



COMMONWEALTH OF KENTUCKY

Matthew G. Bevin
Governor

December 10, 2015

CALL NO. 303
CONTRACT ID NO. 151284
ADDENDUM # 2

Subject: Harlan County, FD04 048 0038 010-011
Letting December 11, 2015

(1)Added - Geotechnical Sheets

Proposal revisions are available at <http://transportation.ky.gov/Construction-Procurement/>.

Plan revisions are available at <http://www.lynnimaging.com/kytransportation/>.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

A handwritten signature in black ink that reads "Rachel Mills".

Rachel Mills, P.E.
Director
Division of Construction Procurement

RM:ks
Enclosures



An Equal Opportunity Employer M/F/D

GEOTECHNICAL SYMBOLS

COUNTY OF	ITEM NO.	SHEET NO.
HARLAN	11-8704.00	

AASHTO Classification of Soils and Soil-Aggregate Mixtures

General Classification	Granular Materials (35% or less passing 0.075 mm)							Silt-Clay Materials (More than 35% passing 0.075 mm)			
	A-1		A-3	A-2				A-4	A-5	A-6	A-7
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				
Sieve Analysis, Percent Passing											
2.00 mm (No. 10)	50 max	---	---	---	---	---	---	---	---	---	---
0.425 mm (No. 40)	30 max	50 max	51 min	---	---	---	---	---	---	---	---
0.075 mm (No. 200)	15 max	25 max	10 max	35 max	35 max	35 max	35 max	36 min	36 min	36 min	36 min
Characteristics of Fraction Passing 0.425 mm (No. 40)											
Liquid Limit	---	---	---	40 max	41 min	40 max	41 min	40 max	41 min	40 max	41 min
Plasticity Index	6 max	---	N.P.	10 max	10 max	11 min	11 min	10 max	10 max	11 min	11 min

- AI Activity Index
- LI Liquidity Index
- S+C Silt + Clay (% finer than No.200 Sieve)
- Rockline Soundings
- ⊕ Disturbed Sample Boring
- ⊙ Undisturbed Sample Boring
- ⊙ Undisturbed Sample Boring & Rock Core
- Rock Core
- ⊙ Slope inclinometer Installation
- typical applications: ⊙ ⊕ ⊙ ⊙ ●
- OW Observation Well
- ➔ Approximate Footing Elevation
- ▼ (Date) Water Elevation

- VS (psf) Field Vane Shear Strength
- Thin-walled Tube Sample
- < Standard Penetration Test Sample
- N Penetration Resistance
- Qu (psf) Unconfined Compressive Strength
- UU (psf) Unconsolidated Undrained Triaxial Strength
- w% Moisture Content
- KY RQD Rock Quality Designation (Kentucky Method)
- STD RQD Rock Quality Designation (Standard Method)
- SDI(JS) Slake Durability Index (Jar Slake Test)
- REC Core Recovery
- ∅ Angle of Internal Friction (Total Stress)
- ∅̄ Angle of Internal Friction (Effective Stress)
- c (psf) Cohesion (Total Stress)
- c̄ (psf) Cohesion (Effective Stress)
- γ (pcf) Total Unit Weight
- RDZ Rock Disintegration Zone
- OB Overburden Bench
- IB Intermediate Bench
- R Refusal
- NR Refusal Not Encountered

Unified Soil Classifications

MAJOR DIVISIONS	SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW Well-graded gravels or gravel-sand mixtures, little or no fines.
		GP Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GM Silty gravels, gravel-sand-silt mixtures.
		GC Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS	SW Well graded sands or gravelly sands, little or no fines.
		SP Poorly graded sands or gravelly sands, little or no fines.
		SM Silty sands, sand-silt mixtures.
SC Clayey sands, sand-clay mixtures.		
FINE GRAINED SOILS	SILTS AND CLAYS LL IS LESS THAN 50	ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
		CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
	ML-CL Silty clay-silty clay with sand and or gravel, sandy silty clay, sandy silty clay with gravel, gravelly silty clay, gravelly silty clay with sand	
	SILTS AND CLAYS LL IS GREATER THAN 50	MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
CH Inorganic clays of high plasticity, fat clays.		

