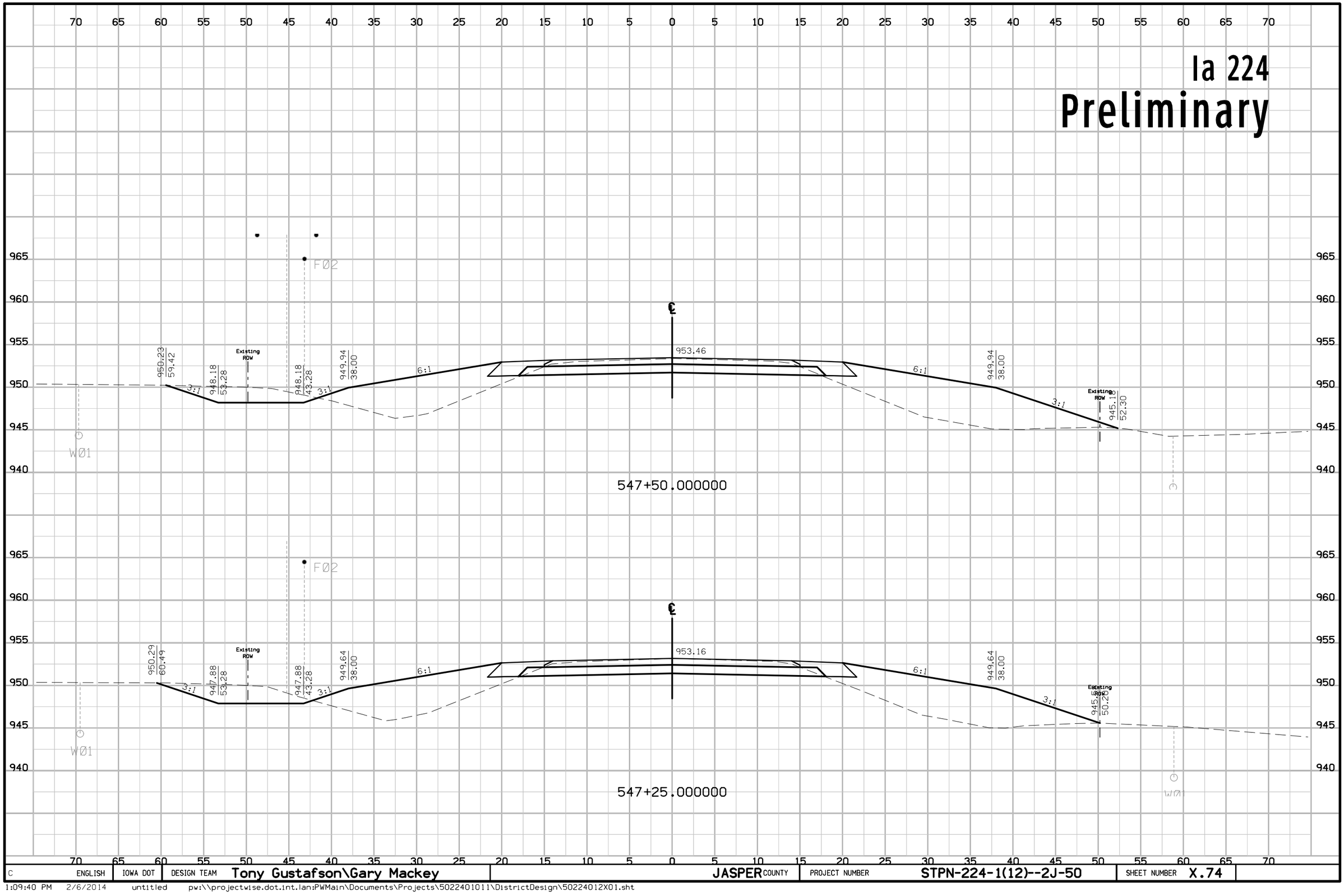
Ia 224

Preliminary



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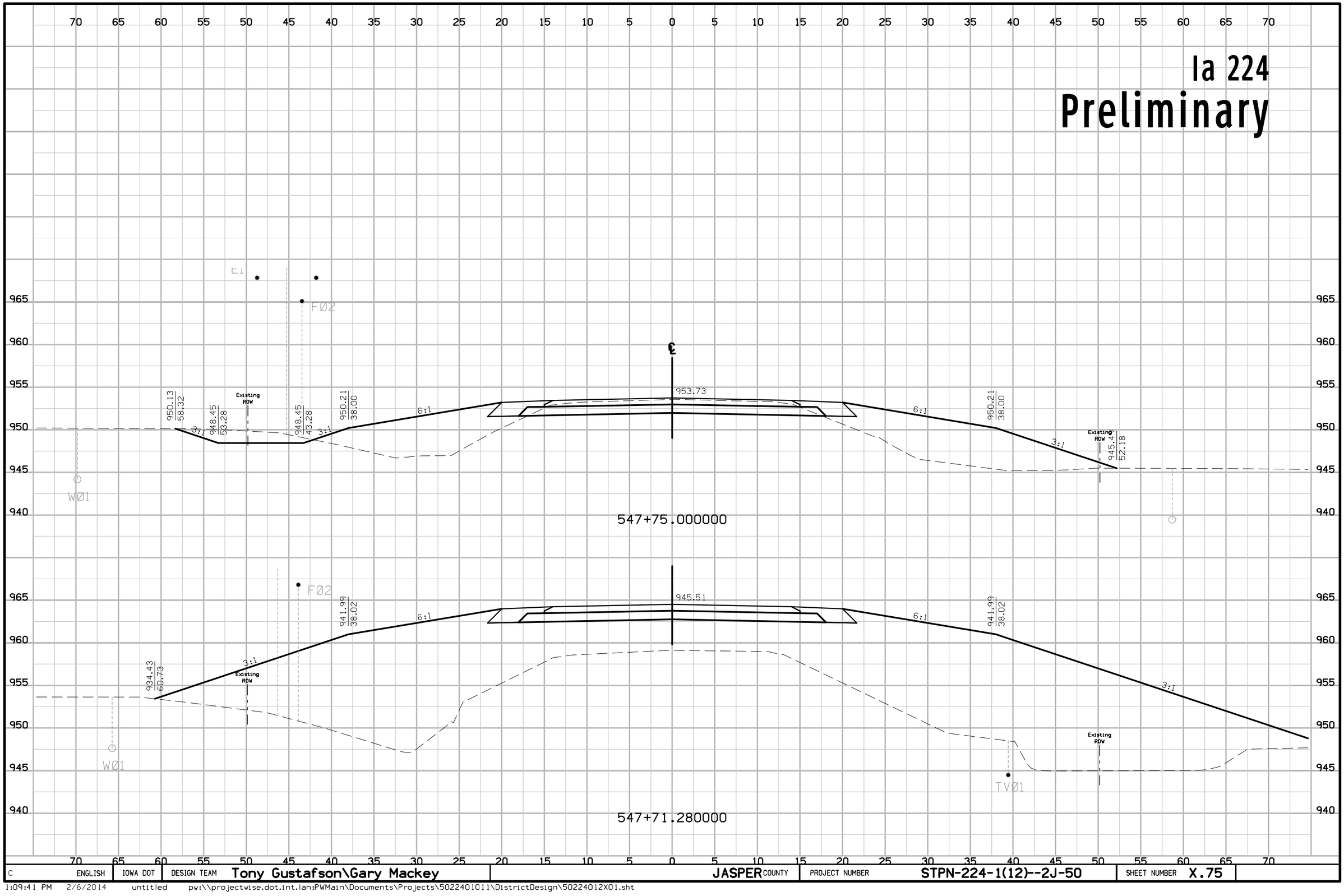
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.75

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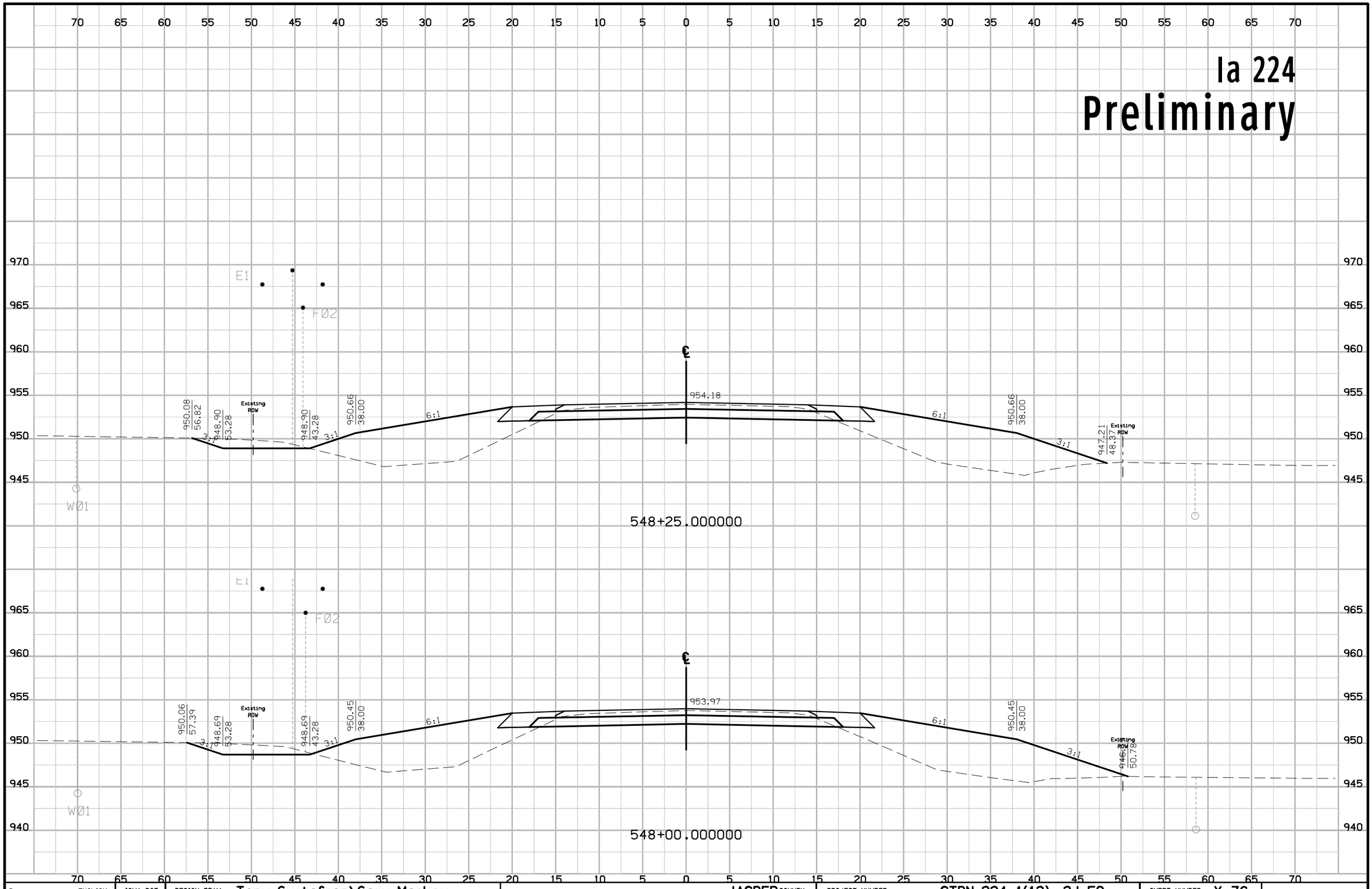
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.76

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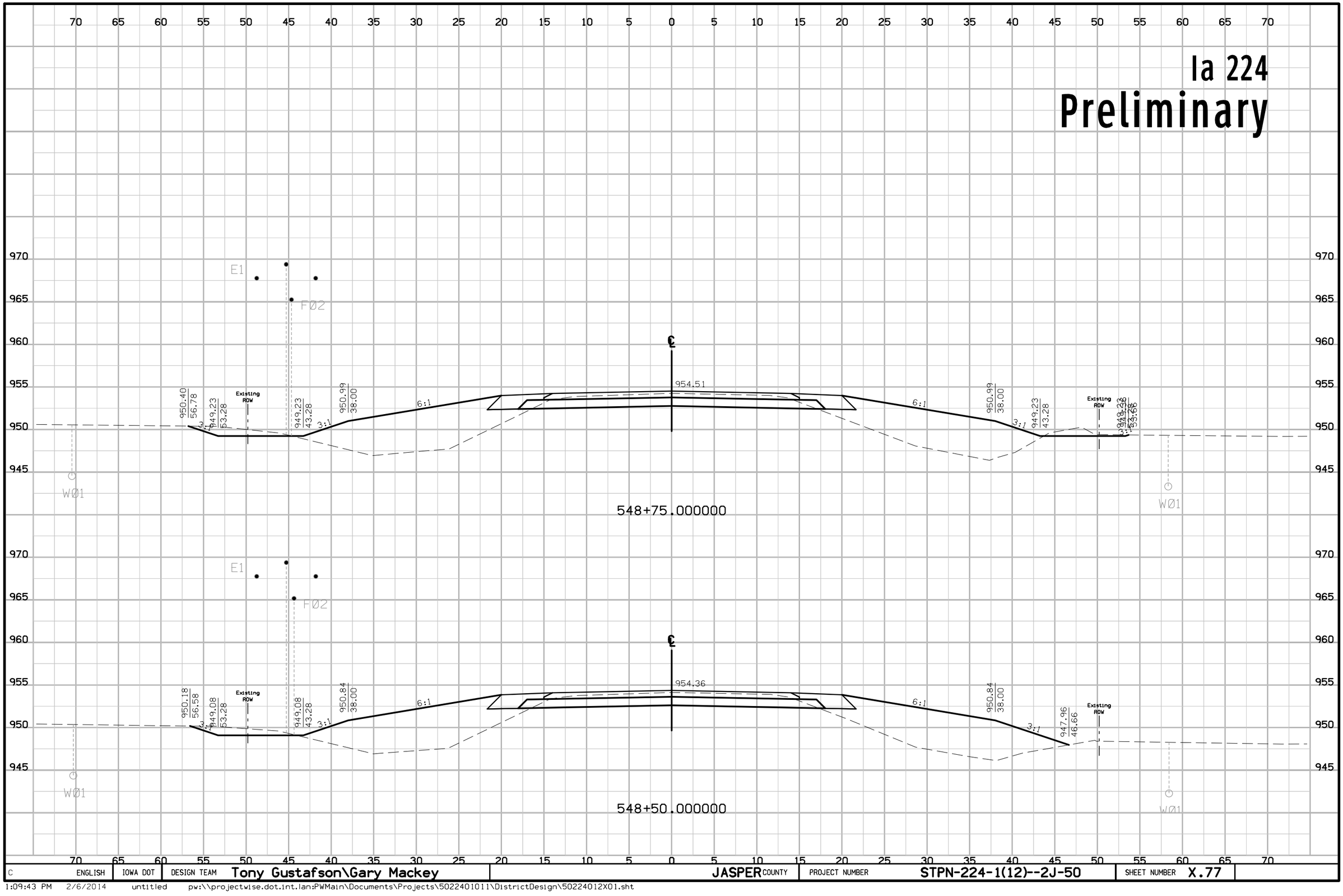
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.77

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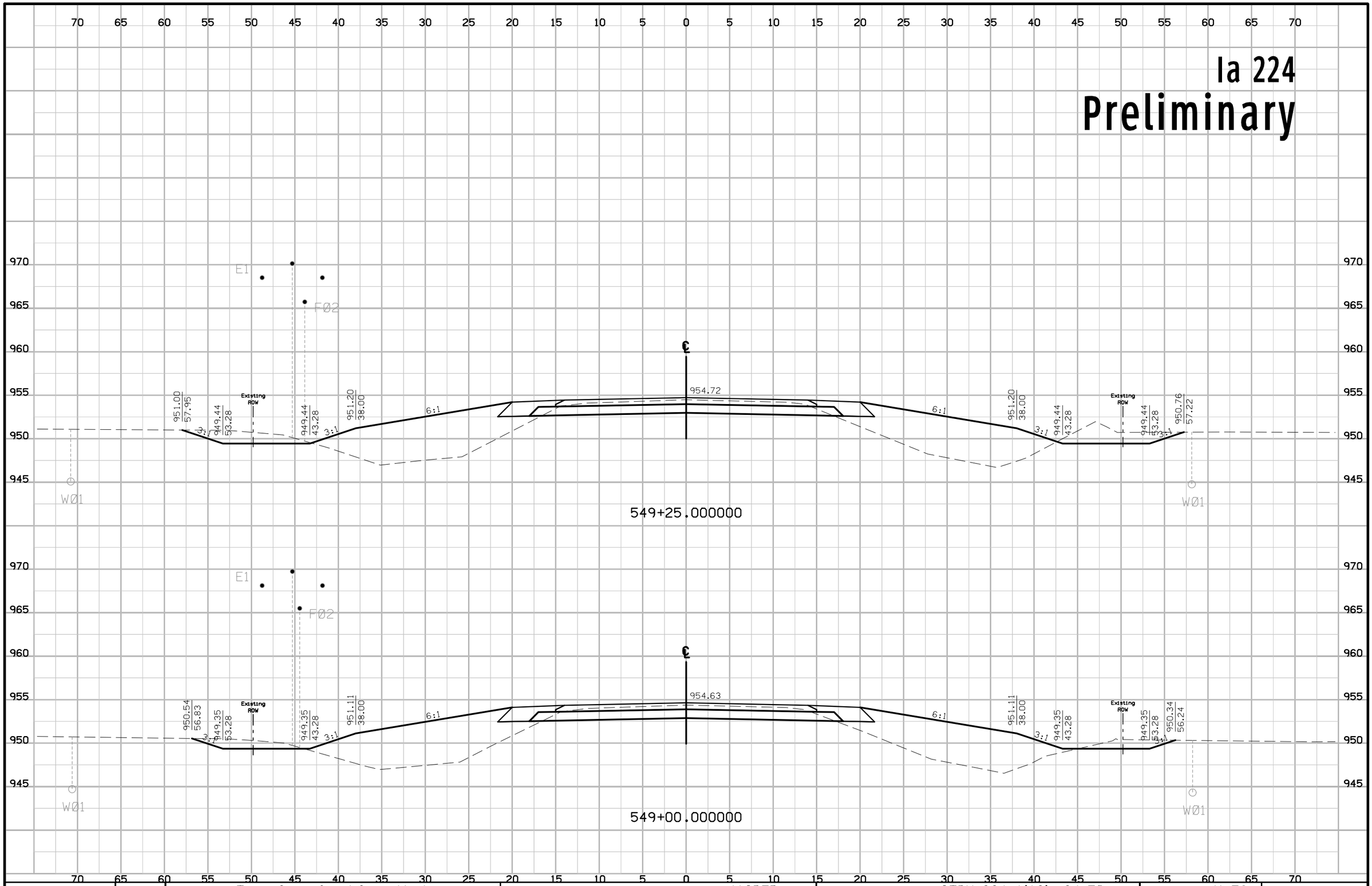
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.78

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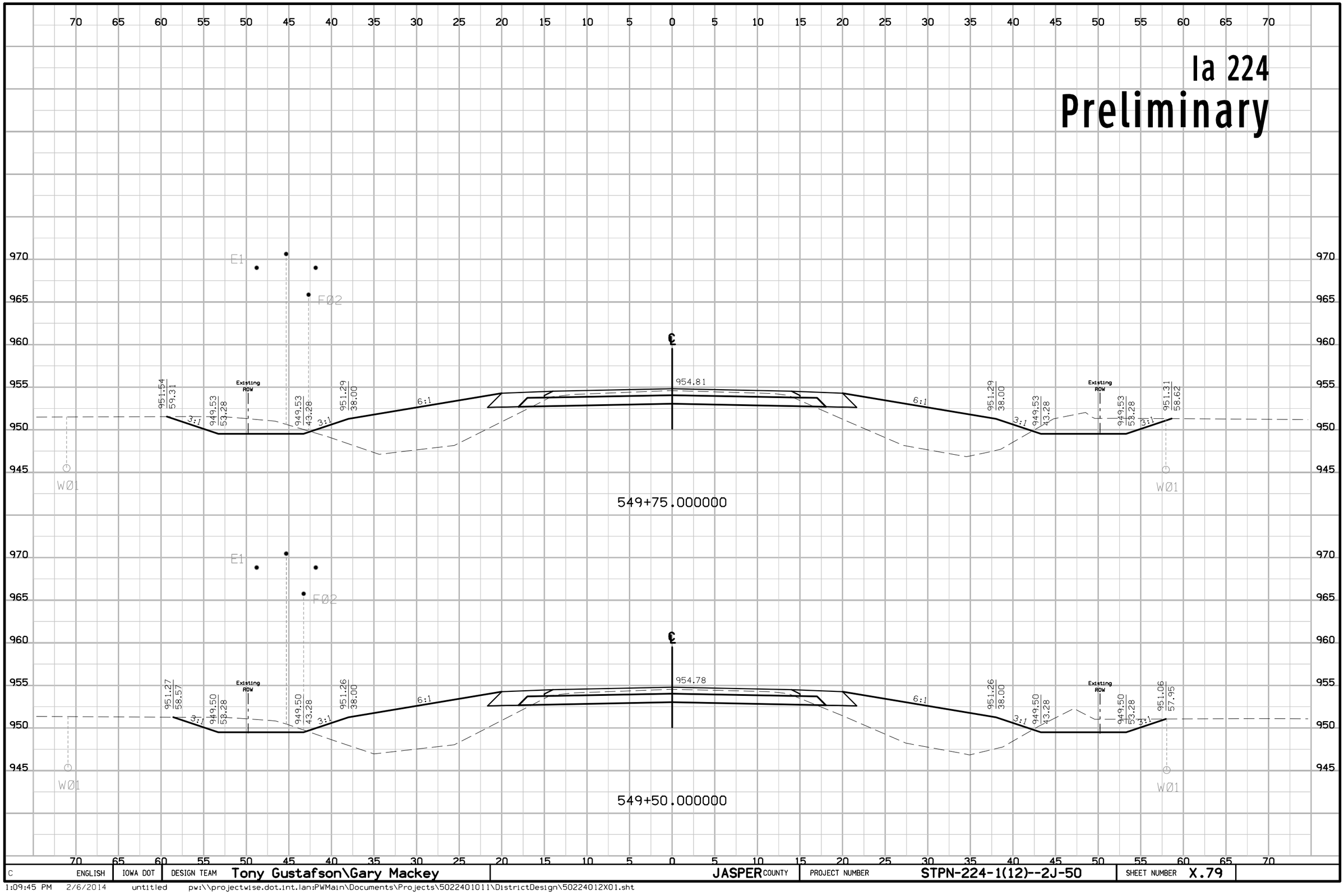
Ia 224

Preliminary



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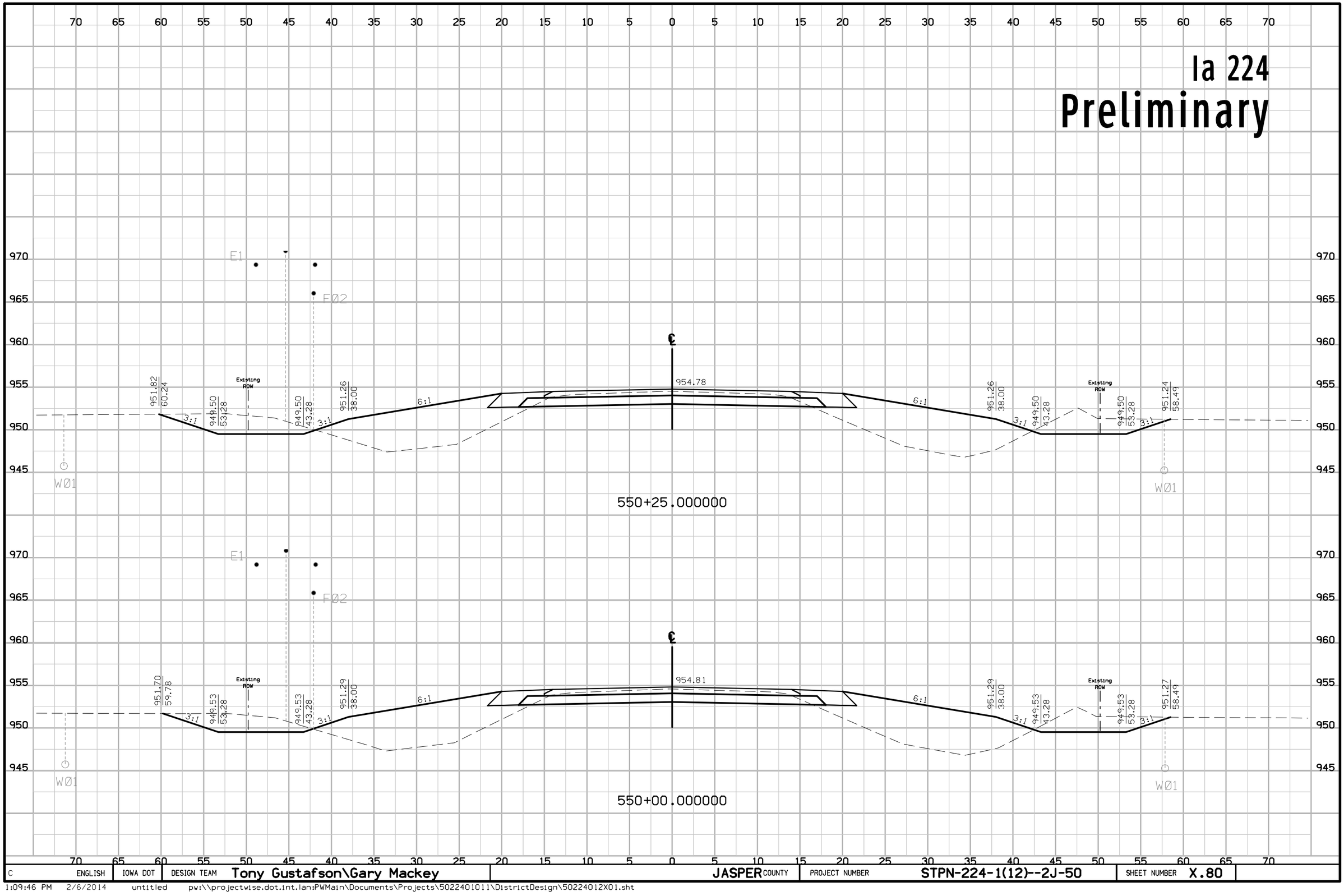
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.80

