



CONSTRUCTION LEADERS

LETTER OF TRANSMITTAL	
DATE: <b>April 15, 2015</b>	PCL JOB NO: <b>5515002</b>
ATTN: <b>Chris Barker</b>	TRANSMITTAL NO: <b>058</b>

To: **State of Vermont Agency of Transportation**  
One National Life Drive

(802) 828-0053

Re: Hartford Lateral Slide  
Project No.: IM 091-2(79)  
Contract ID.: 12A132

County: Windsor

PCL FILE NO: 5515002-39

WE ARE SENDING  Attached  Under separate cover via Email & SP the following:

Shop drawings  Prints  Plans  Samples  Specifications

Copy of Letter  Change Order  Other

COPIES	SPEC.	REVISION	DESCRIPTION
1	204.01.b		Abutment SOE Walls

TRANSMITTED for as checked below:

For approval  Approved as submitted  Resubmit 1 Copies for approval

For your use  Approved as noted  Submit  Copies for distribution

As requested  Returned for corrections  Return  Corrected prints

For review and comment

**Remarks:**

The included SOE wall design is to be used at each of the (4) abutments.

Please return an email of this approved submittal to Erich Heymann ([ewheymann@pcl.com](mailto:ewheymann@pcl.com)) and Jeremy Mackling ([jmackling@pcl.com](mailto:jmackling@pcl.com)).

We request the review and return of this submittal within **2 days**. Installation of these SOE wpalls will be taking place 4/20/2015. Please advise if this request cannot be met so we can plan accordingly.

By: **Erich Heymann**, Project Engineer

COPY TO: Project Files



**CONSTRUCTION LEADERS**

**SUBMITTAL NO. : 39  
Abutment SOE Walls**

<b>Item No.</b>	<b>Specification</b>	<b>Description</b>
1	204.01.b	Abutment SOE Walls

***PROJECT:***  
**HARTFORD LATERAL SLIDE**  
**PROJECT NO.: IM 091-2(79)**  
**CONTRACT ID.: 12A132**

***OWNER:***  
**STATE OF VERMONT AGENCY OF TRANSPORTATION**

***ENGINEER OF RECORD:***  
**STATE OF VERMONT AGENCY OF TRANSPORTATION**

***CONTRACTOR:***  
**PCL CIVIL CONSTRUCTORS, INC.**

**APRIL 15, 2015**



Vermont Agency of Transportation  
I-91  
Windsor County  
Project Number: IM 091-2(79)

Hartford Lateral Slide

Calculations for Temporary Structures including:

Abutment SOE Walls

Submitted By,

Tim Davis, P.E.  
VT P.E. 97183

André Tousignant, P.E.  
VT P.E. # 100162



Apr 15 2015 2:12 PM



April 15, 2015

PCL Civil Constructors Inc.