Unified Soil Classifications - Continued

MAJOR DIVISIONS	SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GP-GC Poorly graded gravel with clay (or silty clay), poorly graded gravel with clay and sand (or silty clay & sand)
		GP-GM Poorly graded gravel with silt, poorly graded gravel with silt and sand
		GW-GC Well graded gravel with clay (or silty clay), well graded gravel with clay and sand (or silty clay and sand)
		GW-GM Well graded gravel with silt, well graded gravel with silt and sand
	SAND AND SANDY SOILS	GC-GM Silty clayey gravel, silty clayey gravel with sand
		SW-SC Well graded sand with clay (or silty clay), well graded sand with clay and gravel (or silty clay & gravel)
		SP-SC Poorly graded sand with clay (or silty clay), poorly graded sand with clay and gravel (or silty clay and gravel)
		SP-SM Poorly graded sand with silt, poorly graded sand with silt and gravel
UNCLASSIFIED MATERIAL	SC-SM Silty clayey sand, silty clayey sand with gravel	
	SW-SM Well graded sand with silt, well graded sand with silt and gravel	
	OH Organic (High Plasticity)	
	OL Organic (Low Plasticity)	

- LIMESTONE
- SANDSTONE
- DURABLE SHALE (SDI ≥ 95)
- NONDURABLE SHALE (SDI < 95)
- GRANULAR EMBANKMENT
- STRUCTURE GRANULAR BACKFILL
- TALUS, MINE WASTE, FILL MATERIAL, BOULDERS, & ETC.
- COAL
- DOLOMITE
- LIMESTONE (ARGILLACEOUS)
- SLOPE PROTECTION

FILE NAME:

USER: DATE:

E-SHEET NAME:

MicroStation v8.11.9.459

COUNTY OF	ITEM NO.	SHEET NO.
HARLAN	11-8704.00	

GEOTECHNICAL NOTES

1.) In accordance with Section 206 of the current Standard Specifications, the moisture content of embankment material shall not vary from the optimum moisture content as determined by the current version of KM 64-511 by more than +2 percent or less than -2 percent. This moisture content requirement shall have equal weight with the density requirement when determining the acceptability of embankment construction. Refer to the Family of Curves for moisture/density correlation.

2.) All soils, whether from roadway or borrow, may require manipulation to obtain proper moisture content prior to compaction. Direct payment shall not be permitted for rehandling, hauling, stockpiling, and/or manipulating soils.

3.) Excavation of surface ditches and channel changes adjacent to embankment areas shall be performed prior to the placement of the adjacent embankments. The material excavated for the channel changes and surface ditches is suitable for embankment construction if dried to proper moisture content in accordance with Section 206 of the current Standard Specifications.

4.) The Contractor is responsible for conducting any operations necessary to excavate the cut areas to the required typical section. These operations shall be incidental to Roadway Excavation or Embankment-in-Place and no additional compensation shall be made for this work.

5.) The Contractor shall conduct grading operations in such a manner that durable sandstone from roadway excavation be stockpiled separately or otherwise manipulated so that ample quantities are available for those areas requiring said material. No direct payment will be allowed for such necessary manipulating as stockpiling, hauling and/or double handling the material.

6.) Some of the soil horizons and slopes on the project are subject to erosion. Necessary procedures in accordance with Sections 212 and 213 of the current Standard Specifications shall be followed on construction.

7.) Removal of existing structures and other obstructions shall be completed in accordance with Section 203 of the current Standard Specifications for Road and Bridge Construction.

8.) Perforated pipe for subgrade drainage shall be placed in vertical sags in accordance with Standard Drawing RDP-005 at the following approximate locations and/or where designated by the Engineer.

Mainline
Station 11+43

9.) Foundation embankment benches shall be constructed in accordance with Standard Drawing RGX-010 at the locations listed below and/or as directed by the engineer.

