LEGEND FOR PROJECT - AVERAGE RESULTS OF TESTS - 475 SAMPLES TESTED

DESCRIPTION	ODOT CLASS	% AGG.	% C.SAND	% F.SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
GRAVEL WITH SAND	A-1-a(0)				VISUAL CLASSIFICATION					
GRAVEL WITH SAND	A-1-b(0)	30	35	22	13		NP	NP	7	2
GRAVEL WITH SAND AND SILT	A-2-4(0)	20	11	40	13	16	26	9	13	4
GRAVEL W/ SAND, SILT AND CLAY	A-2-6				VISUAL CLASSIFICATION					
FINE SAND	A-3(0)	0	11	83	6		NP	NP	15	7
COARSE AND FINE SAND	A-3a(0)	0	7	77	16		NP	NP	13	24
SANDY SILT	A-4a(4)	13	12	19	38	18	24	6	13	72
SILT	A-4b(8)	3	4	11	62	20	26	7	17	73
SILT AND CLAY	A-6a(8)	3	4	12	48	33	31	13	21	59
SILTY CLAY	A-6b(10)	3	2	10	47	38	36	18	22	33
ELASTIC CLAY	A-7-5(18)	1	1	2	14	82	60	29	34	8
CLAY	A-7-6(18)	0	1	2	20	77	56	33	30	193

VISUALLY CLASSIFIED MATERIALS

- WEATHERED CLAYSHALE
- WEATHERED SANDSTONE
- WEATHERED SILTSTONE
- WEATHERED SHALE
- WEATHERED INTERBEDDED SANDSTONE/SHALE
- BRECCIA
- CLAYSHALE
- CLAYSTONE
- SANDSTONE
- SHALE
- SILTSTONE
- INTERBEDDED SANDSTONE/BRECCIA
- INTERBEDDED SANDSTONE/SILTSTONE
- INTERBEDDED SANDSTONE/SHALE
- TOPSOIL

- TR — TOP OF ROCK
- AUGER BORING - PLAN VIEW
- DRIVE SAMPLE AND/OR CORE BORING - PROFILE VIEW
- W — FREE WATER
- STATIC WATER LEVEL
- STATIC WATER LEVEL (INCLUDES DRILLING WATER)
- WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT
- INDICATES A NON PLASTIC MATERIAL WITH A HIGH WATER CONTENT

- W/X/Y/Z — NUMBER OF BLOWS FOR "STANDARD PENETRATION" TEST
  W=NUMBER OF BLOWS FOR FIRST 6 INCHES
  X=NUMBER OF BLOWS FOR SECOND 6 INCHES
  Y=NUMBER OF BLOWS FOR THIRD 6 INCHES
  Z=NUMBER OF BLOWS FOR FOURTH 6 INCHES, IF APPLICABLE
- 50(n) — INDICATED NUMBER OF BLOWS (50) TO DRIVE A SPLIT-BARREL SAMPLER A DEPTH OF (n) INCHES OTHER THAN THE NORMAL 6-INCH INCREMENT.
- WOH — WEIGHT OF HAMMER
- NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT e.g. 15

- CLEAR CUT AREA
- AREA OF SLOPE INSTABILITY

NOTES

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS, SOIL TESTS, AND BEDROCK BORINGS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, COLUMBUS, OH 43223 OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET, COLUMBUS, OHIO 43223.

END PROJECT
STA. 536+15.00
SLM = 10.15

BEGIN PROJECT
STA. 353+00.00
SLM = 6.69

LOCATION MAP

LATITUDE: N 38°50'25" LONGITUDE: W 82°50'50"

SCALE IN MILES
0 1 2 3 4

N

PORTION TO BE IMPROVED
INTERSTATE & DIVIDED HIGHWAY
UNDIVIDED STATE & FEDERAL ROUTES
OTHER ROADS

CALCULATED | CHECKED

SOIL PROFILE COVER SHEET

SCI-823-6.81

1
135

USER: ldearnel PLOT DATE: 9/15/2011 8:04:52 AM REVISION DATE: 9/15/2011 MODEL: Sheet
FILE:...4HNDR.C#000000000045878 #94151C001.dgn

GENERAL INFORMATION

INTRODUCTION

THIS REPORT CONSISTS OF THE SOILS INVESTIGATION FOR THE CENTER PORTION (PHASE 1) OF THE PROPOSED STATE ROUTE 823 ROADWAY. PHASE 1 BEGINS APPROXIMATELY 2400 FEET SOUTH OF EXISTING SHUMWAY HOLLOW ROAD (TOWNSHIP ROAD 234) AND ENDS ESSENTIALLY AT AND INCLUDES LUCASVILLE MINFORD ROAD (PROPOSED STATE ROUTE 728) IN SCIOTO COUNTY, OHIO. INTERCHANGES ARE PLANNED AT SHUMWAY HOLLOW ROAD AND LUCASVILLE MINFORD ROAD AND THREE BRIDGES ARE INCLUDED IN PHASE 1. APPROXIMATELY 3.4 MILES OF NEW ROADWAY AND 3.4 MILES OF NEW RAMPS ARE PLANNED AND 1.2 MILES OF EXISTING ROADWAY WILL BE IMPROVED AS PART OF THE PROJECT.

TWO PRELIMINARY SUBSURFACE EXPLORATIONS WERE PERFORMED IN 2001 THROUGH 2003 TO EVALUATE THE SUBSURFACE CONDITIONS FOR POTENTIAL ALIGNMENTS. A TOTAL OF 46 BORINGS WERE DRILLED AT THIS TIME. HOWEVER, ONLY ONE OF THESE BORINGS, PB-33, WAS LOCATED WITHIN 600 FEET OF THE PROPOSED SR 823 ALIGNMENT. BORING PB-33 IS INCLUDED IN THE SOIL SUMMARY, BUT THE REMAINING BORINGS FROM THE PRELIMINARY EXPLORATIONS ARE NOT INCLUDED IN THIS REPORT.

THE PROJECT INDEX IS ON SHEET 5.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

A. REGIONAL GEOLOGY

THE LITHOLOGY OF CENTRAL SCIOTO COUNTY IS PRIMARILY COMPOSED OF MISSISSIPPIAN AGED ROCKS INCLUDING SHALE, SILTSTONE, AND SANDSTONE. THE MIDDLE TO UPPER DEVONIAN AGED ROCKS OF THE OHIO SHALE AND OLENTANGY SHALE ARE FOUND WITHIN DEEPER PORTIONS OF THE SCIOTO RIVER VALLEY. THE UPPER DEVONIAN AGED ROCKS ARE UNDIVIDED FROM THE LOWER MISSISSIPPIAN AGED ROCKS IN PREVIOUS MAPPING EFFORTS WITHIN THE COUNTY. THE UNDIVIDED DEVONIAN AND MISSISSIPPIAN AGED ROCKS ARE LOCATED WITHIN PORTIONS OF THE OHIO RIVER VALLEY, SCIOTO RIVER VALLEY, AND SOME OF THE DEEPER TRIBUTARY VALLEYS OF THE MAJOR DRAINAGES. OVERLYING THE DEVONIAN AGED ROCKS, THE FULL MISSISSIPPIAN AGED STRATIGRAPHIC COLUMN IS PRESENT THROUGHOUT MUCH OF SCIOTO COUNTY. SOME OF THE BEST EXPOSURES OF THE MISSISSIPPIAN AGED LOGAN FORMATION ARE FOUND IN SCIOTO COUNTY. ALONG THE HIGHER RIDGELINES IN THE EASTERN AND EAST CENTRAL PORTIONS OF SCIOTO COUNTY, PENNSYLVANIAN AGED ROCKS CAP THE HIGHER HILLTOPS WITH RESIDUAL SOILS OVERLYING THE ROCK.

THE GEOLOGY IS AFFECTED BY BOTH REGIONAL AND LOCAL BEDROCK STRUCTURAL FEATURES. THE CONTROLLING REGIONAL FEATURE IS THE CINCINNATI ARCH, WHICH IS LOCATED TO THE WEST OF THE PROPOSED ALIGNMENT. GENERALLY, THE ROCK STRATA OF THE REGION VARY IN THICKNESS TOWARDS THE ARCH AND THE BEDS APPEAR AT INCREASINGLY HIGHER ELEVATIONS. THERE ARE TWO LOCAL STRUCTURAL FEATURES EVIDENT THAT AFFECT THE BEDROCK SEEN NEAR THE PROPOSED ALIGNMENT, A LOW DOME AND A MONOCLINAL ARCH. THE LOW DOME IS LOCATED WEST OF SCIOTOVILLE ON THE NORTH BANK OF THE OHIO RIVER, RESULTING IN A REVERSAL OF THE LOCAL DIP SEEN IN THE BEDROCK ADJACENT TO THE DOME. THE LOW MONOCLINAL ARCH IS LOCATED IN THE WESTERN PORTION OF THE COUNTY TRENDING NORTH-NORTHEAST AND CROSSING SCIOTO BRUSH CREEK NEAR OTWAY. THIS STRUCTURAL FEATURE MAY INCREASE THE DIP OF THE BEDROCK IN AND ADJACENT TO THE NORTHERN PORTION OF THE PROPOSED ALIGNMENT. THE REGIONAL DIP OF THE BEDDING WITHIN SCIOTO COUNTY RANGES BETWEEN 13 AND 43 FEET PER MILE TO THE EAST SOUTHEAST (APPROXIMATELY E 15°S TO E 20°S).

B. GEOLOGY ALONG PROPOSED SR 823 ALIGNMENT

THE FOLLOWING SECTIONS DESCRIBE THE GENERAL CHARACTERISTICS OF THE LITHOLOGY FOUND WITHIN THE PROPOSED LIMITS OF CONSTRUCTION. THE DESCRIPTIONS ARE ORGANIZED BY AGE OF FORMATION: PENNSYLVANIAN, UPPER MISSISSIPPIAN, AND LOWER MISSISSIPPIAN AND UPPER DEVONIAN - UNDIVIDED.

B.1. PENNSYLVANIAN ROCKS

PENNSYLVANIAN AGED ROCKS FROM THE POTTSVILLE GROUP ARE FOUND CAPPING THE HIGHER RIDGELINES SEEN THROUGHOUT THE PROPOSED ALIGNMENT, EXCEPT TO THE NORTH IN VALLEY TOWNSHIP. THIS UNIT IS MAPPED AS THE PENNSYLVANIAN BREATHITT FORMATION ON THE OPEN-FILE BEDROCK GEOLOGY MAPS COMPILED BY THE OHIO DEPARTMENT OF NATURAL RESOURCES - DIVISION OF GEOLOGICAL SURVEY (ODNR - DGS). THIS NAME ORIGINATED FROM MAPPING EFFORTS OF THE PENNSYLVANIAN POTTSVILLE AND ALLEGHENY GROUPS IN KENTUCKY. THE POTTSVILLE GROUP MEMBERS FOUND WITHIN THE PROPOSED LIMITS OF CONSTRUCTION WILL BE REFERRED TO AS THE BREATHITT FORMATION IN THIS REPORT TO BE CONSISTENT WITH BEDROCK GEOLOGY MAPS PREPARED BY ODNR - DGS.

THE BREATHITT FORMATION IS FOUND AS THIN BANDS GENERALLY FOLLOWING THE TOPOGRAPHIC CONTOURS OF THE HIGHER RIDGELINES. DUE TO THE REGIONAL DIP, THE PENNSYLVANIAN BREATHITT FORMATION IS GENERALLY ABSENT OR FOUND ABOVE AN ELEVATION OF 1000 FEET WITHIN THE NORTHERN AND NORTHWESTERN PORTION OF THE PROPOSED ALIGNMENT, ABOVE AN ELEVATION OF 850 FEET IN THE CENTRAL PORTION OF THE ALIGNMENT, AND ABOVE AN ELEVATION OF 760 FEET IN THE SOUTHERN PORTION OF THE PROPOSED ALIGNMENT. THE TOP OF THE UNDERLYING MISSISSIPPIAN AGED MAXVILLE LIMESTONE IS ASSOCIATED WITH AN EROSIONAL UNCONFORMITY AND THE CONTACT IS PROBABLY UNDULATING AND NON-UNIFORM. THE BREATHITT FORMATION CONSISTS OF CONGLOMERATE, COAL, SHALE, THIN LIMESTONE, SANDSTONE, AND IRON ORES. GENERALLY, SHALE AND SANDSTONE ARE THE DOMINANT LITHOLOGIES WITH OCCASIONAL THIN, BONY COAL BEDS OR BLOSSOMS.

THE PREDOMINATE MARKER BEDS FOUND WITHIN THE BREATHITT FORMATION ARE THE HARRISON ORE, LOCATED IMMEDIATELY OVERLYING THE MISSISSIPPIAN AGED MAXVILLE LIMESTONE, THE SCIOTOVILLE CLAY, THE SHARON ORE, AND THE ANTHONY COAL. OF THESE MEMBERS, THE HARRISON ORE IS THE ONLY MARKER BED THAT IS RELATIVELY CONTINUOUS WITHIN PROPOSED LIMITS OF CONSTRUCTION. THE HARRISON ORE IS DESCRIBED AS BEING CLOSELY ASSOCIATED WITH THE UNDERLYING MISSISSIPPIAN AGED MAXVILLE LIMESTONE, SOMETIMES DESCRIBED AS BEING AN ALTERATION OF THE UNDERLYING LIMESTONE. EVEN WHEN THE MAXVILLE LIMESTONE IS ABSENT, THE HARRISON ORE IS GENERALLY FOUND. THE ORE IS OFTEN BRECCIATED OR CONGLOMERATIC AND IS DESCRIBED AS BEING SEDIMENTARY IN ORIGIN AS OPPOSED TO AN ALTERATION PRODUCT. CONSEQUENTLY, THE MATERIAL COMPRISING THE HARRISON ORE VARIES GREATLY FROM PLACE TO PLACE, BUT IT IS COMMONLY INTERPRETED AS THE BASAL UNIT OF THE PENNSYLVANIAN ROCKS. THE SCIOTOVILLE CLAY IS RELATIVELY CONTINUOUS THROUGHOUT THE ALIGNMENT, WHEREAS THE SHARON ORE AND THE ANTHONY COAL ARE REPORTED WITHIN THE PROPOSED LIMITS OF CONSTRUCTION BUT NEITHER ARE CONTINUOUS OR WELL DEVELOPED.

B.2. UPPER MISSISSIPPIAN ROCKS

UPPER MISSISSIPPIAN AGED ROCKS FROM THE WAVERLY SERIES, CUYAHOGA AND LOGAN FORMATIONS COMPRISE THE MAJORITY OF THE ROCKS WITHIN THE PROPOSED LIMITS OF CONSTRUCTION. THESE TWO FORMATIONS ARE NOT DIVIDED ON THE BEDROCK GEOLOGY MAPS COMPILED BY ODNR - DGS. HOWEVER, FORMAL SUBDIVISIONS DO EXIST AND ARE USED IN THE FOLLOWING DESCRIPTIONS. THESE ROCKS REPRESENT THE MIDDLE AND UPPER PORTION OF THE MISSISSIPPIAN SYSTEM WITHIN THE REGION.

THE MAXVILLE LIMESTONE, OVERLYING THE LOGAN FORMATION, MARKS THE CONTACT WITH THE OVERLYING PENNSYLVANIAN AGED BREATHITT FORMATION. THE MAXVILLE LIMESTONE CONSISTS OF ISOLATED, DISCONTINUOUS POCKETS OF LIMESTONE THAT CAN RANGE FROM VERY PURE TO CHERTY AND IS DISCONTINUOUS DUE TO AN EROSIONAL UNCONFORMITY AT ITS UPPER SURFACE. WHERE THE MAXVILLE LIMESTONE IS ABSENT, THE LOGAN FORMATION MARKS THE UPPER CONTACT WITH THE OVERLYING PENNSYLVANIAN AGED BREATHITT FORMATION.

THE LOGAN FORMATION IS THE DOMINANT ROCK STRATA FOUND WITHIN THE PROPOSED LIMITS OF CONSTRUCTION. THE HILLSIDES IN THE SOUTHERN AND CENTRAL PORTION OF THE PROPOSED ALIGNMENT ARE COMPOSED OF SANDSTONES OF THE LOGAN FORMATION WITH THE EXCEPTION OF THE PENNSYLVANIAN BREATHITT FORMATION CAPPING THE HIGHER. WITHIN THE NORTHERN PORTION OF THE PROPOSED ALIGNMENT, THE UPPER HALF TO ONE THIRD OF THE HILLSIDES ARE COMPOSED OF THE LOGAN FORMATION. THE LOGAN FORMATION GRADUALLY DESCENDS EASTWARD UNTIL IT PASSES UNDER COVER AT THE APPROXIMATE EASTERN BOUNDARIES OF PORTER, HARRISON, AND MADISON TOWNSHIPS TO THE EAST OF THE PROPOSED ALIGNMENT. EXAMPLES OF THE ROCK STRATA CAN BE SEEN WITHIN SEVERAL ROCK CUTS THROUGHOUT THE AREA ALONG THE OHIO RIVER AND THE LOWER LITTLE SCIOTO RIVER IN WHICH THE CUTS ARE COMPOSED ENTIRELY OF THE LOGAN FORMATION. FIELD OBSERVATIONS OF ROAD CUTS WITHIN THE LOGAN FORMATION INDICATE THAT TWO REGIONAL JOINT SET ORIENTATIONS ARE FOUND WITHIN THE PROPOSED LIMITS OF CONSTRUCTION. THE MAIN JOINT SET IS NEAR VERTICAL AND TRENDS EAST-WEST. A SECONDARY JOINT SET IS NEAR VERTICAL AND TRENDS NORTH-SOUTH.

THE CUYAHOGA FORMATION, UNDERLYING THE LOGAN FORMATION, CONTAINS GRAY TO BROWN SHALE INTERBEDDED WITH MINOR AMOUNTS OF SANDSTONE AND SILTSTONE WITH OCCASIONAL MASSIVE SANDSTONE BEDS. TWO SANDSTONE MEMBERS OF THE CUYAHOGA FORMATION ARE REPORTED ON THE CURRENT STRATIGRAPHIC COLUMN AS THE BLACK HAND SANDSTONE AND BUENA VISTA SANDSTONE. THE CUYAHOGA FORMATION, HOWEVER, IS CHARACTERIZED BY THE DOMINANCE OF SHALE. STOUT REPORTED THREE MEMBERS WITHIN SCIOTO COUNTY. WORKING UP THE STRATIGRAPHIC COLUMN, THE MEMBERS ARE THE HENLY SILICEOUS SHALE, BUENA VISTA SANDSTONE MEMBER, AND THE PORTSMOUTH SHALE. THE BUENA VISTA SANDSTONE MEMBER DIPS BELOW COVER JUST EAST OF THE SCIOTO RIVER AND ALMOST THE ENTIRE VISIBLE PORTION OF THE CUYAHOGA NEAR THE PROPOSED ALIGNMENT IS COMPOSED OF PORTSMOUTH SHALE. THE PORTSMOUTH SHALE MEMBER OF THE CUYAHOGA FORMATION IS GENERALLY COMPOSED OF BLUE TO GRAY SANDY SHALE WITH OCCASIONAL THIN SANDSTONES OR LAYERS OF CONCRETIONARY IRONSTONE, SELDOM OVER AN INCH OR TWO IN THICKNESS. THE SHALE READILY WEATHERS TO BUFF COLORED FLAKY FRAGMENTS AND SUBSEQUENTLY TO CLAY. AREAS WITHIN THE NORTHWESTERN PORTION OF THE PROPOSED ALIGNMENT UNDERLAIN BY THE PORTSMOUTH SHALE OF THE CUYAHOGA FORMATION EXHIBIT UNDULATING, HUMMOCKY TERRAIN INDICATIVE OF LANDSLIDES AND EARTH FLOW DUE TO THE HIGH CLAY CONTENT OF THE WEATHERED SHALE. THE CONTACT BETWEEN THE LOGAN AND CUYAHOGA FORMATIONS IS GENERALLY TRANSITIONAL AND MAY BE UP TO 25 FEET IN THICKNESS. THE CUYAHOGA FORMATION GRADUALLY DESCENDS EASTWARD FROM THE SCIOTO RIVER, AND IS ESTIMATED TO PASS UNDER COVER APPROXIMATELY 1 MILE WEST OF CLARKTOWN IN THE CENTRAL PART OF THE COUNTY AND AT SCIOTOVILLE IN THE SOUTH.

ROUNDING

B.3. LOWER MISSISSIPPIAN AND UPPER DEVONIAN ROCKS - UNDIVIDED

ALONG PORTIONS OF THE OHIO RIVER AND SCIOTO RIVER VALLEY THE LOWER MISSISSIPPIAN AND UPPER DEVONIAN ROCKS HAVE NOT BEEN DIVIDED IN PREVIOUS MAPPING EFFORTS. PREVIOUS MAPPING EFFORTS COMBINE THE MISSISSIPPIAN AGED SUNBURY SHALE, BEREA SANDSTONE, AND BEDFORD SHALE WITH THE UPPER DEVONIAN AGED ROCKS. HOWEVER, FORMAL SUBDIVISIONS DO EXIST AND ARE USED IN THE FOLLOWING DESCRIPTIONS. THESE ROCKS ARE POORLY EXPOSED AT THE GROUND SURFACE DUE PRIMARILY TO BURIAL BY GLACIAL OUTWASH, LACUSTRINE SOILS, AND ALLUVIAL DEPOSITS. THE SUNBURY SHALE MAY BE EXPOSED IN THE LOWER SLOPES OF THE HILLS IMMEDIATELY EAST OF THE SCIOTO RIVER, BUT IS UNDER COVER THROUGHOUT THE REST OF THE ALIGNMENT.

GENERALLY, THESE ROCKS NOT SEEN OUTCROPPING WITHIN THE NEAR OR WITHIN THE LIMITS OF CONSTRUCTION AND ARE PRIMARILY FOUND BENEATH THE OVERBURDEN OF THE LARGER STREAM CHANNELS. THE MISSISSIPPIAN AGED SUNBURY SHALE IS LOCATED AT THE CONTACT WITH THE OVERLYING MISSISSIPPIAN CUYAHOGA FORMATION. GENERALLY, THE SUNBURY IS A BROWN TO BLACK CARBONACEOUS SHALE THAT IS THIN, FISSILE, AND PLANAR, OFTEN CONTAINING SMALL PYRITIC CONCRETIONS. THE SUNBURY RANGES IN THICKNESS FROM 10 TO 50 FEET. UNDERLYING THE SUNBURY SHALE, THE MISSISSIPPIAN BEREA SANDSTONE CONSISTS OF GRAY SANDSTONE AND MINOR SHALE AND RANGES IN THICKNESS FROM 10 TO 50 FEET WITH THIN TO THICK BEDDING. THE BOTTOM OF THE GROUP IS COMPOSED OF THE MISSISSIPPIAN AND DEVONIAN AGED BEDFORD SHALE. THE BEDFORD CONTAINS GRAY TO BROWN SHALE WITH INTERBEDDED SANDSTONE BEDS UP TO TWO TO THREE FEET IN THICKNESS. THE SANDSTONE BEDS CONSISTS OF THIN PLATY SANDSTONES SELDOM OVER A FRACTION OF AN INCH THICK AND SEPARATED BY THINNER SHALE PARTINGS. THE BEDFORD SHALE OVERLIES THE DEVONIAN AGED OHIO SHALE.

C. QUATERNARY GEOLOGY

SOILS FOUND WITHIN THE LIMITS OF CONSTRUCTION CAN BE DIVIDED INTO THREE GROUPS. FIRST, RESIDUAL AND COLLUVIAL SOILS DERIVED FROM WEATHERING OF UNDERLYING ROCK AND DOWNSLOPE TRANSPORT. SECOND, THERE ARE LACUSTRINE AND OUTWASH DEPOSITS OF GLACIAL ORIGIN AND FINALLY SOILS CONSISTING OF RECENT ALLUVIAL DEPOSITS. THE RESIDUAL AND COLLUVIAL SOILS ARE FOUND ALONG THE RIDGE TOPS AND HILLSIDES, GLACIAL SOILS ARE TYPICALLY FOUND WITHIN THE MAJOR STREAM VALLEY AND THEIR TRIBUTARIES, AND RECENT ALLUVIAL DEPOSITS ARE FOUND ALONG AND WITHIN STREAM CHANNELS AND VALLEYS.

C.1. RESIDUAL AND COLLUVIAL SOIL

C.3. ALLUVIAL SOILS

GENERALLY, THE LARGEST DEPOSITS OF ALLUVIAL SOILS ARE FOUND ALONG THE LITTLE SCIOTO RIVER AND THE OHIO RIVER. THESE DEPOSITS ARE USUALLY GRANULAR WITH HIGH FINES (CLAY AND SILT) CONTENT. ALLUVIAL SOILS, TO SOME EXTENT, ARE FOUND ALONG ALL OF THE CREEKS AND RIVERS WITHIN THE PROPOSED LIMITS OF CONSTRUCTION. GENERALLY ALLUVIAL DEPOSITS RANGE FROM SILTY CLAY TO COARSE SAND. WHERE BEDROCK IS SHALLOW, ALLUVIAL DEPOSITS MAY CONTAIN COARSE SAND, GRAVEL, AND COBBLES.

TWO SOIL COMPLEXES ARE REPORTED ALONG THE FLOOD PLAINS CONSISTING OF NOLIN-GENESSEE AND STENDAL-CUBA-TIOGA.

CALCULATED | CHECKED

SOIL PROFILE GENERAL NOTES

SCI-823-6.81

USER: CMohlbri PLOT DATE: 6/21/2011 8:26:36 PM REVISION DATE: 6/21/2011
FILE...4HOR.C(0000000004587B /19451C002.dgn MODEL: Sheet

THESE COMPLEXES COMBINE TO MAKE UP APPROXIMATELY 5 PERCENT OF THE SOILS FOUND WITHIN THE COUNTY HAVING SLOPES RANGING FROM 0 TO 3 PERCENT AND ARE FORMED IN ALLUVIUM WITHIN THE FLOOD PLAINS.

D. OBSERVATIONS AND LAND USAGE

ONE AREA WITHIN THE SHUMWAY HOLLOW INTERCHANGE AREA SHOWED RECENT SIGNS OF SIGNIFICANT INSTABILITY NEAR OR WITHIN THE LIMITS OF CONSTRUCTION. SLOPE INSTABILITY WAS CHARACTERIZED AS EITHER AN ACTIVE LANDSLIDE OR SOIL CREEP. ACTIVE LANDSLIDES WERE CHARACTERIZED AS MOVEMENTS OF OVERBURDEN THICKNESSES OF TWO FEET OR MORE DOWN SLOPE AND SHOWED INDICATIONS OF RECENT ACTIVITY. SLOPE INSTABILITY AND MOVEMENT IN AREAS WITH AN OVERBURDEN THICKNESS OF LESS THAN TWO FEET IS CHARACTERIZED AS SOIL CREEP. IN THE STEEP TERRAIN OF SCIOTO COUNTY, SOIL CREEP IS COMMON. LANDSLIDES AND SOIL CREEP WERE FIRST IDENTIFIED USING AERIAL PHOTOGRAPHY AND THEN VERIFIED DURING THE FIELDWORK. ALL SLOPE INSTABILITY APPEARED TO BE RELATIVELY SHALLOW AND CONTAINED WITHIN THE OVERBURDEN.

THE AERIAL PHOTOGRAPHY SHOWED HUMMOCKY TERRAIN FROM STATION 352+00 CONTINUING TO STATION 356+00. THIS AREA EXHIBITED SIGNS OF RECENT INSTABILITY. THIS IS MOST LIKELY DUE TO EROSION AND SHALLOW SOIL CREEP ALONG THE STEEP DRAINAGE CHANNELS OF INTERMITTENT STREAMS IN THE AREA.

THE LAND USAGE ALONG THE PROPOSED STATE ROUTE 823 ALIGNMENT IS PRIMARILY FOREST WITH SOME PASTURE AND CULTIVATED FIELDS. SOME RESIDENTIAL AND AGRICULTURAL DEVELOPMENT IS PRESENT ALONG THE CROSSROADS.

EXPLORATION

A. SR 823 MAINLINE

THE SUBSURFACE INVESTIGATION FOR THE PHASE 1 MAINLINE CONSISTED OF DRILLING A TOTAL OF 164 BORINGS. THE BORINGS WERE DRILLED BETWEEN JULY 9, 2004 AND SEPTEMBER 14, 2006. THE BORINGS WERE EXTENDED TO DEPTHS OF 8.0 TO 173.0 FEET AND WERE DRILLED WITH BOTH ATV-MOUNTED AND TRUCK-MOUNTED DRILL RIGS.

B. SHUMWAY HOLLOW ROAD INTERCHANGE (TR 234)

THE SUBSURFACE INVESTIGATION FOR THE SHUMWAY HOLLOW ROAD INTERCHANGE WAS BETWEEN STATIONS 352+00 AND 416+00 ON SR 823 CONSISTED OF 107 BORINGS DRILLED BETWEEN THE DATES OF JULY 27, 2004 AND SEPTEMBER 27, 2006. THE BORINGS WERE EXTENDED TO DEPTHS OF 6.0 TO 85.0 FEET AND WERE DRILLED WITH BOTH ATV-MOUNTED AND TRUCK-MOUNTED DRILL RIGS.

RESIDUAL AND COLLUVIAL SOILS ARE FOUND ON THE RIDGETOPS AND THE HILLSIDES WITHIN THE PROPOSED LIMITS OF CONSTRUCTION. ALONG THE PROPOSED ALIGNMENT, RESIDUAL AND COLLUVIAL SOILS ARE GENERALLY THIN TO MODERATELY DEEP, COVERING MODERATE TO VERY STEEP SLOPES. RESIDUAL AND COLLUVIAL SOILS ON THE HILLSIDES ARE PRONE TO LANDSLIDES.

FOUR SOIL COMPLEXES ARE REPORTED ALONG THE HILLSIDES CONSISTING OF: SHELOCTA-BROWNSVILLE, SHELOCTA-WHARTON-LATHAM, LATHAM-WHARTON-SHELOCTA, AND SHELOCTA-STEINBURG-LATHAM. THESE COMPLEXES COMBINED MAKE UP APPROXIMATELY 80 PERCENT OF THE SOILS FOUND WITHIN THE COUNTY HAVING SLOPES RANGING FROM 8 TO 70 PERCENT AND ARE COMPOSED OF RESIDUUM AND COLLUVIUM DERIVED FROM SHALE, SILTSTONE, AND SANDSTONE.

C.2. LACUSTRINE SOILS AND GLACIAL OUTWASH

THE TWO TYPES OF GLACIAL SOILS ENCOUNTERED WITHIN THE PROPOSED LIMITS OF CONSTRUCTION ARE LACUSTRINE DEPOSITS AND GLACIAL OUTWASH DEPOSITS.

THE LACUSTRINE SOILS ARE COMMONLY KNOWN AS THE "MINFORD SILTS" OR THE MINFORD COMPLEX. THE SOILS WITHIN THIS GROUP WILL BE REFERRED TO AS THE MINFORD COMPLEX IN THIS REPORT. THESE DEPOSITS ARE PRIMARILY FOUND WITHIN THE LITTLE SCIOTO RIVER VALLEY AND ITS TRIBUTARIES IN THE CENTRAL AND SOUTHERN PORTIONS OF THE PROPOSED ALIGNMENT. THE MINFORD COMPLEX SOILS ARE GENERALLY FOUND BETWEEN ELEVATIONS OF 650 TO 780 FEET. THESE DEPOSITS WERE FORMED DURING THE EARLY TO MIDDLE PLEISTOCENE AGED WHEN THE NORTHWARD FLOWING TEAYS RIVER SYSTEM WAS BLOCKED BY THE SOUTHWARD ADVANCE OF THE KANSAN AGED ICE SHEETS. AS THE GLACIERS ADVANCED, THE COURSE OF THE TEAYS RIVER WAS BLOCKED SOUTH OF CHILLICOTHE AND A LARGE LAKE WAS FORMED FROM THE IMPOUNDMENT OF THE WATERWAYS. AS A RESULT OF THE IMPOUNDMENT, VAST QUANTITIES OF SEDIMENTS WERE DEPOSITED RANGING FROM 10 TO 80 FEET IN THICKNESS, THINNING TOWARDS THE MARGINS.

THE DEPOSITS RANGE FROM A BASAL LAG DEPOSIT, CONSISTING OF SANDS WITH PEBBLES AND COBBLES, TO VERY PLASTIC CLAYS THAT USUALLY HAVE A HIGH WATER CONTENT. THE MINFORD COMPLEX SOILS VARY CONSIDERABLY THROUGHOUT THE AREA OF THE PROPOSED ALIGNMENT, PARTIALLY DUE TO ORIGINAL DEPOSITION AND CHANGE SINCE THE TIME OF FORMATION. WHEN PRESENT, THESE MATERIALS LIE ON OR NEAR BEDROCK. THE MINFORD COMPLEX SOILS HAVE NO REGULAR SUCCESSION, BUT TYPICALLY SANDS AND SANDY SILTS ARE FOUND NEAR THE BEDROCK AND FINE LAMINATED SILTS AND CLAYS ARE FOUND AT THE HIGHER LEVELS OF THE SEQUENCE. OCCASIONALLY, THE MINFORD COMPLEX CONTAINS SANDSTONE COBBLES AND BOULDERS AND QUARTZ PEBBLES IN THE LOWER PARTS OF THE SEQUENCE. THESE COBBLES, BOULDERS, AND PEBBLES WITHIN THE SEQUENCE ARE BELIEVED TO BE OF LOCAL ORIGIN. HOWEVER, THE SILT AND CLAY DEPOSITS ARE PECULIAR FOR OHIO IN THAT THEY TYPICALLY CONTAIN UP TO 50 PERCENT SERICITIC MICA, INDICATING THAT THEY ARE PROBABLY DERIVED FROM A METAMORPHIC SCHIST TERRANE SUCH AS THE PIEDMONT PROVINCE WITHIN THE APPALACHIAN MOUNTAINS. MOST LACUSTRINE DEPOSITS WITHIN OHIO ARE GLACIAL, CONSISTING OF "ROCK FLOUR" DERIVED FROM THE MOVEMENT OF GLACIERS OR ARE COMPOSED OF MATERIALS DERIVED FROM WEATHERED SANDSTONES, SHALES, AND CALCAREOUS ROCKS WHICH DOMINATE THE LITHOLOGY OF THE ROCKS WITHIN OHIO. THIN ALLUVIAL AND/OR GLACIAL OUTWASH DEPOSITS ARE FREQUENTLY FOUND OVERLYING THE MINFORD COMPLEX SOILS. THE TYPE SECTION FOR THE MINFORD COMPLEX SOILS IS LOCATED IN A RAIL CUT ON THE OUTSKIRTS OF THE VILLAGE OF MINFORD, OHIO.

GLACIAL OUTWASH DEPOSITS ARE FOUND ALONG THE SCIOTO RIVER VALLEY OCCUPYING THE VALLEY OF THE PREGLACIAL TEAYS-AGED PORTSMOUTH RIVER AND WITHIN THE OHIO RIVER VALLEY. THE GLACIAL DEPOSITS ARE LATE WISCONSINAN IN AGE AND CONSIST OF SAND AND GRAVEL DEPOSITS WITH SMALL ISOLATED PEAT DEPOSITS. GENERALLY, THESE DEPOSITS ARE SATURATED AT SHALLOW DEPTHS WITH HIGH RECHARGE RATES. SEVERAL SAND AND GRAVEL PITS CAN BE SEEN ALONG EXISTING US 23; WHERE THESE SAND AND GRAVEL DEPOSITS HAVE BEEN OR ARE CURRENTLY BEING EXTRACTED.

FOUR SOIL COMPLEXES ARE REPORTED ALONG THE PREGLACIAL VALLEYS AND ON FLOOD PLAINS, TERRACES, AND FANS CONSISTING OF OMULGA-MONONGAHELA-HAYMOND, WEINBACH-WHEELING-ELKINSVILLE, NOLIN-SHELOCTA-OMULGA, AND TIOGA-SARDINIA-FITCHVILLE. THESE COMPLEXES COMBINE TO MAKE UP APPROXIMATELY 15 PERCENT OF THE SOILS FOUND WITHIN THE COUNTY HAVING SLOPES RANGING FROM 0 TO 40 PERCENT (MAJORITY ARE BETWEEN 0 AND 15 PERCENT) AND ARE FORMED IN COLLUVIUM, LACUSTRINE SEDIMENTS, FLOOD PLAINS, FANS, AND IN PREGLACIAL VALLEYS.

C. LUCASVILLE-MINFORD ROAD INTERCHANGE (CR 28)

THE SUBSURFACE INVESTIGATION FOR THE LUCASVILLE-MINFORD ROAD INTERCHANGE (STATIONS 509+50 TO 542+00) CONSISTED OF DRILLING EIGHT BORINGS, B-1201 TO B-1208, ON LUCASVILLE-MINFORD ROAD AND 27 BORINGS, B-1209 TO B-1235, FOR THE RAMPS BETWEEN THE DATES OF JULY 21 AND SEPTEMBER 30, 2005. THE BORINGS WERE EXTENDED TO DEPTHS BETWEEN 10.0 AND 110.0 FEET AND WERE DRILLED WITH BOTH ATV-MOUNTED AND TRUCK-MOUNTED DRILL RIGS. AN ADDITIONAL 22 BORINGS, R-446 TO R-469, WERE DRILLED FOR THE MAINLINE EMBANKMENT; FOUR BORINGS, TR-11 TO TR-14, WERE DRILLED FOR THE PROPOSED BRIDGE OVER LUCASVILLE-MINFORD ROAD; AND 11 BORINGS, C-22, C-23, AND C-55 TO C-63, WERE DRILLED FOR CULVERTS IN THE INTERCHANGE AREA BETWEEN THE DATES OF MAY 27, 2004 AND SEPTEMBER 6, 2006. THESE ADDITIONAL BORINGS RANGED IN DEPTH FROM 20.0 TO 125.0 FEET.

BORINGS R-449, R-451, R-452, R-455, AND R-457 WERE REDRILLED TO GREATER DEPTHS OF 120.0 TO 155.0 FEET BETWEEN OCTOBER 19 AND OCTOBER 31, 2005 DUE TO A CHANGE IN THE PROFILE GRADE. THESE BORINGS WERE REDESIGNATED R-2449, R-2451, R-2452, R-2455, AND R-2457, RESPECTIVELY.

INVESTIGATIONAL FINDINGS

A. SR 823 MAINLINE

AT THE SURFACE, THE BORINGS ENCOUNTERED TOPSOIL RANGING IN THICKNESS FROM 1 TO 12 INCHES. THE AVERAGE THICKNESS OF TOPSOIL WAS 5 INCHES.

BENEATH THE TOPSOIL LAYERS, BORINGS LOCATED ON THE SLOPES AND DRILLED FOR THE ROADWAY GENERALLY ENCOUNTERED SOILS RANGING FROM SILT (A-4B) TO CLAY (A-7-6) TO DEPTHS OF 5 TO 50 FEET BELOW THE GROUND SURFACE, AT THE TOP OF BEDROCK. SOIL CONDITIONS FOR SELECTED PHASE 1 FILL SECTION BORINGS ARE OUTLINED BELOW.

FOR THE SECTION BETWEEN STATIONS 434+00 AND 449+00 , BORING R-379 GENERALLY ENCOUNTERED HARD SILT (A-4b) TO A DEPTH OF 11.0 FEET BELOW THE GROUND SURFACE. BENEATH THIS LAYER, VERY STIFF SANDY SILT (A-4a) WAS ENCOUNTERED TO A DEPTH OF 18.0 FEET BELOW THE GROUND SURFACE, AT THE TOP OF BEDROCK.

FOR THE SECTION BETWEEN STATIONS 457+00 AND 479+00, BORING R-393 GENERALLY ENCOUNTERED COHESIVE AND COHESIONLESS MEDIUM DENSE/VERY STIFF SANDY SILT (A-4a) TO A DEPTH OF 30.0 FEET BELOW THE GROUND SURFACE. BENEATH THIS LAYER, VERY STIFF SILT (A-4b) WAS ENCOUNTERED TO A DEPTH OF 38.5 FEET BELOW THE GROUND SURFACE, AT THE TOP OF BEDROCK.

FOR THE SECTION BETWEEN STATIONS 483+50 AND 497+50, BORING B-10 GENERALLY ENCOUNTERED STIFF SILT (A-4b) TO A DEPTH OF 8.5 FEET BELOW THE GROUND SURFACE, AT THE TOP OF BEDROCK.

BETWEEN STATIONS 504+00 AND 507+50, THE SOIL IS VERY THIN. BORING R-439 GENERALLY ENCOUNTERED LOOSE TO MEDIUM STIFF SANDY SILT (A-4a) TO A DEPTH OF 4.5 FEET BELOW THE GROUND SURFACE, AT THE TOP OF BEDROCK.

BEDROCK WAS ENCOUNTERED IN MANY OF THE BORINGS AND CONFIRMED BY CORING IN 76 BORINGS. BEDROCK ENCOUNTERED IN THE BORINGS CORRELATES WELL WITH THE AVAILABLE GEOLOGIC REFERENCES. THE CORES OBTAINED CONSIST PRIMARILY OF SANDSTONE AND OCCASIONALLY SHALE, SILTSTONE, AND CLAYSHALE. A LAYER OF SEVERELY WEATHERED TO DECOMPOSED BEDROCK WAS GENERALLY ENCOUNTERED IMMEDIATELY ABOVE THE HIGHER QUALITY ROCK ENCOUNTERED IN THE ROCK CORES. THE LAYER OF SEVERELY WEATHERED ROCK GENERALLY RANGED IN THICKNESS FROM 1 TO 3 FEET. THE BEDROCK ENCOUNTERED IN THE CORES GENERALLY CONSISTED OF MEDIUM HARD TO HARD, FINE-GRAINED SANDSTONE, WHICH IS SLIGHTLY TO HIGHLY WEATHERED.

SEEPAGE WAS OBSERVED IN SEVERAL BORINGS AT DEPTHS RANGING FROM 5 TO 58.5 FEET BELOW THE GROUND SURFACE. GROUNDWATER CONDITIONS FOR SELECTED PHASE 1 FILL SECTIONS ARE OUTLINED BELOW.

BETWEEN STATIONS 434+00 AND 449+00, NO SEEPAGE OR GROUNDWATER LEVELS WERE OBSERVED IN ANY OF THE BORINGS PRIOR TO ADDING DRILLING WATER FOR CORING OPERATIONS. FINAL WATER LEVELS (INCLUDING DRILLING WATER) WERE MEASURED FROM 3.5 TO 17 FEET BELOW THE GROUND SURFACE.

BETWEEN STATIONS 457+00 AND 479+00, SEEPAGE WAS ENCOUNTERED IN 9 BORINGS. IN THESE BORINGS, SEEPAGE WAS FIRST ENCOUNTERED RANGING FROM 2.5 TO 19 FEET BELOW THE GROUND SURFACE. GROUNDWATER LEVELS WERE OBSERVED IN TWO BORINGS PRIOR TO ADDING DRILLING WATER FOR CORING OPERATIONS. IN BOTH BORINGS, GROUNDWATER WAS ENCOUNTERED AT 20 FEET BELOW THE GROUND SURFACE. FINAL WATER LEVELS (INCLUDING DRILLING WATER) WERE MEASURED FROM 0.5 TO 17.4 FEET BELOW THE GROUND SURFACE.

BETWEEN STATIONS 483+50 AND 497+50, SEEPAGE WAS ENCOUNTERED IN 4 BORINGS. IN THESE BORINGS, SEEPAGE WAS FIRST ENCOUNTERED RANGING FROM 3 TO 6.3 FEET BELOW THE GROUND SURFACE. NO GROUNDWATER LEVELS WERE OBSERVED IN ANY OF THE BORINGS PRIOR TO ADDING DRILLING WATER FOR CORING OPERATIONS. FINAL WATER LEVELS (INCLUDING DRILLING WATER) WERE MEASURED FROM 1.6 TO 16.3 FEET BELOW THE GROUND SURFACE.

BETWEEN STATIONS 504+00 AND 507+50, NO SEEPAGE OR GROUNDWATER LEVELS WERE OBSERVED IN ANY OF THE BORINGS PRIOR TO ADDING DRILLING WATER FOR CORING OPERATIONS. FINAL WATER LEVELS (INCLUDING DRILLING WATER) WERE MEASURED FROM 4.8 TO 6.8 FEET BELOW THE GROUND SURFACE.

GROUNDWATER LEVELS MAY FLUCTUATE WITH SEASONAL VARIATIONS AND FOLLOWING PERIODS OF HEAVY OR PROLONGED PRECIPITATION, AND THEREFORE, THE READINGS INDICATED ON THE BORING LOGS MAY NOT BE REPRESENTATIVE OF THE LONG-TERM GROUNDWATER LEVELS.

B. SHUMWAY HOLLOW ROAD INTERCHANGE (TR 234)

THE SOILS AT THE SHUMWAY HOLLOW ROAD INTERCHANGE SITE ARE OF THE MINFORD SILT COMPLEX, GENERALLY COMPRESSIBLE, HIGHLY PLASTIC CLAYS. AT THIS SITE, THE MINFORD DEPOSITS ARE RELATIVELY THICK, EXTENDING TO BEDROCK THAT WAS ENCOUNTERED AT DEPTHS OF 2 TO 74 FEET BELOW THE GROUND SURFACE. MORE DETAILS REGARDING THE SUBSURFACE CONDITIONS ARE PRESENTED IN THE FOLLOWING PARAGRAPHS.

CALCULATED | CHECKED

SOIL PROFILE GENERAL NOTES

SCI-823-6.81

USER: CMohlbri PLOT DATE: 6/21/2011 8:26:45 PM REVISION DATE: 6/21/2011
FILE: ...4\HOR.CL\0800000004578 /1941SC003.dgn MODEL: Sheet

AT THE SURFACE, THE INTERCHANGE BORINGS ENCOUNTERED 2 TO 12 INCHES OF TOPSOIL. THE AVERAGE THICKNESS OF TOPSOIL WAS 6 INCHES. BELOW THE TOPSOIL THE BORINGS ENCOUNTERED BROWN SANDY SILT (A-4a), SILT (A-4b), BROWN SILT AND CLAY (A-6a), BROWN SILT (A-4b), OR BROWN SILTY CLAY (A-6b) TO DEPTHS OF 2 TO 21 FEET OVERLYING BROWN OR GRAY STIFF TO HARD ELASTIC CLAY (A-7-5) AND CLAY (A-7-6) TO DEPTHS OF 8 TO 57 FEET. IN MANY OF THE BORINGS, A LAYER OF DENSE SILT, SAND, OR GRAVEL WAS ENCOUNTERED BENEATH THESE SOILS. THE GRANULAR MATERIAL, WHEN ENCOUNTERED, RANGED IN THICKNESS BETWEEN 2 AND 19.5 FEET. WEATHERED SILTSTONE, SHALE, OR SANDSTONE WAS ENCOUNTERED BENEATH THE GRANULAR LAYERS.

BORINGS WERE ALSO TAKEN ALONG THE PROPOSED ALIGNMENT OF RELOCATED SHUMWAY HOLLOW ROAD,BETWEEN STATIONS 10+91 AND 41+17. THESE BORINGS WERE DRILLED TO DEPTHS OF 15.5 TO 85 FEET. THE BORINGS ENCOUNTERED 3 TO 13 INCHES OF ASPHALT CONCRETE AND AGGREGATE BASE OVERLYING GRANULAR AND COHESIVE TOP LAYERS CONSISTING MAINLY OF GRAVEL WITH SAND AND SILT (A-2-4), SANDY SILT (A-4a), SILT (A-4b), SILT AND CLAY (A-6a), SILTY CLAY (A-6b). BENEATH THE TOP SOIL LAYERS, THE BORINGS ENCOUNTERED MINFORD SILTS UNDERLAIN BY ROCK TO THE COMPLETION DEPTH OF THE BORINGS.

BEDROCK WAS ENCOUNTERED IN MANY OF THE BORINGS AND CONFIRMED BY CORING IN 104 BORINGS. THE BEDROCK CONSISTED MAINLY OF MEDIUM HARD TO HARD SLIGHTLY TO HIGHLY WEATHERED SILTSTONE, SHALE, OR SANDSTONE. THE RQD OF THE CORED SAMPLES RANGED FROM 12% TO 100% WITH AN AVERAGE OF 80%.

SEEPAGE WAS ENCOUNTERED IN 59 BORINGS BETWEEN APPROXIMATE DEPTHS OF 3.5 AND 60.0 FEET. THERE WERE NO MEASURABLE WATER LEVELS IN 38 BORINGS PRIOR TO ROCK CORING. MEASURABLE WATER LEVELS PRIOR TO ROCK CORING WHEN ENCOUNTERED RANGED BETWEEN DEPTHS OF 8.5 AND 42.0 FEET. WATER WAS USED DURING ROCK CORING AND MASKED ANY SEEPAGE ZONES THAT MIGHT EXIST IN THE ROCK. MEASURABLE WATER LEVELS WERE PRESENT IN 96 BORINGS UPON THE COMPLETION OF CORING BETWEEN APPROXIMATE DEPTHS OF 0.8 AND 53.5 FEET.

GROUNDWATER LEVELS MAY FLUCTUATE WITH SEASONAL VARIATIONS AND FOLLOWING PERIODS OF HEAVY OR PROLONGED PRECIPITATION, AND THEREFORE, THE READINGS INDICATED ON THE BORING LOGS MAY NOT BE REPRESENTATIVE OF THE LONG TERM GROUNDWATER LEVEL.

C. LUCASVILLE-MINFORD ROAD INTERCHANGE (CR 28)

AT THE GROUND SURFACE, THE INTERCHANGE BORINGS ENCOUNTERED BETWEEN 1 AND 11 INCHES OF TOPSOIL. THE AVERAGE THICKNESS OF TOPSOIL WAS 4 INCHES.

BELOW THE TOPSOIL THE BORINGS GENERALLY ENCOUNTERED STIFF TO VERY STIFF SANDY SILT (A-4a), SILT AND CLAY (A-6a), AND SILTY CLAY (A-6a) TO DEPTHS OF 1.5 TO 15.0 FEET OVERLYING STIFF TO VERY STIFF CLAY (A-7-6) TO DEPTHS OF 3.0 TO 73.5 FEET. THE CLAY (A-7-6) WAS CONSIDERED SOFT TO MEDIUM STIFF IN APPROXIMATELY 20 OF THE BORINGS, GENERALLY AT DEPTHS BELOW 15.0 FEET. A MEDIUM DENSE TO DENSE SANDY SILT (A-4a) OR STIFF TO HARD SANDY SILT (A-4a) AND SILT AND CLAY (A-6a) WERE GENERALLY ENCOUNTERED BELOW THE CLAY (A-7-6). MEDIUM DENSE TO VERY DENSE GRANULAR LAYERS WERE ENCOUNTERED IN ONLY SEVENTEEN OF THE BORINGS, PRIMARILY THOSE DRILLED AT CULVERT LOCATIONS. THESE GRANULAR LAYERS WERE GENERALLY ENCOUNTERED AT DEPTHS BELOW 20.0 FEET.

A MEDIUM STIFF TO STIFF ELASTIC CLAY (A-7-5) WAS ENCOUNTERED IN BORINGS B-1203, B-1213, AND C-57 AT DEPTHS BETWEEN 3.0 AND 18.0 FEET. A MEDIUM STIFF TO HARD OR MEDIUM DENSE TO VERY DENSE SILT (A-4b) WAS ALSO ENCOUNTERED IN SEVERAL OF THE BORINGS, BUT GENERALLY AT LEAST 5 FEET ABOVE OR BELOW THE PROPOSED GRADE. FOUR BORINGS ALONG LUCASVILLE-MINFORD ROAD, B-1203, B-1204, B-1207, AND B-1208, ENCOUNTERED SILT (A-4b) WITHIN 5 FEET OF SUBGRADE.

BORINGS WERE ALSO TAKEN ALONG LUCASVILLE-MINFORD ROAD FOR IMPROVEMENTS TO THE ROADWAY. THESE BORINGS WERE DRILLED TO DEPTHS OF 10.0 FEET EACH. THESE BORINGS ENCOUNTERED 3 TO 5 INCHES OF ASPHALT OVERLYING 5 TO 8 INCHES OF AGGREGATE BASE. BENEATH THE PAVEMENT LAYERS, THE BORINGS ENCOUNTERED PRIMARILY STIFF TO VERY STIFF SANDY SILT (A-4a) AND SILT AND CLAY (A-6a) TO THE COMPLETION DEPTHS OF THE BORINGS. A MEDIUM DENSE OR MEDIUM STIFF TO VERY STIFF SILT (A-4b) WAS ENCOUNTERED IN BORINGS B-1203, B-1204, B-1207, AND B-1208 WITHIN FIVE FEET OF SUBGRADE .

A LAYER OF WEATHERED SHALE, SILTSTONE, OR SANDSTONE WAS ENCOUNTERED ABOVE COMPETENT BEDROCK. THE TOP OF BEDROCK VARIED BETWEEN 3.4 AND 79.5 FEET AND WAS CONFIRMED BY CORING IN 47 OF THE 72 BORINGS. THE BEDROCK CONSISTED PRIMARILY OF MEDIUM HARD TO HARD SANDSTONE WITH A LESSER AMOUNTS OF SOFT TO MEDIUM HARD SHALE AND SILTSTONE. THE ROCK QUALITY DESIGNATION (RQD) VARIED BETWEEN 25 AND 100 PERCENT BUT GENERALLY WAS GREATER THAN 80 PERCENT.

SEEPAGE WAS GENERALLY FIRST ENCOUNTERED IN THE BORINGS AT DEPTHS BETWEEN 10.5 AND 68.5 FEET, PRIMARILY IN THE AREAS WHERE EMBANKMENT FILL WILL BE PLACED AT THE INTERCHANGE. BORINGS DRILLED IN ROCK CUT SECTIONS GENERALLY DID NOT ENCOUNTER SEEPAGE. IN THE BORINGS WHERE SEEPAGE WAS OBSERVED, THE WATER LEVEL PRIOR TO CORING WAS AT DEPTHS BETWEEN 4.3 AND 74.0 FEET. AT THE COMPLETION OF DRILLING, THE FINAL WATER LEVEL WAS AT DEPTHS BETWEEN 0.5 AND 78.4 FEET. THESE FINAL WATER LEVEL READINGS INCLUDE WATER ADDED DURING ROCK CORING, AND THEREFORE, DO NO NECESSARILY REFLECT ACTUAL GROUNDWATER CONDITIONS.

CALCULATED | CHECKED

SOIL PROFILE GENERAL NOTES

SCI-823-6.81

PROJECT INDEX

FROM	TO	PLAN VIEW SHEET	PROFILE SHEET	CUT MAX. (ft.)	FILL EMB. MAX. (ft.)
S.R. 823					
352+00	377+00	34	35	23.0	49.8
377+00	402+00	36	37	--	49.8
402+00	427+00	38	39	88.4	76.9
427+00	452+00	41	42	122.0	78.0
452+00	477+00	44	45	75.0	75.4
477+00	502+00	46	47	72.1	70.9
502+00	527+00	49	50	110.5	40.9
527+00	536+50	52	53	32.3	43.5
T.R. 234 - RELOCATED SHUMWAY HOLLOW - RAMP A					
383+83	403+00	54	56	1.4	66.8
T.R. 234 - RELOCATED SHUMWAY HOLLOW - RAMP B					
366+00	384+65	55	57	--	49.9
T.R. 234 - RELOCATED SHUMWAY HOLLOW - RAMP C					
366+50	384+46	55	58	24.2	39.0
T.R. 234 - RELOCATED SHUMWAY HOLLOW - RAMP D					
384+21	409+50	54	59	33.9	66.9
C.R. 28 - LUCASVILLE MINFORD ROAD - RAMP A					
516+81	537+20	60	61	109.2	10.4
C.R. 28 - LUCASVILLE MINFORD ROAD - RAMP B					
521+52	534+59	60	63	2.8	36.0
C.R. 28 - LUCASVILLE MINFORD ROAD - RAMP C					
513+64	536+88	60	64	15.3	44.6
C.R. 28 - LUCASVILLE MINFORD ROAD - RAMP D					
522+70	535+00	60	65	104.6	7.1
535+00	544+25	60	67	3.1	13.4
T.R. 234 - RELOCATED SHUMWAY HOLLOW					
10+24	35+00	68	69	42.9	12.6
35+00	40+87	68	71	--	37.5
S.R. 335					
3+50	23+19	68	72	< 0.6	6.1
C.R. 28 - LUCASVILLE MINFORD ROAD					
10+00	37+32	73	73	< 0.5	1.8

CROSS SECTION INDEX

ROADWAY	STATION	SHEET
S.R. 823	354+00	75
	357+50	76
	364+00	77
	375+50	78
	387+50	79
	391+00	80
	395+00	81
	404+00	82
	407+00	83
	411+00	84
	412+00	85
	414+00	86
	416+50	87
	420+50	88
	424+00	89
	428+00	90
	432+00	91
	434+00	92
	438+00	93
	440+00	94
	447+00	95
	448+00	96
	452+00	97
	455+50	98
	459+00	99
	463+00	100
	467+00	101
	472+00	102
	474+00	103
	481+00	104
	485+00	105
	497+00	106
	498+00	107
	501+50	108
	504+50	109
	508+50	110
	512+00	111
	516+00	112
	520+00	114
	524+00	115
	529+00	116
	533+00	117
	535+50	118
T.R. 234 - RELOCATED SHUMWAY HOLLOW - RAMP A	391+00	119
T.R. 234 - RELOCATED SHUMWAY HOLLOW - RAMP B	383+50	120
T.R. 234 - RELOCATED SHUMWAY HOLLOW - RAMP C	379+00	121
T.R. 234 - RELOCATED SHUMWAY HOLLOW - RAMP D	386+00	122
	390+00	123
	394+00	124
	398+00	125
C.R. 28 - LUCASVILLE MINFORD ROAD - RAMP A	525+00	126
	526+00	127
C.R. 28 - LUCASVILLE MINFORD ROAD - RAMP D	524+50	128
	527+50	129
	542+50	130
T.R. 234 - RELOCATED SHUMWAY HOLLOW	12+00	131
	15+00	132
	26+00	133
	27+00	134
	32+50	135

CALCULATED | CHECKED

SOIL PROFILE INDEX SHEET

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-209	353+46.5	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	29.0 ft RT	0.2	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	8.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE.								VISUAL	
		8.0	20.0	GRAY SANDSTONE								VISUAL	
C-7	353+85.2	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	100.6 ft. LT	0.2	2.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		2.0	7.0	GRAY SANDSTONE								VISUAL	
C-8	353+88.2	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	75.5 ft. RT	0.2	2.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		2.0	3.0	BROWN SANDSTONE								VISUAL	
		3.0	8.0	GRAY SANDSTONE								VISUAL	
C-9	353+89.5	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	152.3 ft. RT	0.3	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	4.4	BROWN SANDSTONE								VISUAL	
		4.4	8.0	GRAY SANDSTONE								VISUAL	
R-210	357+50.8	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	44.4 ft. LT	0.2	5.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		5.5	11.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		11.0	12.5	0	0	0	9	91	64	40	32	A-7-6	
		12.5	26.3	BROWN AND GRAY CLAY (A-7-6)								VISUAL	*
		26.3	28.5	BROWN GRAVEL WITH SAND (A-1-b)								VISUAL	
		28.5	30.0	11	51	32		6	NP	NP	6	A-1-b	
		30.0	32.0	BROWN GRAVEL WITH SAND (A-1-b)								VISUAL	
		32.0	37.0	BROWN SANDY SILT (A-4a)								VISUAL	
		37.0	40.5	SEVERELY WEATHERED GRAY SANDSTONE.								VISUAL	
		40.5	50.5	GRAY SANDSTONE								VISUAL	
R-211	357+51.4	0.0	5.5	REDDISH BROWN SANDY SILT (A-4a)								VISUAL	
	147.6 ft. RT	5.5	6.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		6.0	7.5	20	12	18	28	22	32	15	16	A-6a	
		7.5	10.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		10.5	15.5	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		15.5	25.5	GRAYISH BROWN SANDSTONE								VISUAL	
R-213	361+59.9	0.0	3.0	LIGHT BROWN SILT AND CLAY (A-6a)								VISUAL	
	15.3 ft. RT	3.0	6.0	BROWN CLAY (A-7-6)								VISUAL	
		6.0	7.5	0	1	9	23	67	65	43	26	A-7-6	
		7.5	20.5	BROWN CLAY (A-7-6)								VISUAL	*
		20.5	21.0	ORANGISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		21.0	22.5	0	0	87	10	3	NP	NP	20	A-3a	
		22.5	25.5	ORANGISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		25.5	30.5	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE.								VISUAL	
		30.5	40.5	GRAY SANDSTONE; VERY FINE SANDSTONE								VISUAL	
R-215	363+95.9	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	162.4 ft. RT	0.2	5.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		5.0	20.0	GRAY AND BROWN SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-214	364+08.0	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	54.8 ft. LT	0.2	3.5	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
		3.5	5.0	20	8	14	41	17	25	7	15	A-4a	
		5.0	5.5	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
		5.5	6.5	SEVERELY WEATHERED GRAY AND BROWN SANDSTONE.								VISUAL	
		6.5	20.0	GRAY AND BROWN SANDSTONE								VISUAL	
C-6	364+25.7	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	61.6 ft. RT	0.3	1.0	BROWN SANDY SILT (A-4a)								VISUAL	
		1.0	2.5	5	22	19	46	8	NP	NP	10	A-4a	
		2.5	4.0	BROWN SANDY SILT (A-4a)								VISUAL	
		4.0	8.0	BROWN AND GRAY SANDSTONE								VISUAL	
		8.0	15.0	GRAY SANDSTONE								VISUAL	
C-5	364+58.5	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	138.8 ft. RT	0.2	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	5.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		5.0	10.0	GRAY SANDSTONE								VISUAL	
R-217	367+46.2	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	65.9 ft. LT	0.2	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.0	11.0	BROWN CLAY (A-7-6)								VISUAL	
		11.0	12.5	0	1	1	15	83	63	39	31	A-7-6	
		12.5	15.5	BROWN CLAY (A-7-6)								VISUAL	
		15.5	21.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		21.0	22.5	0	1	82		17	NP	NP	9	A-3a	
		22.5	25.5	ORANGISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		25.5	32.0	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		32.0	42.0	LIGHT GRAY SANDSTONE								VISUAL	
R-218	367+47.7	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	12.9 ft. RT	0.3	5.5	ORANGISH BROWN SILT AND CLAY (A-6a)								VISUAL	
		5.5	8.5	ORANGISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		8.5	10.0	3	32	53		12	NP	NP	17	A-3a	
		10.0	15.5	ORANGISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		15.5	17.5	BROWN AND GRAY GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		17.5	18.5	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		18.5	28.5	GRAY SANDSTONE								VISUAL	
R-220	370+96.8	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	24.0 ft. LT	0.3	3.0	LIGHT BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.0	3.5	BROWN CLAY (A-7-6)								VISUAL	
		3.5	5.0	0	0	0	5	95	72	46	25	A-7-6	*
		5.0	6.0	BROWN CLAY (A-7-6)								VISUAL	
		6.0	7.5	0	0	1	2	97	74	47	38	A-7-6	
		7.5	21.8	BROWN CLAY (A-7-6)								VISUAL	
		21.8	23.5	BROWN FINE SAND (A-3)								VISUAL	
		23.5	25.0	0	6	88		6	NP	NP	4	A-3	
		25.0	32.0	BROWN FINE SAND (A-3)								VISUAL	
		32.0	38.5	DARK BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		38.5	48.5	GRAY SANDSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
R-221	370+97.1	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	106.2 ft. RT	0.2	6.0	BROWN CLAY (A-7-6)								VISUAL
		6.0	7.5	0	0	1	10	89	68	42	34	A-7-6
		7.5	8.0	BROWN CLAY (A-7-6)								VISUAL
		8.0	8.5	LIGHT BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		8.5	10.0	0	0	84		16	NP	NP	1	A-3a
		10.0	21.0	LIGHT BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		21.0	31.0	LIGHT BROWN SANDSTONE								VISUAL
C-4	373+36.6	0.0	0.5	TOPSOIL (VISUAL)								VISUAL
	249.8 ft. RT	0.5	1.0	DARK GRAY SILT (A-4b)								VISUAL
		1.0	2.5	5	11	11	58	15	29	5	16	A-4b
		2.5	3.5	DARK GRAY SILT (A-4b)								VISUAL
		3.5	5.0	15	15	22	35	13	19	2	10	A-4a
		5.0	5.5	MOTTLED BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		5.5	10.5	BROWN SANDSTONE								VISUAL
C-3	374+20.8	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	131.2 ft. RT	1.0	2.5	0	3	12	65	20	22	5	16	A-4b
		2.5	3.5	BROWN SILT (A-4b)								VISUAL
		3.5	5.0	9	25	19	32	15	21	2	12	A-4a
		5.0	6.5	BROWN SANDY SILT (A-4a)								VISUAL
		6.5	8.6	BROWN AND GRAY SANDSTONE								VISUAL
		8.6	20.0	GRAY SANDSTONE								VISUAL
R-318	375+20.0	0.0	0.3	ASPHALT CONCRETE (VISUAL)								VISUAL
	48.4 ft. RT	0.3	5.5	BROWNISH GRAY SILT (A-4b)								VISUAL
		5.5	9.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		9.0	19.0	GRAY SANDSTONE								VISUAL
R-317	375+24.5	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	159.5 ft. LT	0.3	3.0	BROWN SANDY SILT (A-4a)								VISUAL
		3.0	8.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		8.5	13.0	BROWN GRAVEL WITH SAND (A-1-b)								VISUAL
		13.0	15.0	SEVERELY WEATHERED BROWNISH GRAY SANDSTONE								VISUAL
		15.0	25.0	GRAY SANDSTONE								VISUAL
C-2	376+14.9	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	174.2 ft. LT	0.4	1.0	BROWN SANDY SILT (A-4a)								VISUAL
		1.0	2.5	15	15	16	35	19	23	7	12	A-4a
		2.5	3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5	5.0	5	9	18	48	20	23	5	13	A-4a
		5.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL
		6.0	7.5	2	6	16	47	29	25	8	13	A-4a
		7.5	8.5	BROWN SANDY SILT (A-4a)								VISUAL
		8.5	10.0	1	8	29	45	17	24	3	18	A-4a
		10.0	10.3	BROWN SANDSTONE								VISUAL
		10.3	20.0	GRAY SANDSTONE								VISUAL

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
C-1	376+71.1	0.0	0.5	TOPSOIL (VISUAL)								VISUAL
	257.9 ft. LT	0.5	1.0	MOTTLED BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		1.0	2.5	14	16	14	45	11	24	3	19	A-4a
		2.5	4.5	MOTTLED BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		4.5	9.5	GRAY SANDSTONE								VISUAL
R-321	379+12.0	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	6.0 ft. RT	0.4	6.0	BROWN SILTY CLAY (A-6b)								VISUAL
		6.0	7.5	0	1	57		42	35	16	19	A-6b
		7.5	8.0	BROWN SILTY CLAY (A-6b)								VISUAL
		8.0	13.0	ORANGISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		13.0	13.5	LIGHT BROWN CLAY (A-7-6)								VISUAL
		13.5	15.0	0	1	2	22	75	59	35	40	A-7-6
		15.0	15.5	LIGHT BROWN CLAY (A-7-6)								VISUAL
		15.5	18.5	BROWN SANDY SILT (A-4a)								VISUAL
		18.5	25.0	GRAY SANDSTONE								VISUAL
B-4	383+66.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	64.9 ft. RT	0.3	3.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		3.5	5.0	3	6	8	44	39	29	13	15	A-6a
		5.0	6.0	BROWN CLAY (A-7-6)								VISUAL
		6.0	7.5	3	2	4	27	64	45	25	23	A-7-6
		7.5	8.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		8.0	8.2	2	5	8	43	42	31	14	18	A-6a
		8.2	10.0	0	8	89		3	NP	NP	-	A-3
		10.0	13.5	BROWN FINE SAND (A-3)								VISUAL
		13.5	15.0	0	0	83		17	NP	NP	18	A-3a
		15.0	22.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		22.5	25.5	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL
		25.5	30.5	GRAY SANDSTONE								VISUAL
B-3	383+71.2	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	1.7 ft. LT	0.4	3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5	4.5	2	5	9	48	36	25	10	13	A-4a
		4.5	6.0	BROWN CLAY (A-7-6)								VISUAL
		6.0	7.5	0	1	2	11	86	63	36	26	A-7-6
		7.5	8.0	BROWN CLAY (A-7-6)								VISUAL
		8.0	10.0	0	0	1	9	90	60	34	31	A-7-6
		10.0	12.0	0	0	3	26	71	44	25	28	A-7-6
		12.0	14.0	BROWN CLAY (A-7-6)								VISUAL
		14.0	16.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		16.0	17.5	0	1	80		19	NP	NP	10	A-3a
		17.5	30.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		30.0	35.0	GRAY SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
TR-26	384+04.3	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	126.8 ft. RT	1.0	3.5	BROWN CLAY (A-7-6)								VISUAL
		3.5	5.0	0	2	38	12	48	44	25	20	A-7-6
		5.0	5.5	BROWN CLAY (A-7-6)								VISUAL
		5.5	6.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		6.0	7.5	0	0	81		19	NP	NP	16	A-3a
		7.5	20.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		20.5	23.0	GRAY GRAVEL WITH SAND (A-1-b)								VISUAL
		23.0	30.0	GRAY SANDSTONE								VISUAL
		30.0	33.0	GRAY SANDSTONE								VISUAL
TR-25	384+41.0	0.0	0.5	TOPSOIL (VISUAL)								VISUAL
	4.4 ft. LT	0.5	3.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		3.5	5.0	4	6	13	37	40	35	13	15	A-6a
		5.0	5.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		5.5	6.0	BROWN CLAY (A-7-6)								VISUAL
		6.0	7.5	0	0	1	11	88	66	40	27	A-7-6
		7.5	18.0	BROWN CLAY (A-7-6)								VISUAL
		18.0	28.0	BROWN FINE SAND (A-3)								VISUAL
		28.0	30.0	BROWN GRAVEL WITH SAND (A-1-b)								VISUAL
		30.0	32.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL
		32.0	42.0	GRAY SANDSTONE								VISUAL
TR-24	384+43.9	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	147.1 ft. LT	1.0	6.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		6.0	27.0	BROWN CLAY (A-7-6)								VISUAL
		27.0	34.0	BROWN FINE SAND (A-3)								VISUAL
		34.0	37.0	GRAY SILTY CLAY (A-6b)								VISUAL
		37.0	43.5	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		43.5	53.5	GRAY SANDSTONE								VISUAL
B-1	384+73.4	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	61.7 ft. LT	0.4	4.0	BROWN SILT (A-4b)								VISUAL
		4.0	5.0	2	0	1	30	67	59	39	21	A-7-6
		5.0	6.0	BROWN CLAY (A-7-6)								VISUAL
		6.0	7.5	5	0	0	4	91	70	44	34	A-7-6
		7.5	8.0	BROWN CLAY (A-7-6)								VISUAL
		8.0	10.0	0	0	1	13	86	52	26	28	A-7-6
		10.0	12.5	BROWN CLAY (A-7-6)								VISUAL
		12.5	14.5	0	0	2	19	79	52	28	30	A-7-6
		14.5	18.0	BROWN CLAY (A-7-6)								VISUAL
		18.0	19.5	0	0	1	24	75	49	23	28	A-7-6
		19.5	20.0	0	0	1	21	78	59	36	30	A-7-6
		20.0	21.5	BROWN CLAY (A-7-6)								VISUAL
		21.5	23.5	LIGHT BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		23.5	25.0	0	0	80		20	NP	NP	10	A-3a
		25.0	28.5	LIGHT BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		28.5	37.5	BROWN GRAVEL WITH SAND (A-1-b)								VISUAL
		37.5	42.5	GRAY SANDSTONE								VISUAL

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
B-2	384+73.7	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	2.2 ft. RT	0.3	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		3.0	3.5	BROWN CLAY (A-7-6)								VISUAL
		3.5	5.0	2	1	3	11	83	60	38	23	A-7-6
		5.0	6.0	BROWN CLAY (A-7-6)								VISUAL
		6.0	8.0	1	0	0	14	85	67	40	23	A-7-6
		8.0	8.5	BROWN CLAY (A-7-6)								VISUAL
		8.5	10.0	4	2	2	9	83	61	31	33	A-7-5
		10.0	11.0	BROWN CLAY (A-7-6)								VISUAL
		11.0	12.5	0	2	4	24	70	52	30	23	A-7-6
		12.5	13.0	5	1	2	12	80	78	54	31	A-7-6
		13.0	16.2	BROWN CLAY (A-7-6)								VISUAL
		16.2	18.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		18.5	20.0	0	0	85		15	NP	NP	8	A-3a
		20.0	32.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		32.0	37.0	GRAY SANDSTONE								VISUAL
R-323	387+22.9	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	111.9 ft. LT	1.0	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		3.0	6.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		6.0	7.5	0	0	1	7	92	61	37	32	A-7-6
		7.5	26.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		26.0	42.0	GRAY CLAY (A-7-6)								VISUAL
		42.0	43.5	LIGHT BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		43.5	45.0	0	0	85		15	NP	NP	7	A-3a
		45.0	53.5	LIGHT BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		53.5	57.0	GRAY COARSE AND FINE SAND (A-3a)								VISUAL
		57.0	67.0	GRAY SANDSTONE								VISUAL
R-326	387+27.3	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	122.5 ft. RT	0.3	3.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		3.5	5.0	8	7	12	53	20	33	12	13	A-6a
		5.0	8.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		8.0	11.0	BROWN CLAY (A-7-6)								VISUAL
		11.0	12.5	0	2	2	20	76	58	35	28	A-7-6
		12.5	13.0	BROWN CLAY (A-7-6)								VISUAL
		13.0	13.5	BROWN FINE SAND (A-3)								VISUAL
		13.5	15.0	0	5	89		6	NP	NP	2	A-3
		15.0	20.5	BROWN FINE SAND (A-3)								VISUAL
		20.5	28.0	ORANGISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		28.0	28.5	GRAY SILT AND CLAY (A-6a)								VISUAL
		28.5	30.0	0	11	9	38	42	37	15	32	A-6a
		30.0	33.5	GRAY SILT AND CLAY (A-6a)								VISUAL
		33.5	43.5	GRAY SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: cmahlbri PLOT DATE: 6/21/2011 8:27:15 PM REVISION DATE: 6/21/2011
FILE:...&HOR_CU&BD0000004587&8 /1941S0003.dgn MODEL: Sheet

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
		SR-823									
R-328	391+22.6	0.0 - 0.3	TOPSOIL (VISUAL)								VISUAL
	2.1 ft. RT	0.3 - 1.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		1.0 - 2.5	7	9	19	43	22	30	13	11	A-6a
		2.5 - 3.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		3.0 - 16.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		16.0 - 17.5	0	0	0	13	87	62	38	31	A-7-6
		17.5 - 30.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		30.0 - 47.0	BROWN FINE SAND (A-3)								VISUAL
		47.0 - 48.5	GRAY SILTY CLAY (A-6b)								VISUAL
		48.5 - 50.0	0	0	0	60	40	39	17	29	A-6b
		50.0 - 51.0	GRAY SILTY CLAY (A-6b)								VISUAL
		51.0 - 61.0	GRAY SANDSTONE								VISUAL
R-329	391+25.0	0.0 - 1.0	TOPSOIL (VISUAL)								VISUAL
	98.3 ft. RT	1.0 - 3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5 - 5.0	12	12	17	33	26	27	10	12	A-4a
		5.0 - 5.5	BROWN SANDY SILT (A-4a)								VISUAL
		5.5 - 11.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		11.0 - 13.0	0	0	0	40	60	72	44	40	A-7-6
		13.0 - 23.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		23.0 - 37.0	BROWN FINE SAND (A-3)								VISUAL
		37.0 - 38.5	GRAY SILT AND CLAY (A-6a)								VISUAL
		38.5 - 39.5	0	6	6	47	41	33	12	29	A-6a
		39.5 - 40.5	GRAY SILT AND CLAY (A-6a)								VISUAL
		40.5 - 50.5	GRAY SANDSTONE								VISUAL
R-331	395+20.9	0.0 - 0.3	TOPSOIL (VISUAL)								VISUAL
	89.9 ft. LT	0.3 - 5.5	BROWN SANDY SILT (A-4a)								VISUAL
		5.5 - 8.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		8.0 - 10.0	0	0	0	50	50	63	39	39	A-7-6
		10.0 - 23.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		18.0 - 23.5	GRAY CLAY (A-7-6)								VISUAL
		23.5 - 25.0	0	0	1	9	90	65	37	36	A-7-6
		25.0 - 27.5	GRAY CLAY (A-7-6)								VISUAL
		27.5 - 42.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		42.0 - 47.0	BROWN FINE SAND (A-3)								VISUAL
		47.0 - 48.5	GRAY SILT AND CLAY (A-6a)								VISUAL
		48.5 - 50.0	0	0	2	65	33	36	15	28	A-6a
		50.0 - 52.0	GRAY SILT AND CLAY (A-6a)								VISUAL
		52.0 - 55.0	BROWN AND BLACK COARSE AND FINE SAND (A-3a)								VISUAL
		55.0 - 55.4	BROWN SANDSTONE								VISUAL
		55.4 - 65.0	GRAY SANDSTONE								VISUAL

Boring	Station & Offset	Depth From To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
		SR-823									
R-333	395+25.2	0.0 - 0.3	TOPSOIL (VISUAL)								VISUAL
	132.0 ft. RT	0.3 - 11.0	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL
		11.0 - 12.5	0	1	3	74	22	33	15	26	A-6a
		12.5 - 15.5	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL
		15.5 - 21.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		21.0 - 22.5	0	1	0	3	96	72	47	36	A-7-6
		22.5 - 32.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		32.0 - 38.5	LIGHT BROWN FINE SAND (A-3)								VISUAL
		38.5 - 40.0	0	0	90		10		NP	NP	6	A-3
		40.0 - 47.0	LIGHT BROWN FINE SAND (A-3)								VISUAL
		47.0 - 51.5	GRAY SILT (A-4b)								VISUAL
		51.5 - 61.5	GRAY SANDSTONE								VISUAL
R-335	399+23.9	0.0 - 0.3	TOPSOIL (VISUAL)								VISUAL
	6.0 ft. RT	0.3 - 3.5	LIGHT BROWN SILTY CLAY (A-6b)								VISUAL
		3.5 - 5.0	1	5	5	66	23	35	17	19	A-6b
		5.0 - 8.0	LIGHT BROWN SILTY CLAY (A-6b)								VISUAL
		8.0 - 13.0	BROWN CLAY (A-7-6)								VISUAL
		13.0 - 13.5	1	6	2	38	53	27	12	32	A-6a
		13.5 - 15.0	0	0	0	41	59	84	56	37	A-7-6
		15.0 - 28.0	BROWN CLAY (A-7-6)								VISUAL
		28.0 - 38.0	LIGHT BROWN FINE SAND (A-3)								VISUAL
		38.0 - 44.0	GRAY SILT (A-4b)								VISUAL
		44.0 - 54.0	GRAY SANDSTONE								VISUAL
R-339	402+78.4	0.0 - 1.0	TOPSOIL (VISUAL)								VISUAL
	57.1 ft. LT	1.0 - 3.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		3.0 - 3.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		3.5 - 5.0	1	1	1	52	45	70	41	33	A-7-6
		5.0 - 13.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		13.5 - 15.0	0	0	1	47	52	58	34	33	A-7-6
		15.0 - 18.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		18.0 - 28.0	ORANGISH BROWN FINE SAND (A-3)								VISUAL
		28.0 - 33.5	GRAY SILTY CLAY (A-6b)								VISUAL
		33.5 - 39.5	GRAY SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
C-19	403+22.2	0.0	0.6	TOPSOIL (VISUAL)								VISUAL
	213.0 ft. LT	0.6	1.0	BROWN SANDY SILT (A-4a)								VISUAL
		1.0	2.5	13	23	20	31	13	21	3	9	A-4a
		2.5	3.0	BROWN SANDY SILT (A-4a)								VISUAL
		3.0	6.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		6.0	7.5	5	0	0	7	88	65	39	34	A-7-6
		7.5	13.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		13.5	15.0	2	0	0	12	86	57	33	33	A-7-6
		15.0	16.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		16.5	17.5	1	3	4	20	72	66	40	33	A-7-6
		17.5	18.5	1	5	8	31	55	45	21	27	A-7-6
		18.5	20.0	0	0	1	63	36	34	13	29	A-6a
		20.0	21.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		21.0	22.5	0	0	1	62	37	34	12	35	A-6a
		22.5	23.0	0	0	1	71	28	28	7	34	A-4b
		23.0	24.5	BROWN SILT (A-4b)								VISUAL
		24.5	25.0	1	9	24	45	21	22	5	18	A-4a
		25.0	27.0	BROWN SANDY SILT (A-4a)								VISUAL
		27.0	32.0	GRAY SANDSTONE								VISUAL
C-20	404+01.2	0.0	3.0	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL
	45.8 ft. RT	3.0	3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5	5.0	12	25	15	32	16	26	7	12	A-4a
		5.0	8.0	BROWN SANDY SILT (A-4a)								VISUAL
		8.0	10.0	0	0	5	18	77	51	21	31	A-7-5
		10.0	10.5	BROWN ELASTIC CLAY (A-7-5)								VISUAL
		10.5	11.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		11.0	12.5	3	3	16	30	48	36	15	30	A-6a
		12.5	14.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		14.0	19.0	BROWN FINE SAND (A-3)								VISUAL
		19.0	20.0	0	2	81	17		NP	NP	27	A-3a
		20.0	28.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		28.0	29.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		29.0	34.0	GRAY SANDSTONE								VISUAL
C-21	404+41.6	0.0	0.7	TOPSOIL (VISUAL)								VISUAL
	187.4 ft. RT	0.7	3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5	5.0	9	25	21	30	15	22	4	12	A-4a
		5.0	5.5	BROWN SANDY SILT (A-4a)								VISUAL
		5.5	8.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		8.5	10.0	0	0	81	19		NP	NP	12	A-3a
		10.0	15.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		15.0	20.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		20.5	21.5	GRAY SILT AND CLAY (A-6a)								VISUAL
		21.5	22.7	0	0	1	62	37	34	12	35	A-6a
		22.7	23.5	0	0	1	71	28	28	7	34	A-4b
		23.5	24.3	GRAY SILT (A-4b)								VISUAL
		24.3	29.3	GRAY SANDSTONE								VISUAL

