

MAIN TILE AND OPEN DITCH 1 STORY AND MARSHALL COUNTIES 2014

STORY AND MARSHALL COUNTIES, IOWA

I&S PROJECT NO. 16319

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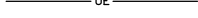
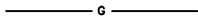
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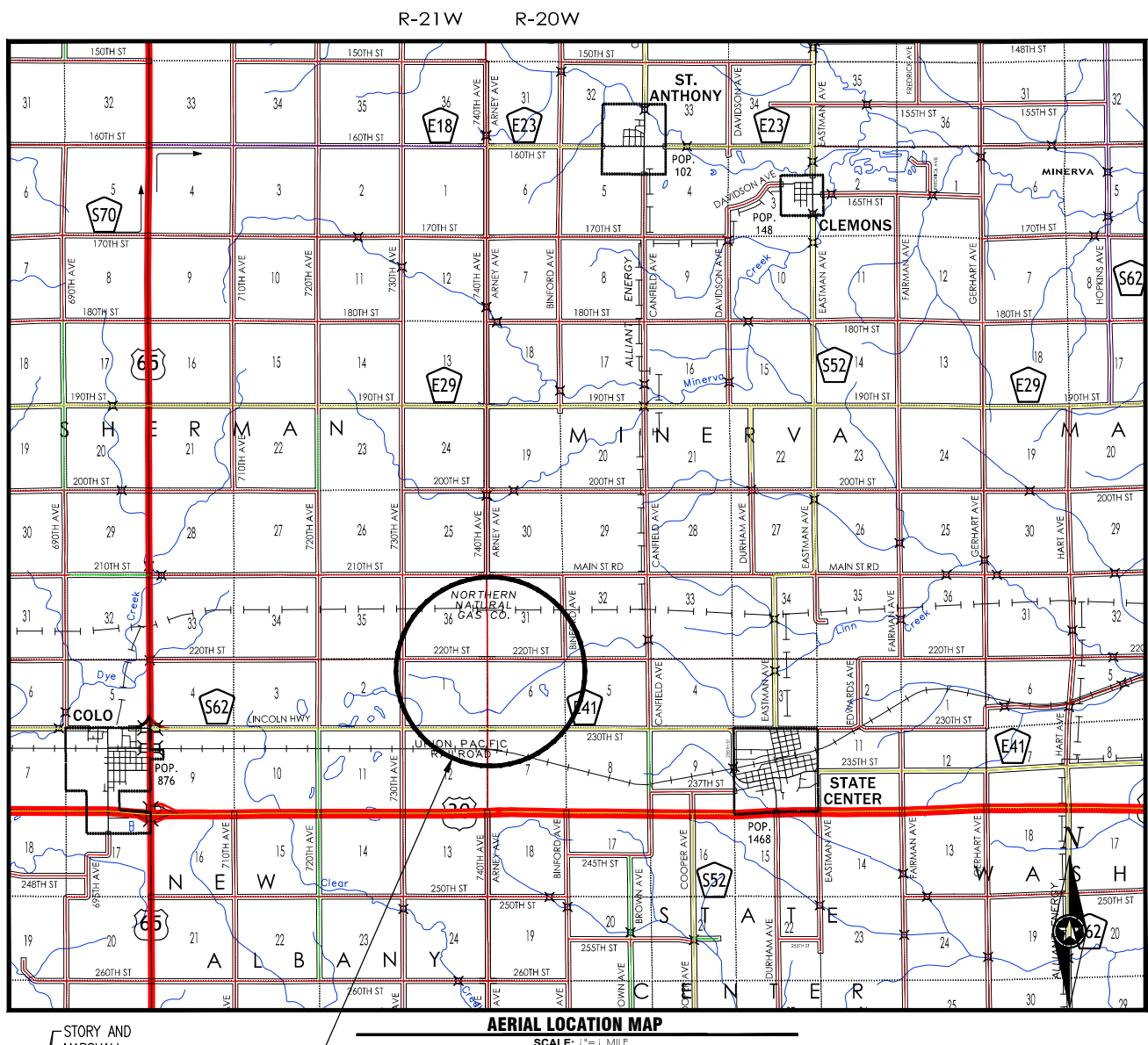
LEGEND

EXISTING

- | | |
|---|----------------------------|
|  | CITY LIMITS |
|  | SECTION LINE |
|  | QUARTER SECTION LINE |
|  | RIGHT OF WAY LINE |
|  | PROPERTY / LOTLINE |
|  | EASEMENT LINE |
|  | ACCESS CONTROL |
|  | WATER EDGE |
|  | WETLAND BOUNDARY |
|  | WETLAND / MARSH |
|  | FENCE LINE |
|  | CULVERT |
|  | STORM SEWER |
|  | SANITARY SEWER |
|  | SANITARY SEWER FORCEMAIN |
|  | WATER |
|  | UNDERGROUND TELEPHONE |
|  | OVERHEAD ELECTRIC |
|  | UNDERGROUND ELECTRIC |
|  | UNDERGROUND TV |
|  | GAS |
|  | UNDERGROUND FIBER OPTIC |
|  | CONTOUR (MAJOR) |
|  | CONTOUR (MINOR) |
|  | DECIDUOUS TREE |
|  | CONIFEROUS TREE |
|  | TREE LINE |
|  | MANHOLE |
|  | CATCH BASIN |
|  | HYDRANT |
|  | VALVE |
|  | CURB STOP |
|  | POWER POLE |
|  | UTILITY PEDESTAL / CABINET |

PROPOSED

- | | |
|---|--------------------------|
|  | RIGHT OF WAY |
|  | EASEMENT |
|  | CULVERT |
|  | STORM SEWER |
|  | STORM SEWER (PIPE WIDTH) |
|  | SANITARY SEWER |
|  | WATER |
|  | OVERHEAD ELECTRIC |
|  | UNDERGROUND ELECTRIC |
|  | UNDERGROUND TV |
|  | GAS |
|  | CONTOUR |
|  | MANHOLE |
|  | CATCH BASIN |
|  | HYDRANT |
|  | VALVE |
|  | PCC PATCH |
|  | FULL DEPTH HMA PATCH |
|  | GRAVEL REPLACEMENT |
|  | HOT MIX ASPHALT |



STORY AND MARSHALL COUNTIES

PROJECT
LOCATION

AERIAL LOCATION MAP

SCALE: 1" = 1 MILE



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

KENT L. RODE Date
Pages or sheets covered by this seal: ALL SHEETS
LISTED IN THE INDEX OF DRAWINGS

My license renewal date is December 31, 2015.

SHEET INDEX

- | | |
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| A.01 | TITLE SHEET |
| A.02 | LANDOWNERS PLAT |
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GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS, WHICH INCLUDE THE OWNER – CONTRACTOR AGREEMENT, THE PROJECT MANUAL (WHICH INCLUDES GENERAL AND SUPPLEMENTARY CONDITIONS AND SPECIFICATIONS), DRAWINGS OF ALL DISCIPLINES AND ALL ADDENDA, MODIFICATIONS AND CLARIFICATIONS ISSUED BY THE ENGINEER.
2. CONTRACT DOCUMENTS SHALL BE ISSUED TO ALL SUBCONTRACTORS BY THE GENERAL CONTRACTOR IN COMPLETE SETS IN ORDER TO ACHIEVE THE FULL EXTENT AND COMPLETE COORDINATION OF ALL WORK.
3. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
4. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
5. ALL MANUFACTURED ARTICLES, MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, CLEANED AND CONDITIONED ACCORDING TO MANUFACTURERS' INSTRUCTIONS. IN CASE OF DISCREPANCIES BETWEEN MANUFACTURERS' INSTRUCTIONS AND THE CONTRACT DOCUMENTS, NOTIFY ENGINEER BEFORE PROCEEDING WITH THE WORK.
6. LARGE-SCALE, MORE SPECIFIC DETAILS TAKE PRECEDENCE OVER SMALLER-SCALE, LESS SPECIFIC DETAILS AND INFORMATION. MORE STRINGENT REQUIREMENTS FOR CODE, PRODUCTS AND INSTALLATION TAKE PRECEDENCE OVER LESS STRINGENT REQUIREMENTS. NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
7. THE LOCATION AND TYPE OF ALL INPLACE UTILITIES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY AND ARE ACCURATE AND COMPLETE TO THE BEST OF THE KNOWLEDGE OF I&S GROUP, INC. NO WARRANTY OR GUARANTEE IS IMPLIED. THE CONTRACTOR SHALL VERIFY THE SIZES, LOCATIONS AND ELEVATIONS OF ALL INPLACE UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM PLAN.
8. THE CONTRACTOR IS TO CONTACT "IOWA ONE CALL" FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO EXCAVATION / CONSTRUCTION (1-800-292-8989) AN "IOWA ONE CALL" WAS PERFORMED AT THE TIME OF THE TOPOGRAPHIC SURVEY.

NOTE:
THE CLARITY OF THESE PLANS DEPENDS UPON
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PROJECT

JT DD #1 STORY AND MARSHALL COUNTIES

[illegible]

PROJECT NO.	16319
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FILE NAME	TITLE SHEET
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DRAWN BY J.K. FRASER

DESIGNED BY K.L. RODE

REVIEWED BY K.L. RODE

CLIENT PROJECT NO.

TITLE

TITLE SHEET

SHEET

A.01



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JT DD #1 STORY AND MARSHALL COUNTIES

PROJECT NO.	16319
FILE NAME	LANDOWNERS
DRAWN BY	JKF/ NJF
DESIGNED BY	K.L. RODE
REVIEWED BY	K.L. RODE
ISSUE DATE	4/30/2014
CLIENT PROJECT NO.	

LANDOWNERS PLAT

A.02



PARCEL LINES

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CONSTRUCTION NOTES

PLAN NOTES SUPERSEDE CONFLICTING PROVISIONS IN THE TECHNICAL SPECIFICATIONS.