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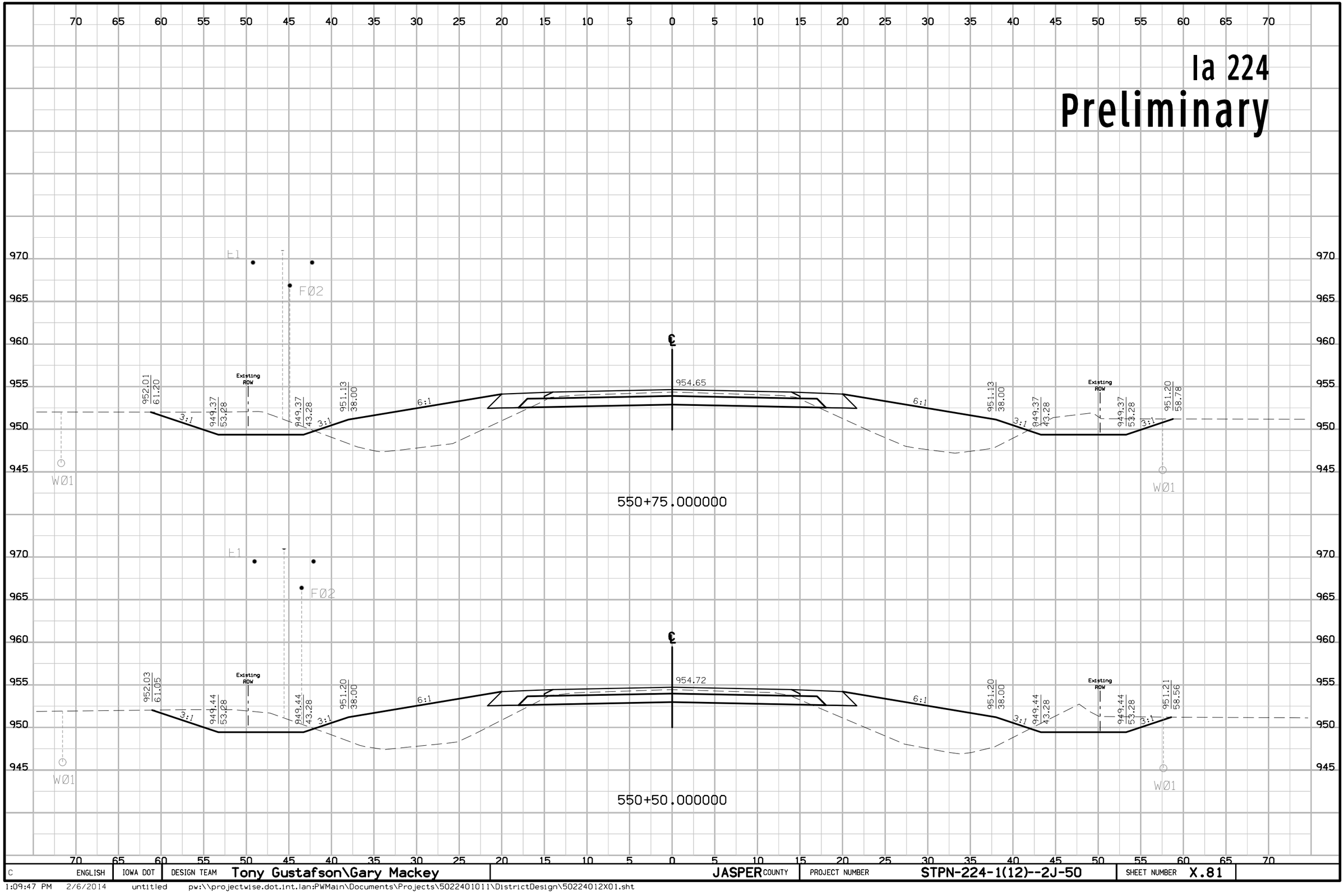
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.81

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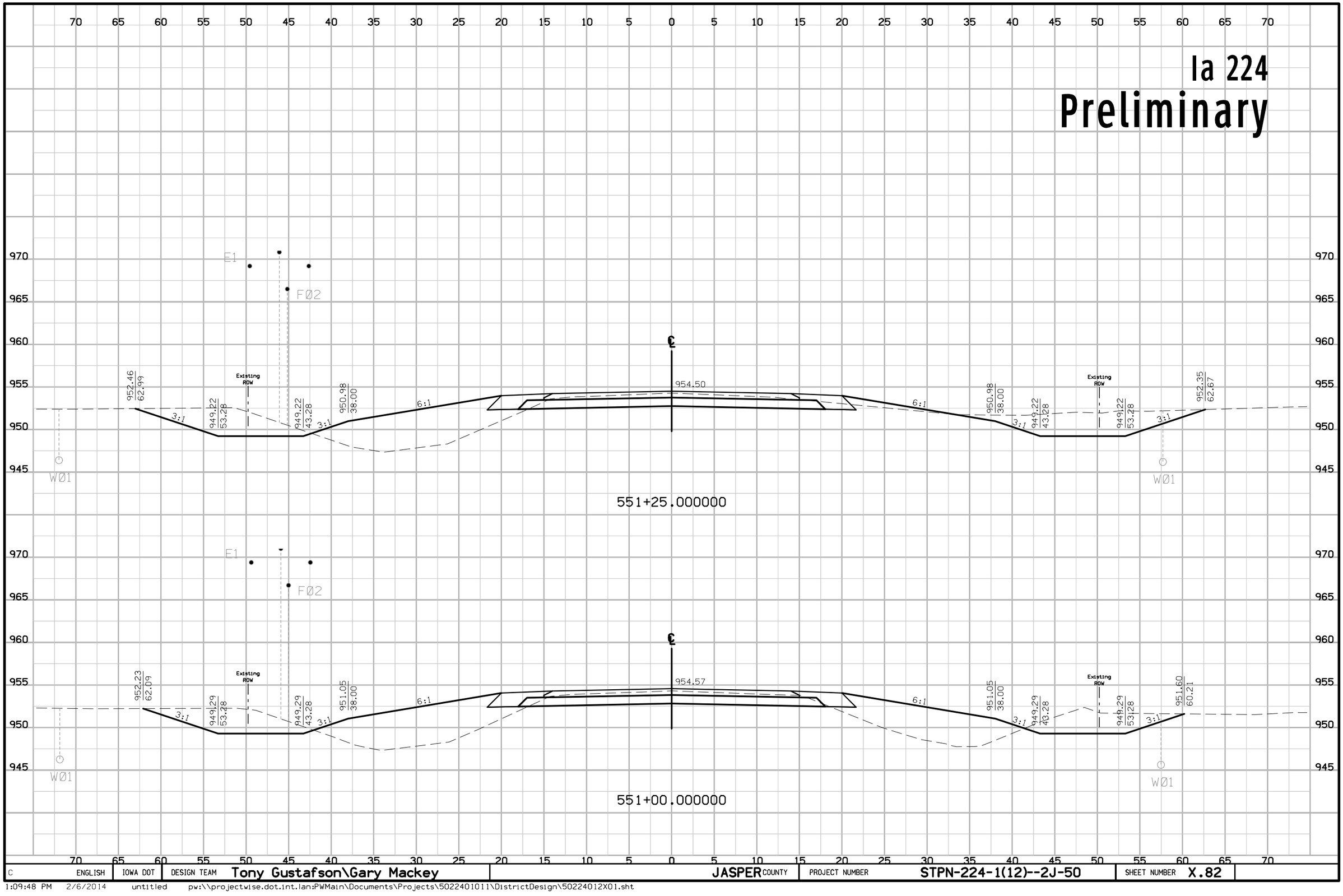
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.82

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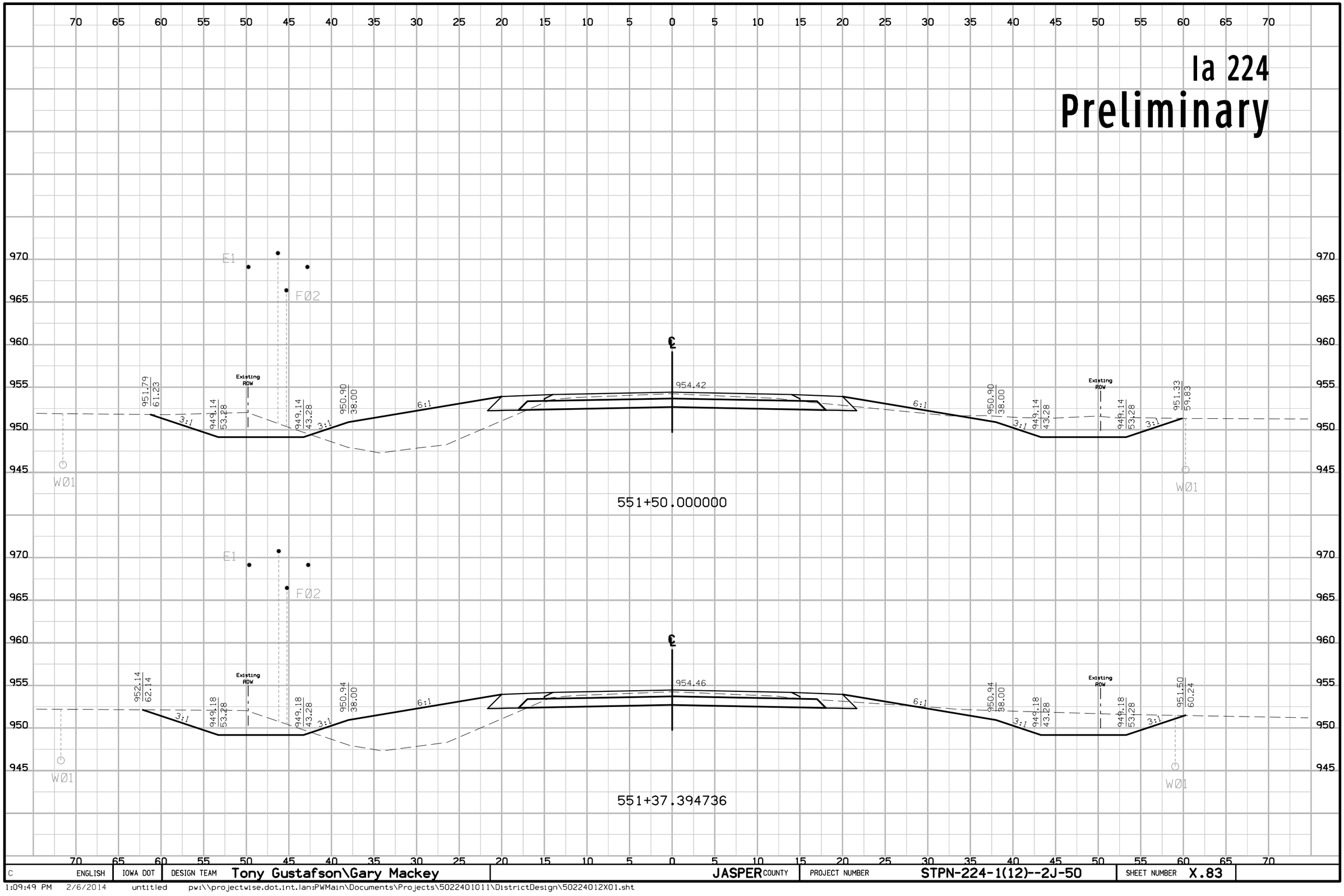
Ia 224

Preliminary



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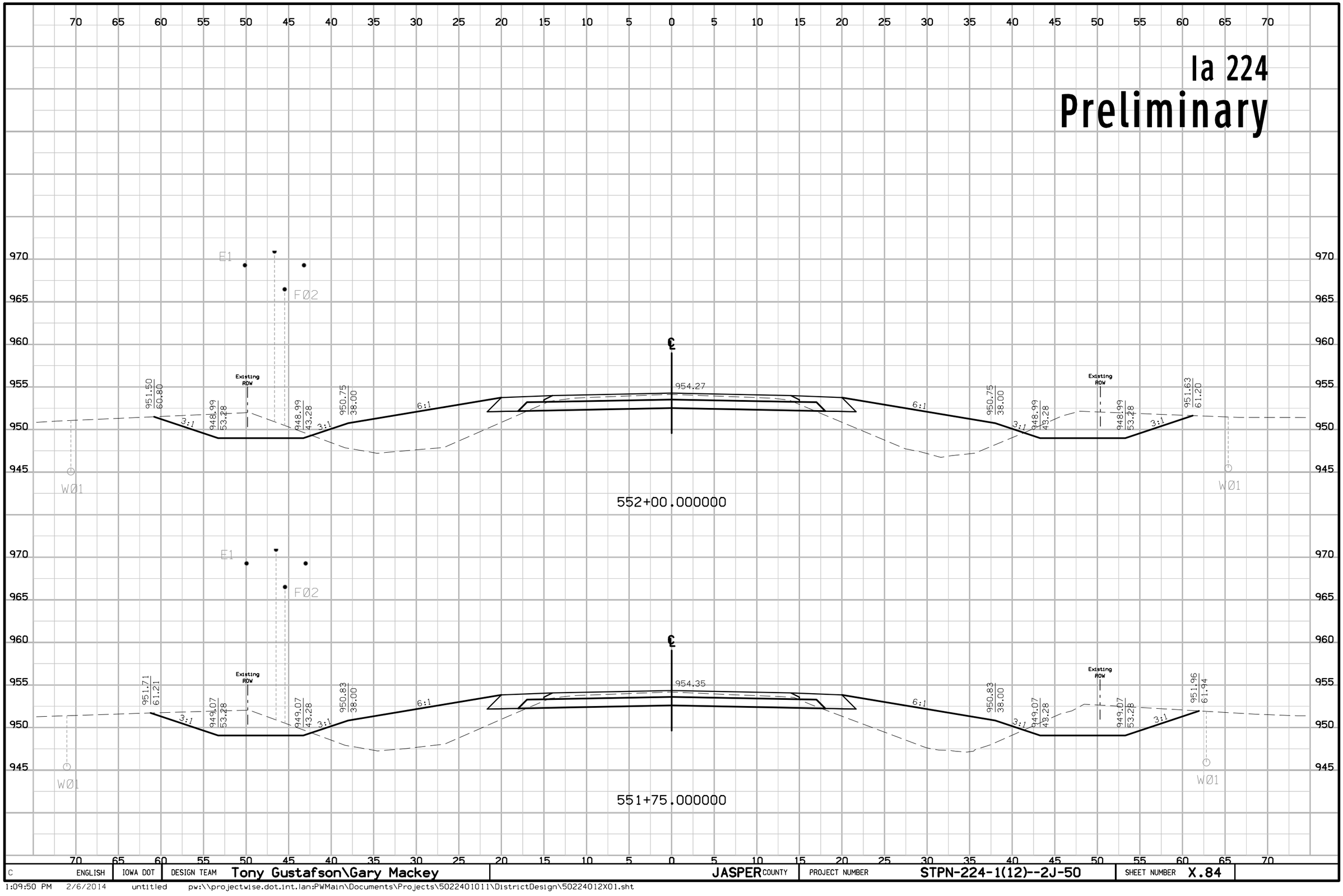
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.84

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Ia 224

Preliminary

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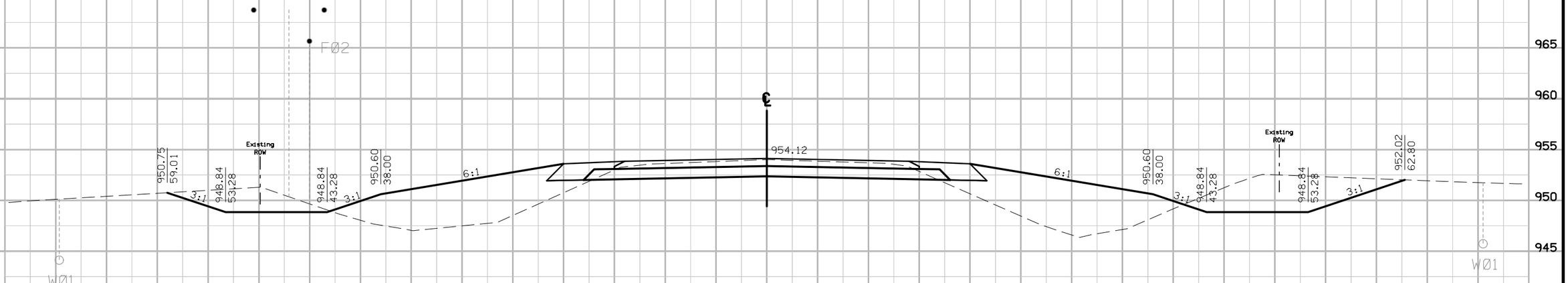

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552+25.000000

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C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.85

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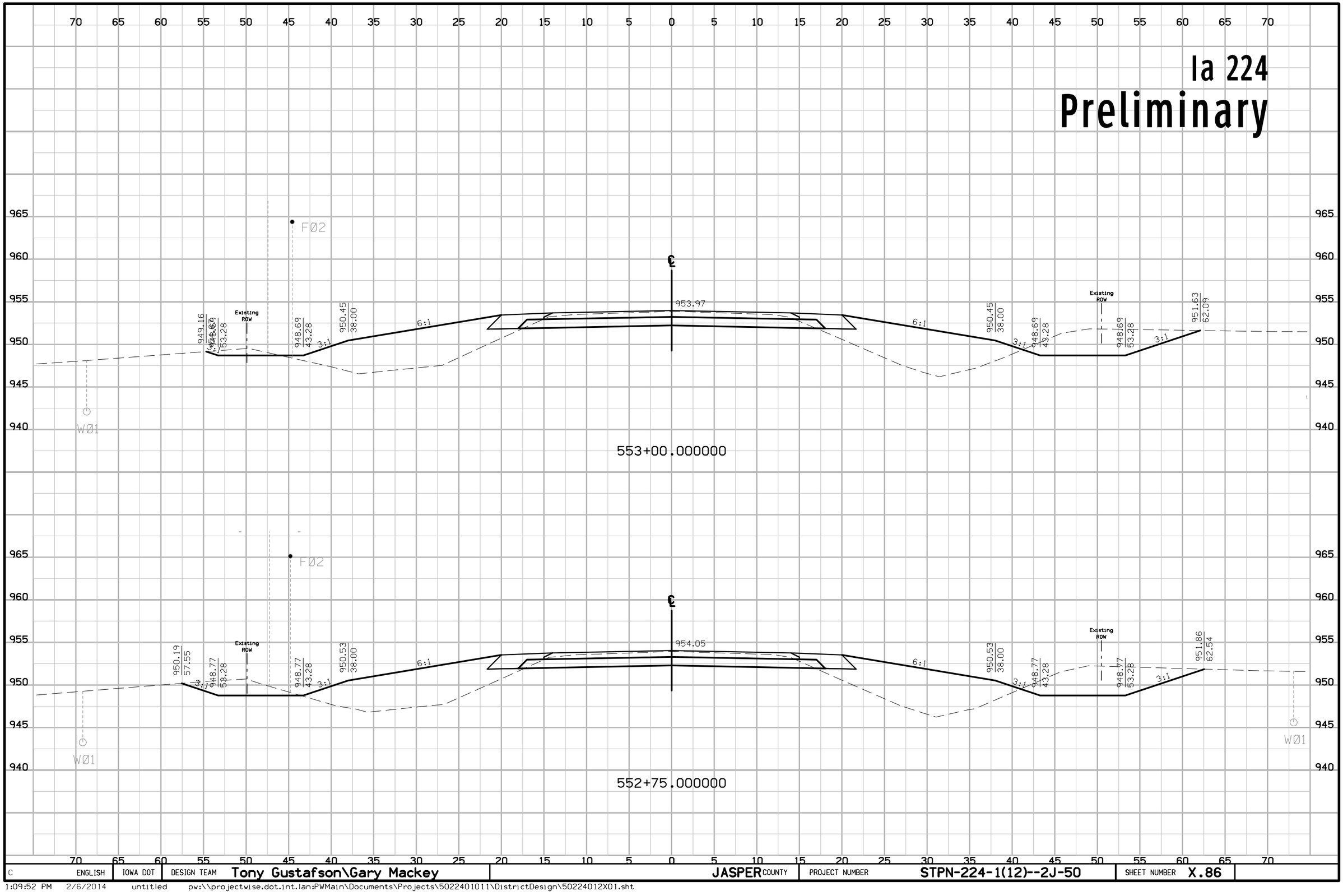
Ia 224

Preliminary



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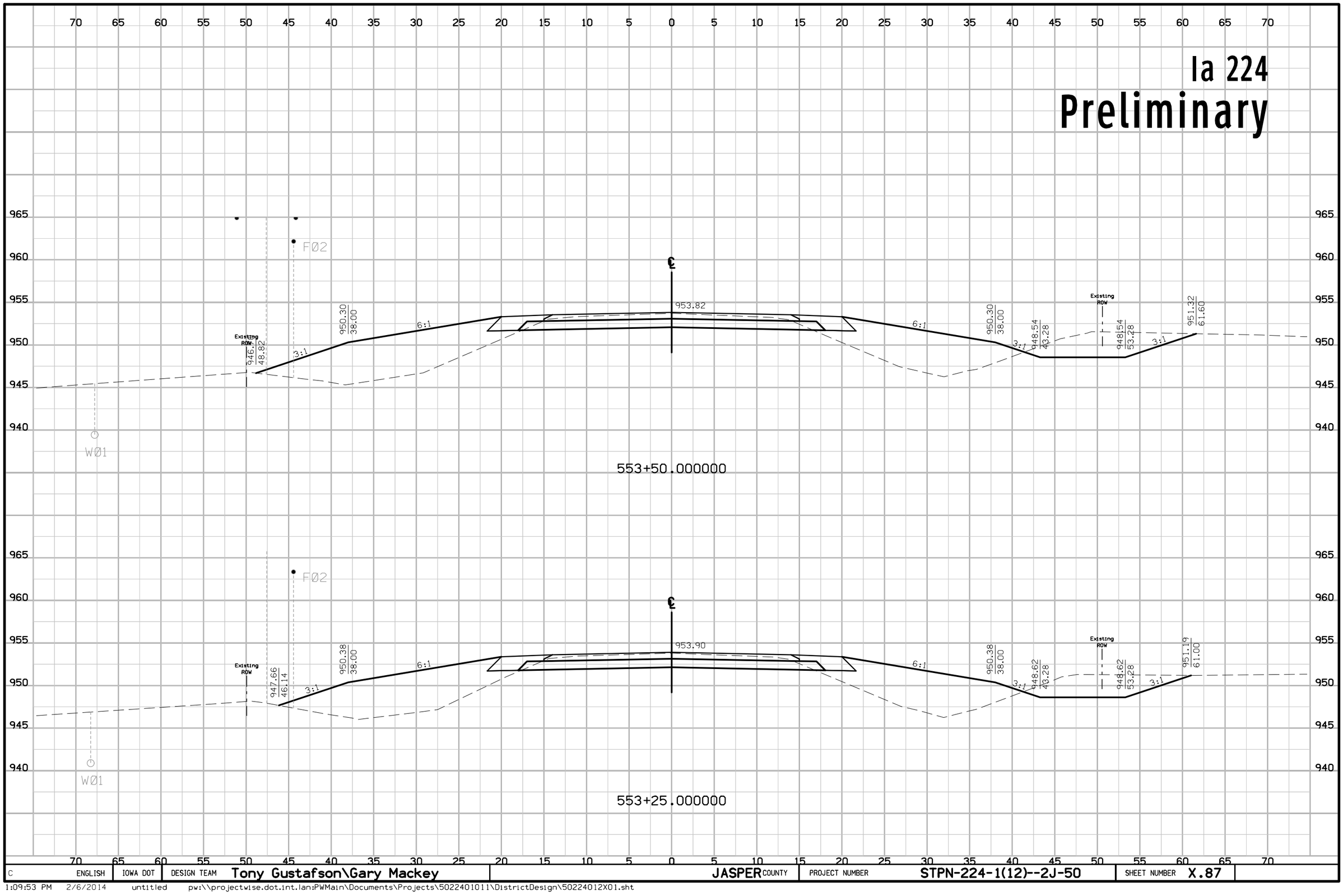
Ia 224

Preliminary



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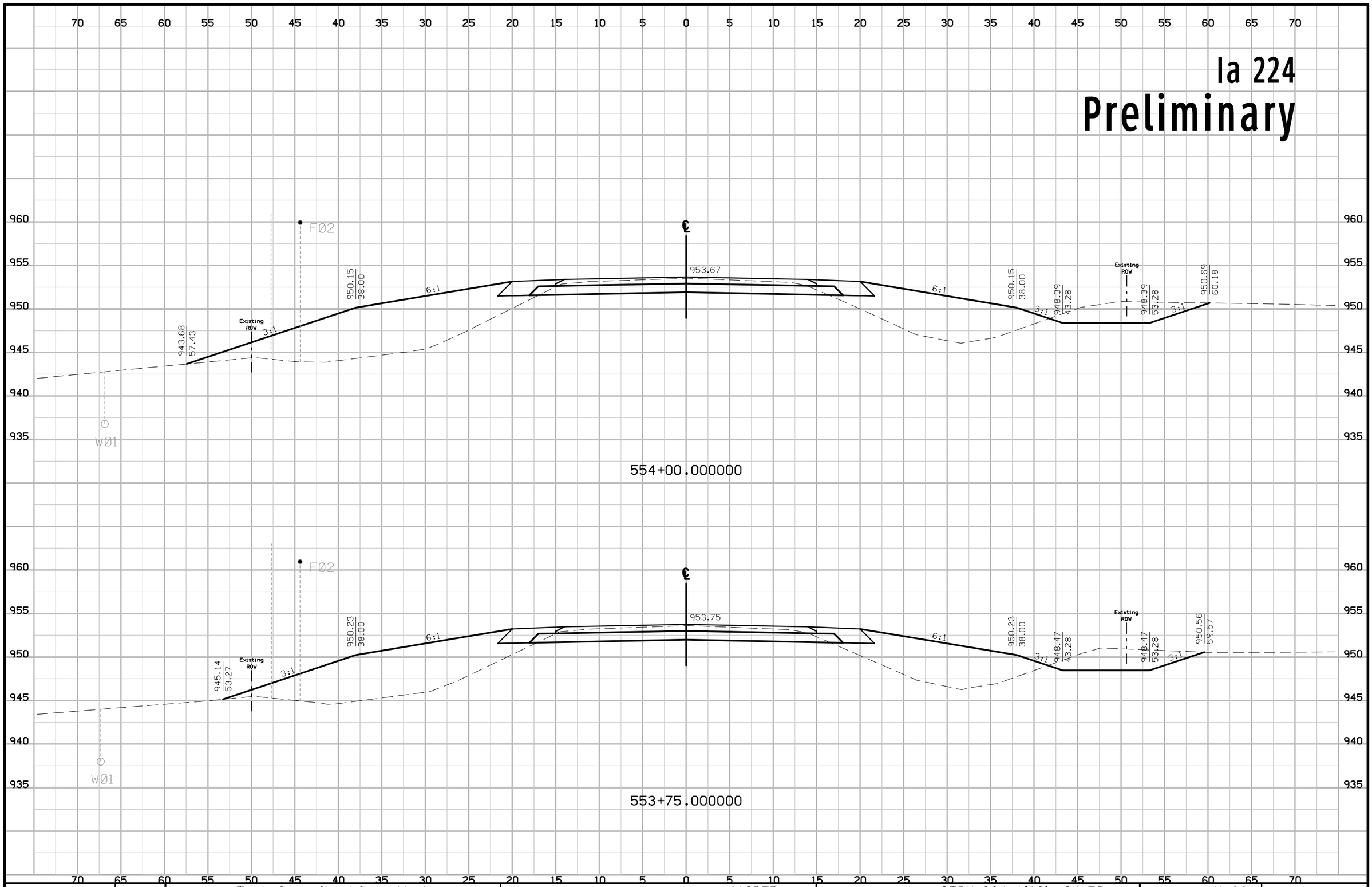
Ia 224