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
R-343	407+19.5	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	114.1 ft. RT	0.4	5.5	BROWN SANDY SILT (A-4a)								VISUAL
		5.5	13.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		13.0	15.0	0	0	5	53	42	58	38	28	A-7-6
		15.0	16.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		16.0	17.5	0	1	2	20	77	47	25	31	A-7-6
		17.5	23.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		23.5	25.5	BROWN AND BLACK CLAY (A-7-6)								VISUAL
		25.5	28.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		28.5	30.0	0	2	85		13	NP	NP	12	A-3a
		30.0	37.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		37.0	43.5	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		43.5	53.5	GRAY SANDSTONE								VISUAL
R-341	407+19.9	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	108.1 ft. LT	1.0	3.5	BROWN CLAY (A-7-6)								VISUAL
		3.5	5.0	0	1	2	13	84	71	48	21	A-7-6
		5.0	21.0	BROWN CLAY (A-7-6)								VISUAL
		21.0	33.5	GRAY CLAY (A-7-6)								VISUAL
		33.5	35.0	0	0	0	69	31	78	52	39	A-7-6
		35.0	37.0	GRAY CLAY (A-7-6)								VISUAL
		37.0	38.5	BROWN SILT (A-4b)								VISUAL
		38.5	40.0	0	3	25	51	21	24	9	25	A-4b
		40.0	42.0	BROWN SILT (A-4b)								VISUAL
		42.0	43.5	GRAY SILTY CLAY (A-6b)								VISUAL
		43.5	45.0	0	0	0	61	39	36	16	32	A-6b
		45.0	47.0	GRAY SILTY CLAY (A-6b)								VISUAL
		47.0	52.0	BROWN GRAVEL WITH SAND (A-1-b)								VISUAL
		52.0	55.0	SEVERELY WEATHERED GRAY SANDSTONE.								VISUAL
		55.0	65.0	GRAY SANDSTONE								VISUAL
R-342	407+21.2	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	2.4 ft. RT	0.4	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		3.0	11.0	BROWN CLAY (A-7-6)								VISUAL
		11.0	12.5	0	0	0	4	96	75	50	37	A-7-6
		12.5	30.0	BROWN CLAY (A-7-6)								VISUAL
		37.0	38.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		38.5	40.0	0	3	80		17	NP	NP	9	A-3a
		40.0	42.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		42.0	47.0	BROWN AND GRAY GRAVEL WITH SAND, SILT, AND CLAY (A-2-								VISUAL
		47.0	48.5	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		48.5	58.5	GRAY SANDSTONE								VISUAL
R-348	411+16.9	0.0	8.0	BROWN SANDY SILT (A-4a)								VISUAL
	167.4 ft. RT	8.0	16.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		16.0	18.5	GRAY CLAY (A-7-6)								VISUAL
		18.5	20.0	0	0	1	10	89	53	31	36	A-7-6
		20.0	23.0	GRAY CLAY (A-7-6)								VISUAL
		23.0	26.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		26.0	27.5	0	1	76		23	NP	NP	18	A-3a
		27.5	28.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		28.5	38.7	BROWN AND GRAY GRAVEL WITH SAND (A-1-b)								VISUAL
		38.7	48.7	GRAY SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: CWahlbri PLOT DATE: 6/21/2011 827:25 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C\0000000000045878 /9145ID005.dgn MODEL: Sheet

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-346	411+19.2	0.0	8.5	BROWN SANDY SILT (A-4a)								VISUAL	
	3.7 ft. RT	8.5	10.0	20	14	16	28	22	27	9	14	A-4a	
		10.0	10.5	BROWN SANDY SILT (A-4a)								VISUAL	
		10.5	20.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		20.5	21.0	LIGHT GRAY AND BROWN SILT AND CLAY (A-6a)								VISUAL	
		21.0	22.5	10	1	23	29	37	28	13	25	A-6a	
		22.5	23.0	LIGHT GRAY AND BROWN SILT AND CLAY (A-6a)								VISUAL	
		23.0	25.0	0	0	11	49	40	45	26	33	A-7-6	
		25.0	26.0	LIGHT BROWN CLAY (A-7-6)								VISUAL	
		26.0	27.0	0	1	9	58	32	33	16	24	A-6b	
		27.0	32.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		32.0	42.0	LIGHT BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		42.0	45.0	GRAY SANDY SILT (A-4a)								VISUAL	
		45.0	55.0	GRAY SANDSTONE								VISUAL	
R-345	411+24.0	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	115.7 ft. LT	0.3	8.0	BROWN SANDY SILT (A-4a)								VISUAL	
		8.0	8.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		8.5	10.0	0	0	8	57	35	29	11	22	A-6a	
		10.0	10.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		10.5	18.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		18.0	18.5	BROWN SANDY SILT (A-4a)								VISUAL	
		18.5	20.0	12	17	24	25	22	22	5	15	A-4a	
		20.0	20.5	BROWN SANDY SILT (A-4a)								VISUAL	
		20.5	23.5	LIGHT BROWN CLAY (A-7-6)								VISUAL	
		23.5	25.0	0	0	2	27	71	44	20	33	A-7-6	
		25.0	25.5	LIGHT BROWN CLAY (A-7-6)								VISUAL	
		25.5	30.0	BROWN SANDY SILT (A-4a)								VISUAL	
		30.0	43.0	BROWN CLAY (A-7-6)								VISUAL	
		43.0	53.0	GRAY SANDSTONE								VISUAL	
C-52	411+81.1	0.0	0.8	TOPSOIL (VISUAL)								VISUAL	
	40.7 ft. RT	0.8	8.0	BROWN SANDY SILT (A-4a)								VISUAL	
		8.0	13.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		13.5	15.0	3	0	0	22	75	60	32	32	A-7-6	
		15.0	25.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		25.5	28.5	REDDISH BROWN CLAY (A-7-6)								VISUAL	
		28.5	30.0	0	0	1	21	78	54	30	33	A-7-6	
		30.0	32.0	REDDISH BROWN CLAY (A-7-6)								VISUAL	
		32.0	42.0	LIGHT BROWN SILT (A-4b)								VISUAL	
		42.0	48.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		48.5	53.5	GRAY SANDSTONE								VISUAL	
C-51	412+76.1	0.0	0.9	TOPSOIL (VISUAL)								VISUAL	
	136.1 ft. LT	0.9	5.5	BROWN SANDY SILT (A-4a)								VISUAL	
		5.5	10.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		10.0	15.0	BROWN SANDSTONE								VISUAL	
R-350	414+13.8	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	10.8 ft. RT	0.2	5.5	BROWN SANDY SILT (A-4a)								VISUAL	
		5.5	12.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		12.0	20.0	GRAY AND BROWN SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-351	414+18.4	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	91.4 ft. RT	0.3	10.5	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
		10.5	13.0	GRAYISH BROWN SILT AND CLAY (A-6a)								VISUAL	
		13.0	18.0	GRAY CLAY (A-7-6)								VISUAL	
		18.0	20.0	0	1	1	14	84	60	36	36	A-7-6	
		20.0	22.0	GRAY CLAY (A-7-6)								VISUAL	
		22.0	24.0	0	0	0	50	50	61	36	38	A-7-6	
		24.0	30.0	GRAY CLAY (A-7-6)								VISUAL	
		30.0	45.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
		45.0	46.8	BROWN SANDSTONE								VISUAL	
		46.8	55.0	GRAY AND BROWN SANDSTONE								VISUAL	
R-349	414+18.9	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	122.6 ft. LT	0.2	8.0	BROWN SANDY SILT (A-4a)								VISUAL	
		8.0	15.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		15.5	17.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		17.0	21.0	BROWN SANDSTONE								VISUAL	
R-353	416+22.8	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	102.8 ft. LT	0.2	5.5	SEVERELY WEATHERED LIGHT BROWN SANDSTONE								VISUAL	
		5.5	16.3	LIGHT BROWN, REDDISH BROWN, AND GRAY SANDSTONE								VISUAL	
		16.3	80.0	LIGHT GRAY AND DARK GRAY SANDSTONE								VISUAL	
R-354	416+57.7	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	23.1 ft. LT	0.3	5.5	SEVERELY WEATHERED LIGHT BROWN SANDSTONE								VISUAL	
		5.5	13.4	BROWN AND LIGHT GRAY SANDSTONE								VISUAL	
		13.4	55.0	GRAY SANDSTONE								VISUAL	*
R-356	420+12.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	210.3 ft. LT	0.3	8.0	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		8.0	15.5	SEVERELY WEATHERED GRAY SHALE								VISUAL	
		15.5	24.0	BROWN AND GRAY SHALE								VISUAL	
		24.0	29.0	GRAY SHALE								VISUAL	
		29.0	43.2	GRAY SANDSTONE								VISUAL	
		43.2	44.5	BROWN SANDSTONE								VISUAL	
		44.5	54.0	SHALE								VISUAL	
		54.0	59.5	DARK GRAY SHALE								VISUAL	
		59.5	131.4	GRAY SANDSTONE								VISUAL	*
		131.4	139.5	GRAY AND DARK GRAY SANDSTONE								VISUAL	
		139.5	144.5	GRAY SANDSTONE								VISUAL	
R-359	420+27.7	0.0	5.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
	176.5 ft. RT	5.5	7.0	SEVERELY WEATHERED GRAY SILTSTONE.								VISUAL	
		7.0	14.8	GRAYISH BROWN SILTSTONE								VISUAL	
		14.8	90.0	BROWN AND GRAY SANDSTONE								VISUAL	
		90.0	90.7	GRAY SANDSTONE								VISUAL	
		90.7	94.3	GRAY SHALE								VISUAL	
		94.3	95.0	GRAY SANDSTONE								VISUAL	
R-362	423+86.0	0.0	8.0	BROWN SANDY SILT (A-4a)								VISUAL	
	12.1 ft. RT	8.0	20.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		20.0	45.0	LIGHT GRAY SANDSTONE								VISUAL	*

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-360	424+20.5	0.0	3.5	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
	196.2 ft. LT	3.5	5.0	27	13	16	26	18	23	8	11	A-4a	
		5.0	5.5	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
		5.5	6.0	BROWN AND GRAY SILT (A-4b)								VISUAL	
		6.0	7.5	2	3	15	58	22	21	5	10	A-4b	
		7.5	8.0	BROWN AND GRAY SILT (A-4b)								VISUAL	
		8.0	10.5	BROWN CLAY (A-7-6)								VISUAL	
		10.5	15.5	SEVERELY WEATHERED DARK BROWN CLAYSHALE.								VISUAL	
		15.5	22.4	BROWN AND GRAY CLAYSHALE								VISUAL	
		22.4	29.0	BLACK SHALE								VISUAL	
		29.0	32.8	GRAY SHALE								VISUAL	
		32.8	113.8	GRAY SANDSTONE								VISUAL	
		113.8	130.0	GRAY AND LIGHT GRAY SANDSTONE								VISUAL	
R-363	428+11.8	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	258.2 ft. LT	0.2	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.0	13.0	BROWN AND GRAY SANDSTONE								VISUAL	
		13.0	14.5	BLACK SHALE								VISUAL	
		14.5	18.0	GRAY CLAYSHALE								VISUAL	
		18.0	25.0	GRAY SHALE								VISUAL	
		25.0	47.2	DARK GRAY SHALE								VISUAL	
		47.2	63.3	GRAY AND DARK GRAY SANDSTONE								VISUAL	
		63.3	76.9	DARK GRAY SILTSHALE								VISUAL	
		76.9	173.5	LIGHT GRAY SANDSTONE								VISUAL	
		173.5	200.0	GRAY AND DARK GRAY SANDSTONE								VISUAL	
R-365	428+30.5	0.0	3.5	BROWN SILTY CLAY (A-6b)								VISUAL	
	57.7 ft. RT	3.5	5.0	34	7	6	17	36	40	17	12	A-6b	
		5.0	8.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		8.0	17.5	BROWN AND GRAY SHALE, INTERBEDDED WITH SANDSTONE								VISUAL	
		17.5	27.7	BLACK SHALE								VISUAL	
		27.7	42.8	LIGHT GRAY SANDSTONE								VISUAL	
		42.8	56.2	BLACK SHALE								VISUAL	
		56.2	160.0	LIGHT GRAY SANDSTONE								VISUAL	
R-367	432+20.4	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	217.6 ft. LT	0.2	6.0	BROWN AND GRAY SILT (A-4b)								VISUAL	
		6.0	7.5	5	4	11	61	20	25	8	10	A-4b	
		7.5	10.5	BROWN AND GRAY SILT (A-4b)								VISUAL	
		10.5	15.0	SEVERELY WEATHERED GRAY AND BROWN CLAYSHALE.								VISUAL	
		15.0	30.5	BROWN CLAYSHALE								VISUAL	
		30.5	37.5	GRAY SHALE								VISUAL	
		37.5	114.0	GRAY SANDSTONE								VISUAL	
		114.0	145.0	DARK GRAY AND GRAY SANDSTONE								VISUAL	
R-369	432+21.3	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	80.1 ft. RT	0.2	4.5	GRAY SILT (A-4b)								VISUAL	
		4.5	15.3	BROWN AND GRAY SANDSTONE								VISUAL	
		15.3	95.0	GRAY SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-373	434+08.2	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	141.1 ft. RT	0.3	3.5	BROWN SANDY SILT (A-4a)								VISUAL	
		3.5	5.0	7	10	20	45	18	23	6	11	A-4a	
		5.0	8.5	BROWN SANDY SILT (A-4a)								VISUAL	
		8.5	10.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		10.0	17.0	BROWN AND GRAY SANDSTONE								VISUAL	
		17.0	35.3	GRAY SANDSTONE INTERBEDDED WITH SHALE								VISUAL	
		35.3	38.3	BROWN AND GRAY SHALE								VISUAL	
		38.3	75.0	GRAY SANDSTONE								VISUAL	
R-371	434+11.0	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	82.9 ft. LT	0.4	5.5	BROWN SANDY SILT (A-4a)								VISUAL	
		5.5	14.6	BROWN SANDSTONE								VISUAL	
		14.6	90.0	GRAY SANDSTONE								VISUAL	
R-370	434+14.1	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	171.9 ft. LT	0.3	4.0	BROWN GRAVEL WITH SAND (A-1-b)								VISUAL	
		4.0	19.5	BROWN SANDSTONE								VISUAL	
		19.5	90.0	GRAY SANDSTONE								VISUAL	
R-374	438+05.1	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	1.5 ft. RT	0.4	3.0	LIGHT BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	8.5	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	*
		8.5	17.6	BROWN SANDSTONE								VISUAL	
		17.6	27.4	GRAY SANDSTONE								VISUAL	
		27.4	45.0	GRAY SANDSTONE								VISUAL	
R-376	438+19.8	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	139.9 ft. RT	0.3	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	8.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		8.0	60.5	BROWN AND GRAY SANDSTONE INTERBEDDED WITH SHALE								VISUAL	
		60.5	71.0	BROWN SANDSTONE								VISUAL	
R-379	440+12.8	0.0	0.1	TOPSOIL (VISUAL)								VISUAL	
	0.6 ft. RT	0.1	1.0	BROWN SANDY SILT (A-4a)								VISUAL	
		1.0	2.0	14	6	12	44	24	30	8	20	A-4a	
		2.0	2.5	7	6	15	58	14	27	5	14	A-4b	
		2.5	11.0	BROWN SILT (A-4b)								VISUAL	
		11.0	11.8	0	1	3	23	73	50	28	26	A-7-6	
		11.8	18.0	BROWN SANDY SILT (A-4a)								VISUAL	
		18.0	19.5	SEVERELY WEATHERED GRAY SANDSTONE.								VISUAL	
		19.5	24.5	BROWN SANDSTONE								VISUAL	
R-378	440+15.6	0.0	0.1	TOPSOIL (VISUAL)								VISUAL	
	86.3 ft. LT	0.1	1.0	BROWN SILT (A-4b)								VISUAL	
		1.0	2.5	5	5	16	55	19	26	6	8	A-4b	
		2.5	3.5	BROWN SILT (A-4b)								VISUAL	
		3.5	5.0	3	8	21	50	18	25	5	9	A-4b	
		5.0	8.5	BROWN SILT (A-4b)								VISUAL	
		8.5	10.0	SEVERELY WEATHERED GRAY SANDSTONE.								VISUAL	
		10.0	20.0	GRAY SANDSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
			SR-823									
TR-23	441+30.3	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	48.1 ft. LT	0.3	7.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		7.5	10.0	BROWN SANDSTONE								VISUAL
		10.0	20.0	GRAY SANDSTONE								VISUAL
B-9	441+95.7	0.0	0.1	TOPSOIL (VISUAL)								VISUAL
	57.2 ft. LT	0.1	4.0	GRAY SANDY SILT (A-4a)								VISUAL
		4.0	14.0	GRAY SANDSTONE								VISUAL
TR-22	442+46.9	0.0	0.7	TOPSOIL (VISUAL)								VISUAL
	51.5 ft. RT	0.7	2.8	BROWN SANDY SILT (A-4a)								VISUAL
		2.8	3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5	4.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
		4.0	6.1	BROWN SANDSTONE								VISUAL
		6.1	24.0	GRAY SANDSTONE								VISUAL
B-8	443+05.8	0.0	1.0	BROWN SILT (A-4b)								VISUAL
	34.6 ft. LT	1.0	2.5	4	12	15	52	17	22	4	13	A-4b
		2.5	3.0	BROWN SILT (A-4b)								VISUAL
		3.0	3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5	5.0	12	23	17	35	13	22	3	12	A-4a
		5.0	7.5	BROWN SANDY SILT (A-4a)								VISUAL
		7.5	27.5	GRAY SANDSTONE								VISUAL
B-6	443+23.0	0.0	0.5	BROWN SANDY SILT (A-4a)								VISUAL
	34.6 ft. RT	0.5	2.0	16	23	15	28	18	26	8	13	A-4a
		2.0	3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5	5.0	10	25	14	40	11	NP	NP	12	A-4a
		5.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL
		6.0	26.5	GRAY SANDSTONE								VISUAL
TR-21	443+67.0	0.0	1.5	GRAVEL (A-1-a)								VISUAL
	46.4 ft. LT	1.5	20.0	GRAY SANDSTONE								VISUAL
B-7	444+07.0	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	71.7 ft. LT	0.2	2.5	GRAY SANDY SILT (A-4a)								VISUAL
		2.5	12.5	GRAY SANDSTONE								VISUAL
B-5	444+33.3	0.0	0.1	TOPSOIL (VISUAL)								VISUAL
	52.6 ft. RT	0.1	1.5	GRAY SANDY SILT (A-4a)								VISUAL
		1.5	11.5	GRAY SANDSTONE								VISUAL
TR-20	444+69.7	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	42.1 ft. RT	0.2	5.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		5.0	20.0	GRAY SANDSTONE								VISUAL
R-380	446+99.5	0.0	8.5	REDDISH BROWN SANDY SILT (A-4a)								VISUAL
	130.0 ft. LT	8.5	10.0	18	4	11	46	21	25	6	14	A-4a
		10.0	11.0	REDDISH BROWN SANDY SILT (A-4a)								VISUAL
		11.0	12.5	19	4	13	45	19	29	8	15	A-4a
		12.5	16.0	REDDISH BROWN SANDY SILT (A-4a)								VISUAL
		16.0	35.0	BROWN SANDSTONE								VISUAL

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
			SR-823									
R-381	447+17.3	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	17.8 ft. RT	0.2	7.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		7.0	12.7	BROWN SANDSTONE								VISUAL
		12.7	20.0	GRAY SANDSTONE								VISUAL
R-383	447+85.1	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	117.0 ft. RT	0.3	3.0	BROWN SANDY SILT (A-4a)								VISUAL
		3.0	5.0	SEVERELY WEATHERED GRAYISH BROWN SANDSTONE								VISUAL
		5.0	25.0	BROWN SANDSTONE								VISUAL
R-382	448+15.2	0.0	5.5	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
	126.4 ft. LT	5.5	17.6	BROWN SANDSTONE								VISUAL
		17.6	55.0	GRAY SANDSTONE								VISUAL
R-386	451+83.9	0.0	3.0	BROWN SANDY SILT (A-4a)								VISUAL
	122.1 ft. RT	3.0	14.4	BROWN SANDSTONE								VISUAL
		14.4	29.6	BROWN AND GRAY SANDSTONE								VISUAL
		29.6	100.0	GRAY SANDSTONE								VISUAL
R-384	452+33.5	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	74.6 ft. LT	0.4	7.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
		7.0	22.7	BROWN SANDSTONE								VISUAL
		22.7	75.0	GRAY SANDSTONE								VISUAL
R-389	455+17.0	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	83.3 ft. RT	0.3	7.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
		7.0	18.3	GRAY AND BROWN SANDSTONE								VISUAL
		18.3	50.0	GRAY SANDSTONE								VISUAL
R-387	455+35.9	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	182.3 ft. LT	0.3	6.0	SEVERELY WEATHERED LIGHT BROWN SANDSTONE.								VISUAL
		6.0	30.0	BROWN SANDSTONE								VISUAL
		30.0	131.0	GRAY SANDSTONE								VISUAL
R-390	459+06.6	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	153.1 ft. LT	1.0	8.0	BROWN SANDY SILT (A-4a)								VISUAL
		8.0	13.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
		13.0	16.3	BROWN SANDSTONE								VISUAL
		16.3	85.5	GRAY SANDSTONE								VISUAL
R-392	459+19.3	0.0	0.5	TOPSOIL (VISUAL)								VISUAL
	6.3 ft. RT	0.5	6.0	BROWN SANDY SILT (A-4a)								VISUAL
		6.0	7.5	2	14	26	43	15	21	2	12	A-4a
		7.5	8.0	BROWN SANDY SILT (A-4a)								VISUAL
		8.0	11.5	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
		11.5	12.5	BROWN SANDSTONE								VISUAL
		12.5	30.0	GRAY SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
** DENOTES SAMPLE TAKEN AT OR NEAR GRADE*

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
R-393	460+18.5	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	78.2 ft. RT	1.0	8.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		8.0	13.5	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		13.5	15.0	14	8	19	44	15	24	5	14	A-4a
		15.0	18.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		18.0	21.0	BROWN SANDY SILT (A-4a)								VISUAL
		21.0	22.5	15	8	14	42	21	27	9	15	A-4a
		22.5	30.0	BROWN SANDY SILT (A-4a)								VISUAL
		30.0	33.5	GRAY SILT (A-4b)								VISUAL
		33.5	35.0	1	1	8	60	30	27	9	20	A-4b
		35.0	38.5	GRAY SILT (A-4a)								VISUAL
		38.5	40.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
R-394	463+14.3	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	111.8 ft. LT	1.0	11.0	BROWN SILT (A-4b)								VISUAL
		11.0	12.5	9	5	17	53	16	22	3	13	A-4b
		12.5	15.5	BROWN SILT (A-4b)								VISUAL
		15.5	19.5	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL
		19.5	30.0	BROWN AND GRAY SANDSTONE								VISUAL
		30.0	49.7	GRAY SANDSTONE (VISUAL)								VISUAL
R-396	463+18.6	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	92.1 ft. RT	1.0	3.5	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		3.5	5.0	47	7	7	32	7	23	3	12	A-4a
		5.0	13.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		13.0	13.5	BROWN SILTY CLAY (A-6b)								VISUAL
		13.5	15.0	4	3	5	59	29	37	16	22	A-6b
		15.0	18.0	BROWN SILTY CLAY (A-6b)								VISUAL
		18.0	20.5	BROWN SANDY SILT (A-4a)								VISUAL
		20.5	21.0	BROWN SILT (A-4b)								VISUAL
		21.0	22.5	0	0	20	68	12	NP	NP	22	A-4b
		22.5	25.0	BROWN SILT (A-4b)								VISUAL
R-395	463+19.1	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	1.1 ft. RT	1.0	5.5	BROWN SANDY SILT (A-4a)								VISUAL
		5.5	8.5	BROWN SILT (A-4b)								VISUAL
		8.5	10.0	0	8	24	51	17	24	2	16	A-4b
		10.0	20.0	BROWN SILT (A-4b)								VISUAL
R-399	464+20.0	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	102.8 ft. RT	0.2	3.5	BROWN SILT (A-4b)								VISUAL
		3.5	5.0	0	0	13	65	22	NP	NP	23	A-4b
		5.0	5.5	BROWN SILT (A-4b)								VISUAL
		5.5	8.5	BROWN SILTY CLAY (A-6b)								VISUAL
		8.5	10.0	0	0	1	59	40	40	20	17	A-6b
		10.0	10.5	BROWN SILTY CLAY (A-6b)								VISUAL
		10.5	17.5	BROWN SANDY SILT (A-4a)								VISUAL
		17.5	20.0	GRAY SANDSTONE								VISUAL

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
C-12	466+17.4	0.0	4.0	BROWN SILT AND CLAY (A-6a)								VISUAL
	247.6 ft. RT	4.0	5.0	0	0	2	54	44	41	22	23	A-7-6
		5.0	9.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		9.0	10.0	1	3	8	71	17	21	4	17	A-4b
		10.0	14.0	LIGHT BROWN SILT (A-4b)								VISUAL
		14.0	18.5	GRAY SANDSTONE								VISUAL
		18.5	19.0	GRAY CLAYSTONE								VISUAL
C-11	466+89.0	0.0	0.1	TOPSOIL (VISUAL)								VISUAL
	5.0 ft. RT	0.1	1.0	BROWN SILT (A-4b)								VISUAL
		1.0	2.5	0	2	4	68	26	25	7	19	A-4b
		2.5	5.0	BROWN SILT (A-4b)								VISUAL
		5.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL
		6.0	7.5	16	14	15	42	13	27	6	14	A-4a
		7.5	10.5	BROWN SANDY SILT (A-4a)								VISUAL
		10.5	11.0	GRAY SILT (A-4b)								VISUAL
		11.0	12.5	0	0	7	77	16	30	6	15	A-4b
		12.5	13.0	GRAY SILT (A-4b)								VISUAL
		13.0	18.0	GRAY SANDSTONE								VISUAL
C-10	467+32.2	0.0	1.0	BROWN AND GRAY SILT (A-4b)								VISUAL
	239.2 ft. LT	1.0	2.5	2	6	6	60	26	26	9	17	A-4b
		2.5	3.5	BROWN AND GRAY SILT (A-4b)								VISUAL
		3.5	5.0	2	9	9	62	18	29	10	15	A-4b
		5.0	7.0	BROWN AND GRAY SILT (A-4b)								VISUAL
		7.0	8.5	BROWN SANDY SILT (A-4a)								VISUAL
		8.5	9.1	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL
		9.1	14.1	GRAY SANDSTONE								VISUAL
R-402	468+18.5	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	1.4 ft. RT	1.0	2.5	0	3	3	63	31	30	9	19	A-4b
		2.5	3.5	BROWN AND GRAY SILT (A-4b)								VISUAL
		3.5	5.0	0	2	5	69	24	30	8	20	A-4b
		5.0	11.0	BROWN AND GRAY SILT (A-4b)								VISUAL
		11.0	12.5	3	5	19	57	16	25	3	18	A-4b
		12.5	13.0	BROWN AND GRAY SILT (A-4b)								VISUAL
		13.0	14.5	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
		14.5	20.0	GRAY SANDSTONE								VISUAL
R-405	472+18.3	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	68.0 ft. LT	1.0	8.0	BROWN SANDY SILT (A-4a)								VISUAL
		8.0	8.5	BROWNISH GRAY SILT AND CLAY (A-6a)								VISUAL
		8.5	10.0	2	4	3	67	24	32	11	21	A-6a
		10.0	11.0	BROWNISH GRAY SILT AND CLAY (A-6a)								VISUAL
		11.0	12.5	0	0	1	70	29	33	13	24	A-6a
		12.5	20.0	BROWNISH GRAY SILT AND CLAY (A-6a)								VISUAL
R-408	472+24.1	0.0	0.6	TOPSOIL (VISUAL)								VISUAL
	128.2 ft. RT	0.6	1.0	BROWN SILT (A-4b)								VISUAL
		1.0	2.5	10	3	6	63	18	25	6	16	A-4b
		2.5	5.0	BROWN SILT (A-4b)								VISUAL
		5.0	20.0	GRAY SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
C-15	472+64.1	0.0	1.0	BROWN SILT (A-4b)								VISUAL
	223.9 ft. RT	1.0	2.5	1	12	13	59	15	30	10	18	A-4b
		2.5	3.5	BROWN SILT (A-4b)								VISUAL
		3.5	5.0	1	1	12	68	18	30	9	14	A-4b
		5.0	7.5	BROWN SILT (A-4b)								VISUAL
		7.5	12.5	GRAY SANDSTONE								VISUAL
C-14	473+69.0	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	59.7 ft. RT	0.2	1.0	BROWN SILT (A-4b)								VISUAL
		1.0	2.5	3	2	5	69	21	27	7	16	A-4b
		2.5	4.0	BROWN SILT (A-4b)								VISUAL
		4.0	5.0	27	21	11	29	12	27	6	12	A-4a
		5.0	5.5	BROWN SANDY SILT (A-4a)								VISUAL
		5.5	6.0	MOTTLED BROWN AND GRAY SILT (A-4b)								VISUAL
		6.0	7.5	0	0	4	77	19	24	6	18	A-4b
		7.5	8.5	MOTTLED BROWN AND GRAY SILT (A-4b)								VISUAL
		8.5	10.0	0	0	6	65	29	27	9	19	A-4b
		10.5	13.5	BROWN SANDY SILT (A-4a)								VISUAL
		13.5	15.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		15.0	20.0	GRAY SANDSTONE								VISUAL
C-13	475+01.2	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	176.4 ft. LT	0.3	1.0	GRAYISH BROWN SILT (A-4b)								VISUAL
		1.0	2.5	3	6	7	72	12	30	4	20	A-4b
		2.5	4.0	GRAYISH BROWN SILT (A-4b)								VISUAL
		4.0	5.0	14	20	13	42	11	NP	NP	13	A-4a
		4.0	8.0	BROWN SANDY SILT (A-4a)								VISUAL
		8.0	11.0	BROWN AND GRAY SILT (A-4b)								VISUAL
		11.0	12.5	2	10	15	61	12	NP	NP	15	A-4b
		12.5	13.5	BROWN AND GRAY SILT (A-4b)								VISUAL
		13.5	15.0	1	7	11	69	12	NP	NP	17	A-4b
		15.0	19.0	BROWN AND GRAY SILT (A-4b)								VISUAL
		19.0	21.5	GRAY SANDY SILT (A-4a)								VISUAL
		21.5	23.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		23.0	28.0	GRAY SANDSTONE								VISUAL
R-409	475+18.9	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	1.2 ft. RT	1.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL
		6.0	7.5	13	16	13	43	15	28	6	14	A-4a
		7.5	13.0	BROWN SANDY SILT (A-4a)								VISUAL
		13.0	13.5	BROWN AND GRAY SILT (A-4b)								VISUAL
		13.5	15.0	0	0	2	73	25	27	9	18	A-4b
		15.0	18.0	BROWN AND GRAY SILT (A-4b)								VISUAL
		18.0	20.0	BROWN SANDY SILT (A-4a)								VISUAL

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
R-410	477+48.7	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	83.4 ft. LT	1.0	3.5	BROWN SILT (A-4b)								VISUAL
		3.5	5.0	18	10	9	50	13	26	4	13	A-4b
		5.0	10.5	BROWN SILT (A-4b)								VISUAL
		10.5	11.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		11.0	12.5	1	9	5	61	24	32	12	20	A-6a
		12.5	23.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		23.0	23.5	BROWN SILT (A-4b)								VISUAL
		23.5	25.0	3	13	11	57	16	26	5	13	A-4b
		25.0	31.0	BROWN SILT (A-4b)								VISUAL
		31.0	32.5	1	14	10	57	18	29	8	15	A-4b
		32.5	35.0	BROWN SILT (A-4b)								VISUAL
R-414	480+84.1	0.0	3.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL
	267.1 ft. LT	3.0	15.0	BROWN SANDSTONE								VISUAL
		15.0	30.0	BROWN AND GRAY SANDSTONE								VISUAL
		30.0	75.5	GRAY SANDSTONE								VISUAL
		75.5	82.8	BROWN SANDSTONE								VISUAL
		82.8	173.0	GRAY SANDSTONE								VISUAL
R-416	480+94.2	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	75.9 ft. RT	1.0	15.0	BROWN SANDY SILT (A-4a)								VISUAL
		15.0	17.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
		17.0	50.5	BROWN SANDSTONE								VISUAL
R-419	483+57.7	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	141.2 ft. RT	1.0	5.0	BROWN SANDY SILT (A-4a)								VISUAL
		5.0	20.0	GRAY SANDSTONE								VISUAL
TR-19	483+69.8	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	46.5 ft. RT	1.0	8.7	BROWN SANDY SILT (A-4a)								VISUAL
		8.7	20.2	GRAY SANDSTONE								VISUAL
TR-18	484+38.6	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	39.0 ft. LT	1.0	2.5	13	7	9	58	13	25	3	9	A-4b
		2.5	3.0	BROWN SILT (A-4b)								VISUAL
		3.0	3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5	5.0	0	3	40	45	12	NP	NP	12	A-4a
		5.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL
		6.0	7.5	11	20	28	31	10	NP	NP	11	A-4a
		7.5	20.3	GRAY SANDSTONE								VISUAL
C-54	484+80.3	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	161.7 ft. RT	0.4	11.0	BROWN SANDY SILT (A-4a)								VISUAL
		11.0	16.0	GRAY SANDSTONE								VISUAL
B-12	485+04.7	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	9.0 ft. RT	0.3	1.0	BROWN SANDY SILT (A-4a)								VISUAL
		1.0	2.5	0	0	8	92		NP	NP	17	A-4b
		2.5	4.0	BROWN SANDY SILT (A-4a)								VISUAL
		4.0	8.5	REDDISH BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL
		8.5	28.5	GRAY SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
				SR-823								
B-11	485+19.1	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	48.6 ft. LT	0.2	1.0	BROWN SANDY SILT (A-4a)								VISUAL
		1.0	2.5	0	1	17	82		NP	NP	14	A-4b
		2.5	4.0	BROWN SANDY SILT (A-4a)								VISUAL
		4.0	8.5	GRAY SANDY SILT (A-4a)								VISUAL
		8.5	28.5	GRAY SANDSTONE								VISUAL
C-53	485+39.4	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	182.8 ft. RT	0.3	3.0	BROWN SILT (A-4b)								VISUAL
		3.0	6.5	BROWNISH GRAY SANDY SILT (A-4a)								VISUAL
		6.5	7.0	BROWN SANDSTONE								VISUAL
		7.0	12.0	GRAY SANDSTONE								VISUAL
TR-17	485+26.9	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	24.3 ft. RT	0.4	3.0	BROWN SILT (A-4b)								VISUAL
		3.0	5.5	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL
		5.5	6.3	BROWN SANDY SILT (A-4a)								VISUAL
		6.3	7.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		7.0	27.0	BROWN AND GRAY SANDSTONE								VISUAL
B-10	486+01.5	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	43.8' RT	0.3	1.0	BROWN SILT (A-4b)								VISUAL
		1.0	2.5	0	0	10	74	16	24	5	15	A-4b
		2.5	6.0	BROWN SILT (A-4b)								VISUAL
		6.0	7.5	0	0	11	74	15	26	8	38	A-4b
		7.5	8.5	BROWN SILT (A-4b)								VISUAL
		8.5	9.5	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		9.5	19.5	GRAY SANDSTONE								VISUAL
TR-16	486+12.4	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	32.3 ft. LT	0.2	8.5	BROWN SANDY SILT (A-4a)								VISUAL
		8.5	18.5	GRAY SANDSTONE								VISUAL
TR-15	486+83.3	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	32.9 ft. RT	0.2	7.0	BROWN SANDY SILT (A-4a)								VISUAL
		7.0	8.0	SEVERELY WEATHERED SILTSTONE								VISUAL
		8.0	18.0	GRAY SANDSTONE								VISUAL
R-421	488+19.3	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	4.0 ft. LT	0.2	3.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		3.0	8.0	BROWN SANDY SILT (A-4a)								VISUAL
		8.0	9.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL
		9.0	14.0	GRAY SANDSTONE								VISUAL
R-424	491+05.2	0.0	3.5	BROWN SILT (A-4b)								VISUAL
	CL	3.5	5.0	0	0	7	73	20	32	8	21	A-4b
		5.0	5.5	BROWN SILT (A-4b)								VISUAL
		5.5	6.0	BROWN SANDY SILT (A-4a)								VISUAL
		6.0	7.5	5	26	14	40	15	29	7	8	A-4a
		7.5	8.0	BROWN SANDY SILT (A-4a)								VISUAL
		8.0	10.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
		10.0	20.0	GRAY SANDSTONE								VISUAL

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-427	495+16.9	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	1.1 ft. LT	0.3	13.0	BROWN SANDY SILT (A-4a)								VISUAL	
		13.0	15.5	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		15.5	20.0	BROWN AND GRAY SANDSTONE								VISUAL	
R-430	497+01.4	0.0	5.5	BROWN AND RED SANDY SILT (A-4a)								VISUAL	
	86.8 ft. RT	5.5	15.5	BROWN AND RED SILT AND CLAY (A-6a)								VISUAL	
		15.5	20.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
R-429	497+10.8	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	5.6 ft. RT	0.5	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
		6.0	20.0	BROWN INTERBEDDED SHALE, BRECCIA, SANDSTONE								VISUAL	
R-432	498+11.4	0.0	0.6	TOPSOIL (VISUAL)								VISUAL	
	111.1 ft. LT	0.6	4.5	BROWN SANDY SILT (A-4a)								VISUAL	
		4.5	6.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		6.0	18.0	LIGHT BROWN SANDSTONE								VISUAL	
		18.0	40.0	GRAY SANDSTONE								VISUAL	*
R-433	498+14.4	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	21.4 ft. LT	0.5	4.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
		4.0	6.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		6.0	12.4	LIGHT BROWN SANDSTONE								VISUAL	
		12.4	25.0	GRAY SANDSTONE								VISUAL	
R-434	498+47.1	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	133.5 ft. RT	0.4	3.0	REDDISH BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	6.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		6.0	15.9	LIGHT BROWN AND BROWN SANDSTONE								VISUAL	
		15.9	20.0	GRAY SANDSTONE								VISUAL	
R-435	501+08.3	0.0	0.1	TOPSOIL (VISUAL)								VISUAL	
	201.1 ft. LT	0.1	13.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		13.0	130.0	GRAY SANDSTONE								VISUAL	
R-2437	501+22.1	0.0	8.0	REDDISH BROWN SILT AND CLAY (A-6a)								VISUAL	
	86.1 ft. RT	8.0	15.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		15.0	25.5	BROWN SANDSTONE								VISUAL	
		25.5	80.0	GRAY SANDSTONE								VISUAL	
R-437	501+22.1	0.0	8.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
	86.1 ft. RT	8.0	17.4	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
REPLACED BY R-2437		17.4	60.0	GRAY SANDSTONE								VISUAL	
R-2436	501+35.7	0.0	5.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
	85.8 ft. LT	5.0	11.0	LIGHT BROWN SANDSTONE								VISUAL	
		11.0	60.7	BROWN AND GRAY SANDSTONE								VISUAL	
		60.7	145.0	GRAY SANDSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-436	501+35.7	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	85.8 ft. LT	0.3	6.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		6.0	30.0	BROWN SANDSTONE								VISUAL	
		30.0	60.0	BROWN AND GRAY SANDSTONE								VISUAL	
REPLACED BY R-2436		60.0	110.0	GRAY SANDSTONE								VISUAL	
R-440	504+45.8	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	141.8 ft. RT	0.2	3.0	DARK BROWN SILT (A-4b)								VISUAL	
		3.0	6.0	SEVERELY WEATHERED GRAYISH BROWN SANDSTONE								VISUAL	
		6.0	13.5	GRAY SANDSTONE								VISUAL	
C-17	504+83.7	0.0	0.1	TOPSOIL (VISUAL)								VISUAL	
	122.5 ft. LT	0.1	4.5	BROWN SANDY SILT (A-4a)								VISUAL	
		4.5	9.5	GRAY SANDSTONE								VISUAL	
R-439	504+61.7	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	91.4 ft. RT	0.5	4.5	BROWN SANDY SILT (A-4a)								VISUAL	
		4.5	6.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		6.0	20.0	BROWN SANDSTONE								VISUAL	
C-16	504+63.7	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	17.3 ft. RT	0.2	3.5	BROWN SANDY SILT (A-4a)								VISUAL	
		3.5	8.5	GRAY SANDSTONE								VISUAL	
R-442	505+27.7	0.0	4.0	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
	9.2 ft. LT	4.0	7.5	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		7.5	10.2	BROWN SANDSTONE								VISUAL	
		10.2	20.0	GRAY SANDSTONE								VISUAL	
R-2444	508+34.4	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	121.0 ft. LT	0.3	8.0	BROWN SANDY SILT (A-4a)								VISUAL	
		8.0	10.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		10.0	30.0	BROWN SANDSTONE								VISUAL	
		30.0	70.0	GRAY SANDSTONE								VISUAL	
R-444	508+34.4	0.0	0.7	TOPSOIL (VISUAL)								VISUAL	
	121.0 ft. LT	0.7	3.0	REDDISH BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	7.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
REPLACED BY R-2444		7.0	14.2	BROWN AND GRAY SANDSTONE								VISUAL	
		14.2	20.3	GRAY SHALE INTERBEDDED WITH SANDSTONE								VISUAL	
		20.3	40.0	GRAY SANDSTONE								VISUAL	
R-445	508+42.3	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	128.2 ft. RT	0.3	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	6.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		6.0	12.0	BROWN AND GRAY SANDSTONE								VISUAL	
		12.0	19.2	GRAY AND BROWN CLAYSHALE								VISUAL	
		19.2	35.0	BROWN AND GRAY SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-447	512+15.8	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	8.5 ft. RT	0.4	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	5.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		5.0	16.0	BROWN AND REDDISH BROWN SANDSTONE								VISUAL	
		16.0	25.5	DARK GRAY CLAYSHALE								VISUAL	
		25.5	125.0	GRAY SANDSTONE								VISUAL	*
R-446	512+17.7	0.0	1.5	BROWN SANDY SILT (A-4a)								VISUAL	
	189.3 ft. LT	1.5	5.0	SEVERELY WEATHERED GRAY AND BROWN SANDSTONE								VISUAL	
		5.0	16.6	LIGHT GRAY AND BROWN SANDSTONE								VISUAL	
		16.6	19.2	BLACK SHALE								VISUAL	
		19.2	125.0	GRAY SANDSTONE								VISUAL	
R-448	512+19.5	0.0	3.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
	175.0 ft. RT	3.0	5.0	SEVERELY WEATHERED LIGHT GRAY SANDSTONE								VISUAL	
		5.0	14.2	BROWN AND GRAY SANDSTONE								VISUAL	
		14.2	125.0	GRAY SANDSTONE								VISUAL	
R-2451	516+08.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	160.8 ft. RT	0.3	2.5	BROWN SANDY SILT (A-4a)								VISUAL	
		2.5	10.5	REDDISH BROWN SILTY CLAY (A-6b)								VISUAL	
		10.5	25.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL	
		25.0	126.5	GRAY SANDSTONE								VISUAL	
R-451	516+08.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	160.8 ft. RT	0.3	3.0	REDDISH BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	10.5	REDDISH BROWN SILT AND CLAY (A-6a)								VISUAL	
REPLACED BY R-2451		10.5	11.7	SEVERELY WEATHERED BROWN SHALE								VISUAL	
		11.7	22.5	LIGHT BROWN SANDSTONE								VISUAL	
		22.5	33.5	GRAY SANDSTONE								VISUAL	
		33.5	39.1	LIGHT GRAY AND GRAY SANDSTONE								VISUAL	
		39.1	40.8	LIGHT GRAY AND GRAY BRECCIA								VISUAL	
		40.8	90.0	GRAY SANDSTONE								VISUAL	
		90.0	95.0	GRAY SANDSTONE INTERBEDDED WITH SILTSTONE								VISUAL	
R-450	516+18.1	0.0	3.4	LIGHT BROWN SILT AND CLAY (A-6a)								VISUAL	
	3.7 ft. LT	3.4	17.0	BROWN AND LIGHT GRAY SANDSTONE								VISUAL	
		17.0	20.5	DARK GRAY AND BLACK SHALE								VISUAL	
		20.5	23.6	GRAY SHALE								VISUAL	
		23.6	47.8	GRAY SANDSTONE								VISUAL	
		47.8	120.0	LIGHT GRAY SANDSTONE								VISUAL	*
R-2449	516+22.4	0.0	0.7	TOPSOIL (VISUAL)								VISUAL	
	193.4 ft. LT	0.7	5.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		5.5	10.0	SEVERELY WEATHERED GRAY AND BROWN SANDSTONE								VISUAL	
		10.0	17.9	LIGHT BROWN SANDSTONE INTERBEDDED WITH SHALE								VISUAL	
		17.9	21.0	BLACK SHALE								VISUAL	
		21.0	26.3	DARK GRAY CLAYSHALE								VISUAL	
		26.3	30.7	GRAY SHALE								VISUAL	
		30.7	155.0	GRAY SANDSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg SR-823	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
R-449	516+22.4	0.0	6.8	LIGHT BROWN SILT AND CLAY (A-6a)								VISUAL	
	193.4 ft. LT	6.8	8.6	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL	
		8.6	18.0	LIGHT GRAY SANDSTONE								VISUAL	
REPLACED BY R-2449		18.0	23.1	BLACK SANDSTONE INTERBEDDED WITH SHALE								VISUAL	
		23.1	24.7	DARK GRAY CLAYSHALE								VISUAL	
		24.7	26.0	LIGHT GRAY SANDSTONE								VISUAL	
		26.0	30.0	GRAY SHALE								VISUAL	
		30.0	31.8	GRAY CLAYSTONE								VISUAL	
		31.8	47.3	GRAY SANDSTONE								VISUAL	
		47.3	120.0	LIGHT GRAY SANDSTONE								VISUAL	
R-2452	520+21.3	0.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
	169.5 ft. LT	6.0	10.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		10.0	20.5	BROWNISH GRAY SANDSTONE								VISUAL	
		20.5	28.5	GRAY SANDSTONE								VISUAL	
		28.5	35.2	GRAY SANDSTONE INTERBEDDED WITH CONGLOM./BRECCIA								VISUAL	
		35.2	120.0	GRAY SANDSTONE								VISUAL	
R-452	520+21.3	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	169.5 ft. LT	0.3	5.5	BROWN SANDY SILT (A-4a)								VISUAL	
		5.5	6.0	LIGHT BROWN CLAY (A-7-6)								VISUAL	
REPLACED BY R-2452		6.0	7.5	0	1	7	47	45	44	35	18	A-7-6	
		7.5	8.0	LIGHT BROWN CLAY (A-7-6)								VISUAL	
		8.0	8.5	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE.								VISUAL	
		8.5	10.0	0	0	9	65	26	26	10	9	A-4b	
		10.0	13.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE.								VISUAL	
		13.0	15.0	BROWN AND GRAY SANDSTONE								VISUAL	
		15.0	17.0	BROWN AND GRAY BRECCIA								VISUAL	
		17.0	22.5	BROWN AND GRAY SANDSTONE								VISUAL	
		22.5	28.5	GRAY SANDSTONE INTERBEDDED WITH SILTSHALE AND CLAY								VISUAL	
		28.5	31.3	GRAY BRECCIA								VISUAL	
		31.3	95.0	GRAY SANDSTONE								VISUAL	
R-454	520+24.4	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	88.4 ft. RT	0.4	3.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		3.0	5.5	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		5.5	8.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE.								VISUAL	
		8.0	21.1	BROWN SANDSTONE								VISUAL	
		21.1	45.7	GRAY SANDSTONE INTERBEDDED WITH SHALE								VISUAL	
		45.7	60.0	GRAY SANDSTONE								VISUAL	
		60.0	70.0	GRAY SANDSTONE INTERBEDDED WITH SHALE								VISUAL	
R-453	520+24.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	82.1 ft LT	0.3	3.0	BROWN GRAVEL WITH SAND, SILT, AND CLAY (A-2-6)								VISUAL	
		3.0	5.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		5.5	9.0	SEVERELY WEATHERED BROWN AND GRAY CLAYSHALE.								VISUAL	
		9.0	13.0	SEVERELY WEATHERED BROWN SANDSTONE.								VISUAL	
		13.0	19.2	BROWN SANDSTONE								VISUAL	
		19.2	20.2	BROWN AND GRAY BRECCIA								VISUAL	
		20.2	23.7	GRAY SILTSTONE								VISUAL	
		23.7	105.0	GRAY SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg SR-823	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
R-2455	524+19.6	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	174.3 ft. LT	0.2	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	5.5	MOTTLED BROWN AND GRAY SILTY CLAY (A-6b)								VISUAL	
		5.5	10.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		10.0	23.8	BROWN SANDSTONE								VISUAL	
		23.8	130.0	GRAY SANDSTONE								VISUAL	
R-455	524+19.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	174.3 ft. LT	0.3	15.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		15.0	15.5	BROWN AND GRAY BRECCIA								VISUAL	
REPLACED BY R-2455		15.5	105.0	GRAY SANDSTONE								VISUAL	
R-456	524+22.5	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	1.9 ft. RT	0.3	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	8.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		8.0	10.5	BLACK CLAY (A-7-6)								VISUAL	
		10.5	15.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		15.0	21.1	GRAY SANDSTONE								VISUAL	
		21.1	25.0	BROWN AND GRAY SANDSTONE								VISUAL	
		25.0	115.0	GRAY SANDSTONE								VISUAL	*
R-2457	524+32.7	0.0	0.1	TOPSOIL (VISUAL)								VISUAL	
	189.2 ft. RT	0.1	3.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.5	11.5	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL	
		11.5	22.5	BROWNISH GRAY SANDSTONE								VISUAL	
		22.5	81.0	GRAY SANDSTONE								VISUAL	
R-457	524+32.7	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	189.2 ft. RT	0.4	8.0	BROWN SANDY SILT (A-4a)								VISUAL	
		8.0	19.5	LIGHT BROWN AND BROWN SANDSTONE								VISUAL	
REPLACED BY R-2457		19.5	106.0	GRAY SANDSTONE								VISUAL	
R-459	528+20.4	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	1.4 ft. RT	0.3	1.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		1.0	2.5	0	1	6	50	43	53	32	27	A-7-6	
		2.5	3.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		3.5	5.0	0	0	1	51	48	58	37	26	A-7-6	
		5.0	8.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		8.5	10.0	0	0	0	47	53	57	35	27	A-7-6	
		10.0	13.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		13.5	20.0	GRAY CLAY (A-7-6)								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
		SR-823									
B-1226	528+26	0.0 - 0.6	TOPSOIL (VISUAL)								VISUAL
	106 ft. RT	0.6 - 1.0	BROWN SANDY SILT (A-4a)								VISUAL
		1.0 - 2.5	1	3	20	49	27	26	10	11	A-4a
		2.5 - 3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5 - 5.0	2	7	23	47	21	25	8	13	A-4a
		5.0 - 10.0	BROWN SANDY SILT (A-4a)								VISUAL
		10.0 - 12.0	0	0	0	10	90	63	39	31	A-7-6
		12.0 - 12.5	2	7	22	45	24	28	3	17	A-4a
		12.5 - 13.5	MOTTLED LIGHT BROWN AND GRAY CLAY (A-7-6)								VISUAL
		13.5 - 15.0	0	0	0	10	90	70	47	34	A-7-6
		15.0 - 16.0	MOTTLED LIGHT BROWN AND GRAY CLAY (A-7-6)								VISUAL
		16.0 - 17.5	0	0	0	14	86	58	35	34	A-7-6
		17.5 - 22.0	GRAY CLAY (A-7-6)								VISUAL
		22.0 - 24.0	9	4	21	44	22	26	9	18	A-4a
		24.0 - 50.0	GRAY CLAY (A-7-6)								VISUAL
B-1225	528+44	0.0 - 0.4	TOPSOIL (VISUAL)								VISUAL
	118 ft. LT	0.4 - 1.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		1.5 - 11.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		11.0 - 38.5	GRAY CLAY (A-7-6)								VISUAL
		38.5 - 44.0	SEVERELY WEATHERED GRAY SANDSTONE (VISUAL)								VISUAL
R-461	529+17.9	0.0 - 0.4	TOPSOIL (VISUAL)								VISUAL
	97.4 ft. LT	0.4 - 1.0	BROWN CLAY (A-7-6)								VISUAL
		1.0 - 2.5	0	0	1	52	47	54	32	25	A-7-6
		2.5 - 3.5	BROWN CLAY (A-7-6)								VISUAL
		3.5 - 5.0	0	0	0	51	49	56	35	27	A-7-6
		5.0 - 11.0	BROWN CLAY (A-7-6)								VISUAL
		11.0 - 12.5	0	0	0	48	52	59	36	28	A-7-6
		12.5 - 16.0	BROWN CLAY (A-7-6)								VISUAL
		16.0 - 30.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
R-462	529+19.5	0.0 - 0.3	TOPSOIL (VISUAL)								VISUAL
	2.0 ft. RT	0.3 - 3.5	BROWN CLAY (A-7-6)								VISUAL
		3.5 - 5.0	0	0	0	69	31	54	27	24	A-7-6
		5.0 - 11.0	BROWN CLAY (A-7-6)								VISUAL
		11.0 - 12.5	0	0	0	48	52	59	34	27	A-7-6
		12.5 - 21.0	BROWN CLAY (A-7-6)								VISUAL
		21.0 - 30.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL
R-463	529+20.1	0.0 - 0.3	TOPSOIL (VISUAL)								VISUAL
	93.2 ft. RT	0.3 - 3.5	BROWN AND LIGHT GRAY CLAY (A-7-6)								VISUAL
		3.5 - 5.0	8	4	12	48	28	46	25	18	A-7-6
		5.0 - 8.5	BROWN AND LIGHT GRAY CLAY (A-7-6)								VISUAL
		8.5 - 10.0	0	0	0	48	52	62	38	30	A-7-6
		10.0 - 30.0	BROWN AND LIGHT GRAY CLAY (A-7-6)								VISUAL

Boring	Station & Offset	Depth From To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
		SR-823									
B-1224	531+07	0.0 - 0.3	TOPSOIL (VISUAL)								VISUAL
	18.5 ft. RT	0.3 - 2.0	28	4	21		47		25	10	15	A-4b
		2.0 - 4.0	1	2	7	27	63	49	27	22	A-7-6
		4.0 - 6.0	1	0	0	10	89	58	34	23	A-7-6
		6.0 - 18.5	BROWN CLAY (A-7-6)								VISUAL
		18.5 - 20.0	0	0	1	11	88	30	14	31	A-6a
		20.0 - 23.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		23.5 - 73.5	GRAY CLAY (A-7-6)								VISUAL
		73.5 - 74.5	26	14	14		46		NP	NP	15	A-4a
		74.5 - 79.5	GRAY SANDY SILT (A-4a)								VISUAL
		79.5 - 84.5	GRAY SANDSTONE INTERBEDDED WITH SHALE								VISUAL
R-466	533+18.7	0.0 - 0.2	TOPSOIL (VISUAL)								VISUAL
	138.2 ft. RT	0.2 - 4.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		4.0 - 8.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL
		8.0 - 8.5	BROWN CLAY (A-7-6)								VISUAL
		8.5 - 10.0	0	0	2	16	82	55	32	28	A-7-6
		10.0 - 18.5	BROWN CLAY (A-7-6)								VISUAL
		18.5 - 20.0	0	0	1	9	90	59	32	34	A-7-6
		20.0 - 23.5	BROWN CLAY (A-7-6)								VISUAL
		23.5 - 25.0	0	0	0	3	97	62	37	37	A-7-6
		25.0 - 30.0	BROWN CLAY (A-7-6)								VISUAL
		30.0 - 38.5	GRAY CLAY (A-7-6)								VISUAL
		38.5 - 40.0	0	0	0	9	91	60	34	36	A-7-6
		40.0 - 52.0	GRAY CLAY (A-7-6)								VISUAL
		52.0 - 57.0	GRAY SILT AND CLAY (A-6a)								VISUAL
		57.0 - 59.8	GRAYISH BROWN GRAVEL (A-1-a)								VISUAL
R-464	533+20.3	0.0 - 0.3	TOPSOIL (VISUAL)								VISUAL
	143.7 ft. LT	0.3 - 5.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		5.5 - 6.0	BROWN CLAY (A-7-6)								VISUAL
		6.0 - 7.5	0	0	1	45	54	55	33	22	A-7-6
		7.5 - 13.5	BROWN CLAY (A-7-6)								VISUAL
		13.5 - 15.0	0	0	0	45	55	63	39	21	A-7-6
		15.0 - 18.5	BROWN CLAY (A-7-6)								VISUAL
		18.5 - 21.0	GRAY CLAY (A-7-6)								VISUAL
		21.0 - 23.0	0	1	1	11	87	59	33	35	A-7-6
		23.0 - 46.5	GRAY CLAY (A-7-6)								VISUAL
		46.5 - 48.5	GRAY SILT (A-4b)								VISUAL
		48.5 - 50.0	0	0	1	82	17	23	2	27	A-4b
		50.0 - 52.0	GRAY SILT (A-4b)								VISUAL
		52.0 - 57.0	GRAY GRAVEL WITH SAND (A-1-b)								VISUAL
		57.0 - 58.8	SEVERELY WEATHERED GRAY SHALE.								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
R-465	533+20.9	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	2.3 ft. RT	0.3	6.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		6.0	13.5	BROWN CLAY (A-7-6)								VISUAL	
		13.5	18.0	GRAY CLAY (A-7-6)								VISUAL	
		18.0	20.0	0	0	0	18	82	52	29	26	A-7-6	
		20.0	53.5	GRAY CLAY (A-7-6)								VISUAL	
		53.5	57.0	GRAY GRAVEL WITH SAND (A-1-b)								VISUAL	
		57.0	58.6	BROWN SANDSTONE FRAGMENTS.								VISUAL	
B-1223	535+28.2	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	7.1 ft. LT	0.5	1.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		1.0	2.5	0	1	10	46	43	34	18	20	A-6b	
		2.5	3.5	BROWN SILTY CLAY (A-6b)								VISUAL	
		3.5	5.0	0	3	4	93		58	33	21	A-7-6	
		5.0	6.0	BROWN CLAY (A-7-6)								VISUAL	
		6.0	7.5	0	0	0	7	93	60	34	30	A-7-6	
		7.5	8.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		8.0	10.0	0	0	0	17	83	57	31	31	A-7-6	
		10.0	13.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		13.5	18.0	GRAY CLAY (A-7-6)								VISUAL	
		18.0	20.0	0	0	0	5	95	67	41	40	A-7-6	
		20.0	28.0	GRAY CLAY (A-7-6)								VISUAL	
		28.0	30.0	0	0	0	21	79	58	34	36	A-7-6	
		30.0	38.5	GRAY CLAY (A-7-6)								VISUAL	
		38.5	43.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		43.5	48.8	DECOMPOSED GRAY SILTSTONE								VISUAL	
C-22	535+49.4	0.0	0.6	TOPSOIL (VISUAL)								VISUAL	
	165.7 ft. RT	0.6	6.0	BROWN AND GRAY SILTY CLAY (A-6b)								VISUAL	
		6.0	7.5	0	0	8	48	44	39	24	25	A-6b	
		7.5	11.0	BROWN AND GRAY SILTY CLAY (A-6b)								VISUAL	
		11.0	13.0	BROWN SANDY SILT (A-4a)								VISUAL	
		13.0	13.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		13.5	15.0	0	0	0	20	80	52	29	25	A-7-6	
		15.0	22.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		22.0	24.0	0	0	0	10	90	59	34	34	A-7-6	
		24.0	27.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		27.0	29.0	0	0	0	31	69	48	27	31	A-7-6	
		29.0	32.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		32.0	34.0	0	0	1	9	90	47	25	35	A-7-6	
		34.0	43.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		43.5	48.5	GRAY SANDY SILT (A-4a)								VISUAL	
		48.5	53.5	GRAY GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		53.5	54.0	GRAY SILT AND CLAY (A-6a)								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
				SR-823									
C-23	535+51.6	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	173.0 ft. LT	0.4	3.5	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		3.5	5.0	0	2	7	55	36	32	14	25	A-6a	
		5.0	10.0	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		10.0	11.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		11.0	12.5	1	0	1	22	76	52	29	30	A-7-6	
		12.5	18.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		18.0	20.0	0	0	0	4	96	77	50	39	A-7-6	
		20.0	23.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		23.0	25.0	0	0	0	40	60	43	23	29	A-7-6	
		25.0	28.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		28.0	30.0	0	0	0	25	75	50	27	34	A-7-6	
		30.0	38.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		38.5	43.5	GRAY GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		43.5	44.0	GRAY SILT AND CLAY (A-6a)								VISUAL	
TR-14	537+32.3	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	46.2 ft. LT	0.3	8.5	BROWN AND GRAY SILTY CLAY (A-6b)								VISUAL	
		8.5	13.0	BROWN CLAY (A-7-6)								VISUAL	
		13.0	15.0	0	0	0	7	93	65	37	28	A-7-6	
		15.0	33.5	BROWN CLAY (A-7-6)								VISUAL	
		33.5	44.0	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL	
		44.0	54.0	GRAY SILTSTONE								VISUAL	
				RELOCATED SHUMWAY HOLLOW ROAD (TR 234)									
B-1343	11+27.5	0.0	0.7	TOPSOIL (VISUAL)								VISUAL	
	98.8 ft. RT	0.7	6.0	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		6.0	11.5	BROWN SANDSTONE								VISUAL	
		11.5	68.7	GRAY AND BROWN SANDSTONE INTERBEDDED WTIH SILTSTOI								VISUAL	
		68.7	85.0	GRAY SANDSTONE INTERBEDDED WITH SILTSTONE								VISUAL	
B-1301	12+25.7	0.0	0.3	ASPHALT CONCRETE (VISUAL)								VISUAL	
	4.4 ft. RT	0.3	0.5	BROWN SILT (A-4b)								VISUAL	
		0.5	2.5	2	14	14	51	19	22	3	14	A-4b	
		2.5	4.5	9	28	13	31	19	25	7	12	A-4a	*
		4.5	5.5	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		5.5	10.5	BROWN SANDSTONE								VISUAL	
B-1302	12+65.4	0.0	0.1	TOPSOIL (VISUAL)								VISUAL	
	68.7 ft. LT	0.1	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
		6.0	7.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		7.0	10.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL	
		10.0	60.0	GRAY SANDSTONE								VISUAL	
B-1344	14+77.6	0.0	8.5	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
	128.1 ft. RT	8.5	10.7	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		10.7	25.0	BROWN AND GRAY SANDSTONE								VISUAL	
		25.0	40.8	GRAY SANDSTONE INTERBEDDED WITH SILTSTONE								VISUAL	
		40.8	42.9	GRAY SILTSTONE								VISUAL	
		42.9	46.8	GRAY SANDSTONE INTERBEDDED WITH SILTSTONE								VISUAL	
		46.8	55.0	GRAY SANDSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: CWohlbr; PLOT DATE: 6/21/2011 8:28:13 PM REVISION DATE: 6/21/2011 MODEL: Sheet1
FILE:...AHDR.Cu0000000000045878 /1945IDOT5.dgn

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
** DENOTES SAMPLE TAKEN AT OR NEAR GRADE*

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234)											
B-1303	15+22.1	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	25.7 ft. RT	0.2	2.0	18	17	19	35	11	21	3	4	A-4a	*
		2.0	4.0	20	18	14	35	13	23	4	6	A-4a	
		4.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
		6.0	7.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		7.0	15.0	BROWN AND GRAY SANDSTONE								VISUAL	
B-1304	16+58.1	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	46.1 ft. LT	0.3	18.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		18.5	22.0	SANDSTONE FRAGMENTS								VISUAL	
		22.0	45.0	GRAY SANDSTONE								VISUAL	
B-1311A	18+72.5	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	54.3 ft. RT	0.3	2.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		2.0	4.0	BROWN SANDY SILT (A-4a)								VISUAL	
		4.0	6.0	0	0	17	52	31	25	11	16	A-6a	
		6.0	11.0	MOTTLED BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		11.0	13.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		13.5	15.0	0	1	9	59	31	25	9	17	A-4b	
		15.0	21.0	BROWN SILT (A-4b)								VISUAL	
		21.0	24.0	BROWN GRAVEL WITH SAND (A-1-b)								VISUAL	
		24.0	28.0	YELLOWISH BROWN SANDSTONE								VISUAL	
		28.0	34.0	GRAY SANDSTONE								VISUAL	*
B-1305	20+45.2	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	27.5 ft. LT	0.3	6.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		6.0	7.5	2	13	22	26	37	41	21	15	A-7-6	
		7.5	11.0	BROWN CLAY (A-7-6)								VISUAL	
		11.0	13.5	BROWN SANDY SILT (A-4a)								VISUAL	
		13.5	16.0	BROWN CLAY (A-7-6)								VISUAL	
		16.0	18.5	BROWN SANDY SILT (A-4a)								VISUAL	
		18.5	20.0	2	13	46	21	18	23	5	12	A-4a	
		20.0	30.0	BROWN SANDY SILT (A-4a)								VISUAL	
		30.0	37.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		37.5	55.0	GRAY SANDSTONE								VISUAL	
B-1312A	22+83.2	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	68.1 ft. RT	0.3	3.5	BROWN SILT (A-4b)								VISUAL	
		3.5	5.0	5	13	15	52	15	20	3	11	A-4b	
		5.0	13.0	BROWN SILT (A-4b)								VISUAL	
		13.0	13.5	MOTTLED LIGHT BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		13.5	15.0	0	0	1	37	62	42	21	22	A-7-6	
		15.0	18.0	MOTTLED LIGHT BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		18.0	18.5	MOTTLED LIGHT BROWN AND GRAY SILT (A-4b)								VISUAL	
		18.5	20.0	2	6	9	65	19	26	7	15	A-4b	
		20.0	21.5	MOTTLED LIGHT BROWN AND GRAY SILT (A-4b)								VISUAL	
		21.5	23.5	DECOMPOSED SANDSTONE								VISUAL	
		23.5	33.7	BROWN SANDSTONE								VISUAL	*

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234)											
B-1306	24+39.4	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	6.2 ft. LT	0.3	2.0	BROWN SANDY SILT (A-4a)								VISUAL	
		2.0	9.0	BROWN SANDSTONE FRAGMENTS (VISUAL)								VISUAL	
		9.0	16.1	GRAY AND BROWN SANDSTONE								VISUAL	
		16.1	55.0	GRAY SANDSTONE								VISUAL	
C-47	26+04.1	0.0	0.8	TOPSOIL (VISUAL)								VISUAL	
	31.6 ft. LT	0.8	1.0	BROWN SANDY SILT (A-4a)								VISUAL	
		1.0	2.5	24	14	10	39	13	24	2	8	A-4a	
		3.0	10.1	SEVERELY WEATHERED BROWN SILTSTONE								VISUAL	
		10.1	15.0	BROWN SANDSTONE								VISUAL	
C-48	26+06.3	0.0	0.8	TOPSOIL (VISUAL)								VISUAL	
	84.8 ft. RT	0.8	1.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		1.0	2.5	9	7	6	48	30	33	13	12	A-6a	
		2.5	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.0	6.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		6.0	7.5	2	0	1	22	75	56	33	11	A-7-6	
		7.5	10.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		10.5	11.0	BROWN CLAY (A-7-6)								VISUAL	
		11.0	12.5	1	4	5	33	57	43	23	20	A-7-6	
		12.5	14.5	BROWN CLAY (A-7-6)								VISUAL	
		14.5	15.0	SEVERELY WEATHERED BROWN SILTSTONE								VISUAL	
		15.0	20.0	BROWN SANDSTONE								VISUAL	
B-1307A	27+08.6	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	11.6 ft. RT	0.5	3.5	REDDISH BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.5	5.0	5	11	7	47	30	34	15	16	A-6a	
		5.0	6.0	REDDISH BROWN SILT AND CLAY (A-6a)								VISUAL	
		6.0	8.5	MOTTLED RED AND BROWN SILTY CLAY (A-6b)								VISUAL	
		8.5	17.0	BROWN CLAY (A-7-6)								VISUAL	
		17.0	20.0	GRAY CLAY (A-7-6)								VISUAL	
		20.0	22.0	0	0	0	8	92	57	34	36	A-7-6	
		22.0	24.0	0	0	0	12	88	60	35	40	A-7-6	
		24.0	26.0	0	0	1	12	87	48	25	34	A-7-6	
		26.0	28.0	0	0	0	20	80	53	29	36	A-7-6	
		28.0	30.0	GRAY CLAY (A-7-6)								VISUAL	
C-50	27+12.8	0.0	0.7	TOPSOIL (VISUAL)								VISUAL	
	33.5 ft. LT	0.7	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.0	6.0	GRAYISH BROWN CLAY (A-7-6)								VISUAL	
		6.0	7.5	2	0	0	3	95	63	36	34	A-7-6	
		7.5	23.5	GRAYISH BROWN CLAY (A-7-6)								VISUAL	
		23.5	25.0	2	0	0	7	91	64	41	36	A-7-6	
		25.0	38.5	GRAYISH BROWN CLAY (A-7-6)								VISUAL	
		38.5	40.0	1	0	1	61	37	35	13	27	A-6a	
		40.0	48.5	GRAYISH BROWN SILT AND CLAY (A-6a)								VISUAL	
		48.5	50.0	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL	
		50.0	55.0	GRAY SILTSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:28:18 PM REVISION DATE: 6/21/2011
FILE:...4\HDR.Cvb000000004578 /S4SIDO16.dgn MODEL: Sheet

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234)											
C-49	27+12.8	0.0	0.6	TOPSOIL (VISUAL)								VISUAL	
	55.7 ft. RT	0.6	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.0	6.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		6.0	7.5	0	0	0	4	96	66	41	34	A-7-6	
		7.5	13.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		13.5	15.0	0	0	1	9	90	75	47	39	A-7-6	
		15.0	26.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		26.0	27.5	0	0	2	30	68	47	25	31	A-7-6	
		27.5	30.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		30.0	39.0	GRAYISH BROWN SILTY CLAY (A-6b)								VISUAL	
		39.0	40.0	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL	
		40.0	41.8	GRAY SILTSTONE								VISUAL	
		41.8	45.0	GRAY SANDSTONE								VISUAL	
B-1307	27+52.4	0.0	0.7	TOPSOIL (VISUAL)								VISUAL	
	7.1 ft. LT	0.7	6.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		6.0	21.0	BROWN CLAY (A-7-6)								VISUAL	
		21.0	22.5	0	0	0	13	87	60	38	34	A-7-6	*
		22.5	23.5	BROWN CLAY (A-7-6)								VISUAL	
		23.5	25.0	0	0	0	12	88	57	28	33	A-7-6	
		25.0	26.0	BROWN CLAY (A-7-6)								VISUAL	
		26.0	27.5	0	0	1	21	78	54	30	32	A-7-6	
		27.5	42.0	BROWN CLAY (A-7-6)								VISUAL	
		42.0	47.0	GRAY SILT AND CLAY (A-6a)								VISUAL	
		47.0	49.5	GRAY SILTY CLAY (A-6b)								VISUAL	
		49.5	51.0	BROWN SANDY SILT (A-4a)								VISUAL	
		51.0	52.0	GRAY SILTY CLAY (A-6b)								VISUAL	
		52.0	58.8	GRAY SANDSTONE								VISUAL	
B-1313A	31+03.5	0.0	2.0	TOPSOIL (VISUAL)								VISUAL	
	6.1 ft. RT	0.7	2.0	0	2	5	73	20	26	7	13	A-4b	
		2.0	4.7	BROWN SILT (A-4b)								VISUAL	
		4.0	6.0	3	6	8	59	24	25	7	18	A-4b	
		6.0	8.0	BROWN SILT (A-4b)								VISUAL	
C-46	32+44.6	0.0	1.0	TOPSOIL (VISUAL)								VISUAL	
	52.1 ft. LT	1.0	2.5	0	2	24	31	43	34	17	18	A-6b	*
		2.5	6.0	LIGHT BROWN SILTY CLAY (A-6b)								VISUAL	
		6.0	7.5	0	6	70	6	18	28	10	16	A-2-4	
		7.5	13.5	LIGHT BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		13.5	15.0	0	0	1	60	39	36	18	34	A-6b	
		15.0	16.4	GRAY SILTY CLAY (A-6b)								VISUAL	
		16.4	18.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		18.0	23.0	GRAY SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234)											
C-45	32+40.8	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	72.7 ft. RT	0.4	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.0	3.5	BROWN SILTY CLAY (A-6b)								VISUAL	
		3.5	5.0	0	0	56	18	26	35	19	21	A-6b	
		5.0	5.5	BROWN SILTY CLAY (A-6b)								VISUAL	
		5.5	8.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		8.5	10.0	0	19	70		11		NP	NP	17	A-3a
		10.0	15.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		15.0	16.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		16.0	17.5	0	7	8	45	40	37	16	35	A-6b	
		17.5	18.5	BROWN SILTY CLAY (A-6b)								VISUAL	
		18.5	20.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		20.0	25.0	GRAY SANDSTONE								VISUAL	
B-1308	33+72.3	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	1.1 ft. RT	0.2	3.5	BROWN SANDY SILT (A-4a)								VISUAL	
		3.5	8.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		8.5	11.0	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		11.0	12.5	0	1	3	51	45	34	13	28	A-6a	
		12.5	14.5	GRAY COARSE AND FINE SAND (A-3a)								VISUAL	
		14.5	20.0	GRAY SANDSTONE								VISUAL	
B-1314A	34+98.1	0.0	0.8	TOPSOIL (VISUAL)								VISUAL	
	11.4 ft. RT	0.8	2.0	0	2	14	53	31	29	12	17	A-6a	
		2.0	4.0	1	1	29	42	27	23	10	20	A-4a	
		4.0	6.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
TR-27	35+91.3	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	5.9 ft. LT	0.4	7.5	BROWN SANDY SILT (A-4a)								VISUAL	
		7.5	17.5	BROWN AND GRAY SANDSTONE								VISUAL	
B-25	36+59.3	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	49.2 ft. RT	0.5	1.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		1.0	2.5	2	0	2	53	43	35	13	31	A-6a	
		2.5	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.0	4.5	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		4.5	14.5	GRAY SANDSTONE INTERBEDDED WITH SILTSTONE								VISUAL	
B-24	36+59.8	0.0	0.6	TOPSOIL (VISUAL)								VISUAL	
	43.4 ft. LT	0.6	1.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		1.0	2.5	0	1	1	65	33	32	11	31	A-6a	
		2.5	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.0	5.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		5.0	15.0	GRAY SANDSTONE INTERBEDDED WITH SILTSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: CWohlbr1 PLOT DATE: 6/21/2011 8:28:22 PM REVISION DATE: 6/21/2011
FILE:...\MHDR_CU0000000004578 /1845ID017.dgn MODEL: Sheet

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
** DENOTES SAMPLE TAKEN AT OR NEAR GRADE*

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234)											
B-27	38+04.1	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	39.7 ft. RT	0.4	1.0	BROWN SANDY SILT (A-4a)								VISUAL	
		1.0	2.5	1	4	33	36	26	21	9	17	A-4a	
		2.5	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	6.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		6.0	7.5	0	7	80		13		NP	NP	14	A-3a
		7.5	11.6	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		11.6	12.5	0	1	1	52	46	39	16	33	A-6b	
		12.5	13.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		13.0	16.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		16.5	36.5	GRAY SANDSTONE								VISUAL	
B-28	38+06.7	0.0	0.7	TOPSOIL (VISUAL)								VISUAL	
	35.3 ft. LT	0.7	3.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.5	5.0	3	3	32	30	32	26	11	20	VISUAL	
		5.0	5.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		5.5	11.0	BROWN FINE SAND (A-3)								VISUAL	
		11.0	12.5	0	7	87		6		NP	NP	9	VISUAL
		12.5	15.5	BROWN FINE SAND (A-3)								VISUAL	
		15.5	16.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		16.0	17.5	0	0	1	56	43	35	11	34	VISUAL	
		17.5	37.5	GRAY SANDSTONE								VISUAL	
TR-28	38+20.7	0.0	0.7	ASPHALT CONCRETE (VISUAL)								VISUAL	
	17.8 ft. RT	0.7	3.0	BROWN SILT AND CLAY (A-6a)								VISUAL	*
		3.0	15.5	REDDISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		15.5	18.5	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		18.5	30.5	GRAY SANDSTONE								VISUAL	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234) - RAMP A											
B-1313	386+92.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	5.0 ft. RT	0.3	2.0	1	4	14	52	29	27	9	14	A-4b	*
		2.0	4.0	1	4	29	26	40	NP	NP	13	A-4a	
		4.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
		6.0	15.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
B-1314	390+91.6	0.0	1.0	TOPSOIL (VISUAL)								VISUAL	
	35.9 ft. LT	1.0	6.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		6.0	13.5	BROWN CLAY (A-7-6)								VISUAL	
		13.5	15.5	1	2	4	21	72	51	26	29	A-7-6	
		15.5	16.0	BROWN CLAY (A-7-6)								VISUAL	
		16.0	21.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		21.0	22.5	0	0	88		12		NP	NP	5	A-3a
		22.5	30.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		30.0	35.0	GRAY SILT AND CLAY (A-6a)								VISUAL	
		35.0	41.3	GRAY SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234) - RAMP A										
B-1315	390+91.9	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	81.3 ft. RT	1.0	3.5	BROWN SANDY SILT (A-4a)								VISUAL
		3.5	6.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		6.0	11.0	BROWN CLAY (A-7-6)								VISUAL
		11.0	28.5	BROWN FINE SAND (A-3)								VISUAL
		28.5	33.0	GRAY SILT AND CLAY (A-6a)								VISUAL
		33.0	38.1	GRAY SANDSTONE								VISUAL
B-1316	394+92.4	0.0	0.8	TOPSOIL (VISUAL)								VISUAL
	88.2 ft. RT	0.8	6.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		6.0	16.0	BROWN CLAY (A-7-6)								VISUAL
		16.0	18.5	BROWN FINE SAND (A-3)								VISUAL
		18.5	26.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		26.0	30.0	BROWN FINE SAND (A-3)								VISUAL
		30.0	38.5	GRAY SILT AND CLAY (A-6a)								VISUAL
		38.5	41.0	GRAY SANDY SILT (A-4a)								VISUAL
		41.0	50.0	GRAY SANDSTONE								VISUAL
B-1317	399+02.0	0.0	0.8	TOPSOIL (VISUAL)								VISUAL
	54.0 ft. RT	0.8	8.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		8.5	11.0	BROWN CLAY (A-7-6)								VISUAL
		11.0	12.5	1	0	1	23	75	60	35	33	A-7-6
		12.5	18.5	BROWN CLAY (A-7-6)								VISUAL
		18.5	20.0	0	1	1	17	81	57	33	31	A-7-6
		20.0	22.5	BROWN CLAY (A-7-6)								VISUAL
		22.5	26.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		26.0	27.5	0	2	79		19		NP	NP	8	A-3a
		27.5	37.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		37.0	40.0	GRAY GRAVEL WITH SAND (A-1-b)								VISUAL
		40.0	50.0	GRAY SANDSTONE								VISUAL
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234) - RAMP B										
B-1311	376+49.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	7.8 ft. LT	0.3	6.0	BROWN SANDY SILT (A-4a)								VISUAL
		6.0	8.7	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		8.7	14.0	GRAY SANDSTONE								VISUAL
B-1312	380+53.0	0.0	0.5	TOPSOIL (VISUAL)								VISUAL
	10.8 ft. LT	0.5	1.0	BROWN SANDY SILT (A-4a)								VISUAL
		1.0	2.5	0	3	27	42	28	21	7	20	A-4a
		2.5	6.0	BROWN SANDY SILT (A-4a)								VISUAL
		6.0	8.5	GRAY SILTY CLAY (A-6b)								VISUAL
		8.5	10.0	SANDSTONE FRAGMENTS								VISUAL
		10.0	15.5	GRAY SANDSTONE								VISUAL
C-43	383+41.7	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	80.4 ft. RT	1.0	2.5	0	2	46	25	27	24	12	13	A-6a
		2.5	3.5	LIGHT BROWN SILT AND CLAY (A-6a)								VISUAL
		3.5	6.0	MOTTLED BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL
		6.0	7.5	0	5	32	28	35	25	12	17	A-6a
		7.5	8.5	MOTTLED BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL
		8.5	10.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		10.0	15.0	GRAY SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:28:27 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C\B0000000045878 /9145ID018.dgn MODEL: Sheet