- WORK LIMITS** MINIMUM REQUIRED TO EFFICIENTLY ACCOMPLISH WORK NORMALLY UP TO 120 FEET WIDE OR AS OTHERWISE ALLOWED ON THE PLANS. WHERE WORK LIMITS DO NOT PARALLEL ROADWAYS, ENGINEER WILL STAKE WORK LIMITS AS NEEDED AT CONTRACTOR'S REQUESTED OFFSETS LEFT AND RIGHT OF PROJECT CENTERLINE.
- ACCESS** TO THE WORK AREAS IS AVAILABLE FROM FIELD ENTRANCES OFF PUBLIC ROADS. CONTRACTOR IS RESPONSIBLE TO SECURE OTHER ACCESS AS NEEDED AND TO LIMIT CROP DAMAGES IN ACCESSING WORK LIMITS.
- ALL MAIN AND LATERAL PIPE SECTIONS FURNISHED** ARE TO BE REINFORCED CONCRETE PIPE OF THE CLASSIFICATION OR STRENGTH REQUIRED ON THE PLANS AND REFERENCED IN THE SPECIFICATIONS (ASTM C76). EXCEPT WHERE OTHERWISE NOTED ON THE PLAN, ALL PIPE ARE TO BE LAID IN A MODIFIED STANDARD INSTALLATION TYPE 4 TRENCH (AMERICAN CONCRETE PIPE ASSOCIATION HANDBOOK.) SEE STANDARD DRAWING ON SHEET NO. C.03. AN UNSTABLE TRENCH BOTTOM SHALL BE STABILIZED WITH CRUSHED CRADLING ROCK MEETING MATERIAL SPEC. IN STD. SPEC. 312334 SEC. 2.3. MAIN PIPE OF TEES AND ELBOWS MAY BE UP TO 8 FT. LONG. ELBOW JOINTS ARE ASSUMED AT MID PIPE BUT IS NOT REQUIRED. PIPE CAPS ARE TO BE INSTALLED IN THE FIELD. NO JOINT SEALING MATERIAL REQUIRED.

WITH ENGINEER'S PRIOR APPROVAL, CONTRACTOR MAY SUBSTITUTE THE NEXT LARGER SIZE OF PIPE. THE SUBSTITUTION MUST PROVIDE FOR CONTINUOUS REACHES OF PIPE OF THE SAME SIZE. NECESSARY ADJUSTMENT TO TEES, ELBOWS AND JUNCTION BOXES MUST ALSO BE MADE AS REQUIRED – ALL AT NO COST TO THE OWNER.

WHERE MAXIMUM TRENCH WIDTH IS EXCEEDED, BUT BY NO MORE THAN 1.0 FOOT, THE PIPE SHALL BE BEDDED TO THE SPRING LINE IN A COMPACTED CRUSHED ROCK BEDDING STONE ENVELOPE. FOR WIDER TRENCH WIDTHS ENCASE THE PIPE IN THE SAME COMPACTED CRUSHED ROCK BEDDING STONE TO 12" COVER. THIS MATERIAL AND WORK IS SUBSIDIARY UNLESS EXCESS WIDTH IS DUE TO UNSTABLE TRENCH CONDITION.

CONTRACTOR IS REQUIRED TO LEAVE A SMALL MOUND OVER THE COMPLETED TILE TRENCH TO ALLOW SETTLEMENT OF TILE TRENCH WITH THE GOAL OF RESTORING GROUND CONTOURS.

WHERE POSSIBLE, MAINTAIN SURFACE WATER RUNOFF TO ROAD DITCH AT HISTORIC LOCATIONS. DIRECT SURFACE RUNOFF AWAY FROM TILE TRENCH AT ALL ROAD DITCHES.

- DRAIN ALIGNMENT TURNS** OF SPECIFIED ANGLES SHALL BE COMMERCIALY FABRICATED. THE LENGTH OF PIPE IN ALL TURNS WILL BE INCLUDED IN MEASUREMENT OF THE INCLUDING LINE FOR PAYMENT. ALIGNMENT TURN COMPENSATION IS FOR FABRICATION AND EXTRA COST OF FURNISHING AND INSTALLING SAME OVER THAT OF A TYPICAL PIPE SECTION INSTALLATION.
- CONNECT INTERCEPTED PRIVATE TILE**, 10" DIAMETER OR SMALLER, TO NEW TILE WITH CORRUGATED POLYETHYLENE DRAINAGE TUBING OF NEXT LARGER SIZE. SECURELY GROUT BOTH CONNECTIONS IN 4" x 12" CONCRETE COLLAR AND PLACE PIPE ON AND IN FIRMLY COMPACTED CRUSHED ROCK BEDDING AND SOIL ENVELOPE TO LIMIT SETTLEMENT AND DEFLECTION. WHERE COVER WILL EXCEED 8.0 FEET EMBED CONNECTION IN MINIMUM 12 INCH THICK CRUSHED STONE BEDDING AS PER STD. SPEC. 312334 SEC. 2.1. PAYMENT FOR CRUSHED ROCK BEDDING SHALL BE LIMITED TO THREE TONS PER CONNECTION UNLESS OTHERWISE APPROVED BY ENGINEER PRIOR TO BACKFILL. THE FURNISHING AND PLACEMENT OF SPECIFIED CRUSHED ROCK FOR BEDDING AND ENVELOPE SHALL BE CONSIDERED PART OF, AND MEASURED AND PAID FOR UNDER, THE PIPE AND TILE BEDDING STONE BID ITEM. KEEP AND DELIVER TO ENGINEER A LOG OF CONNECTIONS INCLUDING LOCATION AND MATERIALS USED. CAPPING OF DOWNSTREAM LINE IS INCLUDED IN THIS BID ITEM. THE FURNISHING OF UP TO 20 FEET OF DRAINAGE TUBING IS INCLUDED IN THIS BID ITEM. SEE DETAIL ON SHEET NO. C.03.

- STORAGE OF MATERIALS** IS ALLOWED IN THE WORK LIMITS OR IN OTHER APPROVED LOCATION SECURED BY CONTRACTOR. NO WORK OR EQUIPMENT OR MATERIAL STORAGE MAY BE DONE WITHIN ROAD RIGHTS-OF-WAY WITHOUT THE KNOWLEDGE AND PERMISSION OF THE COUNTY ENGINEER OR IDOT ENGINEER.

- TOPSOIL.** FOR ALL REACHES OF TRENCH EXCAVATION, THE CONTRACTOR IS REQUIRED TO SEGREGATE MUCH OF THE TOPSOIL FROM SUBSOIL BY PLACING TOPSOIL ON ONE SIDE OF TRENCH AND REMAINING EXCAVATION ON OPPOSITE SIDE. CONTRACTOR IS REQUIRED TO OPERATE SUCH THAT MUCH OF THE TOPSOIL IS RETURNED TO THE TOP FOOT OF THE COMPLETED TILE TRENCH BACKFILL. CONTRACTOR IS REQUIRED TO DESCRIBE TO ENGINEER HOW TOPSOIL WILL BE MANAGED AT THE PRE-CONSTRUCTION CONFERENCE.

WHERE NOTED ON THE PLANS, CONTRACTOR IS REQUIRED TO STRIP 18" OF TOPSOIL, THE WIDTH NOTED FROM THE TOP OF PIPE TRENCH, STOCKPILE NEAR THE WORK LIMITS AND RESPREAD OVER COMPLETED TILE TRENCH

- CROP PROTECTION.** CONTRACTOR IS DIRECTED TO LIMIT DAMAGES TO CROPS IN THE ACCESS AND WORK AREAS AS CAN BE ACCOMPLISHED WITHOUT MATERIALLY SLOWING THE WORK PROGRESS.
- CONTRACTOR SHALL PROVIDE **FARM OPERATORS REASONABLE MEANS OF ACCESS** TO BOTH SIDES OF THE TILE TRENCH AS NEEDED FOR FIELD WORK AND SHALL COMMUNICATE WITH FARM OPERATORS AS REQUIRED TO ACCOMPLISH THIS REQUIREMENT. UNRESOLVED DISAGREEMENTS REGARDING ADEQUATE ACCESS ARE TO BE IMMEDIATELY REPORTED TO THE ENGINEER BY CONTRACTOR.
- WEED CONTROL.** CONTRACTOR IS REQUIRED TO CONTROL WEED GROWTH WITHIN THE WORK LIMITS AS NEEDED TO PREVENT WEEDS FROM GOING TO SEED. THIS WORK IS SUBSIDIARY TO THE TILE INSTALLATION WORK.
- UTILITIES.** CONTRACTOR IS RESPONSIBLE TO NOTIFY UTILITY COMPANIES AND TO COOPERATE WITH THEM IN THE LOCATION, MARKING AND PROTECTION OF THEIR FACILITIES. CONTRACTOR IS TO IMMEDIATELY NOTIFY ENGINEER OF APPARENT CONFLICTS OF EXISTING UTILITIES WITH THE WORK.
- SAFETY.** CONTRACTOR IS COMPLETELY RESPONSIBLE FOR SAFETY ON THE WORK SITE INCLUDING THE BRACING OF, SHORING OF, SHAPING OF, AND/OR USE OF A TRENCH BOX IN THE EXCAVATIONS. THIS INCLUDES KNOWLEDGE OF AND COMPLIANCE WITH ALL RULES AND REGULATIONS INTENDED TO PROTECT THE HEALTH AND SAFETY OF THE CONTRACTOR'S, ENGINEER'S AND OWNER'S PERSONNEL.
- FENCE CUTS.** EXISTING FENCES ARE TO BE REMOVED TO THE WIDTH NECESSARY TO DO THE WORK PROPERLY.
- MANUFACTURED PIPE FIXTURES** SHALL BE BUILT IN CONFORMANCE WITH THE FOLLOWING IDOT STANDARD SPECIFICATIONS.