Preliminary



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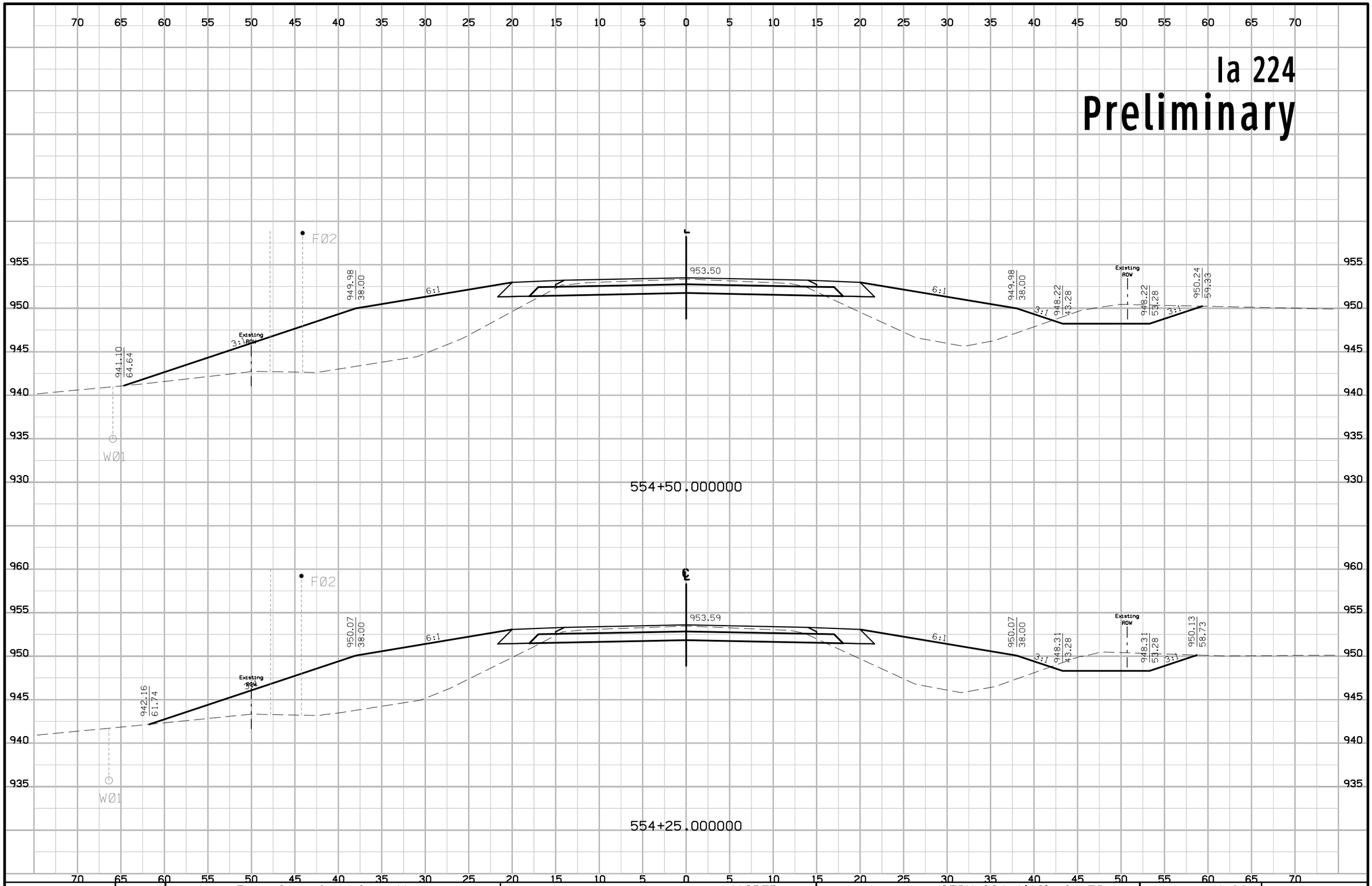
Ia 224

Preliminary



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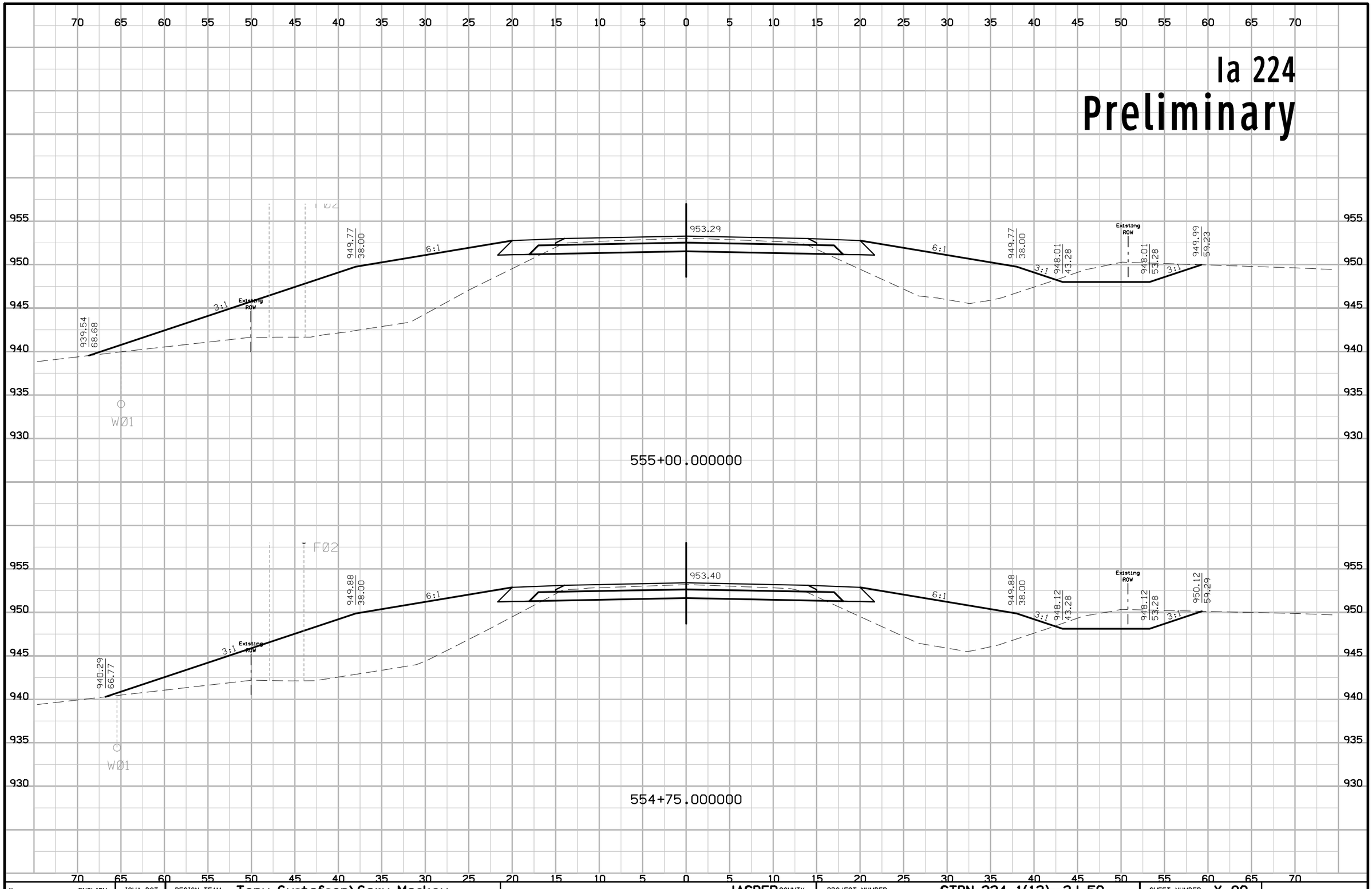
Ia 224

Preliminary



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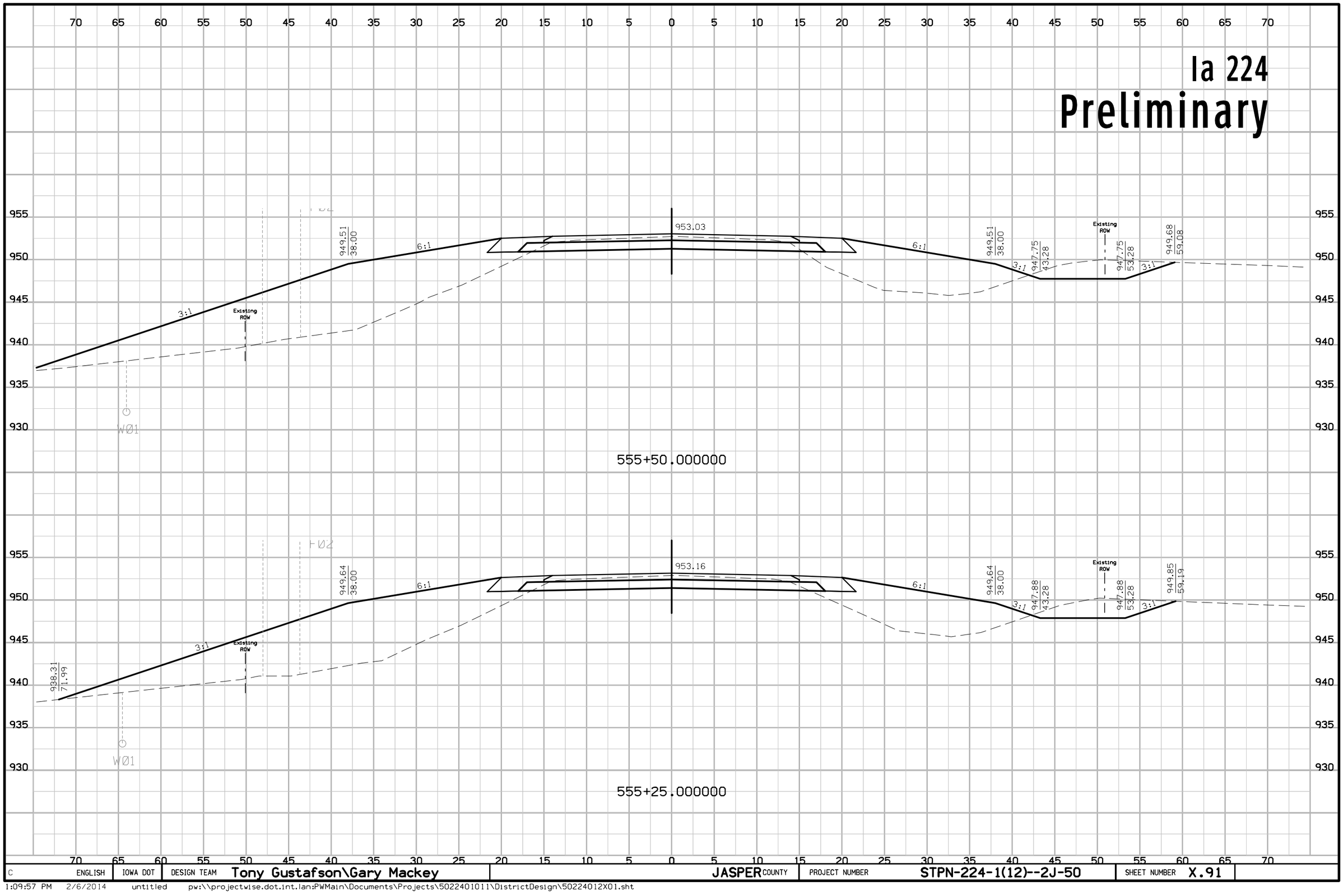
Ia 224

Preliminary



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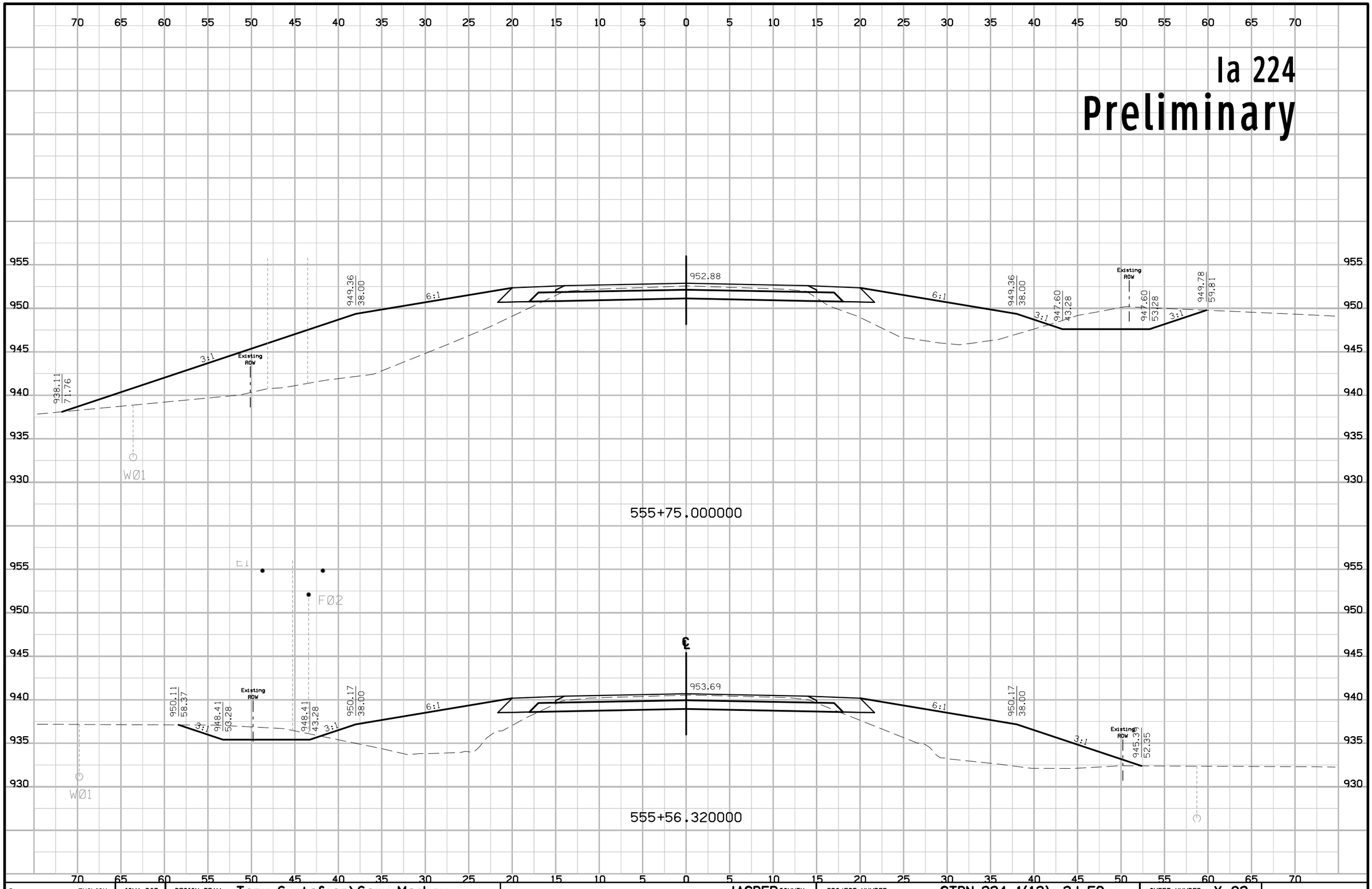
Ia 224
Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.92

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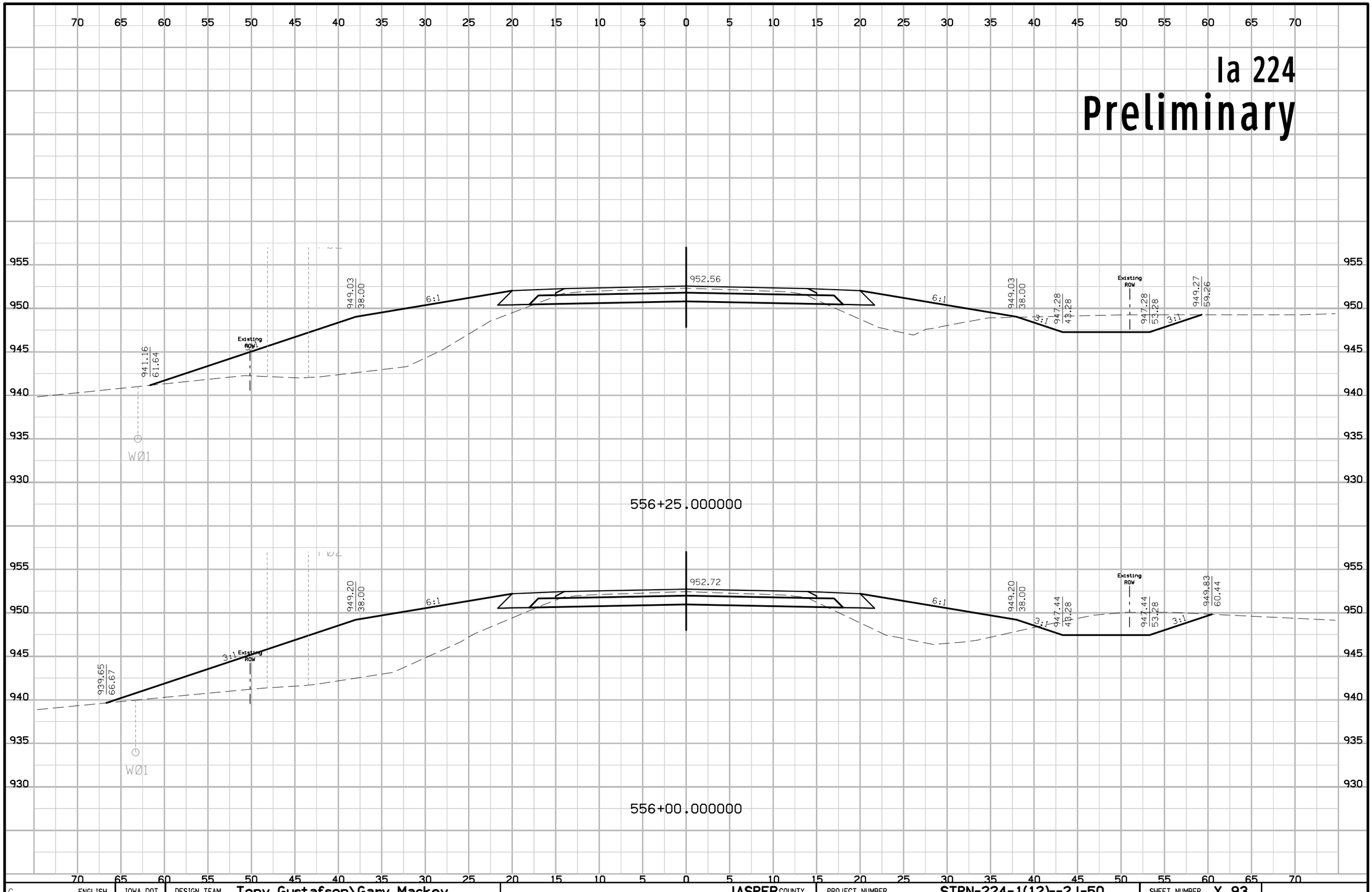
Ia 224

Preliminary



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Ia 224

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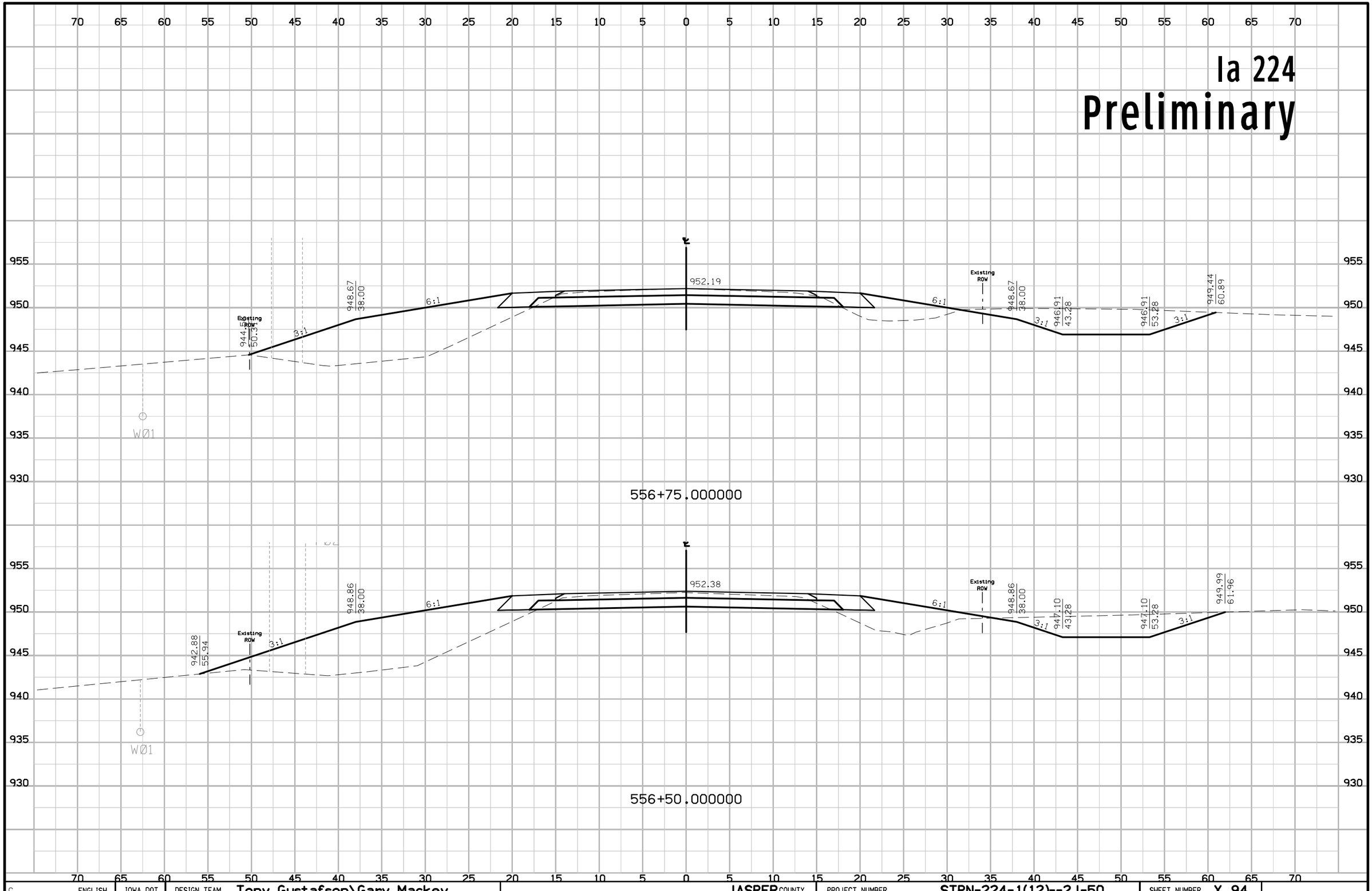

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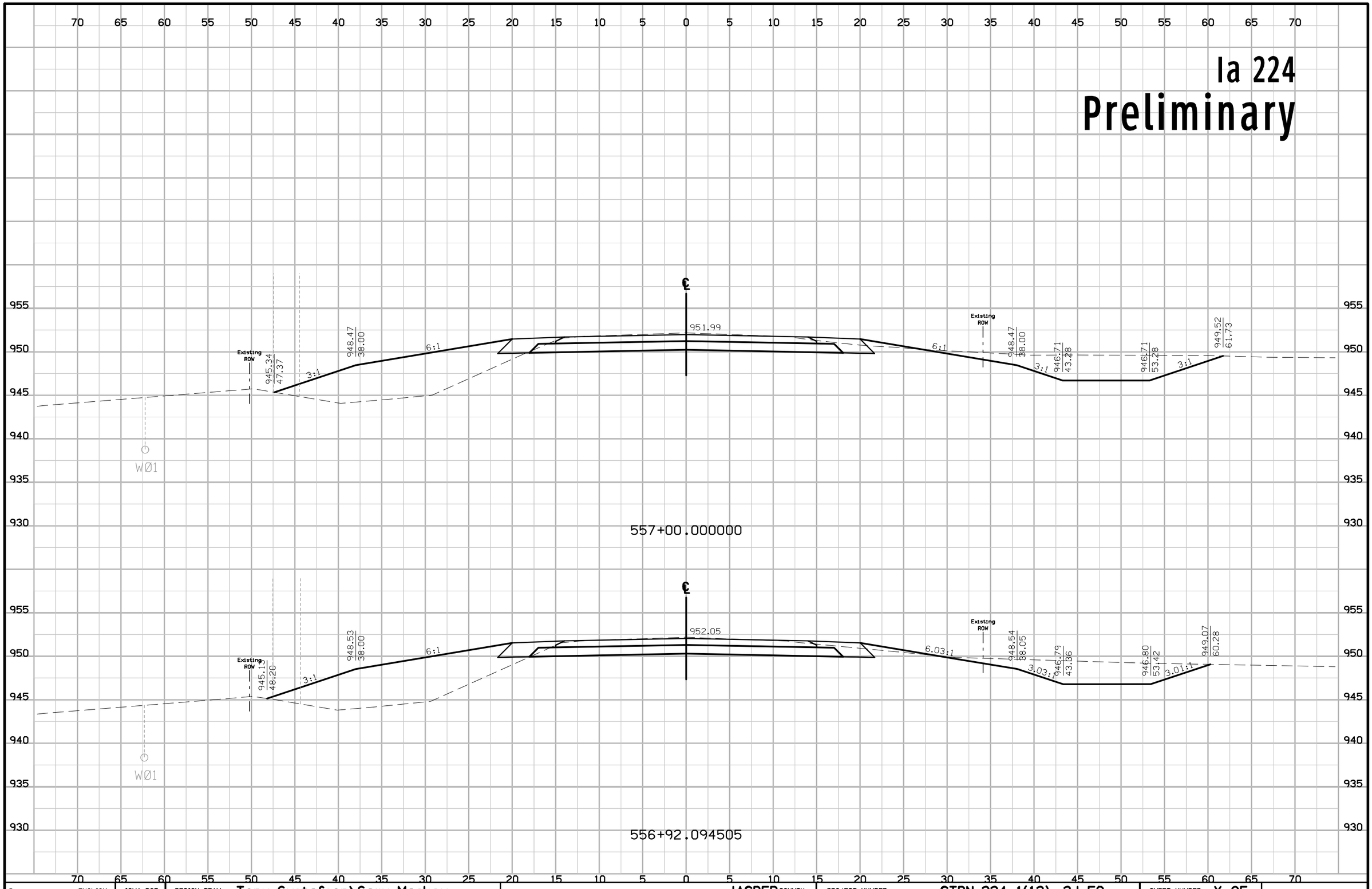
Ia 224

Preliminary



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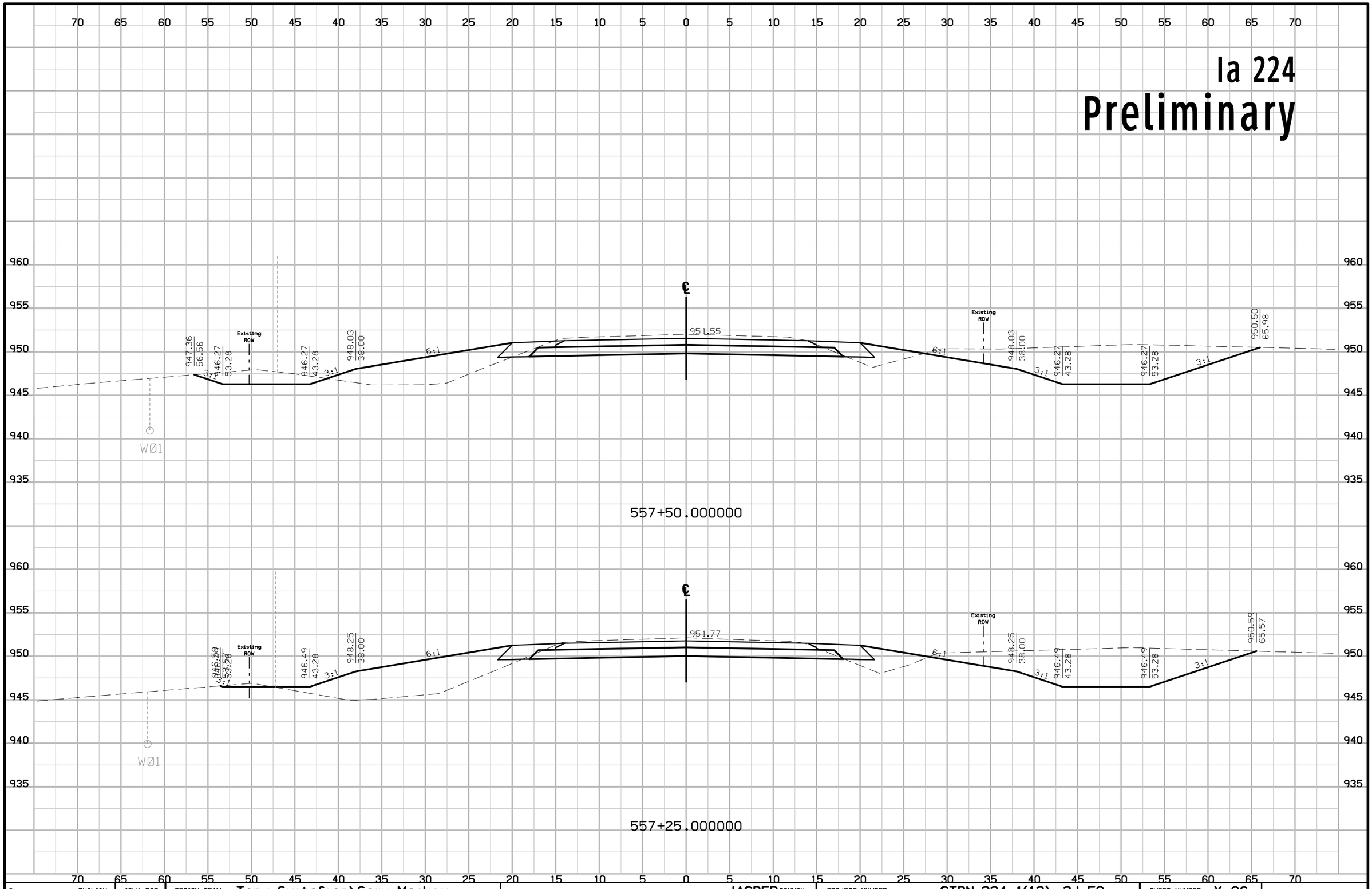
Ia 224