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234) - RAMP B											
C-44	383+43.2	0.0	0.6	TOPSOIL (VISUAL)								VISUAL	
	63.4 ft. LT	0.6	3.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.5	5.0	0	5	57	5	33	29	13	16	A-6a	
		5.0	8.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		8.0	11.0	BROWN FINE SAND (A-3)								VISUAL	
		11.0	12.5	1	9	82	8		NP	NP	34	A-3	
		12.5	13.6	BROWN FINE SAND (A-3)								VISUAL	
		13.6	15.5	GRAY CLAY (A-7-6)								VISUAL	
		15.5	17.0	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		17.0	22.0	GRAY SANDSTONE								VISUAL	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234) - RAMP C											
B-1330	377+97.4	0.0	1.0	TOPSOIL (VISUAL)								VISUAL	
	0.3 ft. RT	1.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
		6.0	9.5	SANDSTONE FRAGMENTS								VISUAL	
		9.5	15.0	GRAY SANDSTONE								VISUAL	
C-42	378+92.4	0.0	0.9	TOPSOIL (VISUAL)								VISUAL	
	71.2 ft. RT	0.9	8.0	BROWN SANDY SILT (A-4a)								VISUAL	
		8.0	10.5	BROWN CLAY (A-7-6)								VISUAL	
		10.5	13.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		13.0	16.5	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		16.5	21.5	GRAY SANDSTONE								VISUAL	
C-41	378+99.8	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	57.4 ft. LT	0.3	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	8.5	BROWN SILTSTONE								VISUAL	
		8.5	10.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		10.0	12.3	BROWN SANDSTONE								VISUAL	
		12.3	15.0	GRAY SANDSTONE								VISUAL	
B-1329	382+01.8	0.0	1.0	TOPSOIL (VISUAL)								VISUAL	
	0.8 ft. RT	1.0	2.5	8	10	9	48	25	27	8	10	A-4a	*
		2.5	11.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
		11.0	18.5	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		18.5	20.5	SEVERELY WEATHERED GRAY SHALE								VISUAL	
		20.5	26.0	GRAY SANDSTONE								VISUAL	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234) - RAMP D											
B-1327	385+91.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	81.5 ft. LT	0.3	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
		6.0	16.7	BROWN AND GRAY SANDSTONE								VISUAL	
		16.7	60.0	GRAY SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234) - RAMP D											
B-1328	385+92.3	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	13.3 ft. LT	0.5	8.5	BROWN SANDY SILT (A-4a)								VISUAL	
		8.5	11.0	BROWN CLAY (A-7-6)								VISUAL	
		11.0	13.0	0	0	1	3	96	66	37	33	A-7-6	
		13.0	16.0	BROWN CLAY (A-7-6)								VISUAL	
		16.0	18.0	0	0	1	12	87	69	39	36	A-7-5	
		18.0	18.5	BROWN ELASTIC CLAY (A-7-5)								VISUAL	
		18.5	23.5	BROWN CLAY (A-7-6)								VISUAL	
		23.5	30.0	BROWN SANDY SILT (A-4a)								VISUAL	
		30.0	34.5	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		34.5	40.0	BROWN SANDSTONE								VISUAL	
B-1345	385+95.4	0.0	0.8	TOPSOIL (VISUAL)								VISUAL	
	48.8 ft. LT	0.8	3.5	REDDISH BROWN SANDY SILT (A-4a)								VISUAL	
		3.5	7.0	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		7.0	13.8	BROWN SANDSTONE								VISUAL	
		13.8	25.8	GRAY AND BROWN SILTSTONE INTERBEDDED W/ SANDSTONE								VISUAL	
		25.8	65.0	GRAY SANDSTONE INTERBEDDED WITH SILTSTONE								VISUAL	
B-1326	387+86.2	0.0	1.0	TOPSOIL (VISUAL)								VISUAL	
	110.0 ft. RT	1.0	6.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
		6.0	18.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		18.5	26.0	GRAY CLAY (A-7-6)								VISUAL	
		26.0	28.0	0	0	0	5	95	63	36	37	A-7-6	
		28.0	52.0	GRAY CLAY (A-7-6)								VISUAL	
		52.0	63.5	BROWN FINE SAND (A-3)								VISUAL	
		63.5	69.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		69.0	74.0	GRAY SANDSTONE								VISUAL	
B-1325	389+95.6	0.0	1.0	TOPSOIL (VISUAL)								VISUAL	
	10.9 ft. LT	1.0	11.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		11.0	12.5	6	7	8	44	35	32	16	14	A-6b	
		12.5	21.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		21.0	28.5	BROWN CLAY (A-7-6)								VISUAL	
		28.5	33.5	GRAY CLAY (A-7-6)								VISUAL	
		33.5	35.0	0	0	1	26	73	50	29	33	A-7-6	*
		35.0	52.0	BROWN CLAY (A-7-6)								VISUAL	
		52.0	58.5	BROWN SANDY SILT (A-4a)								VISUAL	
		58.5	64.5	SEVERELY WEATHERED SANDSTONE								VISUAL	
		64.5	69.5	GRAY SANDSTONE								VISUAL	
B-1324	390+07.1	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	74.5 ft. LT	0.3	6.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		6.0	26.0	BROWN SANDY SILT (A-4a)								VISUAL	
		26.0	30.0	SEVERELY WEATHERED GRAY SHALE								VISUAL	
		30.0	35.0	SANDSTONE FRAGMENTS								VISUAL	
		35.0	65.0	GRAY SANDSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234) - RAMP D											
B-1323	391+91.7	0.0	0.6	TOPSOIL (VISUAL)								VISUAL	
	74.0 ft. RT	0.6	8.5	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		8.5	13.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		13.0	15.0	0	0	0	15	85	55	28	39	A-7-6	
		15.0	18.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		18.5	20.0	0	0	1	7	92	57	31	32	A-7-6	
		20.0	21.0	GRAY ELASTIC CLAY (A-7-5)								VISUAL	
		21.0	23.0	0	0	0	6	94	61	30	37	A-7-5	
		23.0	25.0	GRAY ELASTIC CLAY (A-7-5)								VISUAL	
		23.5	25.0	0	0	1	16	83	55	30	34	A-7-5	
		25.0	26.0	GRAY ELASTIC CLAY (A-7-5)								VISUAL	
		26.0	27.5	0	0	0	4	96	60	33	36	A-7-6	
		27.5	44.0	GRAY CLAY (A-7-6)								VISUAL	
		44.0	47.0	GRAY SILT AND CLAY (A-6a)								VISUAL	
		47.0	57.0	GRAY CLAY (A-7-6)								VISUAL	
		57.0	60.0	BROWN FINE SAND (A-3)								VISUAL	
		60.0	68.5	BROWN SANDY SILT (A-4a)								VISUAL	
		68.5	74.0	SANDSTONE FRAGMENTS								VISUAL	
		74.0	79.5	GRAY SANDSTONE								VISUAL	
B-1321	393+97.0	0.0	0.6	TOPSOIL (VISUAL)								VISUAL	
	100.8 ft. LT	0.6	13.5	BROWN SANDY SILT (A-4a)								VISUAL	
		13.5	16.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		16.0	26.0	GRAY CLAY (A-7-6)								VISUAL	
		26.0	27.5	0	0	0	23	77	54	30	34	A-7-6	
		27.5	30.0	GRAY CLAY (A-7-6)								VISUAL	
		30.0	33.5	GRAY SILTY CLAY (A-6b)								VISUAL	
		33.5	35.0	0	0	3	43	54	40	21	27	A-6b	
		35.0	42.0	GRAY SILTY CLAY (A-6b)								VISUAL	
		42.0	47.0	GRAY SILT AND CLAY (A-6a)								VISUAL	
		47.0	55.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		55.0	60.0	GRAY SANDSTONE								VISUAL	
B-1322	393+99.8	0.0	1.0	TOPSOIL (VISUAL)								VISUAL	
	9.4 ft. LT	1.0	3.0	BROWN SANDY SILT (A-4a)								VISUAL	
		3.0	8.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		8.5	10.5	0	0	1	17	82	54	30	30	A-7-6	
		10.5	16.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		16.0	17.5	0	0	0	11	89	61	37	33	A-7-6	*
		17.5	18.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		18.5	20.5	0	0	0	10	90	56	23	33	A-7-5	
		20.5	21.0	BROWN ELASTIC CLAY (A-7-5)								VISUAL	
		21.0	22.5	0	0	0	8	92	52	28	34	A-7-6	
		22.5	28.5	GRAY CLAY (A-7-6)								VISUAL	
		28.5	30.5	0	0	0	6	94	63	37	37	A-7-6	
		30.5	57.0	GRAY CLAY (A-7-6)								VISUAL	
		57.0	60.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		60.0	67.0	BROWN SANDY SILT (A-4a)								VISUAL	
		67.0	70.0	SEVERELY WEATHERED SHALE								VISUAL	
		70.0	72.0	GRAY SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
		RELOCATED SHUMWAY HOLLOW ROAD (TR 234) - RAMP D										
B-1320	397+98.2	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	5.3 ft. LT	1.0	3.5	BROWN SILTY CLAY (A-6b)								VISUAL
		3.5	18.5	BROWN CLAY (A-7-6)								VISUAL
		18.5	20.5	0	1	1	3	95	63	34	35	A-7-6
		20.5	33.0	BROWN CLAY (A-7-6)								VISUAL
		33.0	35.0	0	0	0	5	95	54	26	37	A-7-6
		35.0	42.0	BROWN CLAY (A-7-6)								VISUAL
		42.0	47.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		47.0	53.5	GRAY SILT AND CLAY (A-6a)								VISUAL
		53.5	55.0	SEVERELY WEATHERED LIGHT GRAY SANDSTONE								VISUAL
		55.0	60.0	GRAY SANDSTONE								VISUAL
B-1319	397+99.0	0.0	0.5	TOPSOIL (VISUAL)								VISUAL
	124.9 ft. LT	0.5	1.0	BROWN SILTY CLAY (A-6b)								VISUAL
		1.0	2.5	1	1	2	54	42	35	17	21	A-6b
		2.5	3.5	BROWN SILTY CLAY (A-6b)								VISUAL
		3.5	5.0	0	0	1	15	84	46	22	16	A-7-6
		5.0	30.0	BROWN CLAY (A-7-6)								VISUAL
		30.0	47.0	GRAY CLAY (A-7-6)								VISUAL
		47.0	55.0	BROWN SANDY SILT (A-4a)								VISUAL
		55.0	60.0	GRAY SANDSTONE								VISUAL
B-1318	402+06.6	0.0	1.0	TOPSOIL (VISUAL)								VISUAL
	111.0 ft. LT	1.0	6.0	BROWN SILT AND CLAY (A-6a)								VISUAL
		6.0	8.5	BROWN CLAY (A-7-6)								VISUAL
		8.5	10.5	7	0	1	7	85	66	37	28	A-7-6
		10.5	18.5	BROWN CLAY (A-7-6)								VISUAL
		18.5	20.5	0	0	0	12	88	58	30	37	A-7-6
		20.5	28.5	BROWN CLAY (A-7-6)								VISUAL
		28.5	30.0	BROWN FINE SAND (A-3)								VISUAL
		30.0	38.5	BROWN SILT AND CLAY (A-6a)								VISUAL
		38.5	42.0	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL
		42.0	47.0	GRAY SANDSTONE								VISUAL
		SR-335										
B-1334	8+81.4	0.0	0.8	ASPHALT CONCRETE (VISUAL)								VISUAL
	6.3 ft. LT	0.8	1.1	AGGREGATE BASE (VISUAL)								VISUAL
		1.1	2.0	13	10	23	41	13	21	7	9	A-4a
		2.0	4.0	0	14	70	16		NP	NP	7	A-3a
		4.0	6.0	0	13	76	11		NP	NP	9	A-3a
		6.0	7.5	0	20	74	6		NP	NP	17	A-3
		7.5	8.0	BROWN FINE SAND (A-3)								VISUAL
		8.0	8.5	BROWN ELASTIC CLAY (A-7-5)								VISUAL
		8.5	10.0	2	3	4	56	35	44	14	29	A-7-5
		10.0	10.5	BROWN ELASTIC CLAY (A-7-5)								VISUAL
		10.5	14.0	GRAYISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		14.0	19.0	GRAY SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

25
135

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		SR-335											
B-1342	10+59.4	0.0	1.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
	11.7 ft. LT	1.0	2.5	1	2	26	30	42	28	14	19	A-6a	
		2.5	3.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.5	5.0	0	4	56	14	26	26	13	17	A-6a	
		5.0	6.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		6.5	7.5	0	8	79	13		NP	NP	13	A-3a	
		7.5	14.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		14.0	15.0	1	1	2	63	34	38	16	30	A-6b	
		15.0	15.5	BROWN SILTY CLAY (A-6b)								VISUAL	
		15.5	19.5	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		19.5	30.9	LIGHT GRAY SANDSTONE								VISUAL	
		30.9	49.5	GRAY SANDSTONE								VISUAL	
B-1333	11+30.6	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	6.3 ft. LT	0.3	2.0	32	18	21	22	7	NP	NP	6	A-2-4	*
		2.0	4.0	0	7	61	10	22	24	8	14	A-2-4	
		4.0	6.0	0	2	69	9	20	NP	NP	12	A-3a	
		6.0	7.5	0	15	68	17		NP	NP	12	A-3a	
		7.5	8.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		8.0	11.0	BROWN FINE SAND (A-3)								VISUAL	
		11.0	12.5	0	24	72	4		NP	NP	29	A-3	
		12.5	13.0	BROWN FINE SAND (A-3)								VISUAL	
		13.0	13.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		13.5	15.0	0	0	1	60	39	35	11	32	A-6a	
		16.0	18.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		18.0	30.0	GRAY SANDSTONE								VISUAL	
B-1341	12+08.0	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	11.6 ft. LT	0.3	3.0	DARK BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		3.0	3.5	REDDISH BROWN SANDY SILT (A-4a)								VISUAL	
		3.5	5.0	0	7	48	15	30	23	10	15	A-4a	
		5.0	5.5	REDDISH BROWN SANDY SILT (A-4a)								VISUAL	
		5.5	6.0	REDDISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		6.0	7.5	0	8	78	14		NP	NP	15	A-3a	
		7.5	11.0	REDDISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		11.0	12.5	0	1	1	62	36	35	15	31	A-6a	
		12.5	14.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		14.0	16.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		16.0	24.1	LIGHT GRAY SANDSTONE								VISUAL	
		24.1	46.0	GRAY SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		SR-335											
B-1332	12+80.2	0.0	0.7	ASPHALT CONCRETE (VISUAL)								VISUAL	
	5.5 ft. LT	0.7	1.0	AGGREGATE BASE (VISUAL)								VISUAL	
		1.0	2.0	22	14	17	40	7	NP	NP	11	A-4a	*
		2.0	2.5	BROWN SANDY SILT (A-4a)								VISUAL	
		2.5	4.0	49	19	13	19		NP	NP	7	A-1-b	
		4.0	4.5	BROWN GRAVEL WITH SAND (A-1-b)								VISUAL	
		4.5	6.0	0	6	42	36	16	NP	NP	17	A-4a	
		6.0	7.5	0	25	59	16		NP	NP	18	A-3a	
		7.5	10.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		10.5	11.0	MOTTLED BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		11.0	12.5	0	1	3	48	48	38	14	34	A-6a	
		12.5	14.0	MOTTLED BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		14.0	18.0	BROWN FINE SAND (A-3)								VISUAL	
		18.0	23.0	SANDSTONE								VISUAL	
B-1340	13+51.5	0.0	0.3	ASPHALT CONCRETE (VISUAL)								VISUAL	
	11.6 ft. LT	0.3	4.0	POSSIBLE FILL: BROWN SILT AND CLAY (A-6a)								VISUAL	
		4.0	5.0	10	7	29	37	17	21	5	16	A-4a	
		5.0	9.0	BROWN SANDY SILT (A-4a)								VISUAL	
		9.0	10.0	0	3	35	27	35	26	13	22	A-6a	
		10.0	11.0	MOTTLED BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		11.0	12.5	0	8	68	24		NP	NP	16	A-3a	
		12.5	15.0	GRAY COARSE AND FINE SAND (A-3a)								VISUAL	
		15.0	16.0	GRAY SANDSTONE								VISUAL	
		16.0	21.7	LIGHT GRAY SANDSTONE								VISUAL	
		21.7	45.0	GRAY SANDSTONE								VISUAL	
B-1331	14+29.4	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	5.6 ft. LT	0.4	2.0	7	15	26	52		NP	NP	14	A-4a	*
		2.0	4.0	0	3	36	34	27	21	8	19	A-4a	
		4.0	5.0	BROWN SANDY SILT (A-4a)								VISUAL	
		5.0	6.0	0	3	43	25	29	24	11	18	A-6a	
		6.0	6.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		6.5	7.5	0	20	69	11		NP	NP	24	A-3a	
		7.5	18.0	BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		18.0	30.0	GRAY SANDSTONE INTERBEDDED WITH SILTSTONE								VISUAL	
		LUCASVILLE MINFORD ROAD (CR 28)											
C-61	10+81.9	0.0	0.9	TOPSOIL (VISUAL)								VISUAL	
	85.7 ft. RT	0.9	3.5	SANDSTONE FRAGMENTS								VISUAL	
		3.5	5.0	4	1	1	20	74	52	28	21	A-7-6	
		5.0	8.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		8.5	10.0	0	1	1	16	82	58	42	30	A-7-6	
		10.0	11.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		11.0	12.5	1	0	1	28	70	46	25	27	A-7-6	
		12.5	13.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		13.5	16.0	BROWN SANDY SILT (A-4a)								VISUAL	
		16.0	18.5	BROWN AND GRAY GRAVEL WITH SAND (A-1-b)								VISUAL	
		18.5	21.0	BROWN AND GRAY COARSE AND FINE SAND (A-3a)								VISUAL	
		21.0	23.5	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		23.5	25.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		25.0	30.0	GRAY SILTSTONE INTERBEDDED WITH SANDSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:28:41 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C\B0000000045878 /SHEET\D021.dgn MODEL: Sheet

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		LUCASVILLE MINFORD ROAD (CR 28)											
B-1201	10+90.4	0.0	0.8	ASPHALT, AGGREGATE BASE (VISUAL)								VISUAL	
	6.9 ft. RT	0.8	1.0	FILL: BROWN SILTY CLAY (A-6b)								VISUAL	
		1.0	3.0	25	9	12	36	18	31	13	27	A-6a	*
		3.0	3.5	FILL: BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.5	5.0	24	4	11	41	20	30	9	12	A-4a	
		5.0	7.0	24	4	11	42	19	30	12	13	A-6a	
		7.0	10.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
C-60	11+08.5	0.0	0.7	TOPSOIL (VISUAL)								VISUAL	
	50.0 ft. LT	0.7	3.0	BROWN SILT (A-4b)								VISUAL	
		3.0	5.5	SILT AND CLAY (A-6a)								VISUAL	
		5.5	8.5	BROWN CLAY (A-7-6)								VISUAL	
		8.5	10.0	0	0	1	27	72	47	24	30	A-7-6	
		10.0	13.0	BROWN CLAY (A-7-6)								VISUAL	
		13.0	16.0	GRAY SILT (A-4b)								VISUAL	
		16.0	17.5	7	11	13	53	16	27	5	16	A-4b	
		17.5	24.0	GRAY SILT (A-4b)								VISUAL	
		24.0	25.0	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL	
		25.0	30.0	GRAY SILTSTONE								VISUAL	
B-1202	13+24.7	0.0	0.8	ASPHALT, AGGREGATE BASE (VISUAL)								VISUAL	
	7.6 ft. LT	0.8	1.0	FILL: BROWN SILTY CLAY (A-6b)								VISUAL	
		1.0	3.0	11	3	5	46	35	33	16	18	A-6b	*
		3.0	5.0	5	4	4	38	49	39	21	22	A-6b	
		5.0	5.5	FILL: BROWN SILTY CLAY (A-6b)								VISUAL	
		5.5	7.0	0	1	1	33	65	50	29	23	A-7-6	
		7.0	10.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
B-1203	15+63.3	0.0	0.8	ASPHALT, AGGREGATE BASE (VISUAL)								VISUAL	
	6.2 ft. RT	0.8	1.0	FILL: GRAY SILT (A-4b)								VISUAL	
		1.0	3.0	2	3	3	58	34	26	9	18	A-4b	*
		3.0	5.0	3	2	2	22	71	52	28	25	A-7-6	
		5.0	7.0	BROWN ELASTIC CLAY (A-7-5)								VISUAL	
		7.0	10.0	0	0	1	3	96	65	34	35	A-7-5	
B-1204	19+24.7	0.0	0.8	ASPHALT, AGGREGATE BASE (VISUAL)								VISUAL	
	6.1 ft. LT	0.8	1.0	FILL: GRAY SANDY SILT (A-4a)								VISUAL	
		1.0	3.0	14	9	10	48	19	22	6	12	A-4a	*
		3.0	5.0	0	1	13	68	18	23	5	21	A-4b	
		5.0	5.5	BROWN SILT (A-4b)								VISUAL	
		5.5	7.0	18	11	18	38	15	23	5	16	A-4a	
		7.0	8.0	REDDISH BROWN SANDY SILT (A-4a)								VISUAL	
		8.0	10.0	GRAY CLAY (A-7-6)								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		LUCASVILLE MINFORD ROAD (CR 28)											
C-62	21+97.0	0.0	0.6	TOPSOIL (VISUAL)								VISUAL	
	44.0 ft LT	0.6	1.0	BROWN SANDY SILT (A-4a)								VISUAL	
		1.0	2.5	19	12	13	40	16	23	5	18	A-4a	
		2.5	3.5	BROWN SANDY SILT (A-4a)								VISUAL	
		3.5	5.0	28	12	13	32	15	24	6	14	A-4a	
		5.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
		6.0	8.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		8.5	10.0	0	0	1	3	96	66	39	37	A-7-6	
		10.0	29.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		29.0	43.5	GRAY COARSE AND FINE SAND (A-3a)								VISUAL	
		43.5	45.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		45.0	47.3	GRAY SILTSTONE INTERBEDDED WITH SANDSTONE								VISUAL	
		47.3	50.0	GRAY SILTSTONE								VISUAL	
B-1205	22+17.7	0.0	0.0	ASPHALT, AGGREGATE BASE (VISUAL)								VISUAL	
	7.9 ft. RT	1.0	3.0	5	7	8	48	32	29	11	16	A-6a	*
		3.0	5.0	14	12	11	39	24	26	9	13	A-4a	
		5.0	7.0	0	0	1	15	84	58	32	32	A-7-6	
		7.0	10.0	BROWN CLAY (A-7-6)								VISUAL	
C-63	22+48.1	0.0	0.8	TOPSOIL (VISUAL)								VISUAL	
	45.6 ft. RT	0.8	1.0	LIGHT BROWN SILTY CLAY (A-6b)								VISUAL	
		1.0	2.5	0	1	2	47	50	38	19	18	A-6b	
		2.5	6.0	LIGHT BROWN SILTY CLAY (A-6b)								VISUAL	
		6.0	7.5	0	0	0	9	91	58	35	26	A-7-6	
		7.5	18.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		18.5	20.0	0	0	0	3	97	70	42	39	A-7-6	
		20.0	21.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		21.0	38.5	GRAY CLAY (A-7-6)								VISUAL	
		38.5	39.5	GRAY COARSE AND FINE SAND (A-3a)								VISUAL	
		39.5	43.5	GRAY CLAY (A-7-6)								VISUAL	
		43.5	44.5	GRAY COARSE AND FINE SAND (A-3a)								VISUAL	
		44.5	54.0	REDDISH BROWN AND GRAY GRAVEL WITH SAND (A-1-b)								VISUAL	
		54.0	56.8	GRAY SANDSTONE								VISUAL	
		56.8	59.0	GRAY SILTSTONE								VISUAL	
B-1206	26+54.5	0.0	1.0	ASPHALT, AGGREGATE BASE (VISUAL)								VISUAL	
	7.1 ft. LT	1.0	3.0	4	6	8	58	24	27	11	16	A-6a	*
		3.0	5.0	0	1	7	60	32	34	16	22	A-6b	
		5.0	7.0	5	13	19	39	24	31	9	23	A-4a	
		7.0	10.0	BROWN SANDY SILT (A-4a)								VISUAL	
B-1207	29+94.9	0.0	0.8	ASPHALT, AGGREGATE BASE (VISUAL)								VISUAL	
	7.1 ft. RT	0.8	1.0	GRAY SILT (A-4b)								VISUAL	
		1.0	3.0	2	6	6	70	16	21	2	19	A-4b	*
		3.0	5.0	3	3	4	58	32	35	15	22	A-6a	
		5.0	7.0	11	5	5	54	25	32	13	19	A-6a	
		7.0	10.0	MOTTLED BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		LUCASVILLE MINFORD ROAD (CR 28)											
B-1208	34+35.0	0.0	0.8	ASPHALT, AGGREGATE BASE (VISUAL)								VISUAL	
	6.8 ft. LT	0.8	1.0	MOTTLED BROWN AND GRAY SILT (A-4b)								VISUAL	
		1.0	3.0	4	3	4	63	26	28	10	18	A-4b	*
		3.0	5.0	16	5	5	46	28	30	12	17	A-6a	
		5.0	7.0	12	9	11	47	21	31	11	17	A-6a	
		7.0	7.5	MOTTLED BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL	
		7.5	10.0	GRAY CLAY (A-7-6)								VISUAL	
		LUCASVILLE MINFORD ROAD (CR 28) - RAMP A											
B-1231	520+83	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	216 ft. RT	0.3	6.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL	
		6.0	10.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL	
		10.0	85.0	GRAY SANDSTONE								VISUAL	
B-1227	524+90	0.0	0.7	TOPSOIL (VISUAL)								VISUAL	
	271 ft. RT	0.7	3.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		3.5	10.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		10.0	25.0	BROWN SANDSTONE								VISUAL	
		30.0	110.0	GRAY SANDSTONE								VISUAL	
B-1228	525+78	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	75.5 ft. RT	0.5	1.0	BROWN SILT (A-4b)								VISUAL	
		1.0	2.5	1	1	9	69	20	28	8	10	A-4b	
		2.5	3.5	BROWN SILT (A-4b)								VISUAL	
		3.5	10.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL	
		10.0	72.6	GRAY SANDSTONE								VISUAL	
		72.6	82.3	GRAY SANDSTONE INTERBEDDED WITH SHALE								VISUAL	
		82.3	90.0	GRAY SANDSTONE								VISUAL	
		90.0	100.0	GRAY SANDSTONE INTERBEDDED WITH SILTSTONE (VISUAL)								VISUAL	
B-1230	528+07	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	57.7 ft. RT	0.3	3.5	BROWN SANDY SILT (A-4a)								VISUAL	
		3.5	5.0	25	11	23		41	NP	NP	9	A-4b	
		5.0	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
		6.0	7.5	1	2	11	62	24	31	12	13	A-6a	
		7.5	16.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		16.0	17.5	2	5	13	47	33	31	13	16	A-6a	*
		17.5	18.5	BROWN SILT AND CLAY (A-6a)								VISUAL	*
		18.5	20.0	35	7	16		42	NP	NP	12	A-4a	*
		20.0	26.0	BROWN SANDY SILT (A-4a)								VISUAL	
		26.0	27.0	45	11	9		35	NP	NP	17	A-2-4	
		27.0	28.5	LIGHT BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	
		28.5	30.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		30.0	40.0	GRAY TO BROWN SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
		LUCASVILLE MINFORD ROAD (CR 28) - RAMP A											
B-1229	528+67	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	308 ft. RT	0.3	6.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		6.0	16.5	WEATHERED BROWN AND GRAY SILTSTONE								VISUAL	
		16.5	31.5	GRAY SANDSTONE								VISUAL	
B-1222	530+48	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	254 ft. RT	0.5	2.0	16	11	12	41	20	24	9	14	A-4a	
		2.0	4.0	2	9	16	52	21	28	9	13	A-4b	
		4.0	6.0	7	8	13	44	28	33	17	15	A-6b	
		6.0	7.4	BROWN SILT AND CLAY (A-6a)								VISUAL	
		7.4	8.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		8.5	-10.0	0	0	0	12	88	59	36	30	A-7-6	
		10.0	18.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		18.5	26.0	GRAY CLAY (A-7-6)								VISUAL	
		26.0	27.5	0	0	0	11	89	50	26	33	A-7-6	
		27.5	58.5	GRAY CLAY (A-7-6)								VISUAL	
		58.5	60.0	GRAY SILT AND CLAY (A-6a)								VISUAL	
		60.0	78.9	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL	
B-1221	531+88	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	220 ft. LT	0.3	8.5	BROWN SILT AND CLAY (A-6a)								VISUAL	
		8.5	10.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		10.0	12.0	0	0	1	13	86	58	34	25	A-7-6	
		12.0	15.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL	
		15.0	17.0	0	0	0	8	92	67	41	33	A-7-6	
		17.0	23.5	BROWN CLAY (A-7-6)								VISUAL	
		23.5	53.5	GRAY CLAY (A-7-6)								VISUAL	
		53.5	59.0	GRAY SANDY SILT (A-4a)								VISUAL	
		59.0	60.0	GRAY SILT (A-4b)								VISUAL	
		60.0	65.0	GRAY SHALE INTERBEDDED WITH SANDSTONE								VISUAL	
B-1220	533+41	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	220 ft. LT	0.3	2.0	0	0	8	56	36	30	13	15	A-6a	
		2.0	4.0	LIGHT BROWN SILT AND CLAY (A-6a)								VISUAL	
		4.0	6.0	0	3	10	50	37	30	14	20	A-6a	
		6.0	8.5	LIGHT BROWN SILT AND CLAY (A-6a)								VISUAL	
		8.5	10.0	7	5	11	40	37	39	19	21	A-6b	
		10.0	11.0	LIGHT BROWN SILTY CLAY (A-6b)								VISUAL	
		11.0	12.5	0	0	5	33	62	46	28	22	A-7-6	
		12.5	18.5	LIGHT BROWN CLAY (A-7-6)								VISUAL	
		18.5	20.0	1	3	20	29	47	35	17	20	A-6b	
		20.0	21.0	LIGHT BROWN SILTY CLAY (A-6b)								VISUAL	
		21.0	22.5	7	8	22		63		35	16	18	A-6b
		22.5	23.5	LIGHT BROWN SILTY CLAY (A-6b)								VISUAL	
		23.5	25.0	0	0	0	11	89	64	40	38	A-7-6	
		25.0	48.5	GRAY CLAY (A-7-6)								VISUAL	
		48.5	49.0	10	13	20	40	17	NP	NP	14	A-4a	
		49.0	53.8	BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
		LUCASVILLE MINFORD ROAD (CR 28) - RAMP A										
C-57	533+83	0.0	0.4	TOPSOIL (VISUAL)								VISUAL
	231 ft. RT	0.4	5.5	BROWN SILT (A-4b)								VISUAL
		5.5	6.0	MOTTLED REDDISH BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL
		6.0	7.5	0	1	9	65	25	34	12	21	A-6a
		7.5	10.5	MOTTLED REDDISH BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL
		10.5	13.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		13.5	15.0	0	0	4	17	79	50	27	26	A-7-6
		15.0	18.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		18.0	21.0	BROWNISH GRAY ELASTIC CLAY (A-7-5)								VISUAL
		21.0	22.5	0	0	0	1	99	73	43	41	A-7-5
		22.5	23.0	BROWNISH GRAY ELASTIC CLAY (A-7-5)								VISUAL
		23.0	42.0	BROWNISH GRAY CLAY (A-7-6)								VISUAL
		42.0	47.5	BROWN COARSE AND FINE SAND (A-3a)								VISUAL
		47.5	49.5	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL
		49.5	54.5	GRAY SILTSTONE INTERBEDDED WITH SANDSTONE								VISUAL
C-56	534+31	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	127 ft. RT	0.3	5.5	BROWN SILT (A-4b)								VISUAL
		5.5	8.0	REDDISH BROWN SILT AND CLAY (A-6a)								VISUAL
		8.0	11.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		11.0	12.5	0	0	2	52	46	48	30	21	A-7-6
		12.5	20.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		20.5	21.0	GRAY CLAY (A-7-6)								VISUAL
		21.0	22.5	4	0	0	4	92	63	34	28	A-7-6
		22.5	42.0	GRAY CLAY (A-7-6)								VISUAL
		42.0	47.0	LIGHT GRAY SILT (A-4b)								VISUAL
		47.0	50.0	GRAY SILT (A-4b)								VISUAL
		50.0	55.0	GRAY SILTSTONE								VISUAL
C-55	534+80	0.0	0.3	TOPSOIL (VISUAL)								VISUAL
	33 ft. RT	0.3	5.5	LIGHT BROWN SILT (A-4b)								VISUAL
		5.5	8.5	MOTTLED BROWN AND GRAY SILTY CLAY (A-6b)								VISUAL
		8.5	10.0	0	0	6	46	48	36	20	21	A-6b
		10.0	13.0	MOTTLED BROWN AND GRAY SILTY CLAY (A-6b)								VISUAL
		13.0	16.0	BROWN CLAY (A-7-6)								VISUAL
		16.0	17.5	4	2	6	25	63	42	21	26	A-7-6
		17.5	20.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		20.5	23.5	BROWNISH GRAY CLAY (A-7-6)								VISUAL
		23.5	25.0	0	0	0	1	99	83	54	42	A-7-6
		25.0	49.0	BROWNISH GRAY CLAY (A-7-6)								VISUAL
		49.0	51.5	GRAY SILT (A-4b)								VISUAL
		51.5	56.5	GRAY SILTSTONE								VISUAL

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
		LUCASVILLE MINFORD ROAD (CR 28) - RAMP A										
B-1219	535+26	0.0	2.0	TOPSOIL (VISUAL)								VISUAL
	104 ft. RT	0.3	2.0	0	3	5	65	27	29	12	22	A-6a
		2.0	4.0	0	3	4	66	27	28	12	22	A-6a
		4.0	6.0	BROWN TO LIGHT BROWN SILT AND CLAY (A-6a)								VISUAL
		6.0	7.5	3	1	5	56	35	33	17	23	A-6b
		7.5	8.5	LIGHT GRAY SILTY CLAY (A-6b)								VISUAL
		8.5	10.0	0	1	7	64	28	28	14	18	A-6a
		10.0	11.0	MOTTLED BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL
		11.0	12.5	0	0	0	10	90	59	35	28	A-7-6
		12.5	18.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		18.5	41.0	GRAY CLAY (A-7-6)								VISUAL
		41.0	42.5	0	0	0	86	14	22	6	27	A-4b
		42.5	43.5	GRAY SILT (A-4b)								VISUAL
		43.5	45.0	0	0	2	31	67	43	24	30	A-7-6
		45.0	46.0	GRAY CLAY (A-7-6)								VISUAL
		46.0	47.5	34	10	18	38		NP	NP	17	A-4a
		47.5	51.0	BROWN AND GRAY SANDY SILT (A-4a)								VISUAL
		51.0	53.5	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL
		53.5	58.5	GRAY SHALE INTERBEDDED WITH SANDSTONE								VISUAL
		LUCASVILLE MINFORD ROAD (CR 28) - RAMP B										
B-463-1-09	531+90	0.0.	0.8	TOPSOIL (VISUAL)								VISUAL
	110.0 ft. RT	0.8	3.0	0	1	7	58	34	35	16	23	A-6b
		3.0	6.0	0	1	2	61	36	33	15	23	A-6a
		6.0	7.0	0	0	9	54	37	27	12	19	A-6a
		7.0	10.0	18	2	6	23	51	39	20	18	A-6b
		10.0	12.5	5	0	1	13	81	51	27	29	A-7-6
		12.5	15.0	0	0	0	21	79	55	30	32	A-7-6
		15.0	17.5	0	0	0	10	90	46	20	34	A-7-6
		17.5	20.0	0	0	0	12	88	49	27	40	A-7-6
		20.0	22.5	0	0	0	22	78	52	25	40	A-7-6
		22.5	25.0	0	0	0	10	90	57	29	35	A-7-6
		25.0	27.5	0	1	0	21	78	45	21	36	A-7-6
		27.5	30.0	0	0	0	16	84	54	27	36	A-7-6
		30.5	32.5	0	0	0	38	62	45	18	38	A-7-6
		32.5	35.0	0	0	0	16	84	51	25	38	A-7-6
		35.0	37.5	0	0	0	14	86	51	25	39	A-7-6
		37.5	40.0	0	0	0	19	81	47	23	33	A-7-6
		LUCASVILLE MINFORD ROAD (CR 28) - RAMP C										
C-59	515+41	0.0	0.8	TOPSOIL (VISUAL)								VISUAL
	59 ft. LT	0.8	3.5	LIGHT BROWN SILT (A-4b)								VISUAL
		3.5	5.0	8	4	10	63	15	24	7	19	A-4b
		5.0	6.0	LIGHT BROWN SILT (A-4b)								VISUAL
		6.0	8.5	MOTTLED BROWN AND RED SANDY SILT (A-4a)								VISUAL
		8.5	13.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		13.5	15.0	0	0	1	27	72	52	29	34	A-7-6
		15.0	23.5	BROWN AND GRAY CLAY (A-7-6)								VISUAL
		23.5	26.0	GRAY GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL
		26.0	28.5	GRAY SANDY SILT (A-4a)								VISUAL
		28.5	33.5	BROWN AND GRAY GRAVEL WITH SAND (A-1-b)								VISUAL
		33.5	35.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		35.0	40.0	GRAY SILTSTONE INTERBEDDED WITH SANDSTONE								VISUAL

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:28:55 PM REVISION DATE: 6/21/2011 MODEL: Sheet
FILE: ...4HOR.Cu0000000045878 /1945ID024.dgn

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
LUCASVILLE MINFORD ROAD (CR 28) - RAMP C												
C-58	515+49	0.0	0.8	TOPSOIL (VISUAL)								VISUAL
	66 ft. RT	0.8	3.5	LIGHT BROWN SANDY SILT (A-4a)								VISUAL
		3.5	5.0	5	3	13	56	23	26	7	15	A-4b
		5.0	8.5	LIGHT BROWN SILT (A-4b)								VISUAL
		8.5	10.0	3	5	17	42	33	32	16	21	A-6b
		10.0	11.0	MOTTLED BROWN AND GRAY SILTY CLAY (A-6b)								VISUAL
		11.0	12.5	1	0	1	27	71	59	35	31	A-7-6
		12.5	13.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		13.5	15.0	0	0	1	15	84	64	39	41	A-7-6
		15.0	19.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		19.5	23.5	REDDISH BROWN GRAVEL WITH SAND AND SILT (A-2-4)								VISUAL
		23.5	26.0	GRAY COARSE AND FINE SAND (A-3a)								VISUAL
		26.0	28.5	MOTTLED BROWN AND GRAY GRAVEL WITH SAND (A-1-b)								VISUAL
		28.5	30.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		30.0	35.0	GRAY SILTSTONE INTERBEDDED WITH SANDSTONE								VISUAL
B-1209	515+57	0.0.	0.3	TOPSOIL (VISUAL)								VISUAL
	7.7 ft. RT	0.3	1.5	0	3	7	68	22	24	6	18	A-4b
		1.5	3.0	3	2	6	67	22	25	4	17	A-4b
		3.0	4.5	26	18	16	29	11	25	4	12	A-4a
		4.5	6.0	34	12	12	30	12	25	4	13	A-4a
		6.0	8.5	GRAY SILTY CLAY (A-6b)								VISUAL
		8.5	11.0	BROWN AND GRAY SILT AND CLAY (A-6a)								VISUAL
		11.0	13.5	GRAY CLAY (A-7-6)								VISUAL
		13.5	15.0	0	0	0	10	90	55	29	39	A-7-6
		15.0	16.0	GRAY CLAY (A-7-6)								VISUAL
		16.0	17.5	0	0	0	18	82	54	30	38	A-7-6
		17.5	21.0	GRAY CLAY (A-7-6)								VISUAL
		21.0	23.5	BROWN SILT (A-4b)								VISUAL
		23.5	28.5	GRAY SILT AND CLAY (A-6a)								VISUAL
		28.5	29.4	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL
B-1211	515+38	0.0	0.2	TOPSOIL (VISUAL)								VISUAL
	31.1 ft. LT	0.2	1.5	4	4	19	52	21	23	7	15	A-4b
		1.5	3.0	0	1	5	21	73	52	33	22	A-7-6
		3.0	4.5	0	0	0	7	93	50	23	29	A-7-6
		4.5	6.0	0	0	0	8	92	60	36	15	A-7-6
		6.0	11.0	BROWN CLAY (A-7-6)								VISUAL
		11.0	12.5	0	0	0	16	84	55	33	33	A-7-6
		12.5	38.5	BROWN CLAY (A-7-6)								VISUAL
		38.5	43.5	GRAY SANDY SILT (A-4a)								VISUAL
		43.5	43.8	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class
LUCASVILLE MINFORD ROAD (CR 28) - RAMP C												
B-1210	517+43	0.0	0.3	TOPSOIL (VISUAL)								VISUAL *
	2 ft. LT	0.3	1.5	6	7	22	42	23	24	10	14	A-4a *
		1.5	3.0	12	3	19	39	27	32	15	13	A-6a *
		3.0	4.5	0	1	12	46	41	38	22	21	A-6b
		4.5	6.0	1	0	2	38	59	46	27	23	A-7-6
		6.0	11.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		11.0	12.5	0	0	1	5	94	65	42	37	A-7-6
		12.5	33.5	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		33.5	43.5	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL
		43.5	45.0	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL
		45.0	51.5	GRAY SANDSTONE								VISUAL
B-1212	521+46	0.0	0.1	TOPSOIL (VISUAL)								VISUAL
	17 ft. LT	0.1	1.5	0	1	10	57	32	27	10	11	A-4b
		1.5	3.0	0	1	13	60	26	23	6	9	A-4b
		3.0	4.5	14	6	17	43	20	25	7	9	A-4a
		4.5	4.7	BROWN SILT (A-4b)								VISUAL
		4.7	6.0	0	0	0	8	92	64	43	22	A-7-6
		6.0	11.0	MOTTLED BROWN AND GRAY CLAY (A-7-6)								VISUAL
		11.0	12.5	0	0	0	10	90	55	31	30	A-7-6
		12.5	21.0	GRAY CLAY (A-7-6)								VISUAL
		21.0	22.5	0	0	0	13	87	61	35	36	A-7-6
		22.5	43.5	GRAY CLAY (A-7-6)								VISUAL
		43.5	48.5	GRAY SANDY SILT (A-4a)								VISUAL
		48.5	50.0	SEVERELY WEATHERED SILTSTONE								VISUAL
		50.0	56.5	GRAY SANDSTONE INTERBEDDED WITH SHALE								VISUAL
B-461-1-09	528+00	0.0.	0.8	TOPSOIL (VISUAL)								VISUAL
	CL	0.8	3.0	0	0	3	21	76	53	27	29	A-7-6
		3.0	5.0	0	0	1	15	84	52	27	25	A-7-6
		5.0	7.5	0	0	0	22	78	46	24	27	A-7-6
		7.5	10.0	REDDISH BROWN CLAY (A-7-6)							25	VISUAL
		10.0	12.5	0	0	1	13	87	50	26	31	A-7-6
		12.5	15.0	0	0	0	20	80	46	23	28	A-7-6
		15.0	17.5	0	0	0	21	79	50	27	30	A-7-6
		17.5	20.0	0	0	0	21	79	45	22	33	A-7-6
		20.0	23.0	0	0	0	15	85	51	28	31	A-7-6
		23.0	25.0	0	0	0	16	84	48	26	31	A-7-6
		25.0	27.5	0	0	0	21	79	43	25	33	A-7-6
		27.5	30.0	0	0	0	13	87	48	25	34	A-7-6
		30.5	32.5	0	0	0	11	89	47	24	34	A-7-6
		32.5	35.0	0	0	0	16	84	43	21	32	A-7-6
		35.0	37.5	0	0	0	17	83	47	23	33	A-7-6
		37.5	40.0	0	0	0	13	87	45	23	33	A-7-6

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: sdeorne PLOT DATE: 6/23/2011 9:53:33 AM REVISION DATE: 6/23/2011
FILE:...4HOR.Cu0000000045878 /1945ID029.dgn MODEL: Sheet

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.
* DENOTES SAMPLE TAKEN AT OR NEAR GRADE

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
LUCASVILLE MINFORD ROAD (CR 28) - RAMP D													
B-1232	521+27	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	213 ft. LT	0.3	4.0	BROWN SILTY CLAY (A-6b)								VISUAL	
		4.0	6.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		6.0	11.0	SEVERELY WEATHERED BROWN SILTSTONE								VISUAL	
		11.0	15.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		15.0	51.9	GRAY SANDSTONE								VISUAL	
		51.9	61.8	GRAY SHALE INTERBEDDED WITH SANDSTONE								VISUAL	
		61.8	85.0	GRAY SANDSTONE								VISUAL	
B-1234	525+76	0.0	1.0	LIGHT BROWN SILT (A-4b)								VISUAL	
	196 ft. RT	1.0	2.5	0	2	4	68	26	30	10	13	A-4b	
		2.5	3.5	LIGHT BROWN SILT (A-4b)								VISUAL	
		3.5	10.0	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		10.0	47.5	BROWN SANDSTONE								VISUAL	
		47.5	58.5	GRAY SHALE INTERBEDDED WITH SANDSTONE								VISUAL	
		58.5	100.0	GRAY SANDSTONE								VISUAL	
B-1235	527+60	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	345 ft. LT	0.4	6.0	BROWN SANDY SILT (A-4a)								VISUAL	
		6.0	15.0	SEVERELY WEATHERED BROWN AND GRAY SANDSTONE								VISUAL	
		15.0	17.7	REDDISH BROWN SANDSTONE								VISUAL	
		17.7	70.0	GRAY SANDSTONE								VISUAL	
B-1233	527+74	0.0	1.0	TOPSOIL (VISUAL)								VISUAL	
	18 ft. RT	1.0	2.5	3	3	12	61	21	29	9	15	A-4b	
		2.5	3.5	LIGHT BROWN SILT (A-4b)								VISUAL	
		3.5	5.0	2	19	13	66		27	8	11	A-4b	
		5.0	6.0	LIGHT BROWN SILT (A-4b)								VISUAL	
		6.0	13.5	SEVERELY WEATHERED BROWN SANDSTONE								VISUAL	
		13.5	14.0	4	8	15	73		23	5	26	A-4b	
		14.0	15.0	LIGHT BROWN SILT (A-4b)								VISUAL	
		15.0	23.0	BROWNISH GRAY SANDSTONE								VISUAL	
		23.0	33.4	GRAY SANDSTONE INTERBEDDED WITH SHALE								VISUAL	
		33.4	36.5	GRAY SANDSTONE								VISUAL	
		36.5	60.0	GRAY SANDSTONE INTERBEDDED WITH SHALE								VISUAL	
		60.0	91.5	GRAY SANDSTONE								VISUAL	
B-1218	529+38	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	293 ft. LT	0.2	5.0	BROWN SANDY SILT (A-4a)								VISUAL	
		5.0	6.5	0	2	14	26	58	47	27	19	A-7-6	
		6.5	21.0	BROWN CLAY (A-7-6)								VISUAL	
		21.0	22.5	0	1	4	41	54	39	21	30	A-6b	
		22.5	23.5	GRAYISH BROWN SILTY CLAY (A-6b)								VISUAL	
		23.5	25.0	19	3	23		55	NP	NP	21	A-4b	
		25.0	26.0	LIGHT BROWN AND RED SILT (A-4b)								VISUAL	
		26.0	28.5	BROWN SANDY SILT (A-4a)								VISUAL	
		28.5	30.0	BROWN SILT (A-4b)								VISUAL	
		30.0	38.5	BROWN SANDY SILT (A-4a)								VISUAL	
		38.5	43.5	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL	
		43.5	51.5	GRAY SANDSTONE								VISUAL	

Boring	Station & Offset	Depth From	To	% Agg	% C.S.	% F.S.	% Silt	% Clay	LL	PI	% W.C.	ODOT Class	
LUCASVILLE MINFORD ROAD (CR 28) - RAMP D													
B-1216	529+47	0.0	0.3	TOPSOIL (VISUAL)								VISUAL	
	162 ft. LT	0.3	6.6	BROWN SILT AND CLAY (A-6a)								VISUAL	
		6.6	11.0	GRAY SILTY CLAY (A-6b)								VISUAL	
		11.0	16.0	BROWN AND GRAY SILT (A-4b)								VISUAL	
		16.0	19.0	SEVERELY WEATHERED BROWN AND GRAY SILTSTONE								VISUAL	
		19.0	24.0	GRAY SANDSTONE								VISUAL	
B-1215	530+98	0.0	0.4	TOPSOIL (VISUAL)								VISUAL	
	145 ft. LT	0.4	4.0	BROWN SILT AND CLAY (A-6a)								VISUAL	*
		4.0	33.9	BROWN CLAY (A-7-6)								VISUAL	
		33.9	38.5	BROWN FINE SAND (A-3)								VISUAL	
		38.5	43.5	GRAY SANDY SILT (A-4a)								VISUAL	
		43.5	44.2	SANDSTONE FRAGMENTS								VISUAL	
		44.2	49.2	GRAY SANDSTONE								VISUAL	
B-1217	530+98	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	230 ft. LT	0.2	4.5	BROWN SILT (A-4b)								VISUAL	
		4.5	7.0	BROWN SANDY SILT (A-4a)								VISUAL	
		7.0	8.5	GRAY SILTY CLAY (A-6b)								VISUAL	
		8.5	13.5	BROWN SANDY SILT (A-4a)								VISUAL	
		13.5	30.0	GRAY SILT AND CLAY (A-6a)								VISUAL	
		30.0	35.0	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL	
		35.0	51.0	GRAY SANDSTONE INTERBEDDED WITH MUDSTONE LAYERS								VISUAL	
B-1214	532+70	0.0	0.2	TOPSOIL (VISUAL)								VISUAL	
	86.7 ft. RT	0.2	3.0	BROWN SILT (A-4b)								VISUAL	
		3.0	8.5	BROWN SANDY SILT (A-4a)								VISUAL	
		8.5	23.0	BROWN CLAY (A-7-6)								VISUAL	*
		23.0	25.0	0	0	0	30	70	49	27	30	A-7-6	
		25.0	30.0	BROWN CLAY (A-7-6)								VISUAL	
		30.0	38.5	BROWN SANDY SILT (A-4a)								VISUAL	
		38.5	45.0	SEVERELY WEATHERED GRAY SILTSTONE								VISUAL	
		45.0	52.0	GRAY SANDSTONE								VISUAL	
B-1213	534+33	0.0	1.5	6	2	7	57	28	25	13	17	A-6a	
	14.9 ft. RT	1.5	3.0	7	4	6	51	32	30	13	16	A-6a	
		3.0	4.5	0	0	0	13	87	62	28	26	A-7-6	
		4.5	21.0	LIGHT BROWN CLAY (A-7-6)								VISUAL	
		21.0	23.0	0	0	0	13	87	57	32	36	A-7-6	
		26.0	50.0	BROWN AND GRAY CLAY (A-7-6)								VISUAL	
PRELIMINARY EXPLORATION - SR 823													
PB-33	394+04.5	0.0	0.5	TOPSOIL (VISUAL)								VISUAL	
	78.0 ft. LT	0.5	10.0	BROWN SILT AND CLAY (A-6a)								VISUAL	
		10.0	18.0	BROWNISH GRAY CLAY (A-7-6)								VISUAL	
		18.0	20.0	0	0	0	5	95	35	15	25	VISUAL	
		20.0	35.5	BROWNISH GRAY CLAY (A-7-6)								VISUAL	
		35.5	53.5	REDDISH BROWN COARSE AND FINE SAND (A-3a)								VISUAL	
		53.5	54.0	SEVERELY WEATHERED GRAY SANDSTONE								VISUAL	
		54.0	64.0	LIGHT GRAY AND DARK GRAY SANDSTONE								VISUAL	

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER: sdearnel PLOT DATE: 6/23/2011 9:59:43 AM REVISION DATE: 6/23/2011
FILE:...4HOR_Cu000000004587B /19451D026.dgn MODEL: Sheet

SUMMARY OF SOIL TEST DATA - SHELBY TUBES

Boring Number	Sample Number	Sample Depth (feet)	ODOT Designation	Type of Test																			
				Gradation					Atterberg Limits		Moisture Content %	Consolidated-undrained				Unconsolidated-undrained		Consolidation				Unit Weights	Unconfined Compression
					% Sand		% Fines					Cohesion, (psf)		Friction Angle, (degrees)		Cohesion	Friction Angle						Cohesion
				% AGG	Coarse	Fine	Silt	Clay	LL	PI		Total	Effective	Total	Effective	(psf)	(degrees)	Cc	Cr	Pc	Eo	pcf	psf
B-1	P-1	8.0 - 10.0	A-7-6	0	0	1	13	86	52	26	28	-	-	-	-	-	-	-	-	-	-	122.2	2051
B-1	P-2	12.5 - 14.5	A-7-6	0	0	2	19	79	52	28	30	-	-	-	-	-	-	-	-	-	-	121.2	2365
B-1	P-3	18.0' - 19.1	A-7-6	0	0	1	24	75	49	23	28	-	-	-	-	-	-	0.21	0.1	0	0.955		-
B-1	P-3c	19.5 - 20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120.6	1348
B-1	P-3C	19.5 -20.0	A-7-6	0	0	1	21	78	59	36	30	-	-	-	-	-	-	-	-	-	-	120.6	1349
B-2	P-1	6.0 - 8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	0.09	0.7	0.709	125.6	2005
B-2	P-1	6.0 - 8.0	A-7-6	1	0	0	14	85	67	40	23	-	-	-	-	-	-	-	-	-	-	125.6	2031
B-2	P-2A	11.0 - 12.0	A-7-6	0	2	4	24	70	52	30	23	-	-	-	-	-	-	-	-	-	-	120.2	2572
B-2	P-2B	12.0 - 13.0	A-7-6	5	1	2	12	80	78	54	31	-	-	-	-	-	-	0.18	0.08	3.18	0.833	121.4	2198
B-3	P-1	8.0 - 10.0	A-7-6	0	0	1	9	90	60	34	31	-	-	-	-	-	-	-	-	-	-	122.6	1658
B-3	P-2	10.0 - 12.0	A-7-6	0	0	3	26	71	44	25	28	-	-	-	-	-	-	-	-	-	-	119.9	2204
B-4	P-1A	8.0 - 8.2	A-6a	2	5	8	43	42	31	14	18	-	-	-	-	-	-	-	-	-	-	-	-
B-4	P-1B	8.2 - 10.0	A-3	0	8	89	0	0	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
B-1213	P-1	21.0 - 23.0	A-7-6	0	0	0	13	87	57	32	36	556	678	12.6	17.5			-	-	-	-	117.4	-
B-1220	P-2	18.0 - 20.0	A-6b	1	4	15	30	50	36	17	21	-	-	-	-	2478	6.3	0.26	0.09	1.66	0.687	127.9	-
B-1221	P-1	10.0 - 12.0	A-7-6	0	0	1	13	86	58	34	25	-	-	-	-	-	-	0.19	0.07	1.15	0.675	125.5	1672
B-1221	P-2	15.0 - 17.0	A-7-6	0	0	0	8	92	67	41	33	426	578	9.1	11.7	-	-	-	-	-	-	120.8	-
B-1223	P-1	8.0 - 10.0	A-7-6	0	0	0	17	83	57	31	31	-	-	-	-	-	-	0.27	0.1	0.89	0.79	122.2	1206
B-1223	P-2	18.0 - 20.0	A-7-6	0	0	0	5	95	67	41	40	546	634	11.0	17.8	-	-	0.37	0.16	5.4	1.124	140.7	-
B-1223	P-3	28.0 - 30.0	A-7-6	0	0	0	21	79	58	34	36	-	-	-	-	1772	3.5	-	-	-	-	116.6	-
B-1224	P-1	23.0 - 25.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	123.8	2663
B-1226	P-1	10.0 - 12.0	A-7-6	0	0	0	10	90	63	39	31	722	764	10.0	15.8	-	-	-	-	-	-	121.0	3028
B-1226	P-2	22.0 - 24.0	A-4a	9	4	21	44	22	26	9	18	1820	138	0.0	47	-	-	-	-	-	-	128.5	-
B-1314	P-1	13.5 - 15.5	A-7-6	1	2	4	21	72	51	26	29	646	19.9	0.0	32.3	-	-	-	-	-	-	121.6	-
B-1318	P-1	8.5 - 10.5	A-7-6	7	0	1	7	85	66	37	28	482	12.8	0.0	24	-	-	-	-	-	-	116.0	-
B-1318	P-2	18.5 - 20.5	A-7-6	0	0	0	12	88	58	30	37	-	-	-	-	-	-	0.35	0.12	5.46	1.06	-	-
B-1320	P-1	18.5 - 20.5	A-7-6	0	1	1	3	95	63	34	35	-	-	-	-	1438	0	-	-	-	-	118.0	-
B-1320	P-2	33.0 - 35.0	A-7-6	0	0	0	5	95	54	26	37	860	11.2	0.0	26.9	-	-	-	-	-	-	118.0	-
B-1322	P-1	8.5 - 10.5	A-7-6	0	0	1	17	82	54	30	30	-	-	-	-	-	-	-	-	-	-	124.0	969
B-1322	P-2	18.5 - 20.5	A-7-6	0	0	0	10	90	56	23	33	-	-	-	-	-	-	-	-	-	-	-	-
B-1322	P-3	28.5 - 30.5	A-7-6	0	0	0	6	94	63	37	37	-	-	-	-	-	-	0.27	0.13	1.79	1.026	-	-

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER= $USER$ PLOT DATE= $DATE$ $TIME$ REVISION DATE= REV MODEL= $MODELNAME$
FILE=...\CLIENT$\PROJECTID$ /$FILES$

SUMMARY OF SOIL TEST DATA - SHELBY TUBES

Boring Number	Sample Number	Sample Depth (feet)	ODOT Designation	Type of Test																			
				Gradation					Atterberg Limits		Moisture Content %	Consolidated-undrained				Unconsolidated-undrained		Consolidation				Unit Weights	Unconfined Compression
					% Sand		% Fines					Cohesion, (psf)		Friction Angle, (degrees)		Cohesion	Friction Angle						Cohesion
				% AGG	Coarse	Fine	Silt	Clay	LL	PI		Total	Effective	Total	Effective	(psf)	(degrees)	Cc	Cr	Pc	Eo	pcf	psf
B-1323	P-1	13.0 - 15.0	A-7-6	0	0	0	15	85	55	29	39	-	-	-	-	1578	0	-	-	-	-	122.9	-
B-1323	P-2	21.0 - 23.0	A-7-6	0	0	0	6	94	61	34	37	-	-	-	-	-	-	-	-	-	-	116.6	2509
B-1326	P-2	26.0 - 28.0	A-7-6	0	0	0	5	95	63	36	37	592	15.2	0	26.8	-	-	-	-	-	-	118.6	-
B-1328	P-1	11.0 - 13.0	A-7-6	0	0	1	3	96	66	37	33	-	-	-	-	-	-	-	-	-	-	-	-
B-1328	P-2	16.0 - 18.0	A-7-6	0	0	1	12	87	69	39	36	282	10.8	0	20.6	-	-	-	-	-	-	120.9	-
C-19	P-1	16.5 -18.5	A-7-6	1	4	4	20	72	66	40	33	-	-	-	-	-	-	0.23	0.06	8301	0.901	147.0	1143
C-19	P-2	21.0 - 23.0	A-4b	0	0	1	71	28	28	7	34	-	-	-	-	-	-	-	-	-	-	-	215
C-21	P-2	22.7 - 24.0	A-4b	0	0	1	71	28	28	7	34	-	-	-	-	216	0	-	-	-		121.3	-
C-21	P-2	22.0 - 22.7	A-6a	0	0	1	62	37	34	12	35	-	-	-	-	-	-	0.4	0.07	8289	1.111	-	-
C-22	P-1	22.0 - 24.0	A-7-6	0	0	0	10	90	59	34	34	-	-	-	-	-	-	0.23	0.09	0.84	-	118.9	3081
C-22	P-2	27.0 - 29.0	A-7-6	0	0	0	31	69	48	27	31	-	-	-	-	-	-	-	-	-	-	117.3	1906
C-22	P-3	32.0 - 34.0	A-7-6	0	0	1	9	90	47	25	35	-	-	-	-	-	-	0.24	0.12	0.86	0.81	119.2	1848
C-23	P-1	18.0 - 20.0	A-7-6	0	0	0	4	96	77	50	39	-	-	-	-	-	-	-	-	-	-	116.2	1732
C-23	P-2	23.0 - 25.0	A-7-6	0	0	0	40	60	43	23	29	-	-	-	-	-	-	-	-	-	-	115.3	1722
C-23	P-3	28.0 - 30.0	A-7-6	0	0	0	25	75	50	27	34	-	-	-	-	-	-	0.24	0.13	1.39	0.935	114.9	2201
R-329	P-1	11.0 - 13.0	A-7-6	0	0	0	40	60	72	44	40	-	-	-	-	-	-	0.33	0.15	0.8	1.037	115.4	1999
R-331	P-1	8.0 - 10.0	A-7-6	0	0	0	50	50	63	39	39	-	-	-	-	-	-	-	-	-	-	-	-
R-335	P-1	13.0 - 15.0	A-6a	1	6	6	38	53	27	12	32	-	-	-	-	1446	1.1	0.47	0.17	3068	1.157	119.6	-
R-343	P-1	13.0 - 15.0	A-7-6	0	0	0	53	42	58	38	28	-	-	-	-	0	9.5	0.24	0.11	2591	0.963	117.2	-
R-346	P-1	23.0 - 25.0	A-7-6	0	0	0	49	40	45	26	33	-	-	-	-	-	-	-	-	-	-	-	-
R-346	P-1	25.0 -27.0	A-6b	0	1	1	58	32	33	16	24	-	-	-	-	486	7.3	-	-	-	-	124.7	-
R-351	P-1	18.0-20.0	A-7-6	0	1	1	14	84	60	36	36	-	-	-	-	908	7.3	-	-	-	-	117.4	-
R-351	P-2	22.0-24.0	A-7-6	0	0	0	50	50	61	36	38	-	-	-	-	-	-	0.41	0.18	5.41	1.101	115.9	1668
R-464	P-1	21.0-23.0	A-7-6	0	1	1	11	87	59	33	35	-	-	-	-	-	-	0.47	0.15	20.22	1.074	118.7	1354
R-465	P-1	18.0-20.0	A-7-6	0	0	0	18	82	52	29	26	-	-	-	-	-	-	0.41	0.14	6.81	0.964	118.0	2147
R-466	P-1	23.0-25.0	A-7-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.13	0.05	7.95	0.904	124.0	744
TR-14	ST-1	13.0-15.0	A-7-6	0	0	0	7	93	65	37	28	-	-	-	-	-	-	0.26	0.08	1418	1.061	116.9	1911

Boring Number	Sample Number	Sample Depth (feet)	ODOT Designation	Type of Test										
				Gradation					Atterberg Limits		Moisture Content %	Direct Shear Test Consolidated-Drained		Unit Weights	Unconfined Compression
					% Sand		% Fines					Cohesion (psf)	Friction Angle (deg)		Cohesion
				% AGG	Coarse	Fine	Silt	Clay	LL	PI		Effective	Effective	pcf	psf
B-461-1-09	ST-9	21.0-23.0	A-7-6	0	0	0	15	85	51	28	31	900	14.0	121.1	3633
B-463-1-09	ST-7	15.5-17.5	A-7-6	0	0	0	10	90	46	20	34	1100	13.0	117.5	2740
B-463-1-09	ST-13	30.5-32.5	A-7-6	0	0	0	38	62	45	18	38	1250	14.0	116.6	4486

CALCULATED | CHECKED

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

SCI-823-6.81

USER= $USER$ PLOT DATE= $DATE$ $TIME$ REVISION DATE= REV MODEL=$MODELNAME$
FILE...\CLIENT$\PROJECTID$ /$FILES$

CROSS SECTION INDEX	
STATION	SHEET
354+00	75
357+50	76
364+00	77
375+50	78

BEGIN PROJECT
PHASE I
STA. 352+00

± Area of Slope Instability

± Area of Slope Instability

Dense Trees

Access Road

Woods

Extensive Logging and Associated Erosion

℄ S.R. 823

Woods

Access Road

Woods

℄ T.R. 234 RAMP C

Exposed Bedrock

C-1

R-317

C-2

MATCHLINE STA. 377+00 SHEET 36

Woods

C-7

R-210

Woods

R-214

C-5

R-217

Open Field (Not Cultivated)

R-209

C-8

R-213

R-220

R-318

C-9

C-6

R-221

B-1311

R-211

Extensive Logging and Associated Erosion

R-218

Lumber

C-3

℄ T.R. 234 RAMP B

Woods

R-215

Intermittent Stream

Open Field (Not Cultivated)

Ruin

C-4

Dense Brush

Junk

Woods

T.R. 234

SR 335

CSXT RR

NOTE: BORINGS R-218, R-221, AND B-1311 SHOWN ON T.R. 234 RAMP B PROFILE, SHEET 57.
BORING R-317 SHOWN ON T.R. 234 RAMP C PROFILE, SHEET 58.

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED MAB
CHECKED DMV

SOIL PROFILE - SR823
STA. 352+00 TO STA. 377+00

SCI-823-6.81

34
135

USER: CMahlbri PLOT DATE: 6/21/2011 8:29:18 PM REVISION DATE: 6/21/2011
FILE:...4HOR.CL(B)0000000045878 /19415P001.dgn MODEL: Sheet

SOIL PROFILE - SR823
STA. 352+00 TO STA. 377+00

CALCULATED | CHECKED

SCI-823-6.81

USER: CWohlbr; PLOT DATE= 6/21/2011 8:29:26 PM REVISION DATE= 6/21/2011
FILE...4HOR.Cu0000000000045878 /1945IF001.dgn MODEL: Sheet

648.90 649.46 650.14 650.89 651.64 652.39 653.14 653.89 654.64 655.39 656.14 656.89 657.64 658.39 659.14 659.89 660.64 661.39 662.14 662.89 663.64 664.39 665.14 665.89 666.64 667.39 668.14 668.89 669.64 670.39 671.14 671.89 672.64 673.39 674.14 674.89 675.64 676.39 677.14 677.89 678.64 679.39 680.14 680.89 681.64 682.39 683.14 683.89 684.64 685.39

740 730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560

664.03 658.73 648.85 633.50 626.02 638.87 647.83 657.32 664.52 670.71 672.97 675.23 676.46 678.33 680.08 682.09 682.08 680.20 675.90 673.66 665.28 656.53 650.01 640.87 622.85 634.37 645.35 652.23 658.89 663.03 667.01 668.22 669.10 668.99 671.63 673.85 677.10 677.68 676.45 674.60 672.67 670.06 665.60 661.22 656.92 648.14 638.20 633.35 638.11 640.18 641.90

355+00 360+00 365+00 370+00 375+00

R-211
147.6' Rt.
50(5)
38/21/24
4/9/10
6/7/8
35/50(3)
50(1)
16
TR
355+00

R-210
44.4' Lt.
Topsoil-2"
15/13/12
22/17/15
2/9/10
6/6/6
3/5/5
4/5/5
3/5/6
6/7/8
5/6/6
6/9/8
8/10/12
4/4/7
9/14/41
50(1)
32
6
TR

R-213
15.3' Rt.
6/8/10
7/8/11
8/11/11
5/8/11
4/5/8
4/5/7
4/5/7
5/7/11
3/3/4
4/4/5
40/45/50(4)
33/50(2)
26
20
W
TR

R-209
29.0' Rt.
Topsoil-2"
8/9/18
50(4)
50(1)
TR

R-214
54.8' Lt.
Topsoil-2"
10/14/15
8/10/15
50(2)
15
TR

R-217
65.9' Lt.
Topsoil-2"
7/5/5
7/9/9
4/5/9
4/5/8
5/5/9
4/6/7
4/12/12
5/7/9
8/10/10
8/9/10
9/35/50(4)
12/12/12
31
9
W
TR

R-220
24.0' Lt.
Topsoil-3"
8/6/6
6/7/8
5/5/5
2/3/3
3/6/6
3/3/4
3/4/4
4/5/6
9/10/10
2/2/2
2/2/5
5/5/6
8/9/11
25
38
4
W
TR

PROPOSED GRADE

EXISTING SURFACE

R-318
48.4' Rt.
18/18/10
4/8/8
39/50(2)
50(5)
TR

EXPOSED BEDROCK

R-211

R-1 No Core Loss, ROD = 100%

Hard grayish brown SANDSTONE; very fine to fine grained, moderately weathered, pyritic, micaceous, thinly bedded to massive, slightly fractured.

R-217

R-1 Core Loss = 3%, ROD = 94%

Hard light gray SANDSTONE; very fine to fine grained, moderately weathered, micaceous, slightly argillaceous, laminated to medium bedded, contains occasional dark gray laminae.

R-220

R-1 No Core Loss, ROD = 100%

Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thinly bedded to massive, slightly fractured.

R-318

R-1 Core Loss = 7%, ROD = 77%

Medium hard to hard gray to SANDSTONE, very fine to fine grained, highly to moderately weathered, argillaceous, micaceous, thick bedded, highly to moderately fractured.

R-209

R-1 No Core Loss, ROD = 100%

Medium hard to hard gray SANDSTONE; very fine to fine grained, highly to moderately weathered, argillaceous, micaceous, thinly bedded to massive, moderately to slightly fractured.

R-2 No Core Loss, ROD = 100%

R-210

R-1 No Core Loss, ROD = 98%

Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thinly bedded to massive, moderately to slightly fractured.

R-213

R-1 Core Loss = 4%, ROD = 100%

Hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, thinly bedded to massive, moderately to slightly fractured.

R-214

R-1 No Core Loss, ROD = 96%

Hard gray and brown SANDSTONE; very fine to fine grained, highly to moderately weathered, argillaceous, micaceous, thinly bedded to massive.

R-2 No Core Loss, ROD = 100%

NOTE: BORINGS B-1305 TO B-1314A, SHOWN ON T.R. 234 PROFILE, SHEET 69.
BORINGS B-1314 AND B-1317 SHOWN ON T.R. 234 RAMP A PROFILE, SHEET 56.
BORING B-1312 SHOWN ON T.R. 234 RAMP B PROFILE, SHEET 57.
BORINGS B-1329 AND B-1330 SHOWN ON T.R. 234 RAMP C PROFILE, SHEET 58.
BORINGS B-1320, B-1322, B-1325, AND B-1328 SHOWN ON T.R. 234 RAMP D PROFILE, SHEET 59.
BORINGS B-1331 TO B-1334 SHOWN ON S.R. 335 PROFILE, SHEET 72.
BORINGS B-1 TO B-4, TR-24 TO TR-28, AND B-1340 TO B-1342 SHOWN ON STRUCTURE FOUNDATION INVESTIGATION SHEETS.

MATCHLINE STA. 377+00 SHEET 34

MATCHLINE STA. 402+00 SHEET 38

℄ REL. T.R. 234

℄ T.R. 234 RAMP C

℄ T.R. 234 RAMP D

℄ T.R. 234 RAMP B

℄ T.R. 234 RAMP A

℄ S.R. 823

Excavated Embankment Pond

Spring-Fed Excavated Embankment Pond

Woods

Residential

Cultivated

CSXT RR

Bedrock Exposure
Maxiumum 33 ft. cut

B-1311A, B-1305, B1312A, B-1306, B-1327, B-1345, B-1324, B-1321, B-1319, B-1320, B-1322, B-1323, R-331, PB-33, R-335, B-1317, B-1316, B-1315, B-1313, B-1314, R-329, R-333, R-328, R-326, R-323, B-1326, B-1325, B1328, B1307A, C-47, C-48, C-49, C-50, B1307, B-1329, C-41, C-42, B-1330, B-1, B-2, B-3, TR24, TR25, B-4, B1313A, TR26, R-321, C-45, C-46, C-44, B-1312, C-43, B-1308, B-1314A, TR-27, B-25, B-24, B-26, B-1342, B1341, B-1340, B-27, B-1334, TR-28, B-1333, B-1332, B-1331

CROSS SECTION INDEX			
STATION			SHEET
S.R. 823	387+50		79
S.R. 823	391+00		80
S.R. 823	395+00		81
T.R. 234	26+00		133
T.R. 234	27+00		134
T.R. 234	32+50		135
T.R. 234 RAMP A		391+00	119
T.R. 234 RAMP B		383+50	120
T.R. 234 RAMP C		379+00	121
T.R. 234 RAMP D		386+00	122
T.R. 234 RAMP D		390+00	123
T.R. 234 RAMP D		394+00	124
T.R. 234 RAMP D		398+00	125

HORIZONTAL SCALE IN FEET
0 50 100 200

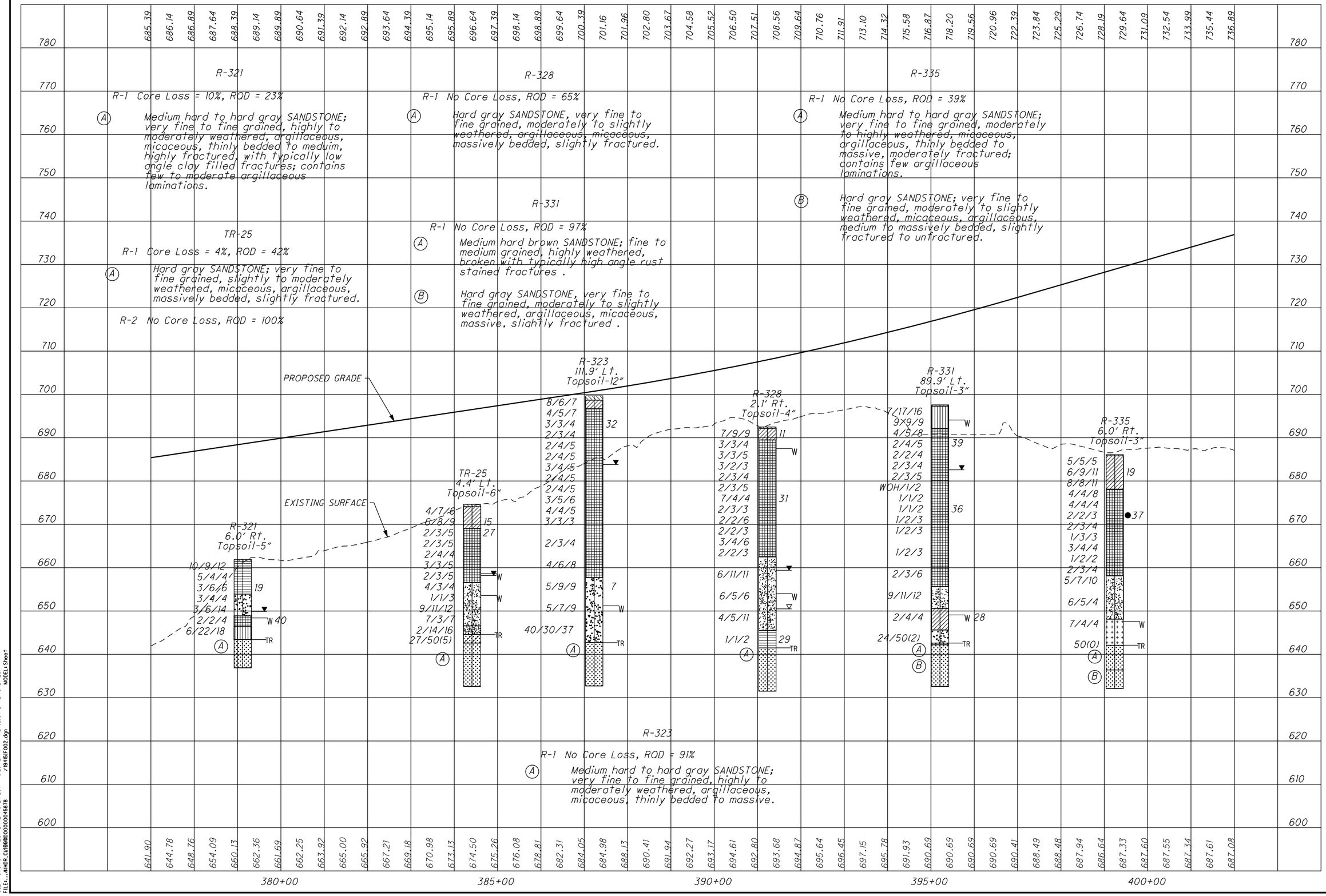
CALCULATED MAB
CHECKED DMV

SOIL PROFILE - SR823
STA. 377+00 TO STA. 402+00

SCI-823-6.81

36
135

USER: CWohlbri PLOT DATE: 6/21/2011 8:29:35 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/0800000000045878 /9145IP002.dgn MODEL: Sheet



SOIL PROFILE - SR823
STA. 377+00 TO STA. 402+00

CALCULATED

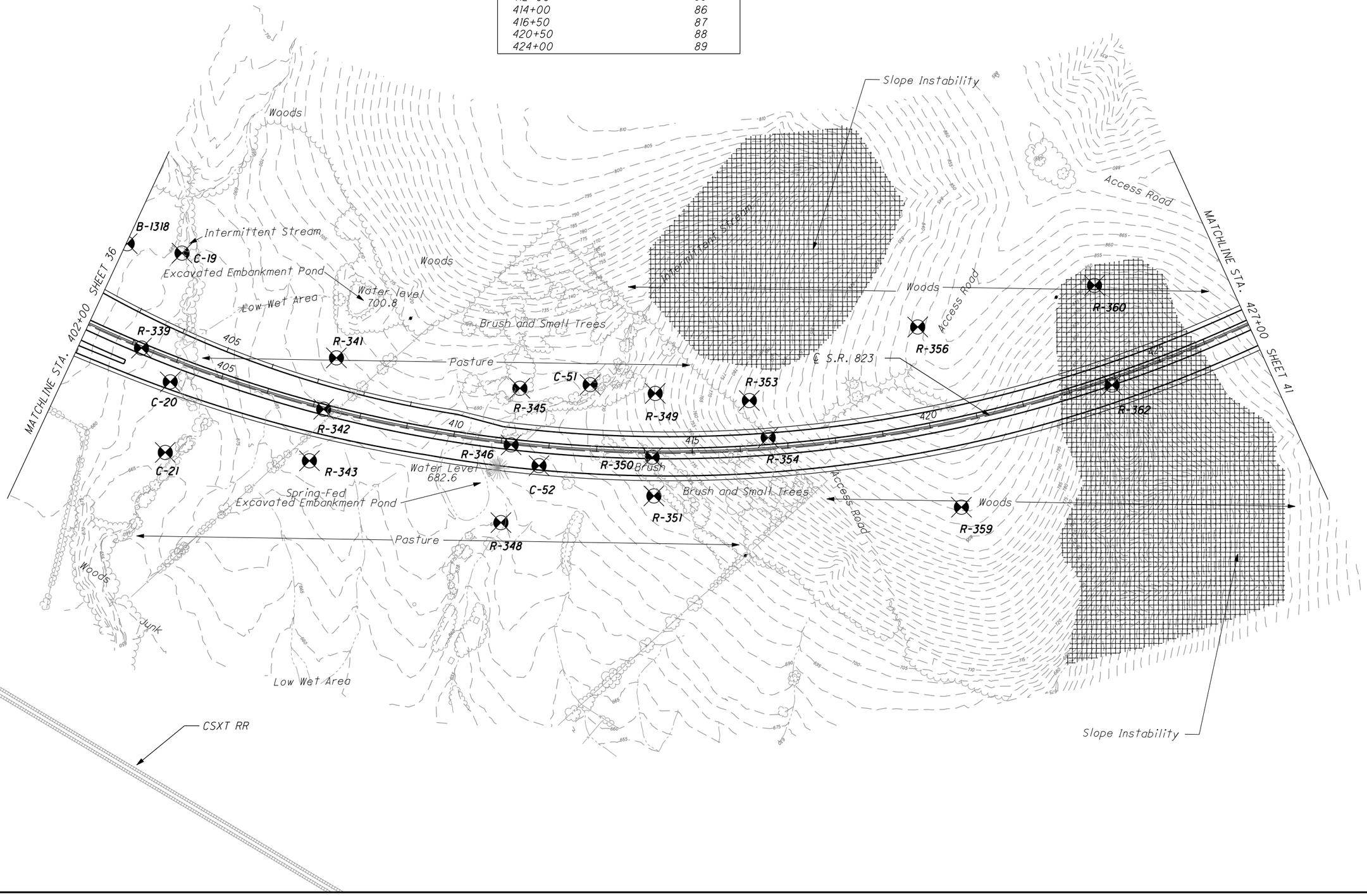
CHECKED

SCI-823-6.81

37
135

USER: CWahlbri PLOT DATE: 6/21/2011 8:29:42 PM REVISION DATE: 6/21/2011
FILE...4HDR.Cvl000000004578 /SR45IF002.dgn MODEL: Sheet

CROSS SECTION INDEX	
STATION	SHEET
404+00	82
407+00	83
411+00	84
412+00	85
414+00	86
416+50	87
420+50	88
424+00	89



HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED MAB
CHECKED DMV

SOIL PROFILE - SR823
STA. 402+00 TO STA. 427+00

SCI-823-6.81

38
135

USER: CWohlbri PLOT DATE: 6/21/2011 829:51 PM REVISION DATE: 6/21/2011
FILE:...4HOR.Cu0000000045878 /1945IP003.dgn MODEL: Sheet

PROPOSED GRADE

EXISTING SURFACE

R-339
2.5' Rt.
Topsoil-4"
5/6/4
3/3/3 33
3/4/5
2/3/3
2/2/4
1/3/3 33
2/4/5
8/8/11
8/10/13
5/8/13 W
5/19/13
0/4/7
A TR

R-342
2.4' Rt.
Topsoil-5"
6/5/5
4/4/5
2/4/5
2/3/4
2/2/3 37
2/2/3
1/2/4
2/2/3
2/3/4
2/3/4
2/3/4
2/4/5
2/3/4
9/10/11 9
7/22/12 W
0/5/38 TR
A

R-346
3.1' Rt.
5/5/5
5/6/8
9/13/13
6/12/8 14
3/4/5
2/3/4
2/3/4
2/3/5
2/4/4 25
1/2/2 33
0/2/7 24
2/3/3
0/2/2 W
0/0/6
10/13/50(5) TR
A

R-350
10.8' Rt.
Topsoil-2"
8/7/6
5/5/8
10/13/20
21/20/50
43/50(3) TR
A

R-354
23.1' Lt.
Topsoil-3"
50(4)
50(5) TR
A
B

R-356
210.3' Lt
Topsoil-4"
3/5/3
8/9/10
4/10/15 TR
24/31/38
30/35/48
32/50(4)
A
B
C
D
E
F
G

R-362
12.1' Rt.
5/7/9
9/9/9
12/15/19
12/15/17
19/21/24
10/10/10
9/10/11
10/12/14 TR
A

R-353
102.8' Lt.
Topsoil-2"
50(3) TR
50(2)
A
B

415+00

405+00 410+00 415+00 420+00 425+00

SOIL PROFILE - SR823
STA. 402+00 TO STA. 427+00

CALCULATED

CHECKED

SCI-823-6.81

39
135

USER: CMahlbri PLOT DATE: 6/21/2011 829958 PM REVISION DATE: 6/21/2011
FILE: ...4HOR.CU@@@@@@@@@@45878 /19451F003.dgn MODEL: Sheet

R-339

R-1 Core Loss = 3%, ROD = 65%

(A) Medium hard gray SANDSTONE; very fine to fine grained, highly to moderately weathered, micaceous, argillaceous, medium to massive bedding, highly to moderately fractured.

R-342

R-1 No Core Loss, ROD = 83%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, argillaceous, thinly bedded to massive, slightly fractured.

R-346

R-1 Core Loss = 4%, ROD = 72%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, micaceous, argillaceous, thinly bedded to massive, slightly fractured.

R-350

R-1 Core Loss = 5%, ROD = 34%

(A) Soft to medium hard gray and brown SANDSTONE; very fine to fine grained, highly weathered, micaceous, thinly bedded to massive, broken to highly fractured.

R-354

R-1 Core Loss = 15%, ROD = 52%

(A) Medium hard brown and light gray SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, highly fractured with typically low angle rust stained to clean fractures.

R-2 No Core Loss, ROD = 96%

(B) Hard gray SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, massively bedded, slightly fractured to unfractured.

R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 98%
R-5 No Core Loss, ROD = 100%
R-6 Core Loss = 33%, ROD = 67%

R-362

R-1 Core Loss = , ROD = 89%

(A) Medium hard to hard light gray SANDSTONE; very fine to fine grained, highly to moderately weathered, thinly bedded to thickly bedded, slightly fractured.

R-2 No Core Loss, ROD = 92%
R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 100%

R-353

R-1 No Core Loss, ROD = 51%

(A) Medium hard light brown, reddish brown, and gray SANDSTONE; very fine to fine grained, highly weathered, thinly bedded to thickly bedded, broken with rust stained and clay filled fractures, contains occasional argillaceous beds.

R-2 No Core Loss, ROD = 99%

(B) Medium hard light gray and dark gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, massively bedded, slightly fractured to unfractured.

R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 99%
R-5 No Core Loss, ROD = 98%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 94%
R-8 No Core Loss, ROD = 100%

R-356

R-1 Core Loss = 3%, ROD = 60%

(A) Soft brown and gray SHALE; highly weathered, arenaceous, micaceous, thinly laminated to thinly bedded, broken (contains numerous healed fractures); contains few arenaceous laminations.

R-2 Core Loss = 15%, ROD = 48%

(B) Medium hard gray SANDSTONE; highly weathered.

R-3 Core Loss = 25%, ROD = 55%
R-4 No Core Loss, ROD = 42%

(C) Medium hard brown SANDSTONE; fine to medium grained, moderately weathered, micaceous, argillaceous, carbonaceous, broken; contains moderate argillaceous laminations.

(D) Soft to medium hard SHALE, decomposed to highly weathered, carbonaceous, arenaceous, highly fractured.

R-5 Core Loss = 9%, ROD = 46%
R-6 No Core Loss, ROD = 95%

(E) Hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, thinly bedded to massive, contains argillaceous clasts, slightly fractured to unfractured; contains few argillaceous laminations.

R-7 No Core Loss, ROD = 90%
R-8 No Core Loss, ROD = 99%
R-9 No Core Loss, ROD = 100%
R-10 No Core Loss, ROD = 95%
R-11 No Core Loss, ROD = 97%
R-12 No Core Loss, ROD = 100%
R-13 No Core Loss, ROD = 72%

(F) Medium hard to hard gray and dark gray SANDSTONE ; very fine to fine grained, moderately weathered, argillaceous, micaceous, laminated to medium bedded, moderately fractured; contains moderate to abundant argillaceous laminations, friable.

R-14 No Core Loss, ROD = 92%

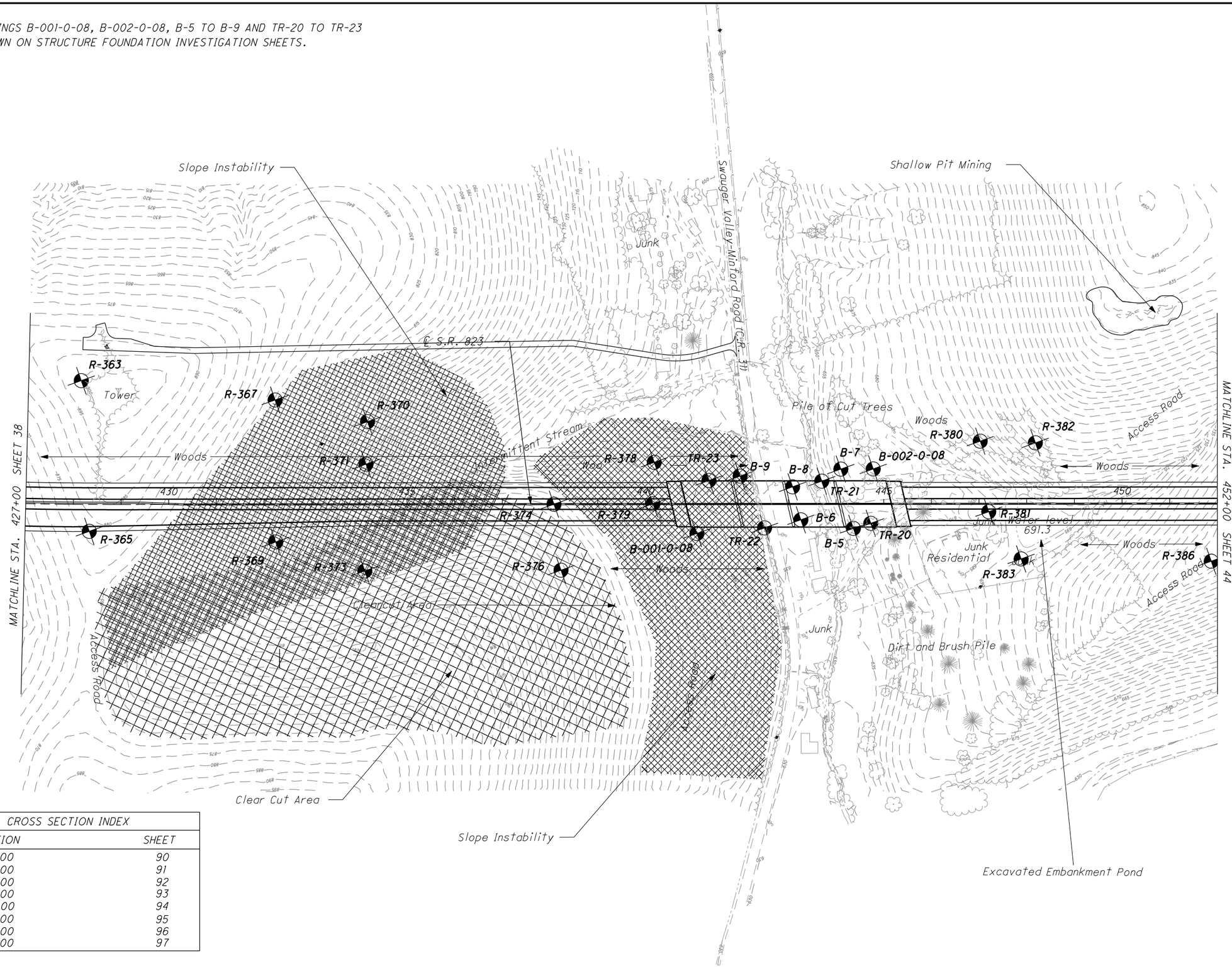
(G) Hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, thickly bedded, slightly fractured to unfractured.