Mainline
Station 2+75 to 4+25, Left Side

10.) Construct a 2-foot rock roadbed consisting of durable sandstone from roadway excavation for the entire project. The roadbed shall extend shoulder to shoulder in the fills and ditchline to ditchline in the cuts. Where soft and/or wet subgrade is encountered, during construction, the thickness of the rock roadbed may need to be adjusted to also serve as a working platform for subgrade stabilization. These adjustments, as directed by the Engineer, may depend on seasonal fluctuations in the water table.

11.) In areas where pavement is not to be overlaid, existing bituminous concrete located at a distance less than three feet below the proposed subgrade elevation within the limits of new roadway embankments, shall be removed entirely unless an overlay has been specified for the section. This shall be performed in compliance with Section 206 of the Standard Specifications for Road and Bridge Construction.

12.) All water wells within the limits of construction, whether shown on the plans or not, shall be plugged in accordance with requirements of section 708 of the Standard Specifications for Road and Bridge Construction, current edition.

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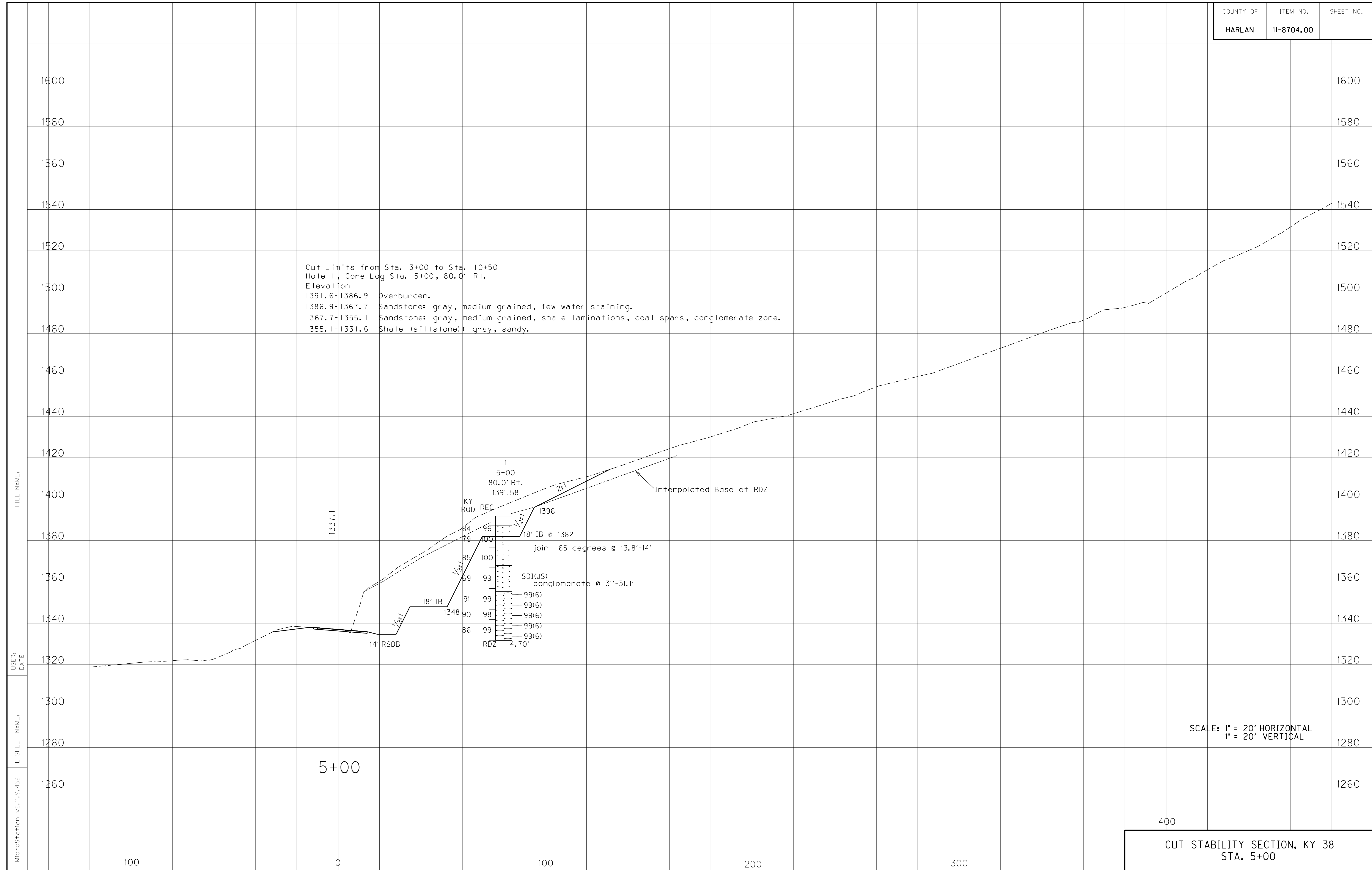
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Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF

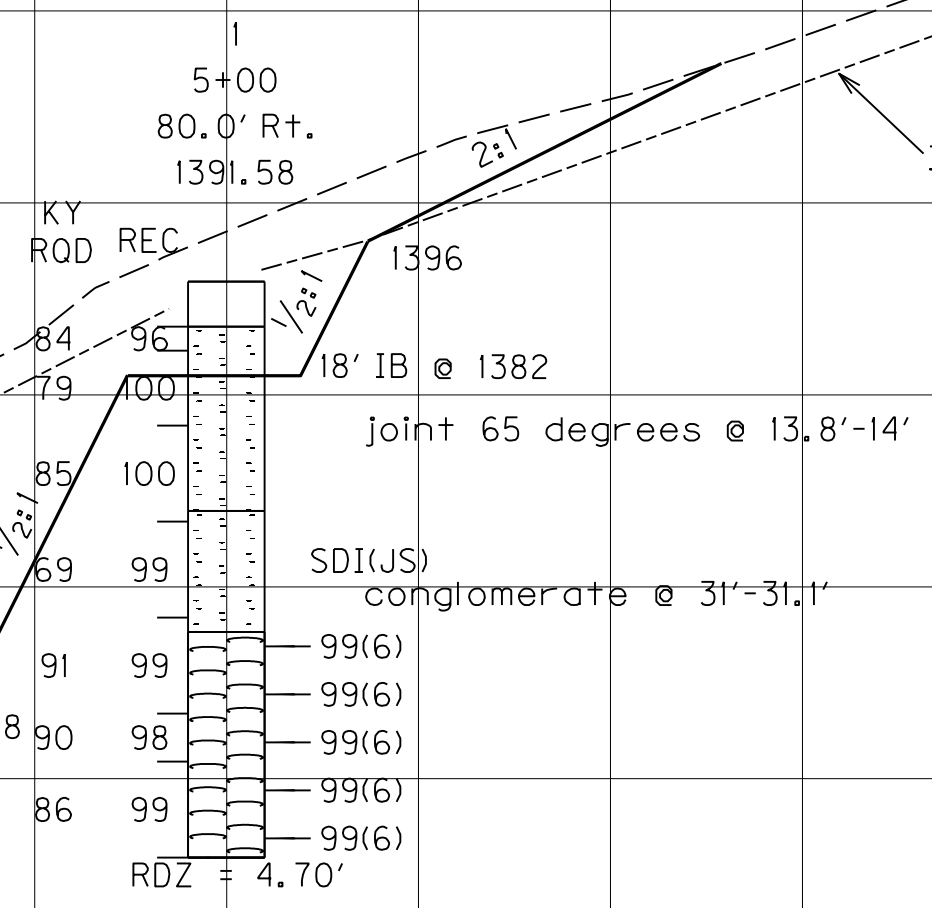
HARLAN

PROJECT _____
NUMBERS: _____

GEOTECHNICAL NOTES



Cut Limits from Sta. 3+00 to Sta. 10+50
Hole 1, Core Log Sta. 5+00, 80.0' Rt.
Elevation
1391.6-1386.9 Overburden.
1386.9-1367.7 Sandstone: gray, medium grained, few water staining.
1367.7-1355.1 Sandstone: gray, medium grained, shale laminations, coal spars, conglomerate zone.
1355.1-1331.6 Shale (siltstone): gray, sandy.