ELBOW – RF-13
 PIPE CAP – RF-21
 TEE – RF-21
 APRON SECTION – RF-3

COMMON ABBREVIATIONS FOUND IN THESE PLANS

RCP – REINFORCED CONCRETE PIPE – TONGUE & GROOVE JOINT
 CMP – CORRUGATED METAL PIPE
 DIA – DIAMETER
 EL. OR ELEV. – ELEVATION
 N – NORTHING
 E – EASTING
 BM – BENCH MARK
 ROW – RIGHT-OF-WAY
 NO – NUMBER
 IDOT – IOWA DEPARTMENT OF TRANSPORTATION
 RF-X – CURRENT IDOT STANDARD ROAD PLAN OR DETAIL
 RSR-REMOVE SALVAGE AND RELAY
 HDPE – HEAVY DUTY POLYETHYLENE
 F&I – FURNISH & INSTALL
 SD – SURFACE DRAIN
 TE – TILE EXTENSION



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PROJECT

**JT DD #1 STORY
AND MARSHALL
COUNTIES**

REVISION SCHEDULE		
NO	DATE	DESCRIPTION

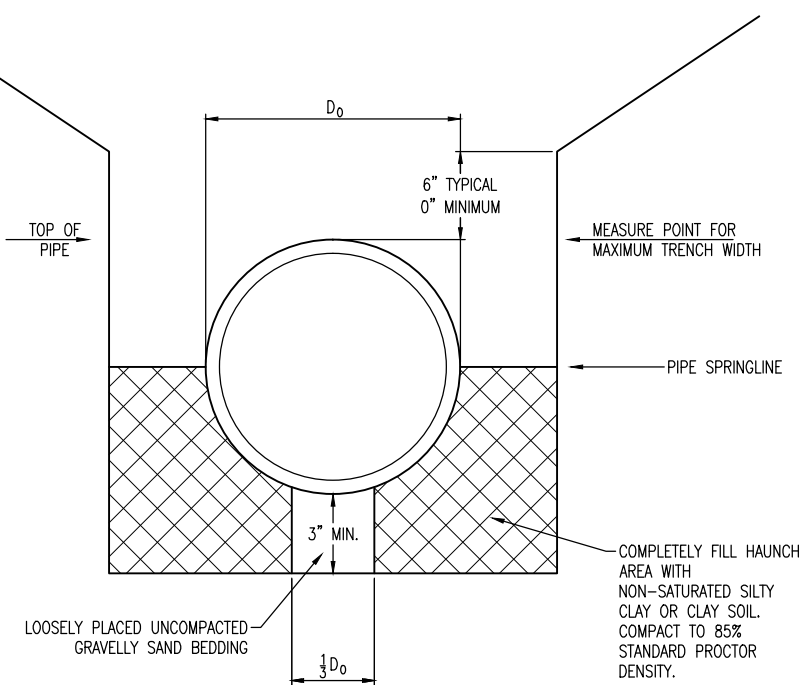
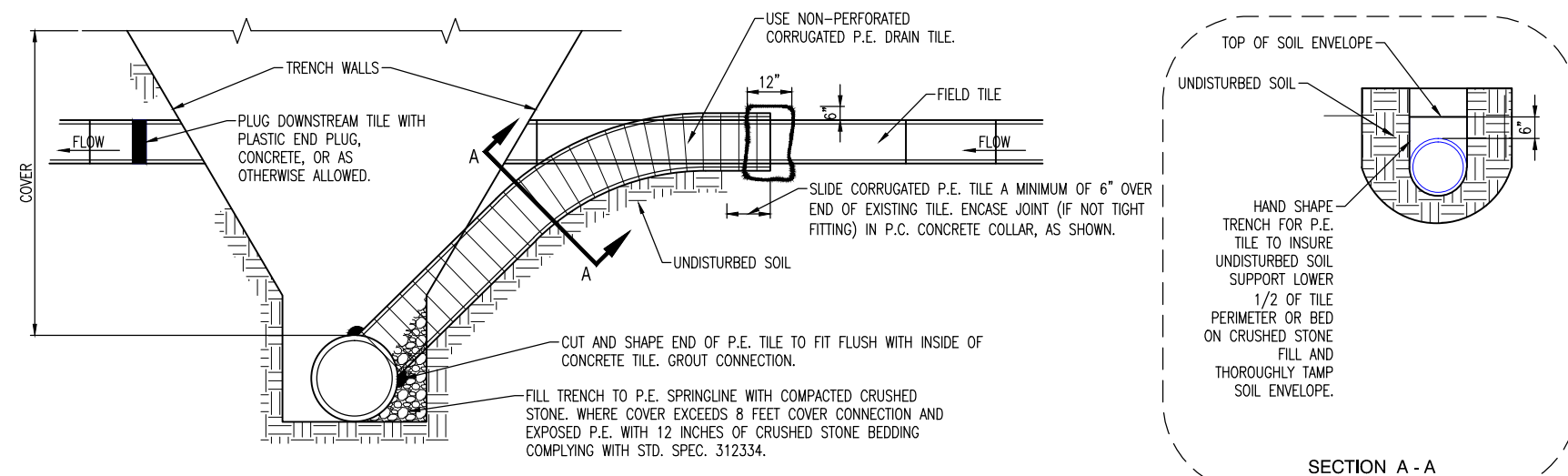
PROJECT NO.	16319
FILE NAME	CONSTRUCTION NOTES
DRAWN BY	J.K. FRASER
DESIGNED BY	K.L. RODE
REVIEWED BY	K.L. RODE
ISSUE DATE	4/30/2014

CLIENT PROJECT NO.

TITLE
**CONSTRUCTION
NOTES**

SHEET

C.01



TRENCH INSTALLATION TYPE 3

NOTE: NO TRENCH INSTALLATION TYPE 3 IS SPECIFIED. IT IS SHOWN HERE FOR POTENTIAL REFERENCE FOR PLAN CHANGES.

MODIFIED TRENCH INSTALLATION TYPE 4

PIPE HAUNCH AREAS FILL AND COMPACTION METHOD REQUIREMENTS COMPLIANCE VERIFICATION



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JT DD #1 STORY AND MARSHALL COUNTIES

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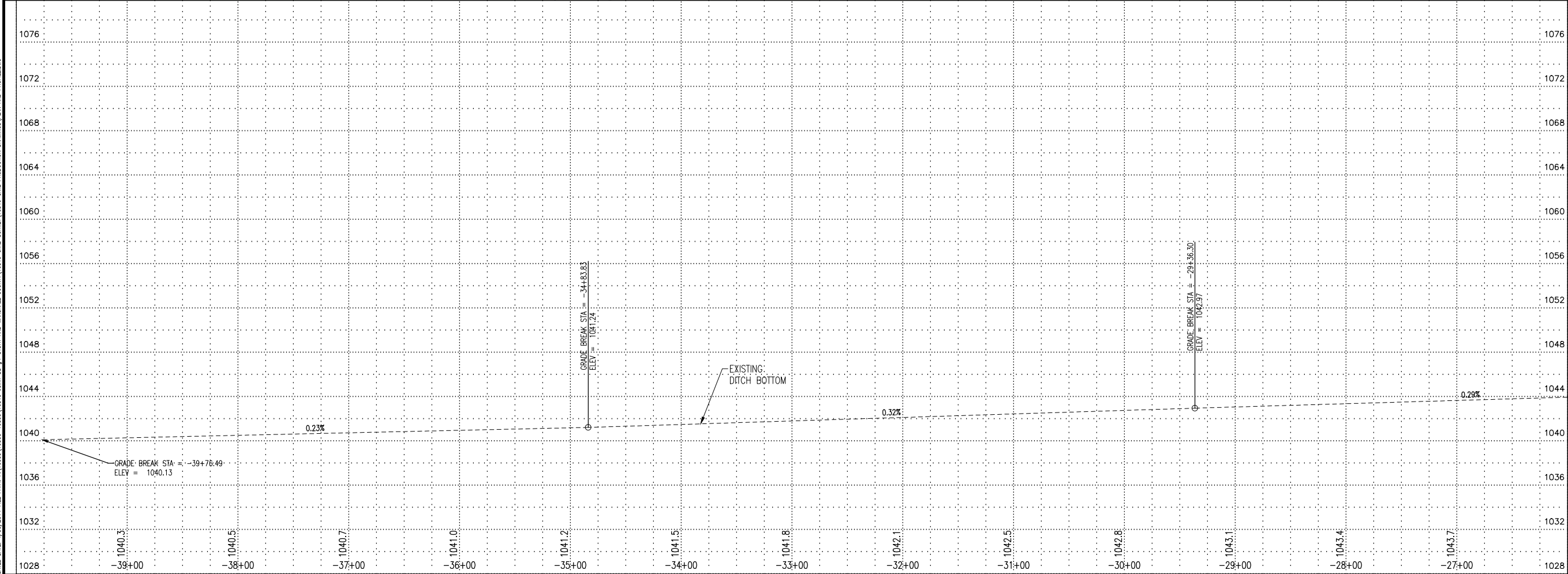
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TILE INSTALLATION DETAILS

SHEET

C.02

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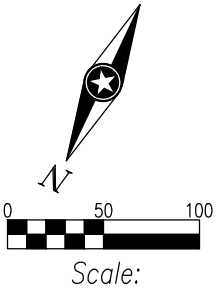


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NO	DATE	DESCRIPTION
PROJECT NO. 16319		
FILE NAME PLAN AND PROFILE		
DRAWN BY N.J.F./J.K.F.		
DESIGNED BY K.L. RODE		
REVIEWED BY K.L. RODE		
ISSUE DATE 4/30/2014		
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TITLE		
PLAN AND PROFILE		
SHEET		
D.01		

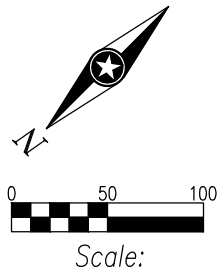


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REVISION SCHEDULE		
NO	DATE	DESCRIPTION