Preliminary



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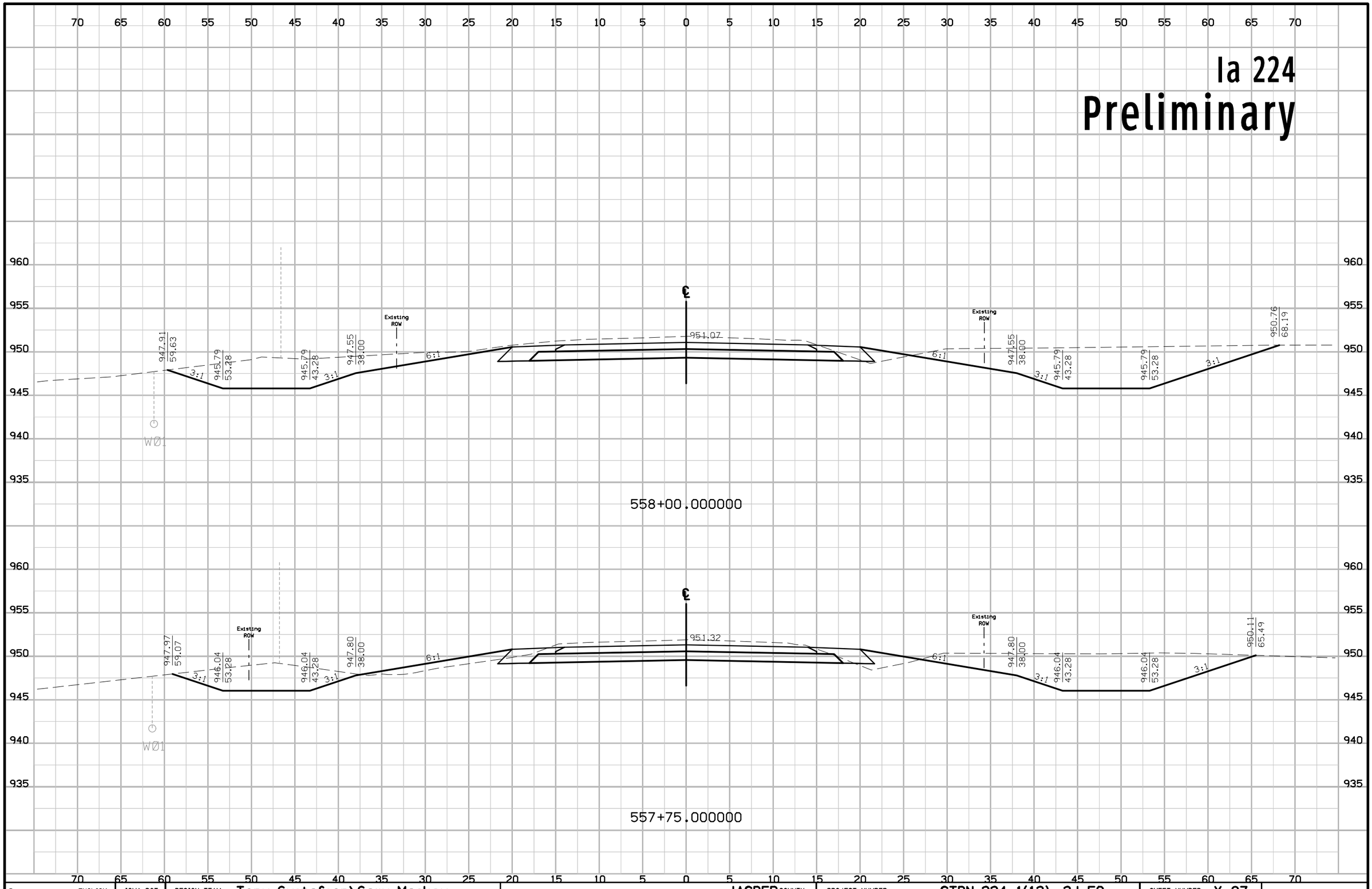
Ia 224

Preliminary



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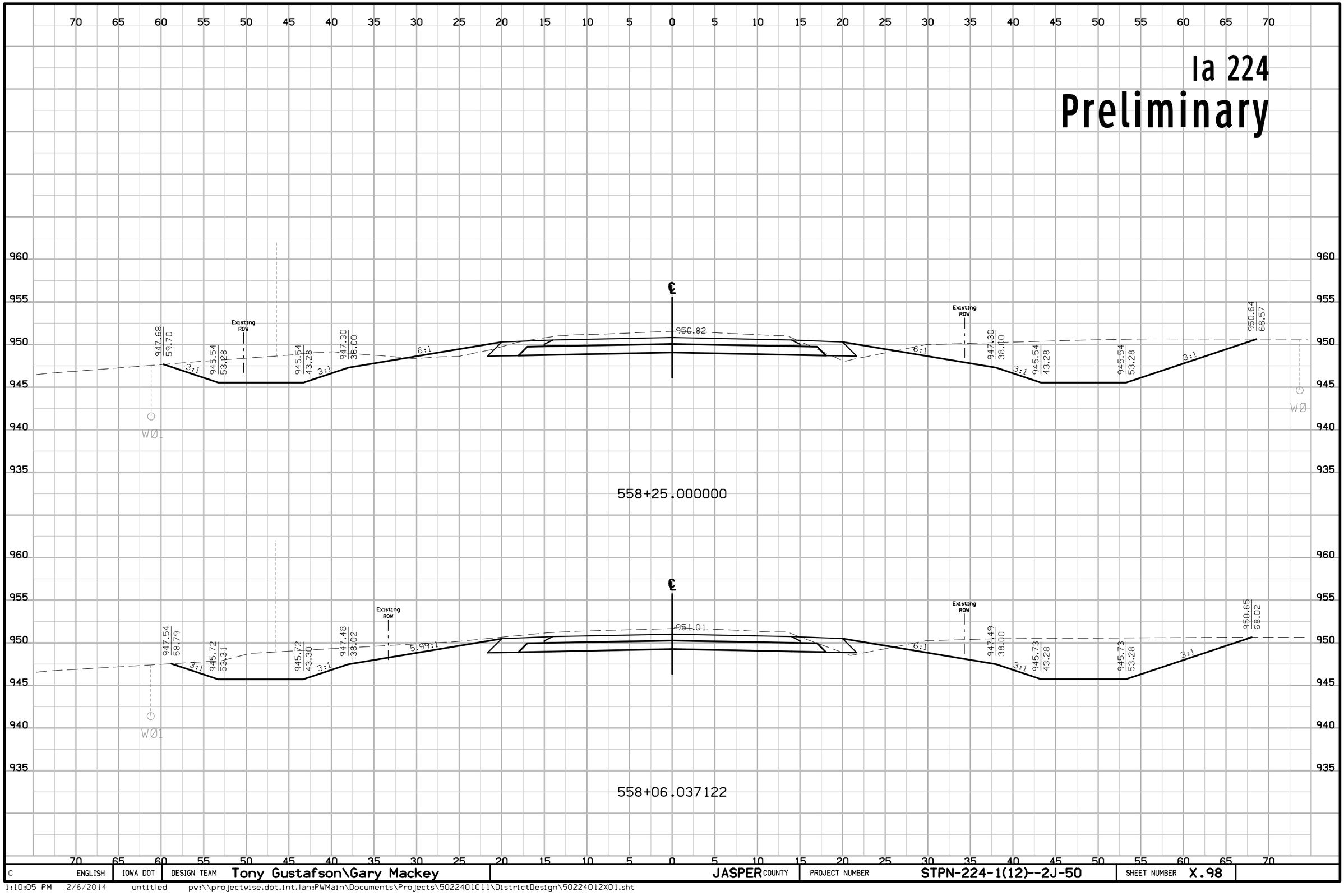
Ia 224

Preliminary



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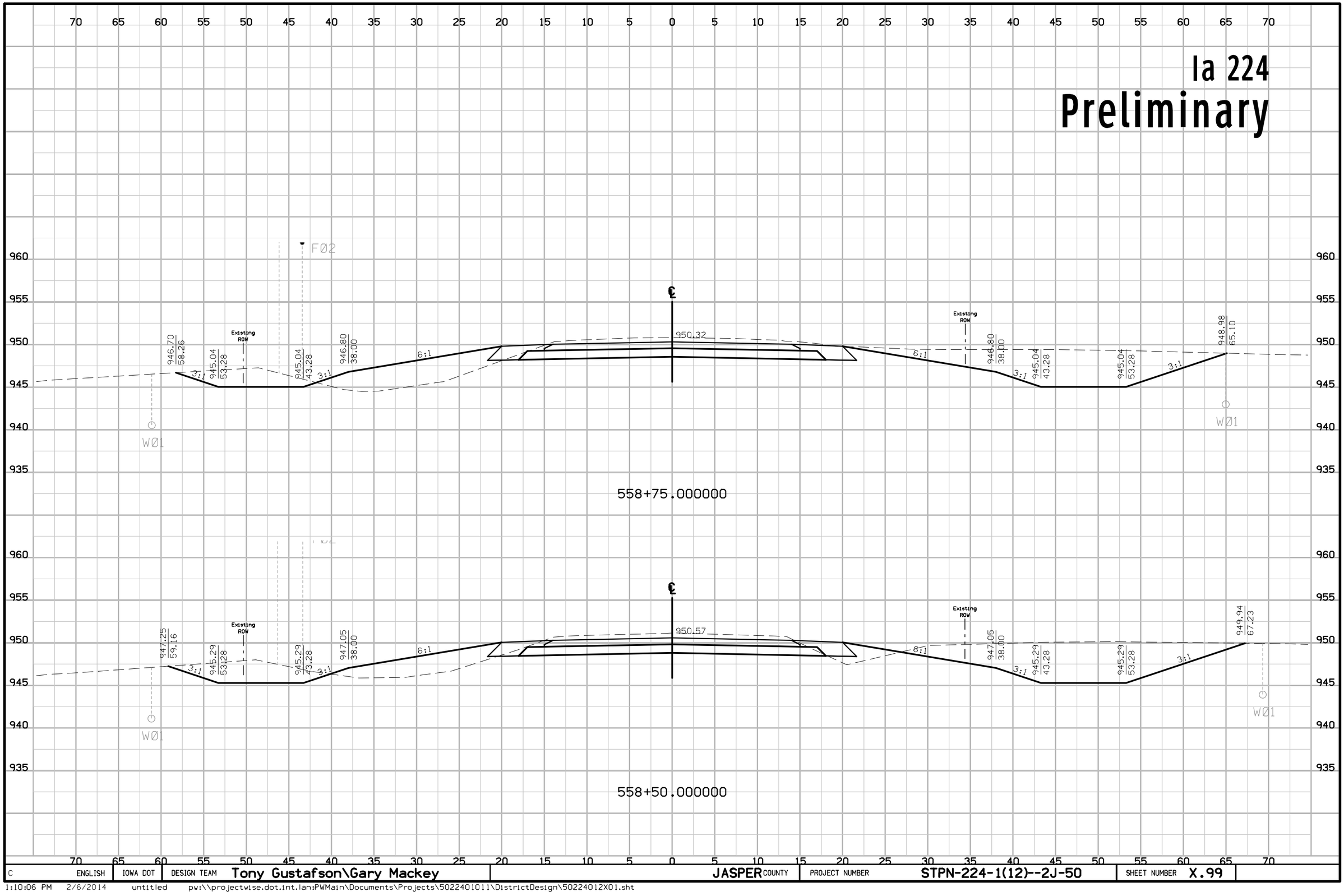
Ia 224

Preliminary



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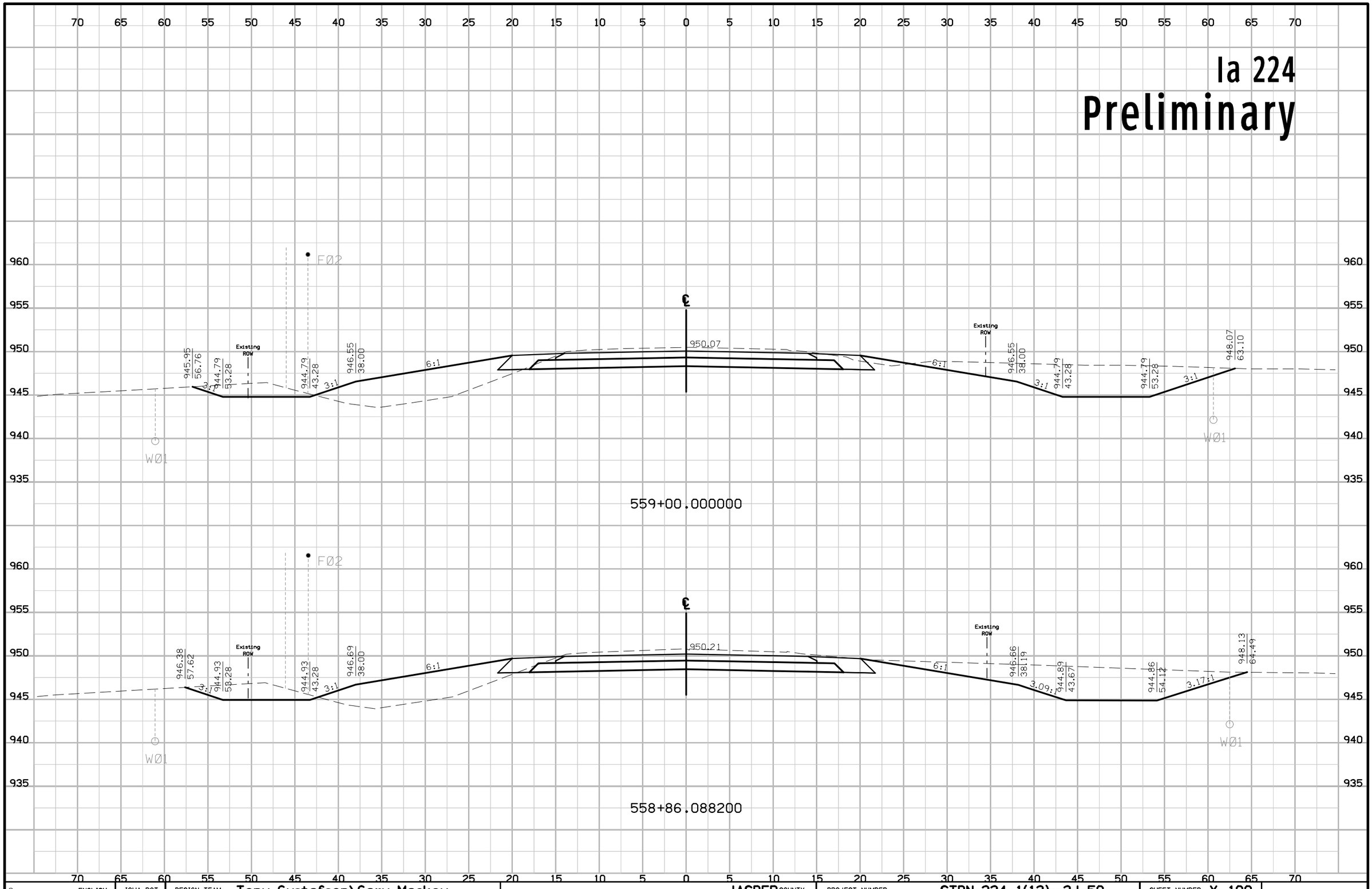
Ia 224

Preliminary



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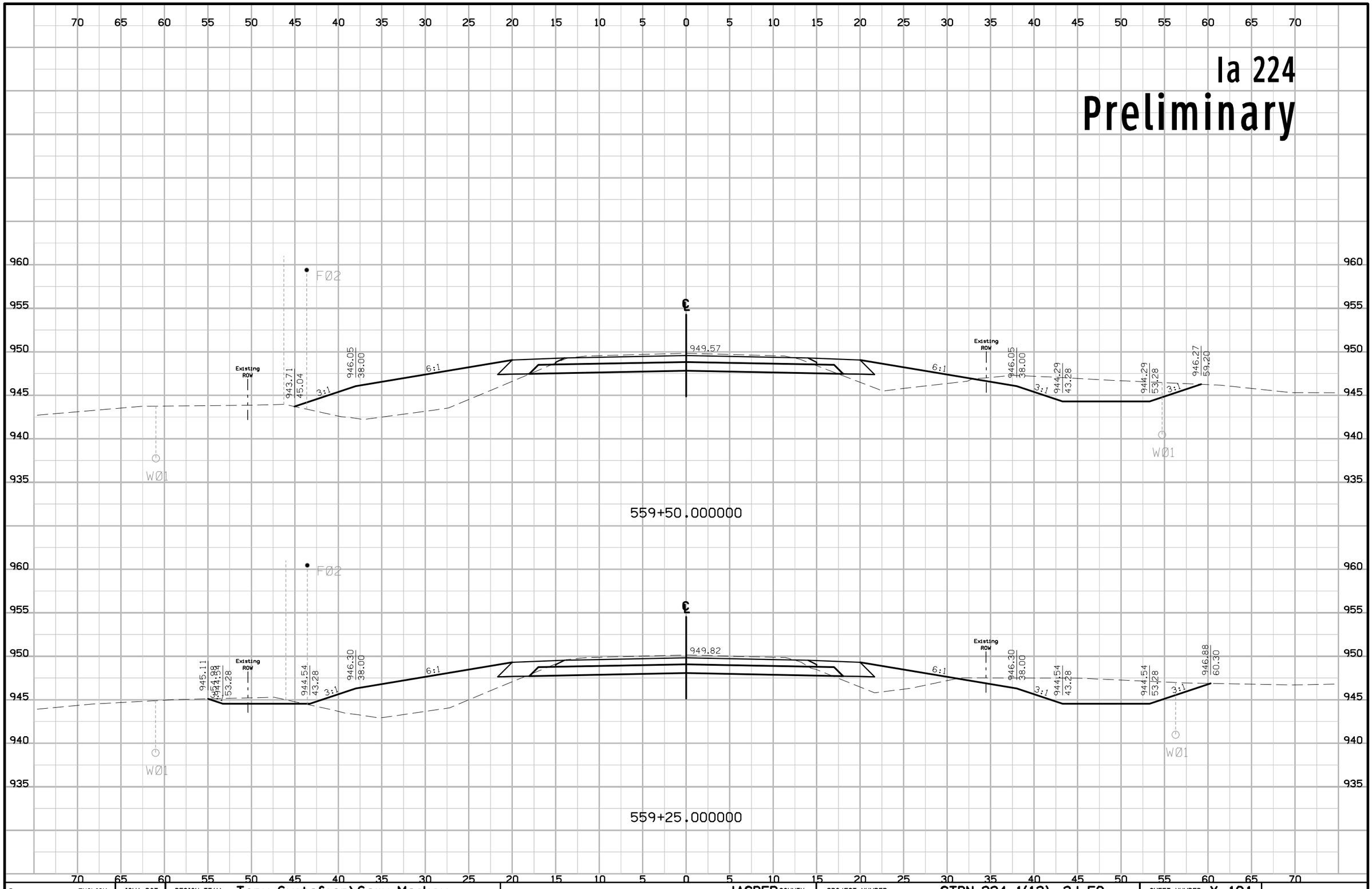
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.101

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Ia 224

Preliminary

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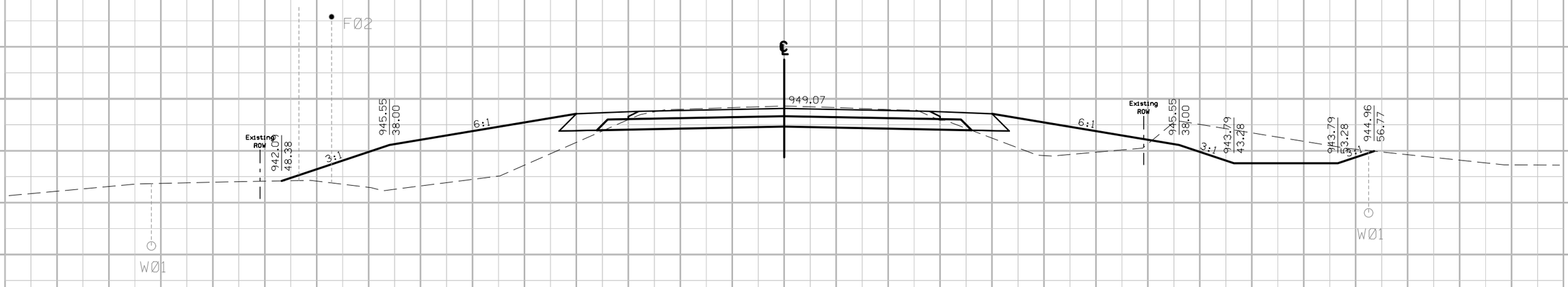

560+00.000000

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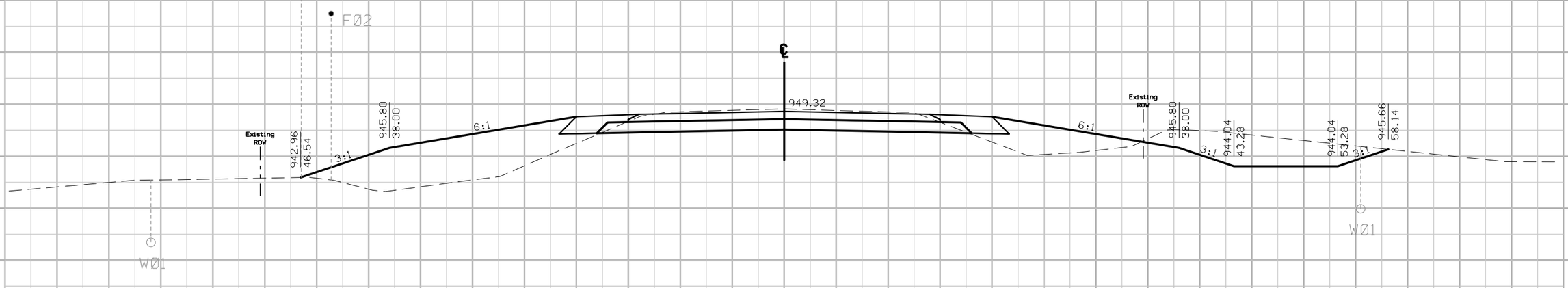

559+75.000000

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C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey		JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.102

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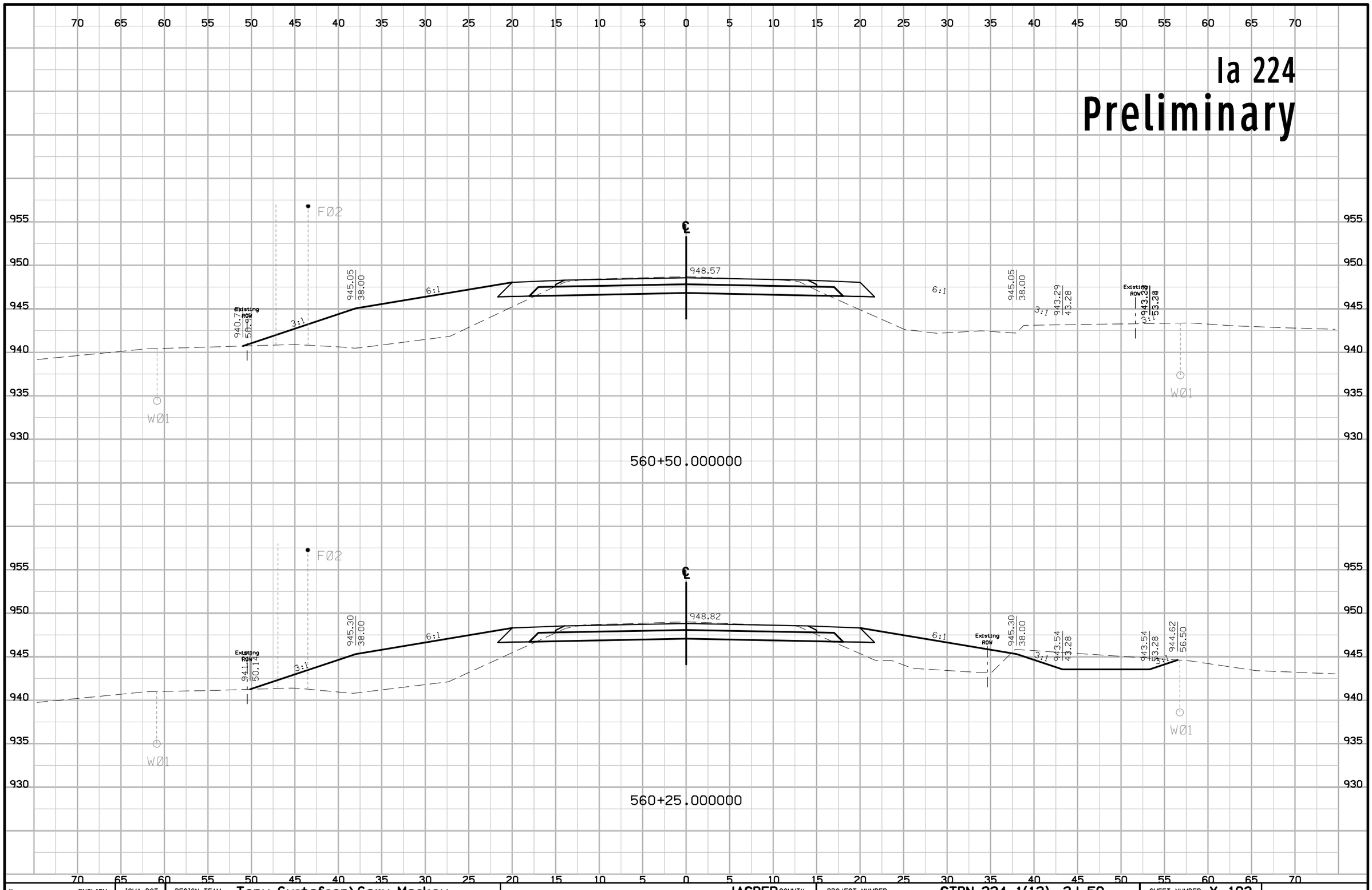
Ia 224

