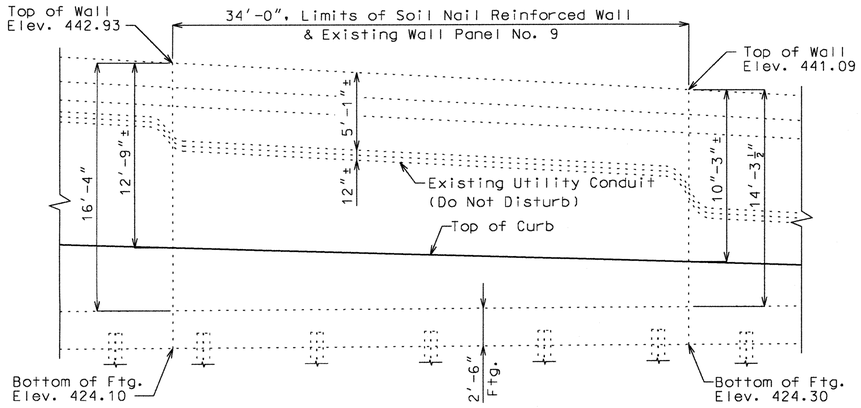
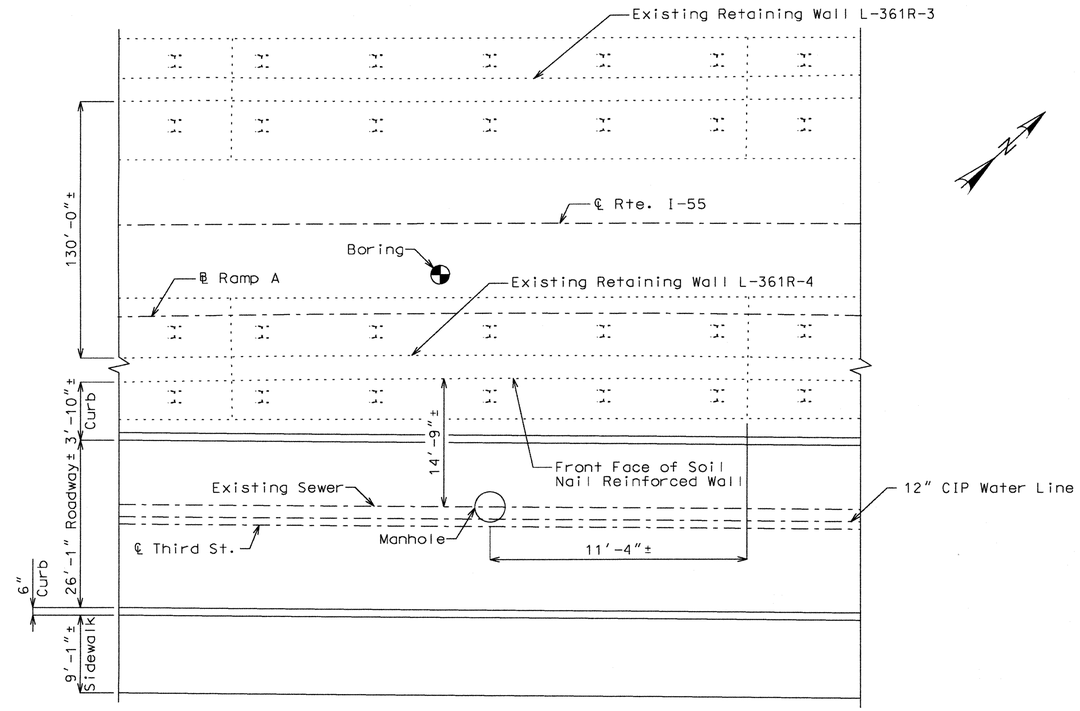
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUR 00 TWP 45N RGE 7E

U.I.P. PILE SUPPORTED CANTILEVER RETAINING WALL AND REINFORCE WITH SOIL NAIL SYSTEM



PART DEVELOPED ELEVATION



PART PLAN

GENERAL NOTES:

Design Specifications:
2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category B
Acceleration Coefficient = 0.10

FHWA Geotechnical Engineering Circular No. 7, "Soil Nail Walls".
FHWA DP 103 "Manual for the Design and Construction Monitoring of Soil Nail Walls."