CALCULATED | CHECKED

SOIL PROFILE - SR823
STA. 402+00 TO STA. 427+00

SCI-823-6.81

NOTE: BORINGS B-001-0-08, B-002-0-08, B-5 TO B-9 AND TR-20 TO TR-23 SHOWN ON STRUCTURE FOUNDATION INVESTIGATION SHEETS.



CROSS SECTION INDEX	
STATION	SHEET
428+00	90
432+00	91
434+00	92
438+00	93
440+00	94
447+00	95
448+00	96
452+00	97

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED | CHECKED

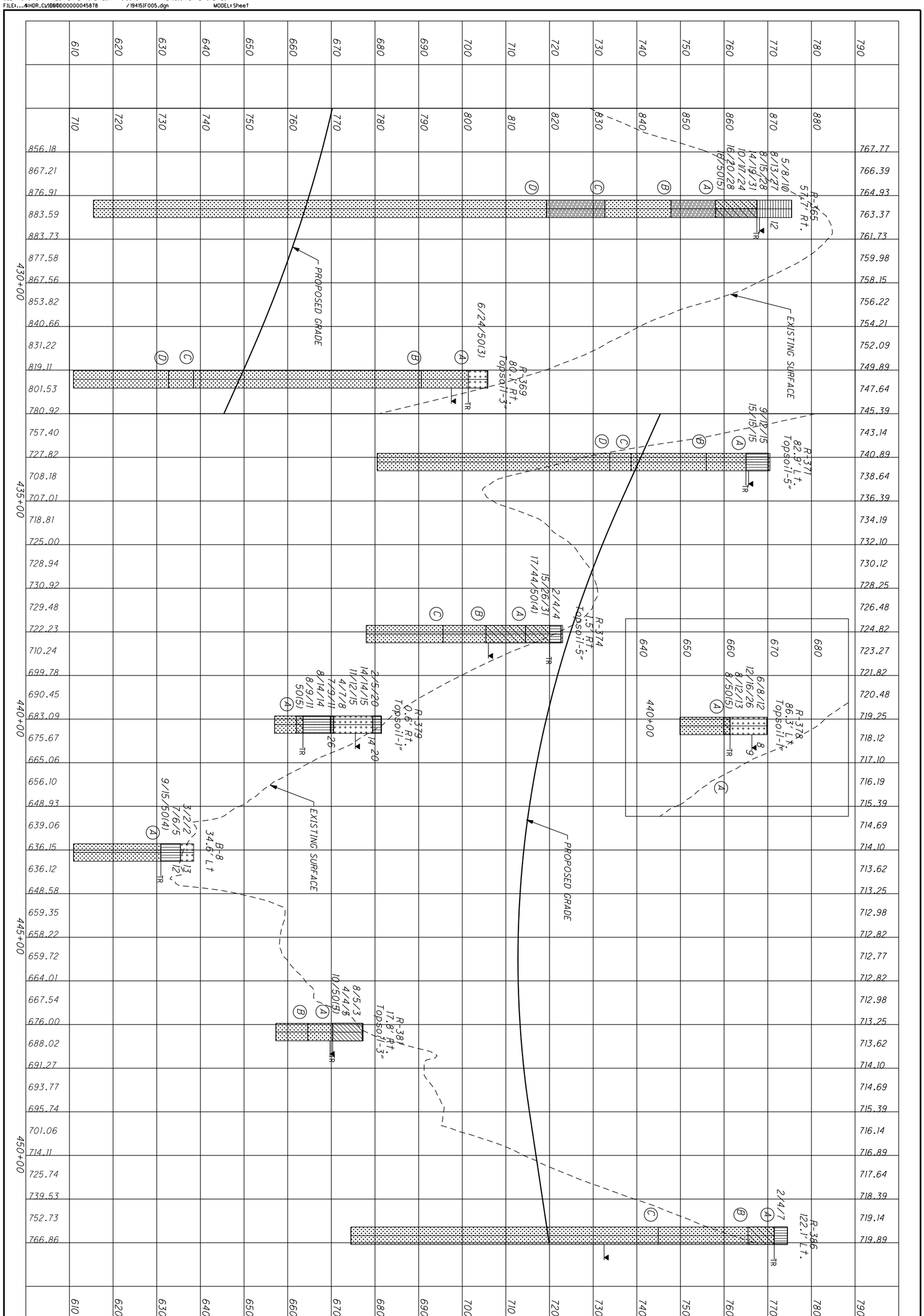
SOIL PROFILE - SR823
STA. 427+00 TO STA. 452+00

SCI-823-6.81

41
135

USER: Cmahlbri PLOT DATE: 6/21/2011 8:30:12 PM REVISION DATE: 6/21/2011
FILE:...ANDR_CU\BRIDGE\000000045878 79415\P004.dgn MODEL: Sheet

USER: CWahlbri PLOT DATE: 6/21/2011 8:30:19 PM REVISION DATE: 6/21/2011
FILE: ...4\HDR.CV1000000000045878 /19415IF005.dgn MODEL: Sheet



42 / 135	**SCI-823-6.81**	**SOIL PROFILE - SR823** **STA. 427+00 TO STA. 452+00**

CALCULATED
CHECKED

R-365

R-1 No Core Loss, ROD = 89%

(A) Soft black SHALE; moderately to highly weathered, arenaceous, carbonaceous, thinly laminated to thinly bedded, slightly fractured; contains few arenaceous laminations.

R-2 No Core Loss, ROD = 98%

(B) Medium hard light gray SANDSTONE; very fine to fine grained, highly to moderately weathered, contains moderate argillaceous laminations.

R-3 Core Loss = 5%, ROD = 88%
R-4 No Core Loss, ROD = 98%

(C) Soft to medium hard black SHALE; highly to moderately weathered, arenaceous, micaceous, carbonaceous, laminated to thinly bedded, contains thin arenaceous laminations.

R-5 No Core Loss, ROD = 53%

(D) Hard light gray SANDSTONE; very fine to fine grained, moderately weathered, micaceous, slightly argillaceous, massively bedded, slightly fractured to unfractured.

R-6 No Core Loss, ROD = 98%
R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 100%
R-9 No Core Loss, ROD = 100%
R-10 No Core Loss, ROD = 100%
R-11 No Core Loss, ROD = 100%
R-12 No Core Loss, ROD = 99%
R-13 No Core Loss, ROD = 100%
R-14 No Core Loss, ROD = 100%
R-15 No Core Loss, ROD = 100%

B-8

R-1 Core Loss = 19%, ROD = 68%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, massive bedding, highly fractured, contains few laminations.

R-2 No Core Loss, ROD = 90%
R-3 No Core Loss, ROD = 100%

R-378

R-1 Core Loss = 9%, ROD = 75%

(A) Medium hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, micaceous, argillaceous, thinly to medium bedded, moderately fractured.

R-379

R-1 Core Loss = 15%, ROD = 38%

(A) Medium hard brown SANDSTONE; very fine to fine grained, moderately to highly weathered, micaceous, argillaceous, massively bedded, moderately fractured.

R-369

R-1 No Core Loss, ROD = 52%

(A) Medium hard brown and gray SANDSTONE; moderately to highly weathered, slightly argillaceous, micaceous, highly fractured.

R-2 No Core Loss, ROD = 90%

(B) Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, micaceous, laminated to thinly bedded, moderately to slightly fractured.

R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 97%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 96%

(C) Medium hard gray SANDSTONE; highly to moderately weathered, micaceous, laminated to thinly bedded; contains few argillaceous laminations, friable.

R-8 No Core Loss, ROD = 100%

(D) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, argillaceous, massive.

R-9 No Core Loss, ROD = 100%
R-10 No Core Loss, ROD = 100%

R-371

R-1 No Core Loss, ROD = 59%

(A) Medium hard brown SANDSTONE; very fine to fine grained, highly weathered, broken to highly fractured; contains clay filled fractures.

R-2 No Core Loss, ROD = 94%

(B) Medium hard to hard gray SANDSTONE, very fine to fine grained, moderately weathered, argillaceous, micaceous, massive, slightly fractured to unfractured.

R-3 No Core Loss, ROD = 93%

(C) Medium hard gray SANDSTONE; very fine grained, moderately weathered, thinly laminated to massively bedded, turbidity bedded, slightly fractured; contains few to moderate argillaceous laminations.

R-4 No Core Loss, ROD = 96%

(D) Hard gray SANDSTONE; very fine to fine grained, moderately to slightly weathered, argillaceous, pyritic, laminated to medium bedded, slightly fractured to unfractured.

R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 100%
R-9 Core Loss = 7%, ROD = 93%

R-374

R-1 Core Loss = 28%, ROD = 22%

(A) Soft to medium hard brown SANDSTONE; very fine to fine grained, highly weathered to decomposed, thinly bedded, micaceous, argillaceous, broken.

R-2 Core Loss = 3%, ROD = 41%

(B) Medium hard to hard gray SANDSTONE; moderately to highly weathered, laminated to medium bedded, contains few to moderate argillaceous laminations.

R-3 Core Loss = 1%, ROD = 41%

(C) Hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, thinly bedded to medium bedded, argillaceous, micaceous.

R-4 Core Loss = 1%, ROD = 78%

R-386

R-1 Core Loss = 56%, ROD = 0%

(A) Soft brown SANDSTONE; very fine to fine grained, decomposed, argillaceous, micaceous, (has soil like appearance), contains moderate to abundant argillaceous laminations.

R-2 Core Loss = 8%, ROD = 0%

(B) Soft to medium hard brown SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, contains moderate to abundant argillaceous laminations.

R-3 Core Loss = 25%, ROD = 14%
R-4 Core Loss = 3%, ROD = 47%
R-5 No Core Loss, ROD = 58%

(C) Medium hard gray SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, broken to highly fractured, contains abundant to moderate argillaceous laminations.

R-6 Core Loss = 1%, ROD = 63%
R-7 No Core Loss, ROD = 60%
R-8 No Core Loss, ROD = 54%
R-9 Core Loss = 1%, ROD = 59%
R-10 Core Loss = 3%, ROD = 55%
R-11 Core Loss = 2%, ROD = 80%
R-12 No Core Loss, ROD = 75%

R-381

R-1 No Core Loss, ROD = 71%

(A) Medium hard to hard brown SANDSTONE; very fine to fine grained, highly fractured to moderately weathered, micaceous, argillaceous, laminated to medium bedded, contains several clay filled fractures.

(B) Hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, micaceous, argillaceous, laminated to medium bedded, contains few argillaceous laminations.

R-2 No Core Loss, ROD = 94%

CALCULATED | CHECKED

SOIL PROFILE - SR823
STA. 427+00 TO STA. 452+00

SCI-823-6.81

CROSS SECTION INDEX	
STATION	SHEET
452+00	97
455+50	98
459+00	99
463+00	100
467+00	101
472+00	102
474+00	103

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED | CHECKED

SOIL PROFILE - SR823
STA. 452+00 TO STA. 477+00

SCI-823-6.81

USER: CMahlbi PLOT DATE: 6/21/2011 8:30:55 PM REVISION DATE: 6/21/2011
FILE:...4HOR.CL(GB00000004587B /19415IP005.dgn MODEL: Sheet

SOIL PROFILE - SR823 STA. 452+00 TO STA. 477+00

CALCULATED | CHECKED

SCI-823-6.81

719.89 720.64 721.39 722.14 722.89 723.64 724.39 725.14 725.89 726.64 727.39 728.14 728.89 729.64 730.39 731.14 731.89 732.64 733.38 734.05 734.66 735.19 735.66 736.06 736.39 736.64 736.84 736.96 737.01 736.99 736.91 736.75 736.53 736.23 735.87 735.44 734.94 734.37 733.73 733.03 732.25 731.40 730.49 729.50 728.45 727.33 726.14 724.88 723.55 722.15 720.68

R-389

R-1 Core Loss = 8%, ROD = 3%

(A) Medium hard gray and brown SANDSTONE; very fine to fine grained, highly weathered, micaceous, argillaceous, thinly bedded to massive, highly fractured, typical fracture is low angle rust stained.

R-2 No Core Loss, ROD = 82%

(B) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, argillaceous, thinly bedded to massive, slightly fractured to unfractured.

R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 98%

R-384

R-1 Core Loss = 17%, ROD = 36%

(A) Medium hard to hard brown SANDSTONE; very fine to fine grained, decomposed to highly weathered, broken, argillaceous, contains thin clay seams.

R-2 No Core Loss, ROD = 63%

(B) Hard gray SANDSTONE; very fine to fine grained, highly weathered, argillaceous, contains thin clay seams.

R-3 Core Loss = 5%, ROD = 90%
R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 100%

R-402

R-1 No Core Loss, ROD = 63%

(A) Medium hard to hard gray SANDSTONE, very fine to fine grained, highly to moderately weathered, thinly to thickly bedded, broken to slightly fractured.

R-384
74.6' Lt.
Topsoil-5"
36/20/27
23/25/29
26/50(2)
TR
(A)
(B)

R-389
83.3' Rt.
Topsoil-3"
9/17/34
24/33/36
50(2)
TR
(A)
(B)

R-392
6.3' Rt.
Topsoil-6"
8/7/7
9/16/25
15/17/24
8/18/29
5/50(4)
12
TR
(A)

EXISTING SURFACE

R-395
1.1' Rt.
Topsoil-12"
4/4/5
14/32/23
7/12/14
6/11/13
5/8/10
10/20/20
6/11/21
10/22/17
16
W

C-11
5.0' Rt.
Topsoil-1"
6/5/4
3/2/10
4/8/13
4/12/13
4/10/18
19
14
15
TR
(A)

C-11

R-1 Core Loss = 12%, ROD = 73%

(A) Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, laminated to very thinly bedded, slightly fractured.

R-405
68.0' Lt.
Topsoil-12"
4/7/13
11/21/21
8/12/11
4/4/5
3/3/5
3/5/5
2/5/8
3/8/16
W
21
24

R-409
1.2' Rt.
Topsoil-12"
2/3/6
8/9/13
8/12/17
3/8/13
10/18/15
13/4/4
2/2/3
6/5/10
14
W
18

R-402
1.4' Rt.
Topsoil-12"
3/3/3
4/5/7
2/2/3
3/7/7
3/6/6
12/50(4)
19
20
18
TR
(A)

PROPOSED GRADE

R-392

R-1 No Core Loss, ROD = 88%

(A) Hard to medium hard brown SANDSTONE; highly weathered, moderately to highly fractured, argillaceous, contains moderate to few argillaceous laminations.

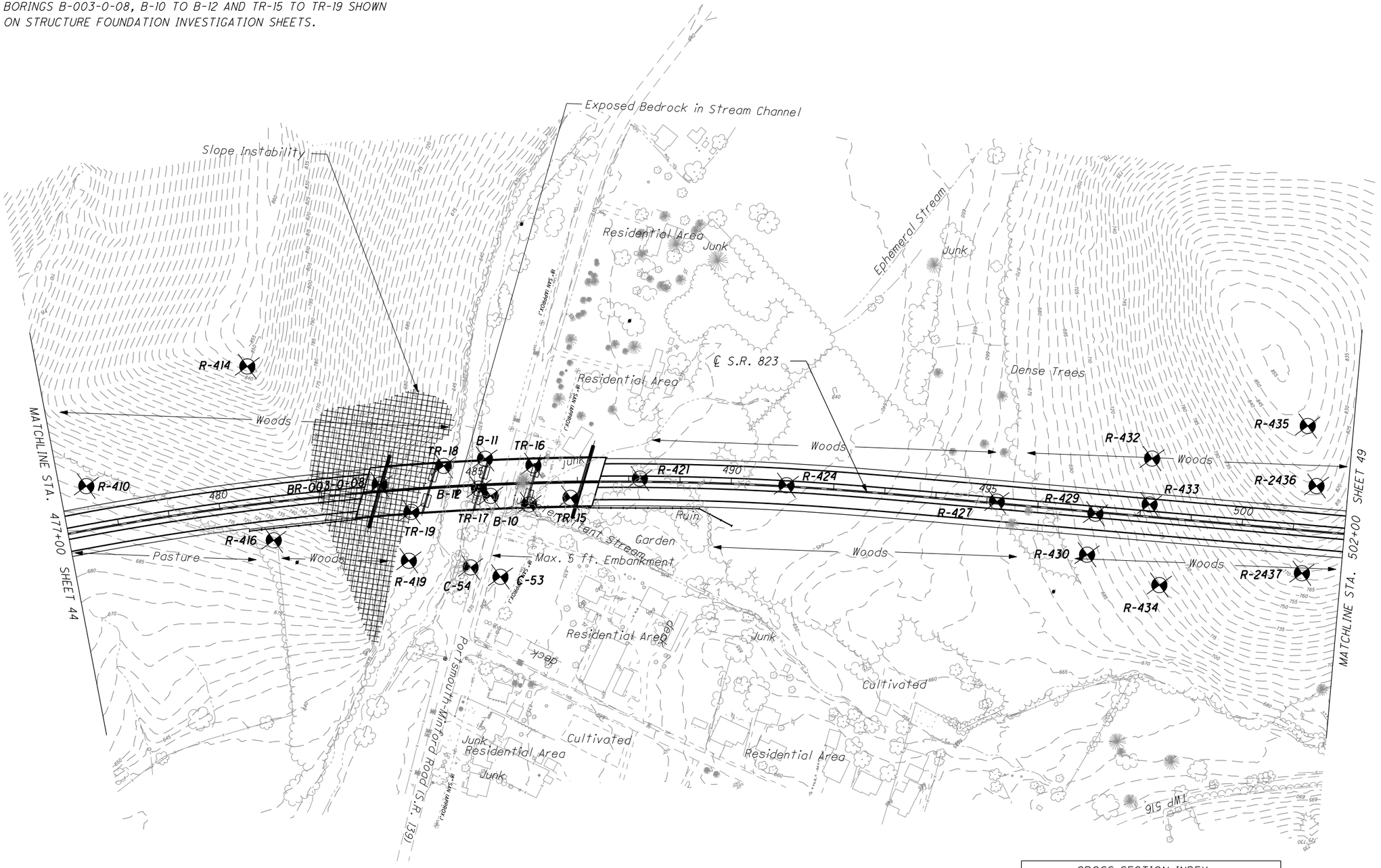
R-2 No Core Loss, ROD = 100%

766.86 783.61 796.41 795.54 782.49 771.71 761.47 750.39 737.82 728.94 723.42 719.41 716.16 715.36 714.07 712.26 710.29 707.99 706.10 703.89 701.34 698.22 695.65 692.23 686.30 680.14 669.67 661.63 661.63 661.63 663.87 667.04 668.10 669.59 673.07 674.98 675.61 675.66 676.06 676.91 676.72 666.82 662.87 663.61 671.77 680.50 685.15 686.11 686.93 687.64 689.04

455+00 460+00 465+00 470+00 475+00

USER: CWahibi PLOT DATE: 6/21/2011 8:30:42 PM REVISION DATE: 6/21/2011
FILE:...4HDR.CD0000000045878 /SR45IF007.dgn MODEL: Sheet

NOTE: BORINGS B-003-0-08, B-10 TO B-12 AND TR-15 TO TR-19 SHOWN ON STRUCTURE FOUNDATION INVESTIGATION SHEETS.



CROSS SECTION INDEX	
STATION	SHEET
481+00	104
485+00	105
497+00	106
498+00	107
501+50	108

SOIL PROFILE - SR823
STA. 477+00 TO STA. 502+00

SCI-823-6.81

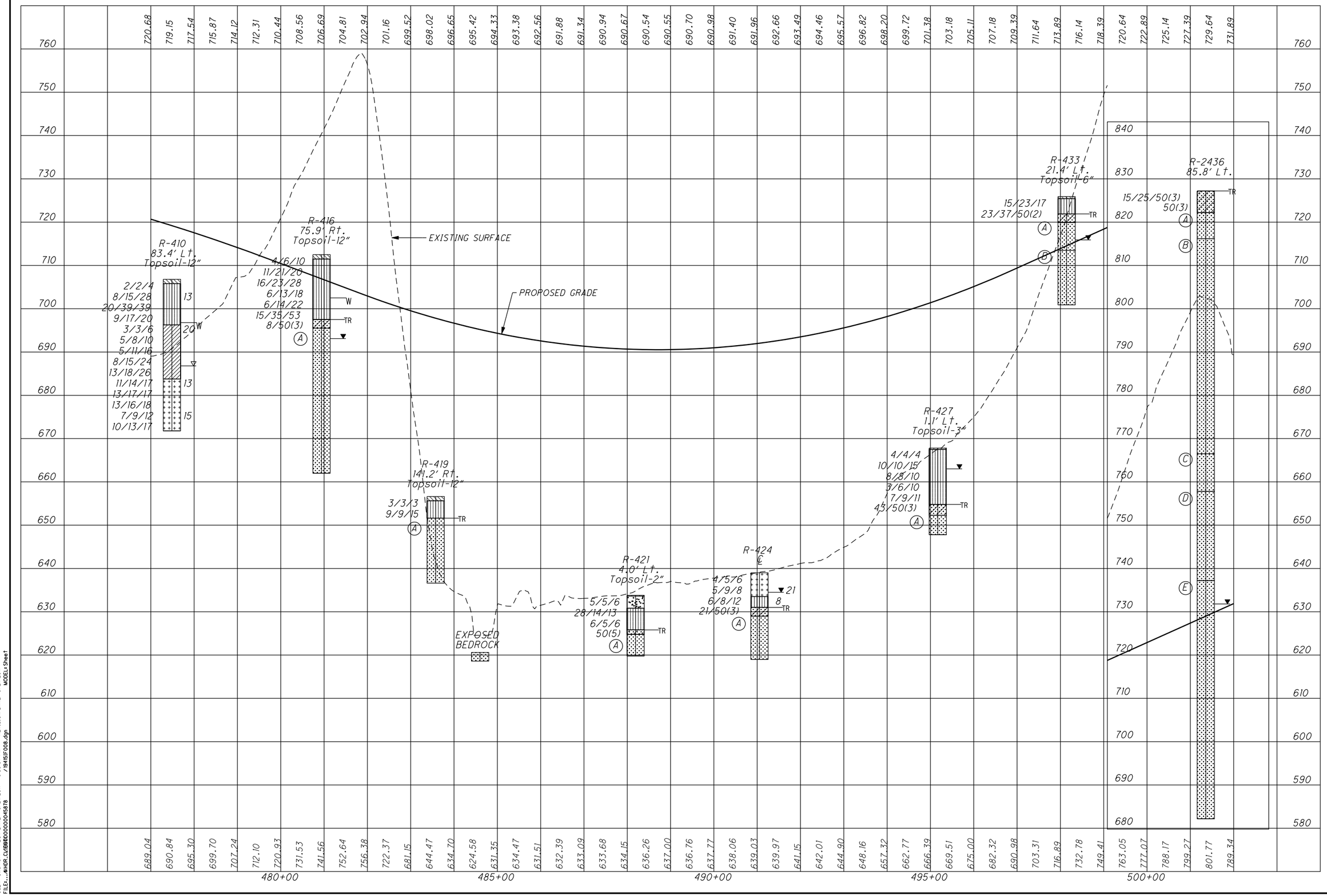
HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED | CHECKED

USER: Cmahlbri PLOT DATE: 6/21/2011 8:30:50 PM REVISION DATE: 6/21/2011
FILE: ...ANOR_CU\BR0000000045878 /7941SP008.dgn MODEL: Sheet

SOIL PROFILE - SR823
STA. 477+00 TO STA. 502+00

CALCULATED | CHECKED



SCI-823-6.81

USER: CWahlbri PLOT DATE: 6/21/2011 8:30:57 PM REVISION DATE: 6/21/2011
FILE...4HDR.Cvl000000004878 /SHEET008.dgn MODEL: Sheet

R-416

R-1 No Core Loss, RQD = 83%

(A) Medium hard to hard brown SANDSTONE; very fine to fine grained, broken to moderately fractured, moderately weathered, micaceous, argillaceous.

R-2 No Core Loss, RQD = 100%
R-3 Core Loss = 3%, ROD = 98%
R-4 No Core Loss, RQD = 100%

R-419

R-1 No Core Loss, RQD = 78%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, micaceous, massively bedded.

R-2 No Core Loss, RQD = 81%

R-421

R-1 No Core Loss, RQD = 90%

(A) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thickly bedded.

R-424

R-1 No Core Loss, ROD = 92%

(A) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, medium bedded to massive, slightly fractured.

R-2 No Core Loss, ROD = 99%

R-427

R-1 No Core Loss, RQD = 100%

(A) Soft to medium hard brown and gray SANDSTONE, argillaceous, highly weathered, moderately fractured.

R-433

R-1 No Core Loss, RQD = 75%

(A) Medium hard light brown SANDSTONE, fine to medium grained, argillaceous, highly weathered to decomposed, broken; contains numerous silty clay filled, rust stained, low angled fractures.

(B) Medium hard to hard gray SANDSTONE, very fine to fine grained, laminated to thin bedded, moderately weathered, contains very small argillaceous clasts, highly fractured.

R-2 No Core Loss, ROD = 73%
R-3 No Core Loss, ROD = 92%

R-2436

R-1 No Core Loss, RQD = 69%

(A) Hard light brown SANDSTONE; very fine to fine grained, highly weathered, thickly to massively bedded, moderately to highly fractured.

(B) Hard brown and gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, thickly bedded to massive, moderately fractured.

R-2 Core Loss = 2%, RQD = 86%
R-3 Core Loss = 3%, RQD = 94%
R-4 No Core Loss, RQD = 95%
R-5 No Core Loss, RQD = 98%
R-6 No Core Loss, RQD = 92%

(C) Medium hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, micaceous, laminated to medium bedded, slightly to moderately fractured, contains moderate to abundant argillaceous laminations.

R-7 No Core Loss, RQD = 97%

(D) Hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, pyritic, massive, slightly fractured, contains few argillaceous laminations.

R-8 No Core Loss, RQD = 83%
R-9 No Core Loss, RQD = 100%

(E) Very hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, massive, unfractured to slightly fractured.

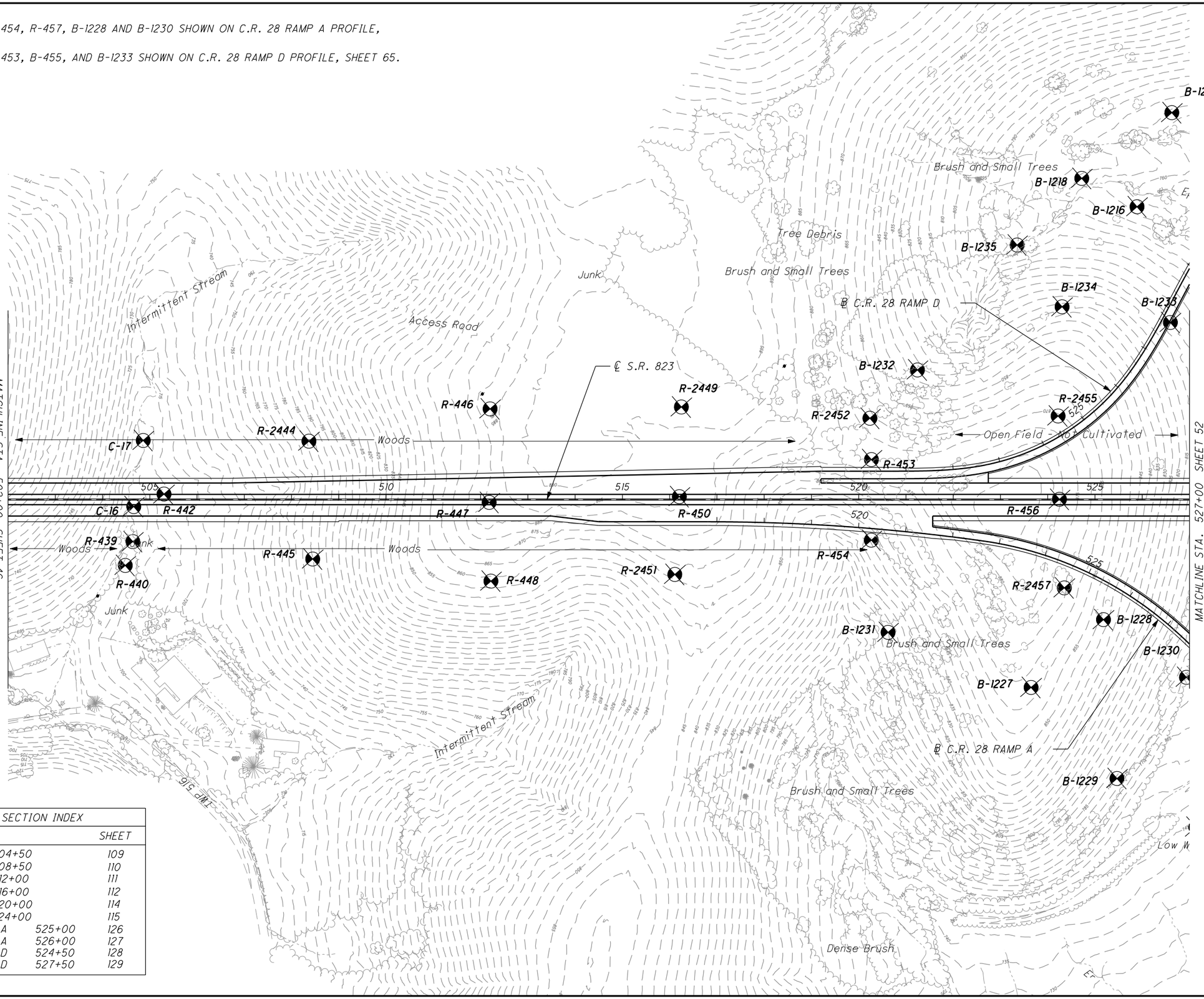
R-10 No Core Loss, RQD = 100%
R-11 No Core Loss, RQD = 99%
R-12 No Core Loss, RQD = 100%
R-13 No Core Loss, RQD = 100%
R-14 No Core Loss, RQD = 100%
R-15 No Core Loss, RQD = 100%

CALCULATED | CHECKED

SOIL PROFILE - SR823
STA. 477+00 TO STA. 502+00

SCI-823-6.81

NOTE: BORINGS R-454, R-457, B-1228 AND B-1230 SHOWN ON C.R. 28 RAMP A PROFILE, SHEET 61.
BORINGS B-453, B-455, AND B-1233 SHOWN ON C.R. 28 RAMP D PROFILE, SHEET 65.



CROSS SECTION INDEX		
STATION		SHEET
S.R. 823	504+50	109
S.R. 823	508+50	110
S.R. 823	512+00	111
S.R. 823	516+00	112
S.R. 823	520+00	114
S.R. 823	524+00	115
C.R. 28 RAMP A	525+00	126
C.R. 28 RAMP A	526+00	127
C.R. 28 RAMP D	524+50	128
C.R. 28 RAMP D	527+50	129

HORIZONTAL SCALE IN FEET
0 50 100 200
CALCULATED
CHECKED

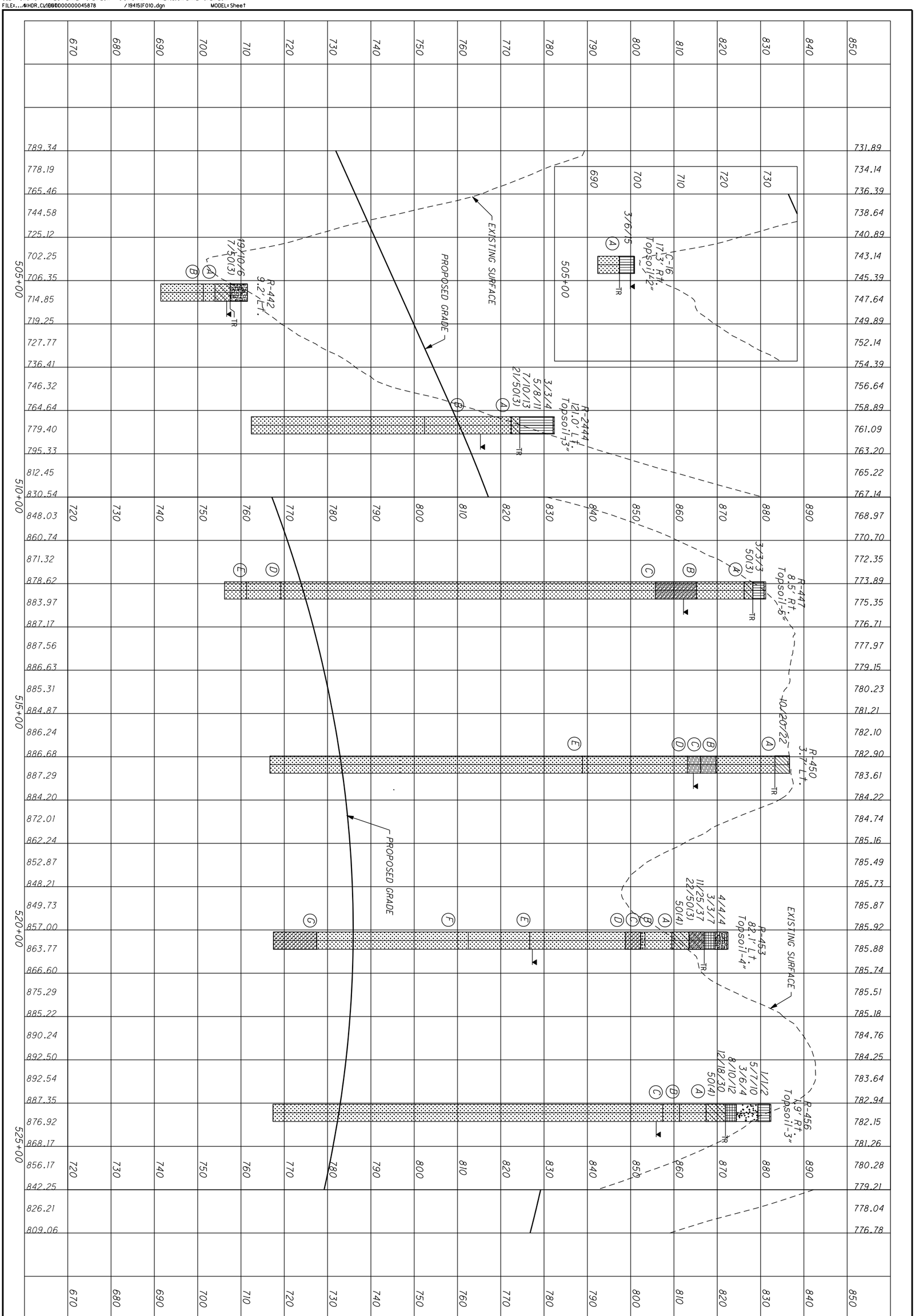
SOIL PROFILE - SR823
STA. 502+00 TO STA. 527+00

SCI-823-6.81

49
135

USER: CWohlbr PLOT DATE: 6/21/2011 8:39:10 PM REVISION DATE: 6/21/2011
FILE: ...\MHDR.C\0000000004578 /1845IP007.dgn MODEL: Sheet

USER: CWahlbri PLOT DATE: 6/21/2011 8:31:18 PM REVISION DATE: 6/21/2011
FILE:...4IHDR.CV1000000000045878 /19415IF010.dgn MODEL: Sheet



50 / 135	**SCI-823-6.81**	**SOIL PROFILE - SR823** **STA. 502+00 TO STA. 527+00**

CALCULATED
CHECKED

R-447

R-1 Core Loss = 6%, ROD = 78%

(A) Medium hard brown and reddish brown SANDSTONE; fine to medium grained, highly weathered, micaceous, massive, broken.

R-2 No Core Loss, ROD = 73%

(B) Soft to medium hard dark gray CLAY SHALE; highly weathered, arenaceous, laminated to very thinly bedded, broken to moderately fractured.

R-3 No Core Loss, ROD = 87%

(C) Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, micaceous, argillaceous, thinly bedded to medium bedded, slightly fractured.

R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 48%
R-6 No Core Loss, ROD = 48%
R-7 No Core Loss, ROD = 66%
R-8 No Core Loss, ROD = 100%
R-9 No Core Loss, ROD = 100%
R-10 No Core Loss, ROD = 97%
R-11 No Core Loss, ROD = 100%

(D) Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, laminated to medium bedded, slightly fractured, contains few to moderate argillaceous laminations..

R-12 No Core Loss, ROD = 100%

(E) Hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, micaceous, pyritic, argillaceous, medium bedded to massive, unfractured to slightly fractured.

R-13 No Core Loss, ROD = 100%

R-442

R-1 No Core Loss, ROD = 76%

(A) Soft to medium hard brown SANDSTONE; fine to medium grained, highly weathered, argillaceous, broken.

(B) Medium hard to hard gray SANDSTONE, moderately to slightly fractured, very fine to fine grained, moderately weathered, moderately to slightly fractured, contains medium to massive turbidite beds.

R-2 No Core Loss, ROD = 100%

C-16

R-1 Core Loss = 8%, ROD = 83%

(A) Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, laminated to very thinly bedded, slightly fractured, contains rust stains.

R-450

R-1 No Core Loss, ROD = 63%

(A) Medium hard brown and light gray SANDSTONE; fine to medium grained, highly weathered, broken, contains numerous low angle rust stained and clay filled fractures.

R-2 No Core Loss, ROD = 90%

(B) Soft to medium hard dark gray and black SHALE; moderately to highly weathered, carbonaceous, moderately to highly fractured.

(C) Soft gray SHALE; highly weathered to decomposed, thinly laminated, arenaceous, moderately to highly fractured.

R-3 No Core Loss, ROD = 91%

(D) Medium hard gray SANDSTONE; very fine to fine grained, highly weathered, broken to moderately fractured, argillaceous, contains moderate argillaceous laminations.

R-4 Core Loss = 4%, ROD = 86%
R-5 No Core Loss, ROD = 98%

(E) Medium hard to hard light gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, thickly bedded to massive, unfractured to slightly fractured.

R-6 No Core Loss, ROD = 95%
R-7 Core Loss = 9%, ROD = 82%
R-8 No Core Loss, ROD = 68%
R-9 No Core Loss, ROD = 100%
R-10 No Core Loss, ROD = 100%
R-11 No Core Loss, ROD = 100%
R-12 No Core Loss, ROD = 100%

R-2444

R-1 Core Loss = 57%, ROD = 4%

(A) Soft to medium hard brown SANDSTONE; very fine to fine grained, highly weathered to decomposed, argillaceous, micaceous, medium bedded to thickly bedded, broken, with few shale laminae.

R-2 No Core Loss, ROD = 94%
R-3 No Core Loss, ROD = 100%

(B) Medium hard to hard gray SANDSTONE; to moderately weathered, bedded to thickly bedded, slightly very fine to fine grained, slightly argillaceous, micaceous, pyritic, thinly fractured.

R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 100%

R-453

R-1 No Core Loss, ROD = 100%

(A) Medium hard brown SANDSTONE; fine to coarse grained, moderately weathered, argillaceous, thinly bedded to medium bedded, highly fractured.

R-2 Core Loss = 8%, ROD = 77%

(B) Medium hard brown and gray BRECCIA; highly weathered, broken.

(C) Soft to medium hard gray SILTSTONE; highly weathered, broken to highly fractured, argillaceous.

(D) Medium hard gray SANDSTONE; very fine to fine grained, highly weathered, micaceous, argillaceous, laminated to moderately bedded, highly fractured.

R-3 No Core Loss, ROD = 83%
R-4 No Core Loss, ROD = 91%
R-5 Core Loss = 1%, ROD = 91%

(E) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, medium bedded to massively bedded.

(F) Medium hard gray SANDSTONE; very fine to fine grained, moderately weathered, micaceous, argillaceous, laminated to thinly bedded.

R-7 No Core Loss, ROD = 100%
R-8 Core Loss = 3%, ROD = 97%
R-9 Core Loss = 1%, ROD = 84%
R-10 Core Loss = 2%, ROD = 60%

(G) Medium hard gray SILTSTONE; moderately weathered, micaceous, laminated to thinly bedded.

R-12 No Core Loss, ROD = 93%

R-456

R-1 No Core Loss, ROD = 97%

(A) Medium hard to hard gray SANDSTONE, fine to coarse grained, micaceous, moderately weathered, medium to massive beds, slightly fractured .

R-2 Core Loss = 2%, ROD = 72%

(B) Medium hard to hard brown and gray SANDSTONE, fine to coarse grained, highly weathered, broken to highly fractured, poorly cemented.

R-3 No Core Loss, ROD = 100%

(C) Hard gray SANDSTONE, very fine to medium grained, argillaceous, thin to thick bedded, moderately weathered, highly fractured.

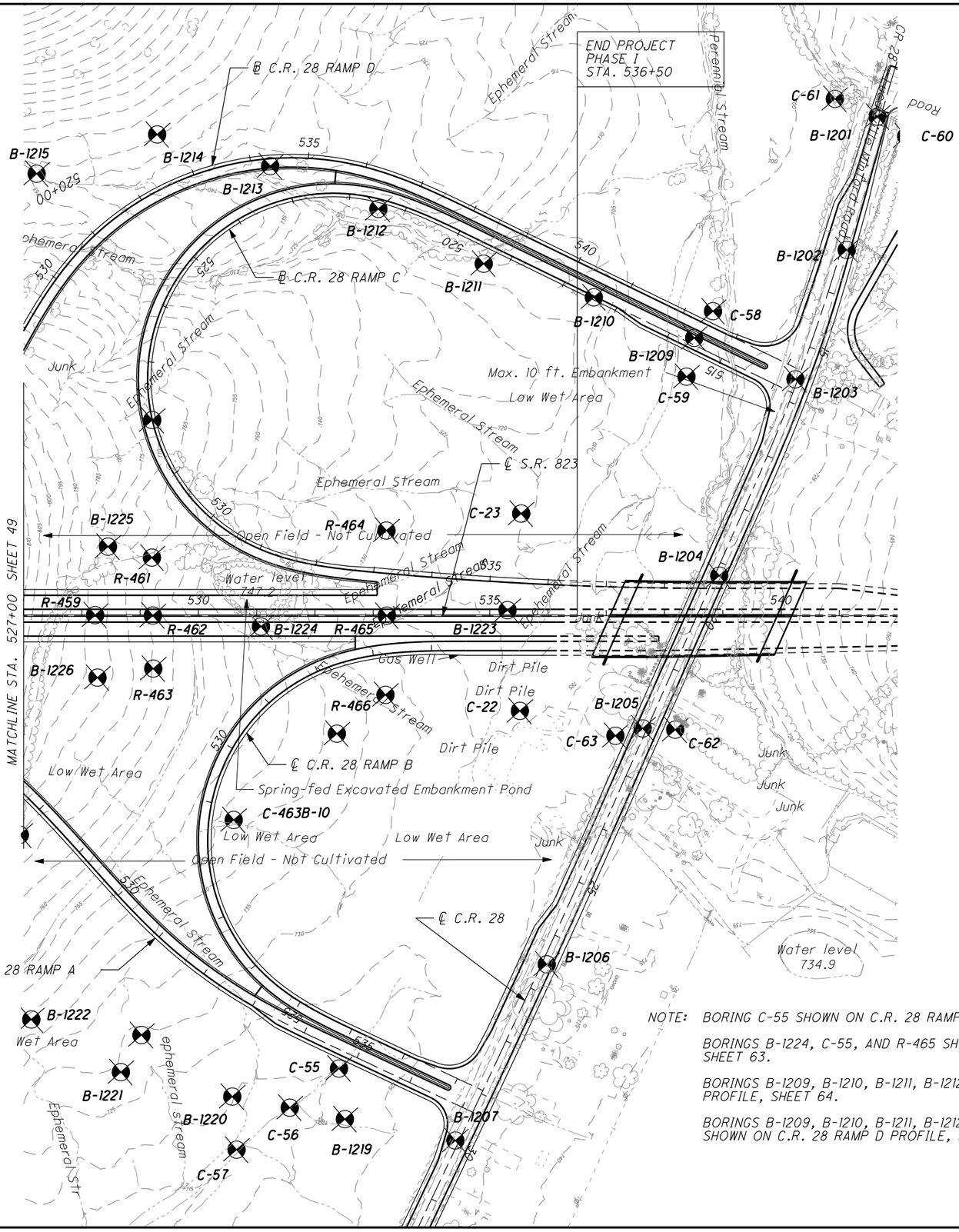
R-4 Core Loss = 1%, ROD = 99%
R-5 No Core Loss, ROD = 100%
R-6 Core Loss = 1%, ROD = 98%
R-7 Core Loss = 3%, ROD = 95%
R-8 No Core Loss, ROD = 100%

CALCULATED | CHECKED

SOIL PROFILE - SR823
STA. 502+00 TO STA. 527+00

SCI-823-6.81

CROSS SECTION INDEX		
STATION		SHEET
S.R. 823	529+00	116
S.R. 823	533+00	117
S.R. 823	535+50	118
C.R. 28 RAMP D	542+50	130



NOTE: BORING C-55 SHOWN ON C.R. 28 RAMP A PROFILE, SHEET 61.

BORINGS B-1224, C-55, AND R-465 SHOWN ON C.R. 28 RAMP B PROFILE, SHEET 63.

BORINGS B-1209, B-1210, B-1211, B-1212, AND R-464 SHOWN ON C.R. 28 RAMP C PROFILE, SHEET 64.

BORINGS B-1209, B-1210, B-1211, B-1212, B-1213, B-1214, B-1233, R-453, AND R-455 SHOWN ON C.R. 28 RAMP D PROFILE, SHEETS 65 AND 67.

HORIZONTAL SCALE IN FEET
0 50 100 200

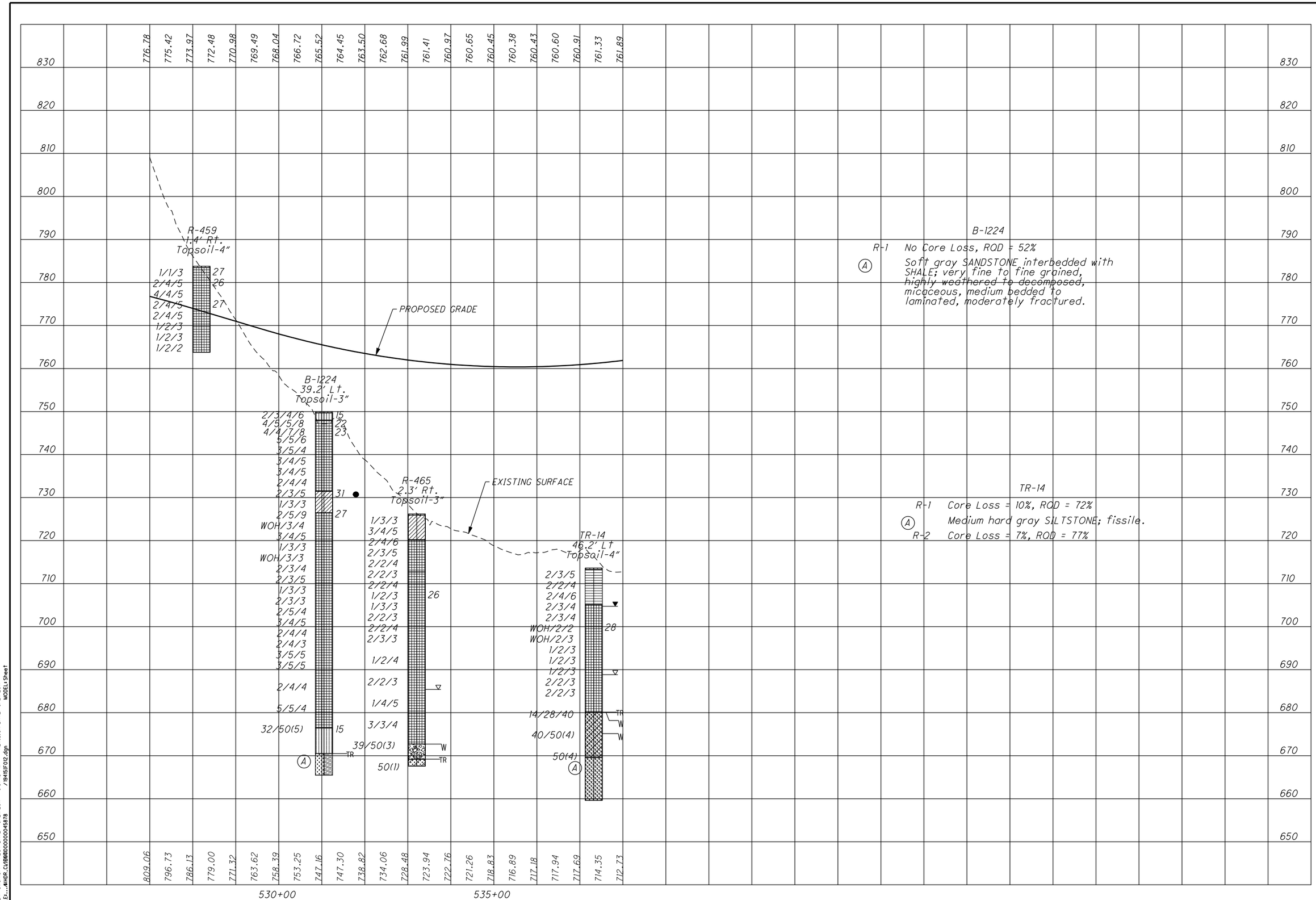
CALCULATED | CHECKED

SOIL PROFILE - SR823
STA. 527+00 TO STA. 536+50

SCI-823-6.81

52
135

USER: CWohlbr1 PLOT DATE: 6/21/2011 8:39:35 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.CVB0000000004578 /1845EIP008.dgn MODEL: Sheet



SOIL PROFILE - SR823
STA. 527+00 TO STA. 536+50

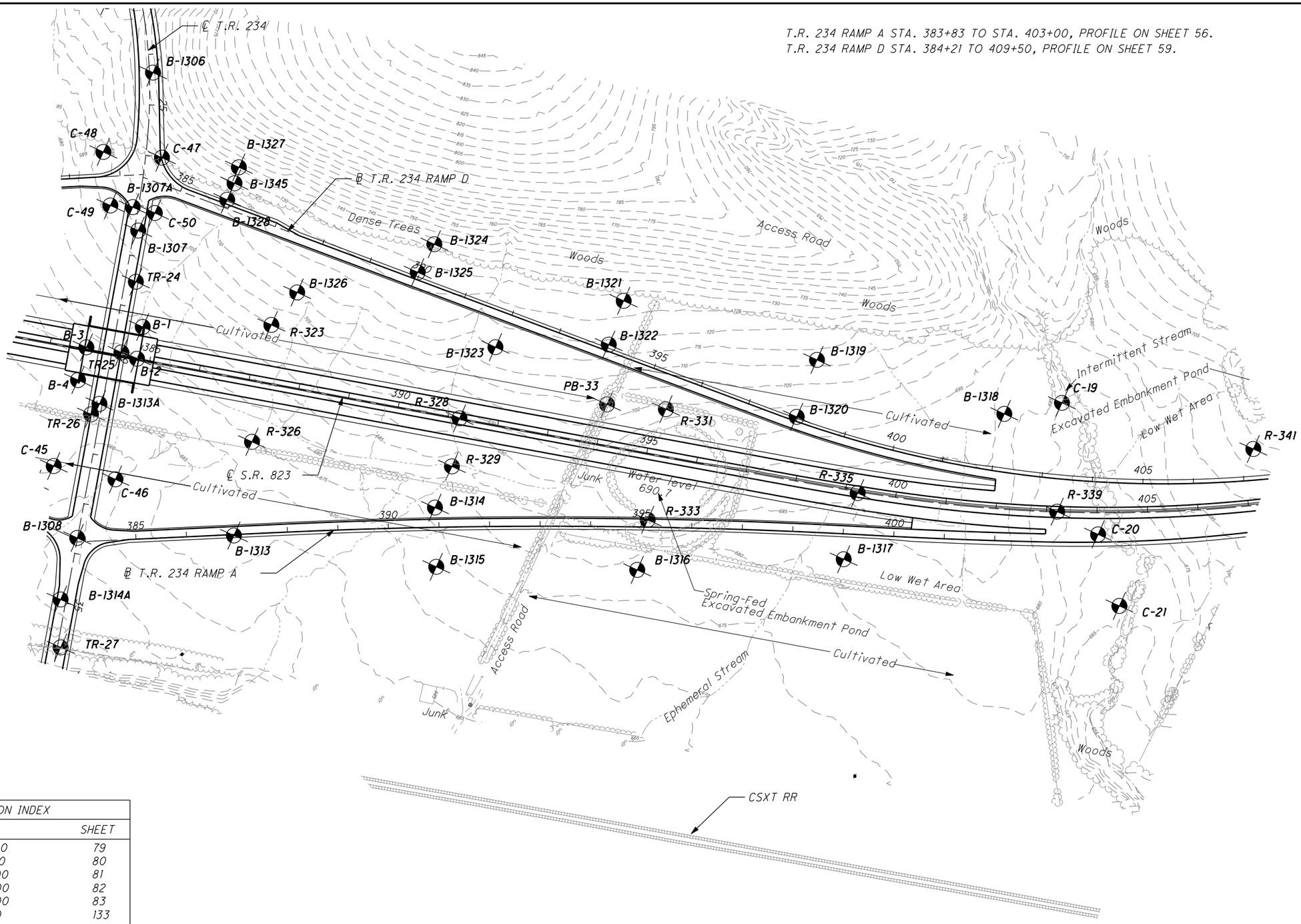
CALCULATED | CHECKED

SCI-823-6.81

53
135

USER: CWahlbri PLOT DATE: 6/21/2011 8:31:43 PM REVISION DATE: 6/21/2011
FILE...4HDR.Cr0000000004578 /S4SIF012.dgn MODEL: Sheet

T.R. 234 RAMP A STA. 383+83 TO STA. 403+00, PROFILE ON SHEET 56.
T.R. 234 RAMP D STA. 384+21 TO 409+50, PROFILE ON SHEET 59.



CROSS SECTION INDEX			
STATION			SHEET
S.R. 823	387+50		79
S.R. 823	391+00		80
S.R. 823	395+00		81
S.R. 823	404+00		82
S.R. 823	407+00		83
T.R. 234	26+00		133
T.R. 234	27+00		134
T.R. 234	32+50		135
T.R. 234 RAMP A		391+00	119
T.R. 234 RAMP D		386+00	122
T.R. 234 RAMP D		390+00	123
T.R. 234 RAMP D		394+00	124
T.R. 234 RAMP D		398+00	125

NOTE: BORINGS R-323, R-328, R-331, AND R-335 SHOWN ON S.R. 823 PROFILE, SHEET 37.
BORINGS B-1306 TO B-1308 AND B-1312A TO B-1314A SHOWN ON T.R. 234 PROFILE, SHEET 69.
BORINGS B-1 TO B-4 AND TR-24 TO TR-27 SHOWN ON STRUCTURE FOUNDATION INVESTIGATION SHEETS.

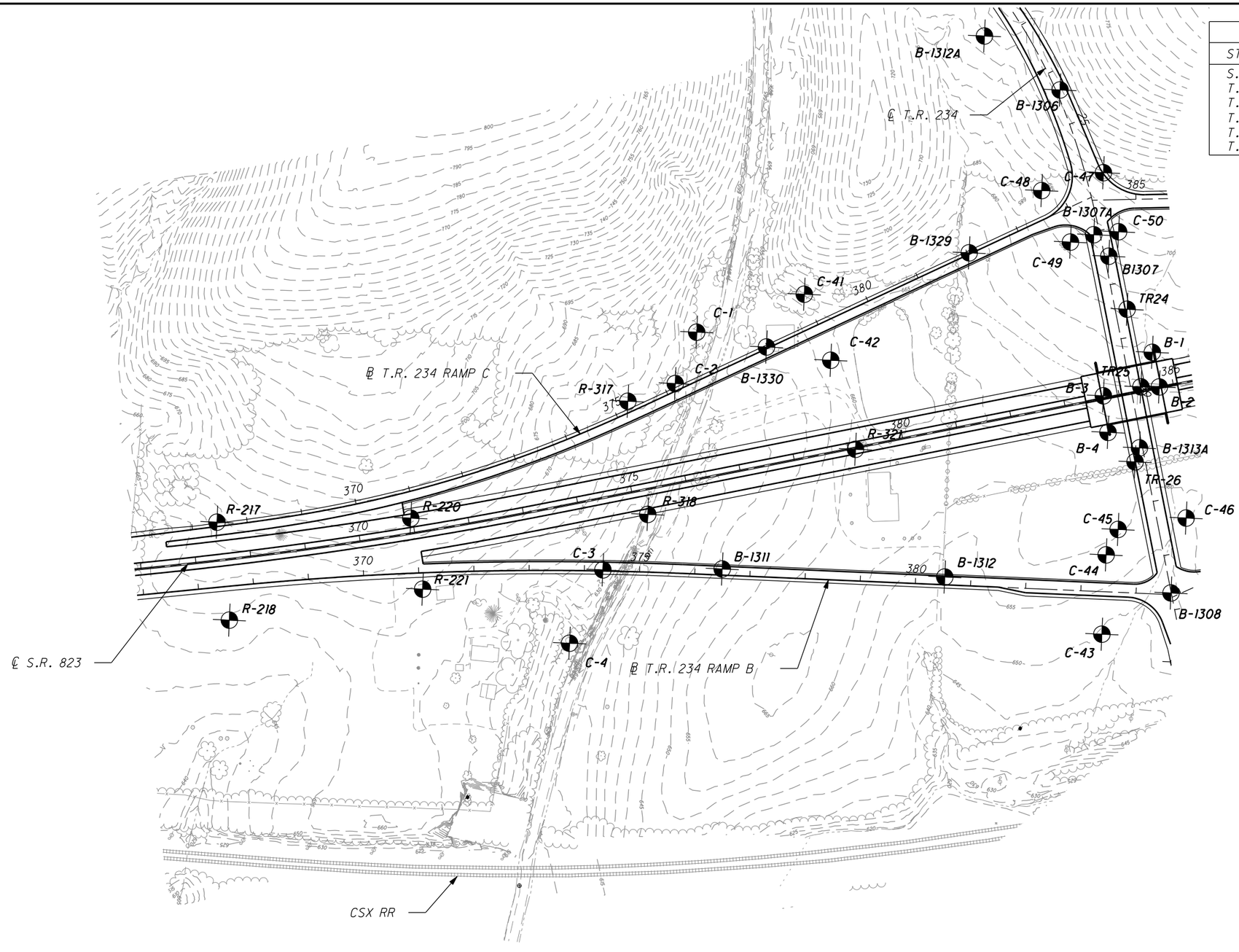
HORIZONTAL SCALE IN FEET
0 50 100 200
CALCULATED
CHECKED

SOIL PROFILE
TR234 RAMP A AND RAMP D

SCI-823-6.81

USER:Mohlbr1 PLOT DATE: 6/21/2011 8:31:49 PM REVISION DATE: 6/21/2011 MODEL: Sheet1
FILE: 1945P010.dgn

CROSS SECTION INDEX			
STATION			SHEET
S.R. 823	375+50		78
T.R. 234	26+00		133
T.R. 234	27+00		134
T.R. 234	32+50		135
T.R. 234 RAMP B		383+50	120
T.R. 234 RAMP C		379+00	121



NOTE: BORINGS R-217, R-220, R-318, AND R-321 SHOWN ON S.R. 823 PROFILE, SHEETS 35 AND 37.
BORINGS B-1306 TO B-1308, B-1312A, AND B1313A SHOWN ON T.R. 234 PROFILE, SHEET 69.
BORINGS B-1 TO B-4 AND TR-24 TO TR-26 SHOWN ON STRUCTURE FOUNDATION INVESTIGATION SHEETS.

T.R. 234 RAMP B STA. 366+00 TO STA. 384+65, PROFILE ON SHEET 57.
T.R. 234 RAMP C STA. 366+50 TO STA. 384+46, PROFILE ON SHEET 58.

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED | CHECKED

SOIL PROFILE
TR234 RAMP B AND RAMP C

SCI-823-6.81

USER:Mahlbri PLOT DATE: 6/21/2011 8:31:56 PM REVISION DATE: 6/21/2011
FILE: MGR-0028(000)043878 1945IPO11.dgn MODEL: Sheet1

B-1308
R-1 No Core Loss, ROD = 86%
Hard gray SANDSTONE ; very fine to fine grained, slightly weathered, argillaceous, micaceous, massively bedded, unfractured.

B-1314
R-1 No Core Loss, ROD = 93%
Hard gray SANDSTONE; very fine to fine grained, argillaceous, micaceous, slightly weathered, massively bedded, slightly fractured.

R-333
R-1 Core Loss = 1%, ROD = 13%
Hard gray SANDSTONE; very fine to fine grained, moderately to slightly weathered, micaceous, argillaceous, massively bedded, slightly fractured.

B-1317
R-1 Core Loss = 13%, ROD = 70%
Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, massively bedded, slightly to moderately fractured.

R-339
R-1 Core Loss = 3%, ROD = 65%
Medium hard gray SANDSTONE; very fine to fine grained, highly to moderately weathered, micaceous, argillaceous, medium to massive bedding, highly to moderately fractured.

B-1316
R-1 No Core Loss, ROD = 74%
Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, thickly bedded, slightly fractured.

PROPOSED GRADE
EXISTING SURFACE

B-1308
660.9' Lt
Topsoil-2"
6/10/13
6/11/15
7/10/12
3/4/5
1/2/8
50(4)
28
W
TR

B-1313
5.0' Rt
Topsoil-3"
4/7/9/12
12/15/11/24
6/11/18/24
6/9/7
4/7/8
4/3/3
2/2/3
14
13
W

B-1314
35.9' Lt
Topsoil-12"
5/9/11
4/7/10
4/7/6
3/3/6
2/3/5
29
7/6/10
8/9/12
5/7/8
4/7/9
3/2/2
3/6/6
5
W
2/2/50(2)
TR

R-333
11.1' Lt
Topsoil-4"
4/6/6
2/2/2
1/1/1
1/1/2
WOH/2/2
4/7/11
3/4/8
2/4/6
2/3/4
3/4/5
2/2/5
2/4/4
4/11/12
6/5/6
1/1/2
1/1/2
W
26
36
6
W
TR

B-1317
54.0' Rt
Topsoil-9"
2/4/7
5/8/8
3/5/11
3/4/5
3/3/4
2/3/5
2/4/4
4/5/5
6/13/13
9/10/14
9/7/9
8/3/3
15/12/15
45/50(1)
33
31
8
W
TR

R-339
57.1' Lt
Topsoil-4"
5/6/4
3/3/3
3/4/5
2/3/3
2/2/4
1/3/3
2/4/5
8/8/11
8/10/13
5/8/13
5/19/13
0/4/7
33
33
W
TR

B-1316
88.2' Rt
Topsoil-9"
3/2/4
4/5/6
3/4/4
1/3/6
4/6/6
4/5/7
10/10/11
6/7/10
5/10/10
6/6/6
4/3/5
4/4/3
2/50(5)
50(2)
W
TR
395+00

659.88 663.53 665.23 665.96 666.76 666.92 665.75 665.97 666.97 667.94 669.06 670.38 672.39 675.26 677.45 680.35 682.24 683.34 684.50 685.31 685.41 691.20 693.28 688.32 682.55 682.38 683.19 682.50 682.01 683.92 684.51 685.30 685.74 686.06 686.40 686.07 683.56 676.20

385+00 390+00 395+00 400+00

SOIL PROFILE - TR234 RAMP A
STA. 383+83 TO STA. 403+00

SCI-823-6.81

56
135

CALCULATED
CHECKED

USER: CMahlbri PLOT DATE: 6/21/2011 8:32:03 PM REVISION DATE: 6/21/2011
FILE: ...4\HDR.CU0000000045878 /19415FOI6.dgn MODEL: Sheet

663.90 670.55 671.20 671.84 672.47 673.10 673.76 674.41 675.14 675.88 676.63 677.38 678.04 678.54 678.87 679.04 679.04 678.88 678.55 678.06 677.40 676.57 675.58 674.43 673.10 671.62 670.05 668.48 666.91 665.49 664.37 663.56 663.05 662.84 662.94 663.34 664.04 664.89

750 740 730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580 570

R-218

R-1 No Core Loss, ROD = 98%

(A) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thinly bedded to massive, slightly fractured.

R-221

R-1 No Core Loss, ROD = 92%

(A) Hard light brown SANDSTONE; very fine to fine grained, moderately weathered, micaceous, slightly argillaceous, laminated to medium bedded.

B-1311

R-1 Core Loss = 11%, ROD = 78%

(A) Hard gray SANDSTONE; fine grained, slightly weathered, argillaceous, micaceous, thickly bedded, slightly fractured.

B-1312

R-1 No Core Loss, ROD = 74%

(A) Very hard gray SANDSTONE; very fine to fine grained, moderately to slightly weathered, argillaceous, thickly bedded, slightly fractured.

PROPOSED GRADE

EXISTING SURFACE

R-218
64.4' Rt.
Topsoil-3"
8/8/8 8/8/8 9/11/15 8/16/16 4/3/3 3/3/3 10/14/50(2) 50(2)
W 17
TR
(A)

R-221
33.0' Rt.
Topsoil-2"
10/7/9 6/7/8 3/5/8 4/5/7 7/4/4 2/2/2 1/1/1 3/3/7 50(0)
34 1
W
TR
(A)

C-3
4' Rt.
Topsoil-5"
5/4/5 8/11/19 50(4)
16 12"
TR
(A) (B)

B-1311
7.8' Lt.
Topsoil-6"
2/2/2 10/50(4") 50(3) 50(2)
TR
(A)

B-1312
10.8' Lt.
Topsoil-6"
1/2/3 3/4/8 4/8/8 50(4)
20
TR
(A)

B-1308
0.4' Rt.
Topsoil-2"
6/10/13 6/11/12" 7/10/12 3/4/5 1/2/8 50(4)
W
28
TR
(A)

C-3

R-1 Core Loss = 6%, ROD = 76%

(A) Medium hard brown and gray SANDSTONE; very fine grained, slightly to moderately weathered, laminated to medium bedded, moderately fractured.

(B) Medium hard to hard gray SANDSTONE; very fine grained, unweathered, thinly bedded to thickly bedded, moderately fractured.

R-2 Core Loss = 18%, ROD = 43%

B-1308

R-1 No Core Loss, ROD = 86%

(A) Hard gray SANDSTONE ; very fine to fine grained, slightly weathered, argillaceous, micaceous, massively bedded, unfractured.

658.39 661.47 663.70 663.90 663.02 663.09 665.13 666.94 669.21 669.49 667.14 664.25 658.44 653.02 648.10 643.15 635.85 630.56 628.69 634.42 641.03 647.98 652.68 657.19 661.07 663.61 661.37 656.44 652.98 651.25 652.58 656.07 657.46 656.71 655.62 654.16 651.84 653.03

370+00 375+00 380+00

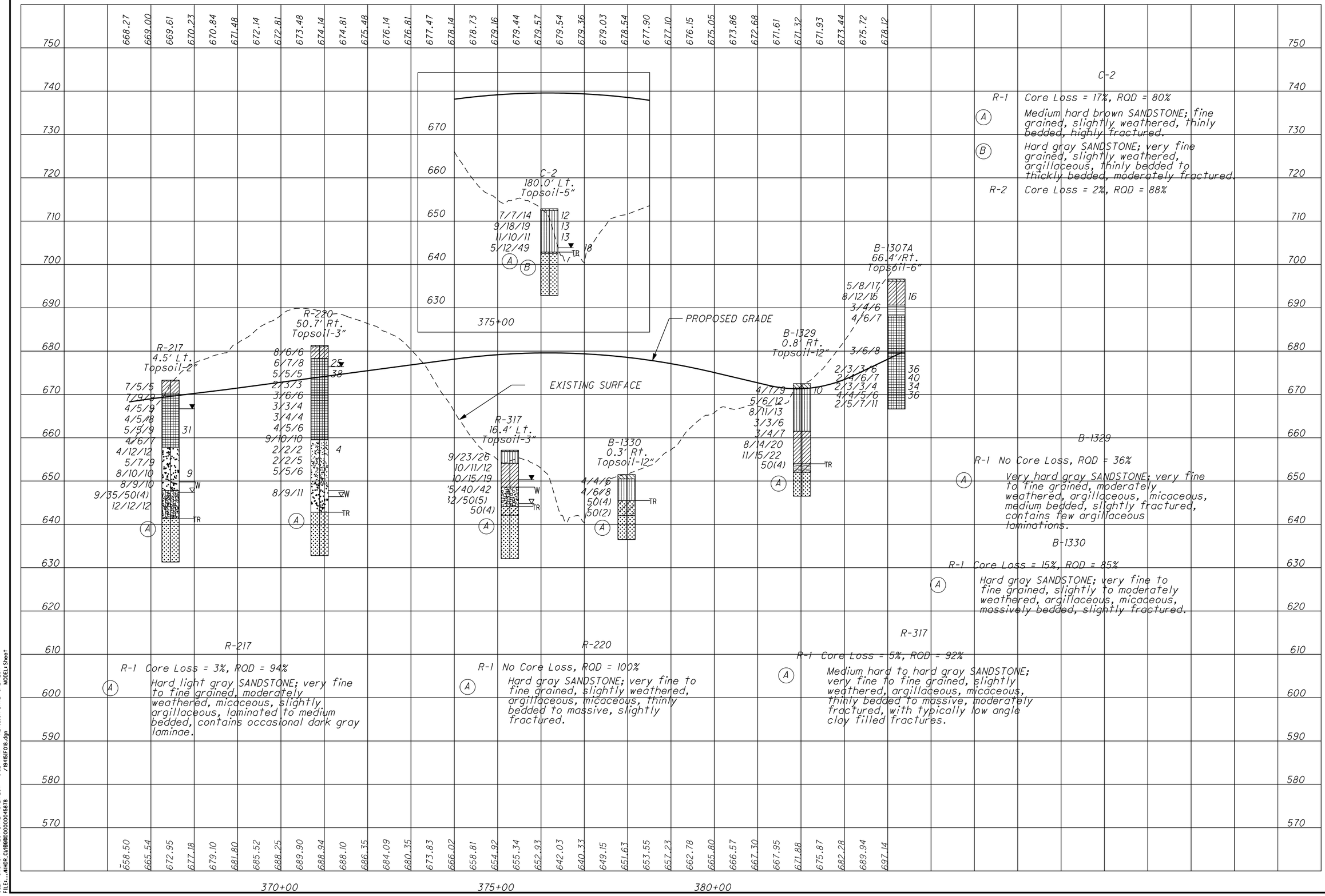
USER: CWahlbri PLOT DATE: 6/21/2011 8:32:11 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C(000000000045878 79145IF01T.dgn MODEL: Sheet

CALCULATED CHECKED

SOIL PROFILE - TR234 RAMP B
STA. 366+00 TO STA. 384+65

SCI-823-6.81

57
135



CALCULATED | CHECKED

SOIL PROFILE - TR234 RAMP C
STA. 366+50 TO STA. 384+46

SCI-823-6.81

58
135

USER: CWahlbri PLOT DATE: 6/21/2011 8:32:17 PM REVISION DATE: 6/21/2011
FILE:...4\HDR.Cvl000000004878 /8485IF018.dgn MODEL: Sheet

B-1320

R-1 Core Loss = 2%, ROD = 90%

Hard gray SANDSTONE; fine to very fine grained, slightly to moderately weathered, micaceous, thickly bedded to massive, slightly fractured.

B-1318

R-1 Core Loss = 12%, ROD = 66%

Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, micaceous, massively bedded, slightly fractured, turbidity, bedding.

R-341

R-1 No Core Loss, ROD = 69%

Medium hard to hard gray SANDSTONE; very fine to fine grained, highly to slightly weathered, micaceous, argillaceous, thinly bedded to medium, occassional pyrite nodules; contains turbidity bedding.

PROPOSED GRADE

B-1328
13.3' Lt.
Topsoil-6"

6/8/11
12/16/17
7/12/15
1/3/5
2/4/4 33
36
14/15/24
14/8/8
12/17/25
18/25/30
28/50(5) TR
32/50(2)

B-1325
10.9' Lt.
Topsoil-12"

5/5/5
12/20/24
10/15/12
4/5/6
5/10/13 14
6/8/13
10/9/10
7/8/11
5/0/12
4/6/8
3/3/4
4/4/5 33
20/24/18
7/7/14
39/44/50/5
22/23/20 TR
50(4)

B-1322
9.4' Lt.
Topsoil-12"

12/16/17
4/5/7
2/3/5
2/4/5 30
2/4/5
3/4/6 33
33
3/3/4 34
2/3/4
3/4/5
37
2/4/5
4/6/9
4/5/6
4/6/7
7/10/12
3/4/6
16/50(6)
50(2) TR

B-1320
5.3' Lt.
Topsoil-12"

2/3/5
5/8/11
4/4/6
3/3/6
4/6/8
3/5/7
3/3/5 35
3/3/5
2/3/5
2/3/5
3/4/4 37
4/5/7
7/8/10
3/4/18 W
40/50(3) TR

B-1318
111.0' Lt.
Topsoil-12"

2/3/6
11/12/8
4/4/6 28
3/3/4
2/2/3
3/3/3 37
2/3/4
2/3/4
4/5/6
3/4/5
6/10/9
50(4) TR

R-341
58.6' Lt.
Topsoil-3"

3/5/6
3/4/4 21
2/3/3
2/2/3
1/2/4
3/3/4
2/2/3
1/2/3
1/2/3
1/2/3
1/2/3
1/2/3
WOH/3/3 39
3/7/7 W 25
2/1/2 32
17/26/29 TR
50(3)

B-1328

R-1 Core Loss = 3%, ROD = 34%

Medium hard brown SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, laminated to medium bedded, highly fractured, contains few decomposed argillaceous laminations.

B-1325

R-1 No Core Loss, ROD = 78%

Hard gray SANDSTONE; very fine to fine grained, moderately to slightly weathered, argillaceous, micaceous, thickly bedded, slightly fractured.

B-1322

R-1 Core Loss = 20%, ROD = 54%

Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thickly bedded, slightly fractured.

EXISTING SURFACE

780 770 760 750 740 730 720 710 700 690 680 670 660 650 640 630 620 610 600

680.98 682.38 683.78 685.18 686.59 687.99 689.39 690.79 692.20 693.60 695.00 696.40 697.81 699.21 700.61 702.01 703.42 704.82 706.22 707.62 709.03 710.43 711.83 713.23 714.64 716.04 717.50 719.00 720.55 722.15 723.81 725.50 727.20 728.91 730.61 732.31 734.02 735.71 737.40 739.07 740.72 742.35 743.97 745.57 747.15 748.12 750.27 751.80 753.32 754.82 756.30

706.91 710.96 714.06 715.73 718.20 721.58 723.26 724.08 724.55 725.41 726.24 727.02 725.98 724.32 721.66 722.87 721.86 720.89 719.94 717.11 713.25 710.15 707.17 704.20 702.60 701.51 699.06 696.66 696.22 694.31 692.39 691.11 690.58 689.78 689.67 689.48 684.51 679.56 676.17 672.16 674.90 678.14 684.97 687.85 689.43 692.41 693.81 695.62 697.31 698.00 697.58

385+00 390+00 395+00 400+00 405+00 410+00

CALCULATED CHECKED

SOIL PROFILE - TR234 RAMP D
STA. 384+21 TO STA. 409+50

SCI-823-6.81

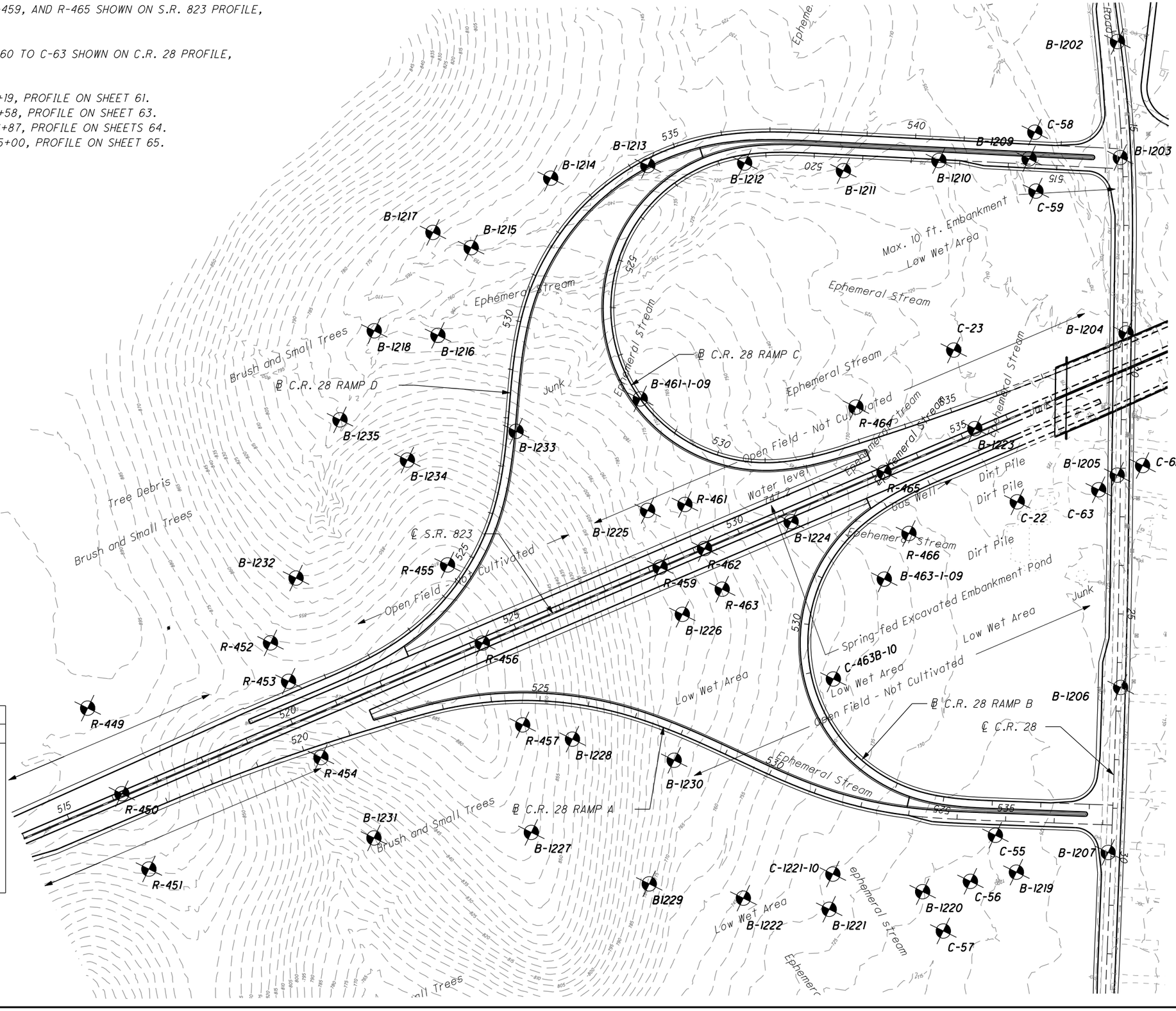
59
135

USER: CMahlbri PLOT DATE: 6/21/2011 8:32:25 PM REVISION DATE: 6/21/2011
FILE:...4HOR.CU0000000045878 /19415F01B.dgn MODEL: Sheet

NOTE: BORINGS R-450, R-453, R-456, R-459, AND R-465 SHOWN ON S.R. 823 PROFILE, SHEETS 50 AND 53.

BORINGS B-1201 TO B-1208 AND C-60 TO C-63 SHOWN ON C.R. 28 PROFILE, SHEET 73.

C.R. 28 RAMP A STA. 518+80 TO STA 537+19, PROFILE ON SHEET 61.
C.R. 28 RAMP B STA. 521+51 TO STA. 534+58, PROFILE ON SHEET 63.
C.R. 28 RAMP C STA. 513+64 TO STA. 536+87, PROFILE ON SHEETS 64.
C.R. 28 RAMP D STA. 522+70 TO STA. 535+00, PROFILE ON SHEET 65.



CROSS SECTION INDEX			
STATION			SHEET
S.R. 823	516+00		112
S.R. 823	520+00		114
S.R. 823	524+00		115
S.R. 823	529+00		116
S.R. 823	533+00		117
S.R. 823	535+50		118
C.R. 28 RAMP A		525+00	126
C.R. 28 RAMP A		526+00	127
C.R. 28 RAMP D		524+50	128
C.R. 28 RAMP D		527+50	129
C.R. 28 RAMP D		542+50	130

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED | CHECKED

SOIL PROFILE
CR28 RAMP A, RAMP B, RAMP C, AND RAMP D

SCI-823-6.81

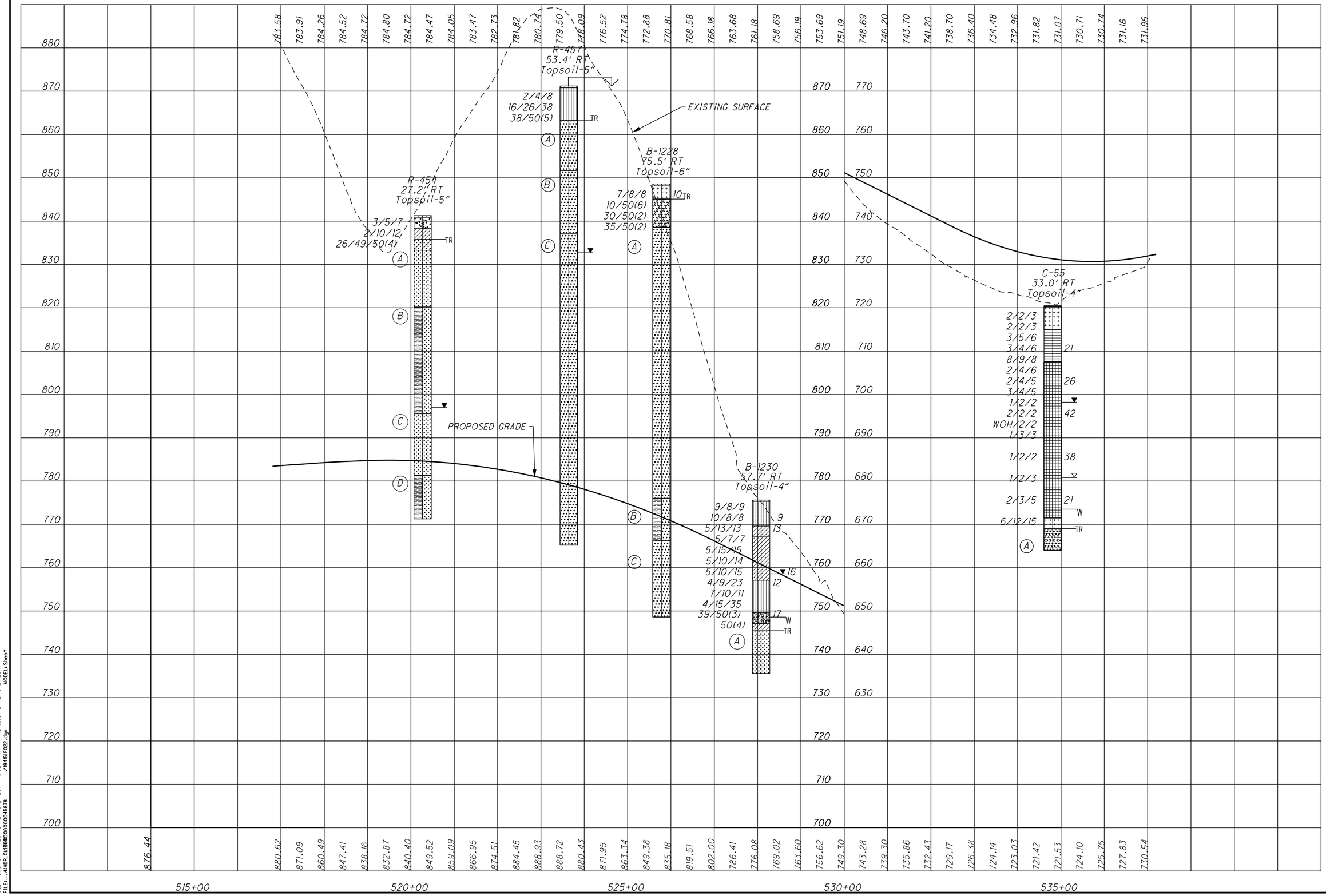
USER: CWohlbr PLOT DATE: 6/21/2011 832933 PM REVISION DATE: 6/21/2011 MODEL: Sheet
FILE:...\MHDR.C\0000000004587 8 /1945IP013.dgn

SOIL PROFILE - CR28 RAMP A
STA. 516+81 TO STA. 537+20

CALCULATED | CHECKED

SCI-823-6.81

USER: CWahlbri PLOT DATE: 6/21/2011 8:32:41 PM REVISION DATE: 6/21/2011
FILE...4HDR.Cr828000000045878 /1845IF022.dgn MODEL: Sheet



R-454

R-1 No Core Loss, ROD = 86%

(A) Medium hard brown SANDSTONE; fine to medium grained, highly weathered, argillaceous, thinly bedded to medium bedded, broken.