Preliminary



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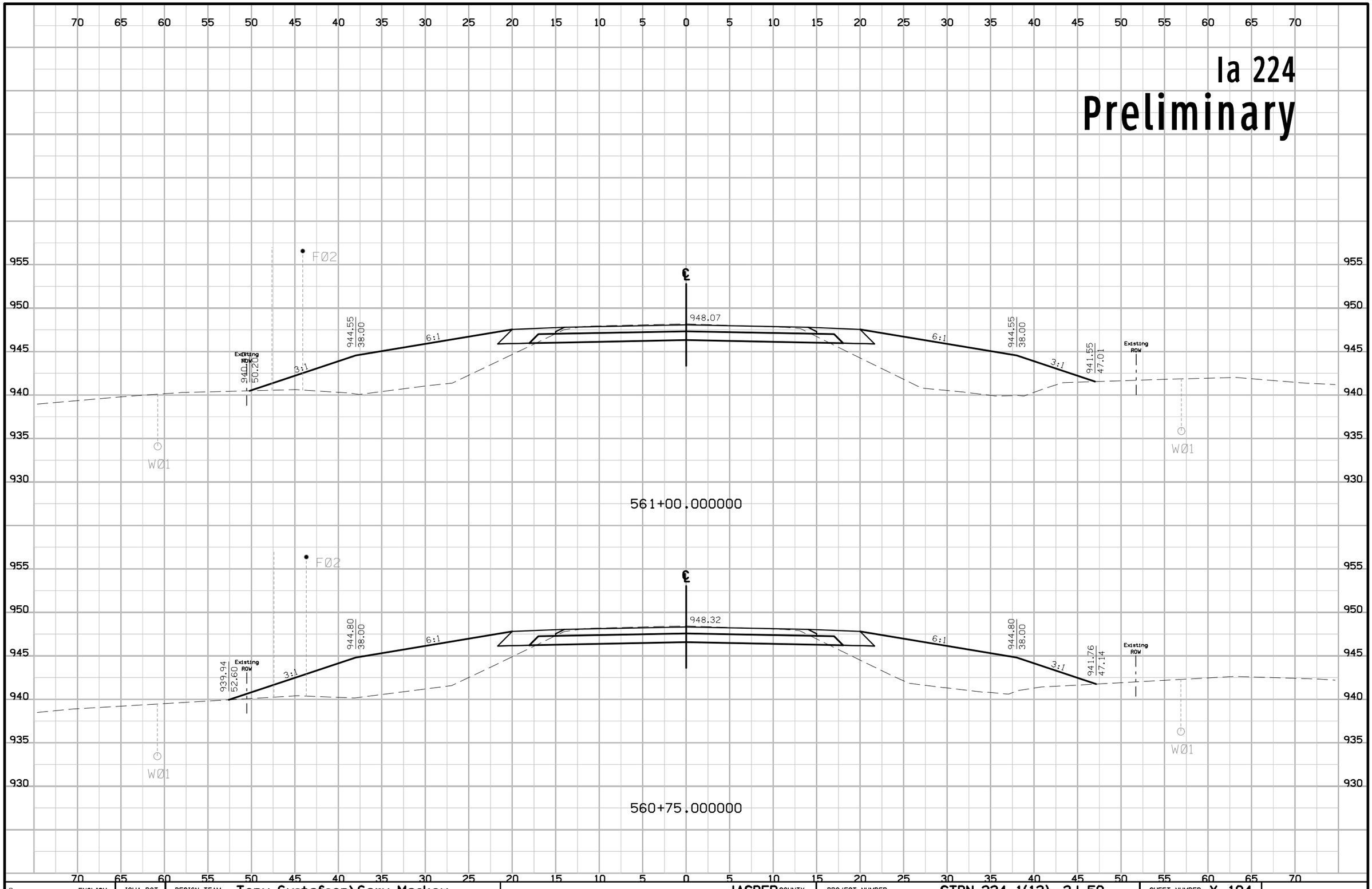
Ia 224

Preliminary



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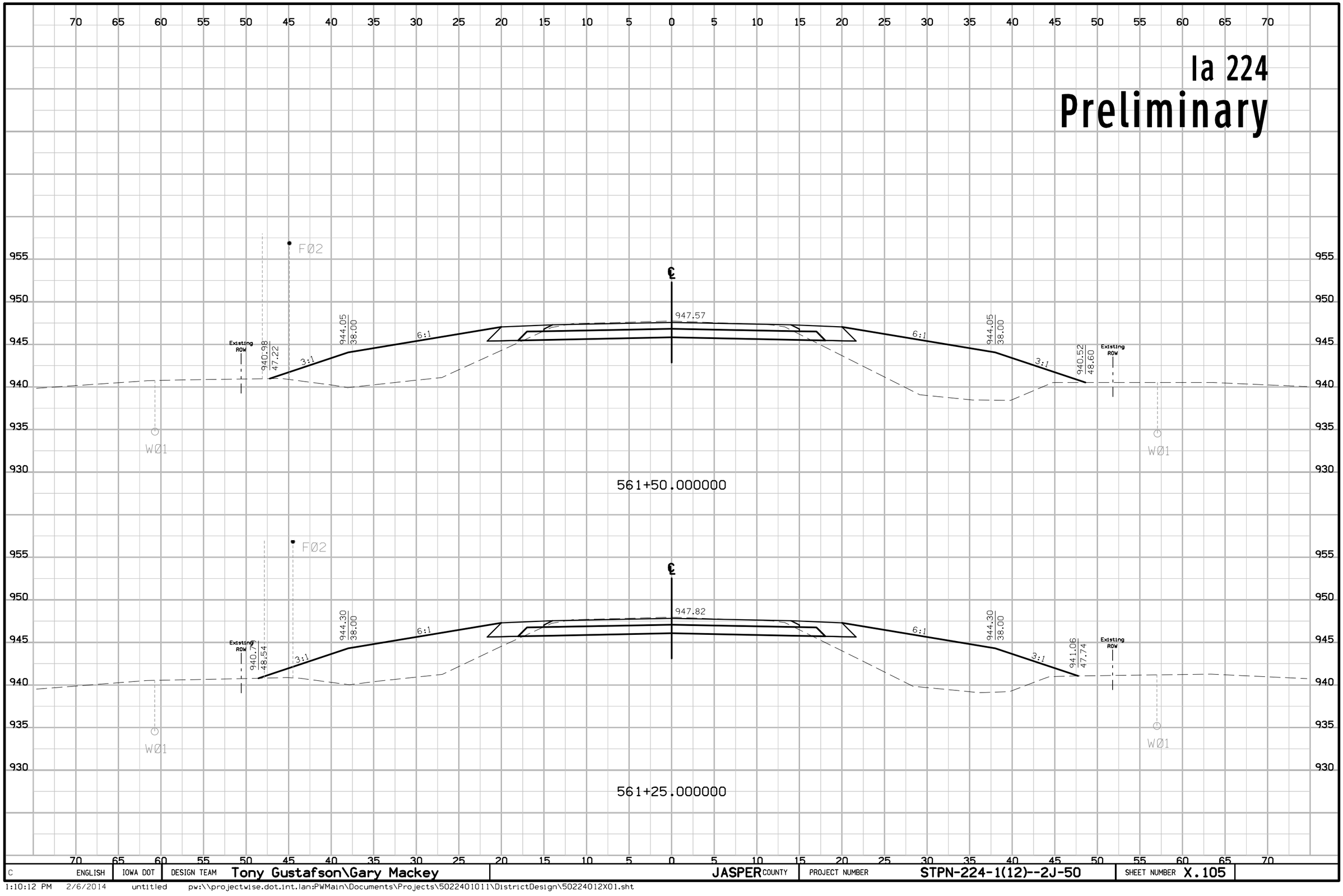
Ia 224

Preliminary



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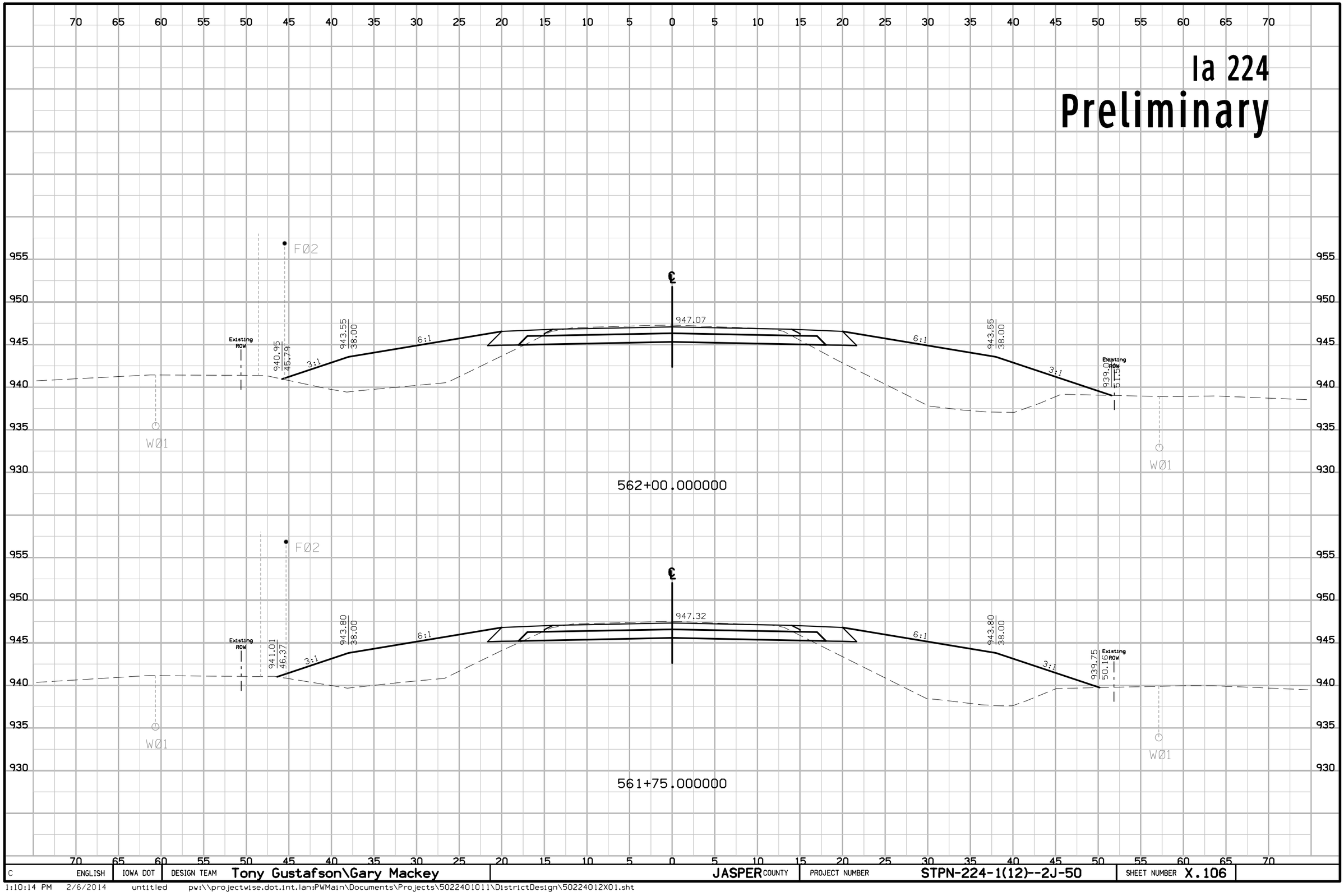
Ia 224

Preliminary



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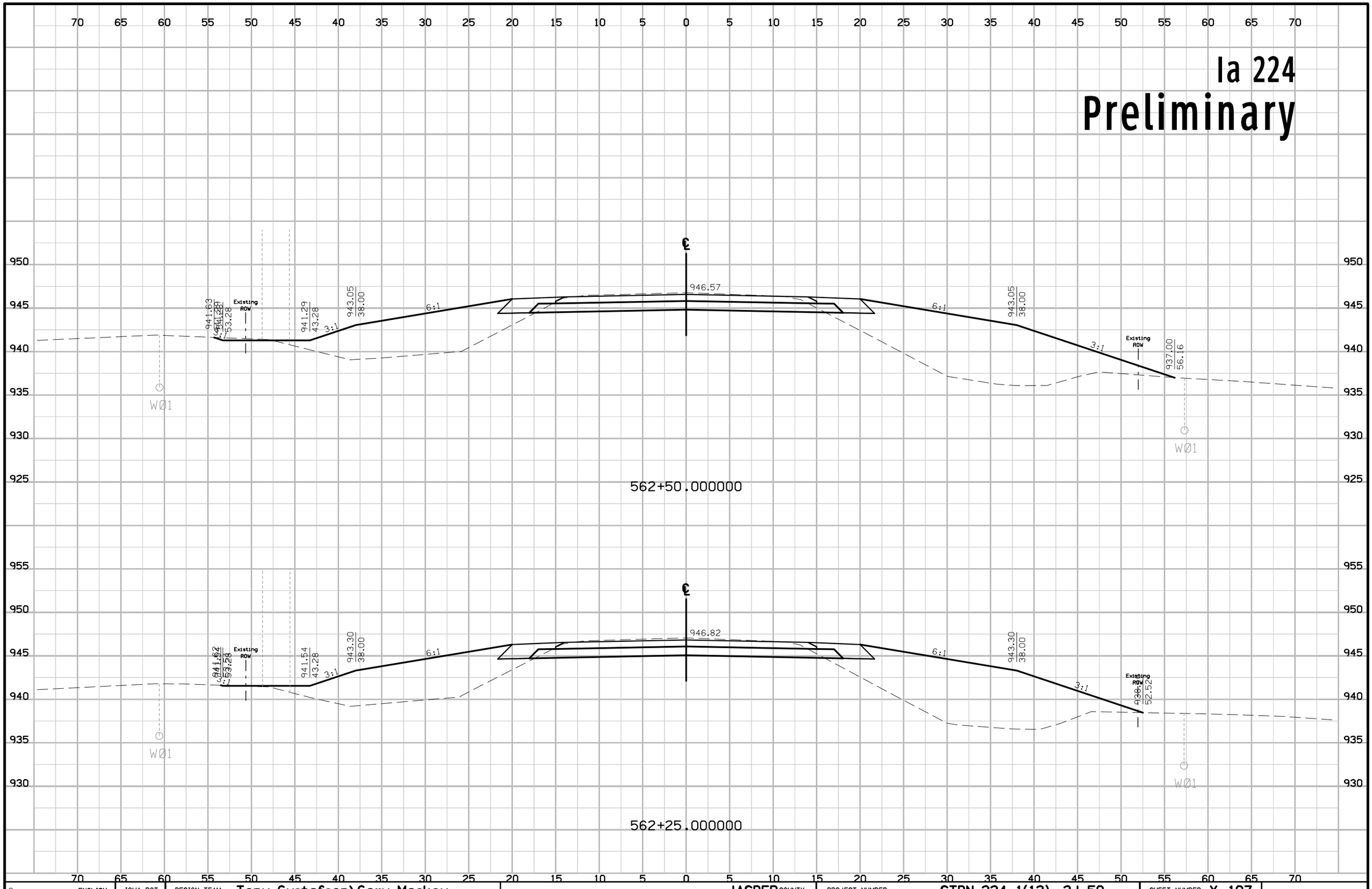
Ia 224

Preliminary



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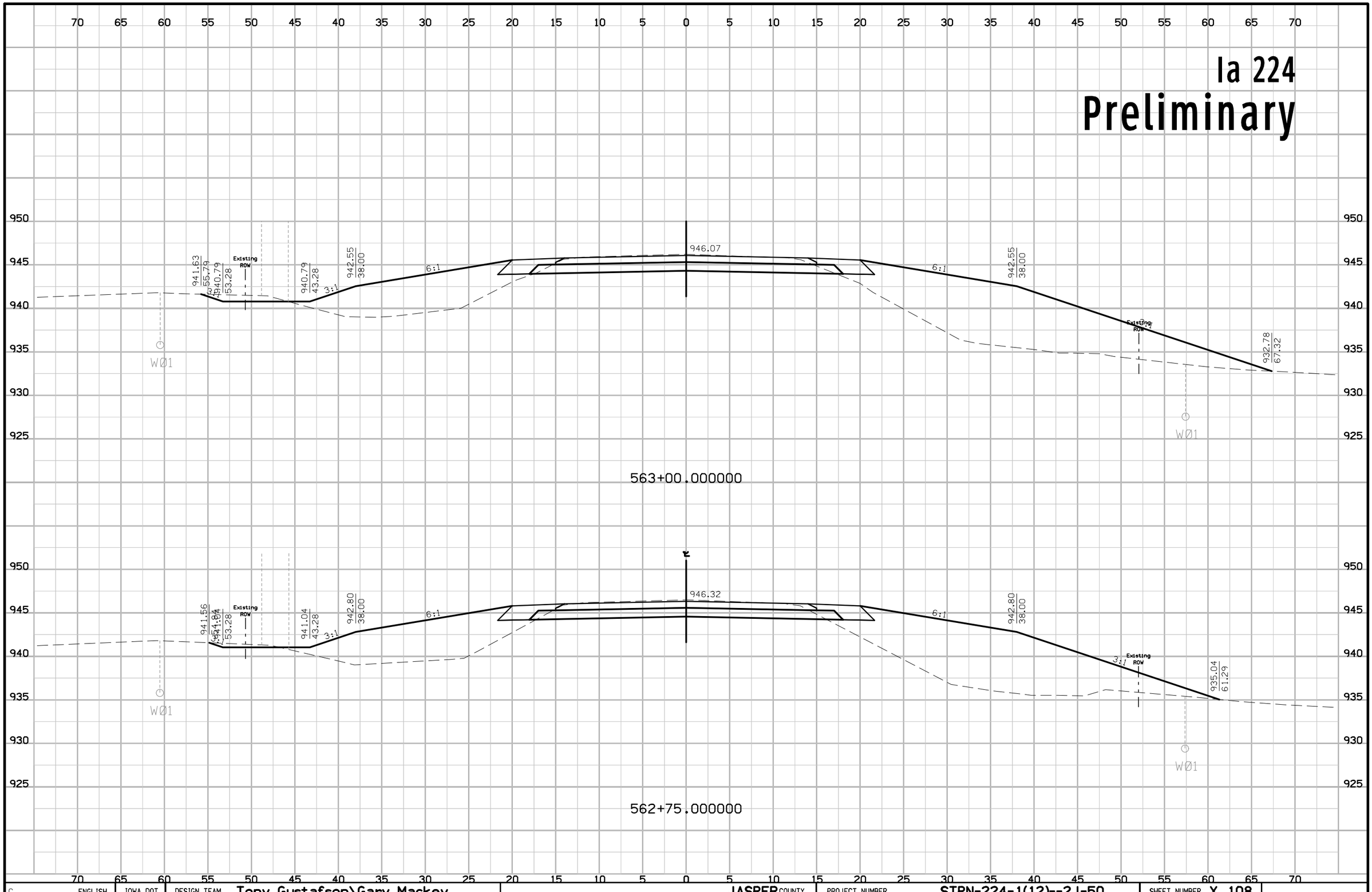
Ia 224

Preliminary



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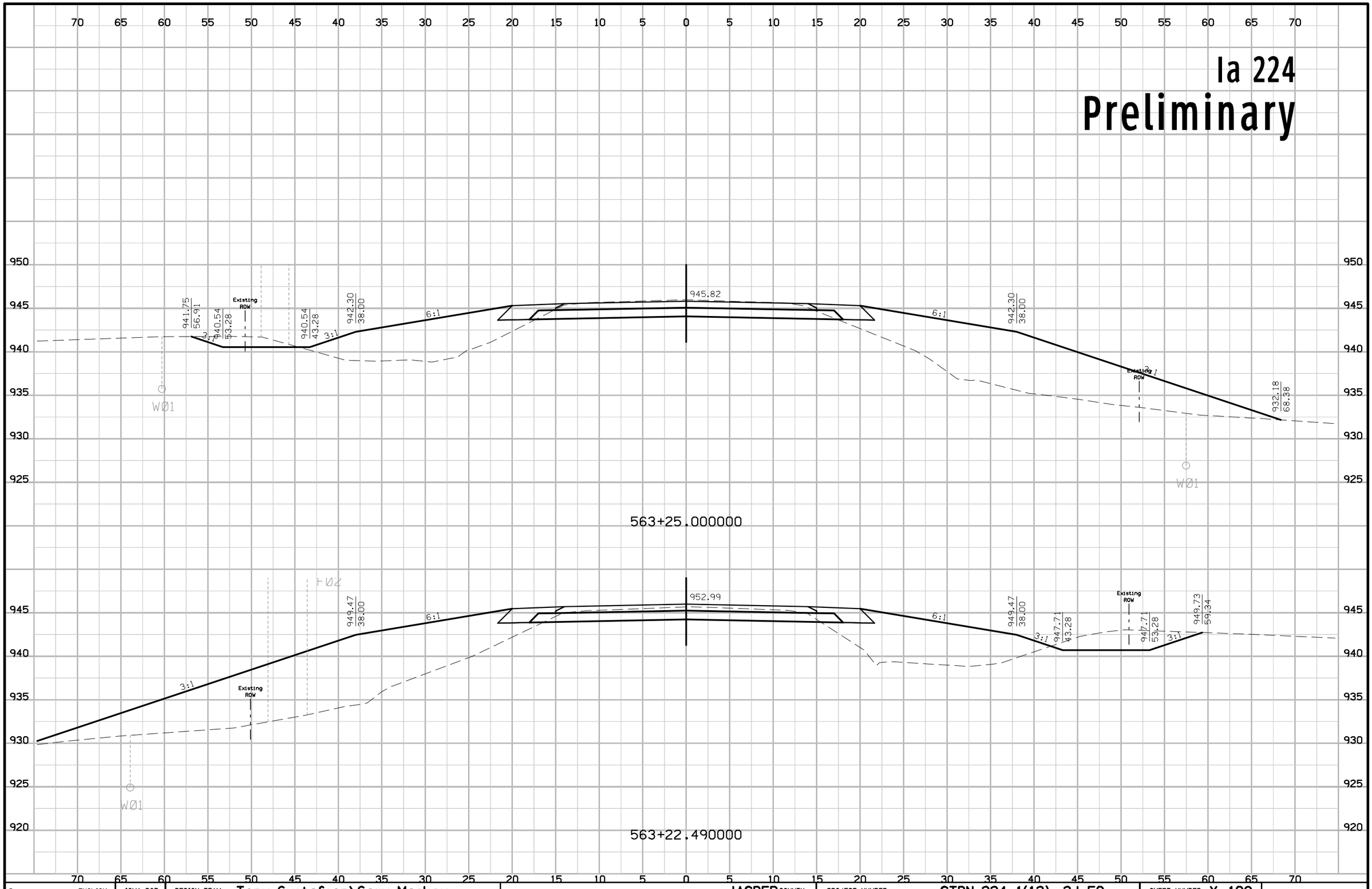
Ia 224

Preliminary



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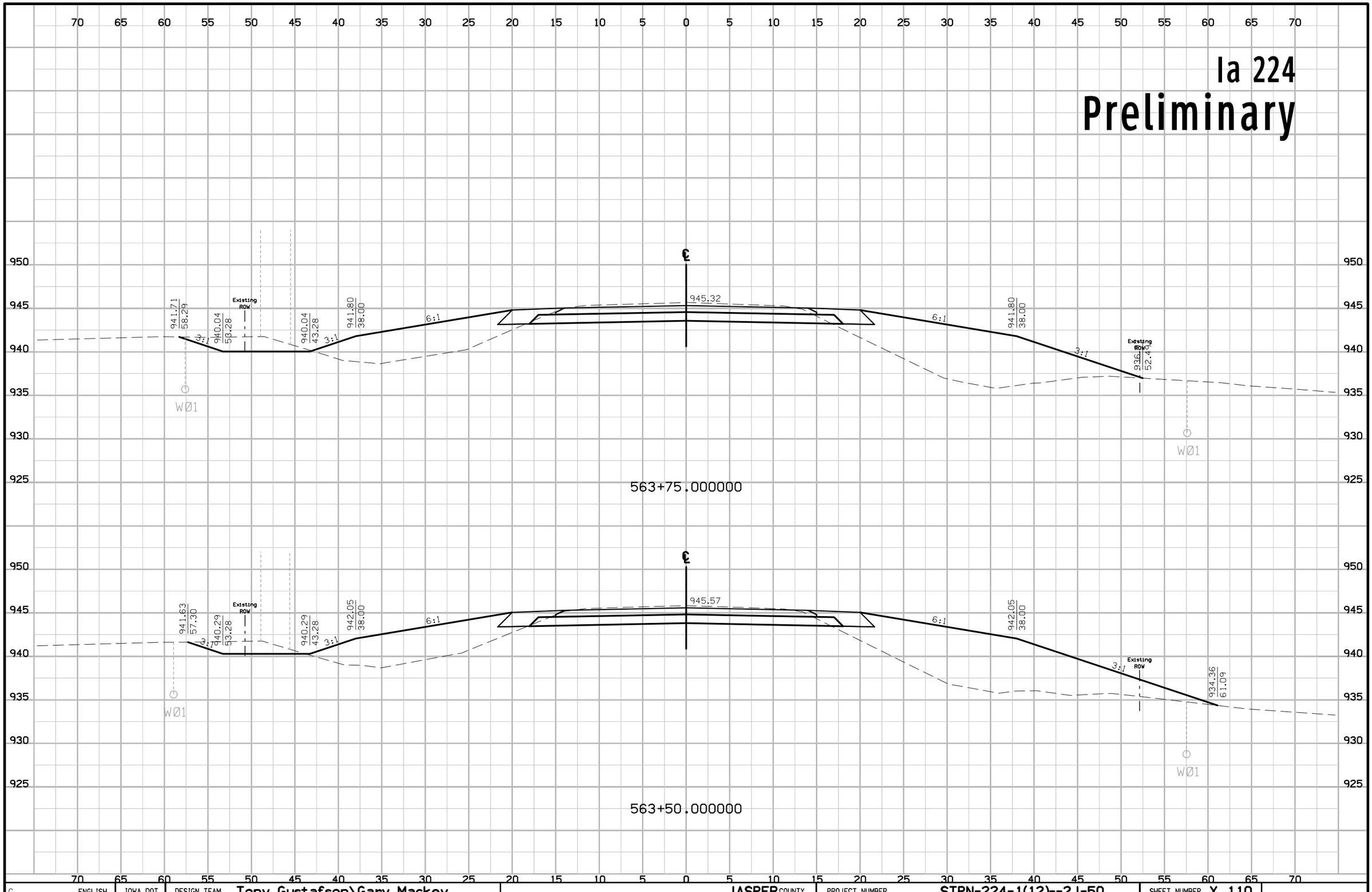
Ia 224
Preliminary



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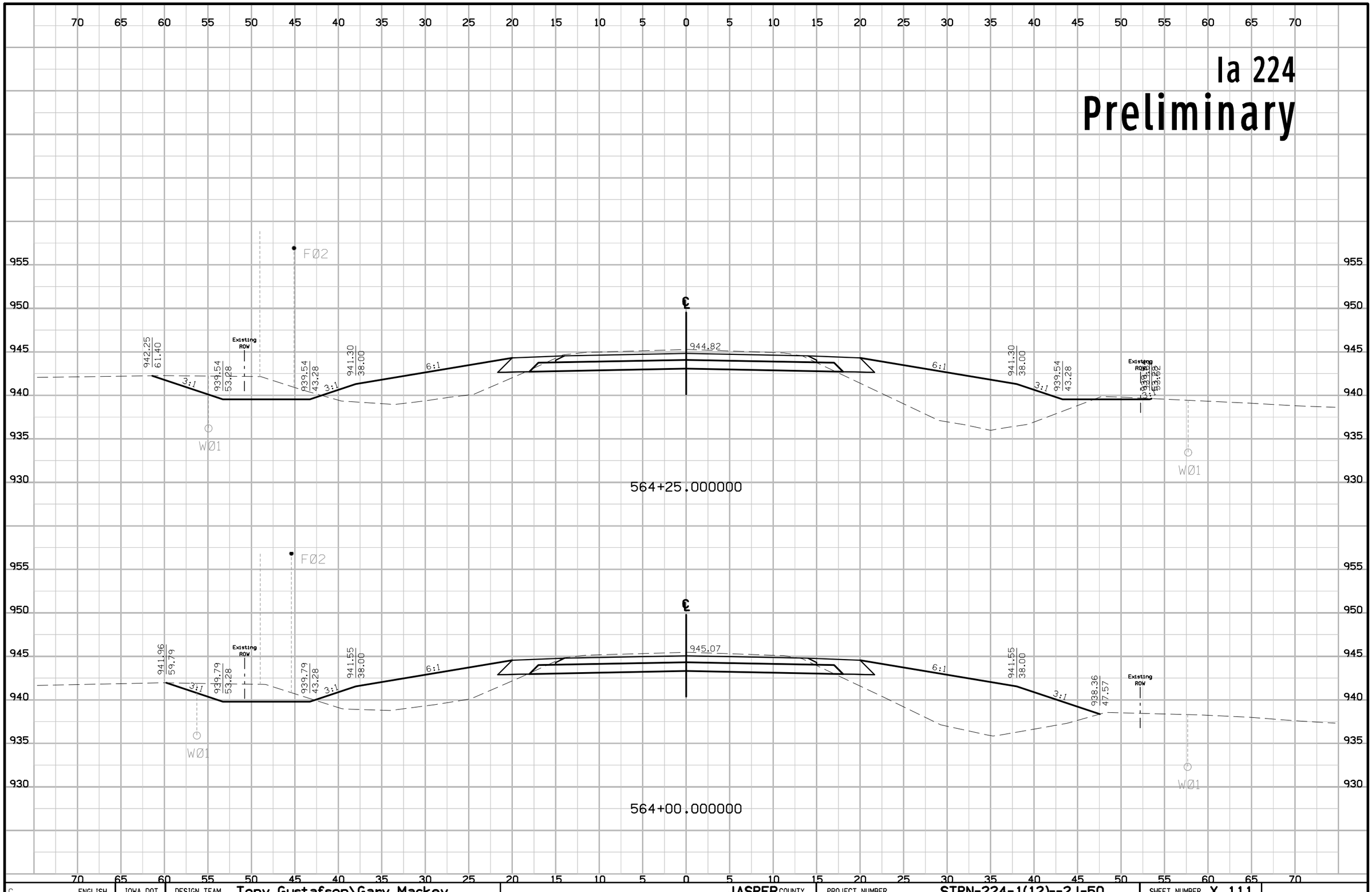
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.111