PROJECT NO.	16319
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DRAWN BY	N.J. FOERTSCH
DESIGNED BY	K.L. RODE
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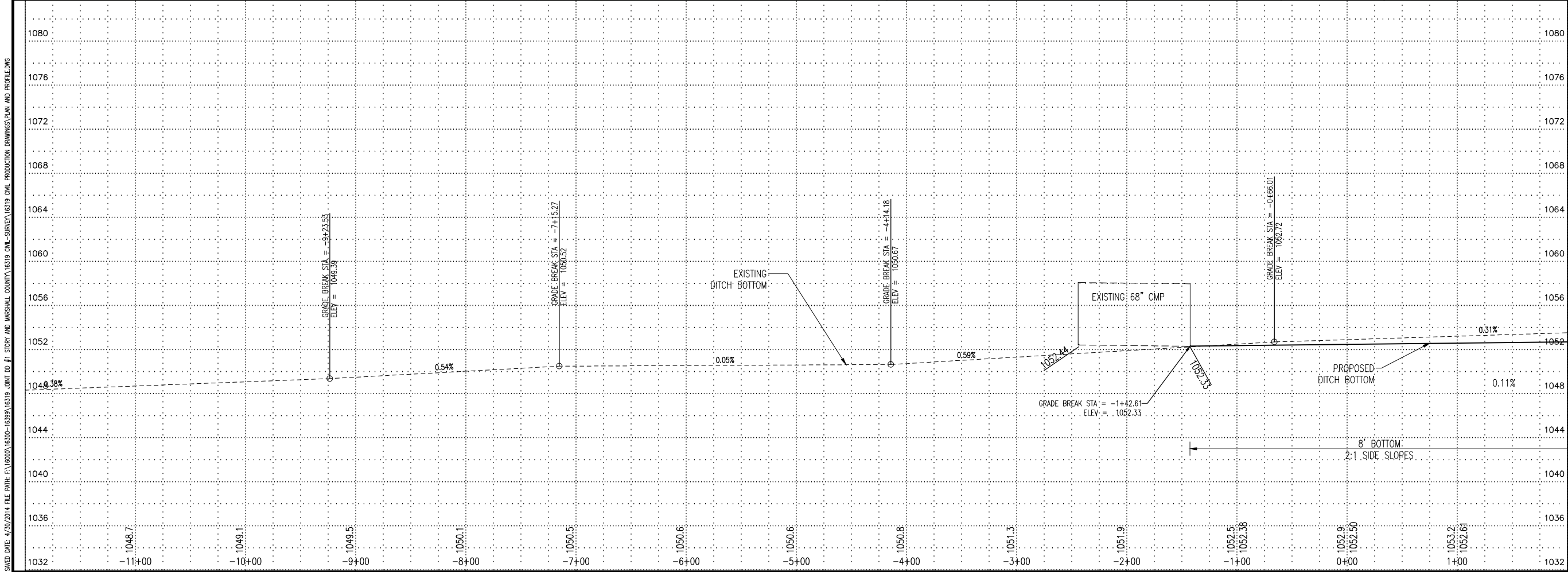
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**PLAN AND
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SHEET

D.03



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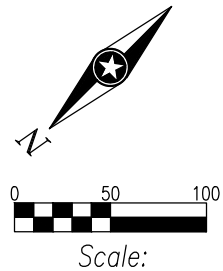


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REVIEWED BY	K.L. RODE
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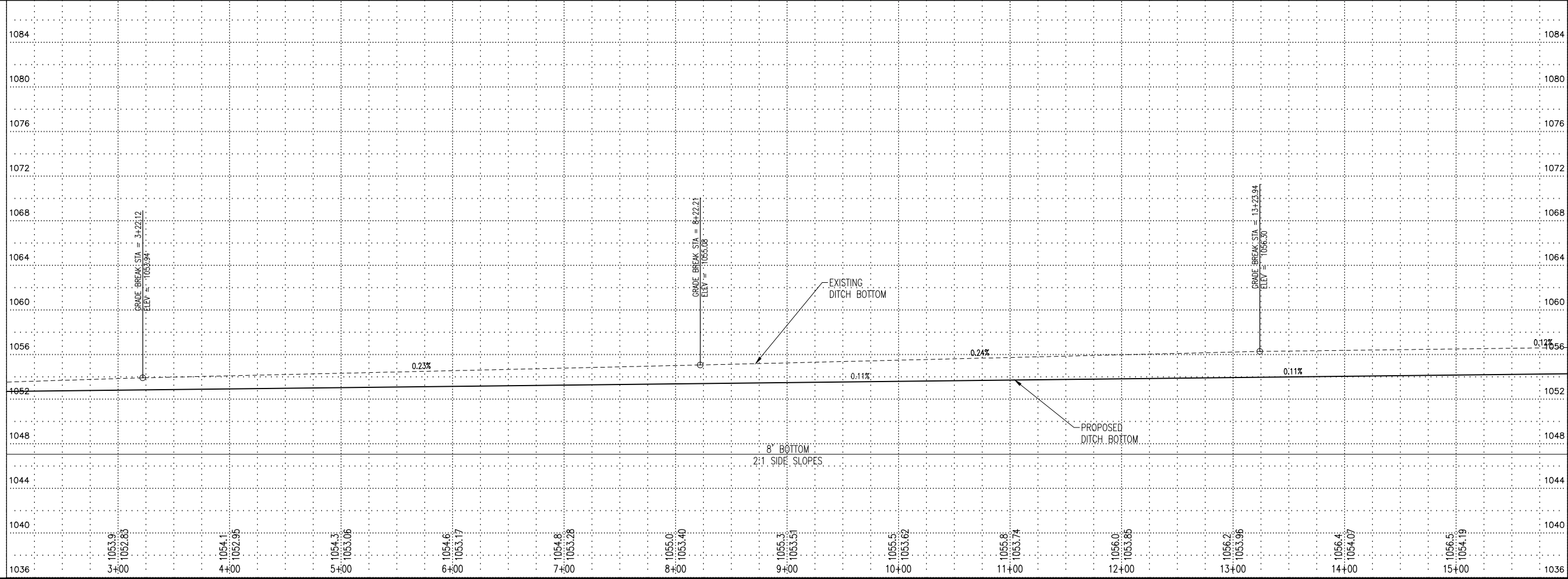
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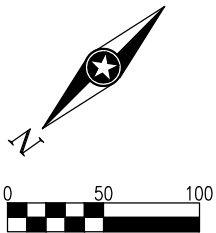
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D.04