Design Loading:
HS20-44 (Modified)
Military 24,000# Tandem Axle

ϕ = 35° for retained insitu materials to be retained by the soil nail wall.
ϕ = 28° for the insitu foundation material.

Traffic Control:
Interstate 55 and all Ramps shall remain open during construction. Third St. shall be closed in accordance with the Traffic Control Plans.

Miscellaneous:
Soil Nail Wall System shall be designed for double corrosion protection.

Provide a minimum of one ultimate test on sacrificial nails prior to construction to establish design parameters.

Perform verification on sacrificial test nails (See Special Provisions).

Existing C.I.P. wall to remain in place.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

Soil reinforcement shall be designed and placed to avoid damage to any existing adjacent wall panels, footings, and utilities.

Actual beginning and end of Soil Nail Wall shall coincide with existing wall panel No. 9. See existing plans.

Elevations shown are based on existing plans. Contractor shall verify.

For Typical Secton Thru Wall, Location Sketch, and Estimated Quantities, see Sheet 2.

Any excavation or removal of improvements along Third St. necessary for the installation of the soil nail wall system shall be repaired by the contractor to the satisfaction of the Engineer.

"⊕" Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the bridge plan sheet(s) for this structure. Boring data for the numbered locations is shown on Sheet No. 3. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, is available from the Project Contact upon written request as outlined in the Project Special Provisions. No greater significance or weight should be given to the boring data depicted on the plan sheets than is subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

REPAIRS TO WALL ALONG EAST SIDE OF INTERSTATE 55 RAMP A TO POPLAR STREET BRIDGE

I-55 FROM I-44 TO I-64
ABOUT 1 MILE NORTH OF I-44
STA. 792+46.63

Designed: KAK
Detailed: KAK
Checked: TPL

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
THOMAS P. LOHMAN
NUMBER
PE-2001018771
PROFESSIONAL ENGINEER

10-17-2012

DATE PREPARED	10/17/2012
ROUTE	I-55
STATE	MO
DISTRICT	BR
SHEET NO.	
COUNTY	ST. LOUIS CITY
JOB NO.	J6P2354
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	L-361R-4

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
MoDOT
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HORNER & SHIFRIN, INC.
ENGINEERS
5200 Oakland Ave. St. Louis, MO 63110-1498
314-531-4321 FAX 314-531-6966
www.HornerShifrin.com
Discipline: Professional Engineering
Certificate of Authority: 000159
Expiration Date: December 31, 2012

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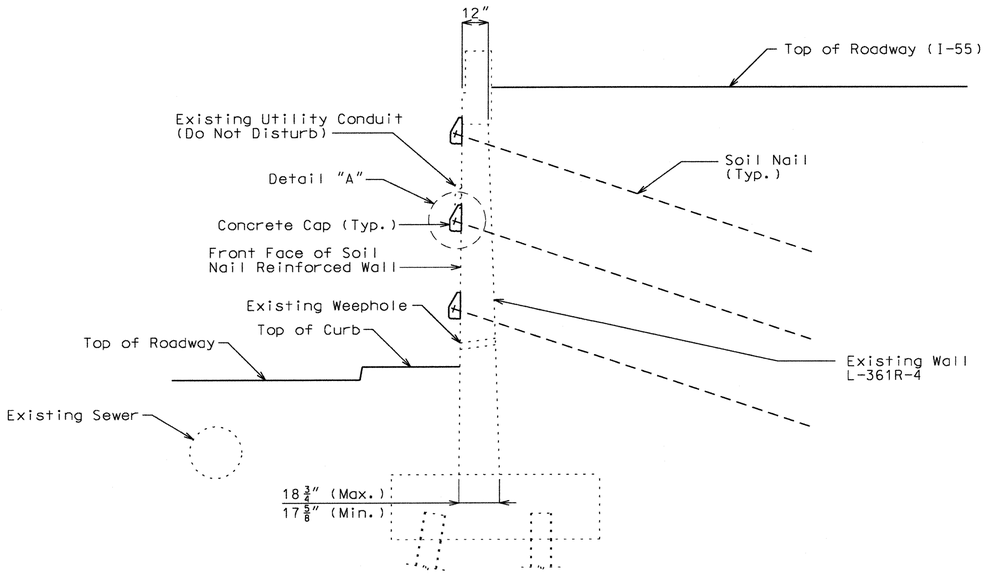