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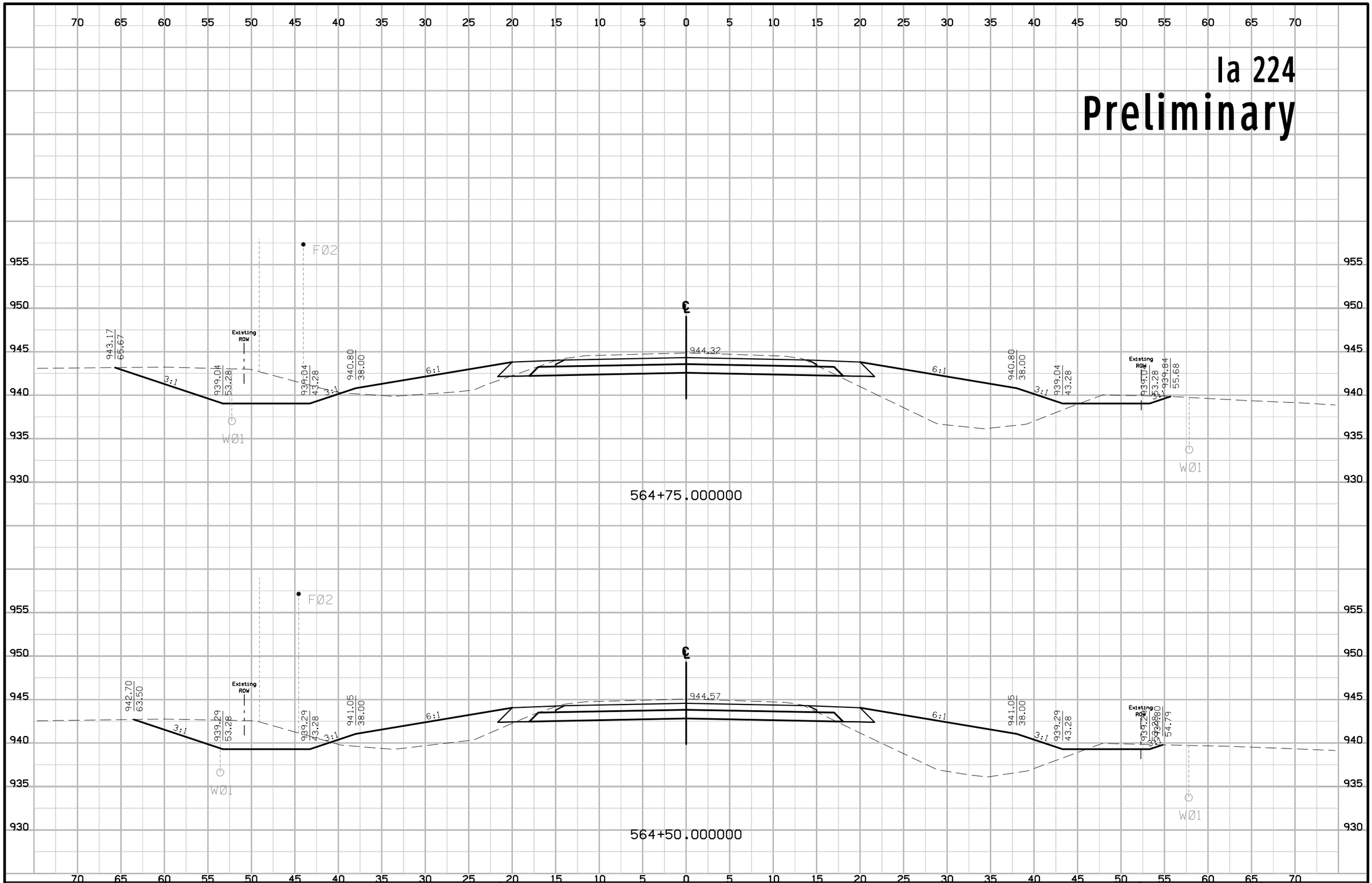
Ia 224

Preliminary



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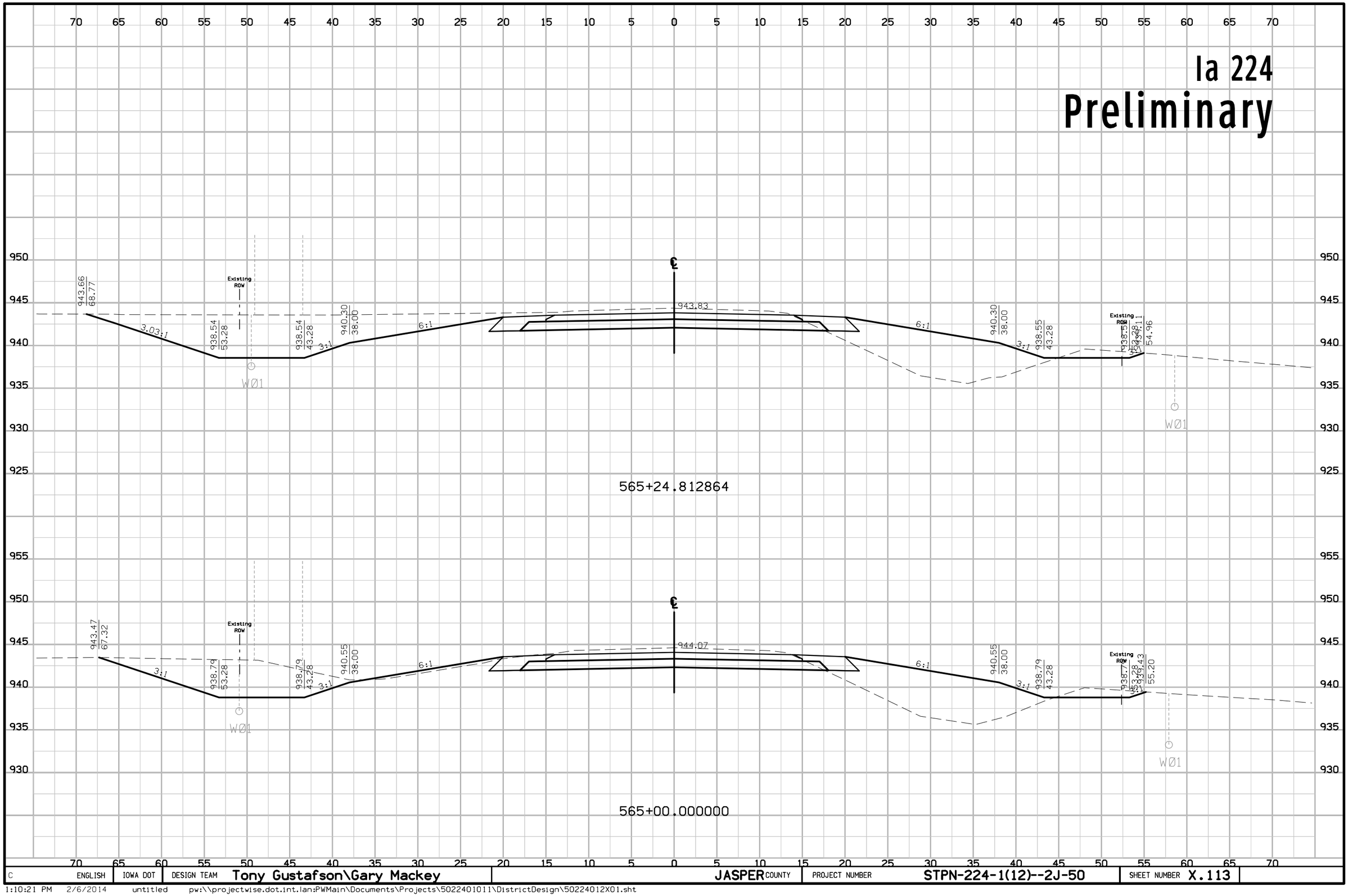
Ia 224

Preliminary



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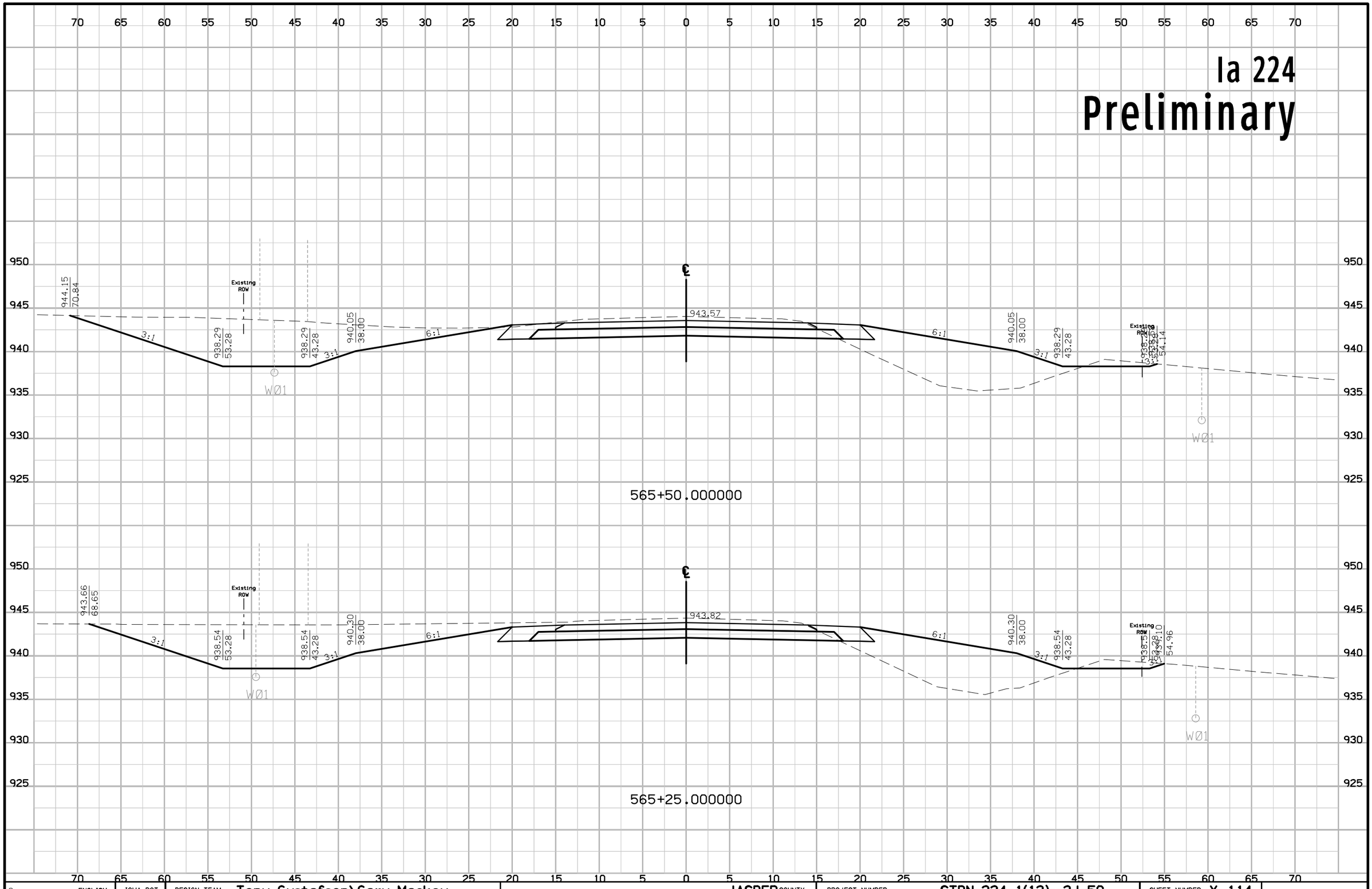
Ia 224
Preliminary



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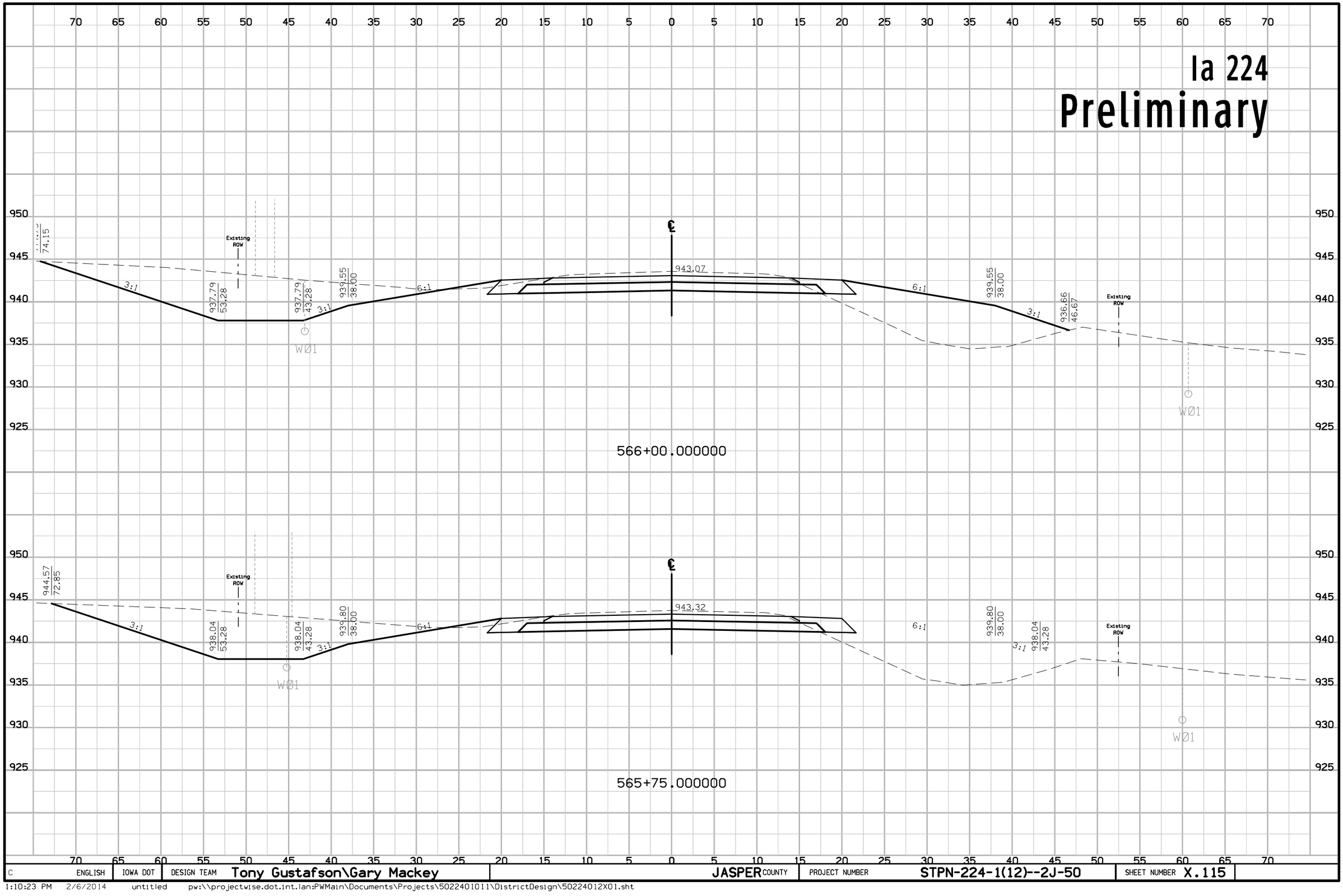
Ia 224
Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.115

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

945 940 935 930 925

ROW

3:1

937.27
53.28

937.27
43.28

3:1

939.03
38.00

6:1

942.55

6:1

939.03
38.00

3:1

935.13
49.71

Existing
ROW

WØ1

WØ1

566+50.000000

920 950 945 940 935 930 925

Existing
ROW

3:1

937.54
53.28

937.54
43.28

3:1

939.30
38.00

6:1

942.82

6:1

939.30
38.00

3:1

935.86
48.34

Existing
ROW

WØ1

WØ1

566+25.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.116

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

945 940 935 930 925 920

Existing ROW

3:1

936.61
53.28

936.61
43.28

3:1

938.37
38.00

6:1

℄

941.89

6:1

938.37
38.00

3:1

934.38
49.99

Existing ROW

WØ1

WØ1

567+00.000000

Existing ROW

3:1

936.96
53.28

936.96
43.28

3:1

938.72
38.00

6:1

℄

942.24

6:1

938.72
38.00

3:1

934.78
49.82

Existing ROW

WØ1

WØ1

566+75.000000

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey		JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.117

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

945 940 935 930 925 920

Existing ROW

3:1

935.79 / 53.28

935.79 / 43.28

3:1

937.55 / 38.00

6:1

941.07

WØ1

6:1

937.55 / 38.00

3:1

Existing ROW

929.44 / 62.35

WØ1

567+50.000000

945 940 935 930 925 920

Existing ROW

3:1

936.22 / 53.28

936.22 / 43.28

3:1

937.98 / 38.00

6:1

℄

941.50

6:1

937.98 / 38.00

3:1

Existing ROW

932.17 / 55.43

WØ1

567+25.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.118

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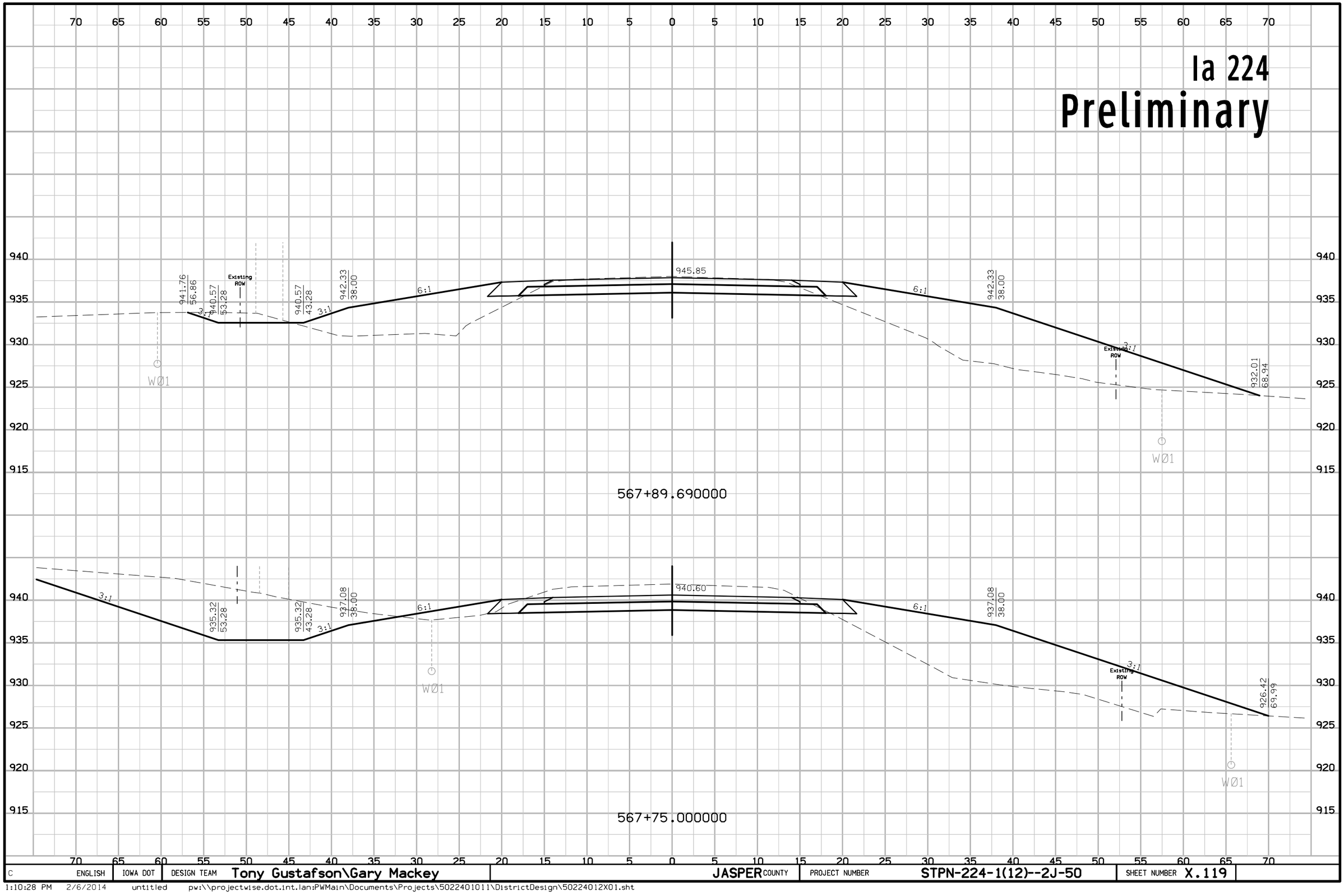
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.119

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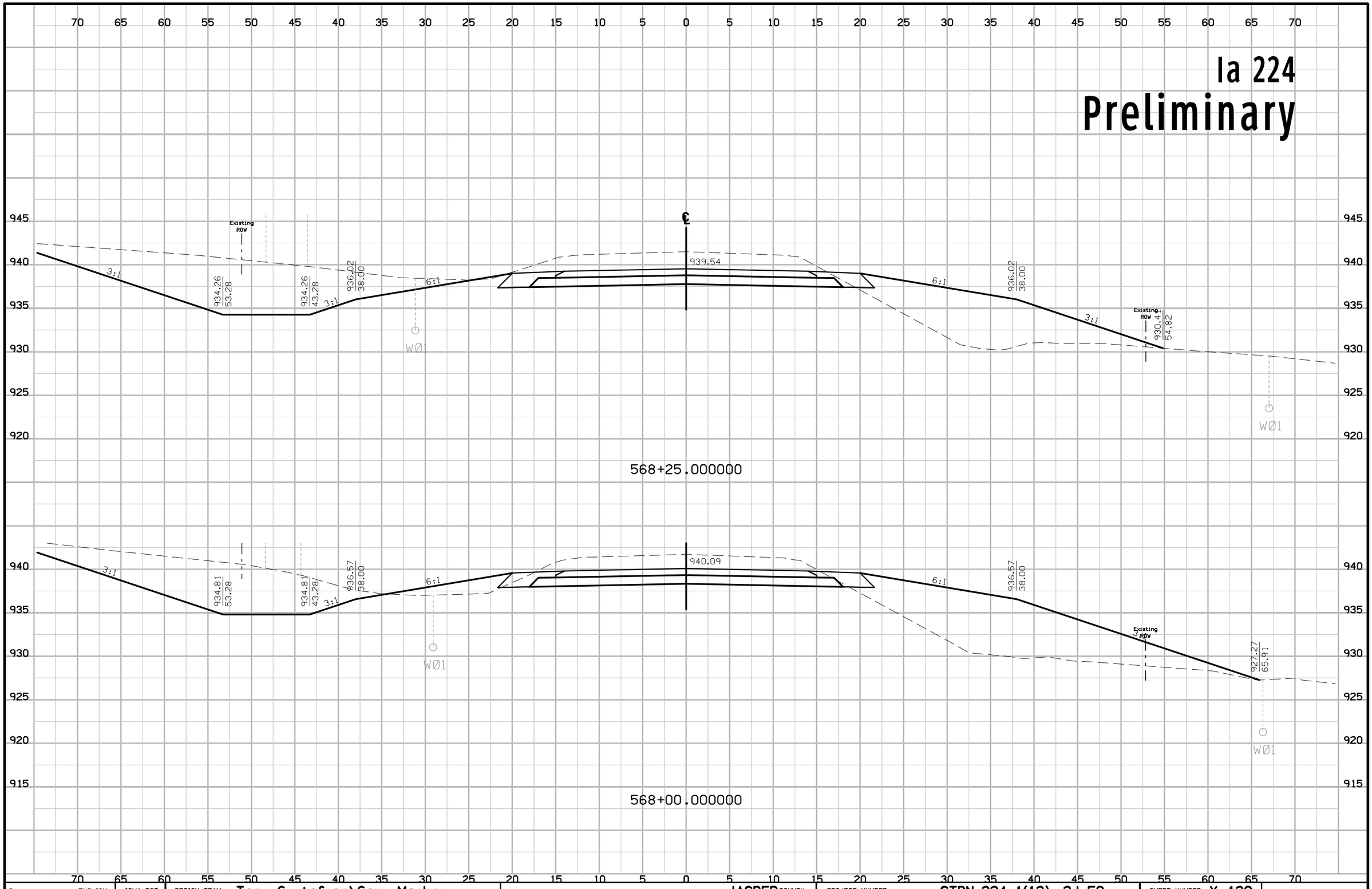
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.120