R-2 No Core Loss, ROD = 50%
R-3 No Core Loss, ROD = 95%
R-4 No Core Loss, ROD = 33%

(B) Soft to medium hard gray SANDSTONE interbedded with SHALE; very fine to fine grained, moderately to highly weathered, thinly bedded to medium bedded, broken, contains clay seams.

R-5 No Core Loss, ROD = 18%
R-6 No Core Loss, ROD = 37%
R-7 No Core Loss, ROD = 0%
R-8 No Core Loss, ROD = 0%

(C) Medium hard gray SANDSTONE; very fine to fine grained, highly weathered, thinly bedded to medium bedded, broken, contains clay seams.

R-9 No Core Loss, ROD = 0%
R-10 No Core Loss, ROD = 38%
R-11 Core Loss = 10%, ROD = 0%

(D) Medium hard gray SANDSTONE interbedded with SHALE; very fine to fine grained, highly weathered, thinly bedded to medium bedded, broken, contains clay seams.

R-12 Core Loss = 2%, ROD = 32%
R-13 No Core Loss, ROD = 0%

B-1230

R-1 No Core Loss, ROD = 23%

(A) Medium hard to hard gray to brown SANDSTONE, very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, massive, highly fractured, abundant iron staining.

R-2 No Core Loss, ROD = 56%

C-55

R-1 Core Loss = 7%, ROD = 86%

(A) Medium hard gray SILTSTONE; moderately weathered, micaceous, argillaceous, thinly bedded to medium bedded, highly fractured.

R-457

R-1 Core Loss = 28%, ROD = 17%

(A) Soft to medium hard light brown and brown SANDSTONE; very fine to fine grained, highly weathered to decomposed, thinly bedded to medium bedded.

R-2 No Core Loss, ROD = 31%

(B) Medium hard gray SANDSTONE, very fine to fine grained, argillaceous, moderately weathered, highly fractured, fractures contain slickensides.

R-3 Core Loss = 3%, ROD = 86%
R-4 Core Loss = 1%, ROD = 93%

(C) Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, unfractured to slightly fractured.

R-5 Core Loss = 2%, ROD = 98%
R-6 Core Loss = 2%, ROD = 98%
R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 90%
R-9 Core Loss = 3%, ROD = 91%
R-10 Core Loss = 13%, ROD = 78%
R-11 Core Loss = 1%, ROD = 99%

B-1228

R-1 Core Loss = 8%, ROD = 47%

(A) Medium hard to hard gray SANDSTONE; very fine grained, moderately weathered, argillaceous, micaceous, massively bedded, slightly fractured.

R-2 No Core Loss, ROD = 68%
R-3 No Core Loss, ROD = 75%
R-4 No Core Loss, ROD = 55%
R-5 No Core Loss, ROD = 67%
R-6 No Core Loss, ROD = 82%
R-7 No Core Loss, ROD = 73%
R-8 No Core Loss, ROD = 73%
R-9 No Core Loss, ROD = 89%
R-10 No Core Loss, ROD = 78%
R-11 No Core Loss, ROD = 52%

(B) Soft to medium hard gray SANDSTONE interbedded with SHALE; very fine grained, moderately to highly weathered, micaceous, argillaceous, medium bedded to very thinly laminated, slightly fractured, fissile after dessication.

R-12 Core Loss = 3%, ROD = 88%

(C) Medium hard to hard gray SANDSTONE ; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, pyritic, laminated to thickly bedded, slightly fractured, contains few to moderate argillaceous laminataions.

R-13 No Core Loss = 2%, ROD = 77%

USER: CWahibi PLOT DATE: 6/21/2011 8:32:53 PM REVISION DATE: 6/21/2011
FILE...\HDR.CADD\0000000045878 /9415IF023.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE - CR28 RAMP A
STA. 516+81 TO STA. 537+20

SCI-823-6.81

731.19 730.75 730.80 730.96 731.13 731.33 731.80 732.57 733.66 735.05 736.76 738.78 741.11 743.61 746.11 748.61 751.11 753.61 756.04 757.99 759.39 760.24 760.54 760.36 760.11 759.86

820 810 800 790 780 770 760 750 740 730 720 710 700 690 680 670 660 650 640

B-1224

R-1 No Core Loss, ROD = 52%

(A) Soft gray SANDSTONE interbedded with SHALE; very fine to fine grained, highly weathered to decomposed, micaceous, medium bedded to laminated, moderately fractured.

C-55

R-1 Core Loss = 7%, ROD = 86%

(A) Medium hard gray SILTSTONE; moderately weathered, micaceous, argillaceous, thinly bedded to medium bedded, highly fractured.

B-1224
113.9' LT
Topsoil-3"

PROPOSED GRADE

EXISTING SURFACE

C-55
70.9' LT
Topsoil-4"

2/2/3 2/2/3 3/5/6 3/4/6 21
8/9/8 2/4/6 2/4/5 3/4/5 26
1/2/2 2/2/2 WOH/2/2 1/3/3 42
1/2/2 38
1/2/3
2/3/5 21 W
6/12/15 TR
(A)

2/3/4/6 15
4/5/5/8 22
4/4/7/8 23
5/5/6
3/5/4
3/4/5
3/4/5
2/4/4
2/3/5 31
1/3/3
2/5/9 27
WOH/3/4
3/4/5
1/3/3
WOH/3/3
2/3/4
2/3/5
1/3/3
2/3/3
2/5/4
3/4/5
2/4/4
2/4/3
3/5/5
3/5/5
2/4/4
5/5/4
32/50(5) 15 TR
(A)

R-465
65.0' RT
Topsoil-3"

1/3/3 3/4/5 2/4/6 2/3/5 2/2/4 2/2/3 2/2/4 26
1/2/3 1/3/3 2/2/3 2/2/4 2/3/3
1/2/4
2/2/3
1/4/5
3/3/4
39/50(3) W
50(1) TR

B-463-1-09
110.0' RT
Topsoil-8"

2/4/4 23
3/4/4 23
5/6/7 19
5/7/8 18
4/6/8 29
3/3/4 32
34
2/1/2 40 W
0/2/3 40
2/4/4 35
3/2/3 36
0/2/3 36
38
2/3/4 38
2/3/5 39
2/3/4 33

728.63 725.84 724.16 722.32 722.39 723.88 724.95 726.54 729.83 732.94 736.56 739.47 743.88 745.94 747.20 749.87 750.92 751.25 748.57 743.82 738.65 734.52 731.09 728.60 726.07 724.03

520+00 525+00 530+00

CALCULATED CHECKED

SOIL PROFILE - CR28 RAMP B
STA. 521+52 TO STA. 534+59

SCI-823-6.81

63
135

USER: sdearnel PLOT DATE: 6/23/2011 9:45:41 AM REVISION DATE: 6/23/2011
FILE:...\HDR_C(B)0000000045878 /19415IF024.dgn MODEL: Sheet

715.41 713.77 712.77 712.40 712.67 713.57 715.10 716.96 718.81 720.66 722.51 724.26 725.78 727.08 728.17 729.14 730.12 731.22 732.58 734.19 736.06 738.18 740.55 743.05 745.56 748.06 750.56 753.02 755.22 757.10 758.67 759.93 760.88 761.53 761.86 761.88 761.59 761.03 760.49 760.05 759.73 759.52 759.42 759.43 759.55 759.78 760.12 760.58 761.16 761.85

B-1210

R-1 No Core Loss, ROD = 76%

Ⓐ Medium hard gray SANDSTONE; very fine grained, moderately to highly weathered, argillaceous, laminated to thinly bedded, slightly fractured, contains moderate to abundant argillaceous laminations.

B-1212

R-1 Core Loss = 4%, ROD = 91%

Ⓐ Medium hard to hard gray SANDSTONE interbedded with SHALE; very fine to fine grained, highly weathered, micaceous, laminated, slightly fractured.

B-461-1-09
528+00
Topsoil-8"

3/3/4 29
2/3/5 25
4/5/9 27
3/5/5 25
4/4/7 31
3/4/6 28
4/5/7 30
2/3/4 33
31
2/3/4 31
2/4/4 33
3/3/3 34
3/3/5 34
2/3/4 32
3/4/5 33
2/3/5 33

EXISTING SURFACE

PROPOSED GRADE

B-1209
7.7' RT
Topsoil-4"

3/3/3 1/2/3 18
5/10/9 3/6/13 12 17
3/4/5 13
2/4/7
1/3/3
0/1/1 39
0/0/1 38
8/9/11
4/3/3
8/25/40
20/50(5) TR

B-1211
31.1' LT
Topsoil-2"

3/3/4 2/3/4 15
2/2/3 2/3/4 29 22
2/3/4 15
1/3/3
2/2/3 33
1/2/2
1/2/2
1/2/3
1/2/2
2/2/2
1/3/3
1/3/4
2/3/5
22/37/24 W
50(3) TR

B-1212
19.7' LT
Topsoil-1"

8/10/11 3/5/8 11
3/5/7 5/7/8 9 9
5/8/12 22
4/6/8
3/5/6 30
3/3/4
2/3/5
2/2/3
1/8/3 36
2/3/3
2/3/3
1/3/3
1/2/3
1/2/2
7/8/10
50(5) TR
Ⓐ

B-1210
5.2' LT
Topsoil-3"

3/5/6 2/2/3 13 14
3/3/5 2/4/3 23 21
2/3/5
2/3/3
2/3/4 37
2/2/4
1/3/3
1/2/3
0/1/2
1/1/2
1/2/3
2/11/19 TR
19/22/33
50(2)
Ⓐ

R-464
70.6' LT
Topsoil-4"

2/4/4
4/8/11
4/7/11 22
2/5/5
2/3/5
2/3/5 31
2/3/3
1/2/3
0/1/3 35
2/2/4
2/2/3
WOH/2/4
2/2/4
WOH/2/3
2/3/4
3/5/7 W 27
4/15/50(4)
50(4) TR

708.41 705.19 703.52 704.87 704.27 704.26 707.89 715.47 715.58 716.65 713.46 713.36 717.53 722.54 722.87 723.20 725.11 726.56 729.72 737.47 742.17 744.76 745.76 733.96 745.40 751.17 764.56 768.29 770.39 769.46 765.30 760.06 756.53 751.13 747.26 742.79 734.85 730.84 727.25 724.21 721.01 718.10 717.25 715.66 714.99 715.18 714.88 712.73 711.93 711.52

515+00 520+00 525+00 530+00 535+00 540+00

830 820 810 800 790 780 770 760 750 740 730 720 710 700 690 680 670 660 650

CALCULATED CHECKED

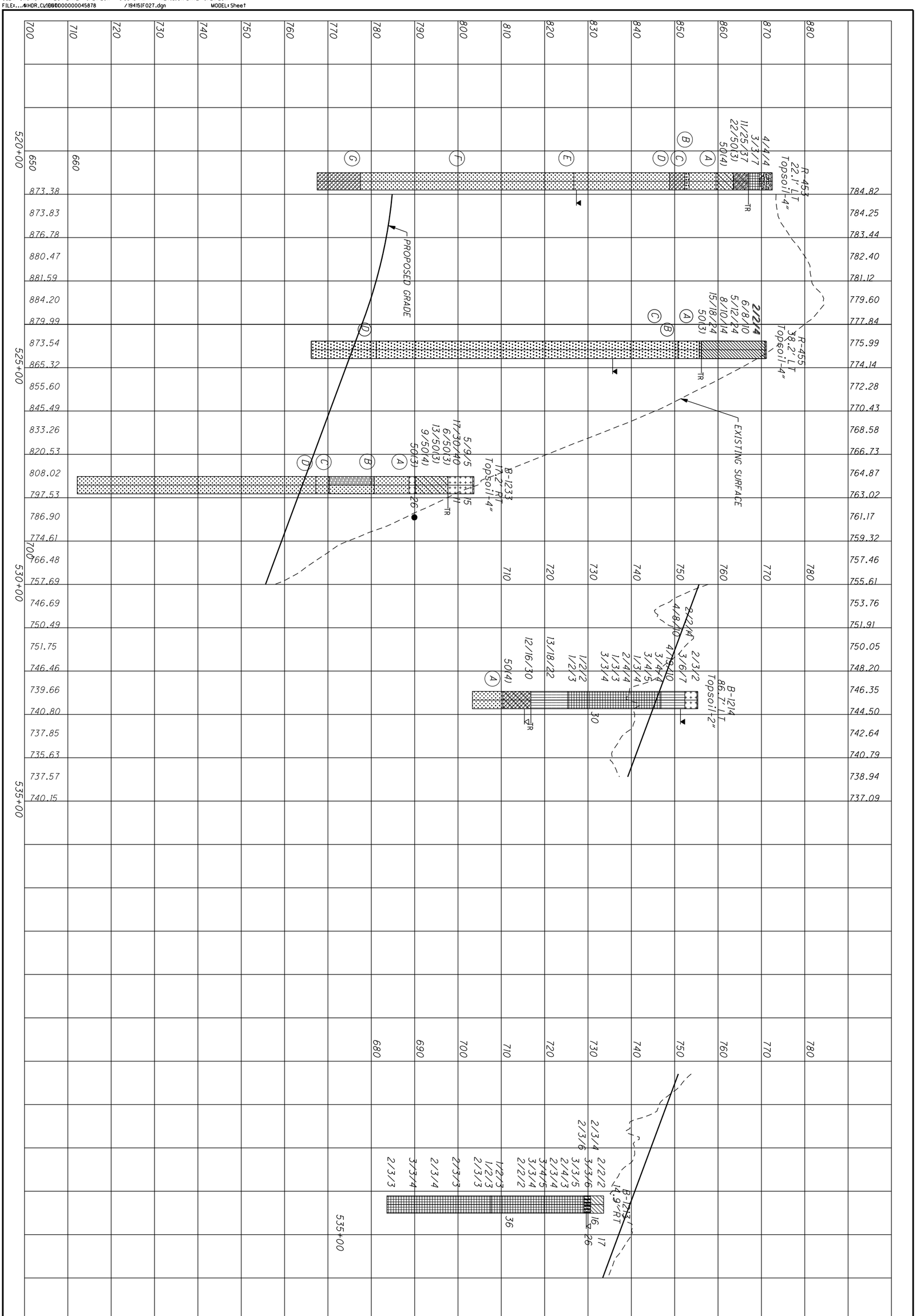
SOIL PROFILE - CR28 RAMP C
STA. 513+64 TO STA. 536+88

SCI-823-6.81

64
135

USER: CWahibi PLOT DATE: 6/21/2011 8:33:05 PM REVISION DATE: 6/21/2011 MODEL: Sheet
FILE:...4\HDR.C0000000000045878 /9141F025.dgn

USER: CWahlbri PLOT DATE: 6/21/2011 8:33:13 PM REVISION DATE: 6/21/2011
FILE:...4IHDR.CV1000000000045878 /19415IF027.dgn MODEL: Sheet



65 / 135	**SCI-823-6.81**	**SOIL PROFILE - CR28 RAMP D STA. 520+70 TO STA. 535+00**	CALCULATED CHECKED

R-453

R-1 No Core Loss, RQD = 100%

(A) Medium hard brown SANDSTONE; fine to coarse grained, moderately weathered, argillaceous, thinly bedded to medium bedded, highly fractured.

R-2 Core Loss = 8%, RQD = 77%

(B) Medium hard brown and gray BRECCIA; highly weathered, broken.

(C) Soft to medium hard gray SILTSTONE; highly weathered, broken to highly fractured, argillaceous.

(D) Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, micaceous, argillaceous, laminated to thick bedded.

R-3 No Core Loss, RQD = 83%
R-4 No Core Loss, RQD = 91%
R-5 Core Loss = 1%, RQD = 91%

(E) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, medium bedded to massively bedded.

R-6 Core Loss = 1%, RQD = 99%

(F) Medium hard gray SANDSTONE; very fine micaceous, argillaceous, laminated to to fine grained, moderately weathered, thinly bedded.

R-7 No Core Loss, RQD = 100%
R-8 Core Loss = 3%, RQD = 97%
R-9 Core Loss = 1%, RQD = 84%

(G) Medium hard gray SILTSTONE; moderately weathered, micaceous, laminated to thinly bedded.

R-10 Core Loss = 2%, RQD = 60%
R-11 No Core Loss, RQD = 93%

B-1233

R-1 No Core Loss, RQD = 39%

(A) Soft to medium hard brownish gray SANDSTONE; fine to very fine grained, highly weathered, argillaceous, thin to medium bedded, highly fractured to broken.

R-2 Core Loss = 3%, RQD = 70%

(B) Soft to medium hard gray SANDSTONE interbedded with SHALE; decomposed to highly weathered, micaceous, pyritic, thinly laminated to medium bedded, broken to moderately fractured.

R-3 No Core Loss, RQD = 55%
R-4 Core Loss = 5%, RQD = 60%

(C) Medium hard to hard gray SANDSTONE; very fine to fined grained, slightly to moderately weathered, argillaceous, laminated to medium bedded, slightly to moderately fractured.

R-5 Core Loss = 3%, RQD = 83%

(D) Hard to very hard gray SANDSTONE interbedded with few SHALE layers; very fine grained, slightly weathered, argillaceous, medium bedded, slightly to moderately fractured.

R-6 No Core Loss, RQD = 35%
R-7 No Core Loss, RQD = 63%
R-8 No Core Loss, RQD = 61%
R-9 No Core Loss, RQD = 67%
R-10 No Core Loss, RQD = 78%
R-11 Core Loss = 7%, RQD = 74%

B-1214

R-1 Core Loss = 1%, RQD = 64%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, massively bedded, moderately fractured to broken, iron staining throughout.

CALCULATED | CHECKED

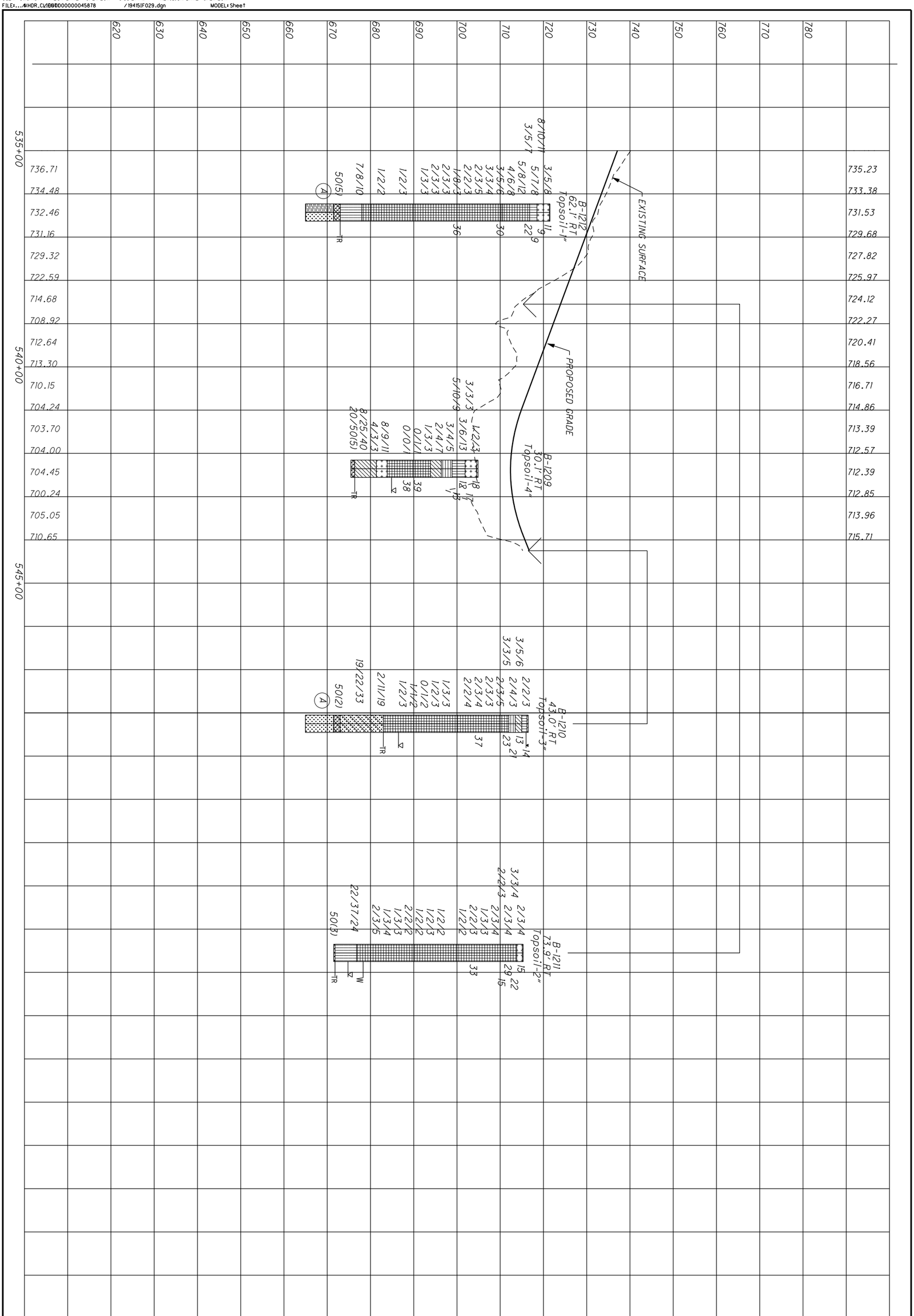
SOIL PROFILE - CR28 RAMP D
STA. 520+70 TO STA. 535+00

SCI-823-6.81

66
135

USER: CWohlbr PLOT DATE: 6/21/2011 8:33:26 PM REVISION DATE: 6/21/2011
FILE:...AHDR.CvB0000000045878 /1845IF028.dgn MODEL: Sheet

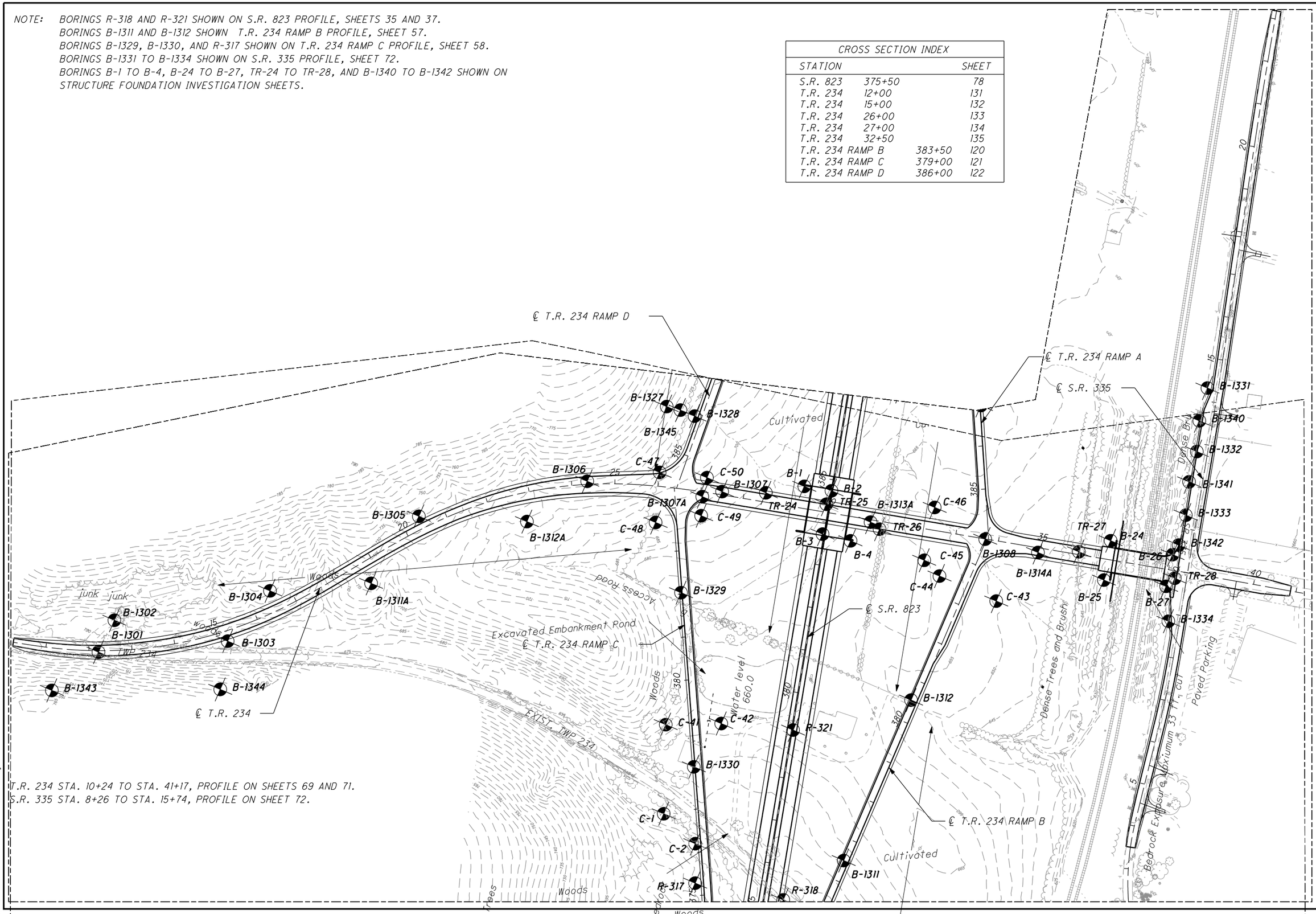
USER: CWahlbri PLOT DATE: 6/21/2011 8:33:21 PM REVISION DATE: 6/21/2011
FILE:...4IHDR.CV1000000000045878 /19415IF029.dgn MODEL: Sheet



67 / 135	SCI-823-6.81	SOIL PROFILE - CR28 RAMP D STA. 535+00 TO STA. 544+25	CALCULATED CHECKED

NOTE: BORINGS R-318 AND R-321 SHOWN ON S.R. 823 PROFILE, SHEETS 35 AND 37.
BORINGS B-1311 AND B-1312 SHOWN T.R. 234 RAMP B PROFILE, SHEET 57.
BORINGS B-1329, B-1330, AND R-317 SHOWN ON T.R. 234 RAMP C PROFILE, SHEET 58.
BORINGS B-1331 TO B-1334 SHOWN ON S.R. 335 PROFILE, SHEET 72.
BORINGS B-1 TO B-4, B-24 TO B-27, TR-24 TO TR-28, AND B-1340 TO B-1342 SHOWN ON STRUCTURE FOUNDATION INVESTIGATION SHEETS.

CROSS SECTION INDEX		
STATION		SHEET
S.R. 823	375+50	78
T.R. 234	12+00	131
T.R. 234	15+00	132
T.R. 234	26+00	133
T.R. 234	27+00	134
T.R. 234	32+50	135
T.R. 234 RAMP B	383+50	120
T.R. 234 RAMP C	379+00	121
T.R. 234 RAMP D	386+00	122



T.R. 234 STA. 10+24 TO STA. 41+17, PROFILE ON SHEETS 69 AND 71.
S.R. 335 STA. 8+26 TO STA. 15+74, PROFILE ON SHEET 72.

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED | CHECKED

SOIL PROFILE
TR234 AND SR335

SCI-823-6.81

68
135

USER:Krahlbri PLOT DATE: 6/21/2011 8:33:34 PM REVISION DATE: 6/21/2011 MODEL: Sheet
FILE: MGPI_GDBM000000049878 19415P009.dgn

SOIL PROFILE - TR234
STA. 10+24 TO STA. 35+00

CALCULATED | CHECKED

B-1301
4.4' Rt.
Asphalt Concrete Pavement-3"
11/10/8/7
4/6/9/10
23/50(3)

B-1303
25.7' Rt.
Topsoil-2"
4/5/7/8
14/18/18/20
5/6/31/50(5)
50(4)

B-1305
27.5' Lt.
Topsoil-4"
10/13/14
11/16/23
11/13/18
9/11/16
8/12/15
8/10/8
6/11/16
12/12/20
5/14/31
16/23/29
10/15/44
21/30/35
50(5)

B-1306
6.2' Lt.
Topsoil-4"
28/26/45
25/42/50(5)
25/50(4)
50(3)

B-1307
7.1' Lt.
Topsoil-8"
7/6/7/7
3/5/4/5
2/3/5
2/2/5
2/4/5
2/5/6
3/2/3
5/7/8
4/7/9
4/6/5
3/5/5
8/8/9
5/5/17
5/4/5
20/23/20
50(2)

B-1313A
6.1' Rt.
Topsoil-8"
3/4/5/3
3/4/4/4
4/4/7/11
7/10/12/13

B-1308
1.1' Rt.
Topsoil-2"
6/10/13
6/11/12
7/10/12
3/4/5
1/2/8
50(4)

B-1314A
11.4' Rt.
Topsoil-9"
1/3/4/3
3/4/4/5
6/9/9/9

B-1304
46.1' Lt.
Topsoil-4"
13/15/16
12/18/20
10/23/28
22/28/36
12/23/26
13/20/34
28/50(3)
45/50(3)
50(2)

B-1311A
54.3 Rt.
Topsoil-3"
1/4/5/7
4/7/9/10
2/4/5/9
4/5/9/12
3/5/6
3/5/6
7/10/13
18/21/24
6/10/11
40/50(3)
50(3)

B-1312A
68.1' Rt.
Topsoil-4"
8/11/20
17/28/36
9/21/24
4/13/12
10/7/11
4/5/12
6/15/31
9/14/14
27/50(3)
50(0)

EXISTING SURFACE
PROPOSED GRADE
TR
W

760 750 740 730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580

708.50 705.75 703.22 700.89 698.78 696.88 695.19 693.71 692.45 691.40 690.56 689.93 689.51 689.31 689.32 689.54 689.97 690.61 691.26 691.72 691.98 692.04 691.91 691.58 691.05 690.33 689.41 688.29 686.98 685.47 683.76 681.86 679.86 677.86 675.96 674.24 672.71 671.36 670.21 669.24 668.46 667.86 667.36 666.86 666.36 665.86 665.36 664.86 664.36 663.86

708.32 705.28 703.26 701.08 698.62 696.18 690.78 692.88 687.96 695.06 692.64 698.28 706.00 705.31 699.96 705.91 718.33 725.56 722.00 732.46 734.83 732.90 726.54 729.61 726.74 723.42 725.43 726.50 726.00 723.39 717.16 707.90 703.52 698.50 694.20 689.33 684.75 681.09 677.24 673.96 670.04 665.68 662.21 658.59 656.82 654.08 654.00 654.08 653.27 651.23

10+00 15+00 20+00 25+00 30+00 35+00

USER: CWahlbri PLOT DATE: 6/21/2011 8:33:42 PM REVISION DATE: 6/21/2011
FILE:...\HDR_C(BB)0000000045878 /9145IF03.dgn MODEL: Sheet

SCI-823-6.81

69
135

B-1301

R-1 Core Loss = 22, RQD = 12%

(A) Hard brown SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, thinly bedded to thickly bedded, highly fractured to broken.

B-1303

R-1 No Core Loss, RQD = 66%

(A) Medium hard to hard brown and gray SANDSTONE; very fine to fine grained, moderately to highly weathered, micaceous, argillaceous, massively bedded, moderately to highly fractured.

B-1311A

R-1 Core Loss = 3%, RQD = 64%

(A) Hard yellowish brown SANDSTONE; fine grained, highly weathered, argillaceous, micaceous, highly fractured to moderately fractured, exhibits cross bedding.

(B) Medium hard to hard gray SANDSTONE; fine to very fine grained, argillaceous, micaceous, massive, moderately fractured, contains clay filled fractures.

B-1304

R-1 No Core Loss, RQD = 66%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, medium bedded to thickly bedded, highly fractured, fractures along bedding planes with infilling of clayey silt.

(B) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thickly bedded, slightly to moderately fractured.

R-2 No Core Loss, RQD = 96%

R-3 No Core Loss, RQD = 100%

B-1305

R-1 No Core Loss, RQD = 84%

(A) Hard gray SANDSTONE; fine grained, slightly to moderately weathered, micaceous, medium bedded to thinly bedded, moderately fractured, few argillaceous laminations.

R-2 No Core Loss, RQD = 96%

B-1306

R-1 No Core Loss, RQD = 67%

(A) Hard to very hard gray and brown SANDSTONE; very fine to fine grained, highly weathered, micaceous, medium bedded, moderately fractured.

R-2 No Core Loss, RQD = 67%

(B) Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, micaceous, argillaceous, laminated to medium bedded, highly fractured, contains few to moderate argillaceous laminations.

R-3 No Core Loss, RQD = 88%

R-4 No Core Loss, RQD = 92%

R-5 No Core Loss, RQD = 100%

B-1312A

R-1 Core Loss = 13%, RQD = 47%

(A) Hard to very hard brown SANDSTONE; very fine to fine grained, moderately to highly weathered, siliceous, argillaceous, massive, moderately to highly fractured.

B-1307

R-1 Core Loss = 15%, RQD = 82%

(A) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous , massively bedded, unfractured.

B-1308

R-1 No Core Loss, RQD = 86%

(A) Hard gray SANDSTONE ; very fine to fine grained, slightly weathered, argillaceous, micaceous, massively bedded, unfractured.

CALCULATED | CHECKED

SOIL PROFILE - TR234
STA. 10+24 TO STA. 35+00

SCI-823-6.81

740 730 720 710 700 690 680 670 660 650 640 630 620 610 600 590 580 570 560

663.86 663.36 662.86 662.36 661.86 661.36 660.86 660.07 659.14 658.50 658.18 658.17

PROPOSED GRADE

TR-28
17.8' Rt.

EXPOSED
BEDROCK

TR-27
5.9' Lt.
Topsoil-5"

7/10/13
8/13/13
4/10/50
A
TR

4/8/8
5/5/7
8/8/7
6/4/2
3/5/4
1/4/4
50(2)"
A
W
TR
W

EXISTING SURFACE

651.23 649.37 646.92 625.32 624.34 630.50 656.32 659.62 658.95 658.42 658.38 658.34

35+00 40+00

TR-27

R-1 No Core Loss, ROD = 98%

A Medium hard to hard brown and gray SANDSTONE; very fine to fine grained, slightly to highly weathered, argillaceous, micaceous, massive, slightly fractured.

TR-28

R-1 Core Loss = 50%, ROD = 12%

A Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, massively bedded, slightly fractured.

R-2 No Core Loss, ROD = 100%

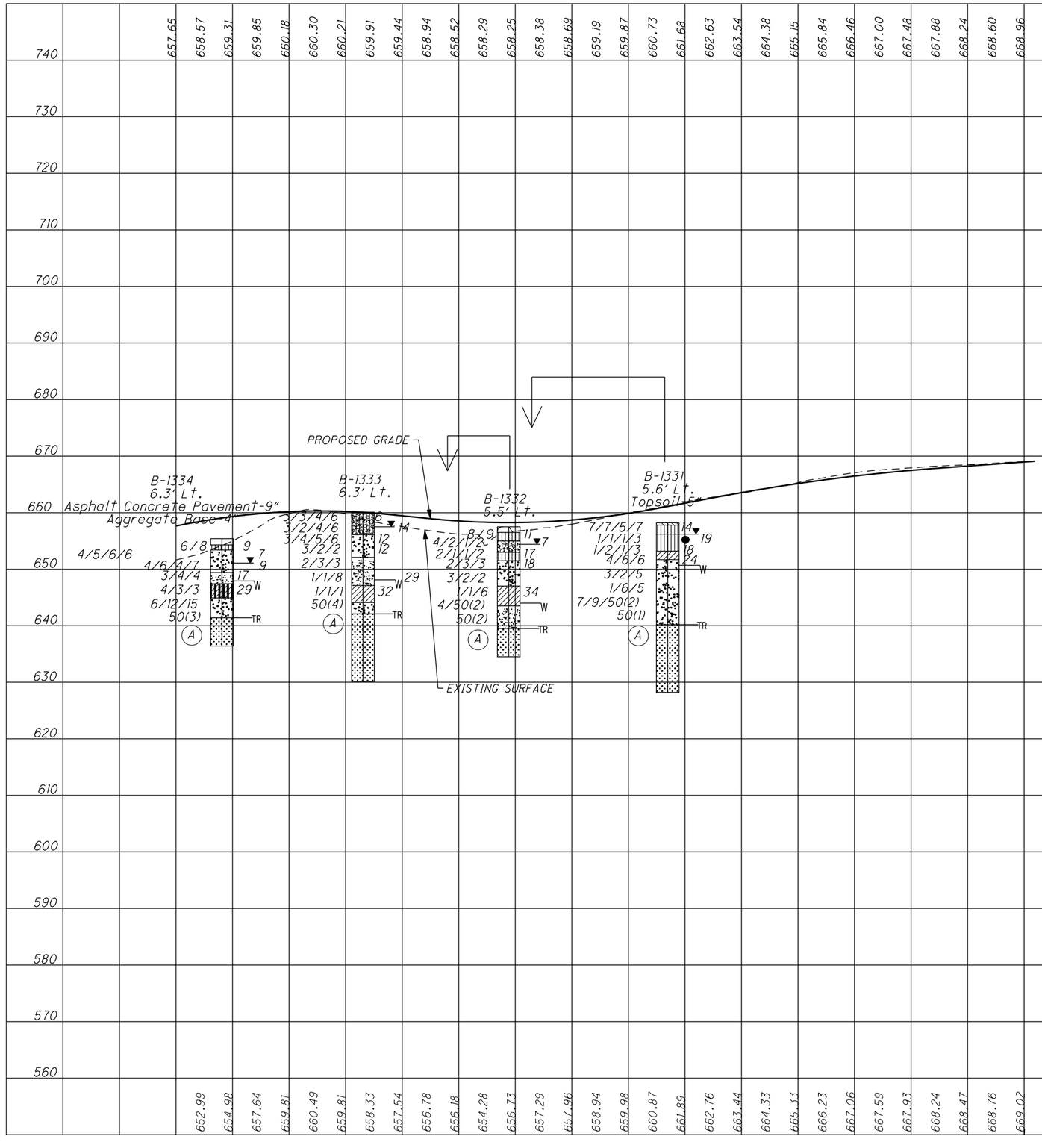
CALCULATED | CHECKED

SOIL PROFILE - TR234
STA. 35+00 TO STA. 40+87

SCI-823-6.81

71
135

USER: CWahlbri PLOT DATE: 6/21/2011 8:33:54 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.CdN000000004587878 /9418IF015.dgn MODEL: Sheet



B-1331

R-1 No Core Loss, ROD = 98%

(A) Hard gray SANDSTONE interbedded with SILTSTONE (turbidites); very fine to fine grained, slightly weathered, argillaceous, micaceous, massively bedded, slightly fractured.

R-2 Core Loss = 2%, ROD = 78%

B-1332

R-1 No Core Loss, ROD = 89%

(A) Medium hard to hard SANDSTONE (turbidites); very fine to fine grained, slightly weathered, argillaceous, micaceous, massively bedded, slightly fractured.

B-1333

R-1 Core Loss = 13%, ROD = 72%

(A) Medium hard to hard SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous micaceous, medium to thickly bedded, slightly to moderately fractured.

R-2 No Core Loss, ROD = 80%

B-1334

R-1 Core Loss = 2%, ROD = 91%

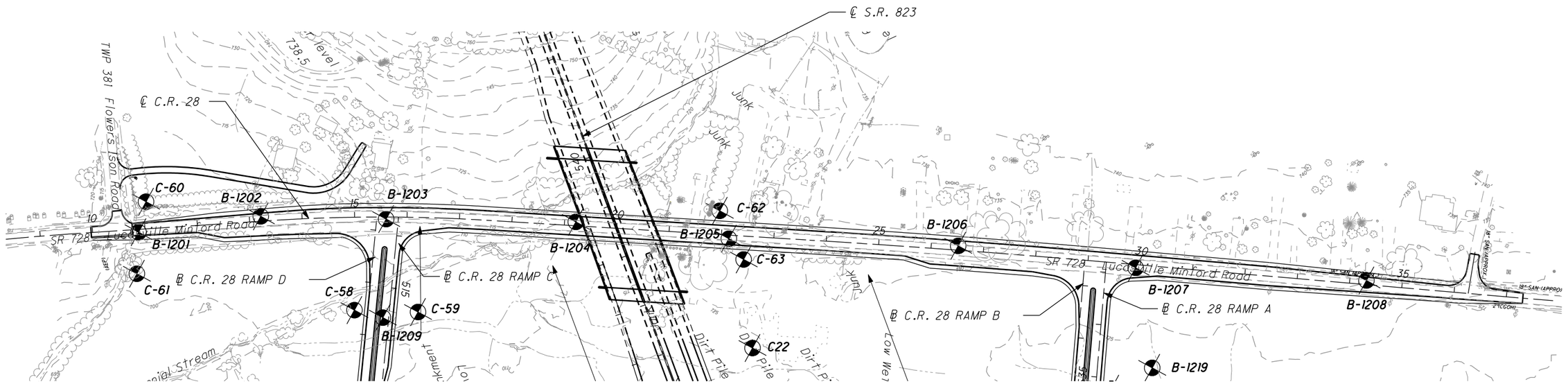
(A) Medium hard to hard gray SANDSTONE; fine to very fine grained, slightly weathered, argillaceous, micaceous, massively bedded, slightly fractured to unfractured.

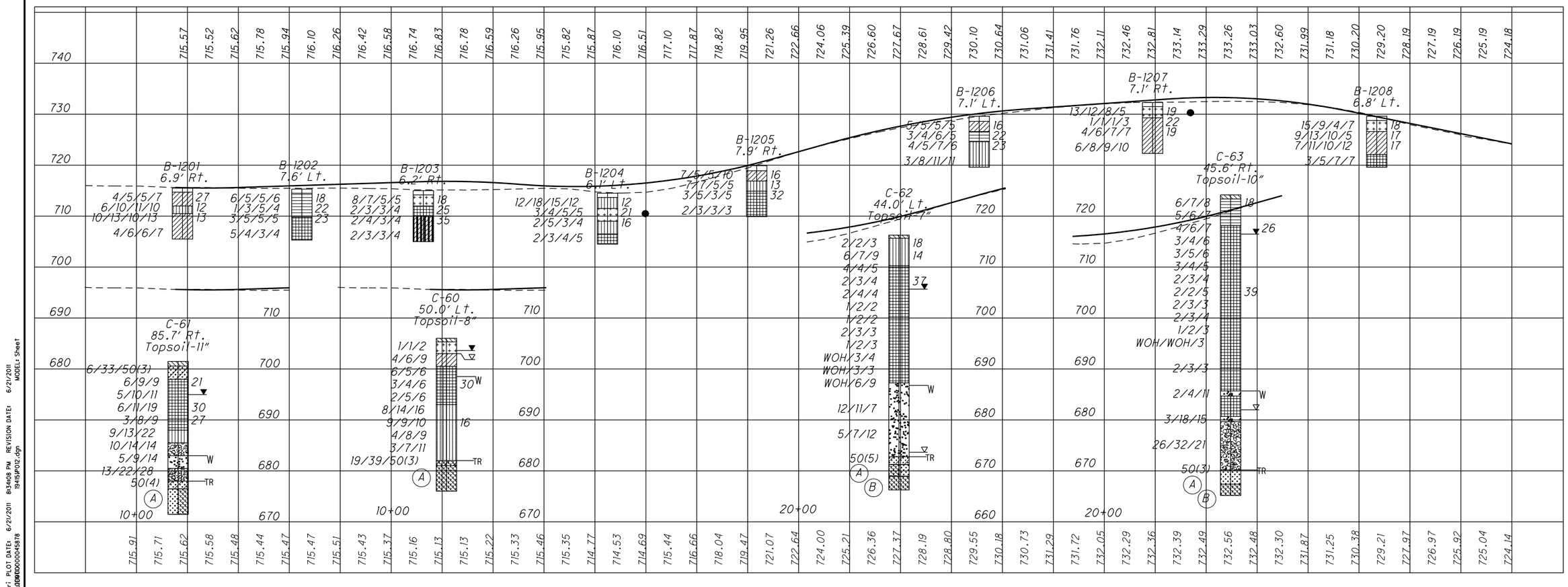
SOIL PROFILE - SR335
STA. 8+00 TO STA. 23+19

CALCULATED | CHECKED

SCI-823-6.81

USER: CWahlbri PLOT DATE: 6/21/2011 8:34:00 PM REVISION DATE: 6/21/2011
FILE:...4HDR.C0000000004587B /9418IF020.dgn MODEL: Sheet





HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED | CHECKED

SOIL PROFILE - CR28
STA. 10+00 TO STA. 37+32

SCI-823-6.81

USER:Rohlin PLOT DATE: 6/21/2011 8:34:08 PM REVISION DATE: 6/21/2011 MODEL: Sheet1
FILE: MAP1.GDB\0000000045818 19+58\P012.dgn

C-60

R-1 Core Loss = 18%, ROD = 65%

(A) Soft to medium hard gray SILTSTONE; moderately weathered, argillaceous, thinly bedded, broken.

C-61

R-1 No Core Loss, ROD = 73%

(A) Soft to medium hard gray SILTSTONE interbedded with SANDSTONE; highly weathered to decomposed, argillaceous, thinly bedded, highly fractured.

C-62

R-1 Core Loss = 23%, ROD = 58%

(A) Soft to medium hard gray SILTSTONE interbedded with SANDSTONE; highly weathered to decomposed.

(B) Soft to medium hard gray SILTSTONE; highly weathered to decomposed, argillaceous, thinly bedded, highly fractured.

C-63

R-1 Core Loss = 7%, ROD = 83%

(A) Soft to medium hard gray SANDSTONE; very fine grained, highly weathered to decomposed, thin bedded, broken.

(B) Soft to medium hard gray SILTSTONE; fine grained, highly weathered to decomposed, argillaceous, thinly bedded, highly fractured.

CALCULATED | CHECKED

SOIL PROFILE - CR28
STA. 10+00 TO STA. 37+89

SCI-823-6.81

R-209

R-1 No Core Loss, ROD = 100%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, highly to moderately weathered, argillaceous, micaceous, thinly bedded to massive, moderately to slightly fractured.

R-2 No Core Loss, ROD = 100%

S.R. 823

PROPOSED GRADE

EXISTING SURFACE

C-7
353+85.2
Topsoil-2"
50(3) TR
(A)

R-209
353+46.5
Topsoil-2"
50(4) 8/9/18 50(1)
(A)

C-8
353+88.2
Topsoil-2"
24/9/50(4) TR
(A)

C-9
353+89.5
Topsoil-3"
7/14/34 TR
(A)(B)

C-7

R-1 Core Loss = 2%, ROD = 95%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, thinly bedded to medium bedded, slightly fractured.

C-8

R-1 Core Loss = 2%, ROD = 93%

(A) Medium hard gray SANDSTONE; very fine grained, slightly weathered, argillaceous, laminated to thinly bedded, highly fractured.

C-9

R-1 Core Loss = 20%, ROD = 47%

(A) Very soft to soft brown SANDSTONE; very fine to fine grained, highly weathered to decomposed, argillaceous.

(B) Medium hard gray SANDSTONE; very fine grained, slightly weathered, thinly bedded to medium bedded, highly fractured.

SOIL PROFILE
CROSS SECTION - SR 823 STA. 354+00

CALCULATED

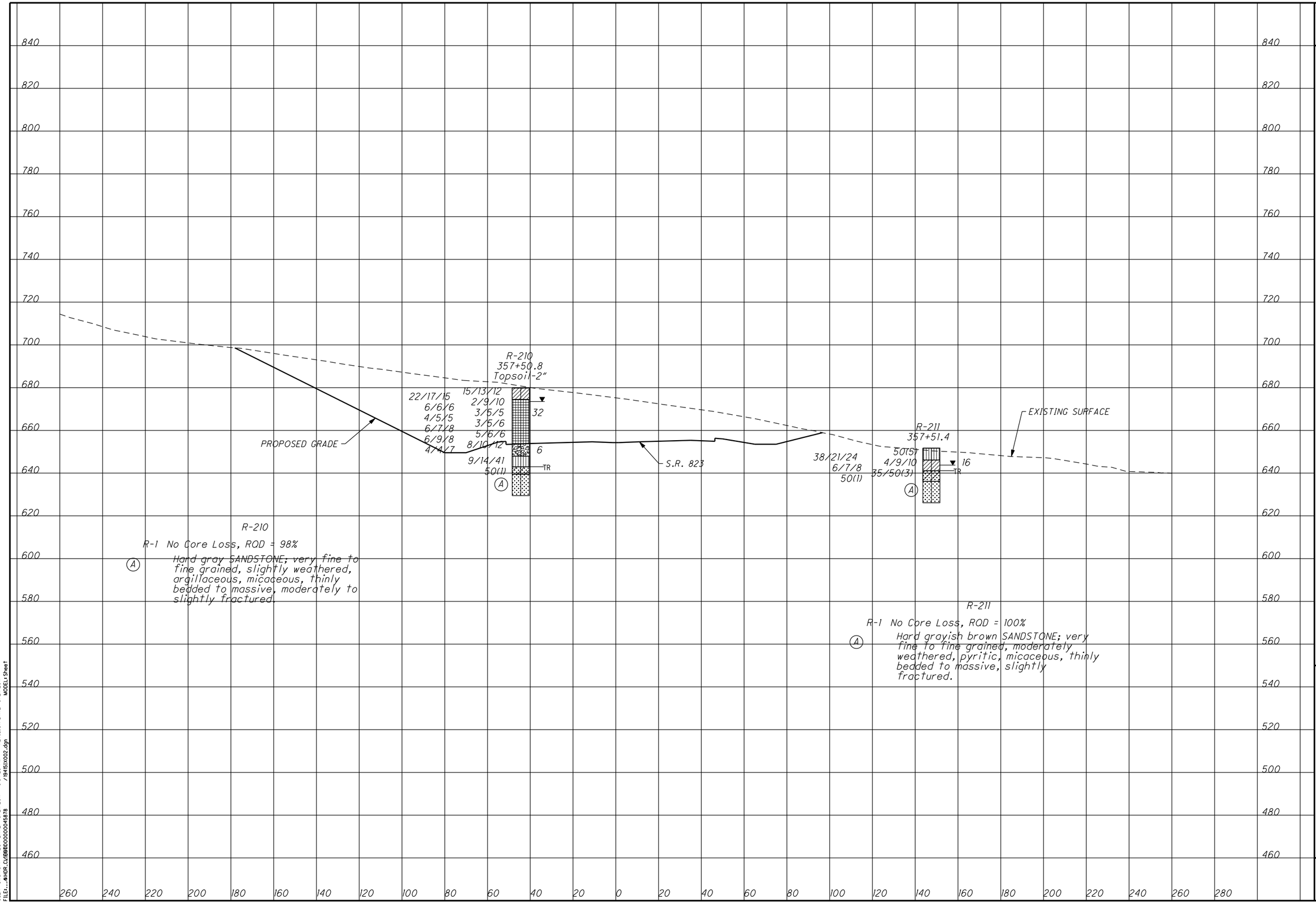
CHECKED

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:34:20 PM REVISION DATE: 6/21/2011
FILE:...4HOR.Cw000000000045878 /1945IX001.dgn MODEL: Sheet

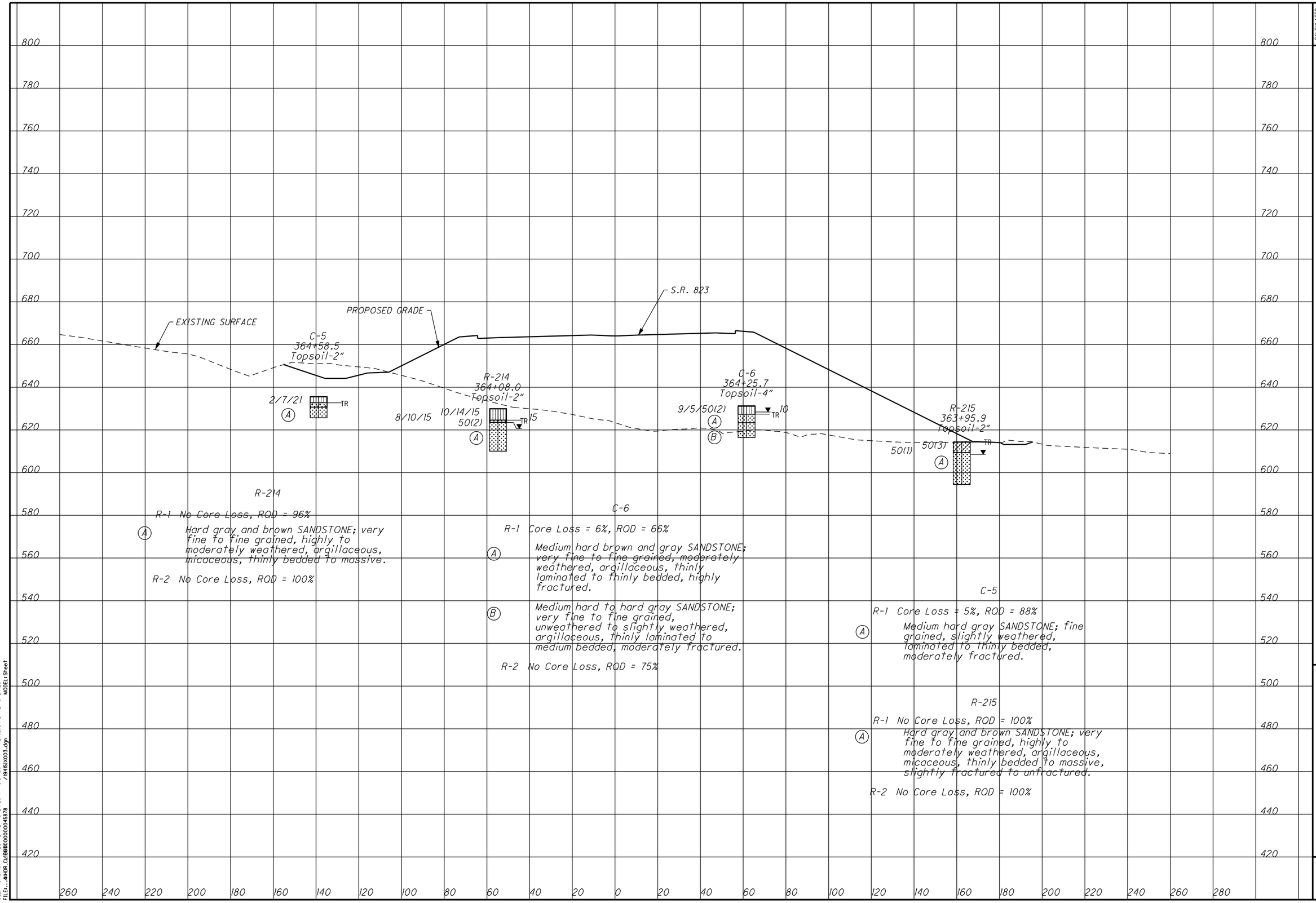
SOIL PROFILE
CROSS SECTION - SR 823 STA. 357+50

CALCULATED | CHECKED



USER: CMahlbri PLOT DATE: 6/21/2011 8:34:25 PM REVISION DATE: 6/21/2011
FILE:...4HOR.CU0000000045878 /19451X002.dgn MODEL: Sheet

SCI-823-6.81



CALCULATED | CHECKED

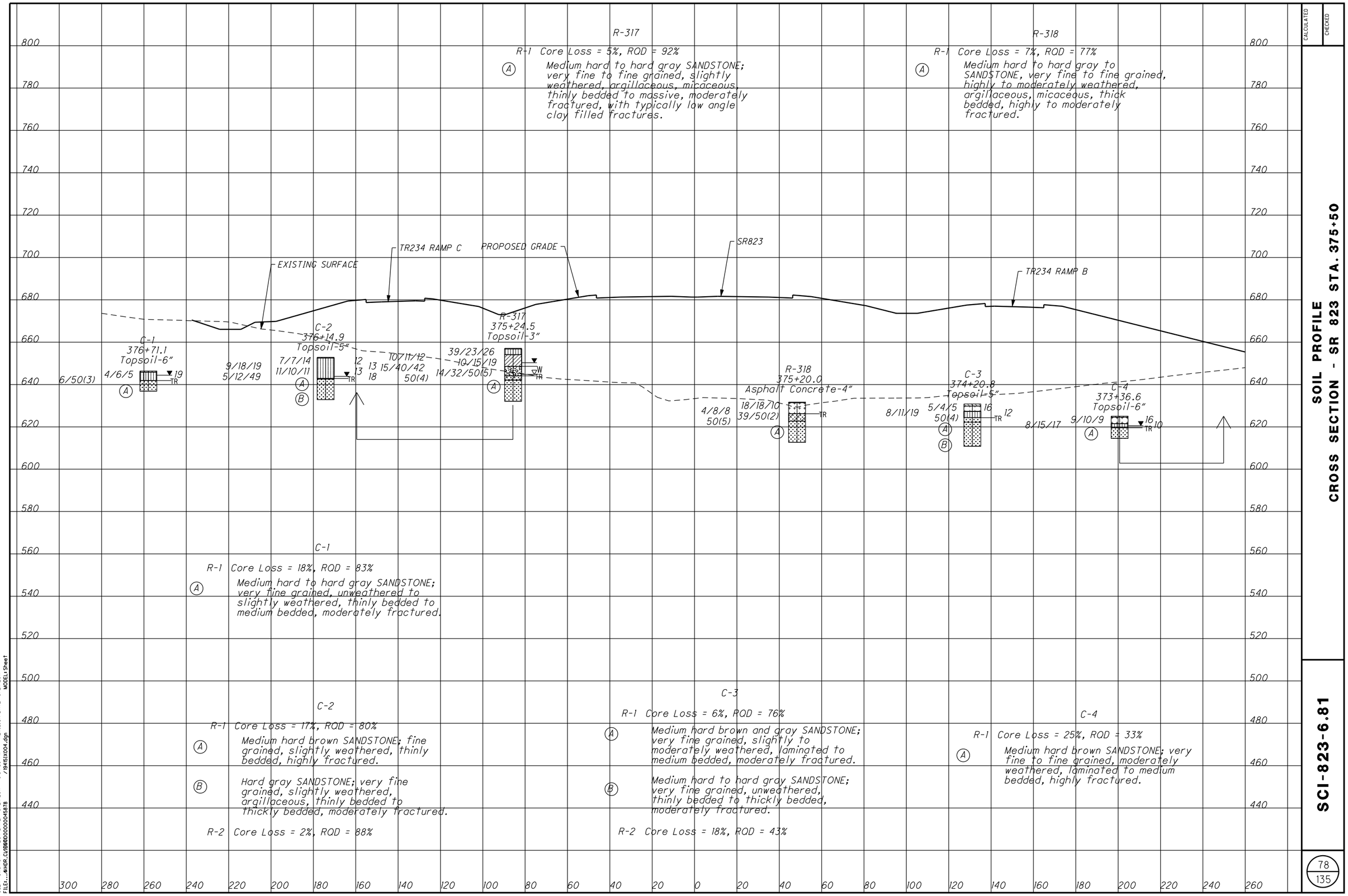
SOIL PROFILE

CROSS SECTION - SR 823 STA. 364+00

SCI-823-6.81

77
135

USER: CWohlbri PLOT DATE: 6/21/2011 8:34:30 PM REVISION DATE: 6/21/2011
FILE:...4HOR.Cu000000000045878 /1945IX003.dgn MODEL: Sheet



CALCULATED

CHECKED

SOIL PROFILE CROSS SECTION - SR 823 STA. 375+50

SCI-823-6.81

78
135

USER: CWahlbri PLOT DATE: 6/21/2011 8:34:35 PM REVISION DATE: 6/21/2011
FILE:...\MHDR_C\0800000000045878 /9145\1X004.dgn MODEL: Sheet

B-1326

R-1 No Core Loss, ROD = 91%

(A) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, massively bedded, slightly fractured.

EXISTING SURFACE

S.R. 823

PROPOSED GRADE

B-1326
387+86.2
Topsoil-12"

1/2/5
5/6/7 3/4/6
3/4/5 3/3/15
3/4/7
2/3/5 3/4/6
4/5/7
3/3/5
9/6/7
3/4/5
3/4/5
7/14/12
9/11/21
2/11/43
50(2)
37
W_TR
(A)

R-323
387+22.9
Topsoil-12"

4/5/7 8/6/7
2/3/4 3/3/4
2/4/5 2/4/5
2/4/5 3/4/5
3/5/6 2/4/5
3/3/3 4/4/5
2/3/4
4/6/8
5/9/9
5/7/9
40/30/37
32
7
W
TR
(A)

R-326
387+27.3
Topsoil-4"

4/4/10 4/5/6
3/5/6 9/13/17
2/7/8 3/4/5
3/5/5 6/7/9
1/1/1 6/6/6
0/7/10 0/2/3
13
28
2
W
32
TR
(A)

R-323

R-1 No Core Loss, ROD = 91%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, highly to moderately weathered, argillaceous, micaceous, thinly bedded to massive.

R-326

R-1 No Core Loss, ROD = 59%

(A) Medium hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, thinly bedded to thickly bedded, highly to moderately fractured; contains few argillaceous laminations.

860 840 820 800 780 760 740 720 700 680 660 640 620 600 580 560 540 520 500 480

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

CALCULATED | CHECKED

SOIL PROFILE

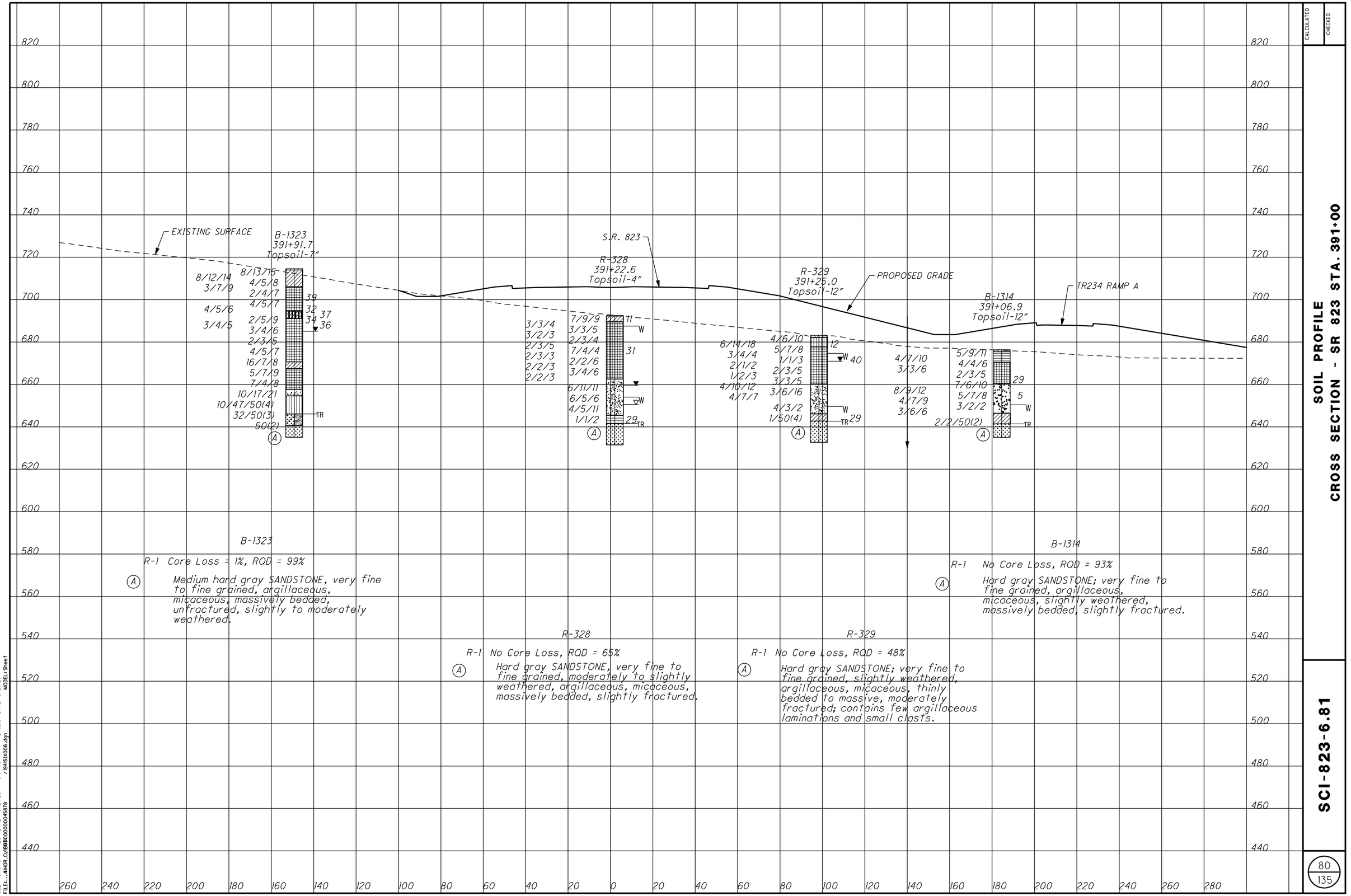
CROSS SECTION - SR 823 STA. 387+50

SCI-823-6.81

USER: CMahlbri PLOT DATE: 6/21/2011 8:34:41 PM REVISION DATE: 6/21/2011
FILE: ...4\HOR.CU\0000000045878 /19451X005.dgn MODEL: Sheet

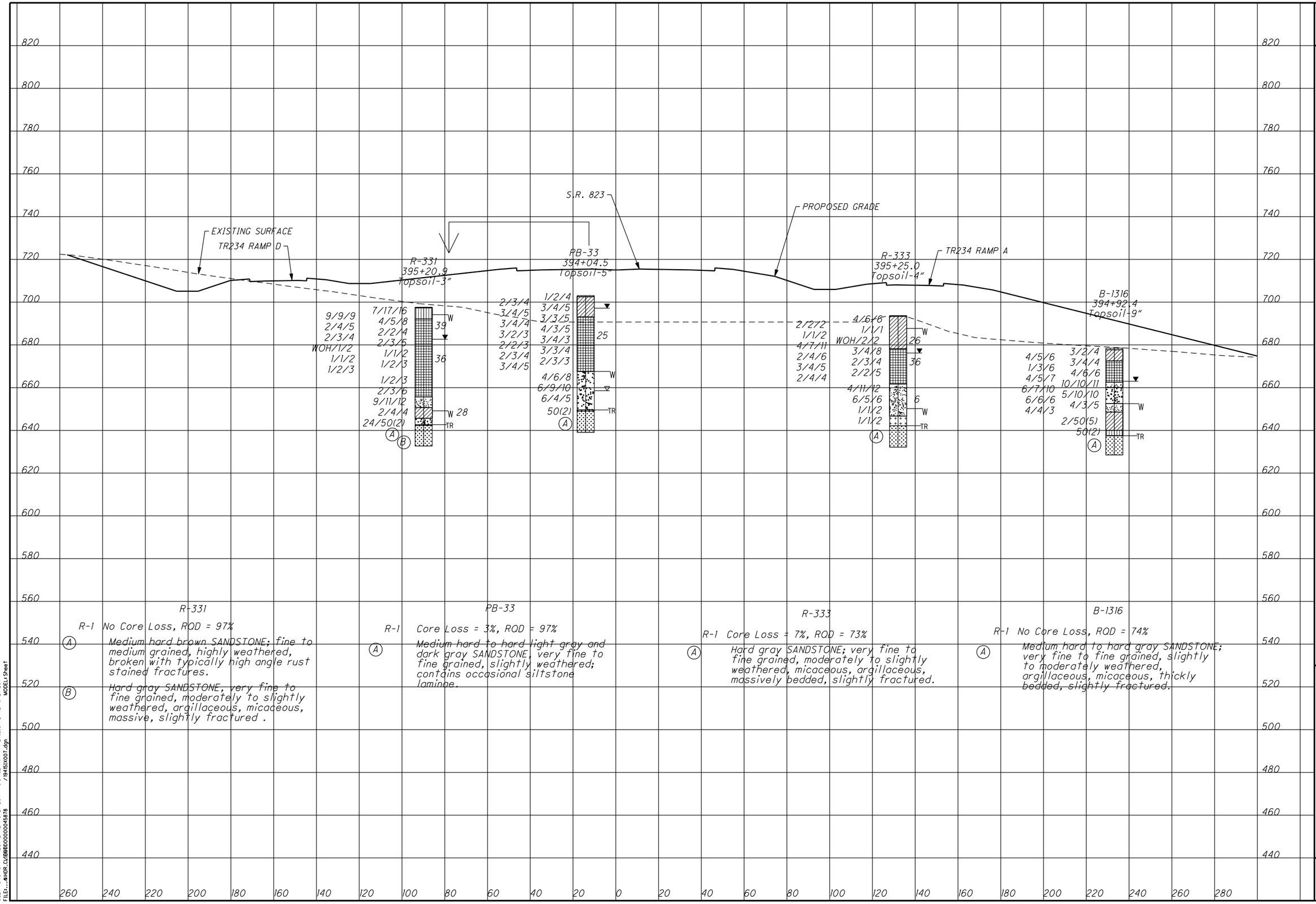
CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 391+00



SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:34:46 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/0000000000045878 79451X006.dgn MODEL: Sheet



R-331

R-1 No Core Loss, ROD = 97%

Medium hard brown SANDSTONE; fine to medium grained, highly weathered, broken with typically high angle rust stained fractures.

Hard gray SANDSTONE, very fine to fine grained, moderately to slightly weathered, argillaceous, micaceous, massive, slightly fractured .

PB-33

R-1 Core Loss = 3%, ROD = 97%

Medium hard to hard light gray and dark gray SANDSTONE, very fine to fine grained, slightly weathered; contains occasional siltstone laminae.

R-333

R-1 Core Loss = 7%, ROD = 73%

Hard gray SANDSTONE; very fine to fine grained, moderately to slightly weathered, micaceous, argillaceous, massively bedded, slightly fractured.

B-1316

R-1 No Core Loss, ROD = 74%

Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, thickly bedded, slightly fractured.

SOIL PROFILE
CROSS SECTION - SR 823 STA. 395+00

CALCULATED

CHECKED

SCI-823-6.81

81
135

USER: CMahlbri PLOT DATE: 6/21/2011 8:34:52 PM REVISION DATE: 6/21/2011
FILE:...4HOR.CU0000000045878 /19451X007.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 404+00

S.R. 823

PROPOSED GRADE

EXISTING SURFACE

C-19
403+22.2
Topsoil-7"
3/3/4 1/2/3 2/3/3
10/11/15 2/3/5 1/2/2
7/6/4 1/2/12
12/27/50(0)
9 34 33 27 33 29 35 34 18
TR

R-339
403+20.1
Topsoil-4"
3/3/3 2/3/3 1/3/3 8/8/11 5/8/13 0/4/7
5/6/4 3/4/5 2/2/4 2/4/5 8/10/13 5/19/13
33 33
W
TR

C-20
404+01.2
7/11/8
4/10/16 9/4/3 1/1/1 50(3)
7/8/8 8/8/5 2/3/6 7/9/9 20/24/17 7/8/11
12 30 31 27
W
TR

C-21
404+41.6
Topsoil-8"
6/7/8
3/4/11 WH/O/H
6/6/10 5/10/10 3/4/7 3/5/2 WOH/50(3)
12 12
W
35 34
TR

R-339

R-1 Core Loss = 3%, ROD = 65%

Medium hard gray SANDSTONE; very fine to fine grained, highly to moderately weathered, micaceous, argillaceous, medium to massive bedding, highly to moderately fractured.

C-19

R-1 No Core Loss, ROD = 36%

Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, laminated to very thinly bedded, moderately fractured, contains rust stains.

C-20

R-1 No Core Loss, ROD = 85%

Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, laminated to very thinly bedded, moderately fractured, contains rust stains.

C-21

R-1 Core Loss = 2%, ROD = 86%

Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, laminated to very thinly bedded, moderately fractured, contains rust stains.

820 800 780 760 740 720 700 680 660 640 620 600 580 560 540 520 500 480 460

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260

USER: CWohlbr1 PLOT DATE: 6/21/2011 8:34:57 PM REVISION DATE: 6/21/2011
FILE:...&HOR.Cv000000000045878 /194SIX008.dgn MODEL: Sheet

SCI-823-6.81

R-341

R-1 No Core Loss, ROD = 69%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, highly to slightly weathered, micaceous, argillaceous, thinly bedded to medium, occassional pyrite nodules; contains turbidity bedding.

R-342

R-1 No Core Loss, ROD = 83%

(A) Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, argillaceous, thinly bedded to massive, slightly fractured.

R-343

R-1 No Core Loss, ROD = 69%

(A) Medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, argillaceous, laminated to massively bedded; contains few argillaceous laminations.

780
760
740
720
700
680
660
640
620
600
580

S.R. 823

PROPOSED GRADE

EXISTING SURFACE

R-341
407+19.9
Topsoil-3"
3/4/4
2/2/3
3/3/4
1/2/3
1/2/3
1/2/3
3/5/6
2/3/3
1/2/4
2/2/3
1/2/3
1/2/3
27
WOH/3/3
3/7/7
2/1/2
17/26/29
50(3)
39
W
32
TR
(A)

R-342
407+21.2
Topsoil-5"
4/4/5
2/3/4
2/2/3
2/2/3
2/3/4
2/4/5
0/5/38
6/5/5
2/4/5
2/2/3
1/2/4
2/3/4
2/3/4
37
2/3/4
9/10/11
7/22/12
9
W
TR
(A)

R-343
407+19.5
Topsoil-5"
7/7/6
2/3/4
1/3/3
5/3/3
2/3/5
6/7/10
5/5/5
4/6/8
2/3/4
3/4/4
3/5/4
7/10/12
31
28
12
12/17/19
12/5/20
W
TR
(A)

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 407+00

SCI-823-6.81

83
135

USER: cmahlbri PLOT DATE: 6/21/2011 8:35:03 PM REVISION DATE: 6/21/2011
FILES: ...\HOR_CURVE\0000045878 /1941SX009.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 411+00

S.R. 823

PROPOSED GRADE

EXISTING SURFACE

840 820 800 780 760 740 720 700 680 660 640 620 600 580 560 540 520 500 480

R-345
411+24.0
Topsoil-3"

6/7/10 3/3/4 2/3/3 4/6/8 2/3/4 3/4/21
6/7/6 3/5/6 2/3/4 2/4/5 3/2/3 1/6/7 2/3/3 7/3/3
22 15 33
TR
(A)

R-346
411+19.2

5/6/8 6/12/8 2/3/4 2/3/5 1/2/2 2/3/3
5/5/5 9/13/13 3/4/5 2/3/4 2/4/4 0/2/7 0/2/2 0/0/6 10/13/50(5)
14 25 24 33
W
TR
(A)

R-348
411+16.9

3/6/5 1/2/3 2/3/6 3/3/4 1/7/8 2/4/3
5/6/6 4/4/5 2/3/4 2/2/4 2/2/3 4/6/5 19/17/13 50(2)
36 18
TR
(A)

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

R-345

R-1 No Core Loss, ROD = 50% (A)

Medium hard gray SANDSTONE; very fine to fine grained, highly to moderately weathered, micaceous, argillaceous, thinly bedded to thickly bedded, highly to slightly fractured; contains few argillaceous laminations.

R-346

R-1 Core Loss = 4%, ROD = 72% (A)

Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, micaceous, argillaceous, thinly beddfed to massive, slightly fractured.

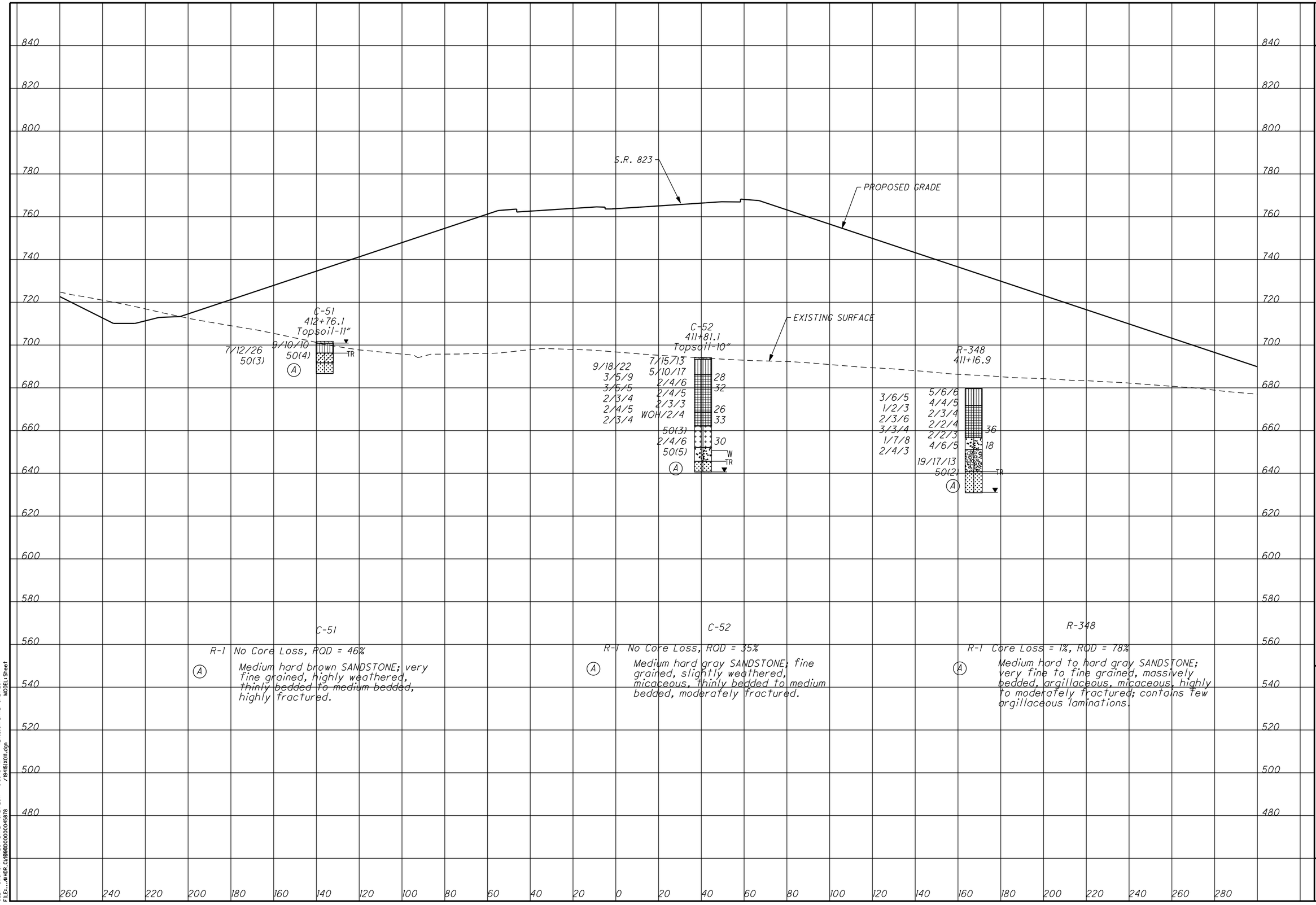
R-348

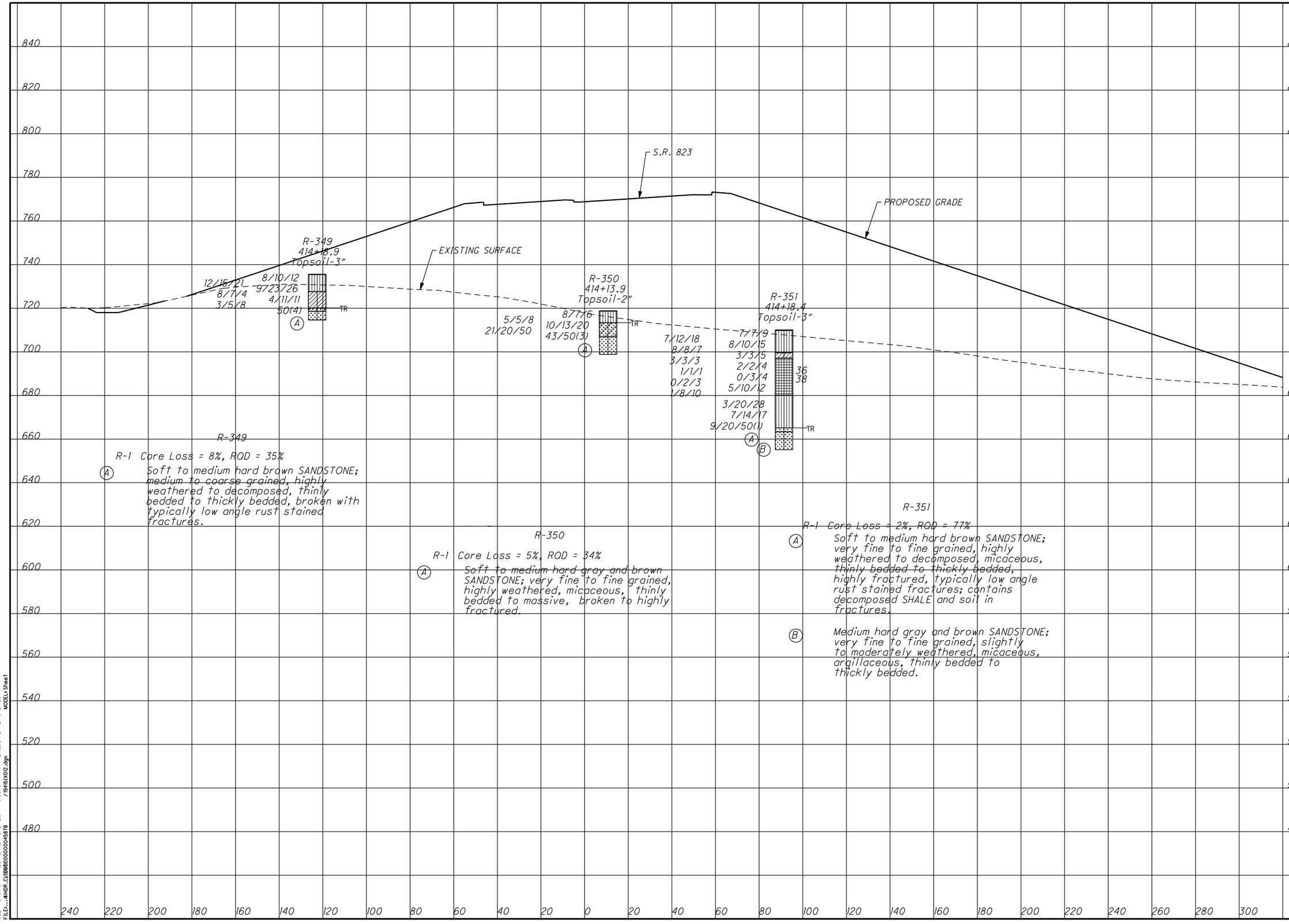
R-1 Core Loss = 1%, ROD = 78% (A)

Medium hard to hard gray SANDSTONE; very fine to fine grained, massively bedded, argillaceous, micaceous, highly to moderately fractured; contains few argillaceous laminations.