TYPICAL SECTION THRU WALL

Note:

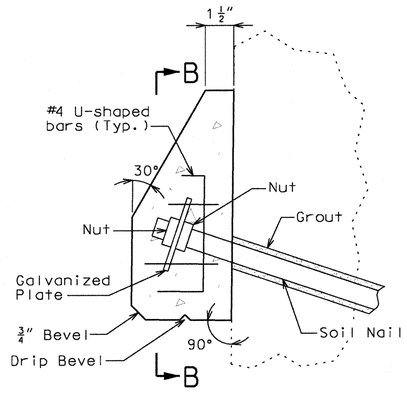
For additional information on Soil Nail Wall System and Test Nails, see Special Provisions.

Payment for Concrete Caps will be considered completely covered by the contract unit price for Soil Nail Wall System.

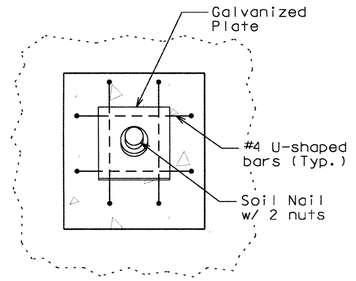
Dimensions of Concrete Cap not shown shall be determined by contractor. See Special Provisions.

Concrete shall be Class B.

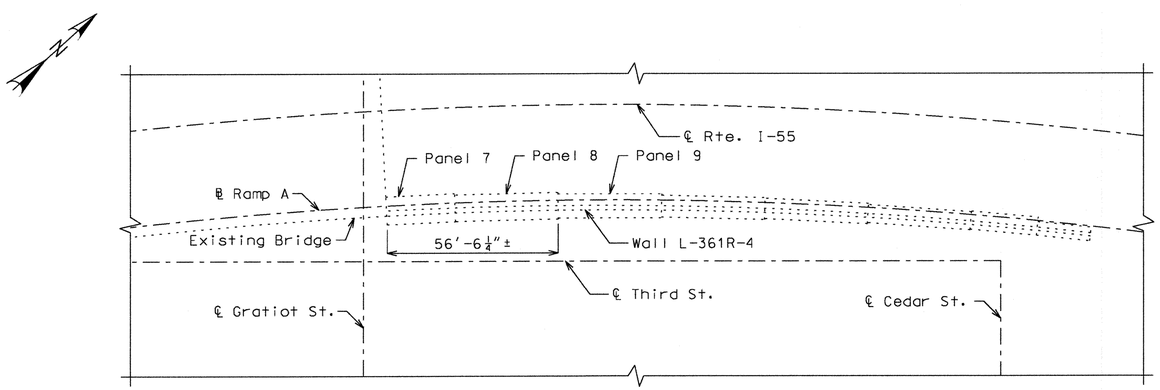
Reinforcing steel shall be Grade 60.



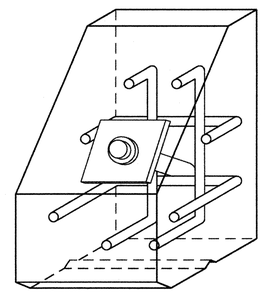
DETAIL A



SECTION B-B



LOCATION SKETCH



ISOMETRIC OF CONCRETE CAP

Estimated Quantities for Soil Nail Wall		
Item		Quantity
Soil Nail Wall System	lump sum	1

Designed: KAK
Detailed: KAK
Checked: TPL

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 3

STATE OF MISSOURI
THOMAS P. LOWMAN
NUMBER
PE-2001016771
PROFESSIONAL ENGINEER

10-17-2012

DATE PREPARED	
10/17/2012	
ROUTE	STATE
I-55	MO
DISTRICT	SHEET NO.
BR	
COUNTY	
ST. LOUIS CITY	
JOB NO.	
J6P2354	
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PROJECT NO.	
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L-361R-4	