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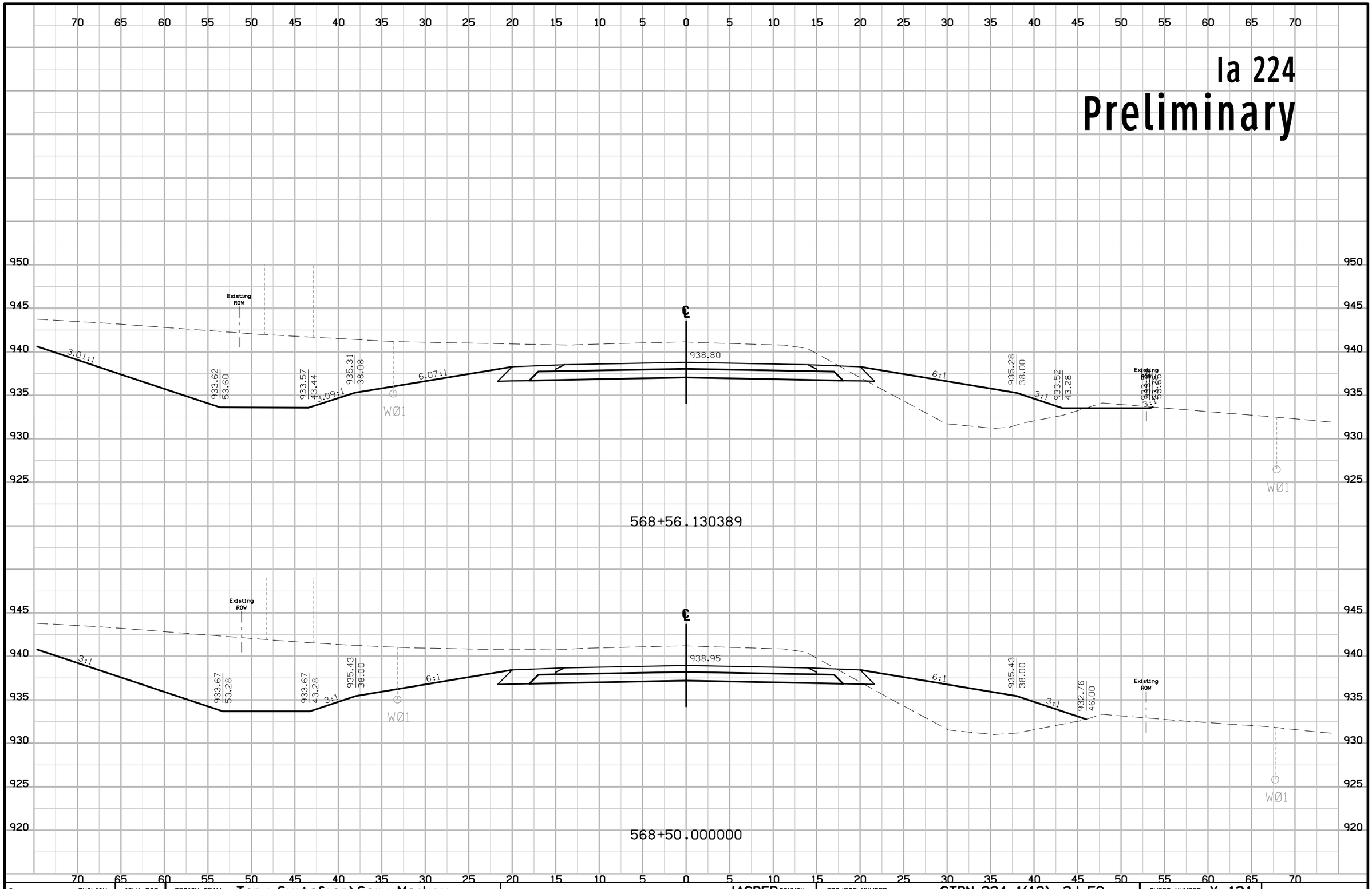
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.121

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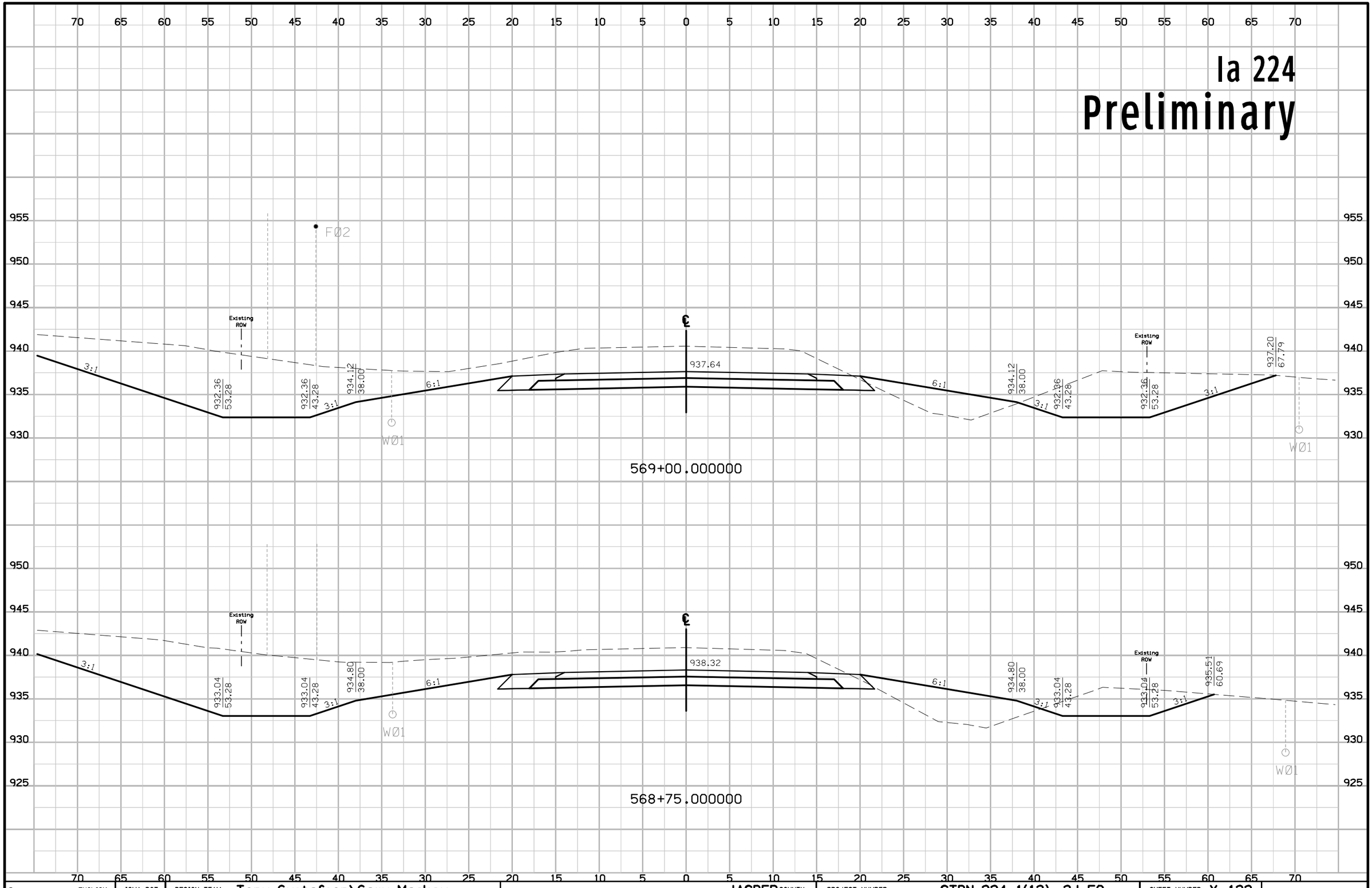
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.122

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

955 950 945 940 935 930

F02

Existing ROW

℄

936.18

930.90 / 53.28

930.90 / 43.28

932.66 / 38.00

3:1

6:1

3:1

6:1

3:1

932.66 / 38.00

930.90 / 43.28

Existing ROW

930.90 / 53.28

937.70 / 73.68

WØ1

569+50.000000

955 950 945 940 935 930

F02

Existing ROW

℄

936.93

931.65 / 53.28

931.65 / 43.28

933.41 / 38.00

3:1

6:1

3:1

6:1

3:1

933.41 / 38.00

931.65 / 43.28

Existing ROW

931.65 / 53.28

938.05 / 72.47

WØ1

569+25.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.123

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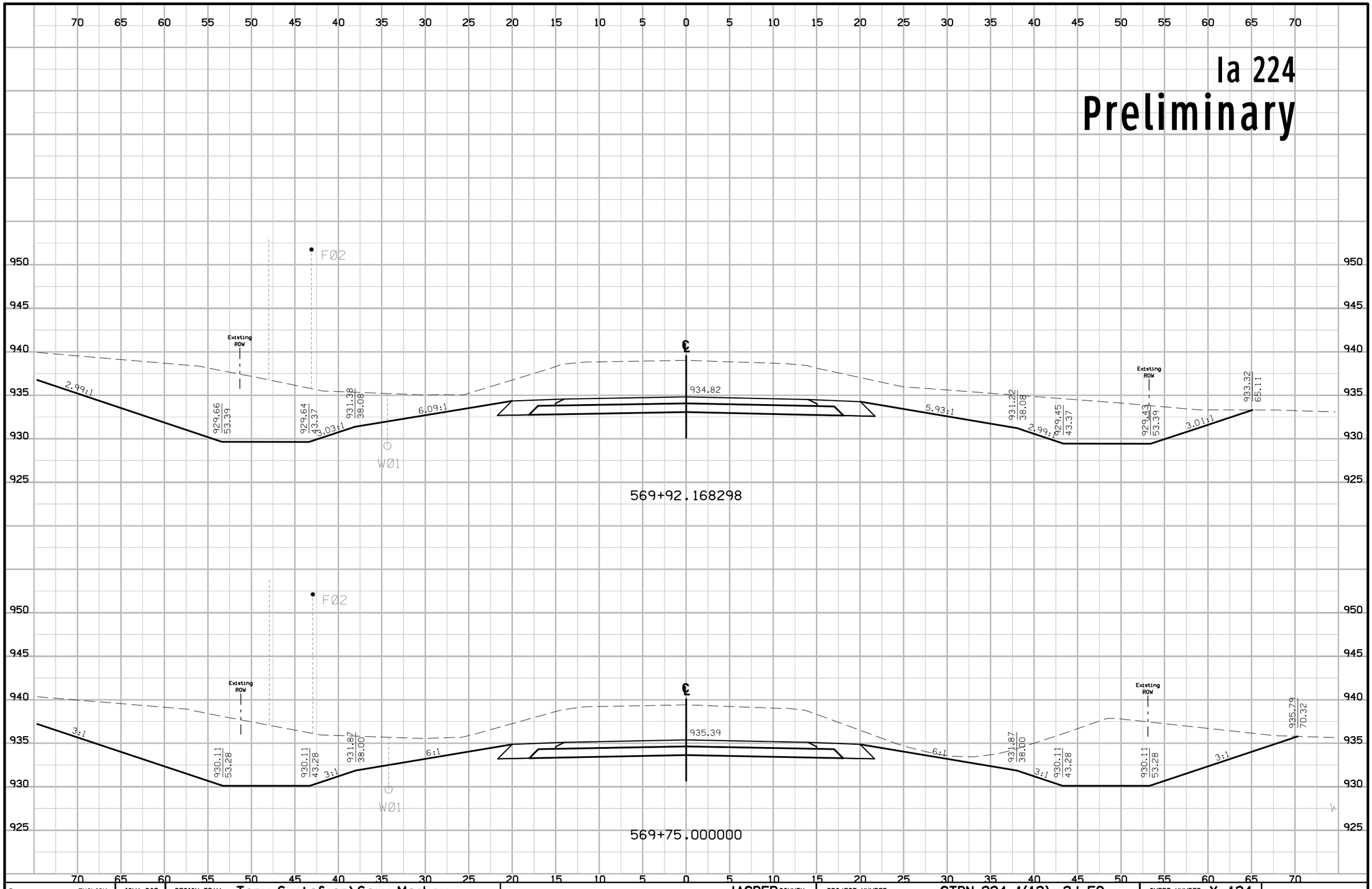
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.124

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Ia 224

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

945 940 935 930 925

Existing ROW

3:1

928.40 / 53.28

928.40 / 43.28

3:1

930.16 / 38.00

6:1

W01

℄

933.68

6:1

930.16 / 38.00

3:1

928.40 / 43.28

Existing ROW

928.40 / 53.28

3:1

930.54 / 59.70

945 940 935 930 925

920

570+25.000000

950 945 940 935 930 925

F02

Existing ROW

3:1

929.28 / 53.28

929.28 / 43.28

3:1

931.04 / 38.00

6:1

W01

℄

934.56

6:1

931.04 / 38.00

3:1

929.28 / 43.28

Existing ROW

929.28 / 53.28

3:1

932.79 / 63.83

920

570+00.000000

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.125

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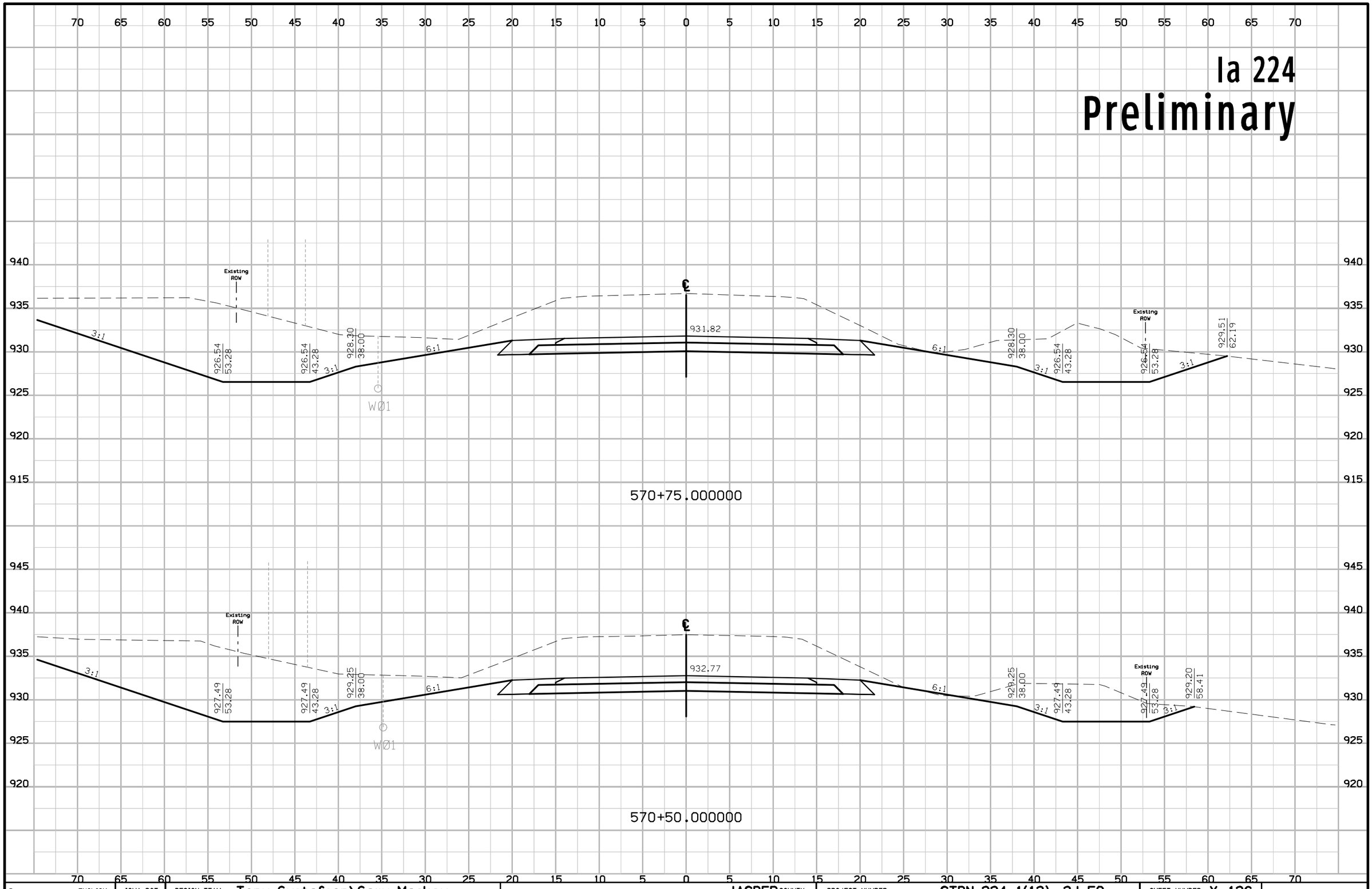
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.126

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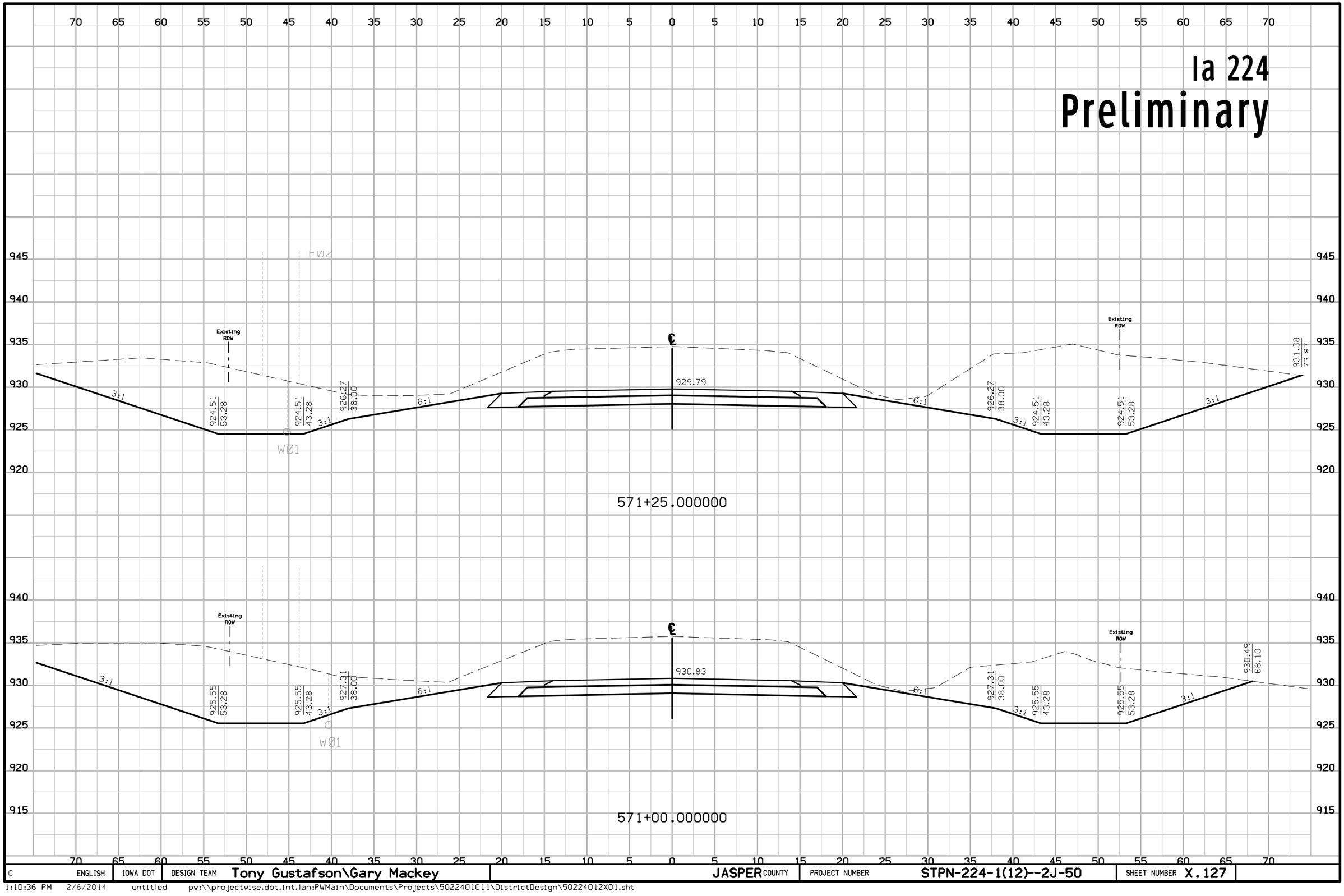
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.127

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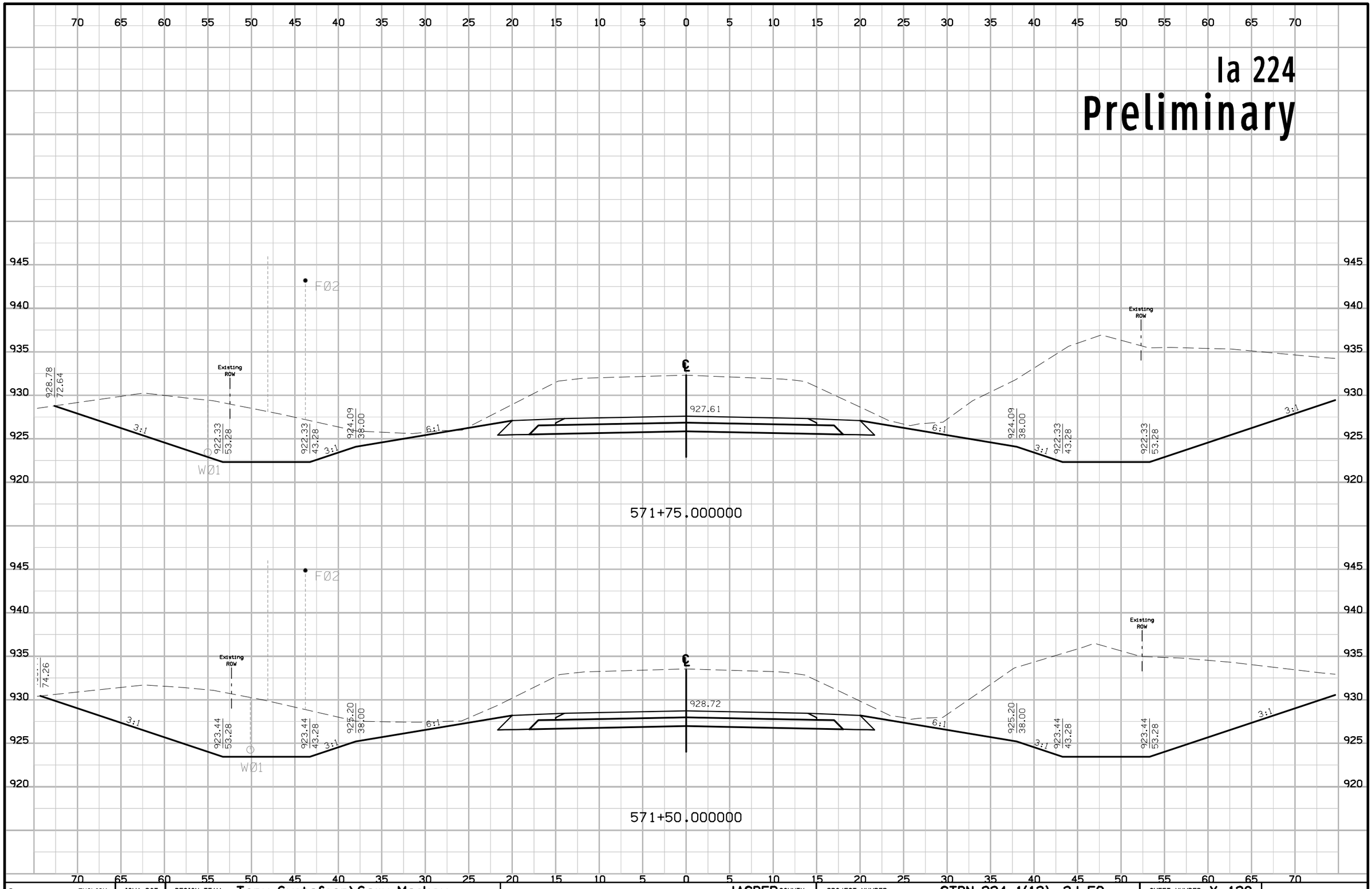
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.128

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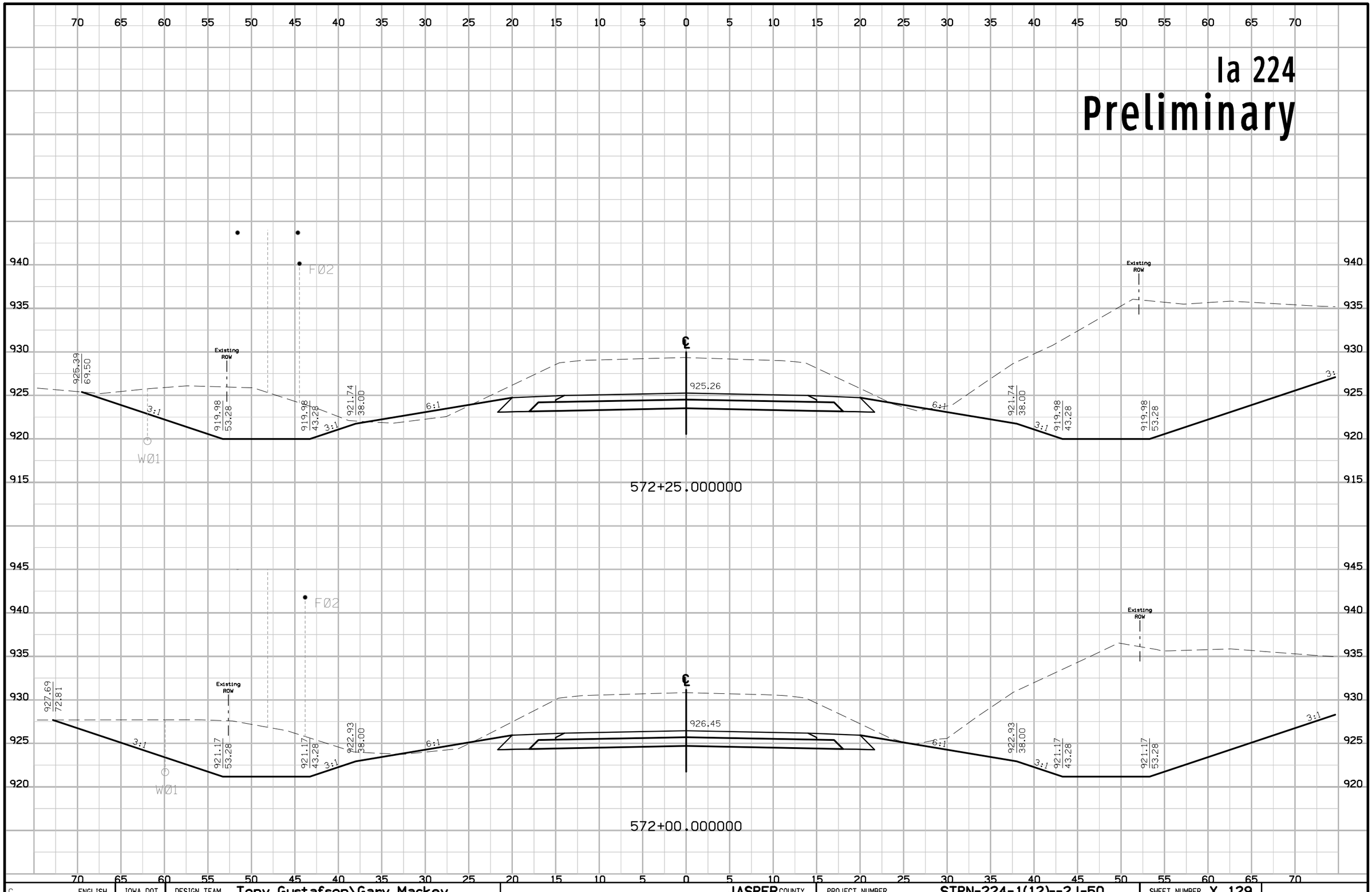
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.129