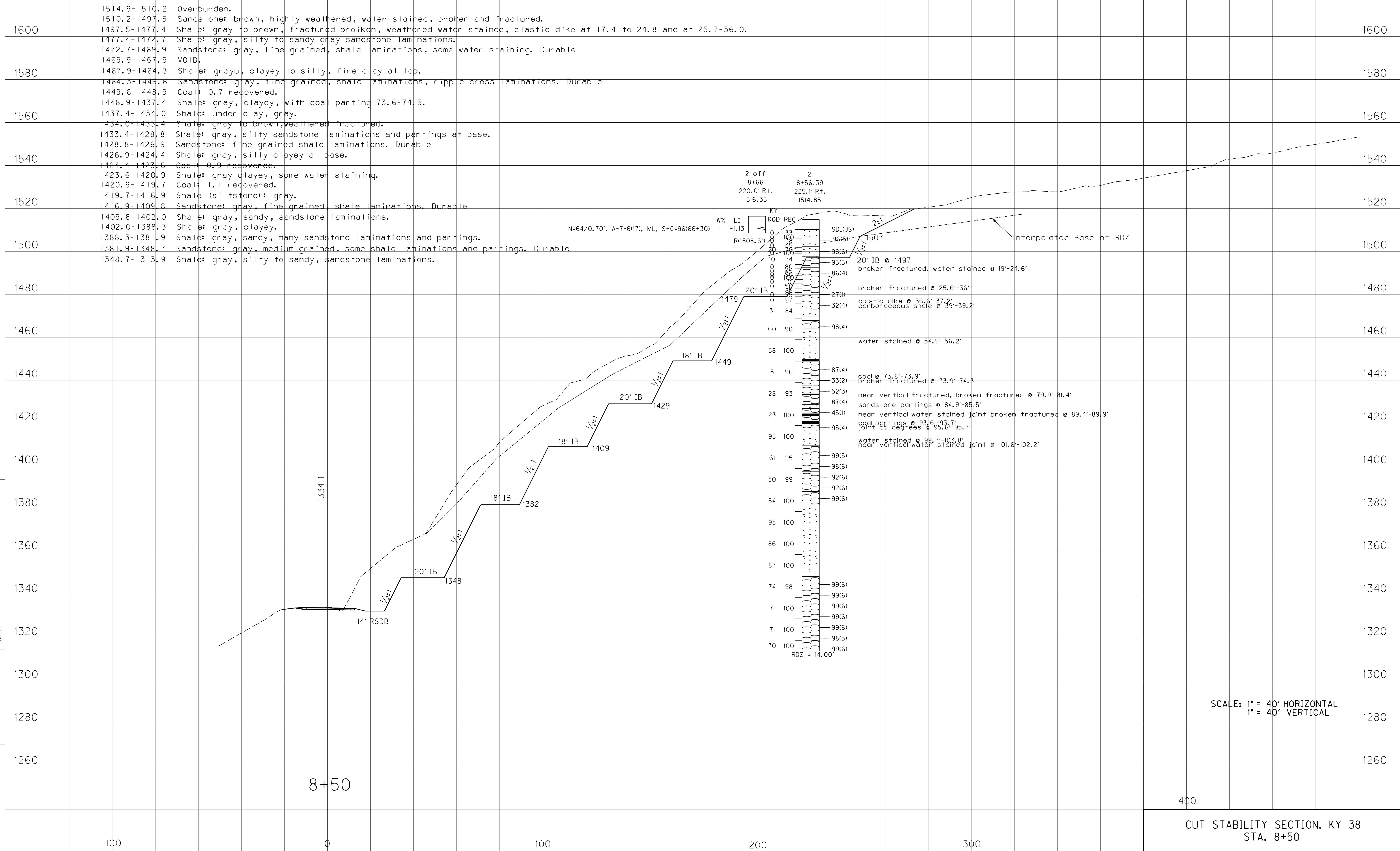


SCALE: 1" = 20' HORIZONTAL
1" = 20' VERTICAL

CUT STABILITY SECTION, KY 38
STA. 5+00

FILE NAME:
USER:
DATE:
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Cut Limits from Sta. 3+00 to Sta. 10+50
 Hole 2, Core Log Sta. 8+56.39, 225.1' Rt.
 Elevation



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