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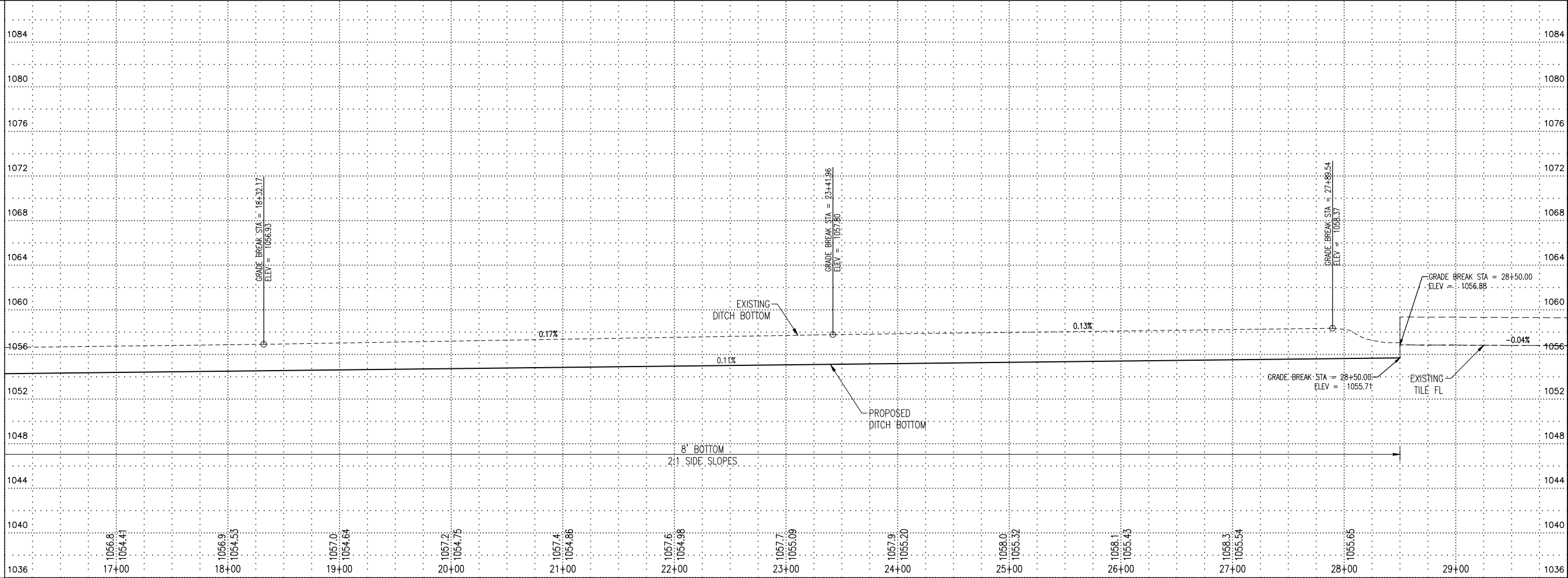
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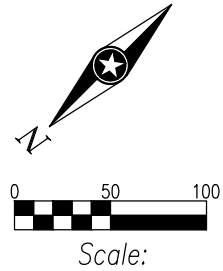
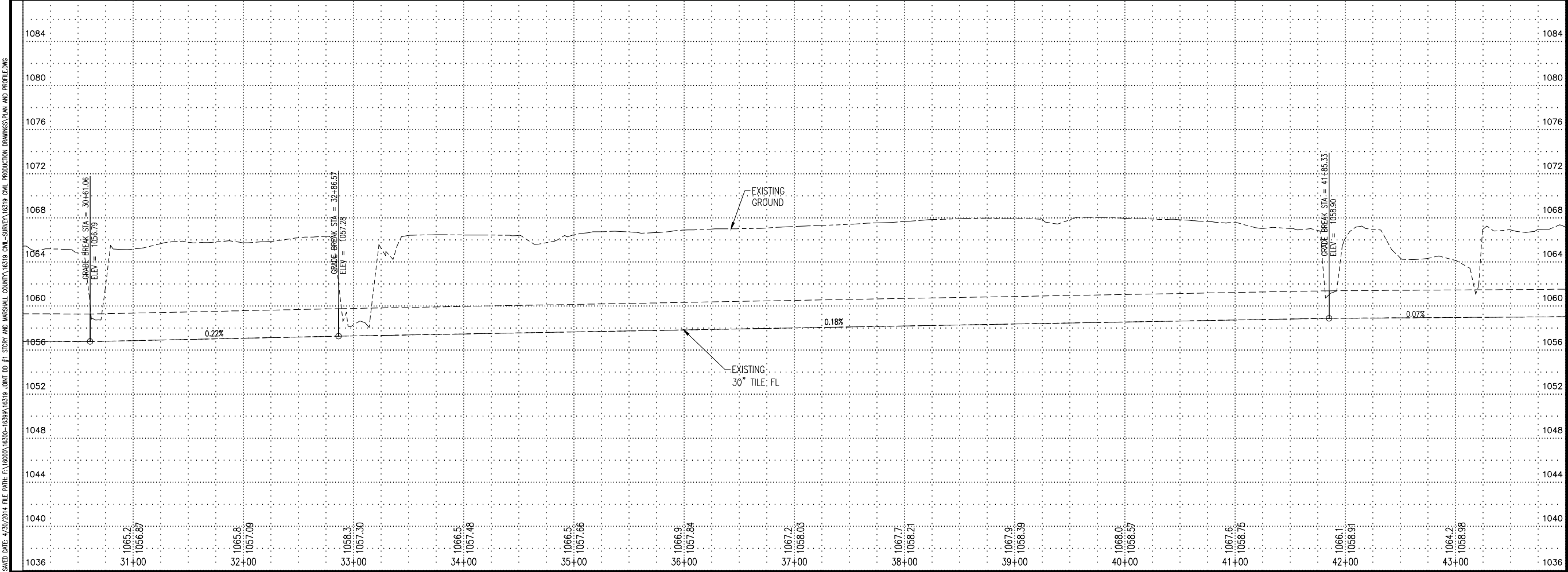
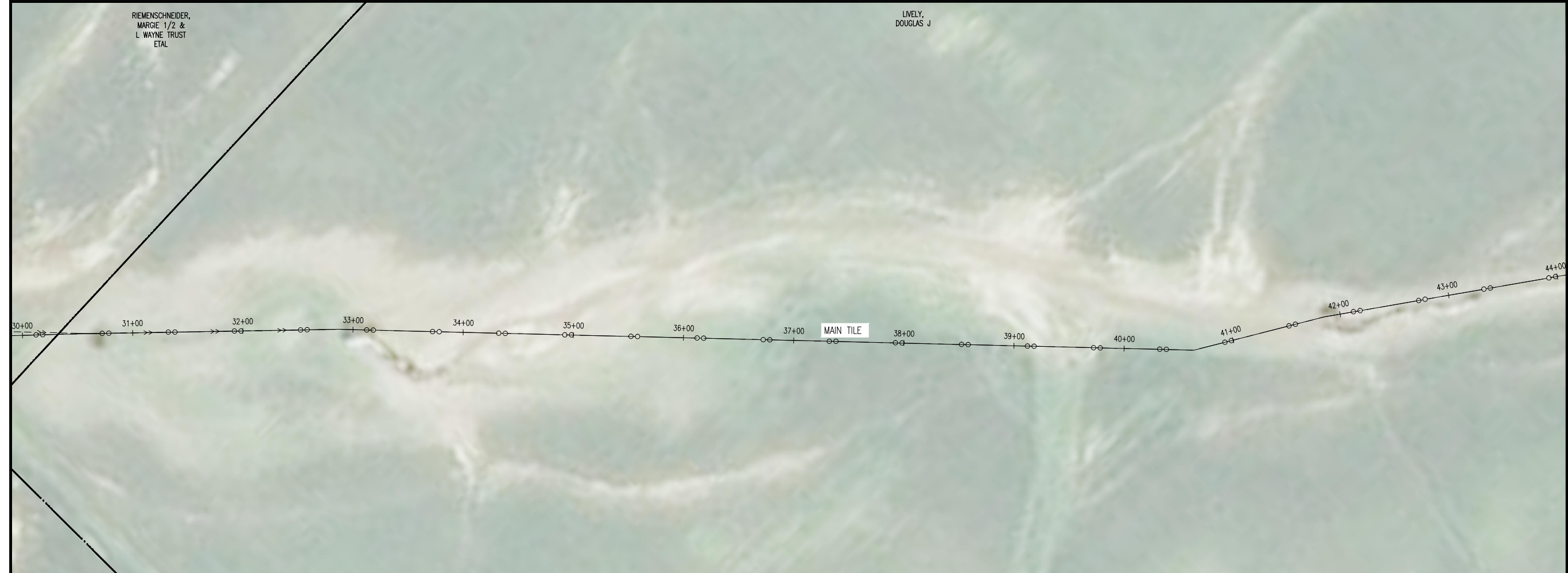
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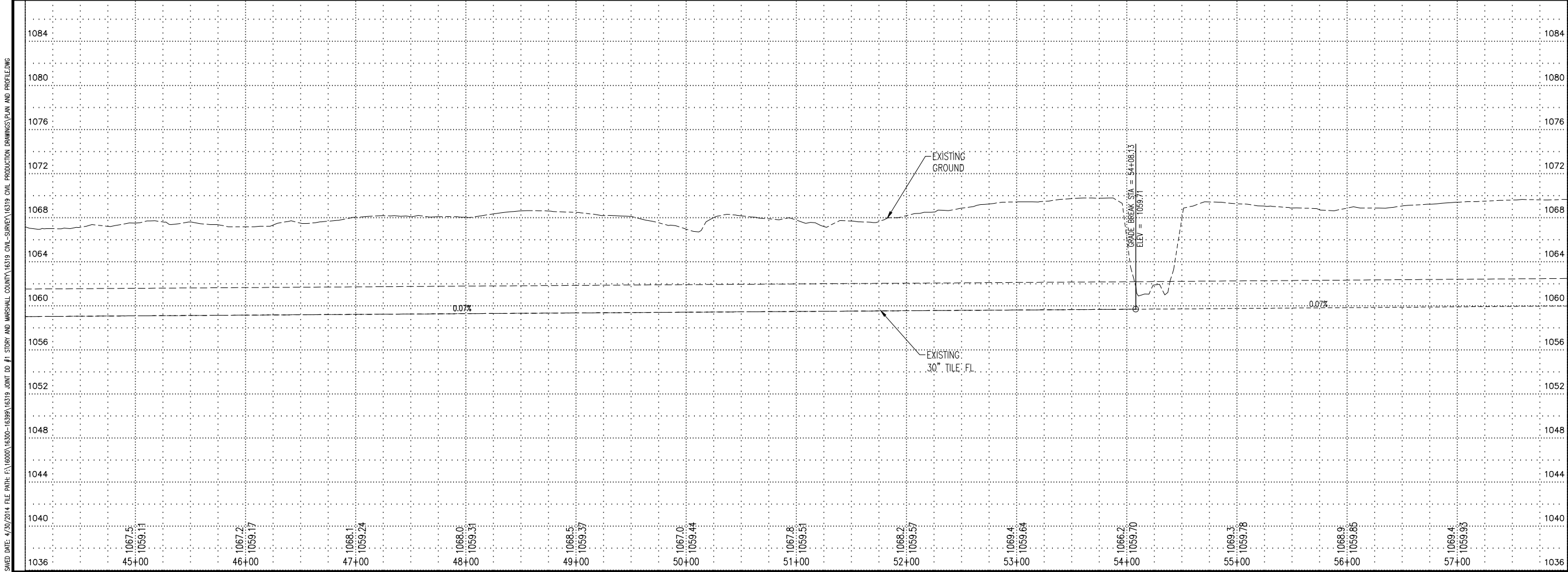
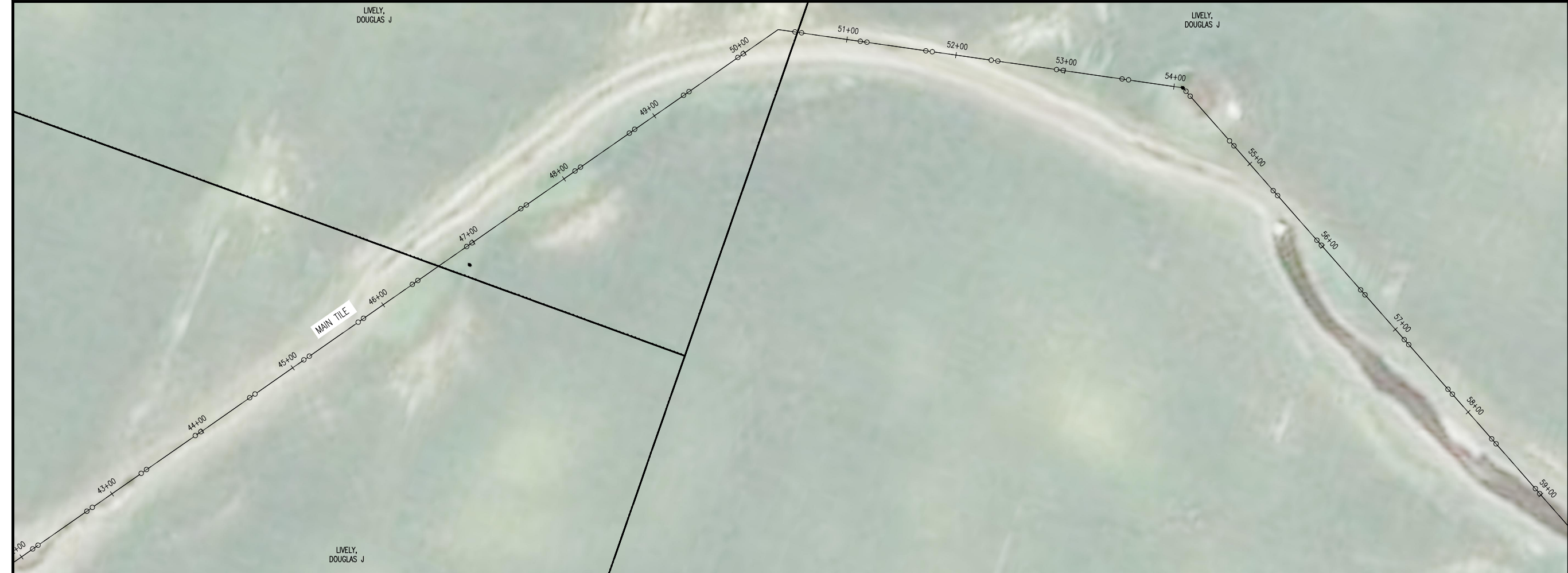




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D.06		

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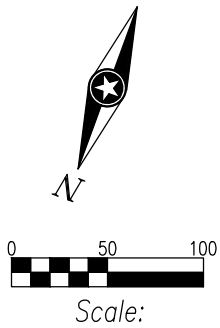