USER: CWohlbr; PLOT DATE: 6/21/2011 8:35:08 PM REVISION DATE: 6/21/2011
FILE...4HOR.Cu000000000045878 /1945IXOD.dgn MODEL: Sheet

SCI-823-6.81


CALCULATED
CHECKED
SOIL PROFILE
CROSS SECTION - SR 823 STA. 412+00
SCI-823-6.81
85
135
840
820
800
780
760
740
720
700
680
660
640
620
600
580
560
540
520
500
480
260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280
S.R. 823
PROPOSED GRADE
EXISTING SURFACE
C-51
412+76.1
Topsoil-11"
7/12/26
50(3)
9/10/10
50(4)
TR
A
C-52
411+81.1
Topsoil-10"
9/18/22
3/5/9
3/5/5
2/3/4
2/4/5
2/3/4
7/15/13
5/10/17
2/4/6
2/4/5
2/3/3
WOH/2/4
28
32
26
33
50(3)
2/4/6
50(5)
30
W
TR
A
R-348
411+16.9
3/6/5
1/2/3
2/3/6
3/3/4
1/7/8
2/4/3
5/6/6
4/4/5
2/3/4
2/2/4
2/2/3
4/6/5
36
18
19/17/13
50(2)
TR
A
C-51
R-1 No Core Loss, ROD = 46%
A
Medium hard brown SANDSTONE; very fine grained, highly weathered, thinly bedded to medium bedded, highly fractured.
C-52
R-1 No Core Loss, ROD = 35%
A
Medium hard gray SANDSTONE; fine grained, slightly weathered, micaceous, thinly bedded to medium bedded, moderately fractured.
R-348
R-1 Core Loss = 1%, ROD = 78%
A
Medium hard to hard gray SANDSTONE; very fine to fine grained, massively bedded, argillaceous, micaceous, highly to moderately fractured; contains few argillaceous laminations.
USER: CWahlbri PLOT DATE: 6/21/2011 8:35:13 PM REVISION DATE: 6/21/2011
FILE:...\HDR.CVD000000045878 /9X18X11.dgn MODEL: Sheet



CALCULATED

CHECKED

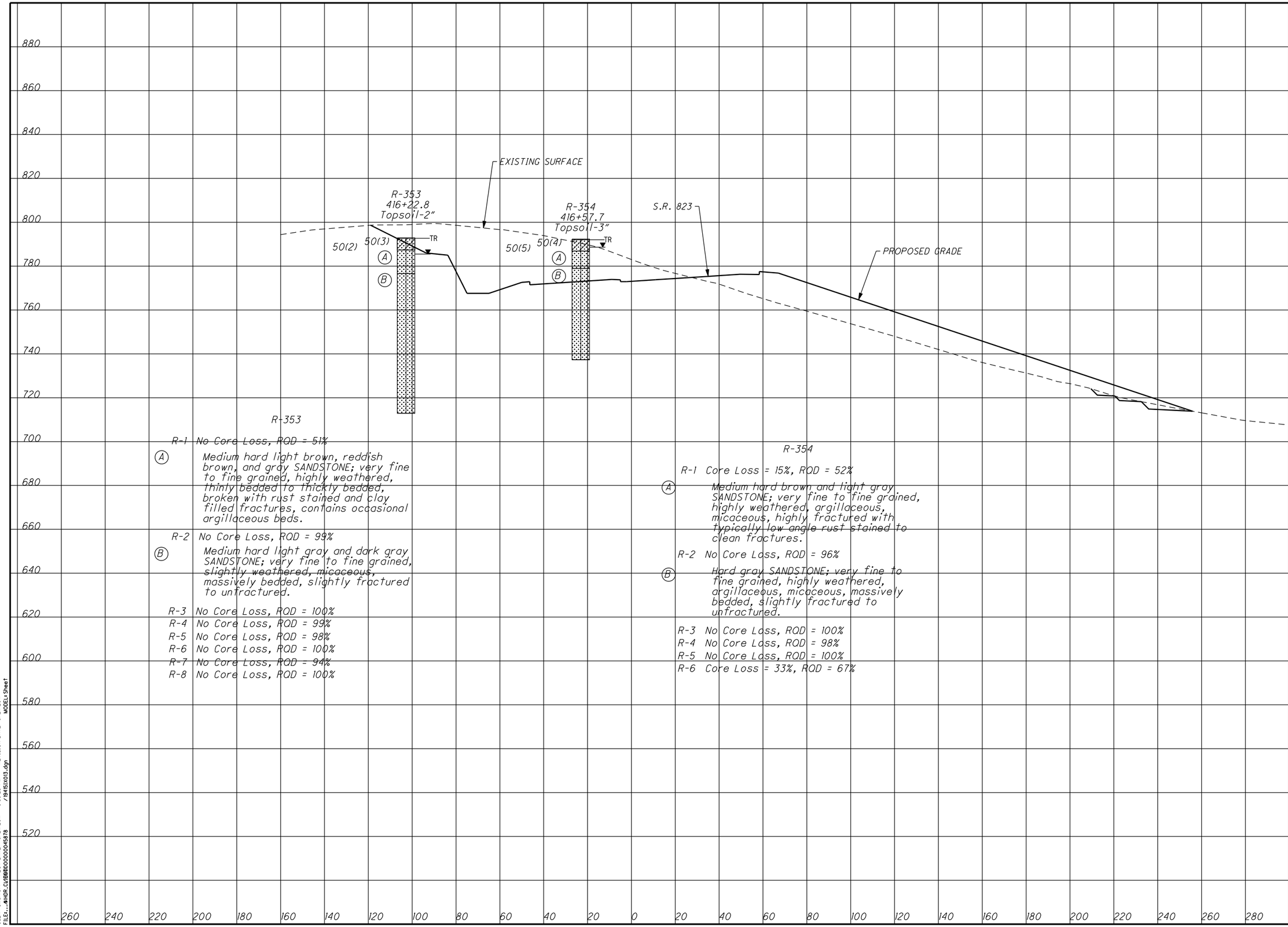
SOIL PROFILE

CROSS SECTION - SR 823 STA. 414+00

SCI-823-6.81

86
135

USER: CWohlbri PLOT DATE: 6/21/2011 8:35:18 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/0800000000045878 79415IX012.dgn MODEL: Sheet



R-353

R-1 No Core Loss, ROD = 51%

(A) Medium hard light brown, reddish brown, and gray SANDSTONE; very fine to fine grained, highly weathered, thinly bedded to thickly bedded, broken with rust stained and clay filled fractures, contains occasional argillaceous beds.

R-2 No Core Loss, ROD = 99%

(B) Medium hard light gray and dark gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, massively bedded, slightly fractured to unfractured.

R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 99%
R-5 No Core Loss, ROD = 98%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 94%
R-8 No Core Loss, ROD = 100%

R-354

R-1 Core Loss = 15%, ROD = 52%

(A) Medium hard brown and light gray SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, highly fractured with typically low angle rust stained to clean fractures.

R-2 No Core Loss, ROD = 96%

(B) Hard gray SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, massively bedded, slightly fractured to unfractured.

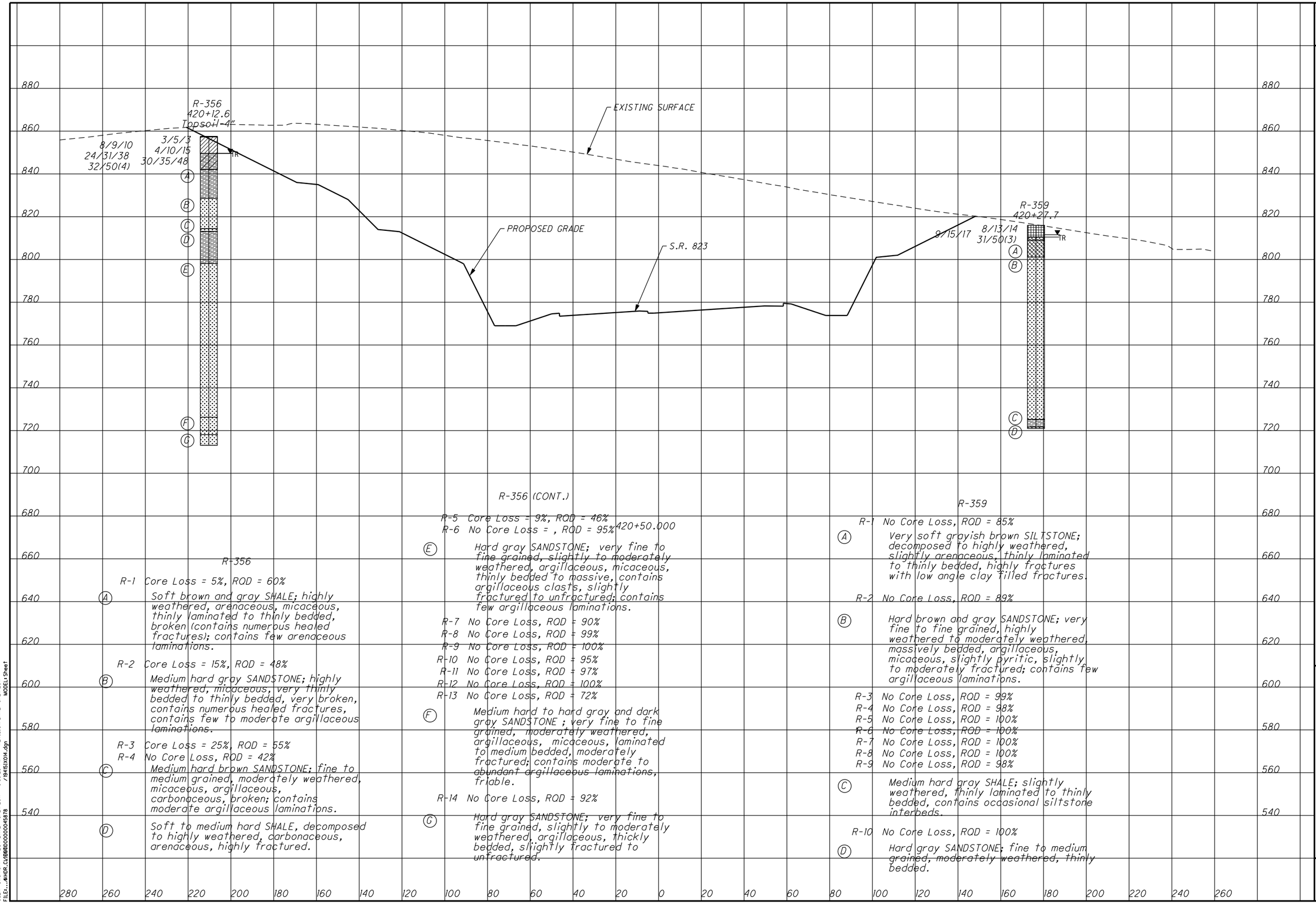
R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 98%
R-5 No Core Loss, ROD = 100%
R-6 Core Loss = 33%, ROD = 67%

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 416+50

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 83523 PM REVISION DATE: 6/21/2011
FILES: ...\MINOR_CU\BM0000000045878 /1941SX03.dgn MODEL: Sheet



CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 420+50

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:35:29 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/B0000000045878 79415IX014.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 424+00

SCI-823-6.81

USER: CWahlbri PLOT DATE: 6/21/2011 8:35:35 PM REVISION DATE: 6/21/2011
FILE...4HDR.C/B0000000045878 /B48SIX015.dgn MODEL: Sheet

EXISTING SURFACE

S.R. 823

PROPOSED GRADE

R-360
424+20.5

9/13/15
11/12/16
24/40/50(5)

10/11/12
9/11/11
20/28/33

11 10
TR
W

A
B
C
D
E
F

R-360

R-1 No Core Loss, ROD = 86%

A — Very soft to soft brown and gray CLAYSHALE; highly weathered to decomposed, micaceous, thinly laminated to thinly bedded, moderately fractured.

B — Soft black SHALE; moderately to highly weathered, carbonaceous, arenaceous, thinly laminated to thinly bedded, fractured; contains few arenaceous laminations, very fissile.

R-2 No Core Loss, ROD = 75%

C — Medium hard gray SHALE; moderately to highly weathered.

D — Hard gray very fine grained SANDSTONE; moderately weathered, micaceous, very thinly bedded to thinly bedded, (gradational change).

R-3 No Core Loss, ROD = 98%

E — Hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, thinly bedded to thickly bedded, (gradational change), slightly fractured to unfractured.

R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 100%
R-9 No Core Loss, ROD = 100%
R-10 No Core Loss, ROD = 100%
R-11 No Core Loss, ROD = 100%

F — Hard gray and light gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, very thinly bedded to medium bedded.

R-12 No Core Loss, ROD = 100%

R-362
423+86.0

9/9/9
12/15/17
10/10/10
10/12/14

5/7/9
12/15/19
19/21/24
9/10/11

TR

A

R-362

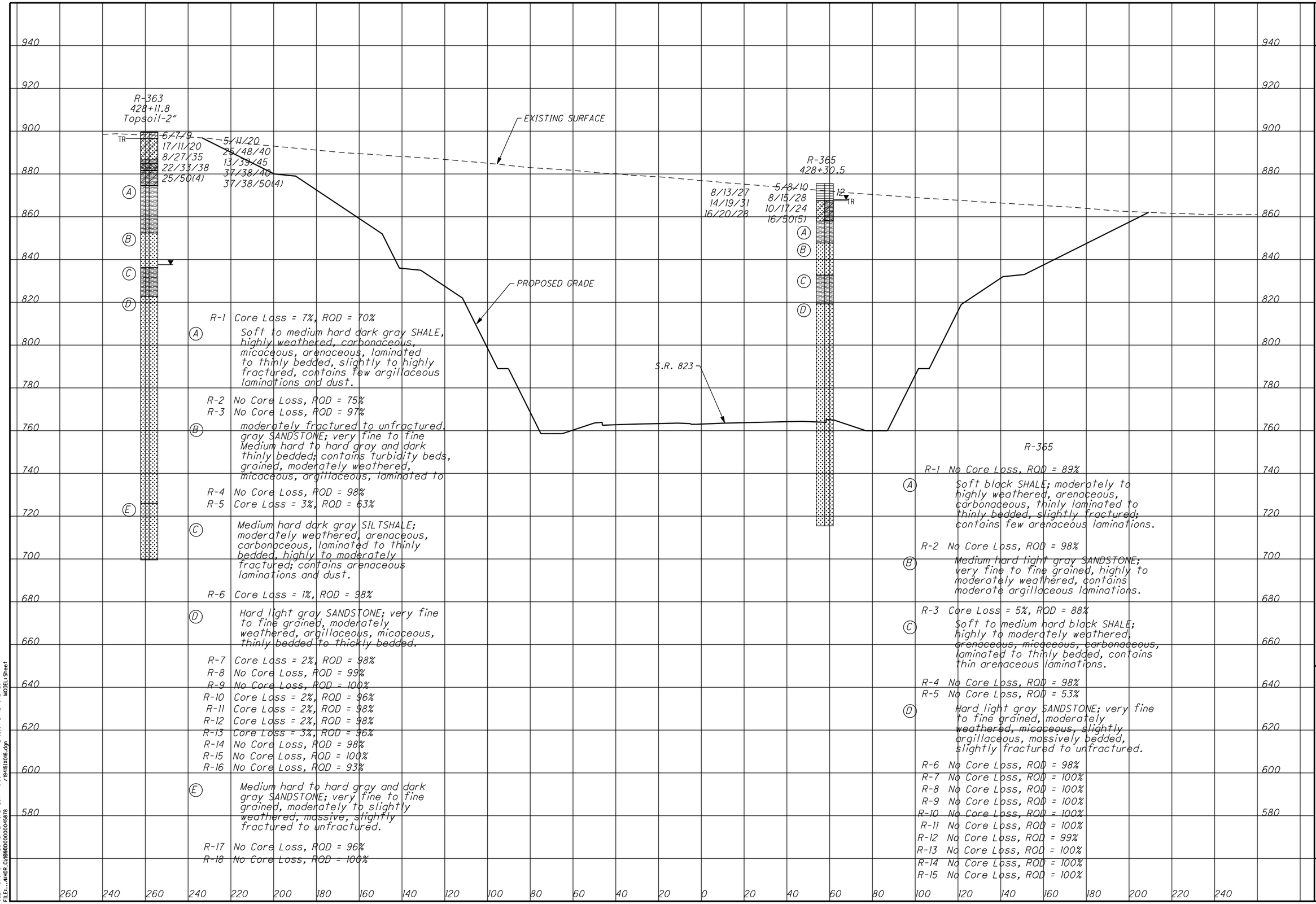
R-1 Core Loss = 8%, ROD = 89%

A — Medium hard to hard light gray SANDSTONE; very fine to fine grained, highly to moderately weathered, thinly bedded to thickly bedded, slightly fractured.

R-2 No Core Loss, ROD = 92%
R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 100%

920 900 880 860 840 820 800 780 760 740 720 700 680 660 640 620 600 580 560

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240



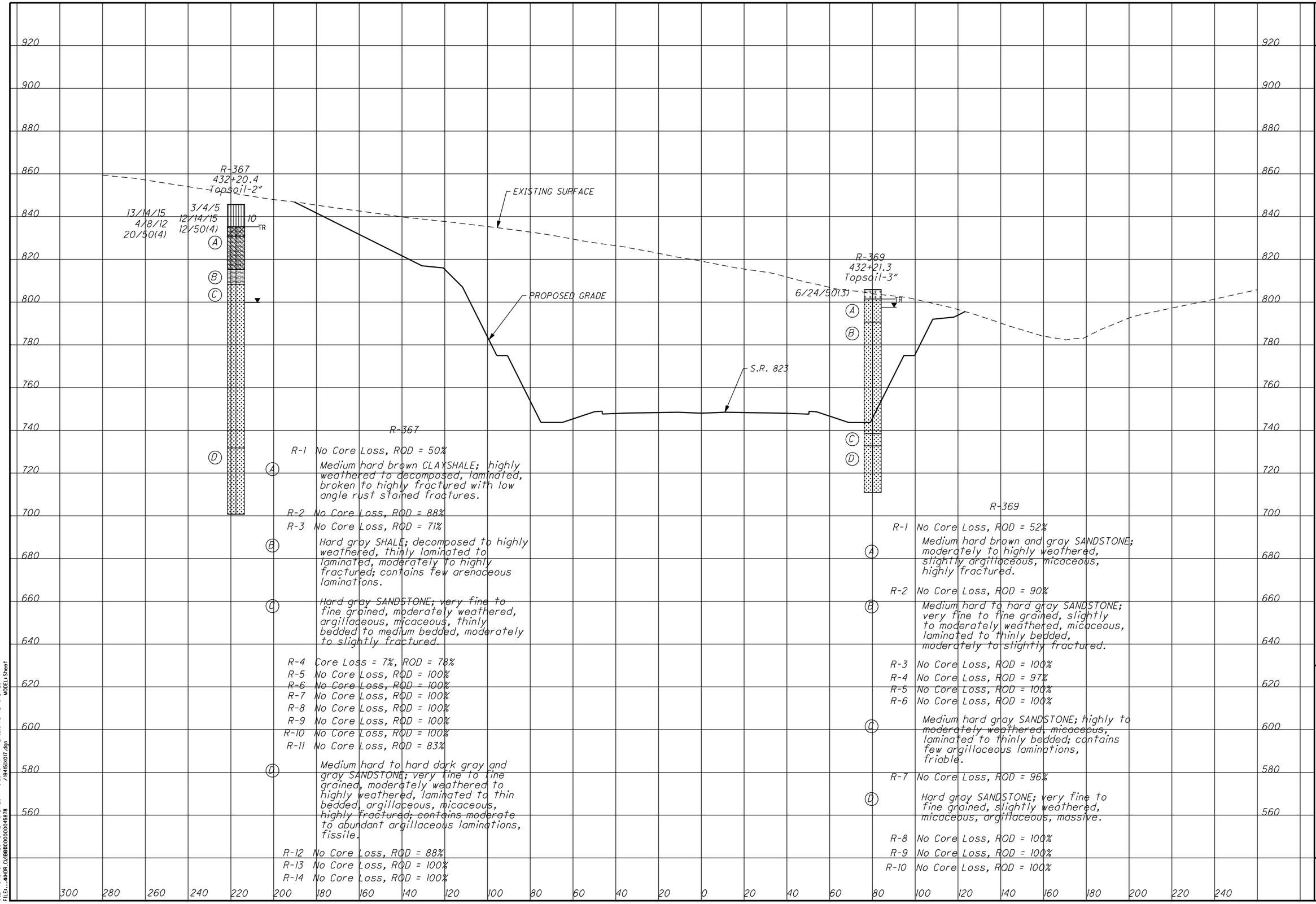
CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 428+00

SCI-823-6.81

90
135

USER: Cmahlbri PLOT DATE: 6/21/2011 8:35:41 PM REVISION DATE: 6/21/2011
FILES: ...ANOR_CV\B0000000045878 7945IX016.dgn MODEL: Sheet



CALCULATED

CHECKED

SOIL PROFILE
SECTION - SR 823 STA. 432+00
CROSS SECTION

SCI-823-6.81

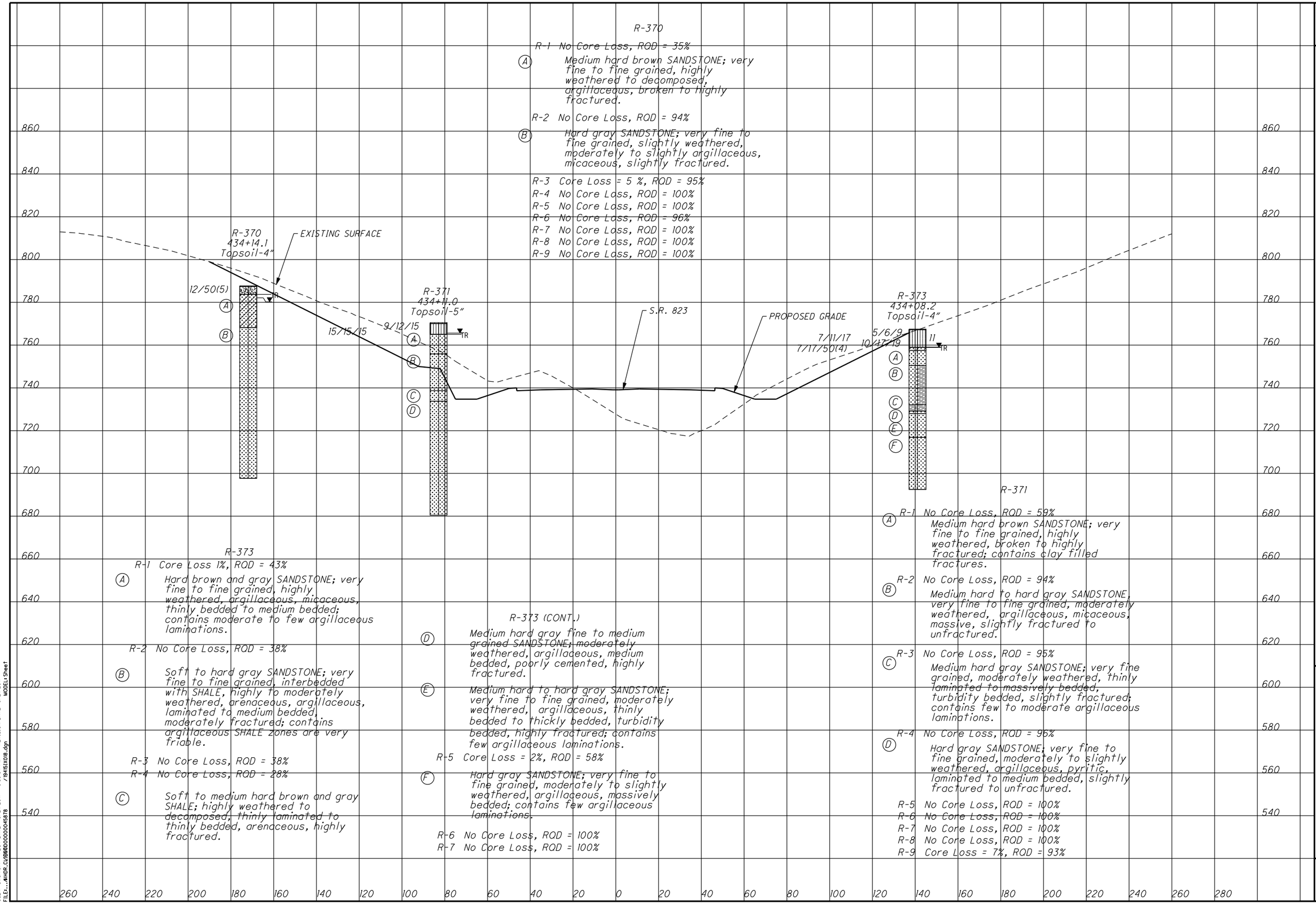
91
135

USER: CWohlbr PLOT DATE: 6/21/2011 8:35:48 PM REVISION DATE: 6/21/2011
FILE: ...\MHDR.C\0000000000045878 /1945IX017.dgn MODEL: Sheet

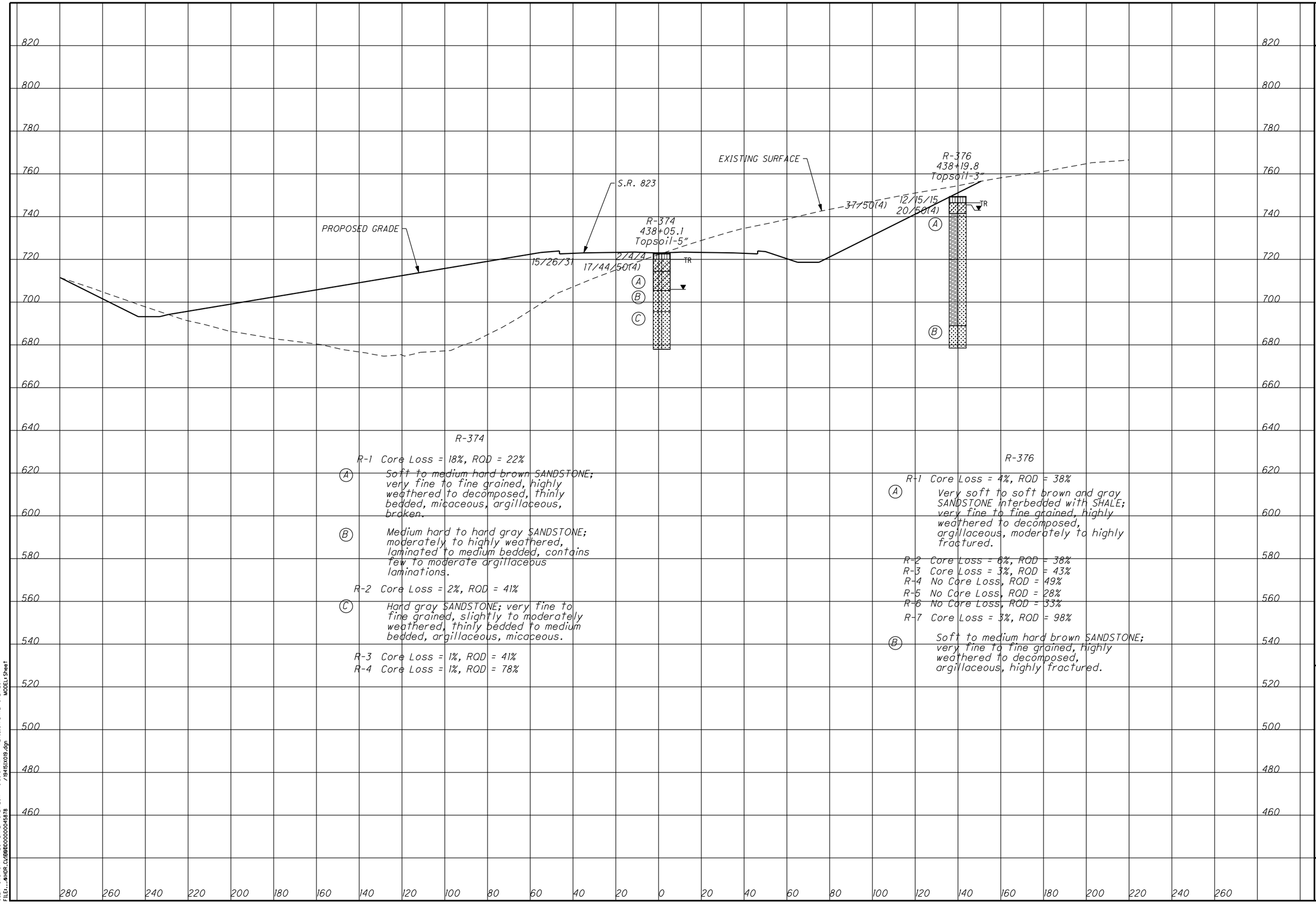
CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 434+00

SCI-823-6.81



USER: CMohibri PLOT DATE: 6/21/2011 8:35:54 PM REVISION DATE: 6/21/2011
FILE:...&HOR.CL(BOLD)0000045878 7941SIX08.dgn MODEL: Sheet1



CALCULATED

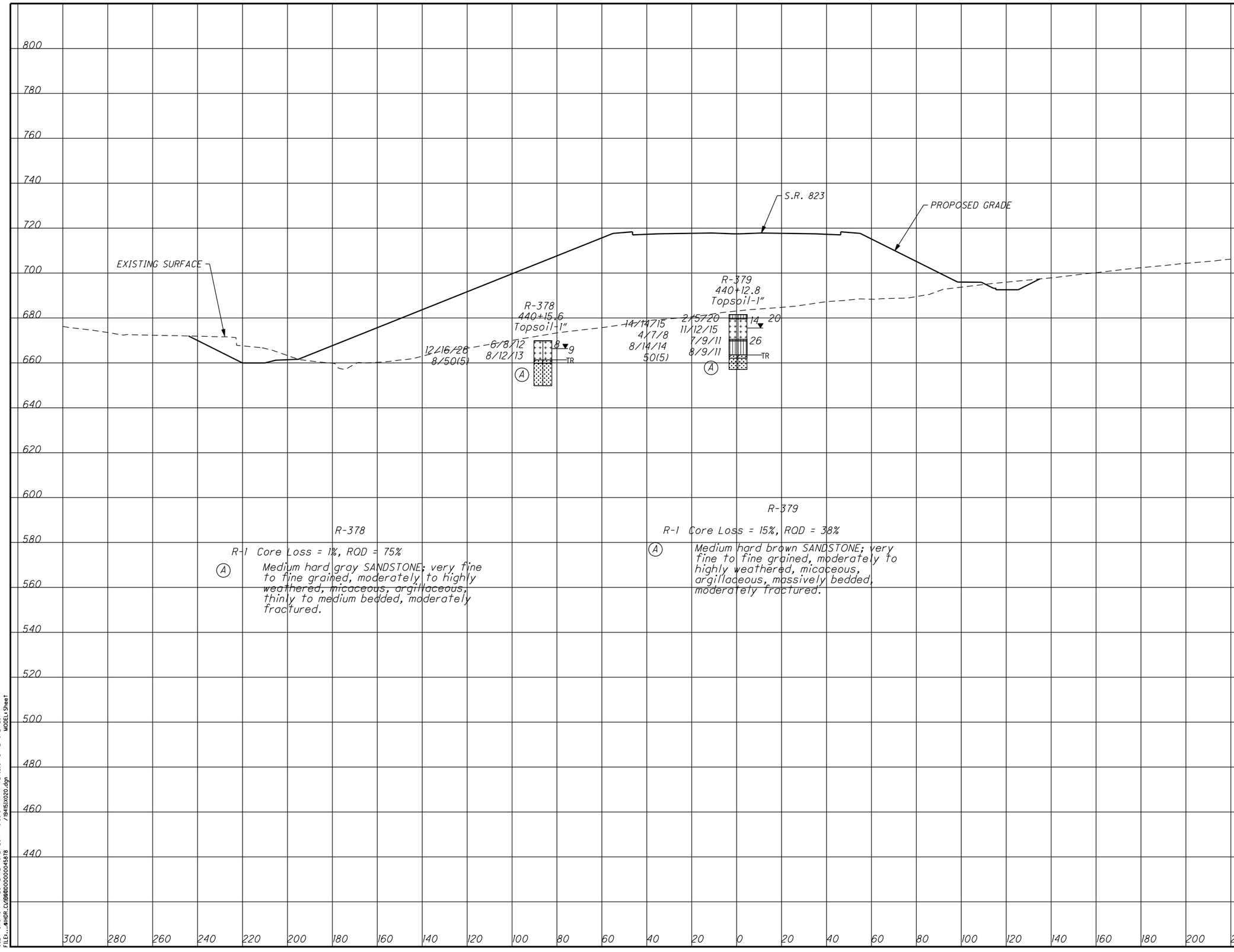
CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 438+00

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:36:01 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/0000000000045878 7945IX018.dgn MODEL: Sheet



CALCULATED

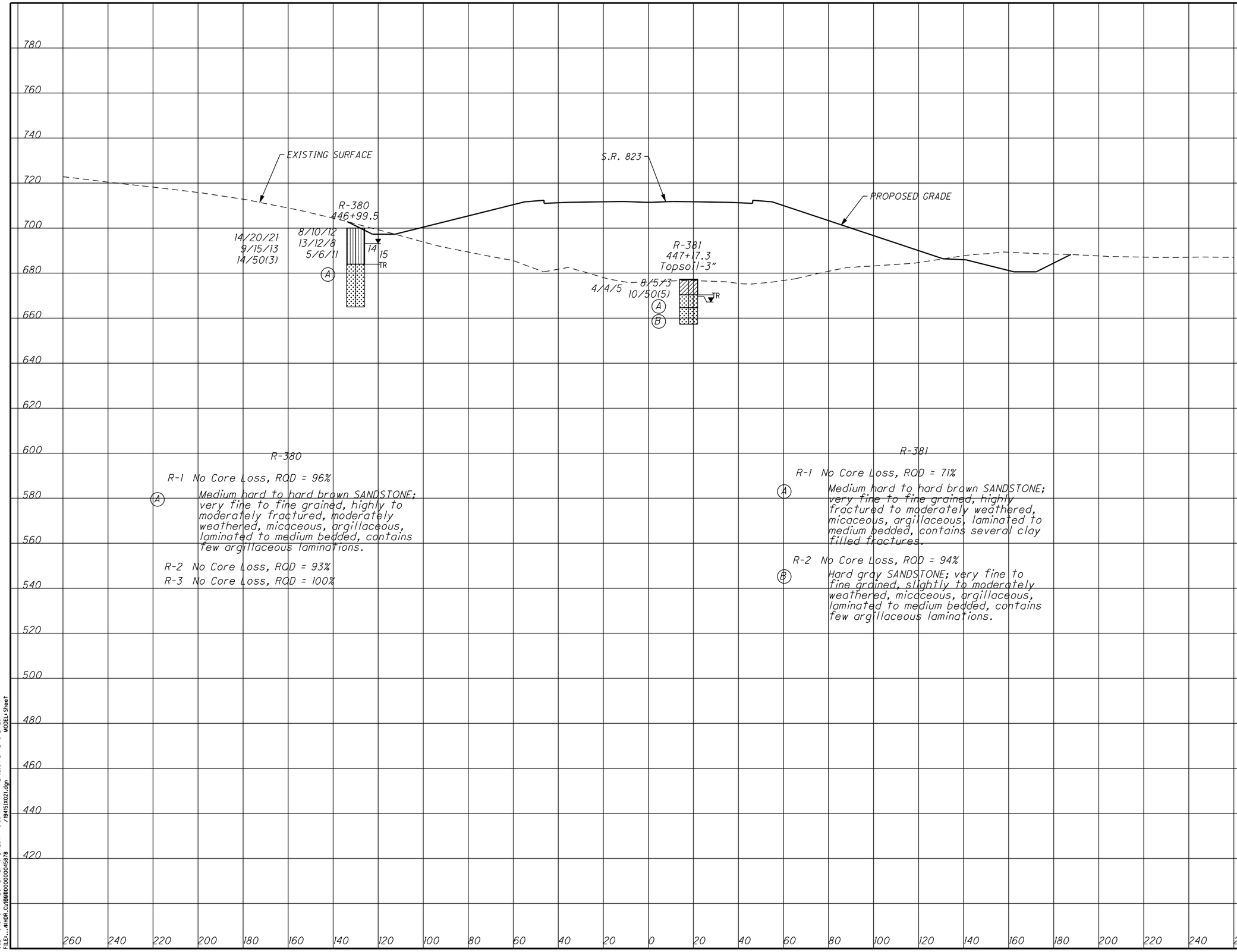
CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 440+00

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:36:07 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/B0000000045878 79415X020.dgn MODEL: Sheet



CALCULATED

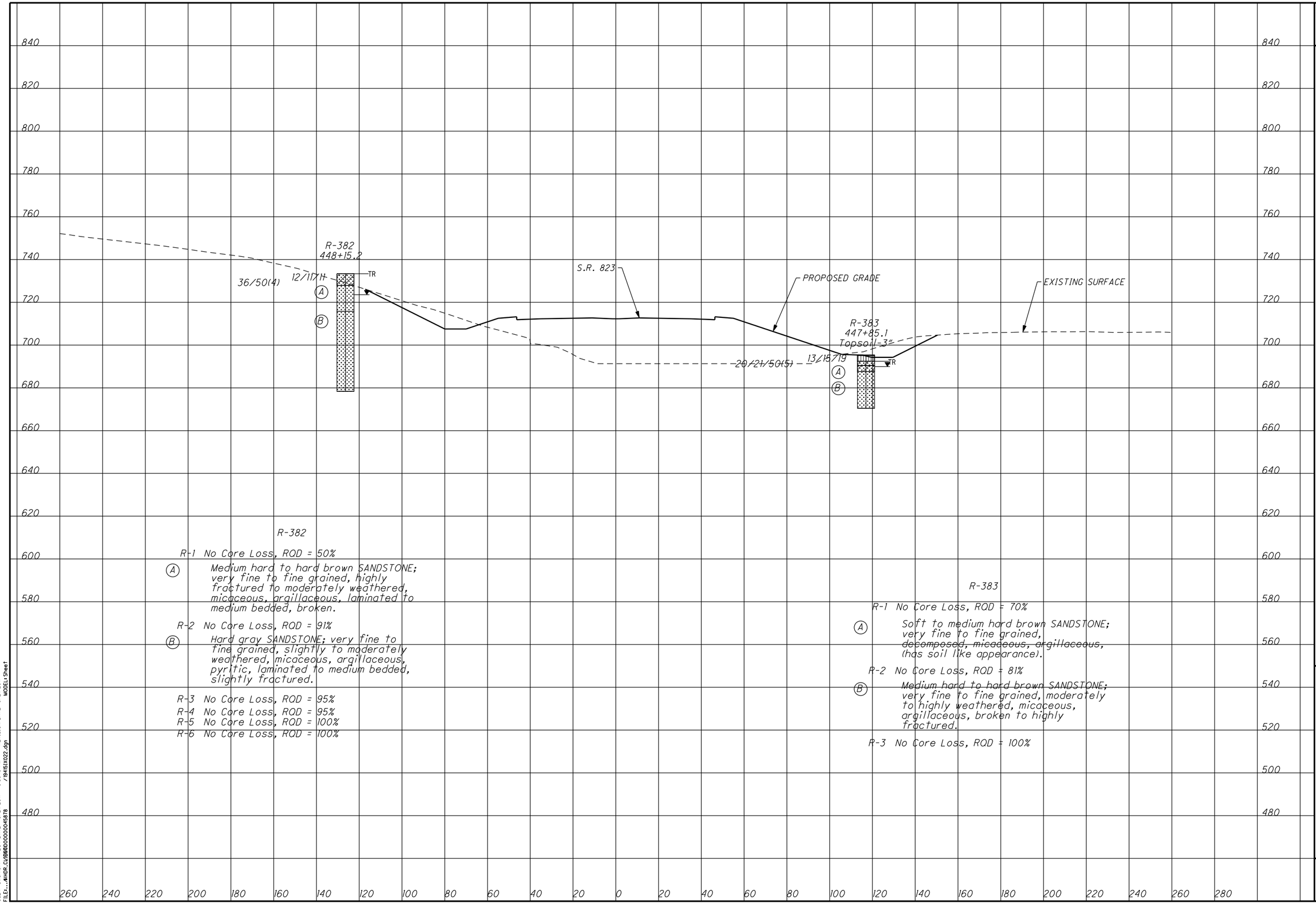
CHECKED

SOIL PROFILE
SECTION - SR 823 STA. 447+00
CROSS SEC

SCI-823-6.81

95
135

USER: CWohlbr; PLOT DATE= 6/21/2011 8:36:11 PM REVISION DATE= 6/21/2011
FILE:...MHOR.Cu000000000045878 /1945IX021.dgn MODEL:Sheet



CALCULATED

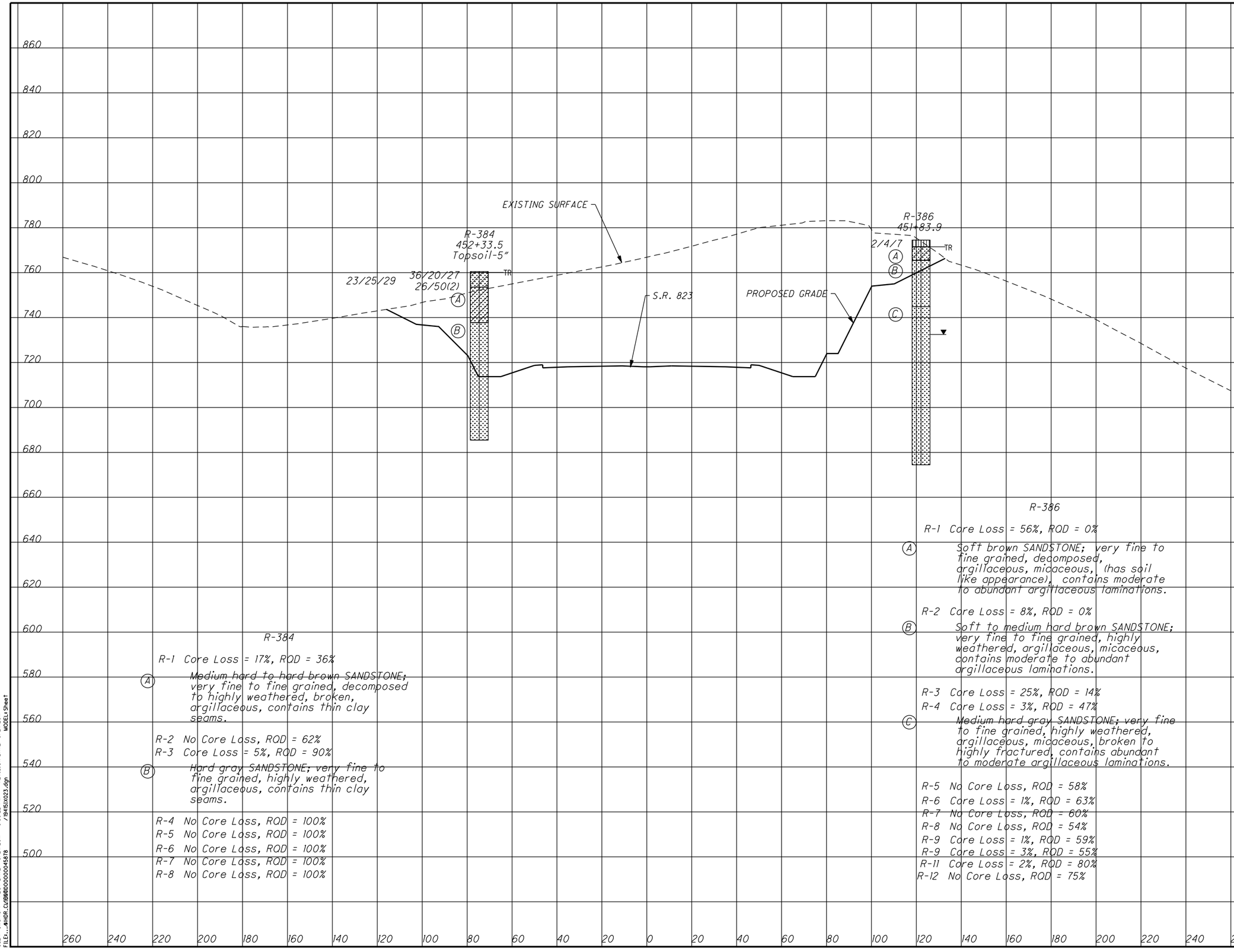
CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 448+00

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:36:46 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/0000000000045878 7945IX022.dgn MODEL: Sheet



R-384

R-1 Core Loss = 17%, ROD = 36%

(A) Medium hard to hard brown SANDSTONE; very fine to fine grained, decomposed to highly weathered, broken, argillaceous, contains thin clay seams.

R-2 No Core Loss, ROD = 62%
R-3 Core Loss = 5%, ROD = 90%

(B) Hard gray SANDSTONE; very fine to fine grained, highly weathered, argillaceous, contains thin clay seams.

R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 100%

R-386

R-1 Core Loss = 56%, ROD = 0%

(A) Soft brown SANDSTONE; very fine to fine grained, decomposed, argillaceous, micaceous, (has soil like appearance), contains moderate to abundant argillaceous laminations.

R-2 Core Loss = 8%, ROD = 0%

(B) Soft to medium hard brown SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, contains moderate to abundant argillaceous laminations.

R-3 Core Loss = 25%, ROD = 14%
R-4 Core Loss = 3%, ROD = 47%

(C) Medium hard gray SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, broken to highly fractured, contains abundant to moderate argillaceous laminations.

R-5 No Core Loss, ROD = 58%
R-6 Core Loss = 1%, ROD = 63%
R-7 No Core Loss, ROD = 60%
R-8 No Core Loss, ROD = 54%
R-9 Core Loss = 1%, ROD = 59%
R-9 Core Loss = 3%, ROD = 55%
R-11 Core Loss = 2%, ROD = 80%
R-12 No Core Loss, ROD = 75%

CALCULATED | CHECKED

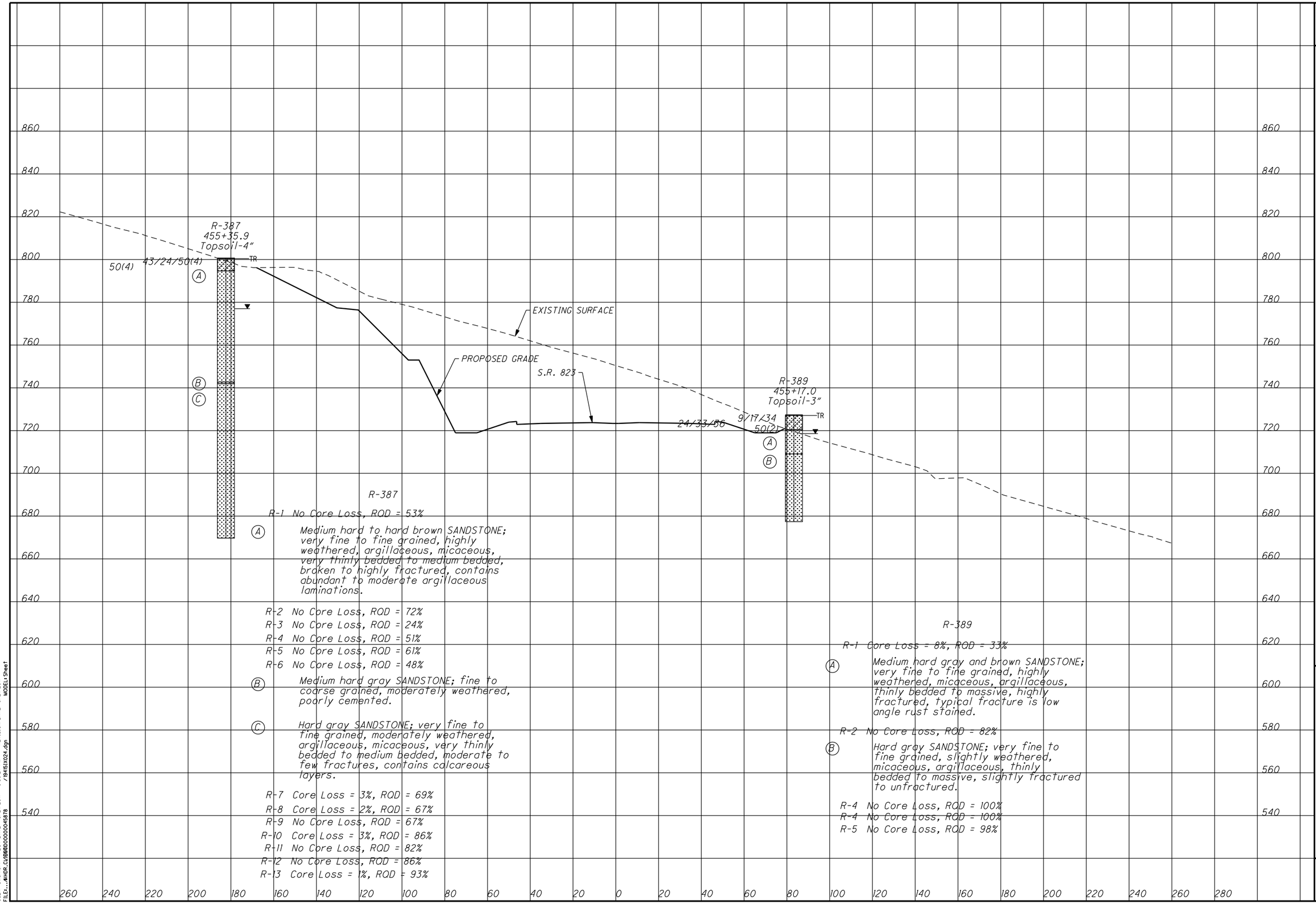
SOIL PROFILE
CROSS SECTION - SR 823 STA. 452+00

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:36:22 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/0000000000045878 79415\X023.dgn MODEL: Sheet

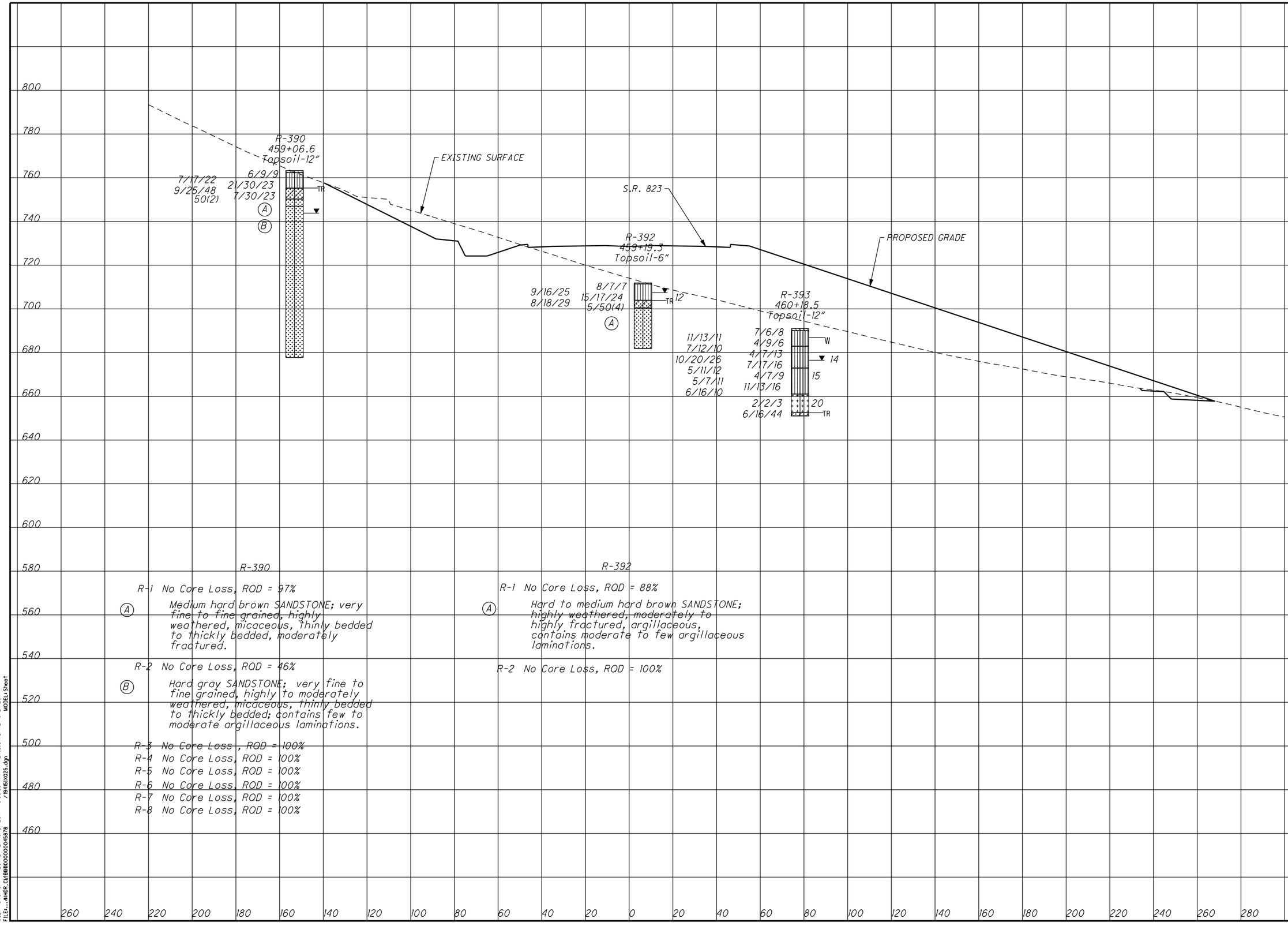
CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 455+50



USER: CWahlbri PLOT DATE: 6/21/2011 8:36:27 PM REVISION DATE: 6/21/2011 MODEL: Sheet
FILE...\MHDR.CVB000000045878 7/8x15X024.dgn

SCI-823-6.81



R-390

R-1 No Core Loss, ROD = 97%

(A) Medium hard brown SANDSTONE; very fine to fine grained, highly weathered, micaceous, thinly bedded to thickly bedded, moderately fractured.

R-2 No Core Loss, ROD = 46%

(B) Hard gray SANDSTONE; very fine to fine grained, highly to moderately weathered, micaceous, thinly bedded to thickly bedded; contains few to moderate argillaceous laminations.

R-3 No Core Loss , ROD = 100%
R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 100%

R-392

R-1 No Core Loss, ROD = 88%

(A) Hard to medium hard brown SANDSTONE; highly weathered, moderately to highly fractured, argillaceous, contains moderate to few argillaceous laminations.

R-2 No Core Loss, ROD = 100%

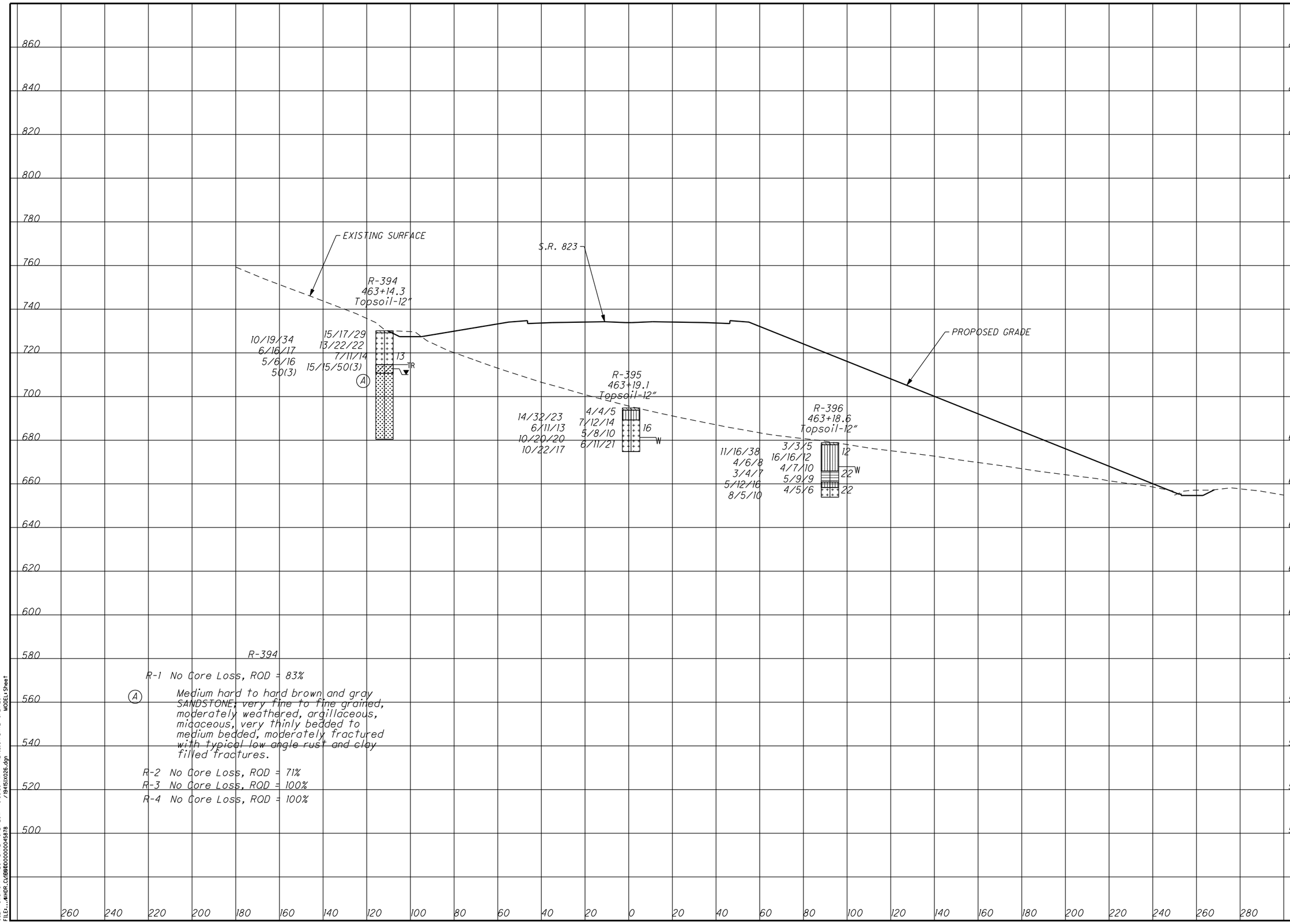
CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 459+00

SCI-823-6.81

99
135

USER: CWohlbri PLOT DATE: 6/21/2011 8:36:33 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C\B0000000045878 79415\X025.dgn MODEL: Sheet



CALCULATED

CHECKED

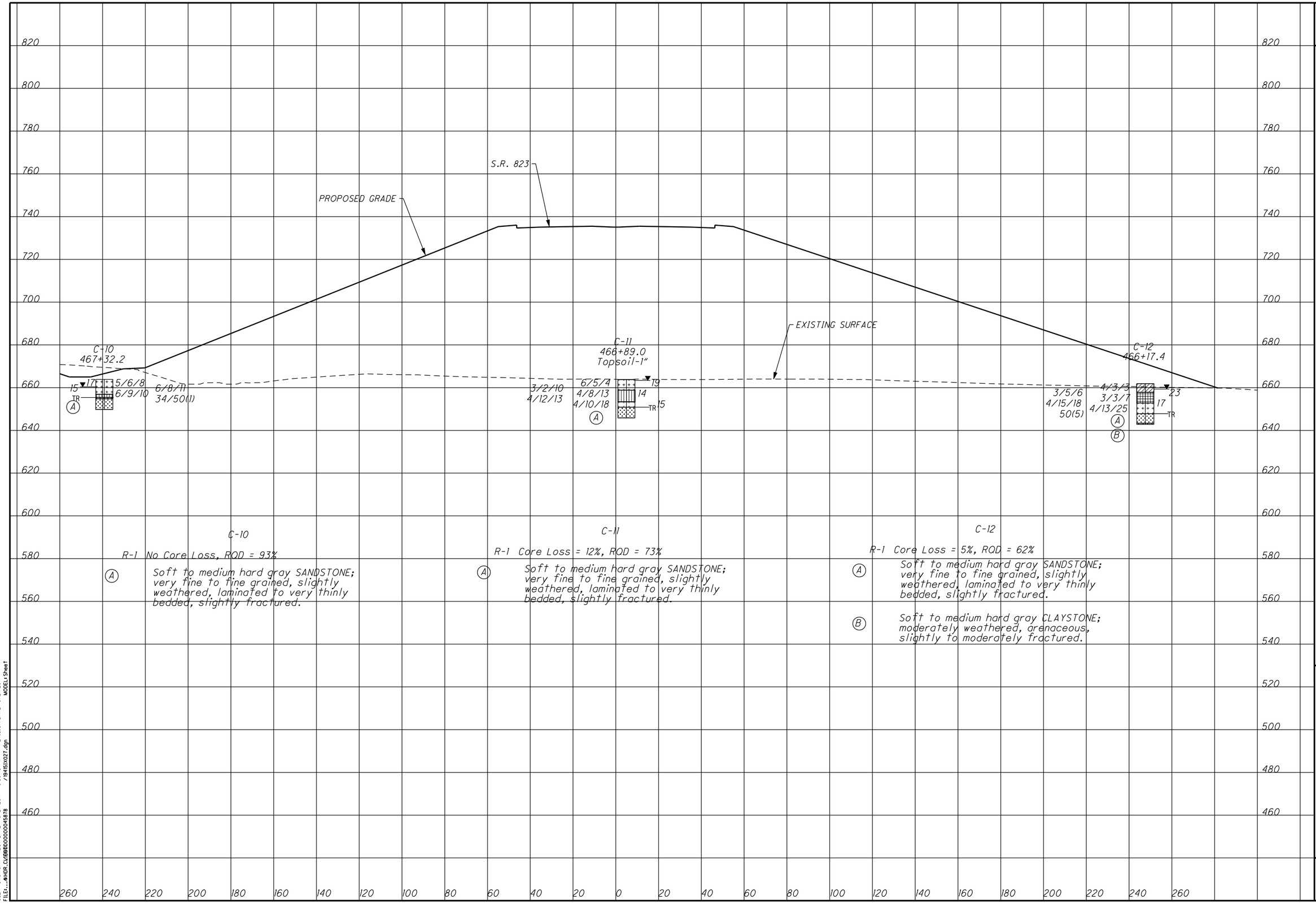
SOIL PROFILE

CROSS SECTION - SR 823 STA. 463+00

SCI-823-6.81

100
135

USER: CMahlbri PLOT DATE: 6/21/2011 8:36:38 PM REVISION DATE: 6/21/2011
FILE: ...4HOR.CL0000000045878 /19415X026.dgn MODEL: Sheet



CALCULATED

CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 467+00

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:36:43 PM REVISION DATE: 6/21/2011
FILE: ...\MHDR.C/000000000045878 79415X027.dgn MODEL: Sheet

CALCULATED | CHECKED

780
760
740
720
700
680
660
640
620
600
580
560
540
520
500
480
460

PROPOSED GRADE
S.R. 823
EXISTING SURFACE

R-405
472+18.3
Topsoil-12"
11/21/21
4/4/5
3/5/5
3/8/16
4/7/13
8/12/11
3/3/5
2/5/8
21
W
24

R-408
472+24.1
Topsoil-6"
8/14/50(5)
3/4/4
W
16
TR
A

R-408

R-1 No Core Loss, ROD = 92%

A Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, very thinly bedded to medium bedded.

R-2 No Core Loss, ROD = 98%

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

USER: CWohlbri PLOT DATE: 6/21/2011 8:36:48 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/0000000000045878 79415X028.dgn MODEL: Sheet

SOIL PROFILE
CROSS SECTION - SR 823 STA. 472+00

SCI-823-6.81

SOIL PROFILE
CROSS SECTION - SR 823 STA. 474+00

CALCULATED | CHECKED

PROPOSED GRADE

S.R. 823

EXISTING SURFACE

840 820 800 780 760 740 720 700 680 660 640 620 600 580 560 540 520 500 480

C-13
475+01.2
Topsoil-4"
4/5/5
4/13/13
5/7/8
3/5/4
3/3/5
6/14/18
8/10/12
4/7/9
6/50(5)
20
13
17
15
W
TR
A

C-14
473+69.0
Topsoil-2"
4/6/19
4/6/7
17/50(3)
4/4/4
5/7/11
3/4/4
16
12
18
19
TR
A

C-15
472+64.1
10/20/30
4/10/16
13/50(3)
18
14
TR
A

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

C-13
R-1 Core Loss = 2%, ROD = 80%
A
Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, laminated to very thinly bedded, slightly fractured.

C-14
R-1 Core Loss = 2%, ROD = 48%
A
Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, laminated to very thinly bedded, slightly fractured.

C-15
R-1 No Core Loss, ROD = 97%
A
Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, laminated to very thinly bedded, slightly fractured.

USER: CWohlbri PLOT DATE: 6/21/2011 8:36:53 PM REVISION DATE: 6/21/2011
FILE:...\MHDR_C0800000000045878 79415X029.dgn MODEL: Sheet

SCI-823-6.81

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 481+00

SCI-823-6.81

104
135

880
860
840
820
800
780
760
740
720
700
680
660
640
620
600
580
560

320 300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220

R-414
480+84.1
TR
16/50(4)
A
B
C
D

R-414

EXISTING SURFACE

R-1 No Core Loss, ROD = 83%

A — Medium hard to hard brown SANDSTONE; fine grained, moderately weathered, micaceous, slightly argillaceous, thinly bedded to medium bedded, contains small argillaceous clasts, broken to moderately fractured.

R-2 No Core Loss, ROD = 80%
R-3 No Core Loss, ROD = 90%

B — Hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, slightly argillaceous, thinly bedded to thickly bedded, moderately to slightly fractured.

R-4 No Core Loss, ROD = 98%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 100%
R-8 Core Loss = 3%, ROD = 72%

C — Hard brown fine grained SANDSTONE, moderately weathered, slightly argillaceous, thinly to thickly bedded, highly fractured to moderately fractured.

R-9 No Core Loss, ROD = 100%

D — Hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, slightly argillaceous, thinly bedded to thickly bedded, slightly fractured.

R-10 No Core Loss, ROD = 100%
R-11 No Core Loss, ROD = 100%
R-12 No Core Loss, ROD = 98%
R-13 No Core Loss, ROD = 97%
R-14 No Core Loss, ROD = 100%
R-15 No Core Loss, ROD = 100%
R-16 No Core Loss, ROD = 100%
R-17 No Core Loss, ROD = 99%

PROPOSED GRADE
S.R. 823

11/21/20
6/13/18
15/35/53

R-416
480+94.2
Topsoil-12"
4/6/10
16/23/28
6/14/22
8/50(3)
W
TR
A

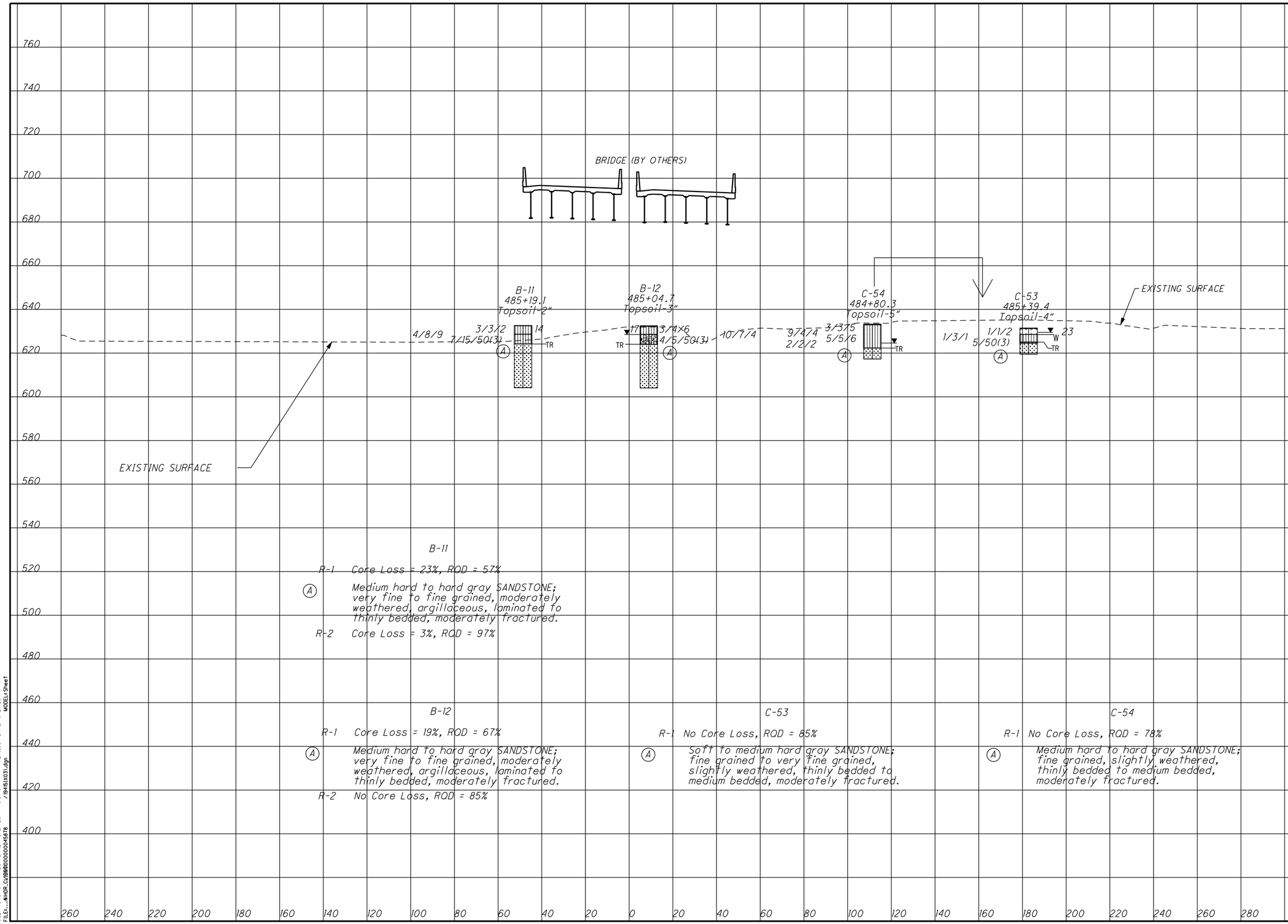
R-416

R-1 No Core Loss, ROD = 83%

A — Medium hard to hard brown SANDSTONE; very fine to fine grained, broken to moderately fractured, moderately weathered, micaceous, argillaceous.

R-2 No Core Loss, ROD = 100%
R-3 Core Loss = 2%, ROD = 98%
R-4 No Core Loss, ROD = 100%

USER: CMahlbri PLOT DATE: 6/21/2011 8:36:58 PM REVISION DATE: 6/21/2011
FILE: ...4\HOR_CL\0800000000045878 /19451X030.dgn MODEL: Sheet



CALCULATED | CHECKED

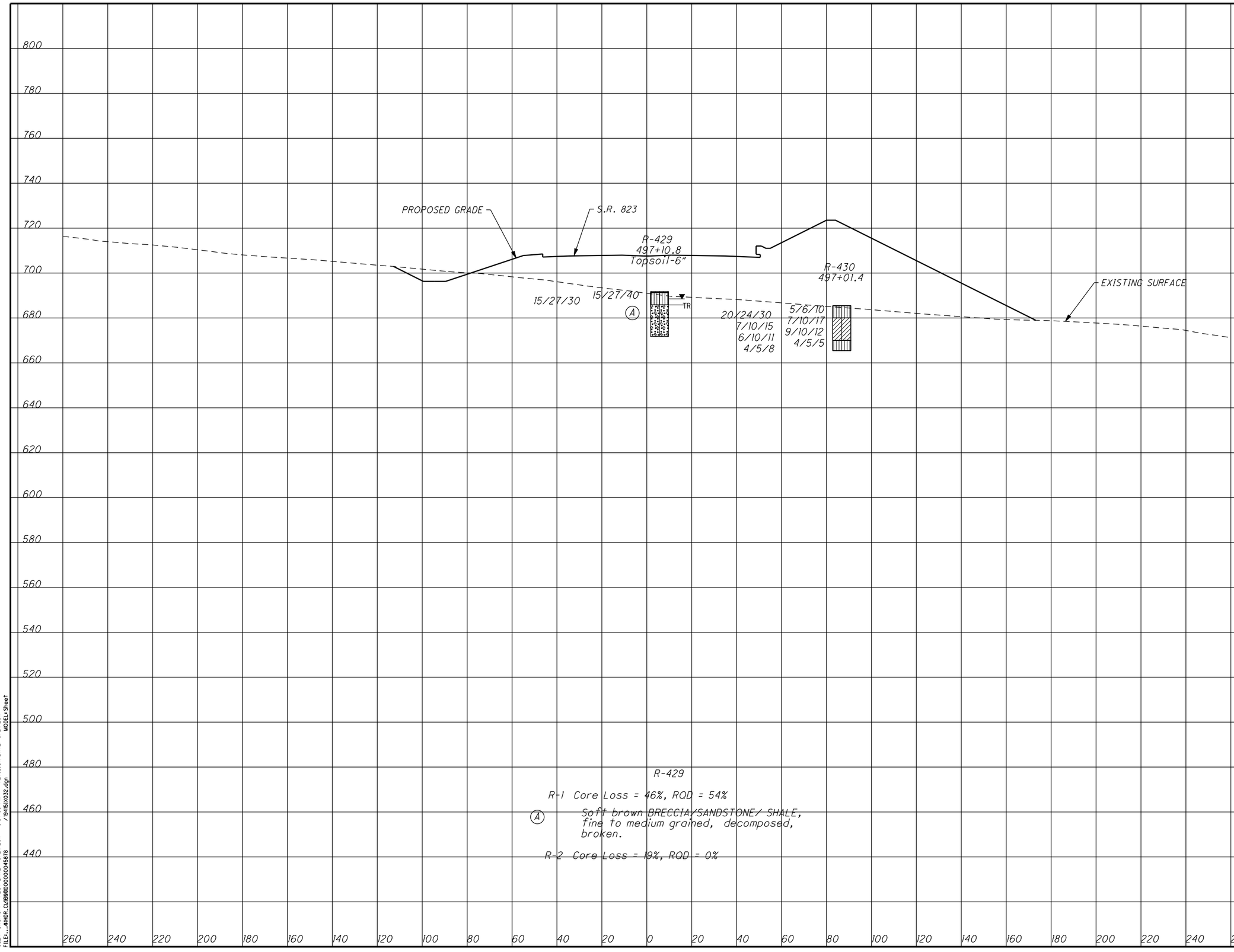
SOIL PROFILE

CROSS SECTION - SR 823 STA. 485+00

SCI-823-6.81

105
135

USER: cmohibri PLOT DATE: 6/21/2011 8:37:04 PM REVISION DATE: 6/21/2011
FILES: ...&HOR_CURB0000000045878 /19415IX031.dgn MODEL: Sheet



R-429

R-1 Core Loss = 46%, ROD = 54%

(A) Soft brown BRECCIA/SANDSTONE/ SHALE, fine to medium grained, decomposed, broken.

R-2 Core Loss = 19%, ROD = 0%

CALCULATED | CHECKED

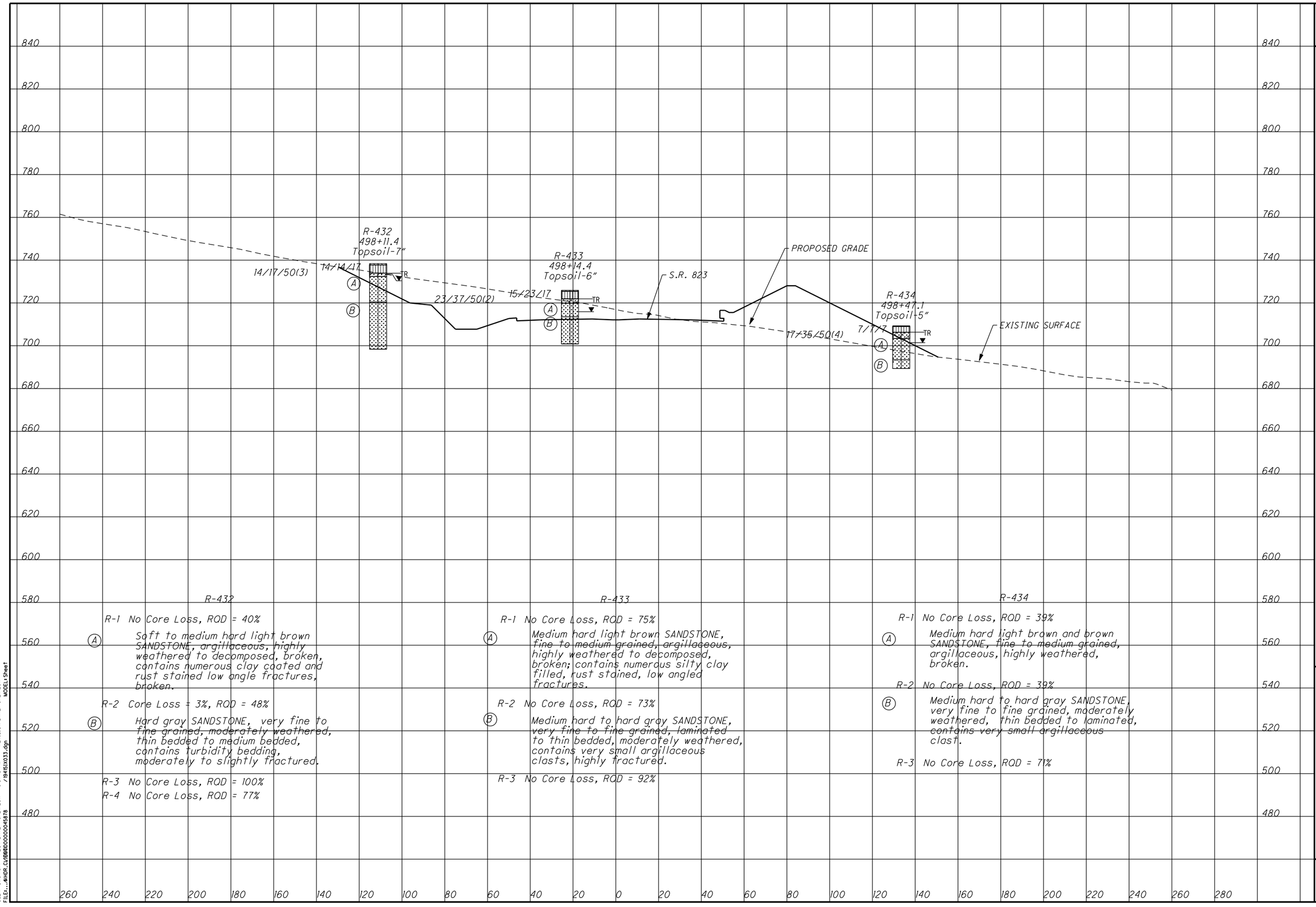
SOIL PROFILE

CROSS SECTION - SR 823 STA. 497+00

SCI-823-6.81

106
135

USER: CWohlbri PLOT DATE: 6/21/2011 8:37:09 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C\0000000000045878 79415IX032.dgn MODEL: Sheet



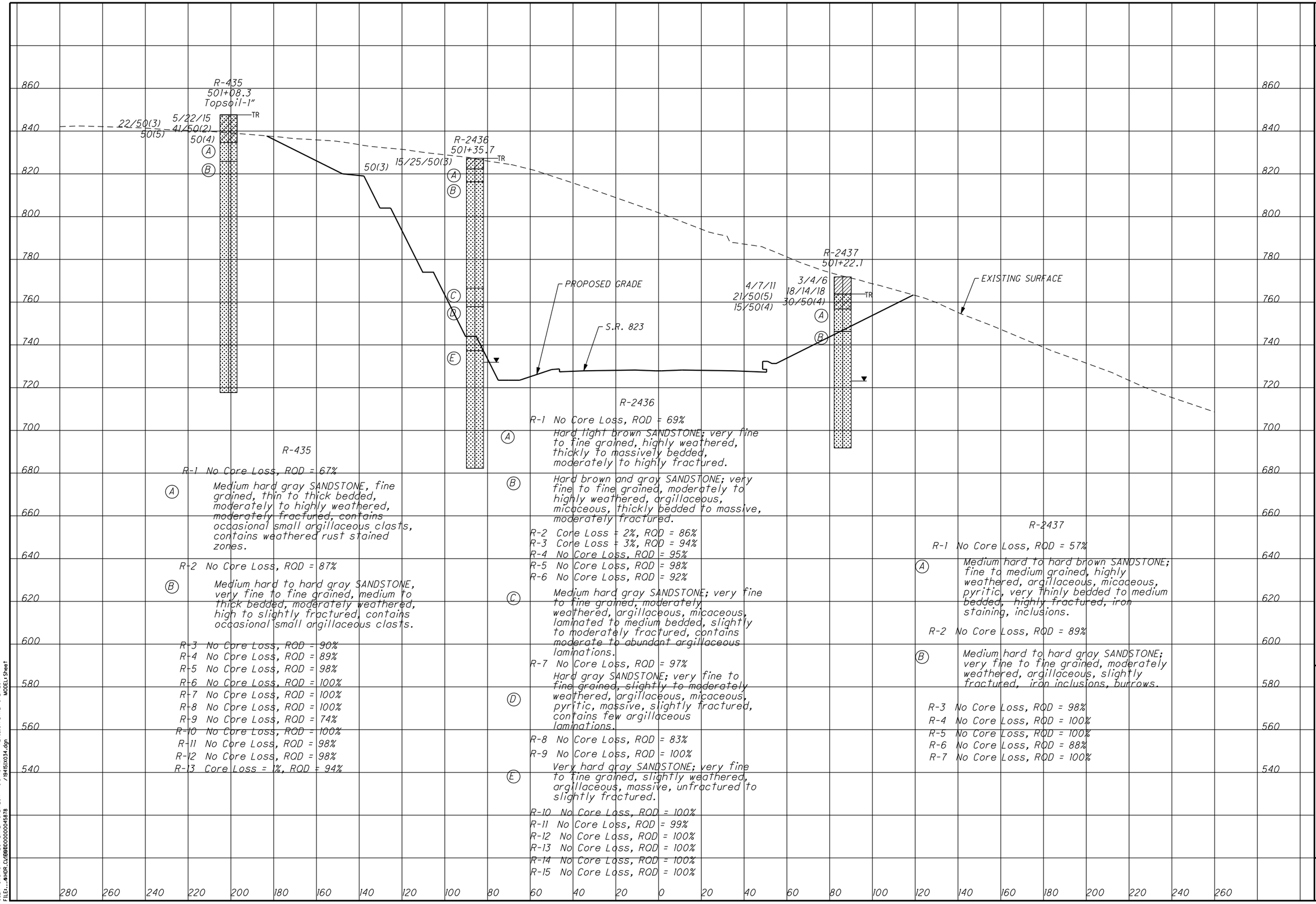
USER: CWohlbri PLOT DATE: 6/21/2011 8:37:43 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C\0800000000045878 79415IX033.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 498+00

SCI-823-6.81



CALCULATED

CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 501+50

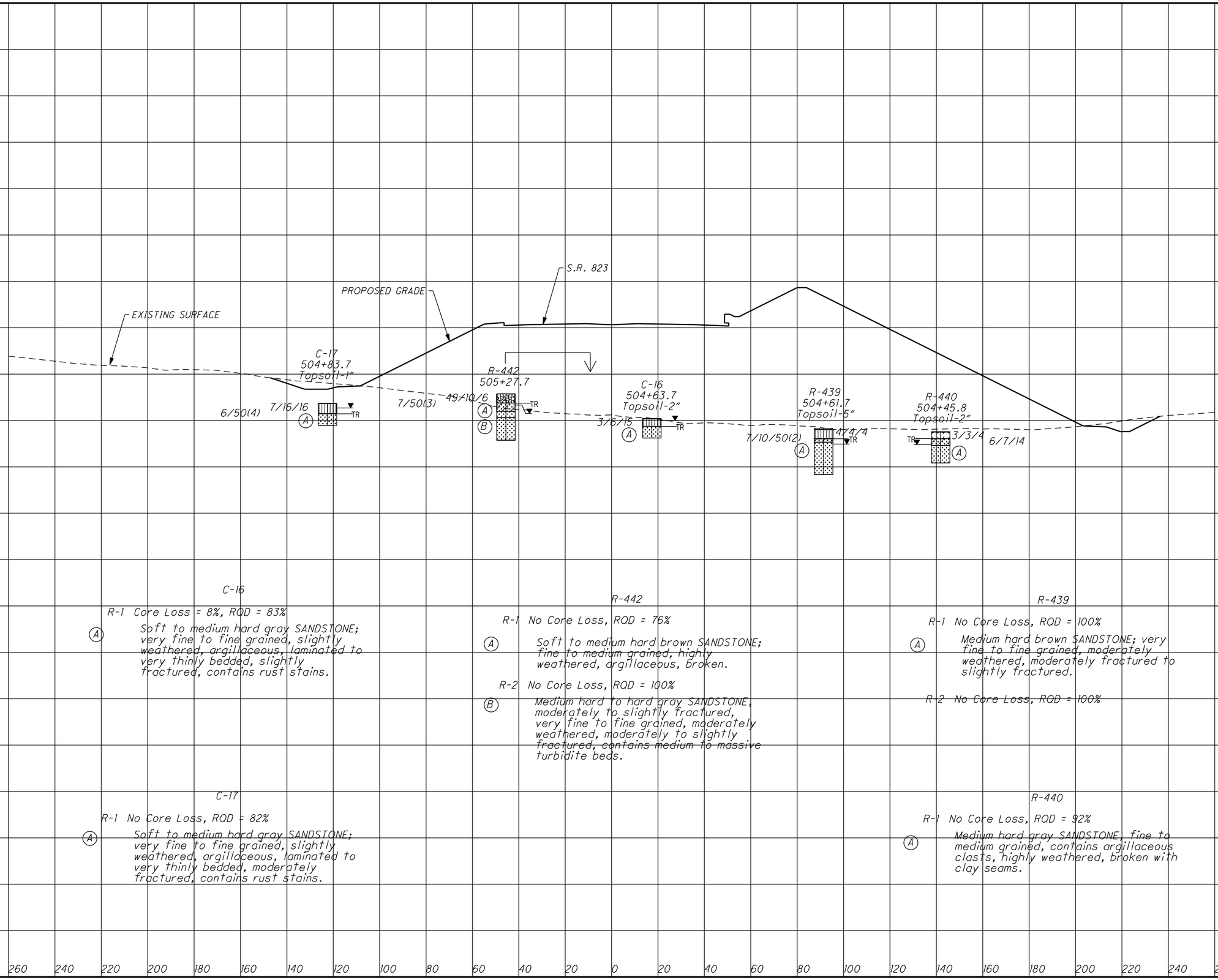
SCI-823-6.81

USER: Cwahlbri PLOT DATE: 6/21/2011 8:37:19 PM REVISION DATE: 6/21/2011
FILES: ...\MDR_CyDB\0000000045878 79415X034.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 504+50



C-16

R-1 Core Loss = 8%, ROD = 83%

A — Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, laminated to very thinly bedded, slightly fractured, contains rust stains.