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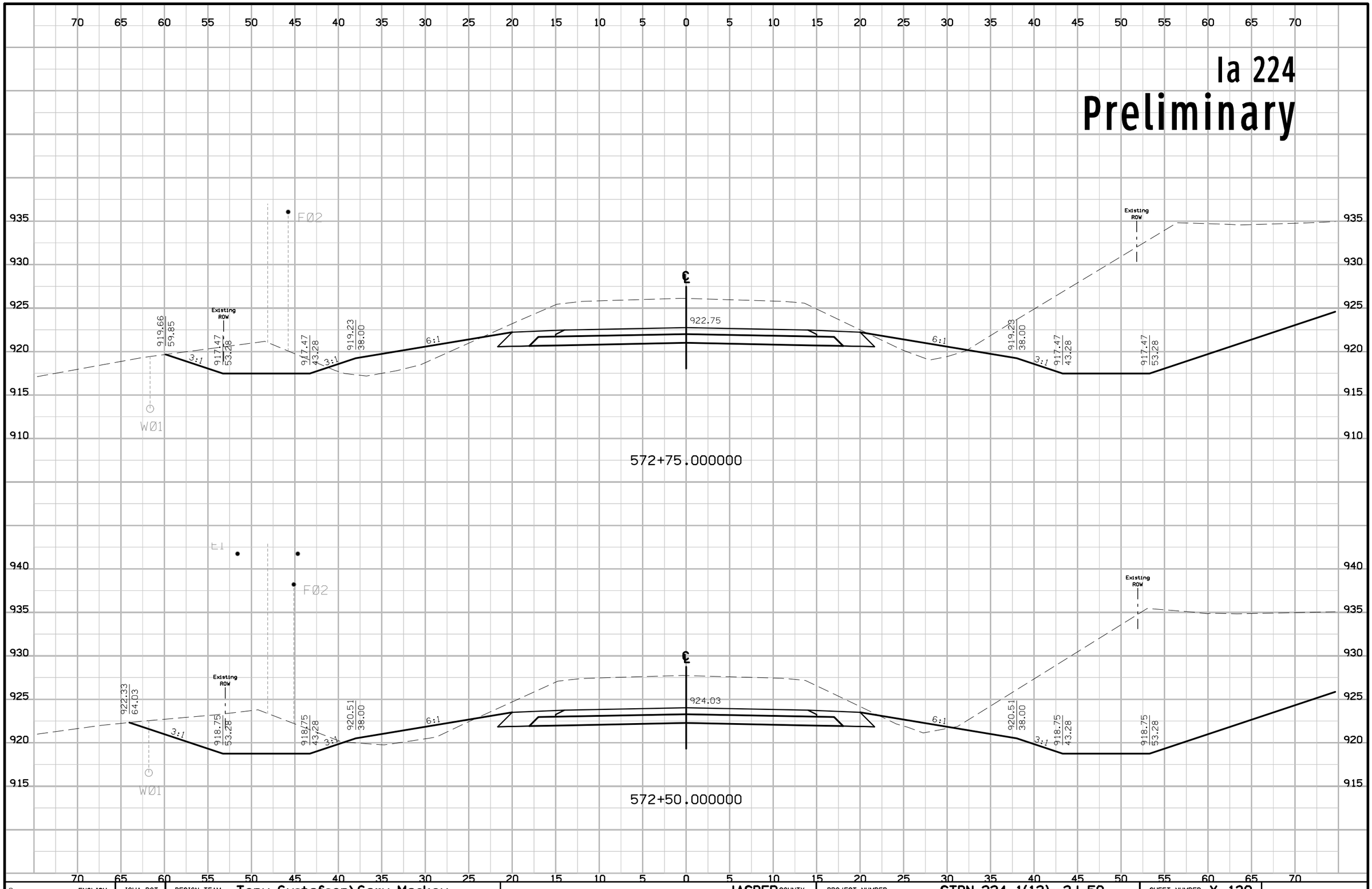
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.130

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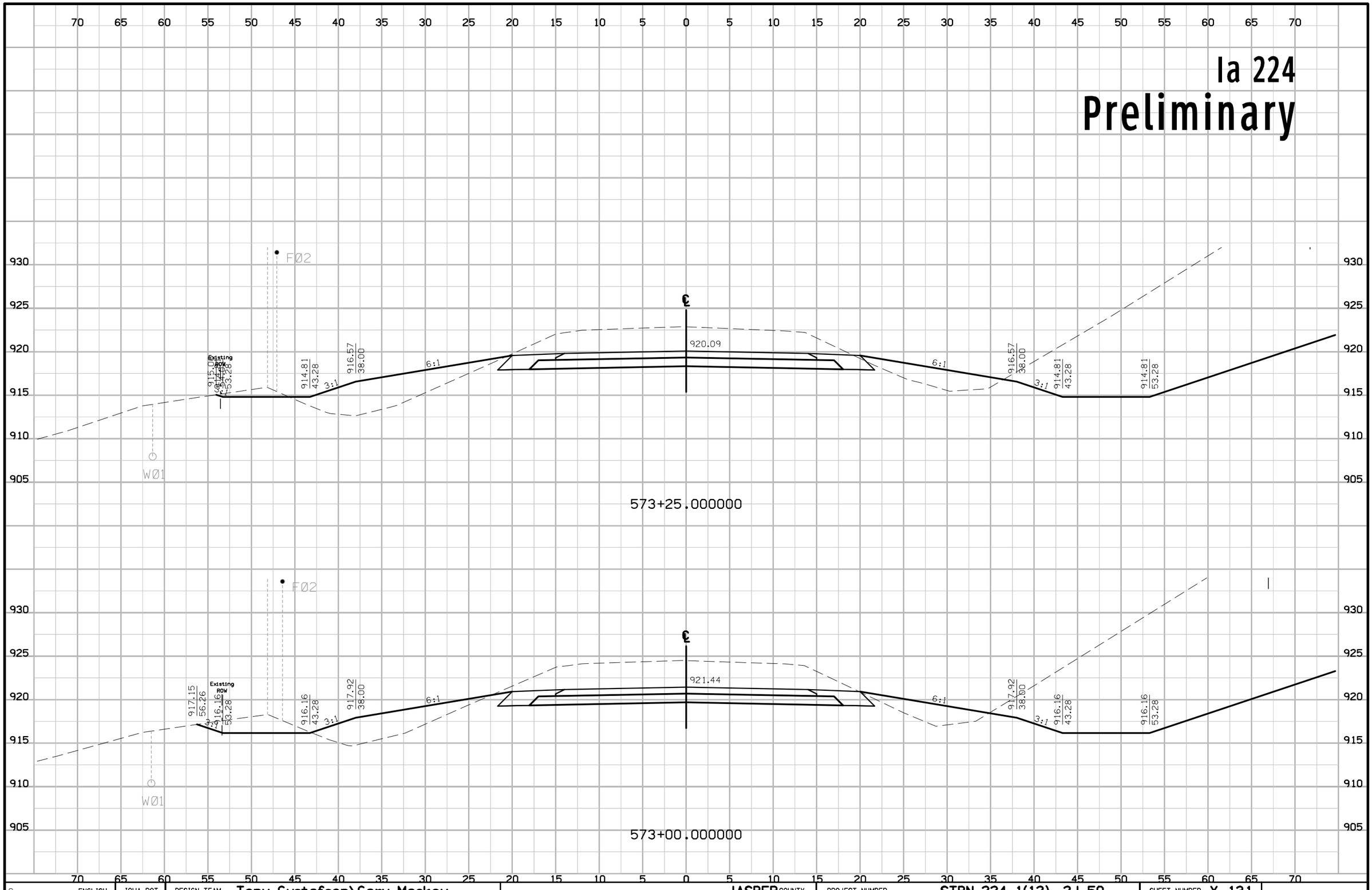
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.131

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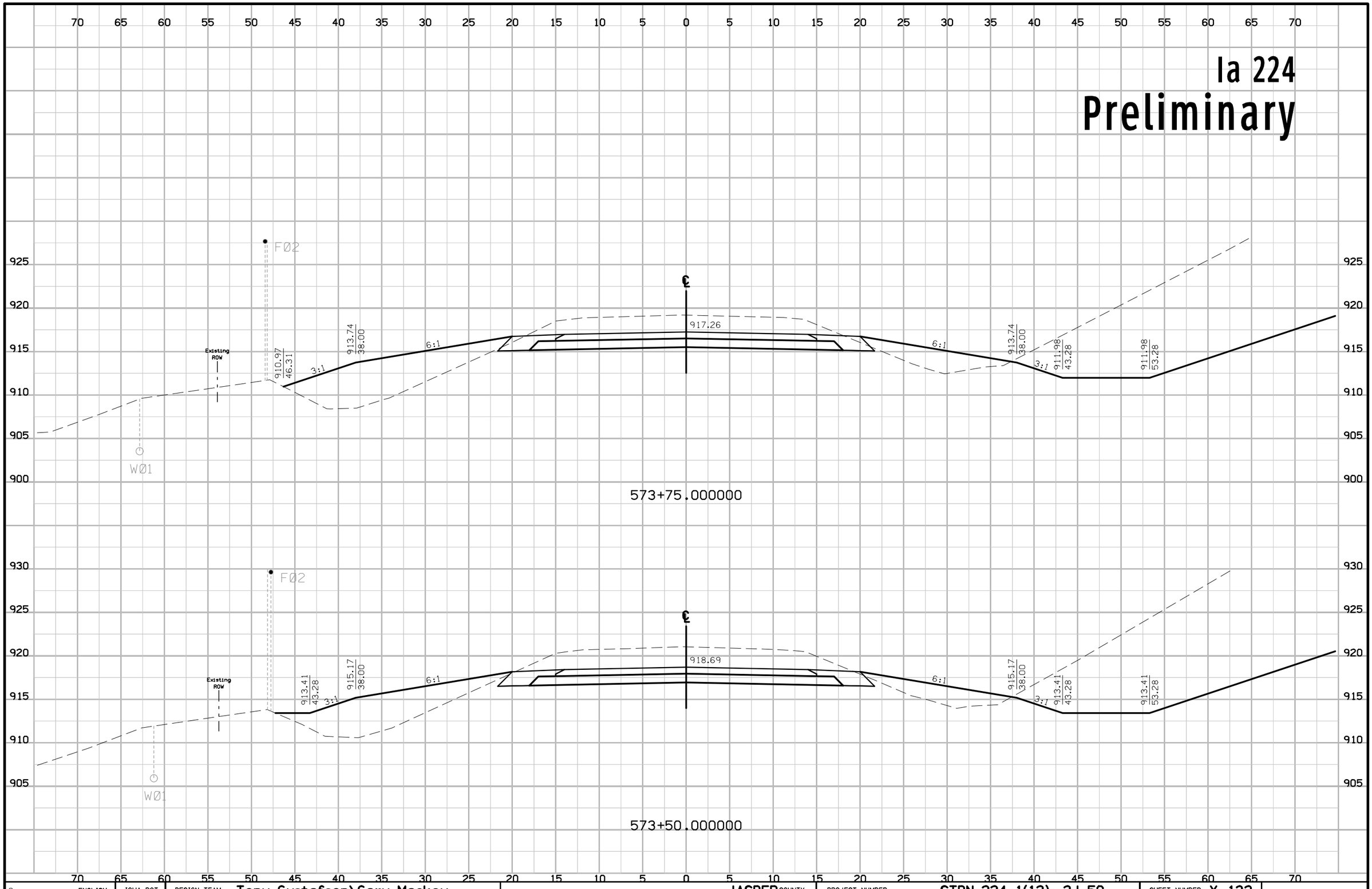
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.132

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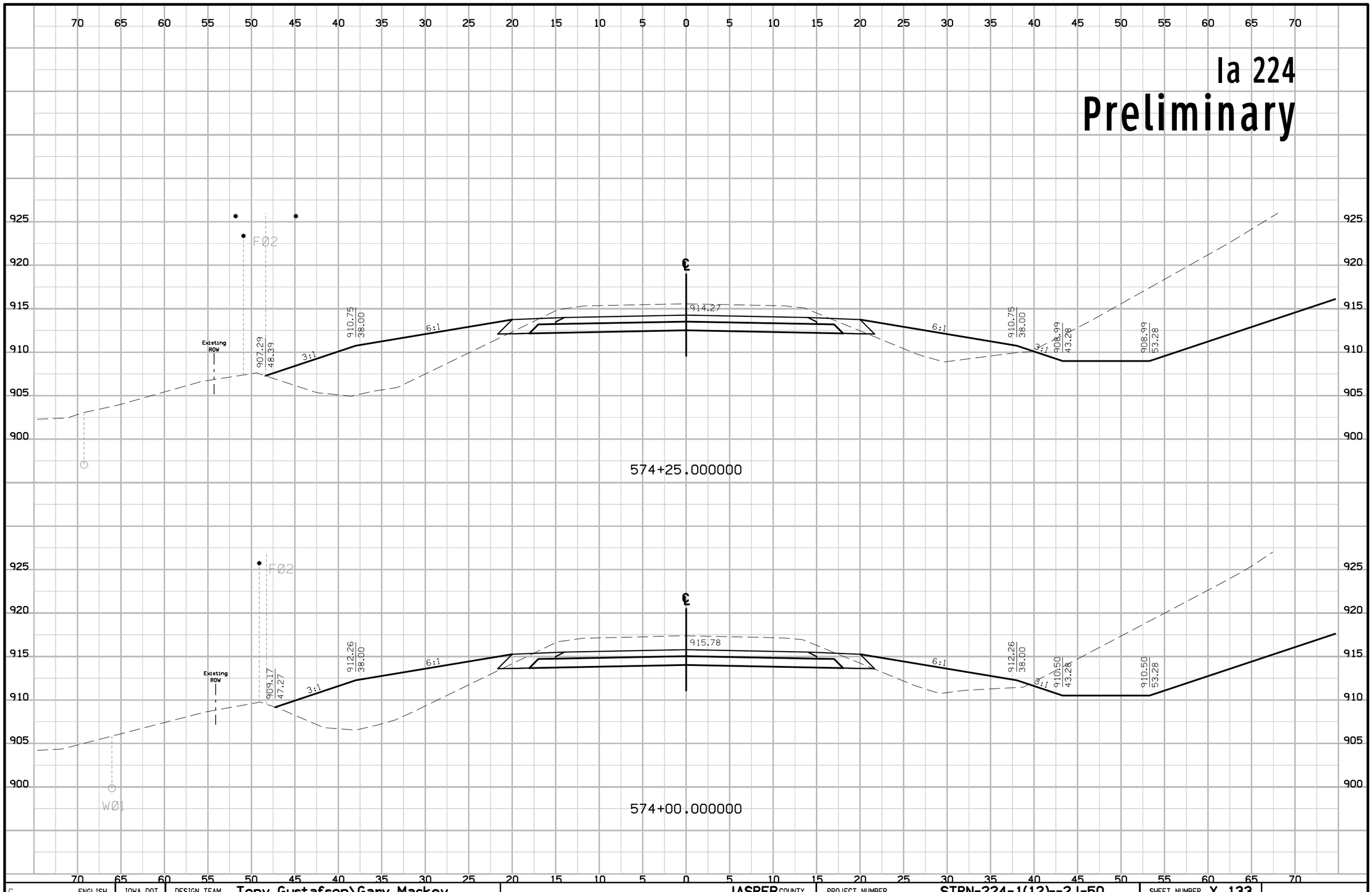
Ia 224
Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.133

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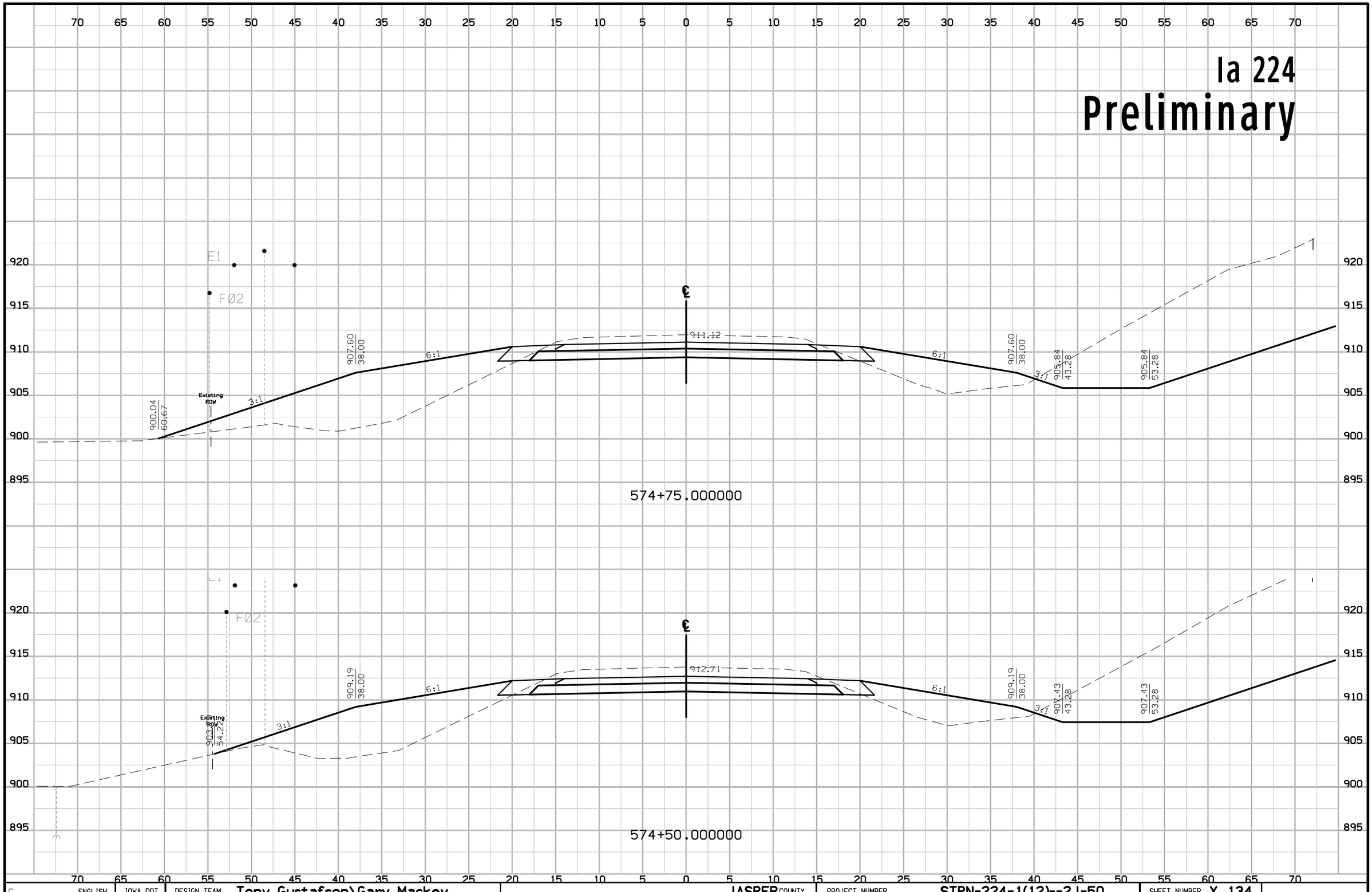
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.134

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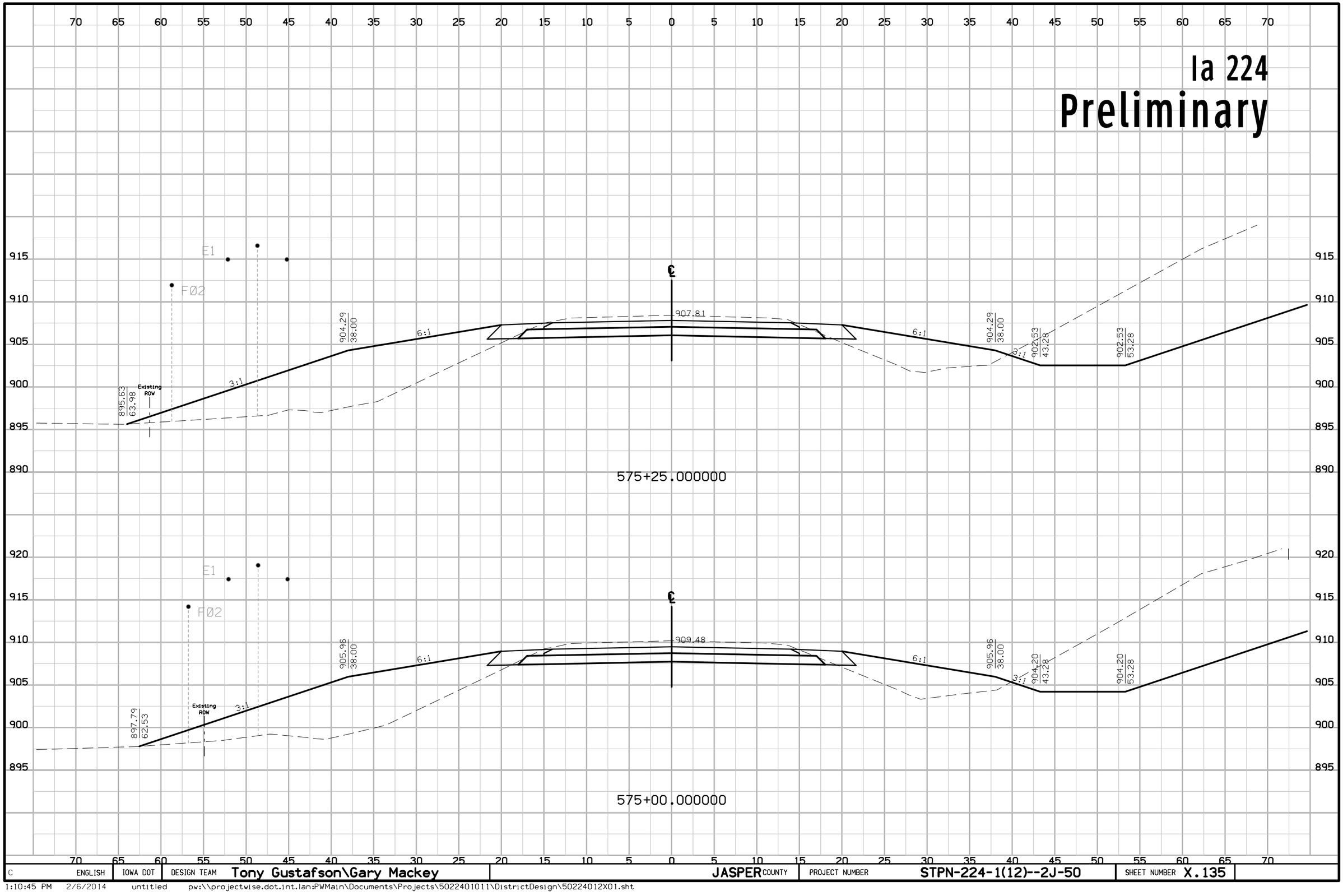
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.135

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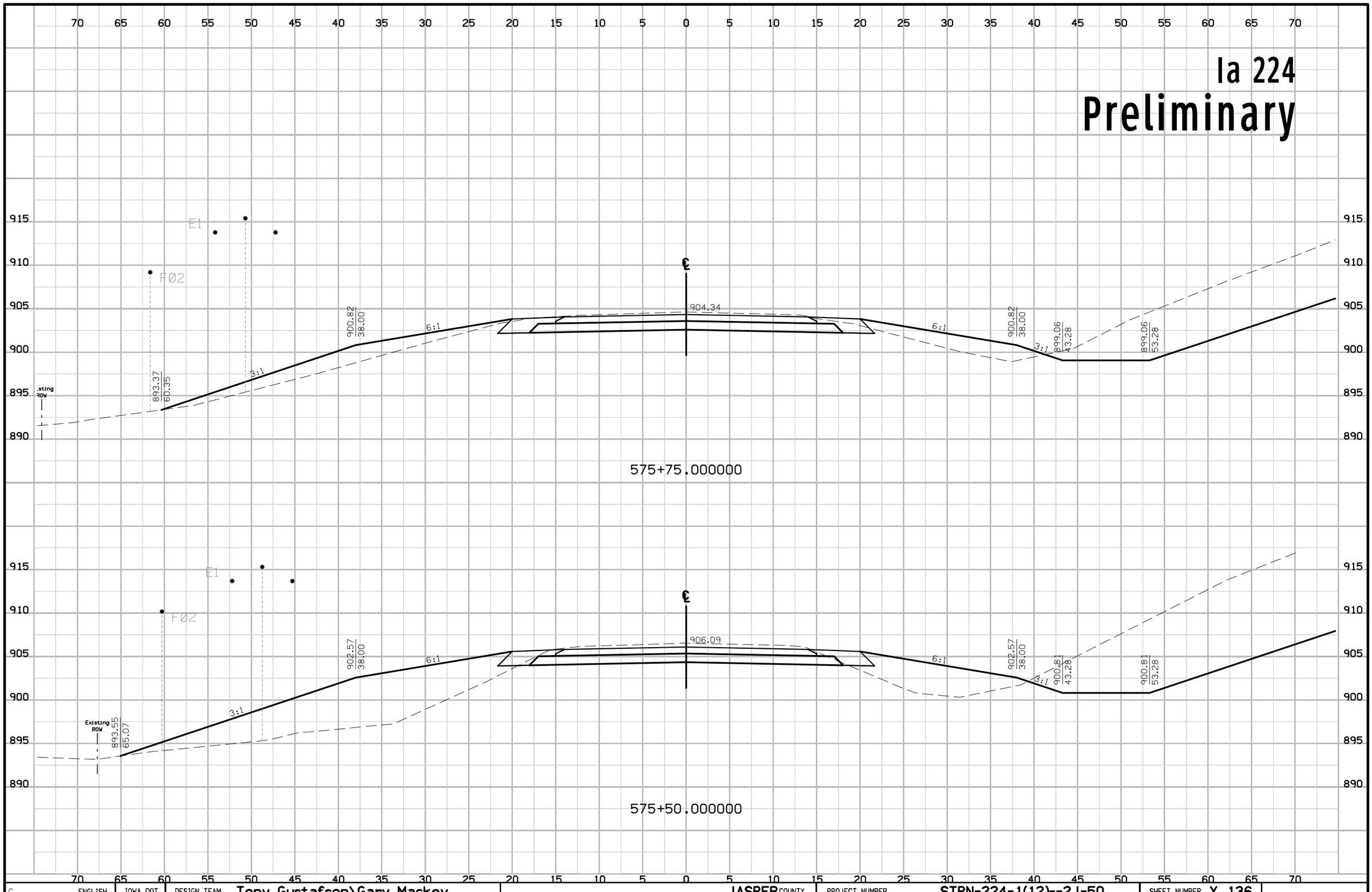
Ia 224

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER X.136

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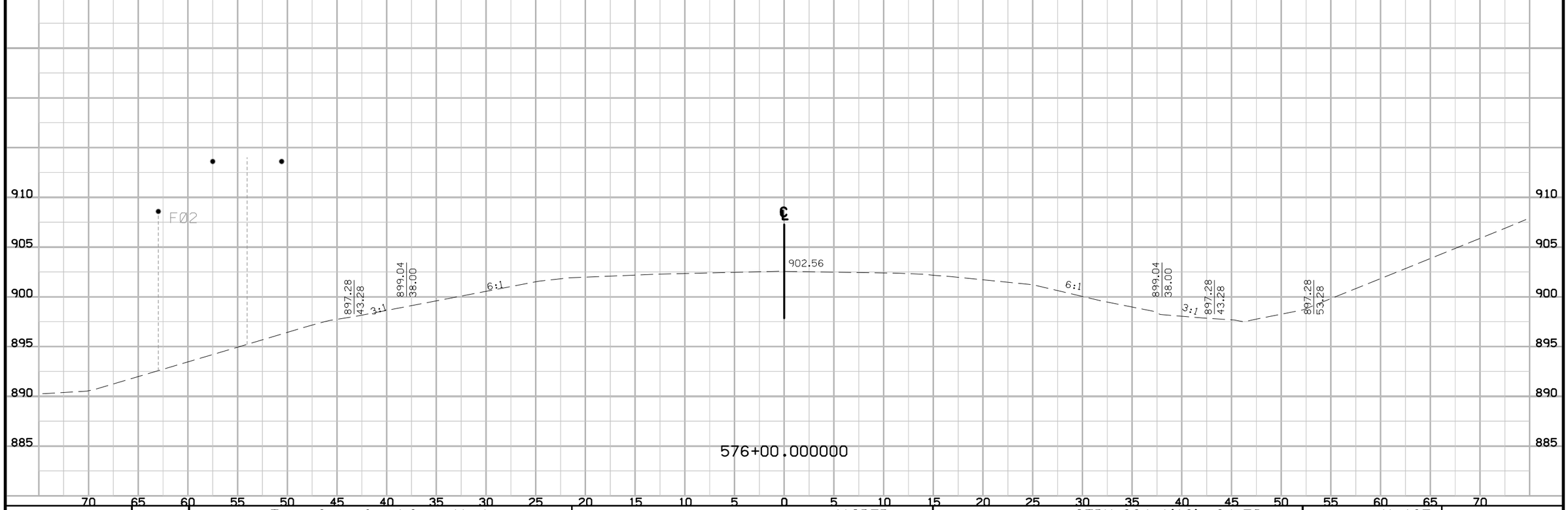
Ia 224

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM	Tony Gustafson\Gary Mackey	JASPER COUNTY	PROJECT NUMBER	STPN-224-1(12)--2J-50	SHEET NUMBER	X.137

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