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PROJECT

NO

DATE

DESCRIPTION

PROJECT NO. 16319

FILE NAME PLAN AND PROFILE

DRAWN BY NJF/JKF

DESIGNED BY K.L. RODE

REVIEWED BY K.L. RODE

ISSUE DATE 4/30/2014

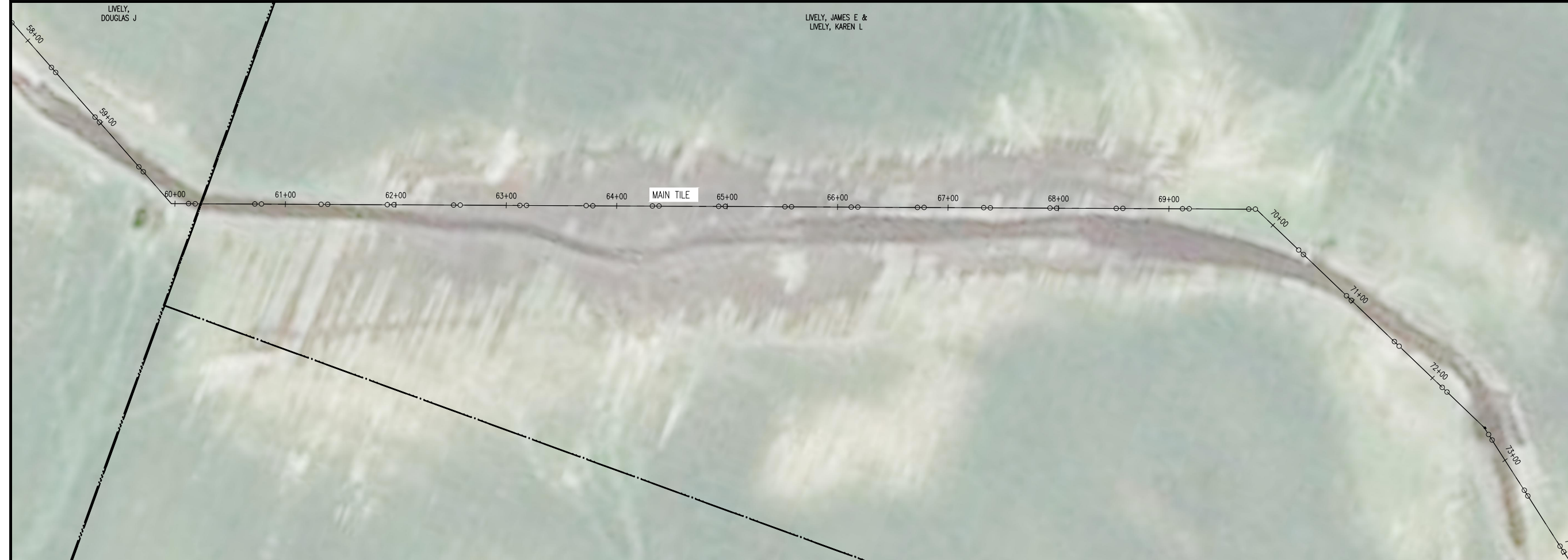
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TITLE

PLAN AND PROFILE

SHEET

D.07

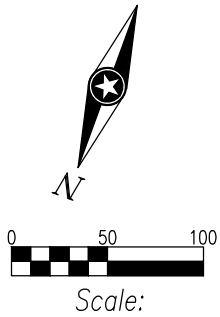


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PROJECT

JT DD #1 STORY AND MARSHALL COUNTIES

REVISION SCHEDULE		
NO	DATE	DESCRIPTION

PROJECT NO.	16319
FILE NAME	PLAN AND PROFILE
DRAWN BY	NJF/JKF
DESIGNED BY	K.L. RODE
REVIEWED BY	K.L. RODE
ISSUE DATE	4/30/2014

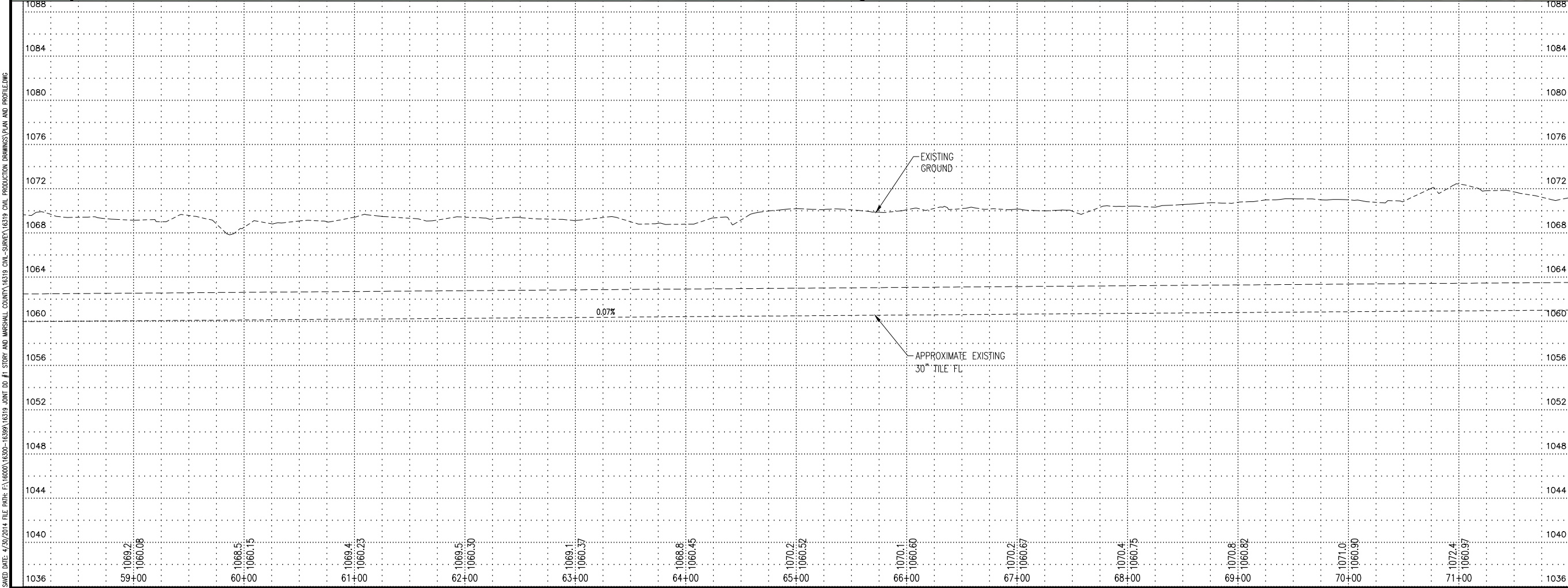
CLIENT PROJECT NO.

TITLE

PLAN AND PROFILE

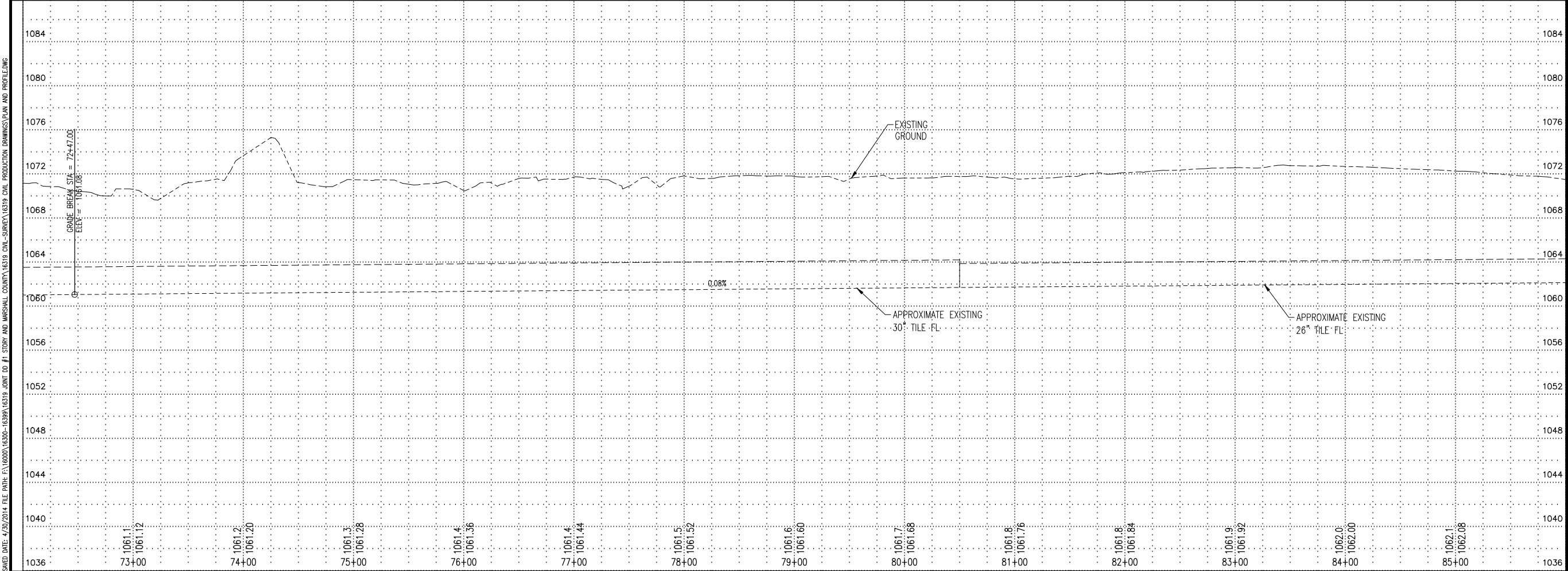
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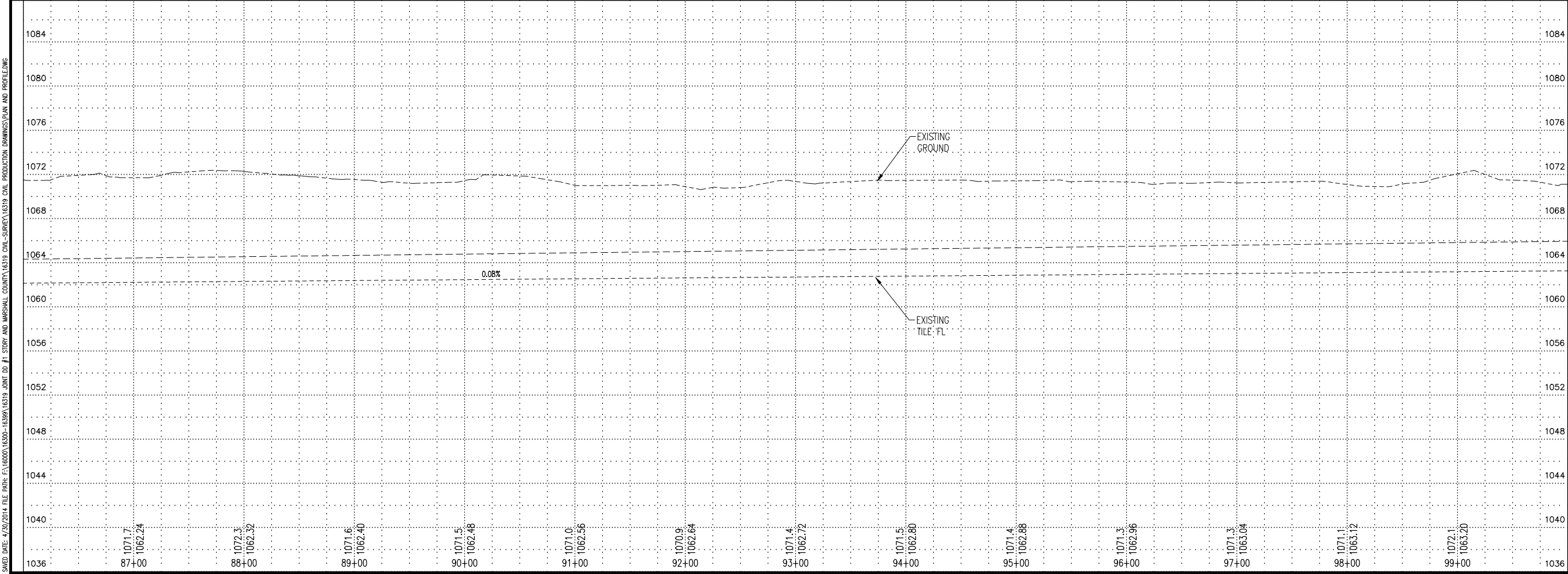
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PLAN AND PROFILE