R-442

R-1 No Core Loss, ROD = 76%

A — Soft to medium hard brown SANDSTONE; fine to medium grained, highly weathered, argillaceous, broken.

R-2 No Core Loss, ROD = 100%

B — Medium hard to hard gray SANDSTONE; moderately to slightly fractured, very fine to fine grained, moderately weathered, moderately to slightly fractured, contains medium to massive turbidite beds.

R-439

R-1 No Core Loss, ROD = 100%

A — Medium hard brown SANDSTONE; very fine to fine grained, moderately weathered, moderately fractured to slightly fractured.

R-2 No Core Loss, ROD = 100%

C-17

R-1 No Core Loss, ROD = 82%

A — Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, laminated to very thinly bedded, moderately fractured, contains rust stains.

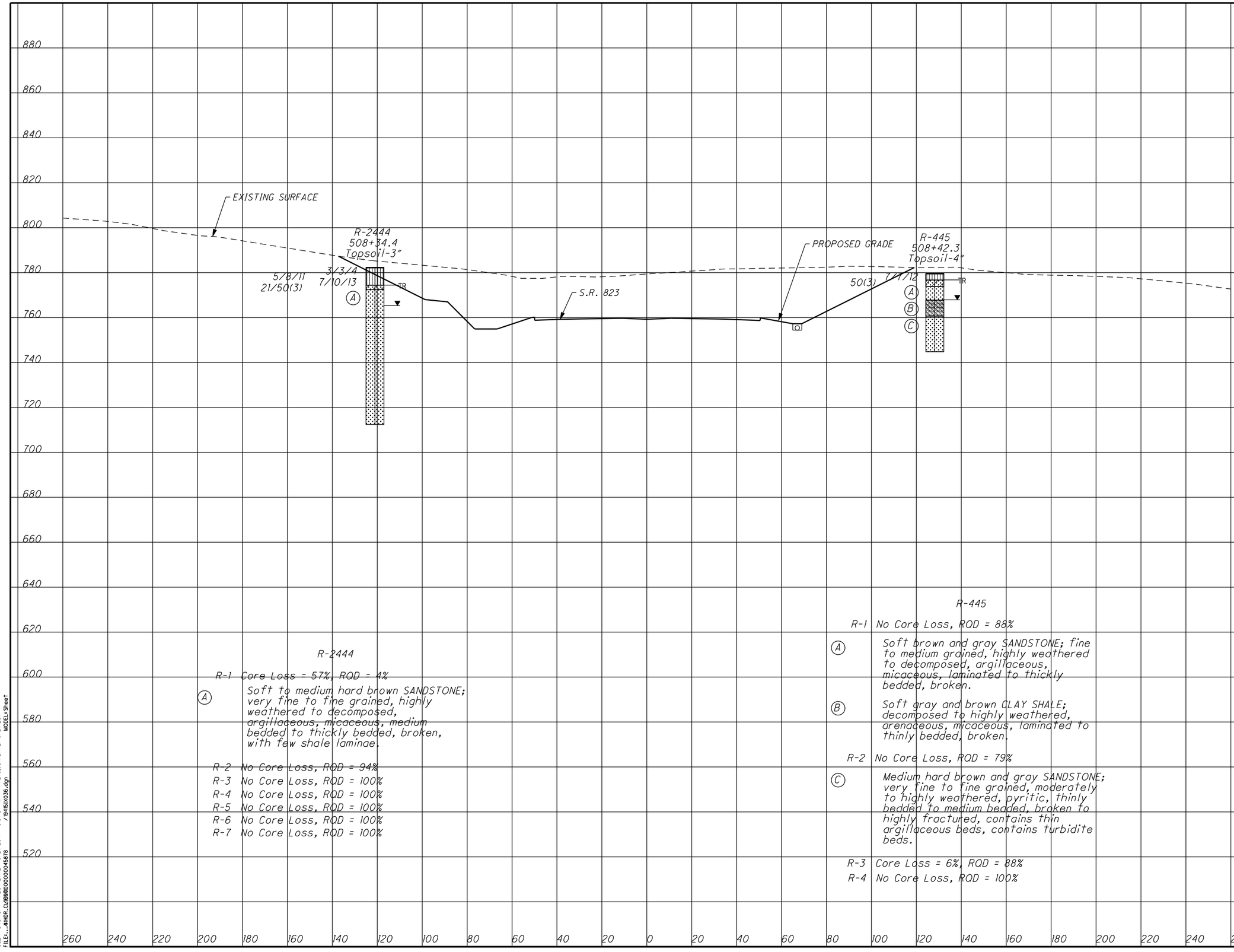
R-440

R-1 No Core Loss, ROD = 92%

A — Medium hard gray SANDSTONE, fine to medium grained, contains argillaceous clasts, highly weathered, broken with clay seams.

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:37:26 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C\0000000000045878 79415IX035.dgn MODEL: Sheet



R-2444

R-1 Core Loss = 57%, ROD = 4%

(A) Soft to medium hard brown SANDSTONE; very fine to fine grained, highly weathered to decomposed, argillaceous, micaceous, medium bedded to thickly bedded, broken, with few shale laminae.

R-2 No Core Loss, ROD = 94%
R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 100%

R-445

R-1 No Core Loss, ROD = 88%

(A) Soft brown and gray SANDSTONE; fine to medium grained, highly weathered to decomposed, argillaceous, micaceous, laminated to thickly bedded, broken.

(B) Soft gray and brown CLAY SHALE; decomposed to highly weathered, arenaceous, micaceous, laminated to thinly bedded, broken.

R-2 No Core Loss, ROD = 79%

(C) Medium hard brown and gray SANDSTONE; very fine to fine grained, moderately to highly weathered, pyritic, thinly bedded to medium bedded, broken to highly fractured, contains thin argillaceous beds, contains turbidite beds.

R-3 Core Loss = 6%, ROD = 88%
R-4 No Core Loss, ROD = 100%

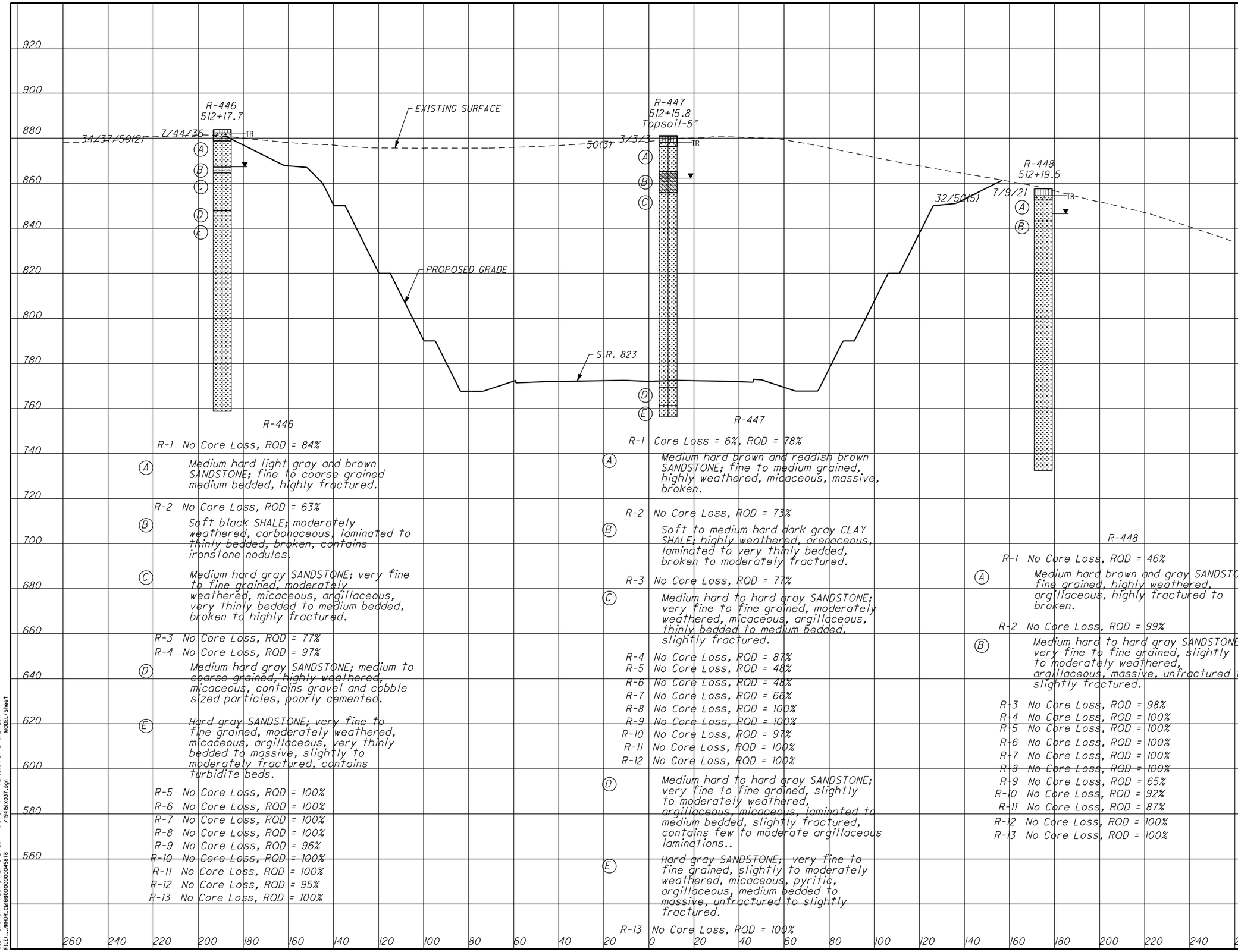
CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - SR 823 STA. 508+50

SCI-823-6.81

110
135

USER: CWohlbri PLOT DATE: 6/21/2011 8:37:31 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C\B0000000045878 79145LX036.dgn MODEL: Sheet



CALCULATED

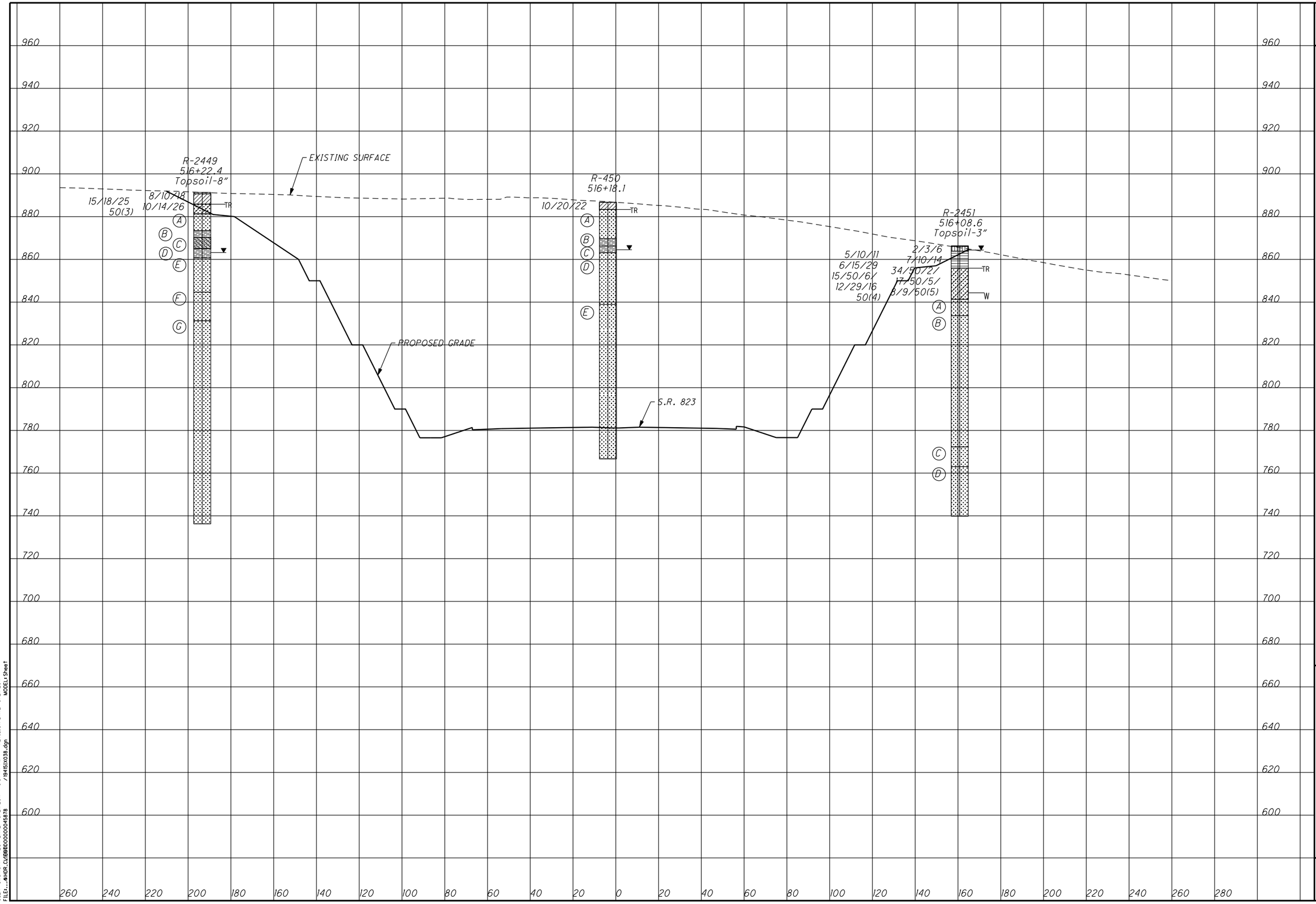
CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 512+00

SCI-823-6.81

USER: Cwahlbri PLOT DATE: 6/21/2011 8:37:37 PM REVISION DATE: 6/21/2011
FILES: ...\HDR_Cd\B800000000045878 79415TX037.dgn MODEL: Sheet



USER: CWohlbri PLOT DATE: 6/21/2011 8:37:44 PM REVISION DATE: 6/21/2011
FILE: ...4\HOR_CU000000000045878 /19415X038.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 516+00

SCI-823-6.81

R-2449

R-1 No Core Loss, ROD = 61%

(A) Medium hard light brown SANDSTONE interbedded with SHALE; fine grained, highly weathered, micaceous, thickly bedded, moderately fractured.

R-2 Core Loss = 6%, ROD = 55%

(B) Soft to medium hard black SHALE; moderately to highly weathered, arenaceous, carbonaceous, micaceous, thinly laminated to laminated.

(C) Very soft dark gray CLAYSHALE; highly weathered to decomposed, carbonaceous, laminated to thinly bedded.

R-3 No Core Loss, ROD = 80%

(D) Soft to medium hard gray SHALE; highly weathered to decomposed, arenaceous, thinly bedded.

(E) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, laminated to medium bedded, unfractured to slightly fractured, contains coal stringers.

R-4 No Core Loss, ROD = 98%
R-5 No Core Loss, ROD = 98%

(F) Very hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, massively bedded, unfractured.

R-6 No Core Loss, ROD = 100%

(G) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, massive, unfractured to slightly fractured.

R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 100%
R-9 No Core Loss, ROD = 100%
R-10 No Core Loss, ROD = 100%
R-11 No Core Loss, ROD = 100%
R-12 No Core Loss, ROD = 27%
R-13 No Core Loss, ROD = 100%
R-14 No Core Loss, ROD = 100%
R-15 No Core Loss, ROD = 100%

R-450

R-1 No Core Loss, ROD = 63%

(A) Medium hard brown and light gray SANDSTONE; fine to medium grained, highly weathered, broken, contains numerous low angle rust stained and clay filled fractures.

R-2 No Core Loss, ROD = 90%

(B) Soft to medium hard dark gray and black SHALE; moderately to highly weathered, carbonaceous, moderately to highly fractured.

(C) Soft gray SHALE; highly weathered to decomposed, thinly laminated, arenaceous, moderately to highly fractured.

R-3 No Core Loss, ROD = 91%

(D) Medium hard gray SANDSTONE; very fine to fine grained, highly weathered, broken to moderately fractured, argillaceous, contains moderate argillaceous laminations.

R-4 Core Loss = 4%, ROD = 86%
R-5 No Core Loss, ROD = 98%

(E) Medium hard to hard light gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, thickly bedded to massive, unfractured to slightly fractured.

R-6 No Core Loss, ROD = 95%
R-7 Core Loss = 9%, ROD = 82%
R-8 No Core Loss, ROD = 68%
R-9 No Core Loss, ROD = 100%
R-10 No Core Loss, ROD = 100%
R-11 No Core Loss, ROD = 100%
R-12 No Core Loss, ROD = 93%

R-2451

R-1 No Core Loss, ROD = 78%

(A) Medium hard gray SANDSTONE; very fine to medium grained, moderately weathered, argillaceous, micaceous, slightly carbonaceous, laminated to medium bedded, slightly fractured.

R-2 No Core Loss, ROD = 83%

(B) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thickly bedded to massive, unfractured to slightly fractured.

R-3 No Core Loss, ROD = 92%
R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 100%

(C) Medium hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, medium bedded to laminated, moderately fractured, contains few to moderate argillaceous laminations.

R-9 No Core Loss, ROD = 100%

(D) Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, pyritic, laminated to thickly bedded, contains few argillaceous laminations.

R-10 No Core Loss, ROD = 100%
R-11 No Core Loss, ROD = 100%

CALCULATED | CHECKED

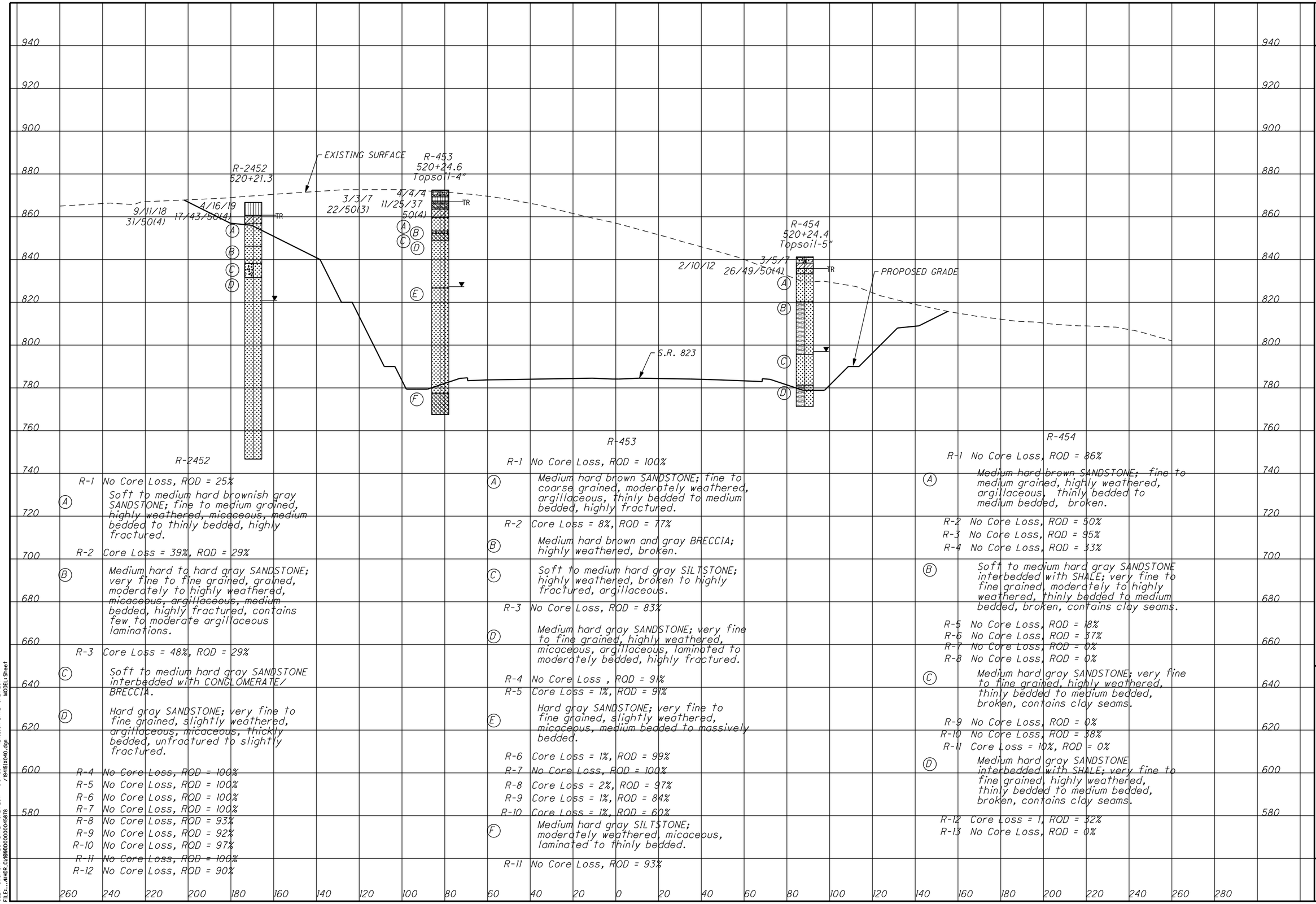
SOIL PROFILE
CROSS SECTION - SR 823 STA. 516+00

SCI-823-6.81

USER: Cmahler PLOT DATE: 6/21/2011 8:37:49 PM REVISION DATE: 6/21/2011
FILE:...MHDR_C/0000000045878 /9415X039.dgn MODEL: Sheet

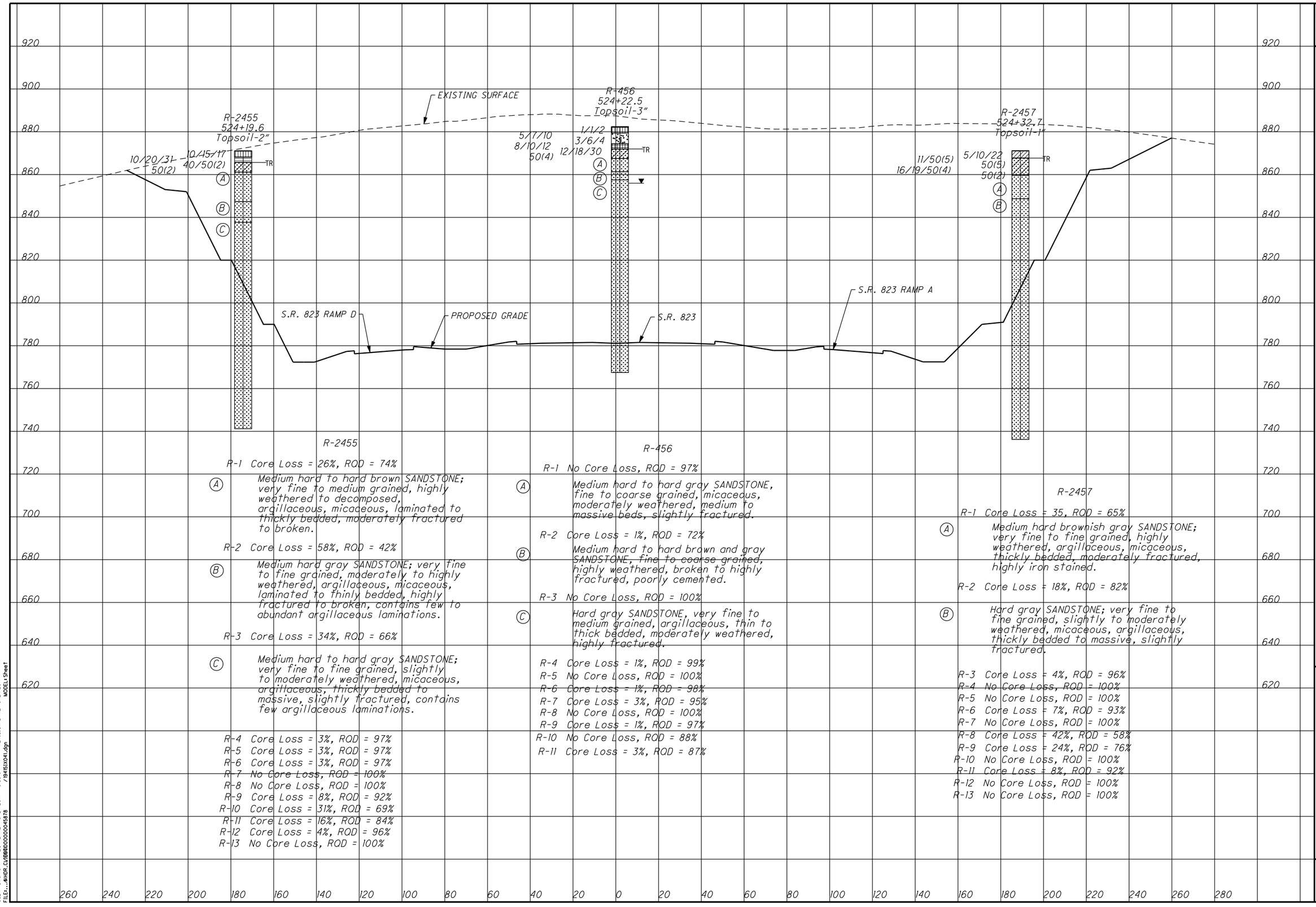
SOIL PROFILE
CROSS SECTION - SR 823 STA. 520+00

CALCULATED | CHECKED



USER: CMohlbri PLOT DATE: 6/21/2011 8:37:56 PM REVISION DATE: 6/21/2011 MODEL: Sheet1
FILE:...\MNDR_CU\B000000045878 /19415X040.dgn

SCI-823-6.81



CALCULATED

CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 524+00

SCI-823-6.81

USER: CWohlbri PLOT DATE: 6/21/2011 8:38:04 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C/000000000045878 79415X041.dgn MODEL: Sheet

CR28 RAMP C

EXISTING SURFACE

R-461
529+17.9
Topsoil-4"

2/2/4	1/3/4	25	27
2/4/7	2/3/6		
3/4/7	3/5/8	28	
3/3/5	4/4/7		
2/2/4	3/3/5		
2/3/4	2/3/4		

R-462
529+19.5
Topsoil-3"

S.R. 823

2/4/4	2/2/3	24	
2/2/4	2/3/5		
1/4/4	2/3/5	27	
2/3/3	2/3/5		
2/3/4	2/3/5		
2/3/3	3/4/5		

PROPOSED GRADE

R-463
529+20.1
Topsoil-3"

4/7/9	2/3/4	18	
3/4/5	1/4/6	30	
3/3/5	4/4/5		
2/3/3	3/4/5		
1/2/3	3/4/6		
2/3/4	1/2/3		

880 860 840 820 800 780 760 740 720 700 680 660 640 620 600 580 560 540 520

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 529+00

SCI-823-6.81

116
135

USER: CWohlbri PLOT DATE: 6/21/2011 8:38:11 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.CI\800000000045878 79415IX042.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE
SECTION - SR 823 STA. 533+00

CROSS SECTION

PROPOSED GRADE

S.R. 823

EXISTING SURFACE

R-464
533+20.3
Topsoil-4"

4/8/11
2/5/5
2/3/5
1/2/3
2/2/4
WOH/2/4

2/4/4
4/7/11 — 22
2/3/5
2/3/3 — 31
0/1/3
2/2/3 — 35
2/2/4
WOH/2/3
2/3/4
3/5/7 — W ● 27
4/15/50(4)
50(4) — TR

R-465
533+20.9
Topsoil-3"

3/4/5
2/3/5
2/2/3
1/2/3
2/2/3
2/3/3

1/3/3
2/4/6
2/2/4
2/2/4 — 26
1/3/3
2/2/4
1/2/4
2/2/3
1/4/5
3/3/4 — W
39/50(3) — TR
50(1)

R-466
533+18.7
Topsoil-2"

14/20/21
2/3/5
2/4/6
1/3/5
WOH/1/3
2/3/5

2/3/5
18/31/20
3/5/7 — 28
3/5/7
3/3/5 — 34
1/3/4 — 37
1/3/4
WOH/1/3
WOH/2/3 — 36
WOH/1/3
2/5/10 — W
38/49/50(4)

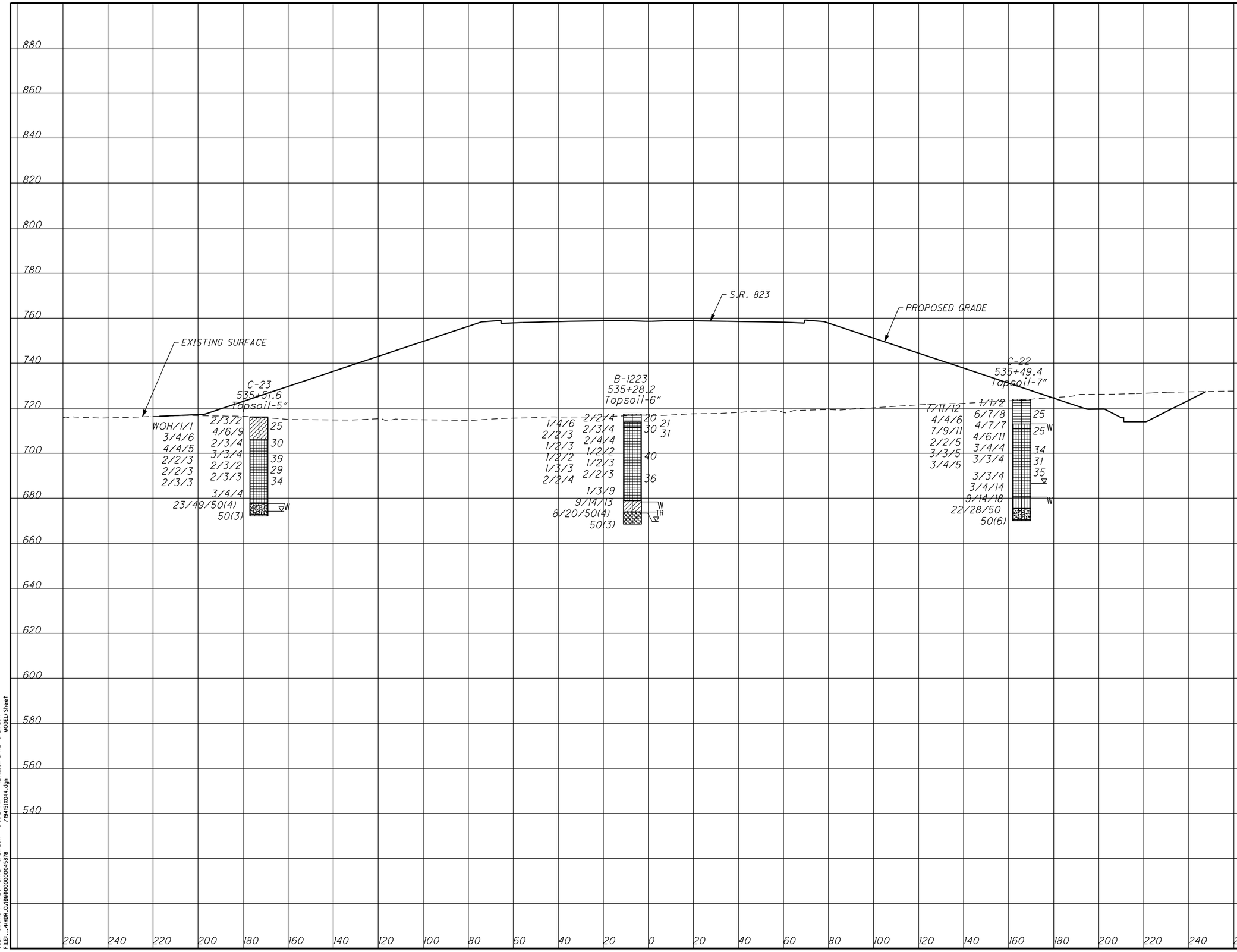
800 780 760 740 720 700 680 660 640 620 600 580 560 540 520

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

SCI-823-6.81

117
135

USER: CWahlbr1 PLOT DATE: 6/21/2011 8:38:16 PM REVISION DATE: 6/21/2011
FILE...\HDR.C/600000000045878 /S4SIX043.dgn MODEL: Sheet



CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - SR 823 STA. 535+50

SCI-823-6.81

118
135

USER: cmahlbri PLOT DATE: 6/21/2011 8:38:21 PM REVISION DATE: 6/21/2011
FILE:...\MNDR_CU\B0000000045878 /19415X044.dgn MODEL: Sheet

R-329

R-1 No Core Loss, ROD = 48%

(A) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thinly bedded to massive, moderately fractured; contains few argillaceous laminations and small clasts.

B-1314

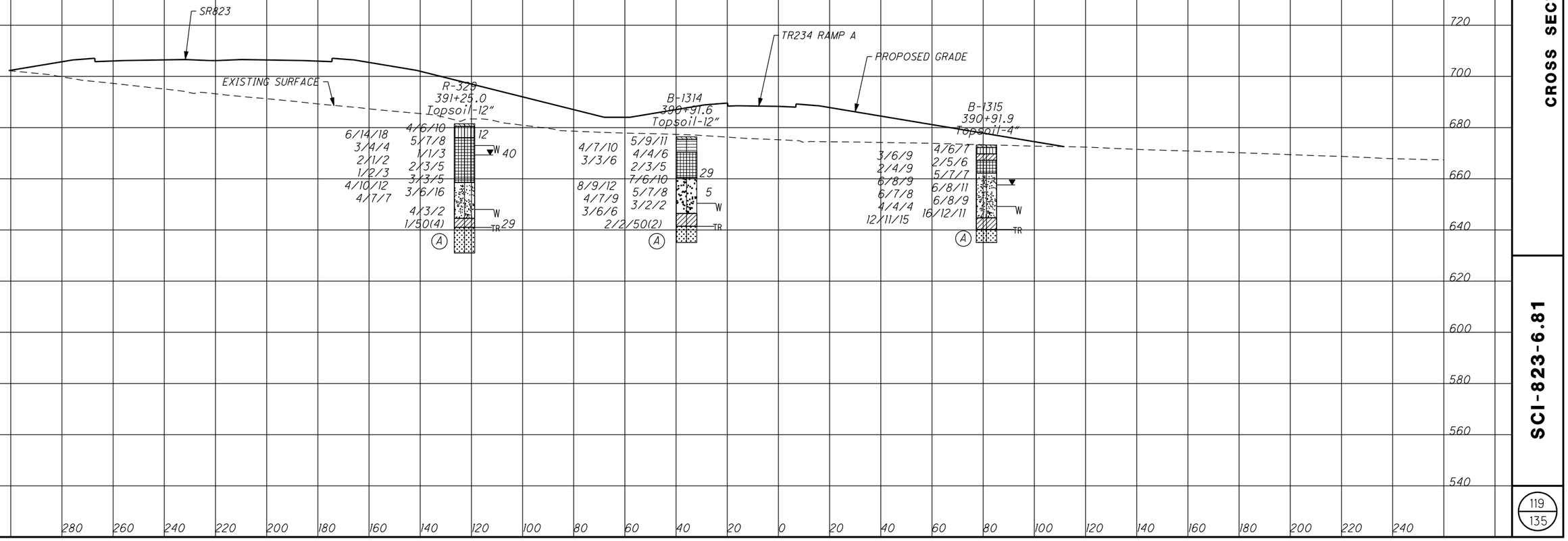
R-1 No Core Loss, ROD = 93%

(A) Hard gray SANDSTONE; very fine to fine grained, argillaceous, micaceous, slightly weathered, massively bedded, slightly fractured.

B-1315

R-1 No Core Loss, ROD = 100%

(A) Hard gray SANDSTONE; very fine to fine grained, argillaceous, micaceous, slightly weathered, massively bedded, slightly fractured.



CALCULATED | CHECKED

SOIL PROFILE
SECTION - TR 234 RAMP A STA. 391+00

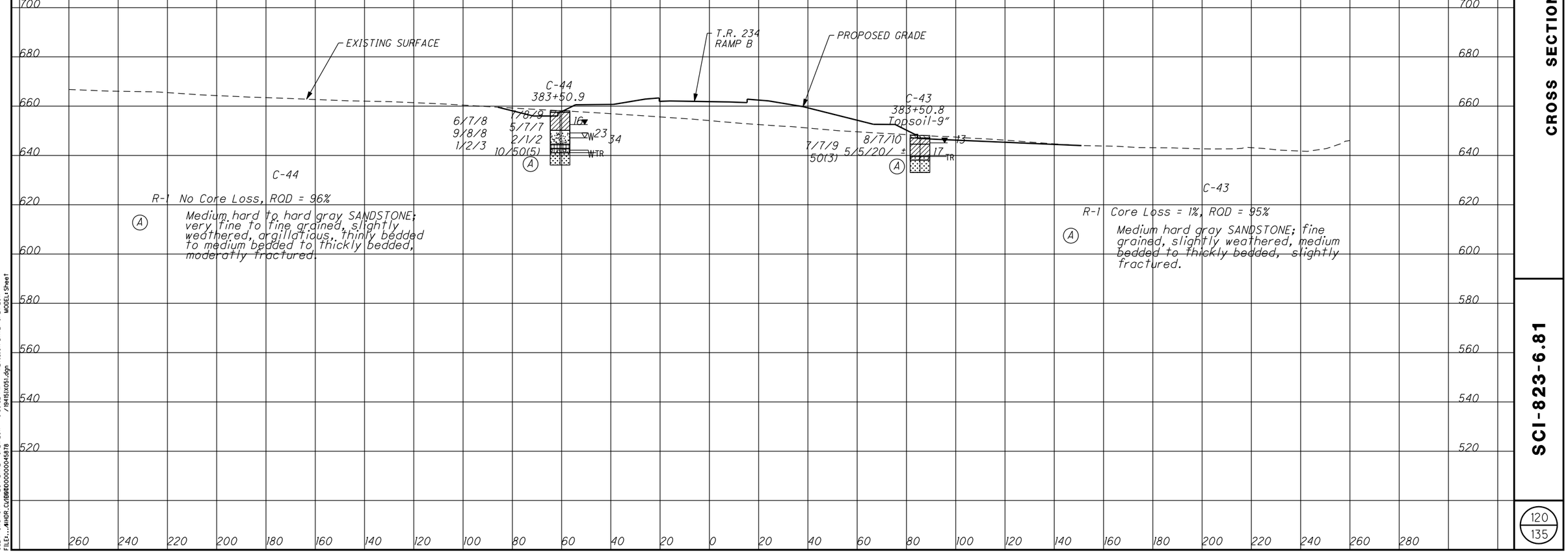
CROSS SEC

SCI-823-6.81

USER: cmahlbri PLOT DATE: 6/21/2011 8:38:26 PM REVISION DATE: 6/21/2011
FILES: ...\HOR_CURVE\D0000000045878 /19415\X050.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - TR 234 RAMP B STA. 383+50

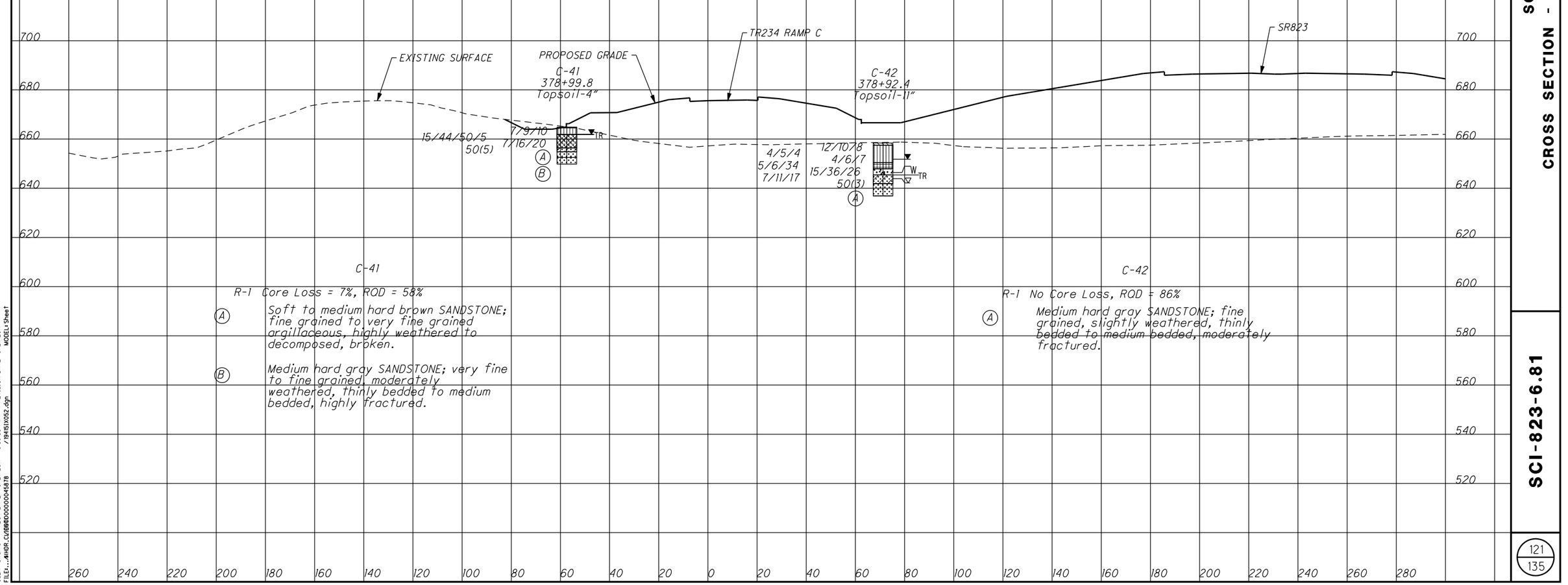


USER: CWahlbri PLOT DATE: 6/21/2011 8:38:32 PM REVISION DATE: 6/21/2011 MODEL: Sheet
FILES: ...\MDR_CU000000000045878 /9415IX051.dgn

SCI-823-6.81

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - TR 234 RAMP C STA. 379+00



SCI-823-6.81

USER: CWahlbr; PLOT DATE: 6/21/2011 8:38:36 PM REVISION DATE: 6/21/2011
FILE...AHGR.Cu0000000000045878 /1945IX052.dgn MODEL: Sheet

B-1327

R-1 Core Loss = 15%, ROD = 58%

(A) Medium hard to hard brown and gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, massively bedded, highly fractured.

R-2 No Core Loss, ROD = 95%

(B) Medium hard to hard gray very fine to fine grained, SANDSTONE; slightly weathered, argillaceous, micaceous, massively, bedded, slightly fractured.

R-3 No Core Loss, ROD = 95%

R-4 No Core Loss, ROD = 69%

(C) Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thickly bedded to massive, unfractured to slightly fractured.

R-5 No Core Loss, ROD = 100%

R-6 No Core Loss, ROD = 100%

B-1345

R-1 Core Loss = 4%, ROD = 37%

(A) Medium hard brown SANDSTONE; fine grained, moderately weathered, thin to medium bedded, modrately fractrured, contains iron inclusions.

R-2 No Core Loss, ROD = 72%

(B) Medium hard gray and brown SILTSTONE interbedded with SANDSTONE; fine grained, moderately weathered, thin to medium bedded, slightly fractured.

R-3 Core Loss = 2%, ROD = 67%

(C) Medium hard to hard gray SANDSTONE interbedded with SILTSTONE; very fine to fine grained, slightly weathered, argillaceous, very thinly bedded, moderately fractured.

R-4 Core Loss = 2%, ROD = 90%

R-5 No Core Loss, ROD = 97%

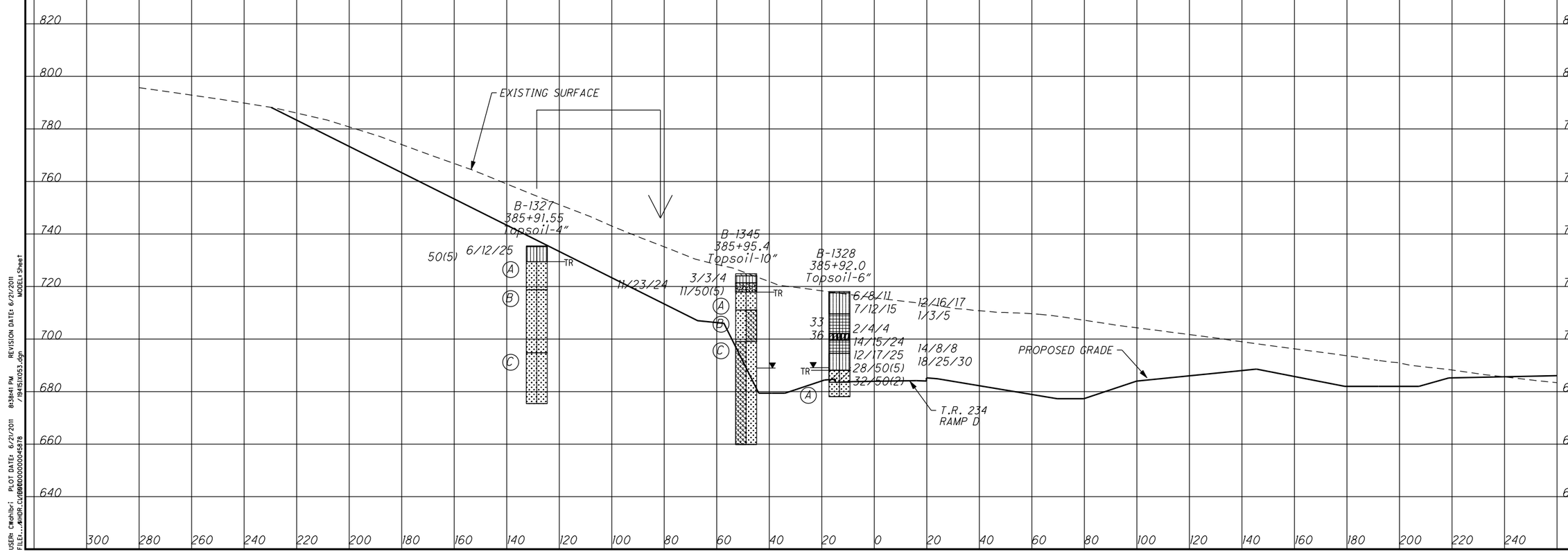
R-6 No Core Loss, ROD = 100%

R-7 No Core Loss, ROD = 100%

B-1328

R-1 Core Loss = 30%, ROD = 34%

(A) Medium hard brown SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, laminated to medium bedded, highly fractured, contains few decomposed argillaceous laminations.



CALCULATED | CHECKED

SOIL PROFILE
SECTION - TR 234 RAMP D STA. 386+00

CROSS SECTION

SCI-823-6.81

122
135

USER: CMohlbri PLOT DATE: 6/21/2011 8:38:41 PM REVISION DATE: 6/21/2011
FILES: ...\HOR_CURVE\D0000000045878 /19415X053.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - TR 234 RAMP D STA. 390+00

SCI-823-6.81

860 840 820 800 780 760 740 720 700 680 660 640 620

EXISTING SURFACE

T.R. 234 RAMP D PROPOSED GRADE

B-1324
390+07.1
Topsoil-3"

18/32/30
14/13/9
9/20/33
17/18/35
50(5)
48/50(3)

7/7/11
13/27/31
26/25/24
13/19/29
15/17/32
50(4)
50(4)

TR

B-1325
389+95.6
Topsoil-12"

12/20/24
4/5/6
6/8/13
5/0/12

5/5/5
10/15/12
5/10/13
10/9/10
7/8/11
4/6/8
3/3/4
4/4/5

14

33

20/24/18
7/7/14
39/44/50(5)
22/23/20
50(4)

TR

B-1324

R-1 Core Loss = 1%, ROD = 87%

(A) Gray SANDSTONE fragments.
Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, micaceous, argillaceous, slightly pyritic, massive, unfractured to slightly fractured.

R-2 Core Loss = 3%, ROD = 88%
R-3 Core Loss = 3%, ROD = 84%

B-1325

R-1 No Core Loss, ROD = 78%

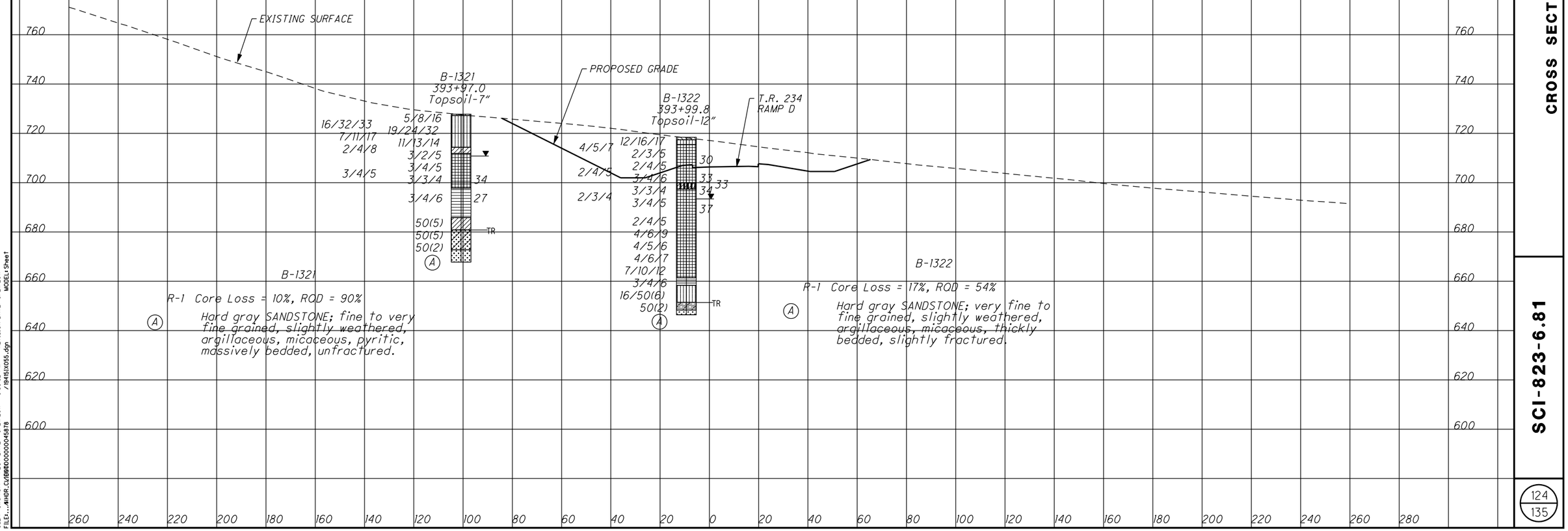
(A) Hard gray SANDSTONE; very fine to fine grained, moderately to slightly weathered, argillaceous, micaceous, thickly bedded, slightly fractured.

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240

USER: Cknihiri PLOT DATE: 6/21/2011 8:38:47 PM REVISION DATE: 6/21/2011
FILES: ...\INDR_CV\BRIDGE\000000045878 79415\X054.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - TR 234 RAMP D STA. 394+00



USER: CWohlbr; PLOT DATE: 6/21/2011 8:38:52 PM REVISION DATE: 6/21/2011 MODEL: Sheet
FILE: ...4HOR.Cu000000000045878 /19451X055.dgn

SCI-823-6.81

EXISTING SURFACE
PROPOSED GRADE
TR234 RAMP D
SR823
TR234 RAMP A

B-1319
397+99.0
Topsoil-6"
4/6/9
3/4/6
3/4/5
3/4/5
3/4/5
2/2/3
3/3/6
4/4/5
3/5/7
3/4/4
4/4/4
3/4/5
3/5/9
9/6/25
10/20/50(3)
50(2)
21
16
W
TR
A

B-1320
397+98.2
Topsoil-12"
5/8/11
3/3/6
3/5/7
2/3/5
3/4/4
2/3/5
4/4/6
4/6/8
3/3/5
3/3/5
2/3/5
4/5/7
7/8/10
3/4/18
40/50(3)
35
37
W
TR
A

B-1319

R-1 Core Loss = 1%, ROD = 63%

A Medium hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, massively bedded, moderately fractured.

B-1320

R-1 Core Loss = 1%, ROD = 90%

A Hard gray SANDSTONE; fine to very fine grained, slightly to moderately weathered, micaceous, thickly bedded to massive, slightly fractured.

940 920 900 880 860 840 820 800 780 760 740 720 700 680 660 640

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - TR 234 RAMP D STA. 398+00

SCI-823-6.81

125
135

USER: CWahlbri PLOT DATE: 6/21/2011 8:38:58 PM REVISION DATE: 6/21/2011
FILE:...\HDR.CVD000000045878 /8x15x1056.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - CR 28 RAMP A STA. 525+00

SCI-823-6.81

R-457

R-1 Core Loss = 28%, ROD = 17%

(A) Soft to medium hard light brown and brown SANDSTONE; very fine to fine grained, highly weathered to decomposed, thinly bedded to medium bedded.

R-2 No Core Loss, ROD = 31%

(B) Medium hard gray SANDSTONE, very fine to fine grained, argillaceous, moderately weathered, highly fractured, fractures contain slickensides.

R-3 Core Loss = 3%, ROD = 86%

R-4 Core Loss = 1%, ROD = 93%

(C) Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, unfractured to slightly fractured.

R-5 Core Loss = 2%, ROD = 98%

R-6 Core Loss = 2%, ROD = 98%

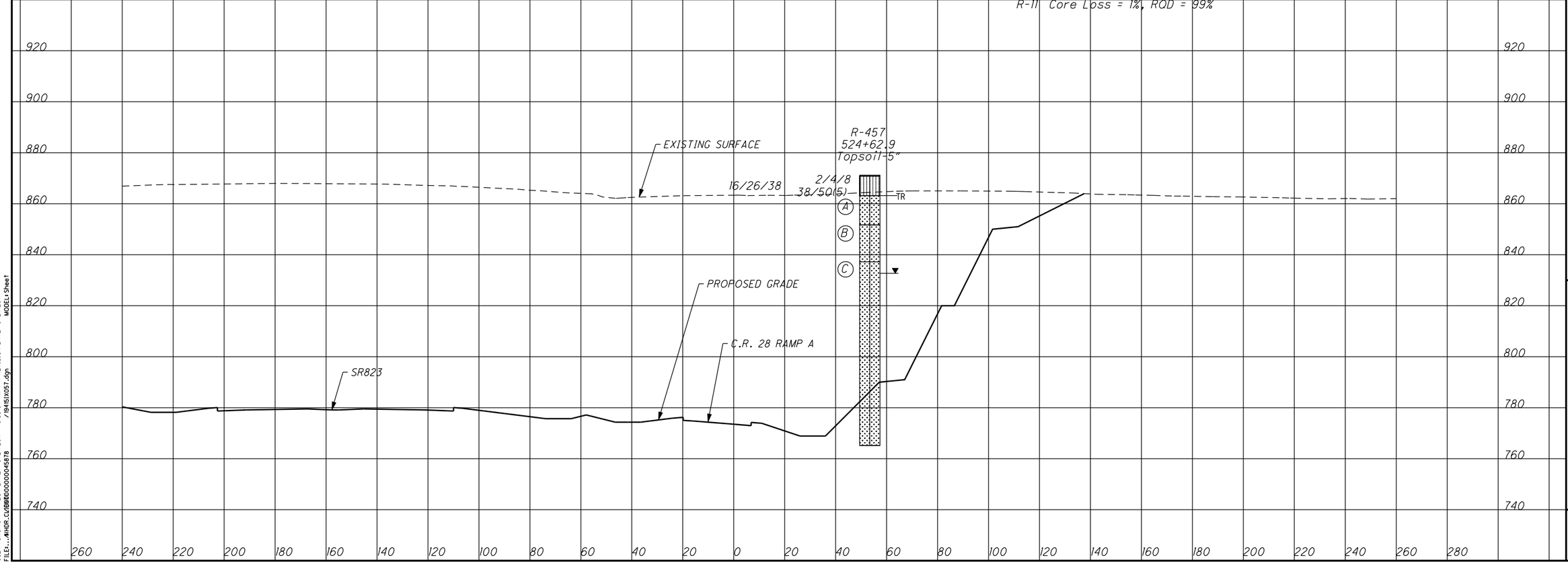
R-7 No Core Loss, ROD = 100%

R-8 No Core Loss, ROD = 90%

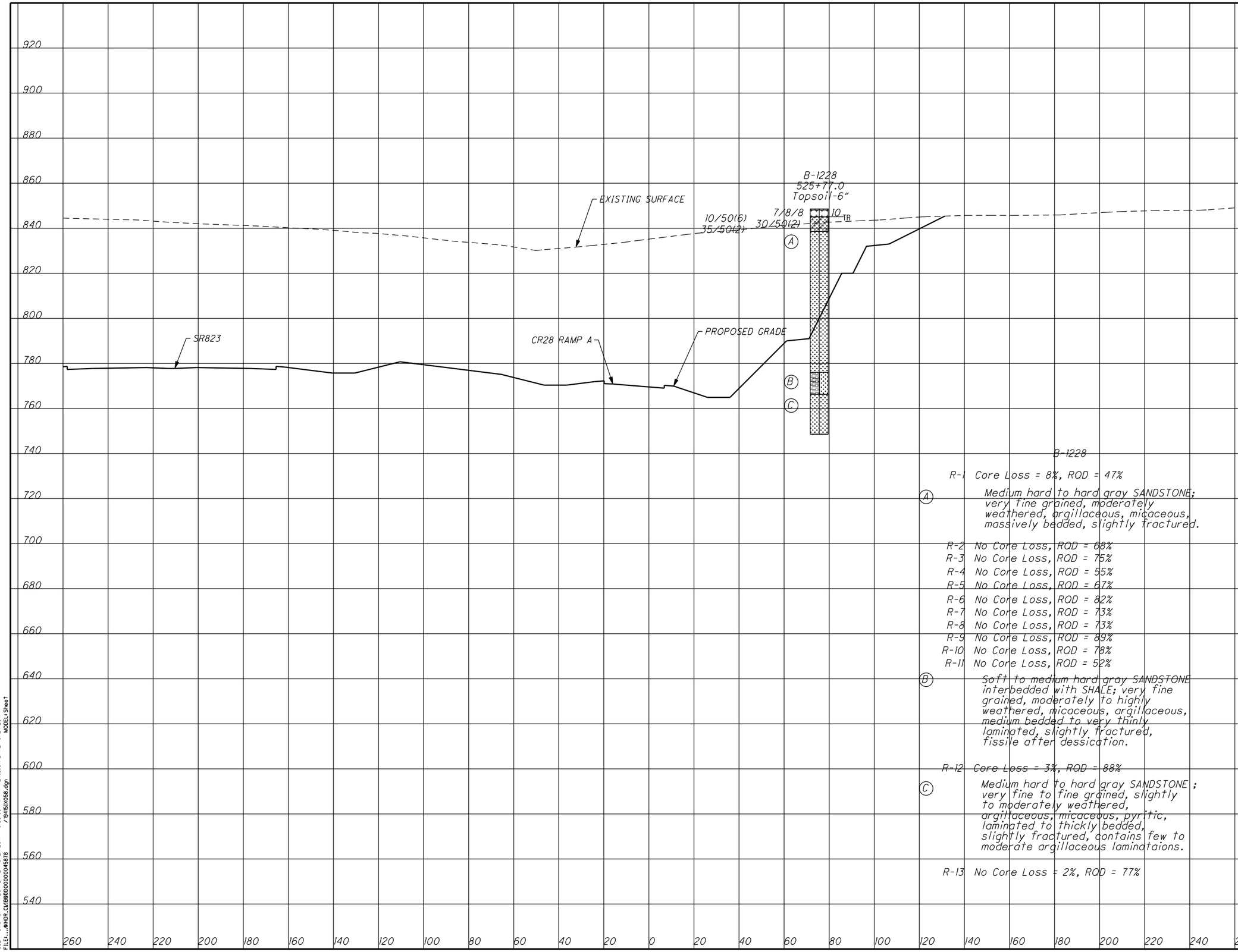
R-9 Core Loss = 3%, ROD = 91%

R-10 Core Loss = 13%, ROD = 78%

R-11 Core Loss = 1%, ROD = 99%



USER: Cmahlbr PLOT DATE: 6/21/2011 8:39:04 PM REVISION DATE: 6/21/2011
FILES...ANDR_CVRBND0000004878 /7941SIX0S7.dgn MODEL: Sheet



USER: CMohlbri PLOT DATE: 6/21/2011 8:39:09 PM REVISION DATE: 6/21/2011
FILES...ANNOR.CUR800000000045878 /19415X058.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - CR 28 RAMP A STA. 526+00

SCI-823-6.81

R-455

R-1 Core Loss = 7%, ROD = 73%

(A) Medium hard brown and gray BRECCIA; medium to coarse grained, highly weathered, contains gravel, cobble and boulder sized particles.

(B) Medium hard gray SANDSTONE; decomposed, argillaceous , thinly bedded to medium bedded.

R-2 Core Loss = 5%, ROD = 76%

(C) Medium hard gray SANDSTONE; very fine to fine grained, moderately weathered, carbonaceous, argillaceous, thinly bedded to medium bedded.

R-3 Core Loss = 17%, ROD = 82%
R-4 Core Loss = 1%, ROD = 78%
R-5 Core Loss = 2%, ROD = 97%
R-6 Core Loss = 6%, ROD = 78%
R-7 No Core Loss, ROD = 100%
R-8 No Core Loss, ROD = 90%
R-9 No Core Loss, ROD = 100%

(D) Medium hard gray SANDSTONE; very fine to fine grained, moderately weathered, thinly bedded to medium bedded, argillaceous, micaceous, slightly fractured, contains argillaceous laminae.

R-10 Core Loss = 8%, ROD = 78%

R-455
524+55.3
Topsoil-4"

EXISTING SURFACE

6/8/10
8/10/14
50(3)

2/2/4
5/12/24
15/18/24

TR

A B C

D

C.R. 28 RAMP D

PROPOSED GRADE

SR823

CR28 RAMP A

1040 1020 1000 980 960 940 920 900 880 860 840 820 800 780 760 740 720 700 680

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

CALCULATED

CHECKED

SOIL PROFILE

CROSS SECTION - CR 28 RAMP D STA. 524+50

SCI-823-6.81

USER: CMahlbri PLOT DATE: 6/21/2011 8:39:15 PM REVISION DATE: 6/21/2011
FILE:...4HOR.CL\0800000000045878 /19415X06D.dgn MODEL: Sheet

B-1233

R-1 No Core Loss, ROD = 39%

(A) Soft to medium hard brownish gray SANDSTONE; fine to very fine grained, highly weathered, argillaceous, thin to medium bedded, highly fractured to broken.

R-2 Core Loss = 3%, ROD = 70%

(B) Soft to medium hard gray SANDSTONE interbedded with SHALE; decomposed to highly weathered, micaceous, pyritic, thinly laminated to medium bedded, broken to moderately fractured.

R-3 No Core Loss, ROD = 55%

R-4 Core Loss = 5%, ROD = 60%

(C) Medium hard to hard gray SANDSTONE; very fine to fined grained, slightly to moderately weathered, argillaceous, laminated to medium bedded, slightly to moderately fractured.

R-5 Core Loss = 3%, ROD = 83%

(D) Hard to very hard gray SANDSTONE interbedded with few SHALE layers; very fine grained, slightly weathered, argillaceous, medium bedded, slightly to moderately fractured.

R-6 No Core Loss, ROD = 35%

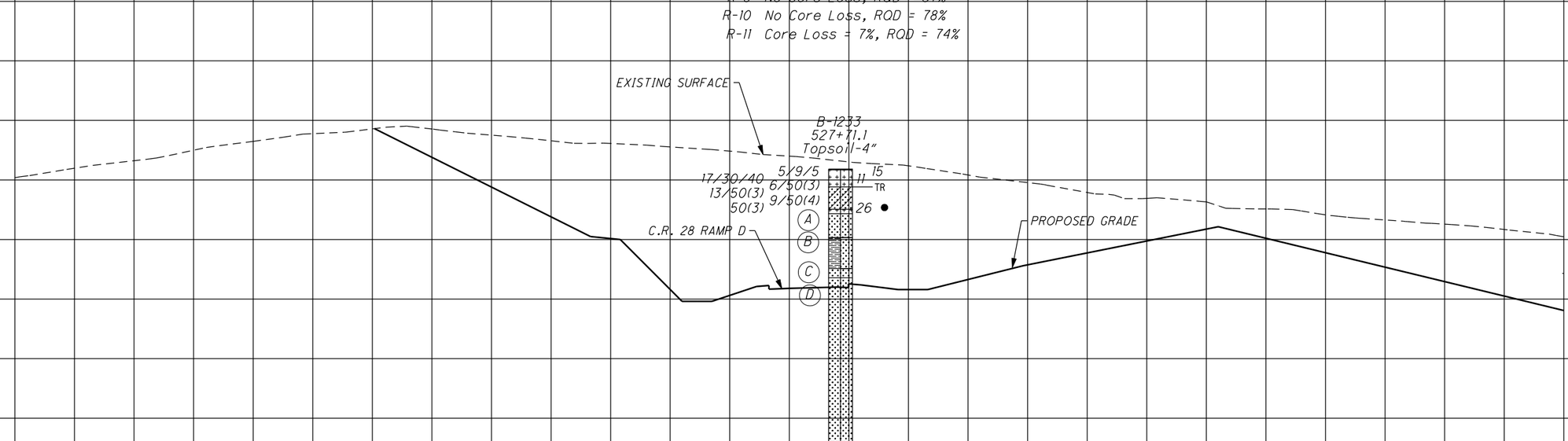
R-7 No Core Loss, ROD = 63%

R-8 No Core Loss, ROD = 61%

R-9 No Core Loss, ROD = 67%

R-10 No Core Loss, ROD = 78%

R-11 Core Loss = 7%, ROD = 74%



CALCULATED

CHECKED

SOIL PROFILE

CROSS SECTION - CR 28 RAMP D STA. 527+50

SCI-823-6.81

129
135

USER: CWohlbri PLOT DATE: 6/21/2011 8:39:21 PM REVISION DATE: 6/21/2011
FILES: ..\HOR_CU\000000000045878 /19415X062.dgn MODEL: Sheet

C-58

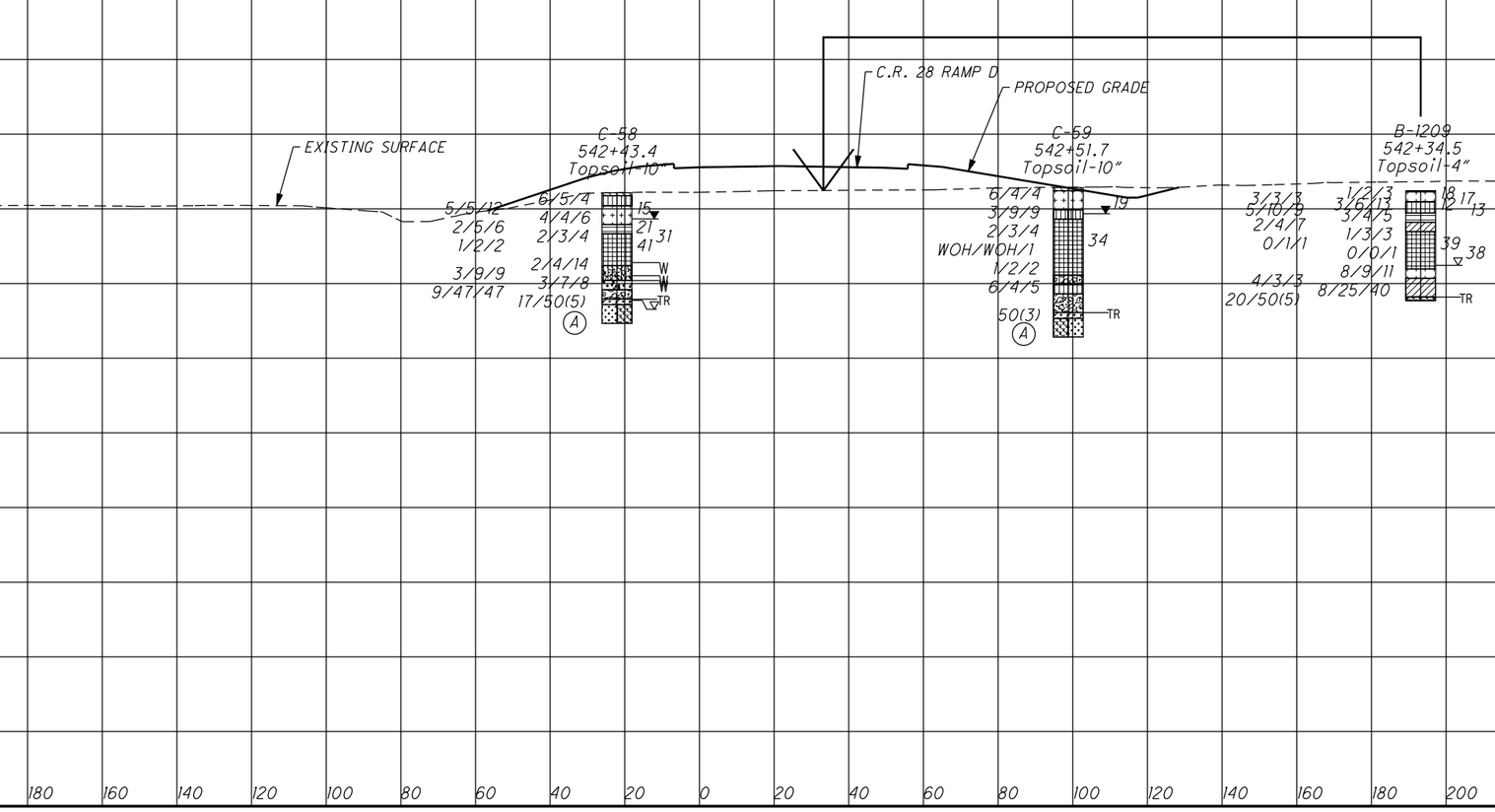
R-1 No Core Loss, RQD = 86%

Ⓐ Soft to medium hard gray SILTSTONE interbedded with SANDSTONE; very fine to fine grained, highly weathered to decomposed, argillaceous, thinly bedded, highly fractured.

C-59

R-1 Core Loss = 20%, RQD = 80%

Ⓐ Soft to medium hard gray SILTSTONE interbedded with SANDSTONE; highly weathered, argillaceous, thinly bedded, highly fractured.



880 860 840 820 800 780 760 740 720 700 680 660 640 620

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - CR 28 RAMP D STA. 542+50

SCI-823-6.81

130
135

USER: Cwahlbri PLOT DATE: 6/21/2011 8:39:27 PM REVISION DATE: 6/21/2011
FILES: ...4\HDR_CVDB0000000045878 /7941S1X068.dgn MODEL: Sheet

SOIL PROFILE
SECTION - TR 234 STA. 12+00

CALCULATED | CHECKED

CROSS SECTION

SCI-823-6.81

131
135

EXISTING SURFACE

PROPOSED GRADE

T.R. 234

Asphalt Concrete Pavement-3"

B-1302
12+65.4
Topsoil-1"

B-1301
12+25.7

B-1343
11+27.5
Topsoil-8"

9/8/9
50(2)
13/15/50(5)
8/5/6
4/6/9/10
11/10/8/7
23/50(3)
13/19/9
4/4/8
50(0)
TR

B-1302

R-1 No Core Loss, ROD = 74%

A — Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, massively bedded, slightly to moderately fractured.

R-2 No Core Loss, ROD = 100%
R-3 No Core Loss, ROD = 100%
R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 100%

B-1301

R-1 Core Loss = 22%, ROD = 12%

A — Hard brown SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, thinly bedded to thickly bedded, highly fractured to broken.

B-1343

R-1 Core Loss = 17%, ROD = 36%

A — Medium hard brown SANDSTONE; fine to medium grained, slightly weathered, very thinly bedded, moderately fractured.

R-2 No Core Loss, ROD = 96%

B — Medium hard gray and brown SANDSTONE interbedded with SILTSTONE; fine grained, slightly weathered, very thinly bedded, slightly fractured.

R-3 No Core Loss, ROD = 62%
R-4 No Core Loss, ROD = 100%
R-5 No Core Loss, ROD = 100%
R-6 No Core Loss, ROD = 50%
R-7 No Core Loss, ROD = 83%

C — Hard gray SANDSTONE interbedded with SILTSTONE; fine grained, unweathered, laminated, unfractured.

R-8 No Core Loss, ROD = 100%
R-9 Core Loss = 17%, ROD = 83%

900 880 860 840 820 800 780 760 740 720 700 680 660

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

USER: CWohlbri PLOT DATE: 6/21/2011 8:39:33 PM REVISION DATE: 6/21/2011
FILES: ...&MOR_CU0000000004878 / 19415X045.dgn MODEL: Sheet

B-1344

R-1 Core Loss = 19%, ROD = 42%

(A) Medium hard brown and gray SANDSTONE; very fine grained, highly weathered to decomposed, laminated to thin bedded, moderately to highly fractured.

R-2 Core Loss = 1%, ROD = 93%
R-3 No Core Loss, ROD = 93%

(B) Hard gray SANDSTONE interbedded with SILTSTONE; very fine to fine grained, slightly weathered, laminated to medium bedded, moderately fractured.

R-4 No Core Loss, ROD = 95%
R-5 No Core Loss, ROD = 85%
R-6 No Core Loss, ROD = 100%
R-7 No Core Loss, ROD = 88%

(C) Medium hard gray SILTSTONE; slightly weathered, laminated to thinly bedded, highly fractured.

(D) Medium hard gray SANDSTONE interbedded with SILTSTONE; very fine grained, slightly weathered, laminated to thinly bedded, moderately fractured.

R-8 No Core Loss, ROD = 68%
R-9 No Core Loss, ROD = 100%

(E) Medium hard to hard gray SANDSTONE; very fine grained, slightly weathered, micaceous, laminated to medium bedded, moderately fractured.

B-1303

R-1 No Core Loss, ROD = 66%

(A) Medium hard to hard brown and gray SANDSTONE; very fine to fine grained, moderately to highly weathered, micaceous, argillaceous, massively bedded, moderately to highly fractured.

PROPOSED GRADE
EXISTING SURFACE
T.R. 234
B-1303
15+22.1
Topsoil-2"
14/18/18/20
50(4)
5/6/31/50(5)
4/5/7/8
4
69
TR
B-1344
14+77.6
8/9/16
50(3)
4/12/15
20/14/19
TR

900 880 860 840 820 800 780 760 740 720 700 680 660 640 620

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - TR 234 STA. 15+00

SCI-823-6.81

132
135

USER: CMohlbri PLOT DATE: 6/21/2011 8:39:39 PM REVISION DATE: 6/21/2011
FILE: ...4HOR.CL0000000004587B / 19415X046.dgn MODEL: Sheet

EXISTING SURFACE

C-47
26+04.1
Topsoil-9"
15/15/19
9/16/21
8
TR
A

24/23/27
45/42/50(3)

T.R. 234

10/10/13
4/8/11
22/17/50(4)

C-48
26+06.3
Topsoil-9"
14/14/13
4/9/13
10/16/24
12
11
20
TR
A

PROPOSED GRADE

C-47

R-1 No Core Loss, ROD = 68%

A Medium hard brown SANDSTONE; very fine to fine grained, highly weathered to decomposed, thinly bedded, highly fractured.

840 820 800 780 760 740 720 700 680 660 640 620 600 580

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - TR 234 STA. 26+00

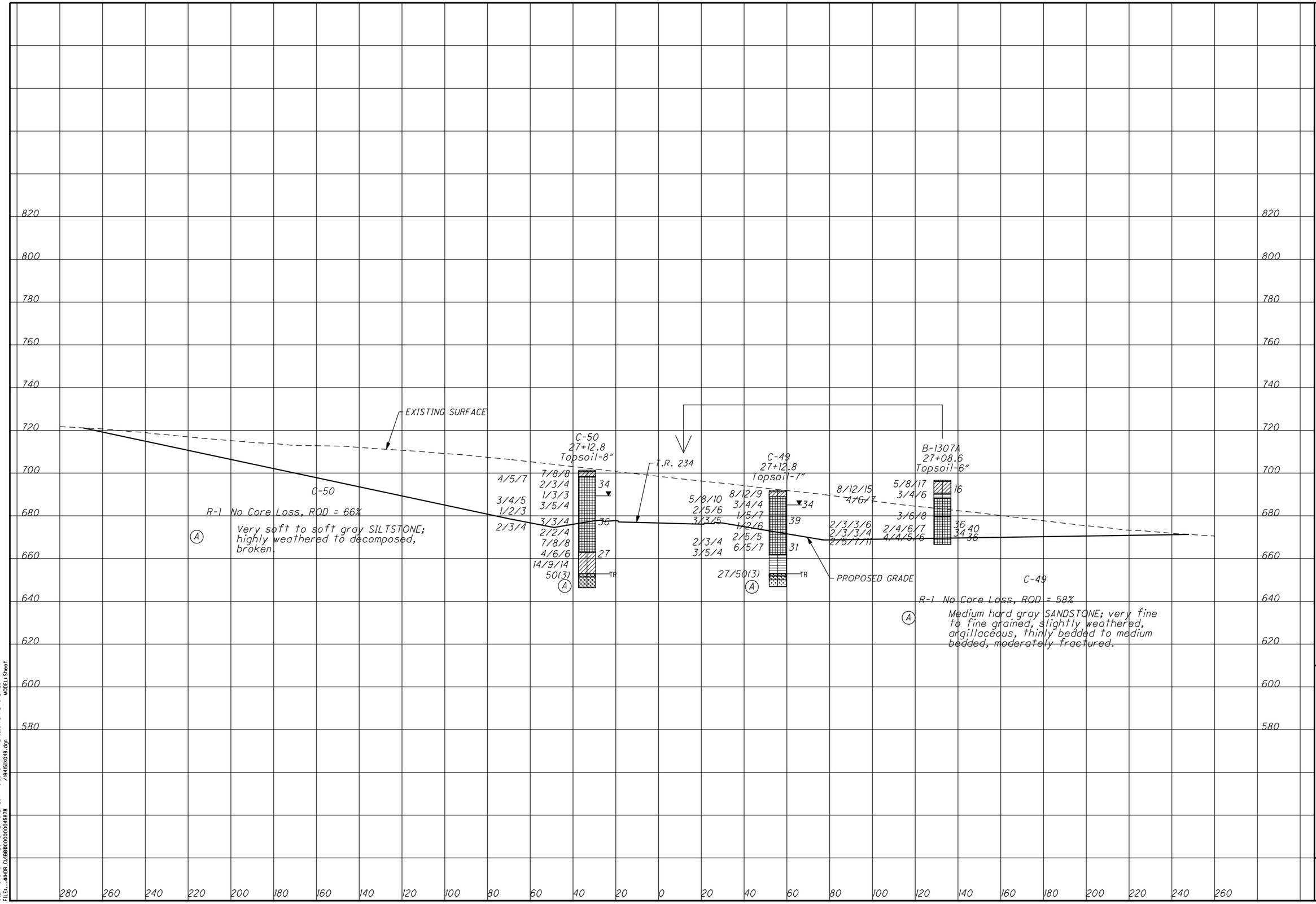
SCI-823-6.81

133
135

USER: Cknihbri PLOT DATE: 6/21/2011 8:39:44 PM REVISION DATE: 6/21/2011
FILES: ...\INDR_CV\BM0000000045878 /7941SIX047.dgn MODEL: Sheet

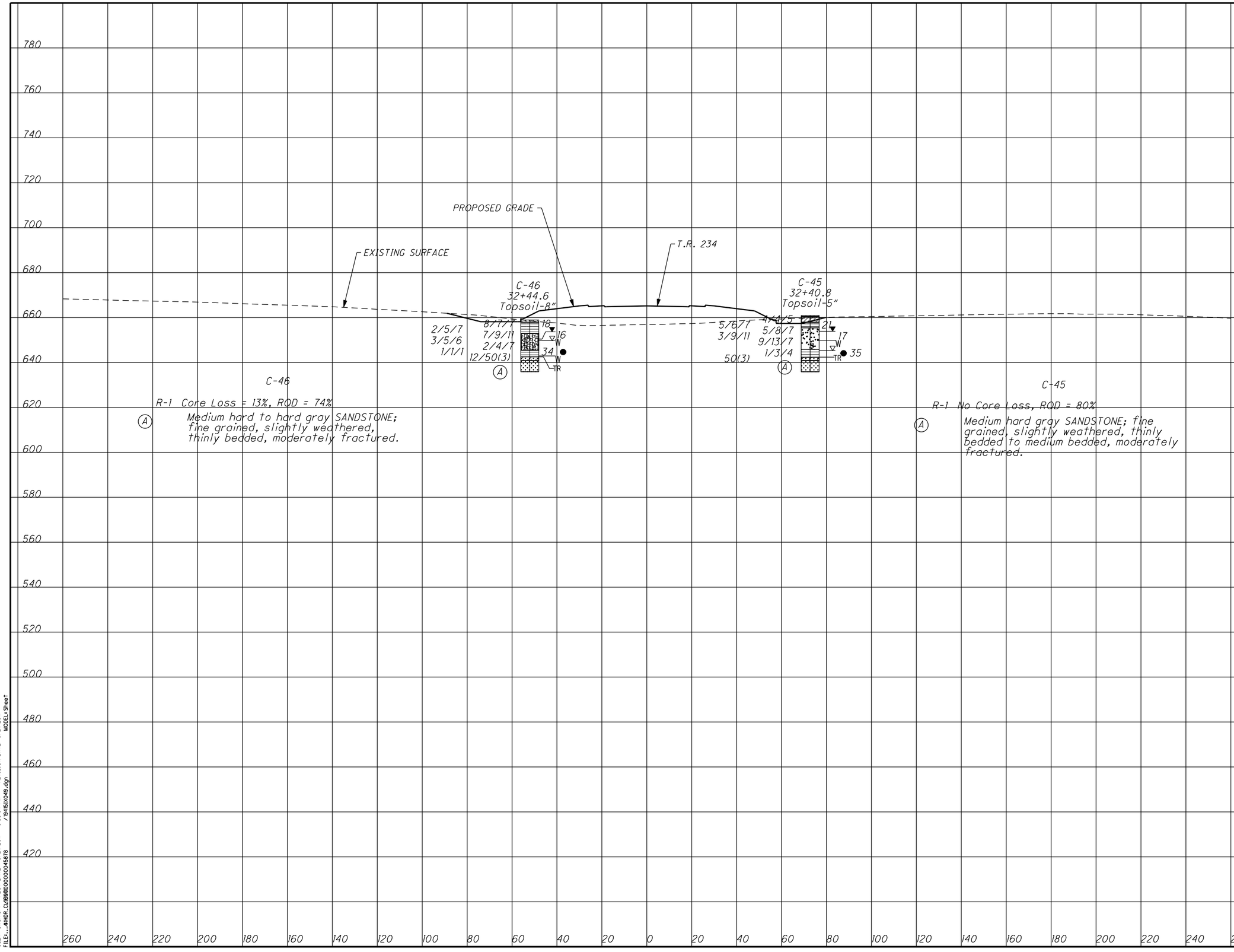
CALCULATED | CHECKED

SOIL PROFILE
CROSS SECTION - TR 234 STA. 27+00



USER: CWohlbr; PLOT DATE: 6/21/2011 8:39:49 PM REVISION DATE: 6/21/2011
FILE:...4HOR.Cu000000000045878 /19451X048.dgn MODEL: Sheet

SCI-823-6.81



USER: CWohlbri PLOT DATE: 6/21/2011 8:39:54 PM REVISION DATE: 6/21/2011
FILE:...\MHDR.C\0000000000045878 79415IX049.dgn MODEL: Sheet

CALCULATED | CHECKED

SOIL PROFILE

CROSS SECTION - TR 234 STA. 32+50

SCI-823-6.81

135
135

PROJECT DESCRIPTION

THE PROJECT CONSISTS IN PART OF PLACING TWO STRUCTURES FOR THE PROPOSED SR 823 OVER SWAUGER VALLEY-MINFORD ROAD (CR-31). THE TWO STRUCTURES AS PLANNED, ARE TWO-SPAN STRUCTURES USING MSE WALLS TO HOLD BACK THE ROADWAY EMBANKMENTS AND CONTAIN THE ABUTMENTS.