DATE	DESCRIPTION

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MoDOT

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Form T-737-1RMO
Rev. 05/01

MISSOURI DEPARTMENT OF TRANSPORTATION
Construction and Materials

BORING DATA (CORE & SPT)

Sheet 1 of 1

Job No.:	R35G			**Design:**	--
County:	St. Louis City	**Route:**	I-55	**Skew:**	--
Over:	Failed Retaining Wall			**Operator:**	Barnett
Logged by:	Stevens			**Drillers Hole No.:**	T-09-36
Equipment:	CME 45, 3" Shelby Tube, Split Spoon Sampler			**Date of Work:**	5/11-12/2009
Hole Stab. by:	Hollow Stem Augers			**Drill No.:**	G-7965
Automatic Hammer Efficiency:	80 %				

Bent	Station	Location	Surface Elevation, ft.
	908592.5E	1014115.5N	

TEST DATA

Depth, ft.	SPT Blows/6"	N_{60}	Pocket Pen., tsf	Torvane, tsf
3.0	--	--	1.25	0.78
5.0	--	--	0.75	0.37
5.5	33-5-4	12	0.75	--
7.2	11-5-2	9	0	--
9.5	9-3-6	12	2.75	--
13.0	--	--	2.00	0.55
13.8	38 in 4½"	50	Gravel	--
14.8	--	--	1.75	--
15.0	24-4-3	9	Gravel	--
17.5	--	--	0	0
20.0	--	--	1.25	0.30
23.0	--	--	0.75	0.25
26.0	--	--	1.50	0.17
29.0	--	--	1.25	0.40
31.5	--	--	1.50	0.38
33.0	--	--	1.75	0.37

LOG OF MATERIALS*

0.0-1.2'	Concrete and base material.
1.2-16.9'	Tannish-gray, yellow, and brown lean clay to non-plastic silt, with brick and asphalt rubble, moist, medium stiff to stiff, moist, (fill material).
16.9-28.5'	Tannish-gray and yellow non-plastic silt, wet, very soft to stiff.
28.5-29.5'	Dark gray and tan interlaminated micaceous silt, moist, stiff.
29.5-34.5'	Dark gray non-plastic silt, moist to wet, stiff.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Depth, ft.	Qu/2, psf	P.P., tsf
5.0	1152	0.75
17.5	288	0

SOIL CLASSIFICATION TEST DATA

Depth, ft.	LL	PI	ASTM Class.
3.0	46	27	CL
5.0	15	0	NP
9.5	16	0	NP
13.0	41	22	CL
17.5	17	0	NP
23.0	12	0	NP
31.5	17	0	NP

SHEAR TEST DATA
DRAINED DIRECT SHEAR TEST

Depth, ft.	Ø'°	c', psf
13.0	35.4	306.8
	(37.5)	(0)
23.0	34.0	100.6
	(34.8)	(0)
31.5	27.9	190.2
	(29.5)	(0)

CORING LOG (NX Double Tube Barrel)