SHEET

D.09

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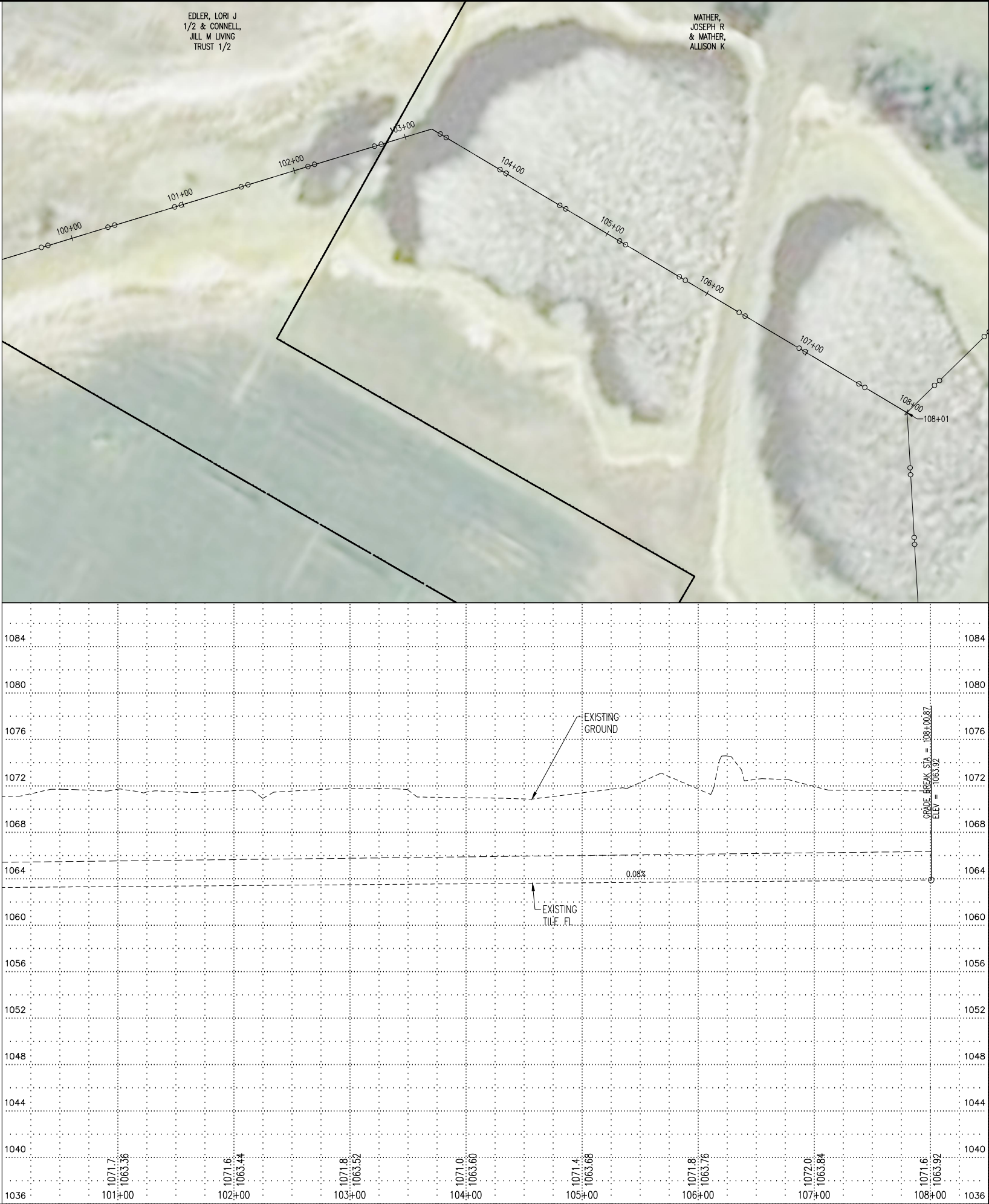
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PLAN AND PROFILE

SHEET

D.10

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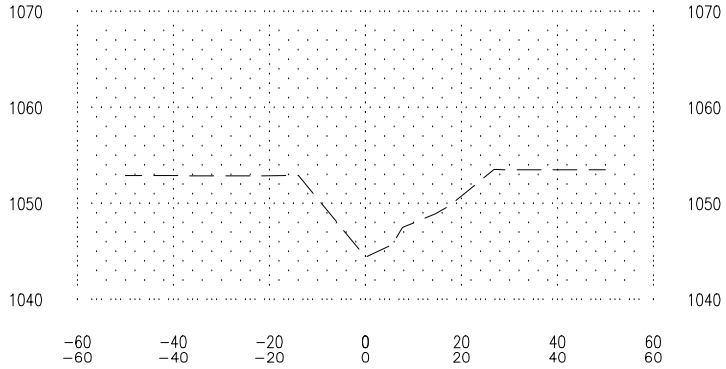
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PROFILE**

SHEET

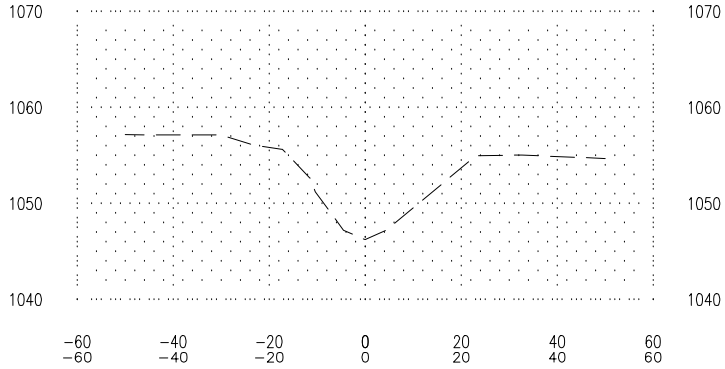
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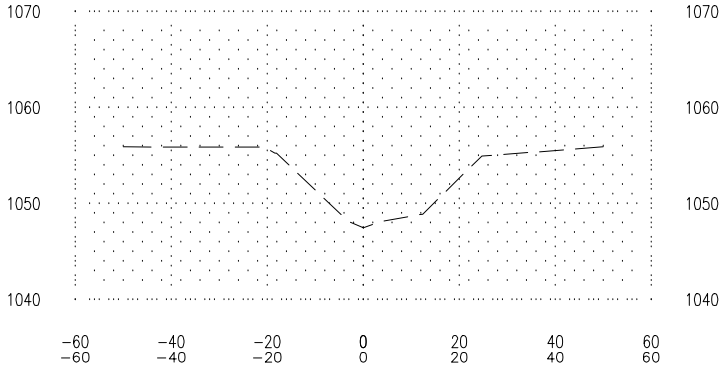
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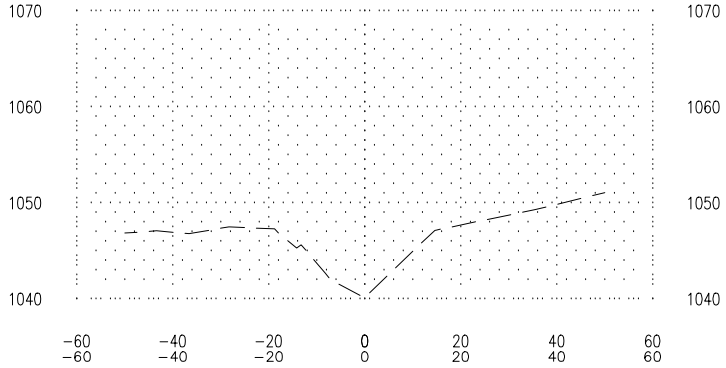
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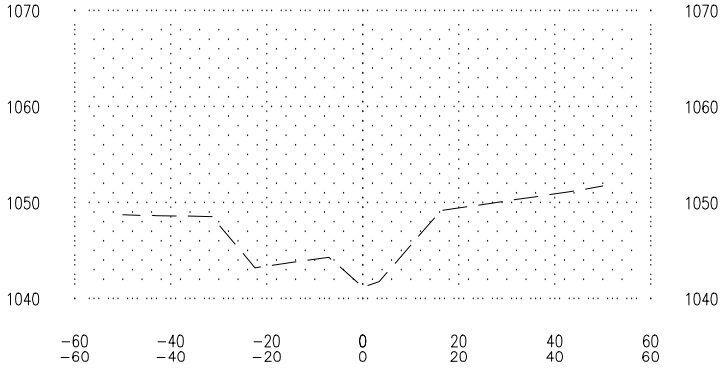
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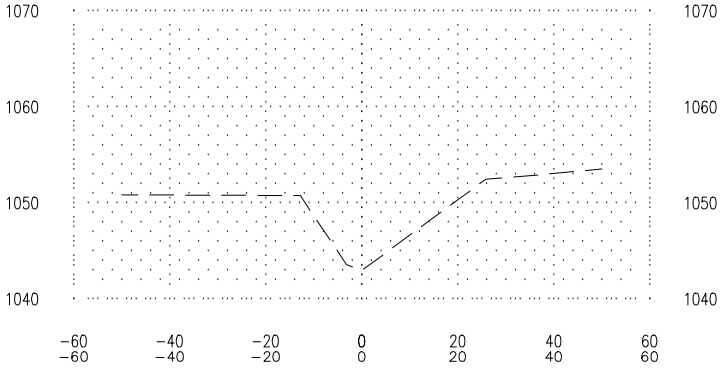
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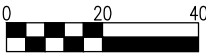


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**JT DD #1 STORY
AND MARSHALL
COUNTIES**

REVISION SCHEDULE		
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CLIENT PROJECT NO.	