HISTORIC RECORDS

HISTORIC BORING RECORDS FOR THE AREA WERE REQUESTED FROM THE ODOT OFFICE OF GEOTECHNICAL ENGINEERING AND THE DISTRICT, HOWEVER, NO SUCH RECORDS EXISTED.

GEOLOGY

THE STRUCTURE SITE IS LOCATED IN THE SHAWNEE-MISSISSIPPIAN PLATEAU OF THE UNGLACIATED PORTION OF THE APPALACHIAN PLATEAU PHYSIOGRAPHIC REGION. THE SHAWNEE-MISSISSIPPIAN PLATEAU IS CHARACTERIZED BY DEVONIAN AGED TO PENNSYLVANIAN AGED ROCKS AND CONTAINS RESIDUAL, COLLUVIAL, GLACIAL, ALLUVIAL, AND LACUSTRINE SOILS. BEDROCK WITHIN THE STRUCTURE AREA IS PRIMARILY SANDSTONE OF THE LOGAN FORMATION OF MISSISSIPPIAN AGE. BEDROCK OF THE PENNSYLVANIAN BREATHITT FORMATION CAN BE FOUND AT THE TOP OF THE SLOPES TO THE SOUTH OF THE STRUCTURE, ROUGHLY ABOVE ELEVATION 860. NO MINING IS REPORTED IN THE IMMEDIATE VICINITY.

RECONNAISSANCE

SEVERAL SITE RECONNAISSANCE VISITS WERE MADE BETWEEN AUGUST 2004 AND SEPTEMBER 2006. THE SURROUNDING AREA IS DESCRIBED AS RURAL RESIDENTIAL. THE AREA OF THE PROPOSED STRUCTURE IS BORDERED ON THE NORTH AND SOUTH BY STEEP WOODED TERRAIN. THE AREA WITHIN THE LIMITS OF CONSTRUCTION IS WOODED AND COVERED WITH GRASS, BRUSH, AND SMALL TREES.

SUBSURFACE EXPLORATION

THE SUBSURFACE EXPLORATION CONSISTED OF DRILLING SEVEN FINAL AND FOUR PRELIMINARY STRUCTURAL BORINGS. BORINGS B-001-08 AND B-002-08 WERE DRILLED ON FEBRUARY 5, 2008. BORINGS B-5 THROUGH B-9 WERE DRILLED BETWEEN JUNE 15 AND 16, 2006. BORINGS TR-20 THROUGH TR-23 WERE DRILLED BETWEEN AUGUST 3, 2004 AND FEBRUARY 24, 2005. THE BORINGS WERE DRILLED WITH TRACK AND ATV MOUNTED ROTARY DRILL RIGS, USING 3 1/4 -INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE HOLES THROUGH SOIL. DISTURBED SOIL SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 1.5 TO 5.0-FOOT INTERVALS FOR THE FULL DEPTH OF THE SOIL PORTION OF THE BORINGS. UNDISTURBED SOIL SAMPLES WERE OBTAINED AT THE DEPTHS SHOWN ON THE LOGS AND IN THE PROFILE, IN ACCORDANCE WITH AASHTO T207. WHERE BEDROCK WAS ENCOUNTERED, THE BORINGS WERE ADVANCED AND THE ROCK WAS SAMPLED USING A TYPE NQ SERIES CORE BARREL, WATER METHOD.

EXPLORATION FINDINGS

THE TEST BORINGS DISCLOSED PRDOMINANTLY COHESIVE DEPOSITS CONSISTED MAINLY OF MEDIUM STIFF TO HARD SILT AND CLAY (A-6A), STIFF TO HARD SANDY SILT (A-4A), VERY STIFF SILT (A 4B), WHILE THE GRANULAR SOIL DEPOSITS CONSISTED MAINLY OF LOOSE GRAVEL (A-1-A) AND VERY DENSE SANDY SILT (A-4A). THE NATIVE SOIL DEPOSITS EXTENDED TO AN APPROXIMATE DEPTH RANGING BETWEEN 1.5 AND 7.5 FEET BELOW THE GROUND SURFACE WHERE BEDROCK WAS ENCOUNTERED.

IN THE AREA OF THE PROPOSED STRUCTURE, BEDROCK WAS ENCOUNTERED IN ALL BORINGS. THE BEDROCK CONSISTED OF MEDIUM HARD TO HARD, SLIGHTLY TO HIGHLY WEATHERED, SLIGHTLY TO MODERATELY FRACTURED SANDSTONE AND SILTSTONE. THE AMOUNT OF ROCK RECOVERED IN EACH CORE RUN VARIED BETWEEN 81 AND 100 PERCENT. THE ROCK QUALITY DESIGNATION (RQD) OF THE BEDROCK RANGED BETWEEN 17 AND 100 PERCENT WITH AN AVERAGE OF 81 PERCENT INDICATING GOOD ROCK.

SEEPAGE WAS NOT ENCOUNTERED IN ANY FINAL OR PRELIMINARY BORINGS DURING DRILLING. HOWEVER, WATER WAS ENCOUNTERED DURING DRILLING OF SUPPLEMENTAL BORINGS B-001-0-08 AND B-002-0-08 AT ELEVATIONS 662.2 FEET AND 666.5 FEET, RESPECTFULLY. THERE WERE NO MEASURABLE WATER LEVELS IN THE BORINGS PRIOR TO ROCK CORING. WATER WAS USED DURING ROCK CORING AND MASKED ANY SEEPAGE ZONES THAT MIGHT EXIST IN THE ROCK. MEASURABLE WATER LEVELS WERE PRESENT IN ALL TEST BORINGS EXCEPT BORINGS B-6 AND B-8 UPON THE COMPLETION OF CORING BETWEEN APPROXIMATE DEPTHS OF 0.5 AND 12.5 FEET. BORING TR-21 WAS DRILLED IN A STREAMBED AND HENCE WAS COMPLETELY SUBMERGED IN WATER.

IT SHOULD BE NOTED THAT THE FOUNDATION LEVELING PAD OF THE MSE WALL AT THE FORWARD ABUTMENT IS IN CLOSE PROXIMITY TO A CREEK, WHICH IS RUNNING ESSENTIALLY PARALLEL TO SWAUGER VALLEY-MINFORD ROAD. THE APPROXIMATE ELEVATION OF BEDROCK UNDER THE MSE WALL AT THE FORWARD ABUTMENT RANGES FROM 642.5 TO 654.5 FEET, WHICH IS NEAR THE BOTTOM OF THE CREEK AT ELEVATION 631. THE BEDROCK IS SCOUR RESISTANT SANDSTONE AND D50 VALUES ARE NOT APPLICABLE.

SPECIFICATIONS

THE DRILLING WAS PERFORMED UNDER THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR SUBSURFACE INVESTIGATIONS, DATED SEPTEMBER 1996. THE DRAFTING WAS PERFORMED USING AS MUCH AS POSSIBLE OF THE FORMAT AND STANDARDS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JANUARY 2009.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
Sandy Silt	A-4a	3	7
Silt	A-4b	3	4
Silt and Clay	A-6a	1	7
Silty Clay	A-6b	1	0
	TOTAL	8	18
Sandstone	VISUAL		
Weathered Sandstone	VISUAL		
Shale	VISUAL		
Topsoil	VISUAL		

BORING LOCATION - PLAN VIEW

DRIVE SAMPLE AND/OR CORE BORING LOCATION PLOTTED TO VERTICAL SCALE ONLY

W —— INDICATES FREE WATER ELEVATION

▽—— INDICATES STATIC WATER ELEVATION

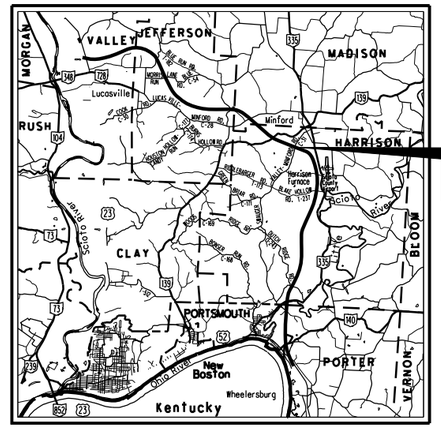
——TR INDICATES THE TOP OF ROCK ELEVATION

X/Y/Z — FIGURES BESIDE THE BORING IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X = NUMBER OF BLOWS FOR FIRST 6 INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES

50 (n) — INDICATES NUMBER OF BLOWS (50) TO DRIVE A SPLIT-BARREL SAMPLER A DEPTH OF (n) INCHES OTHER THAN THE NORMAL 6 INCH INCREMENT.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.



LOCATION MAP

LATITUDE: N 38°50'25" LONGITUDE: W 82°50'50"

SCALE IN MILES

0 2 4 6 8

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm		0.42 mm		0.074 mm	0.005 mm
Boulders	Cobbles	Gravel	Coarse Sand		Fine Sand		Silt	Clay
		No. 10 SIEVE		No. 40 SIEVE		No. 200 SIEVE		

RECON. - AMJ 06/04 to 06/06

DRILLING - DW 08/3/04 & 2/24/05 & 06/15 TO 06/16/06
TESTECH: 2/5/08

DRAWN - RLS & AMJ 3/09 TO 9/09,

MODIFIED- HDR: CLW 06/22/11

REVIEWED - AEN 4/27/09,
HDR: DCM 06/23/11

DLZ
1221 KINNEY ROAD • COLUMBUS, OHIO 43229

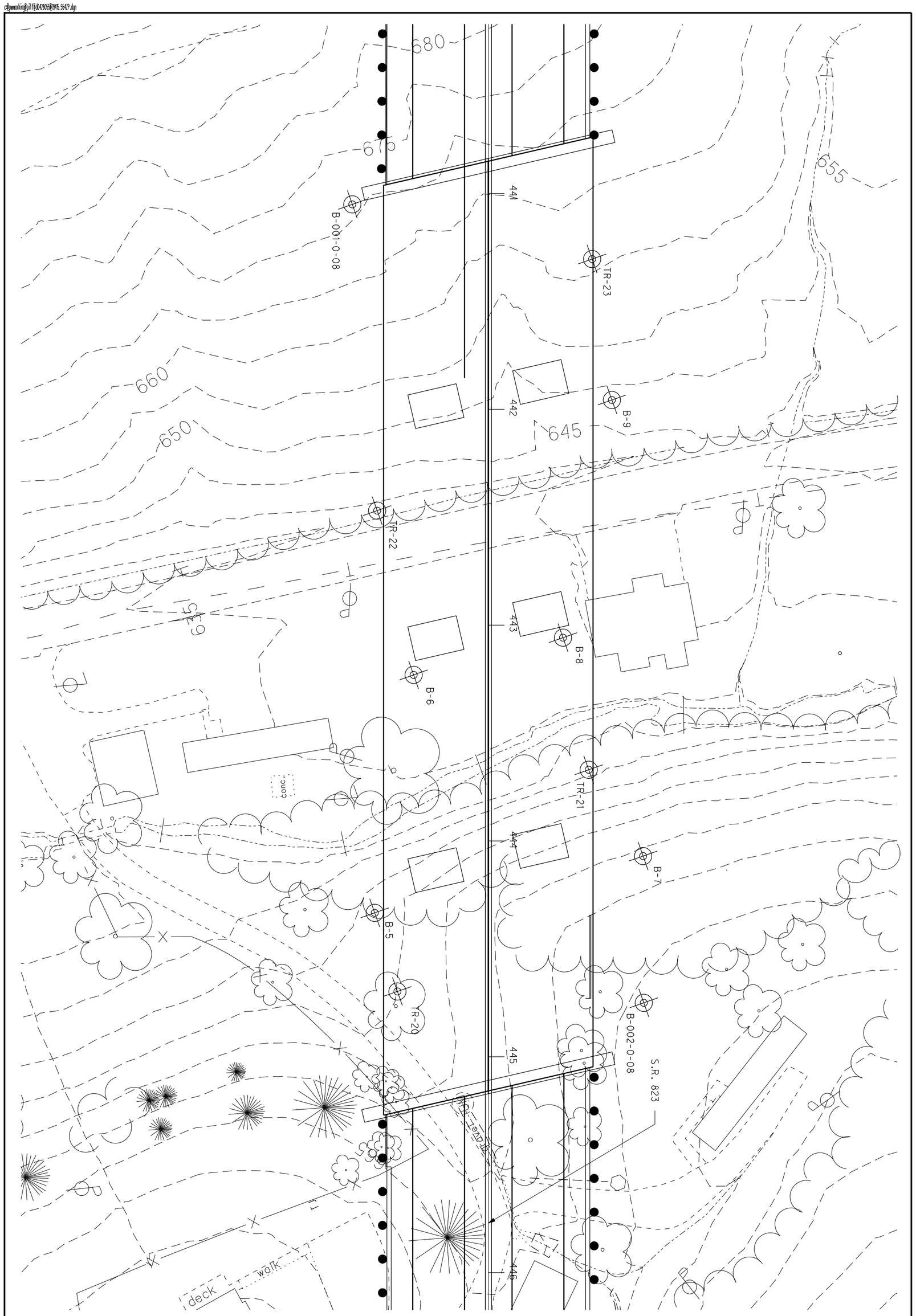
PID NO. 19415

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0837
SR823 OVER SWAUGER VALLEY ROAD

SCI-823-6.81

1 / 9

6/23/2011
9:46:06 AM
c:\pwworking\pitt\d0428055\19415_5542C.dgn



2/8	SCI-823-6.81	STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. SCI-823-0837 SR823 OVER SWAUGER VALLEY ROAD	DRAWN CHECKED	0 20 10 40 HORIZONTAL SCALE IN FEET

PROPOSED PROFILE

EXISTING SURFACE

720
700
680
660
640
620
600
580
560
540

TR-23
48.1' Lt.
Topsoil-4"
6/13/15
11/26/20
11/16/40
TR

B-9
66.2' Lt.
Topsoil-1"
7/7/8
50(0)
TR

TR-22
51.5' Rt.
Topsoil-8"
3/6/7
26/50(4)
TR

B-6
34.6' Rt.
7/5/4
6/9/3
50(1)
13
12
TR

TR-21
46.5' LT.
W
TR

B-7
65.4' Lt.
Topsoil-2"
8/18/23
TR

TR-20
42.1' Rt.
Topsoil-2"
3/3/4
1/3/50(3)
TR

B-001-0-08
63' RT
Topsoil-12"
2/2/5
6/9/12
11/11/15
34/50/(3)
50(1)
25
18
15
9
10
W
TR

B-8
34.6' Lt.
3/2/2
7/6/5
9/15/50(4)
13
12
TR

B-5
63.3' RT.
Topsoil-1'
18/50(0)
TR

B-002-0-08
72' LT
Topsoil-12"
4/5/10
4/6/8
30/30/33
22/50/(4)
50(2)
16
W
12
12
7
TR

441
442
443
444
445
446

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0837
SR823 OVER SWAUGER VALLEY ROAD

DRAWN
CHECKED

SCI-823.6.81

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-5 | Location: Sta. 444+30.2, 63.3 ft. RT of SR 823 CL | Date Drilled: 06/15/06

WATER OBSERVATIONS: Water seepage at: none
Water level at completion: none (prior to coring)
0.5' (inside hollowstem augers, includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL — LL, Blows per foot
0.1	644.0						Topsoil - 1"							
1.5	642.5	18 50/0	6	1	R-1		Medium dense gray SANDY SILT (A-4a), damp. (Decomposed Sandstone)							50/0+
							Medium hard to hard gray SANDSTONE, fine to very fine grained, moderately to highly weathered, argillaceous, micaceous, massive bedding, moderately fractured, contains few argillaceous laminations. @ 1.5'-7.2', 7.9'-8.3', 10.9', rust staining. @ 3.1'-3.3', high angle fracture. @ 3.5', qu = 8,382 psi.							
		Core 120"	Rec 114"	ROD 83%										
11.5	632.5						Bottom of Boring - 11.5'							

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-6 | Location: Sta. 443+23.0, 34.6 ft. RT of SR 823 CL | Date Drilled: 06/15/06 to 06/16/06

WATER OBSERVATIONS: Water seepage at: none
Water level at completion: not reported

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL — LL, Blows per foot
0	635.9	7 5 4	17	1		4.5+	Hard brown SANDY SILT (A-4a), little clay, trace to little gravel; damp.	16	23	--	15	28	18	
		6 9 3		2		4.5+		10	25	--	14	40	11	Non-Plastic
6.0	629.9	50/1	1	3			Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, micaceous, massively bedded, slightly fractured, contains moderate argillaceous laminations. @ 6.5'-7.4', rust staining. @ 6.8', 6.9', 7.1', 7.9', rust stained low angle fractures.							50/1
		Core 108"	Rec 105"	ROD 81%	R-1									
		Core 120"	Rec 120"	ROD 89%	R-2		@ 18.0', qu = 12,418 psi.							
		Core 12"	Rec 10"	ROD 83%	R-3									
26.5	609.4						Bottom of Boring - 26.5'							

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0837
SR823 OVER SWAUGER VALLEY ROAD

DRAWN | CHECKED

SCI-823-6.81

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-7 | Location: Sta. 444+00.8, 65.4 ft. LT of SR 823 CL | Date Drilled: 06/15/06

WATER OBSERVATIONS: Water seepage encountered at elevation: Water level at completion:

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % (PL — LL) Blows per foot
0.2	657.8						Topsoil - 2"							
	658.0	8 18 23	13	1			Medium dense gray SANDY SILT (A-4a), damp. (Decomposed Sandstone)							
2.5	655.5						Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, fossiliferous (trace fossils), massive bedding, highly fractured. @ 2.5'-9.3', rust staining. @ 2.5'-5.0', broken zone. @ 3.5', lost water circulation. @ 6.5', qu = 7,966 psi.							
		Core 120"	Rec 97"	ROD 76%	R-1		@ 8.7'-8.9', high angle fracture.							
12.5	645.5						Bottom of Boring - 12.5'							

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-8 | Location: Sta. 443+05.8, 34.6 ft. LT of SR 823 CL | Date Drilled: 06/16/06

WATER OBSERVATIONS: Water seepage encountered at elevation: Water level at completion reported

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % (PL — LL) Blows per foot
0	638.4						Very stiff to hard brown SILT (A-4b), little clay, trace fine to coarse sand, trace gravel; damp.	4	12	--	15	52	17	
		3 2 2	11	1		4.0								
3.0	635.4						Hard brown SANDY SILT (A-4a), little clay, little gravel; damp.	12	23	--	17	35	13	
		7 6 5	17	2		4.5+								
		15 50/4		3		4.5+								
7.5	630.9						Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, massive bedding, highly fractured, contains few laminations. @7.5'-8.7', rust staining.							
		Core 108"	Rec 87"	ROD 68%	R-1									
							@ 17.0', qu = 10,997 psi.							
		Core 120"	Rec 120"	ROD 90%	R-2									
27.5	610.9	Core 12"	Rec 12"	ROD 100%	R-3		Bottom of Boring - 27.5'							

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0837
SR823 OVER SWAUGER VALLEY ROAD

DRAWN | CHECKED

SCI-823-6.81

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-9 | Location: Sta. 441+98.6, 66.2 ft. LT of SR 823 CL | Date Drilled: 06/15/06

WATER OBSERVATIONS: Water seepage at: none; Water level at completion: none (prior to coring) 1.0′ (inside hollowstem augers, includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL — LL, Blows per foot
0.1	647.5						Topsoil - 1"							
	647.4	7 7 8	4	1			Medium dense gray SANDY SILT (A-4a), damp. (Decomposed Sandstone)							
							@ 4.0′, auger refusal.							
1.0	643.5	50/0	0	2			Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, massive bedding, highly fractured. @ 4.0′-11.4′, rust staining. @ 7.2′, qu = 8,153 psi.							
		Core 120"	Rec 117"	ROD 66%	R-1		@ 8.7′-8.8′, 8.9′-9.0′, Decomposed argillaceous zones.							
14.0	633.5						Bottom of Boring - 14.0′							

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-20 | Location: Sta. 444+69.7, 42.1 ft. RT of SR 823 CL | Date Drilled: 8/4/04

WATER OBSERVATIONS: Water seepage at: none; Water level at completion: 6.3′ (Includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL — LL, Blows per foot
0.2	650.0						Topsoil - 2"							
	649.8	3 3 4	18	1		0.5	Medium stiff brown SILT AND CLAY (A-6a), little fine to coarse sand, little gravel; contains sandstone fragments; moist.							
5.0	645.0	3 50/3	15	2			Hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, massively bedded, slightly fractured. @ 5.0′-5.3′, broken.							
		Core 96"	Rec 91"	ROD 88%	R-1		@ 9.3′-9.5′, broken zone, possible core loss.							
		Core 84"	Rec 84"	ROD 86%	R-2		@ 13.9′ to 14.5′, high angle fracture with reddish brown discoloration.							
20.0	630.0						Bottom of Boring - 20.0′							

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0837
SR823 OVER SWAUGER VALLEY ROAD

SCI-823.6.81

6 / 9

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-22 | Location: Sta. 442+46.9, 51.5 ft. RT of SR 823 CL | Date Drilled: 2/24/2005

WATER OBSERVATIONS: Water seepage at: none; Water level at completion: 4.5′ (inside hollowstem augers, includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content % - Blows per foot
0	636.2						Topsoil - 8"							
0.7	635.5	3 6 7	18	1		1.25	Stiff brown SANDY SILT (A-4a), trace gravel; organic; moist.							
2.8	633.4			2A			Very dense brown SANDY SILT (A-4a), trace gravel; organic; moist.							
3.5	632.7	26 50/4	10	2B			Severely weathered brown SANDSTONE.							
4.0	632.2						Soft brown SANDSTONE; fine grained, moderately weathered, slightly micaceous, moderately fractured. @ 5.2′-5.7′,7.1′-7.3′,8.7′-8.9′ very soft, highly weathered. @ 6.1′, gray, medium hard.							
		Core 120"	Rec 120"	ROD 84%	R-1									
							@ 10.9′-11.0′, iron stained horizontal fractures. @ 12.0′-12.8′, siltstone.							
14.0	622.2						Hard gray SANDSTONE; fine grained, slightly weathered, slightly micaceous, slightly fractured. @ 14.7′-15.3′, very soft gray and brown SILTSTONE, highly weathered.							
		Core 120"	Rec 120"	ROD 96%	R-2		@ 19.3′-19.4′, irregular vertical fracture. @ 19.6′, 1/2" clay filled fracture.							
							@ 23.2′-23.5′, siltstone.							
24.0	612.2						Bottom of Boring - 24.0′							

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No 0121-3070.03

LOG OF: Boring TR-23 | Location: Sta. 441+30.3, 48.1 ft. LT of SR 823 CL | Date Drilled: 2/9/04

WATER OBSERVATIONS: Water seepage at: none; Water level at completion: 2.0′ (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - Blows per foot
0	661.0						Topsoil - 4"							
0.3	660.7	6 13 15	17	1		4.5+	Hard brown SILT AND CLAY (A-6a), some fine to coarse sand, trace gravel; contains sandstone fragments; damp.							
		11 26 20	17	2		4.5								
		11 16 40	16	3		4.5+								
7.5	653.5	Core 30"	Rec 26"	ROD 17%	R-1		Soft brown SANDSTONE; fine grained, decomposed.							
10.0	651.0						Hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, slightly fractured. @ 12.3′,13.5′, weathered fractures. @ 12.9′ to 13.6′, brown.							
		Core 120"	Rec 120"	ROD 84%	R-2									
20.0	641.0						Bottom of Boring - 20.0′							

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0837
SR823 OVER SWAUGER VALLEY ROAD

SCI-823.6.81

DRAWN | CHECKED

c:\projects\sci\pid\SCI0823\sci823gen_tr23.dgn

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-21 | Location: Sta. 443+67.0, 46.5 ft. LT of SR 823 CL | Date Drilled: 3/3/04

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	WATER OBSERVATIONS: Water seepage at 0.0' Water level at completion: 2.0' (includes drilling water) DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content % PL — LL Blows per foot 10 20 30 40
0	639.0						Gray GRAVEL (A-1-a); wet. (Auger sample - boring drilled in stream bed)							
1.5	637.5						Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, argillaceous, massively bedded, slightly fractured. @ 1.5'-3.9', brown, highly weathered, highly fractured to broken. @ 3.3'-3.4', clay filled fracture.							
5		Core 114"	Rec 114"	ROD 70%	R-1									
10														
15		Core 108"	Rec 108"	ROD 93%	R-2									
20.0	619.0						Bottom of Boring - 20.0'							
25														
30														

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0837
SR823 OVER SWAUGER VALLEY ROAD

SCI-823.6.81

8 / 9

c:\projects\sci\823\0121307003\Plans\SCI-823.6.81.dgn

LOG OF BORING

Boring No.: B-001-0-08 | Baseline, Station & Offset: 441+05, 63' RT | Surface Elev. (ft) 670.2 | Project ID.: SCI-823-6.81 PID 19415
Date Started: 5-Feb-08 | Coordinates: | Water Elev. (ft) 662.2
Date Completed: 5-Feb-08 | Drilling Method: 3.25" HSA/NQ | Sealing & Backfilling Type: Cement | Hammer System Type: CME Automatic
Quantity: | Calibration Date: 10-25-07 | ER: 74%

Elev. ft	Depth ft	Std. Pen /ROD	N60	Rec. ft	Loss ft	Description	Sample Type & No.	% Rec	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	P.L	L.L	P.I	W.C.	ODOT Class
0.0	0																	
669.2		Augered				1.0'												
668.2	2	2 /2 /5	9			Medium stiff, brown, SILTY CLAY, Moderately organic, damp	S-1	87	0	3	13	42	42	21	37	16	24.7	A-6b (10)
667.2						3.0'												
666.2	4	6 /9 /12	26				S-2	100			Same as S-3						18	A-4b (VISUAL)
665.2																		
664.2	6	11 /11 /15	32				S-3	100	0	1	3	65	31	23	24	1	15.3	A-4b (8)
663.2						Medium dense to very dense, light brown with red staining, SILT, little to trace clay and stone fragments, slightly to moderately organic, damp.													
662.2	8																	
661.2		34 /50 /.4	62(.4)				S-4	50			Same as S-3						8.8	A-4b (VISUAL)
660.2	10					Top of Rock 10.1'	S-5	100			Same as S-4						10.4	A-4b (VISUAL)
659.2		50/.1	62(.1)															
658.2	12	81%		2.6	0.4													
657.2						Argillaceous Siltstone, light gray with dark gray streaks, slightly weathered to unweathered, strong to moderately strong, very fine to fine sand texture, very thin to thinly bedded, Unit ROD=92%, Loss=5%													
656.2	14	92%		2.4	0.0													
655.2						17.4'												
654.2	16																	
653.2																		
652.2	18	94%		5.0	0.0	Silty Shale, gray with dark gray streaks, unweathered, weak to slightly strong, fine sand texture, thinly laminated to laminated, Unit ROD=82%, Loss=0%													
651.2						19.1'												
650.2	20																	
649.2																		
648.2	22																	
647.2		100%		5.0	0.0	Siltstone, Light gray with dark gray streaks, strong, very fine to fine sand texture, very thrick bedding Unit ROD=100%, Loss=0%													
646.2	24																	
645.2																		

Bottom of Boring = 25.5'

NOTES:
1) Clay Infilling at 10.3'/10.5' (Bedding separation 0-15^{0})

LOG OF BORING

Boring No.: B-002-0-08 | Baseline, Station & Offset: 444+75, 72' LT | Surface Elev. (ft) 670.5 | Project ID.: SCI-823-6.81, PID 19415
Date Started: 5-Feb-08 | Coordinates: | Water Elev. (ft) 666.5
Date Completed: 5-Feb-08 | Drilling Method: 3.25" HSA/NQ | Sealing & Backfilling Type: Cement | Hammer System Type: CME Automatic
Quantity: | Calibration Date: 10-25-07 | ER: 74%

Elev. ft	Depth ft	Std. Pen /ROD	N60	Rec. ft	Loss ft	Description	Sample Type & No.	% Rec	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	P.L	L.L	P.I	W.C.	ODOT Class
0.0	0																	
669.5		Augered																
668.5	2	4 /5 /10	19				S-1	100	2	3	3	62	30	9	26	17	15.8	A-4b (8)
667.5						Medium dense, light brown, SILT, some clay, slightly organic, damp												
666.5	4	4 /6 /8	17				S-2	100			Same as S-1							A-4b (VISUAL)
665.5						5.5'												
664.5	6																	
663.5		30 /30 /33	78				S-3	100	0	5	4	63	28	21	32	11	12.4	A-6a (8)
662.5	8					Very dense, light brown with red staining, SILT and CLAY slightly to moderately organic, damp.												
661.5																		
660.5	10	22 /50 /.4	62(.4)				S-4	50			Same as S-3						12.4	A-6a (VISUAL)
659.5		50 /.2	62(.2)			Top of Rock 11.2'	S-5	100			Same as S-4						6.6	A-6a (VISUAL)
658.5	12	90%		3.0	0.0	Siltstone, gray with heavy red staining, medium to highly weathered, moderately strong to strong, very fine to fine sand texture, thinly bedded, Unit ROD=77%, Loss=0%													
657.5						12.5'												
656.5	14																	
655.5																		
654.5	16	88%		5.1	0.0	Siltstone, light gray with dark gray streaks, slightly strong to unweathered, strong, fine to very fine sand texture, thin to medium bedding, Unit ROD = 93%, LOSS = 0%													
653.5																		
652.5	18																	
651.5																		
650.5	20																	
649.5		100%		2.0	0.0													

Bottom of Boring = 21.6'

NOTES:
1) Clay infilling at 17.5'/17.9'/18.1' (Bedding separation 0-10 ^{0})
2) SHELBY TUBE pushed from El. 668.0 to El. 666.0 in offset hole located 3.5 feet south of boring.

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0837
SR823 OVER SWAUGER VALLEY ROAD

SCI-823.6.81

PROJECT DESCRIPTION

THE PROJECT CONSISTS IN PART OF PLACING TWO STRUCTURES FOR THE PROPOSED SR 823 OVER PORTSMOUTH-MINFORD ROAD (SR 139). THE TWO STRUCTURES AS PLANNED, ARE TWO-SPAN STRUCTURES USING MSE WALLS TO HOLD BACK THE ROADWAY EMBANKMENTS AND CONTAIN THE ABUTMENTS.

HISTORIC RECORDS

HISTORIC BORING RECORDS FOR THE AREA WERE REQUESTED FROM THE ODOT OFFICE OF GEOTECHNICAL ENGINEERING AND THE DISTRICT, HOWEVER, NO SUCH RECORDS EXISTED.

GEOLOGY

THE STRUCTURE SITE IS LOCATED IN THE SHAWNEE-MISSISSIPPIAN PLATEAU OF THE UNGLACIATED PORTION OF THE APPALACHIAN PLATEAU PHYSIOGRAPHIC REGION. THE SHAWNEE-MISSISSIPPIAN PLATEAU IS CHARACTERIZED BY DEVONIAN AGED TO PENNSYLVANIAN AGED ROCKS AND CONTAINS RESIDUAL, COLLUVIAL, GLACIAL, ALLUVIAL, AND LACUSTRINE SOILS. BEDROCK WITHIN THE STRUCTURE AREA IS PRIMARILY SANDSTONE OF THE LOGAN FORMATION OF MISSISSIPPIAN AGE. BEDROCK OF THE PENNSYLVANIAN BREATHITT FORMATION CAN BE FOUND AT THE TOP OF THE SLOPES TO THE WEST OF THE STRUCTURE, ROUGHLY ABOVE ELEVATION 860. NO MINING IS REPORTED IN THE IMMEDIATE VICINITY.

RECONNAISSANCE

SEVERAL SITE RECONNAISSANCE VISITS WERE MADE BETWEEN JULY 2004 AND SEPTEMBER 2006. THE SURROUNDING AREA IS DESCRIBED AS WOODED RURAL RESIDENTIAL. THE AREA OF THE PROPOSED STRUCTURE IS BORDERED ON THE WEST BY A GENTLY SLOPING RESIDENTIAL AREA WITH GRASS AND TREES AND ON THE EAST BY A WOODED AREA SLOPING STEEPLY TO THE WEST.

SUBSURFACE EXPLORATION

THE SUBSURFACE EXPLORATION CONSISTED OF DRILLING FOUR FINAL AND FIVE PRELIMINARY STRUCTURAL BORINGS. BORING B-003-0-8 WAS DRILLED ON FEBRUARY 11,2008. BORINGS B-10 THROUGH B-12 WERE DRILLED BETWEEN JUNE 20 AND 28, 2006. TR-15 THROUGH TR-19 WERE DRILLED FOR A PREVIOUS DESIGN CONFIGURATION BETWEEN JULY 9, 2004 AND FEBRUARY 23, 2005. THE BORINGS WERE DRILLED WITH TRACK, ATV AND TRUCK MOUNTED ROTARY DRILL RIGS, USING 3 1/4 -INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE HOLES THROUGH SOIL. DISTURBED SOIL SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 1.5 TO 5.0-FOOT INTERVALS FOR THE FULL DEPTH OF THE SOIL PORTION OF THE BORINGS. WHERE BEDROCK WAS ENCOUNTERED, THE BORINGS WERE ADVANCED AND THE ROCK WAS SAMPLED USING A TYPE NQ SERIES CORE BARREL, WATER METHOD.

EXPLORATION FINDINGS

THE TEST BORINGS DISCLOSED BOTH COHESIVE AND GRANULAR SOILS. THE COHESIVE DEPOSITS CONSISTED MAINLY OF MEDIUM STIFF TO VERY STIFF SANDY SILT (A-4A) AND MEDIUM STIFF TO STIFF SILT (A-4B), WHILE THE GRANULAR SOIL DEPOSITS CONSISTED MAINLY OF LOOSE TO MEDIUM DENSE GRAVEL WITH SAND (A-2-4), LOOSE TO VERY DENSE SANDY SILT (A-4A), AND MEDIUM DENSE SILT (A-4B). THE NATIVE SOIL DEPOSITS EXTENDED TO AN APPROXIMATE DEPTH RANGING BETWEEN 4.0 AND 9.2 FEET BELOW THE GROUND SURFACE WHERE BEDROCK WAS ENCOUNTERED.

THE SOIL OVERLIES A GENTLY SLOPING AND UNDULATING BEDROCK SURFACE. THE BEDROCK CONSISTED MAINLY OF MEDIUM HARD TO HARD, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY FRACTURED SANDSTONE.

SEEPAGE WAS ENCOUNTERED ONLY IN BORINGS TR-15, TR-16, AND TR-17 BETWEEN APPROXIMATE DEPTHS OF 6.0 AND 7.0 FEET. THERE WERE NO MEASURABLE WATER LEVELS IN THE BORINGS PRIOR TO ROCK CORING.

SPECIFICATIONS

THE DRILLING WAS PERFORMED UNDER THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR SUBSURFACE INVESTIGATIONS, DATED SEPTEMBER 1996. THE DRAFTING WAS PERFORMED USING AS MUCH AS POSSIBLE OF THE FORMAT AND STANDARDS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JANUARY 2009.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
Gravel with Sand and Silt (A-2-4)	A-2-4	-	3
Sandy Silt (A-4a)	A-4a	4	12
Silt (A-4b)	A-4b	4	3
Silt and Clay (A-6a)	A-6a	1	2
	TOTAL	9	20
Sandstone	VISUAL		
Weathered Sandstone	VISUAL		
Siltstone	VISUAL		
Weathered Siltstone	VISUAL		
Topsoil	VISUAL		
Shale			

BORING LOCATION - PLAN VIEW

DRIVE SAMPLE AND/OR CORE BORING LOCATION PLOTTED TO VERTICAL SCALE ONLY

W —— INDICATES FREE WATER ELEVATION

INDICATES STATIC WATER ELEVATION

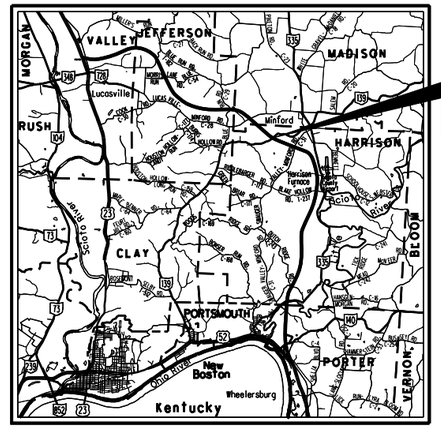
INDICATES WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT

——TR INDICATES THE TOP OF ROCK ELEVATION

FIGURES BESIDE THE BORING IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST

X/Y/Z
- X = NUMBER OF BLOWS FOR FIRST 6 INCHES
- Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
- Z = NUMBER OF BLOWS FOR THIRD 6 INCHES

50 (n) INDICATES NUMBER OF BLOWS (50) TO DRIVE A SPLIT-BARREL SAMPLER A DEPTH OF (n) INCHES OTHER THAN THE NORMAL 6 INCH INCREMENT.



LOCATION MAP

LATITUDE: N 38°50'25" LONGITUDE: W 82°50'50"

SCALE IN MILES

0 2 4 6 8

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt / Clay
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE	

RECON. - AMJ & SJR 06/04 to 09/06

DRILLING - DW 07/09/04 TO 02/23/05 & 06/20 TO 06/28/06
TESTECH: 2/11/08

DRAWN - RLS & AMJ 3/09 TO 9/09

MODIFIED- HDR: CLW 06/22/11

REVIEWED - AEN 4/29/09,
HDR: DCM 06/23/11

DLZ
1677 NORTHLEY ROAD • COLUMBUS, OHIO 43229

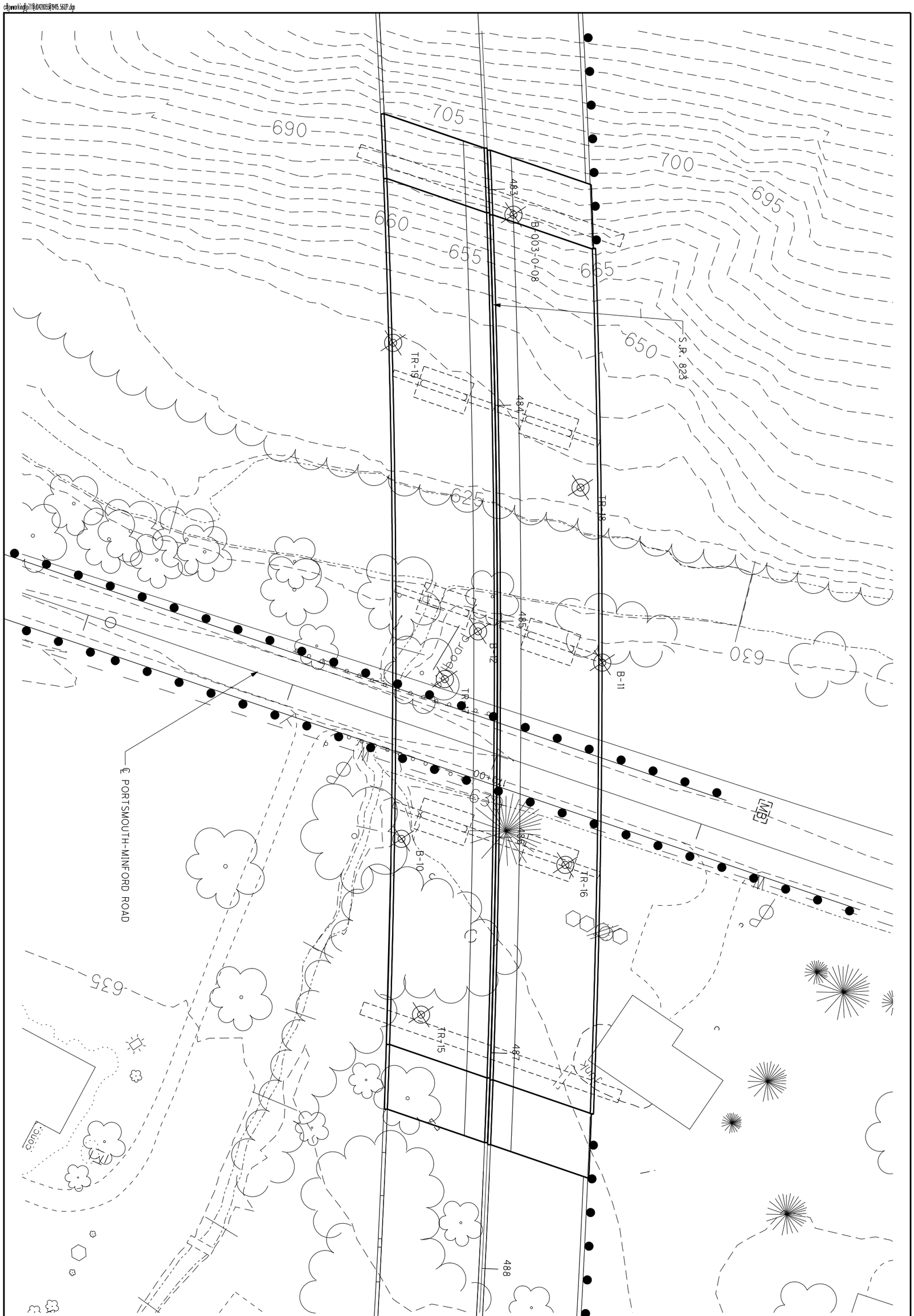
PID NO. 19415

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0917
SR823 OVER PORTSMOUTH-MINFORD ROAD (SR 139)

SCI-823-6.81

1 / 8

6/23/2011
9:14:22 AM
c:\Bpwworkingbpitt\Bd0428055B\19415_5612C.dgn



2/8	SCI-823-6.81	STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. SCI-823-0917 SR823 OVER PORTSMOUTH-MINFORD ROAD(SR 139)	DRAWN CHECKED	0 20 10 40 HORIZONTAL SCALE IN FEET

PROPOSED PROFILE

EXISTING SURFACE

B-003
11.38' LT
Topsoil-12"
3/5/4 8
4/3/6 12
10/13/7 12
18/22/24 11
21/25/26 W 8
50(4)
50(11) TR

TR-19
46.5' Rt.
Topsoil-12"
3/7/7
4/7/9
4/5/6
50(2) TR

TR-18
39.0' Lt.
Topsoil-12"
2/3/3 9
3/4/4 12
6/7/50(3) 11 TR

B-12
9.0' Rt.
Topsoil-3"
3/4/6 17
10/7/4
4/5/50(3) TR

TR-16
32.2' Lt.
Topsoil-2"
2/3/2
1/1/1 W
4/10/50(5) TR

TR-15
32.9' Rt.
Topsoil-2"
4/2/3
2/1/1 W
3/20/50(2) TR

B-11
48.6' Lt.
Topsoil-2"
3/3/2 14
4/8/9 TR

B-10
43.8' Rt.
Topsoil-3"
4/5/4 15
3/3/2
2/2/2 38
10/50(2) TR

TR-17
24.3' Rt.
Topsoil-5"
6/8/10
6/4/5
3/50(5) TR W

720 700 680 660 640 620 600 580 560 540

640 620 600

485 486

483 484 485 486 487 488

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0917
SR823 OVER PORTSMOUTH-MINFORD ROAD (SR 139)

DRAWN | CHECKED

SCI-823-6.81

3 / 8

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-10 | Location: Sta. 486+01.5, 43.8' RT of SR 823 CL | Date Drilled: 06/28/06

WATER OBSERVATIONS: Water seepage at: none
Water level at completion: none (prior to coring); 6.0' (inside hollowstem augers, includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0.3	632.4						Topsoil - 3"						
		4 5 4	14	1		1.5	Stiff brown SILT (A-4b), little clay, trace to little fine sand; damp.	0	0	--	10	74	16
		3 3 2	17	2		--							
5		2 2 2	13	3		2.0	@ 6.0'-7.5', soft, wet.	0	0	--	11	74	15
8.5	624.1	10 50/2	6	4			Severely weathered gray SANDSTONE.						
9.5	623.1						Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, laminated to thinly bedded, moderately fractured.						
		Core 120"	Rec 116"	ROD 87%	R-1		@ 16.5', qu = 10,393 psi.						
19.5	613.1						Bottom of Boring - 19.5'						

STANDARD PENETRATION (N)
Natural Moisture Content, % - PL LL
Blows per foot 10 20 30 40
50/6

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-11 | Location: Sta. 485+19.1, 48.6 ft. LT of SR 823 CL | Date Drilled: 6/20/06

WATER OBSERVATIONS: Water seepage at: none
Water level at completion: not reported

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0.2	632.5						Topsoil - 2"						
		3 3 2	13	1			Loose brown SANDY SILT (A-4a), trace clay; damp.	0	1	--	17	82	
4.0	628.7	4 8 9	15	2			Medium dense gray SANDY SILT (A-4a) ; damp. (Decomposed Rock)						
5		7 15 50/3	15	3			@ 8.5', auger refusal.						
8.5	624.2						Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, laminated to thinly bedded, moderately fractured. @ 8.5' to 10.0', highly fractured to broken.						
		Core 120"	Rec 93"	ROD 57%	R-1		@ 13.5', qu = 10,537 psi.						
		Core 120"	Rec 116"	ROD 97%	R-2								
28.5	604.2						Bottom of Boring - 28.5'						

STANDARD PENETRATION (N)
Natural Moisture Content, % - PL LL
Blows per foot 10 20 30 40
50/3

* Non-Plastic

* SAMPLE WAS VISUALLY IDENTIFIED AS NON-PLASTIC PRIOR TO TESTING

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0917
SR823 OVER PORTSMOUTH-MINFORD ROAD (SR 139)

SCI-823-6.81

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-12 | Location: Sta. 485+04.7, 9.0 ft. RT of SR 823 CL | Date Drilled: 6/20/06

WATER OBSERVATIONS: Water seepage at: none
Water level at completion: none (prior to coring)
4.0' (inside hollowstem augers includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL LL Blows per foot 10 20 30 40
0.3	632.2						Topsoil - 3"							
		3 4 6	15	1			Loose to medium dense brown SANDY SILT (A-4a), trace clay; contains sandstone fragments; damp.	0	0	--	8		92	* Non-Plastic
4.0	628.5	10 7 4	9	2			Loose to medium dense reddish brown GRAVEL WITH SAND AND SILT (A-2-4); contains sandstone fragments; damp.							
5														
		4 5 50/3	15	3										50/3"
8.5	624.0						Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, laminated to thinly bedded, moderately fractured.							
10														
		Core 120"	Rec 97"	ROD 67%	R-1		@ 13.0', qu = 11,829 psi.							
15														
20														
		Core 120"	Rec 120"	ROD 85%	R-2		@ 24.5', qu = 9,709 psi.							
25														
28.5	604.0						Bottom of Boring - 28.5'							
30														

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-15 | Location: Sta. 486+83.3, 32.9 ft. RT of SR 823 CL | Date Drilled: 7/9/2004

WATER OBSERVATIONS: Water seepage at: 6.0'
Water level at completion: None

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL LL Blows per foot 10 20 30 40
0.2	631.1						Topsoil - 2"							
		4 2 3	14	1		1.0	Stiff to very stiff brown SANDY SILT (A-4a), trace gravel; moist.							
5		2 1 1	13	2		<0.25	@ 3.5'-5.0', very soft.							
7.0	624.3	3 20 50/2	13	3A 3B		3.25	Severely weathered brownish-gray SILTSTONE fragments.							50/2"
8.0	623.3						Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, massively bedded, slightly fractured.							
10														
		Core 120"	Rec 99"	ROD 70%	R-1		@ 8.0'-9.0', probable core loss.							
15														
18.0	613.3						Bottom of Boring - 18.0'							
20														
25														
30														

* SAMPLE WAS VISUALLY IDENTIFIED AS NON-PLASTIC PRIOR TO TESTING

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0917
SR823 OVER PORTSMOUTH-MINFORD ROAD (SR 139)

SCI-823-6.81

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-16 | Location: Sta. 486+12.4, 32.3 ft. LT of SR 823 CL | Date Drilled: 7/9/04

WATER OBSERVATIONS: Water seepage at: 6.0′
Water level at completion: 6.5′

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION
0	631.9						
0.2	631.7						Topsoil - 2"
		2 3 2	16	1		1.0	Medium stiff brown SANDY SILT (A-4a); moist.
5		1 1 1	15	2		0.75	
		4 10 50/5	12	3		--	@ 6.0′ to 7.4′, contains rock fragments.
8.5	623.4						Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, argillaceous, massively bedded, slightly fractured.
10			Core 120"	Rec 118"	ROD 85%	R-1	
15							@ 17.0′, contains few argillaceous laminations.
18.5	613.4						Bottom of Boring - 18.5′
20							
25							
30							

GRADATION: % Aggregate | % C. Sand | % M. Sand | % F. Sand | % Silt | % Clay

STANDARD PENETRATION (N)
Natural Moisture Content, % - PL — LL
Blows per foot
10 20 30 40 50/4"

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-17 | Location: Sta. 485+26.9, 24.3 ft. RT of SR 823 CL | Date Drilled: 2/23/2005

WATER OBSERVATIONS: Water seepage at: 6.3′-7.0′
Water level at completion:
1.6′ (inside hollowstem augers, includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION
0	631.7						
0.4	631.3						Topsoil - 5"
		6 8 10	18	1			Medium dense brown SILT (A-4b), little fine to coarse sand, trace clay; damp.
3.0	628.7						Loose brown GRAVEL WITH SAND AND SILT (A-2-4); damp.
5		6 4 5	18	2			
5.5	626.2						
6.3	625.4			3A			Very dense brown SANDY SILT (A-4a); wet.
7.0	624.7	3 50/5	11	3B			Severely weathered gray SANDSTONE.
10			Core 120"	Rec 120"	ROD 83%	R-1	Medium hard brown and gray SANDSTONE; fine grained, moderately weathered, slightly micaceous, slightly fractured. @ 7.3′-7.4′, very soft, highly weathered. @ 8.5′, irregular fracture. @ 8.7′, gray.
15							
17.0	614.7						@ 16.0′, 1" soft, weathered zone. Hard brown and gray SANDSTONE; fine grained, slightly weathered, slightly micaceous, slightly fractured.
20			Core 120"	Rec 120"	ROD 97%	R-2	
25							@ 22.8′-23.0′, very soft, highly weathered siltstone seam. @ 23.0′-23.2′, siltstone seam.
27.0	604.7						Bottom of Boring - 27.0′
30							

GRADATION: % Aggregate | % C. Sand | % M. Sand | % F. Sand | % Silt | % Clay

STANDARD PENETRATION (N)
Natural Moisture Content, % - PL — LL
Blows per foot
10 20 30 40 50/4"

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0917
SR823 OVER PORTSMOUTH-MINFORD ROAD (SR 139)

SCI-823-6.81

6 / 8

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-18 | Location: Sta. 484+38.6, 39.0 ft. LT of SR 823 CL | Date Drilled: 8/17/04

WATER OBSERVATIONS: Water seepage at: None
Water level at completion: 9.4' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content % - PL — LL, Blows per foot
0	631.3						Topsoil - 12"							
1.0	630.3	2 3 3	18	1			Medium stiff brown SILT (A-4b), little clay, little fine to coarse sand, little gravel; contains roots; dry to damp.	13	7	--	9	58	13	
3.0	628.3	3 4 4	18	2			Loose brown SANDY SILT (A-4a), little clay, trace to little gravel; damp.	0	3	--	40	45	12	Non-Plastic
5								11	20	--	28	31	10	Non-Plastic
7.3	624.0	6 7 50/3	12	3			Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, slightly to moderately fractured. @ 7.3'-7.6', broken. @ 7.3'-7.8',8.0',8.6'-8.8', brown, rust-stained fractures. @ 7.3'-7.8', vertical fracture.							50/4
10		Core 84"	Rec 84"	ROD 88%	R-1									
15		Core 72"	Rec 71"	ROD 94%	R-2									
20.3	611.0						Bottom of Boring - 20.3'							
25														
30														

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-19 | Location: Sta. 483+69.8, 46.5 ft. RT of SR 823 CL | Date Drilled: 8/16/04 to 8/17/04

WATER OBSERVATIONS: Water seepage at: None
Water level at completion: 16.3' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content % - PL — LL, Blows per foot
0	633.0						Topsoil - 12"							
1.0	632.0	3 7 7	18	1			Medium dense brown SANDY SILT (A-4a), trace gravel, trace clay; contains sandstone fragments; damp.							
5		4 7 9	18	2										
		4 5 6	18	3										
8.7	624.3	50/2	2	4			Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, massively bedded, slightly fractured. @ 9.2'-9.4', decomposed. @ 8.8'-9.0', brown. @ 13.1'-13.3', vertical fracture.							50/4
10		Core 30"	Rec 30"	ROD 57%	R-1									
15		Core 108"	Rec 108"	ROD 70%	R-2		@ 13.9'-14.0', vertical fracture. @ 15.5', unfractured to slightly fractured. @ 14.7'-15.5', broken zone. @ 15.4'-15.5', clay filled fracture.							
20.2	612.8						Bottom of Boring - 20.2'							
25														
30														

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0917
SR823 OVER PORTSMOUTH-MINFORD ROAD (SR 139)

SCI-823-6.81

LOG OF BORING

Boring No.: B-003-0-08 | Baseline, Station & Offset: 483+12, 11.38' LT | Surface Elev. (ft) 675.5 | Project ID.: SCI-823-6.81, PID 19415
Date Started: 11-Feb-08 | Coordinates: | Water Elev. (ft) 663.5
Date Completed: 11-Feb-08 | Drilling Method: 3.25" HSA/NQ | Sealing & Backfilling Type: Cement | Hammer System Type: CME Automatic
Quantity: | Calibration Date: 10-25-07 | ER: 74%

Elev. ft	Depth ft	Std. Pen /ROD	N 60	Rec. ft	Loss ft	Description	Sample Type & No.	% Rec	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	P.L	L.L	P.I	W.C.	ODOT Class
0.0	0																	
674.5		Augered				1.0'												
673.5	2	3 /5 /4	11				S-1				Same as S-2						8.3	A-4b (VISUAL)
672.5						Medium dense, light brown with red and black (manganese) staining, SILT, dry												
671.5	4	4 /3 /6	11				S-2		4	8	8	52	28	29		10	11.9	A-4b (8)
670.5						5.5'												
669.5	6																	
668.5		10 /13 /7	25				S-3				Same as S-4						12.0	A-6a (VISUAL)
667.5	8																	
666.5						Dense, light brown with red and black (manganese) staining, SILT AND CLAY, dry	S-4		1	3	5	59	32	32		12	11.0	A-6a (9)
665.5	10	18 /22 /24	54															
664.5																		
663.5	12	21 /25 /26	63				S-5				Same as S-4						7.5	A-6a (VISUAL)
662.5						12.5'												
661.5	14	50/.3	62(.3)			Silty Shale, gray, severely weathered (decomposed) very weak to weak, very fine sand texture, laminated to thinly laminated												
660.5																		
659.5	16	50/.1	62(.1)			Top of Rock 16.1'												16.1'
658.5						Argillaceous Silty Shale, moderately weathered, very weak to weak, very fine sand texture, laminated to thinly laminated, Unit ROD= 85%, Loss=3%													
657.5	18	90%		2.9	0.1													18.1'
656.5																		
655.5	20	100%		2.2	0.0													
654.5																		
653.5	22																	
652.5																		
651.5	24	84%		5.0	0.0													
650.5																		
649.5	26																	
648.5						Interbedded Siltstone & Sandy Shale, lightly gray with dark gray streaks, slightly to unweathered, moderately strong to strong, fine to very fine grained, Unit ROD= 89%, Loss=0%													
647.5	28																	
646.5		82%		5.0	0.0													
645.5	30																	
644.5																		
643.5	32																	
642.5																		
641.5	34	94%		5.0	0.0													
640.5																		
639.5	36																	

Bottom of Boring = 36.3'

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0917
SR823 OVER PORTSMOUTH-MINFORD ROAD (SR 139)

SCI-823-6.81

PROJECT DESCRIPTION

THE PROJECT CONSISTS IN PART OF CONSTRUCTING A SINGLE-SPAN BRIDGE ON RELOCATED SHUMWAY HOLLOW ROAD OVER THE CSXT RAILROAD. THE STRUCTURE AS PLANNED, IS A SINGLE-SPAN STRUCTURE WITH MSE WALLS AT THE ABUTMENTS.

HISTORIC RECORDS

HISTORIC BORING RECORDS FOR THE AREA WERE REQUESTED FROM THE ODOT OFFICE OF GEOTECHNICAL ENGINEERING AND THE DISTRICT, HOWEVER, NO SUCH RECORDS EXISTED.

GEOLOGY

THE STRUCTURE SITE IS LOCATED IN THE SHAWNEE-MISSISSIPPIAN PLATEAU OF THE UNGLACIATED PORTION OF THE APPALACHIAN PLATEAU PHYSIOGRAPHIC REGION. THE SHAWNEE-MISSISSIPPIAN PLATEAU IS CHARACTERIZED BY DEVONIAN AGED TO PENNSYLVANIAN AGED ROCKS AND CONTAINS RESIDUAL, COLLUVIAL, GLACIAL, ALLUVIAL, AND LACUSTRINE SOILS. BEDROCK WITHIN THE STRUCTURE AREA IS PRIMARILY SANDSTONE OF THE LOGAN FORMATION OF MISSISSIPPIAN AGE. BEDROCK OF THE PENNSYLVANIAN BREATHITT FORMATION CAN BE FOUND AT THE TOP OF THE SLOPES TO THE WEST OF THE STRUCTURE, ROUGHLY ABOVE ELEVATION 860. NO MINING IS REPORTED IN THE IMMEDIATE VICINITY.

RECONNAISSANCE

SEVERAL SITE RECONNAISSANCE VISITS WERE MADE BETWEEN AUGUST 2004 AND JANUARY 2007. THE SURROUNDING AREA IS DESCRIBED AS RURAL RESIDENTIAL. THE AREA OF THE PROPOSED STRUCTURE IS BORDERED ON THE WEST BY FARMLAND GENTLY SLOPING TO THE EAST AND COVERED WITH GRASS, BRUSH, AND SMALL TREES. THE STRUCTURE WILL BE CONSTRUCTED OVER A STEEP ROCK CUT CONSTRUCTED FOR THE CSX RAILROAD. SR 335 AND THE PORTSMOUTH REGIONAL AIRPORT BORDER THE PROJECT AREA TO THE EAST.

SUBSURFACE EXPLORATION

THE SUBSURFACE EXPLORATION CONSISTED OF DRILLING FOUR FINAL AND THREE PRELIMINARY STRUCTURAL BORINGS. BORINGS B-24 THROUGH B-27 WERE DRILLED BETWEEN JANUARY 17 AND 30, 2007. TR-27 AND TR-28 WERE DRILLED FOR A PREVIOUS DESIGN CONFIGURATION ON AUGUST 18 AND 19, 2004. THE BORINGS WERE DRILLED WITH AN ATV MOUNTED ROTARY DRILL RIG, USING 3¼-INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE HOLES THROUGH SOIL. DISTURBED SOIL SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 1.5 TO 5.0-FOOT INTERVALS FOR THE FULL DEPTH OF THE SOIL PORTION OF THE BORINGS. UNDISTURBED SOIL SAMPLES WERE OBTAINED AT THE DEPTHS SHOWN ON THE LOGS AND IN THE PROFILE, IN ACCORDANCE WITH AASHTO T207. WHERE BEDROCK WAS ENCOUNTERED, THE BORINGS WERE ADVANCED AND THE ROCK WAS SAMPLED USING A TYPE NQ SERIES CORE BARREL, WATER METHOD.

EXPLORATION FINDINGS

THE TEST BORING DISCLOSED NATIVE COHESIVE AND GRANULAR SOIL DEPOSITS BELOW THE SURFICIAL MATERIAL. THE COHESIVE DEPOSITS CONSISTED MAINLY OF MEDIUM STIFF TO VERY STIFF SILT AND CLAY (A-6A), MEDIUM STIFF CLAY (A-6B), AND MEDIUM STIFF TO HARD SANDY SILT (A-4A), WHILE THE GRANULAR SOIL DEPOSITS CONSISTED MAINLY OF LOOSE TO DENSE COARSE AND FINE SAND (A-3A) AND MEDIUM DENSE SAND (A-3). BORING B-26 ENCOUNTERED A RELATIVELY THIN SOFT SILT AND CLAY (A-6A) LAYER (APPROXIMATELY 2-FOOT THICK) ABOVE THE SANDSTONE. THE NATIVE SOIL DEPOSITS WERE 3.0 FEET THICK AT THE REAR ABUTMENT AND BETWEEN 16.5 AND 17.5 FEET THICK AT THE FORWARD ABUTMENT. IT SHOULD BE NOTED THAT THE PRESENCE OF ORGANIC MATERIAL WAS NOTED IN BORING B-24, DRILLED AT THE REAR ABUTMENT LOCATION.

AT THE EASTERN SLOPE, THE SOIL WAS RELATIVELY THIN, AND CONSISTED PRIMARILY OF RESIDUAL AND COLLUVIAL SOILS. UNDER THE SOIL, EXPOSED SANDSTONE WAS EVIDENT, BEGINNING APPROXIMATELY AT ELEVATION 645. THE EXPOSED ROCK WAS HIGHLY WEATHERED AND HIGHLY FRACTURED. BANDS OF INTERBEDDED SHALE OR SILTSTONE WERE PRESENT IN THE SANDSTONE SOUTH OF THE PROPOSED STRUCTURE, BELOW APPROXIMATE ELEVATION 638. AREAS OF ISOLATED SEEPAGE WERE EVIDENT IN THIS LAYER SOUTH OF THE PROPOSED STRUCTURE. ADDITIONALLY, SEVERAL HIGH ANGLE FRACTURES WERE NOTED IN THE ROCK FACE, HOWEVER, NO APPRECIABLE LATERAL MOVEMENT OF THE ROCK MASS WAS APPARENT. DRAINAGE CHANNELS HAVE BEEN ESTABLISHED ALONG THE BOTTOM OF THE RAILROAD CUT, WHICH CURRENTLY RUN NEAR THE REAR ABUTMENT LOCATION. THESE DRAINAGE PATHS HAVE DEPOSITED APPROXIMATELY 3 TO 5 FEEL OF SOIL, AS CONFIRMED BY THE BORINGS DRILLED FOR THE REAR ABUTMENT.

IN THE AREA OF THE PROPOSED STRUCTURE, BEDROCK WAS ENCOUNTERED IN ALL THE BORINGS AND WAS CONFIRMED BY CORING BETWEEN 10 AND 20 FEETOF ROCK IN EACH BORING. THE BEDROCK CONSISTED OF MEDIUM HARD TO HARD, SLIGHTLY TO HIGHLY WEATHERED, SLIGHTLY FRACTURED SANDSTONE. A LAYER OF SEVERELY WEATHERED ROCK, RANGING IN THICKNESS BETWEEN 1.5 TO 3 FEET WAS ENCOUNTERED ABOVE THE MORE COMPETENT CORED BEDROCK IN BORINGS B-24, B-25, AND TR-28.

SPECIFICATIONS

THE DRILLING WAS PERFORMED UNDER THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR SUBSURFACE INVESTIGATIONS, DATED SEPTEMBER 1996. THE DRAFTING WAS PERFORMED USING AS MUCH AS POSSIBLE OF THE FORMAT AND STANDARDS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JANUARY 2009.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
Fine Sand	A-3	1	3
Coarse and Fine Sand	A-3a	1	10
Sandy Silt	A-4a	1	3
Silt and Clay	A-6a	4	2
Silty Clay	A-6b	1	0
	TOTAL	8	20
Sandstone	VISUAL		
Weathered Sandstone	VISUAL		
Topsoil	VISUAL		

BORING LOCATION - PLAN VIEW

DRIVE SAMPLE AND/OR CORE BORING LOCATION PLOTTED TO VERTICAL SCALE ONLY

W —— INDICATES FREE WATER ELEVATION

▽—— INDICATES STATIC WATER ELEVATION

WOH INDICATES WEIGHT OF HAMMER

● INDICATES WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT

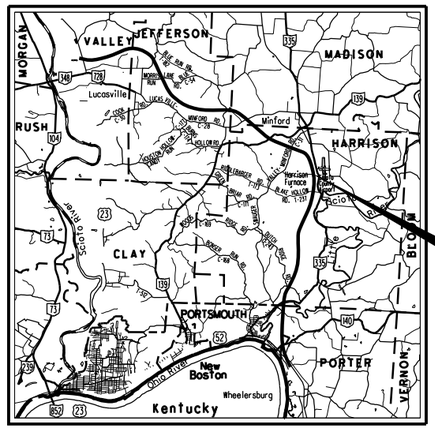
——TR INDICATES THE TOP OF ROCK ELEVATION

X/Y/Z FIGURES BESIDE THE BORING IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X = NUMBER OF BLOWS FOR FIRST 6 INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES

50 (n) INDICATES NUMBER OF BLOWS (50) TO DRIVE A SPLIT-BARREL SAMPLER A DEPTH OF (n) INCHES OTHER THAN THE NORMAL 6 INCH INCREMENT.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.



LOCATION MAP

LATITUDE: N 38°50'25" LONGITUDE: W 82°50'50"

SCALE IN MILES

0 2 4 6 8

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm		0.42 mm		0.074 mm	0.005 mm
Boulders	Cobbles	Gravel	Coarse Sand		Fine Sand		Silt	Clay
		No. 10 SIEVE		No. 40 SIEVE		No. 200 SIEVE		

RECON. - AMJ & SJR 08/04 to 01/07

DRILLING - DW 08/18 TO 08/19/04 & 01/17 TO 01/30/07

DRAWN - RLS & AMJ 3/09 TO 9/09

MODIFIED- HDR: CLW 06/22/11

REVIEWED - AEN 5/11/09
HDR: DMV 6/23/11

DLZ
1670 HAYDEN ROAD • COLUMBUS, OHIO 43229

PID NO. 19415

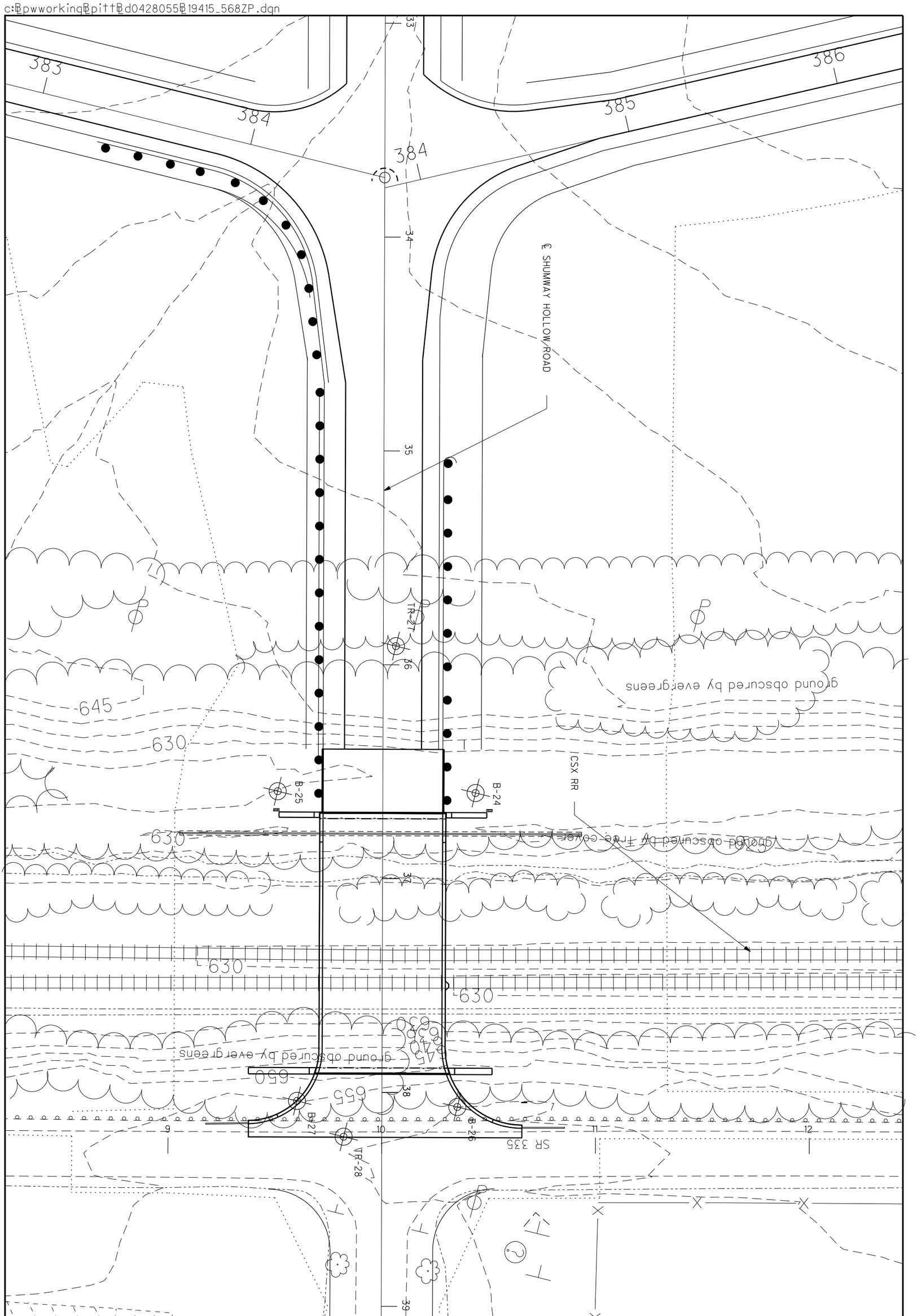
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-TR234-0122
SHUMWAY HOLLOW ROAD OVER CSX RR

SCI-823-6.81

1 / 6

6/23/2011
9:17:57 AM
c:\bpw\working\pitt\pid042805\pid19415_5682c.dgn

c:\pwworking\pitt\d0428055\i19415_568ZP.dgn



2/6	SCI-823-6.81	STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. SCI-TR234-0122 SHUMWAY HOLLOW ROAD OVER CSX RR	CALCULATED CHECKED	0 HORIZONTAL SCALE IN FEET

PROPOSED PROFILE

EXISTING SURFACE

B-26
35.3' Lt.
Topsoil-8"
WOH/5/7
1/4/5 20
4/7/7 17
45/37/28
5/6/6 10
7/3/3 W
WØH/6/9 34
TR

TR-27
5.9' Lt.
Topsoil-5"
7/10/13
8/13/13
4/10/50
TR

B-24
43.4' Lt.
Topsoil-7"
WOH/1/1 31
9/50(3) TR

B-27
39.7' Rt.
Topsoil-5"
1/5/7 17
4/2/3
5/3/3 14
3/3/4 W
3/5/3 33
5/4/3 W
50(3) TR

B-25
49.2' Rt.
Topsoil-6"
1/1/2 31
50(2) TR

TR-28
17.83' Rt.
Asphalt Concrete Pavement-8"
4/8/8
5/5/7
8/8/7
6/4/2
3/5/4
1/4/4 W
50(2) TR
W

720 700 680 660 640 620 600 580 560 540

33 34 35 36 37 38

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-TR234-0122
SHUMWAY HOLLOW ROAD OVER CSX RR

DRAWN | CHECKED

SCI-823-6.81

3 / 6

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-27 | Location: Sta. 35+91.3, 5.9 ft. LT of Rel. TR234 CL | Date Drilled: 8/25/04

WATER OBSERVATIONS: Water seepage at: None; Water level at completion: None (boring collapsed @ 6.0')

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL — LL; Blows per foot 10 20 30 40
0	646.3													
0.4	645.9						Topsoil - 5"							
		7 10 13	18	1		4.5+	Hard brown SANDY SILT (A-4a), trace clay, trace to little gravel; damp.							
		8 13 13	18	2		4.5+								
5		4 10 50	16	3		4.5+	@ 6.0'-7.5', contains sandstone fragments.							
7.5	638.8						Medium hard to hard brown and gray SANDSTONE; very fine to fine grained, slightly to highly weathered, argillaceous, micaceous, massive, slightly fractured. @ 7.5'-10.0', rust stained. @ 7.8',8.9', 15.6', low angle fractures.							
10		Core 120"	Rec 120"	ROD 98%	R-1									
15							@ 14.9'-15.2', high angle fracture.							
17.5	628.8						Bottom of Boring - 17.5'							
20														
25														
30														

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-24 | Location: Sta. 36+59.8, 43.4 ft. LT of Rel. TR234 CL | Date Drilled: 1/17/07

WATER OBSERVATIONS: Water seepage at: None; Water level at completion: None (prior to coring) 6.6' (inside hollowstem augers, includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL — LL; Blows per foot 10 20 30 40
0	625.9													
0.6	625.3						Topsoil - 7"							
		WOH 1 1	18	1		1.0	Medium stiff to stiff brown SILT AND CLAY (A-6a), trace fine to coarse sand; contains organic material; moist.	0	1	--	1	65	33	
3.0	622.9						Severely weathered gray SANDSTONE, argillaceous, micaceous.							
		50/3 5		2										50/4
5.0	620.9						Hard gray SANDSTONE; fine grained, slightly weathered, argillaceous, micaceous, thinly laminated, slightly fractured. @ 5.2', 5.4', 6.9', 7.9', 11.3', 12.3', 12.6', 13.8', low angle clay filled fractures.							
10		Core 120"	Rec 120"	ROD 90%	R1		@ 10.0'-10.5', qu = 9,952 psi.							
15.0	610.9						Bottom of Boring - 15.0'							
20														
25														
30														

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-TR234-0122
SHUMWAY HOLLOW ROAD OVER CSX RR

SCI-823-6.81

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No.0121-3070.03

LOG OF: Boring B-25 | Location: Sta. 36+59.3, 49.2 ft. RT of Rel. TR234 CL | Date Drilled: 1/17/07

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	WATER OBSERVATIONS: Water seepage at: None. Water level at completion: None (prior to coring) 5.5' (inside hollowstem augers, includes drilling water) DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL LL Blows per foot
0	625.0													
0.5	624.5	1 1 2	18	1		1.25	Topsoil - 6" Stiff brown SILT AND CLAY (A-6a), trace fine sand, trace gravel; moist.	2	0	--	2	53	43	
3.0	622.0	50/2"	1	2			Severely weathered gray SANDSTONE, argillaceous, micaceous.							
4.5	620.5						Hard gray SANDSTONE interbedded with SILTSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thinly laminated, slightly fractured. @ 4.5'-5.0', 6.2'-7.0', broken zones.							
5														
10		Core 120"	Rec 120"	ROD 85%	R1		@ 10.5'-11.0', qu = 10,295 psi. @ 11.6', 11.7', 13.5', low angle clay filled fractures.							
14.5	610.5						Bottom of Boring - 14.5'							
15														
20														
25														
30														

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No.0121-3070.03

LOG OF: Boring B-26 | Location: Sta. 38+06.7, 35.3 ft. LT of Rel. TR234 CL | Date Drilled: 01/30/07

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	WATER OBSERVATIONS: Water seepage at: 13.5'-15.0'. Water level at completion: 36.1' (prior to coring) 18.3' (inside hollowstem augers, includes drilling water) DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - PL LL Blows per foot
0	660.2													
0.7	659.5	WOH 5 7	3	1		1.25	Topsoil - 8" Medium stiff to stiff brown SILT AND CLAY (A-6a), some fine to coarse sand, trace gravel; damp to moist.							
5		1 4 5	18	2		0.75		3	3	--	32	30	32	
5.5	654.7	4 7 7	18	3			Medium dense brown FINE SAND (A-3), trace coarse sand, trace silty clay; damp.							
10		45 37 28	18	4			@ 8.5'-10.0', very dense.							
		5 6 6	18	5				0	7	--	87		6	Non-Plastic
15		7 3 3	12	6			@ 13.5', loose, wet.							
15.5	644.7	WOH 6 9	18	7		0.5	Soft to medium stiff brown SILT AND CLAY (A-6a), trace fine sand; moist to wet.	0	0	--	1	56	43	
17.5	642.7						Hard gray SANDSTONE; medium grained, unweathered to slightly weathered, micaceous, thinly bedded, slightly fractured.							
20		Core 120"	Rec 120"	ROD 100%	R1		@ 22.5'-23.0', qu = 10,454 psi, Er = 2,484,015 psi.							
25							@ 27.8'-27.9', broken zone.							
30	630.2	Core 120"	Rec 120"	ROD 95%	R2		@ 32.0'-32.5', qu = 12,453 psi.							
35														
37.5	622.7						Bottom of Boring - 37.5'							
40														
45														
50														
55														
60														

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-TR234-0122
SHUMWAY HOLLOW ROAD OVER CSX RR

SCI-823-6.81

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring B-27 | Location: Sta. 38+04.1, 39.7 ft. RT of TR234 CL | Date Drilled: 01/29/07 to 01/30/07

Hand Penetrometer (tsf)

WATER OBSERVATIONS: Water seepage at: 8.5'-11.6', 13.0'-15.5'
Water level at completion: 4.4' (prior to coring)
35.8' (inside hollowstem augers, includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	656.8												
0.4	656.4						Topsoil - 5"						
		1 5 7	18	1		1.75	Stiff brown SANDY SILT (A-4a), some clay, trace gravel; moist.	1	4	--	33	36	26
3.0	653.8												
		4 2 3	18	2			Loose brown COARSE AND FINE SAND (A-3a), trace to little clay, trace silt; damp.						
5		5 3 3	18	3				0	7	--	80	13	
		3 3 4	18	4			@ 8.5'-10.0', wet.						
10													
11.6	645.2	3 5 3	18	5A 5B		0.75	Medium stiff brown SILTY CLAY (A-6b), trace fine to coarse sand; moist.	0	1	--	1	52	46
13.0	643.8						Loose brown COARSE AND FINE SAND (A-3a), trace clay; wet.						
		5 4 3	18	6									
15							@ 16.0', contains rock fragments.						
16.5	640.3	50/3	3	7			Hard gray SANDSTONE; medium grained, unweathered to slightly weathered, micaceous, thinly bedded, slightly fractured.						
							@ 16.5'-18.5', broken zone.						
		Core 120"	Rec 119"	ROD 80%	R1		@ 17.1'-17.5', lost recovery.						
20													
							@ 21.5'-22.0', qu = 13,148 psi, Er = 2,674,792 psi.						
25													
30		Core 120"	Rec 120"	ROD 100%	R2		Hard gray SANDSTONE; medium grained, unweathered to slightly weathered, micaceous, thinly bedded, slightly fractured.						
							@ 32.0'-32.5', qu = 12,949 psi.						
35													
36.5	620.3						@ 33.7', calcareous.						
							Bottom of Boring - 36.5'						
40													
45													
50													
55													
60													

GRADATION

STANDARD PENETRATION (N)
Natural Moisture Content, % -
PL ---- LL
Blows per foot
10 20 30 40

Non-Plastic

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-28 | Location: Sta. 38+20.7, 17.8 ft. RT of Rel. TR234 CL | Date Drilled: 02/02/05

Hand Penetrometer (tsf)

WATER OBSERVATIONS: Water seepage at: 14.0', 18.5'
Water level at completion: 10.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	659.7												
0.7	659.0						Asphalt Concrete Pavement - 8"						
		4 8 8	16	1		4.0	Very stiff to hard brown SILT AND CLAY (A-6a), trace fine to coarse sand; damp.						
3.0	656.7												
		5 5 7	15	2			Medium dense reddish brown COARSE AND FINE SAND (A-3a); moist. (residual soil)						
5		8 8 7	18	3									
		6 4 2	18	4									
10													
		3 5 4	14	5									
		1 4 4	13	6									
15													
15.5	644.2	50/2	2	7			Severely weathered gray SANDSTONE argillaceous.						
18.5	641.2						Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, massively bedded, slightly fractured.						
		Core 60"	Rec 30"	ROD 12%	R-1		@ 18.5'-24.0', broken.						
20													
25													
		Core 84"	Rec 84"	ROD 100%	R-2								
30													
30.5	629.2						Bottom of Boring - 30.5'						
35													
40													
45													
50													
55													
60													

GRADATION

STANDARD PENETRATION (N)
Natural Moisture Content, % -
PL ---- LL
Blows per foot
10 20 30 40

DRAWN | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-TR234-0122
SHUMWAY HOLLOW ROAD OVER CSX RR

SCI-823-6.81

6 / 6