From	To	Run	Rec	Loss	% RQD	Notes

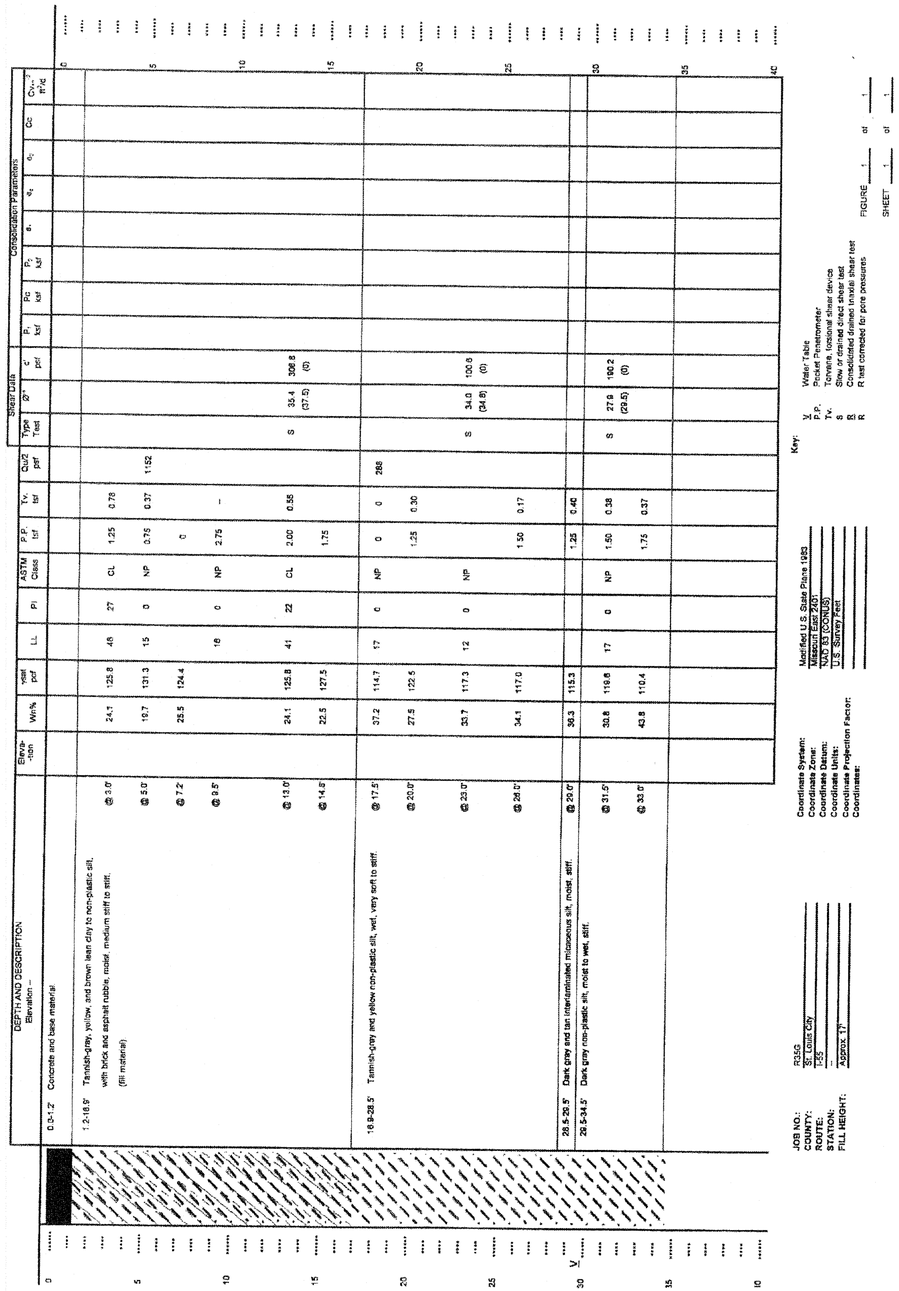
WATER TABLE OBSERVATIONS

Date	Time Change	Depth Hole Open	Depth To Water
5/12/2009	During Drilling	--	29.5'

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East 2401
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet **Coordinate Projection Factor:**

N_{60} - Corrected N value for standard 60% SPT efficiency.
$N_{60} = (Em/60)Nm$ Em - Measured transfer efficiency in percent.
Nm - Observed N-value.

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgment of the operator.
THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



BORING DATA

Note: For locations of boring, see Sheet No. 1.

Designed: KAK
Detailed: KAK
Checked: TPL

Note: This drawing is not to scale. Follow dimensions.

...\Boring Logs.dgn 11:36:40 AM 10/17/2012

STATE OF MISSOURI
THOMAS P. LOMAX
NUMBER PE-2007018771
PROFESSIONAL ENGINEER
10-17-2012

DATE PREPARED 10/17/2012
ROUTE I-55 | STATE MO
DISTRICT BR | SHEET NO.
COUNTY ST. LOUIS CITY
JOB NO. J6P2354
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BRIDGE NO. L-361R-4

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Missouri Certificate of Authority 000595
Expiration Date: December 31, 2012