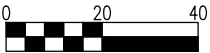
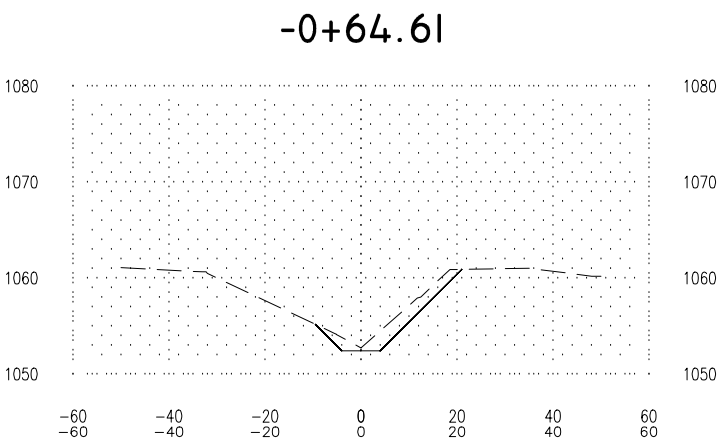
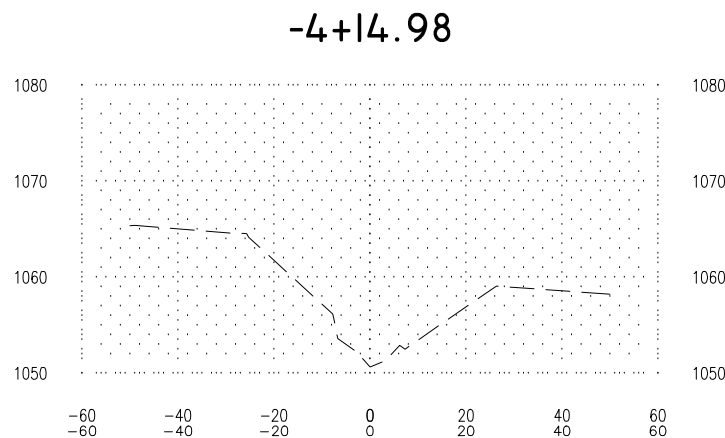
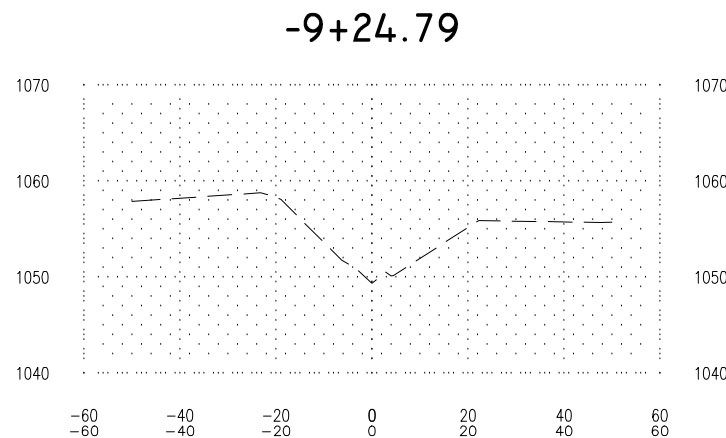
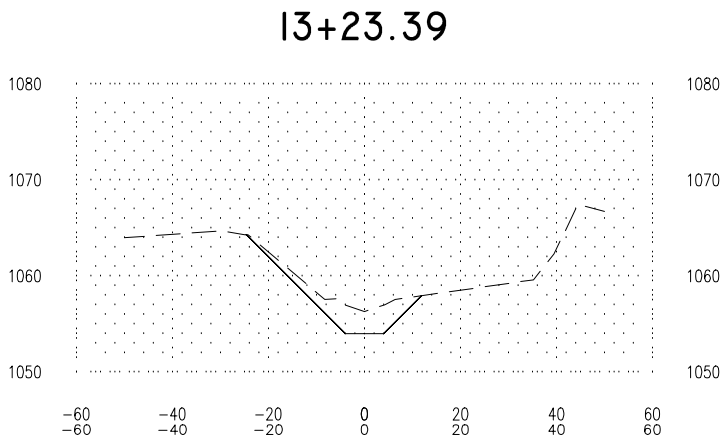
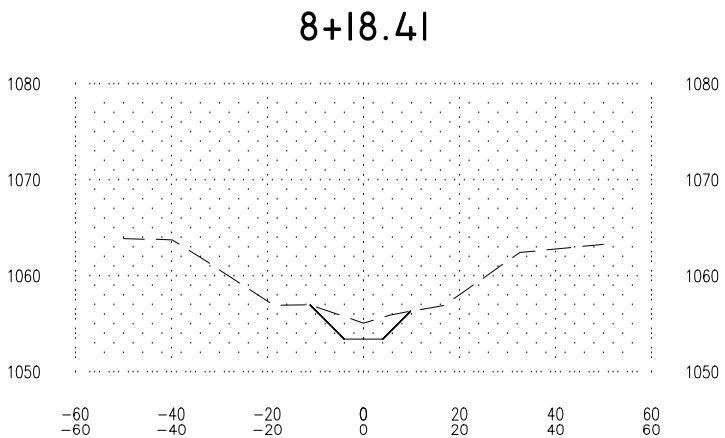
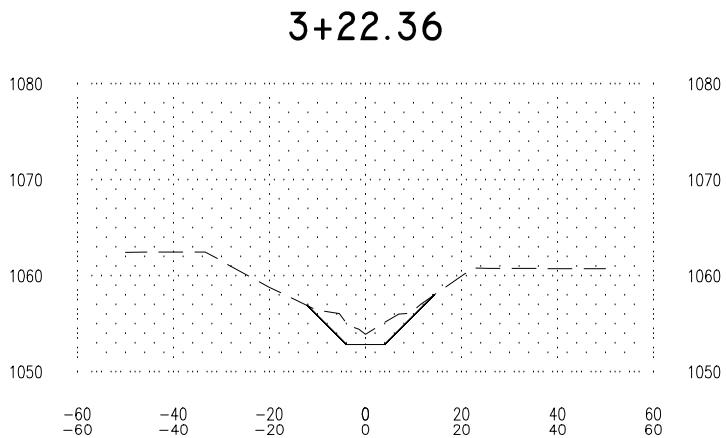
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**CROSS
SECTIONS**

SHEET

X.01

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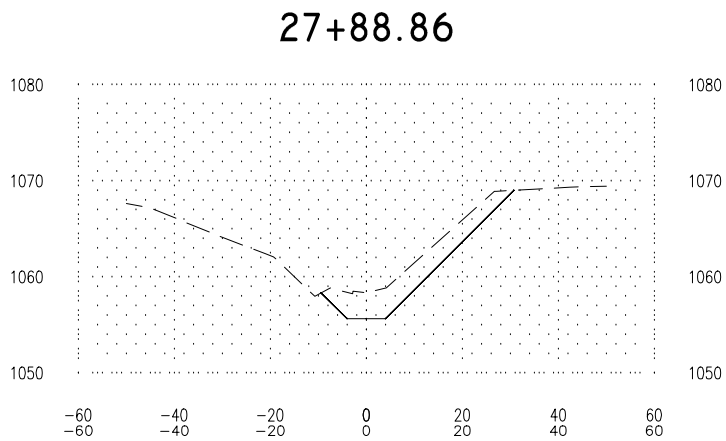
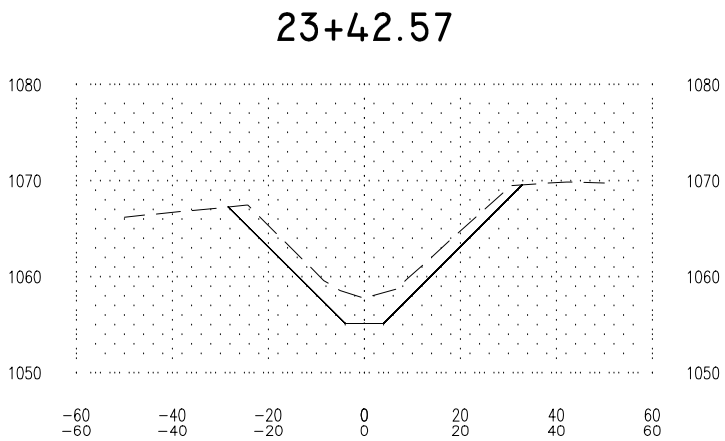
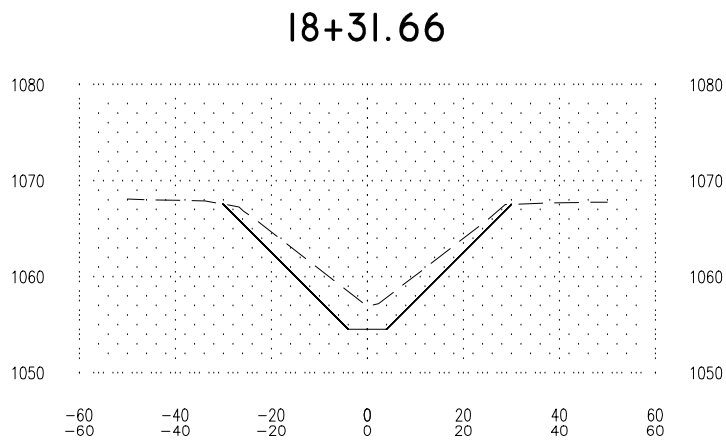
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CROSS
SECTIONS

SHEET

X.02

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CLIENT PROJECT NO.

TITLE

**CROSS
SECTIONS**

SHEET

X.03