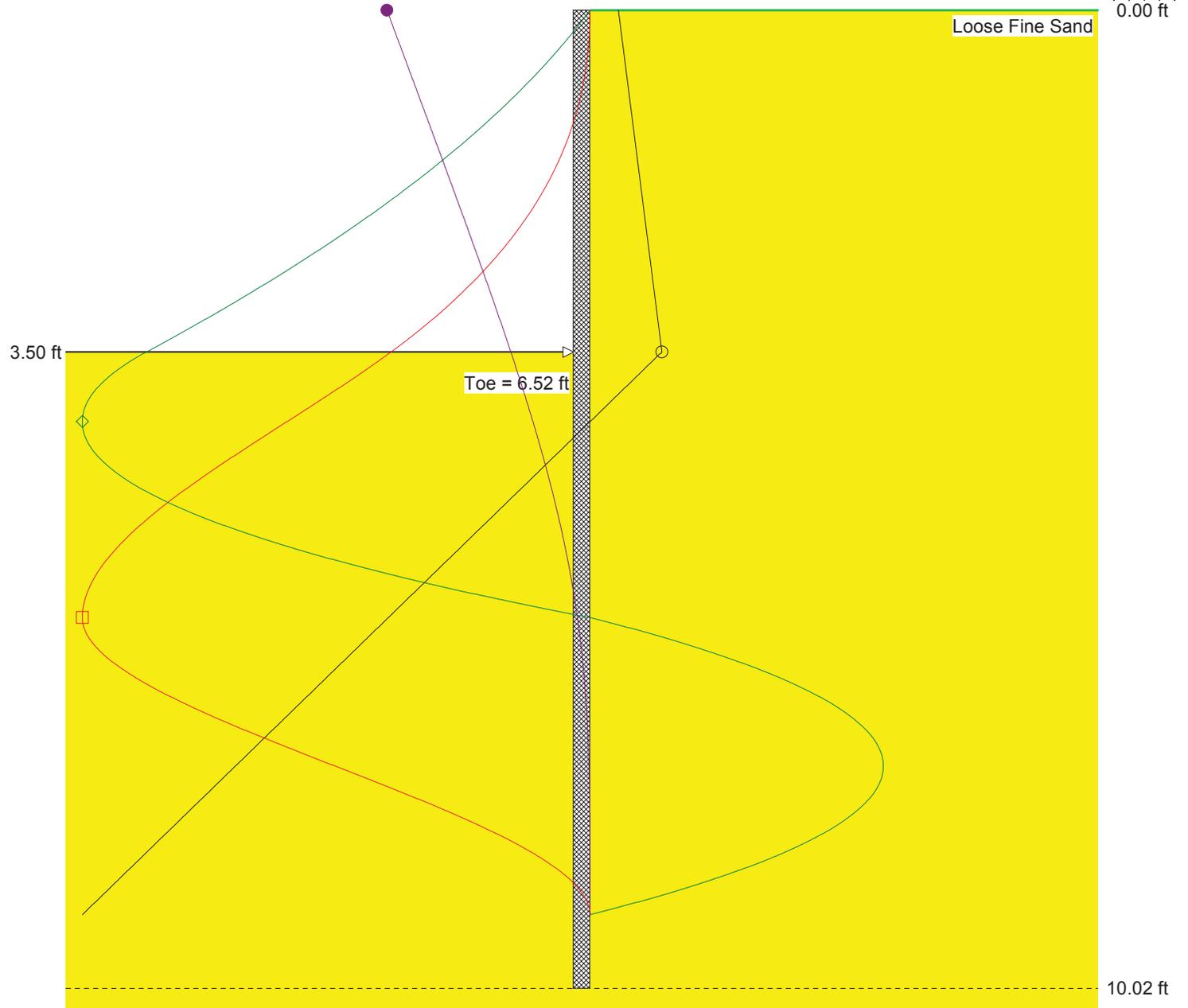
3810 Northdale Blvd. Suite 200  
Tampa, Florida 33624  
813-264-9500

Sheet: 1" plate  
Works: Temporary  
Pressure: Rankine  
Analysis: Net Pressure  
FOS: 1.01 ( $K_a \times 1.2$ )  
Toe: Cantilever

Max Cantilever Street Plate = 3.5' cut with 6.5'  
toe

249.9 psf  
0.00 ft

	Maximum	d (ft)
○	208.6 psf	3.50
□	1941.9 ftlb/ft	6.22
◇	584.3 lb/ft	4.21
●	2.5 in	0.00



# PCL Civil Constructors

SupportIT, v2.34

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Tel/Fax: +44 (0)1292 477754  
Email: GTSOFT@aol.com  
Web: www.GTSOFT.org

Page: 2  
Date: 4.15.15

Sheet: 1" plate  
Works: Temporary  
Pressure: Rankine  
Analysis: Net Pressure  
FOS: 1.01 ( $K_a \times 1.2$ )  
Toe: Cantilever

### Input Data

Depth Of Excavation = 3.50ft  
Surcharge = 249.9psf

Depth Of Active Water = 20.00ft  
Depth Of Passive Water = 20.00ft

HLS Wingwall SOE Rev 0  
Water Density = 62.4pcf  
Minimum Fluid Density = 31.82pcf

### Soil Profile

Depth (ft)	Soil Name	$\gamma$ (pcf)	$\gamma'$ (pcf)	C (psf)	$C_a$ (psf)	$\phi$ (°)	$\delta$ (°)	$K_a$	$K_{ac}$	$K_p$	$K_{pc}$
0.00	Loose Fine Sand	109.20	65.55	0.0	0.0	30.0	0.0	0.33 (0.40)	0.00 (0.00)	3.00	0.00

( ) indicates factored value used in embedment calculation. Factor(s):  $K_a \times 1.2$

### Solution

#### Sheet

Sheet Name	E (psi)	I (in <sup>4</sup> /ft)	f (psi)	Z (in <sup>3</sup> /ft)	Allowed $M_{max}$ (ftlb/ft)	b (in)	A (in <sup>2</sup> /ft)	W (lb/ft)	Upstand (ft)	Toe (ft)	Length (ft)
1" plate	3.04E+07	1.00	25000.0	2.00	4166.7	12.00	12.00	41.0	0.00	6.52	10.02

#### Maxima

	Maximum	Depth (ft)
Pressure	208.6 psf	3.50
Bending Moment	1941.9 ftlb/ft	6.22
Deflection	2.5 in	0.00
Shear Force	584.3 lb/ft	4.21



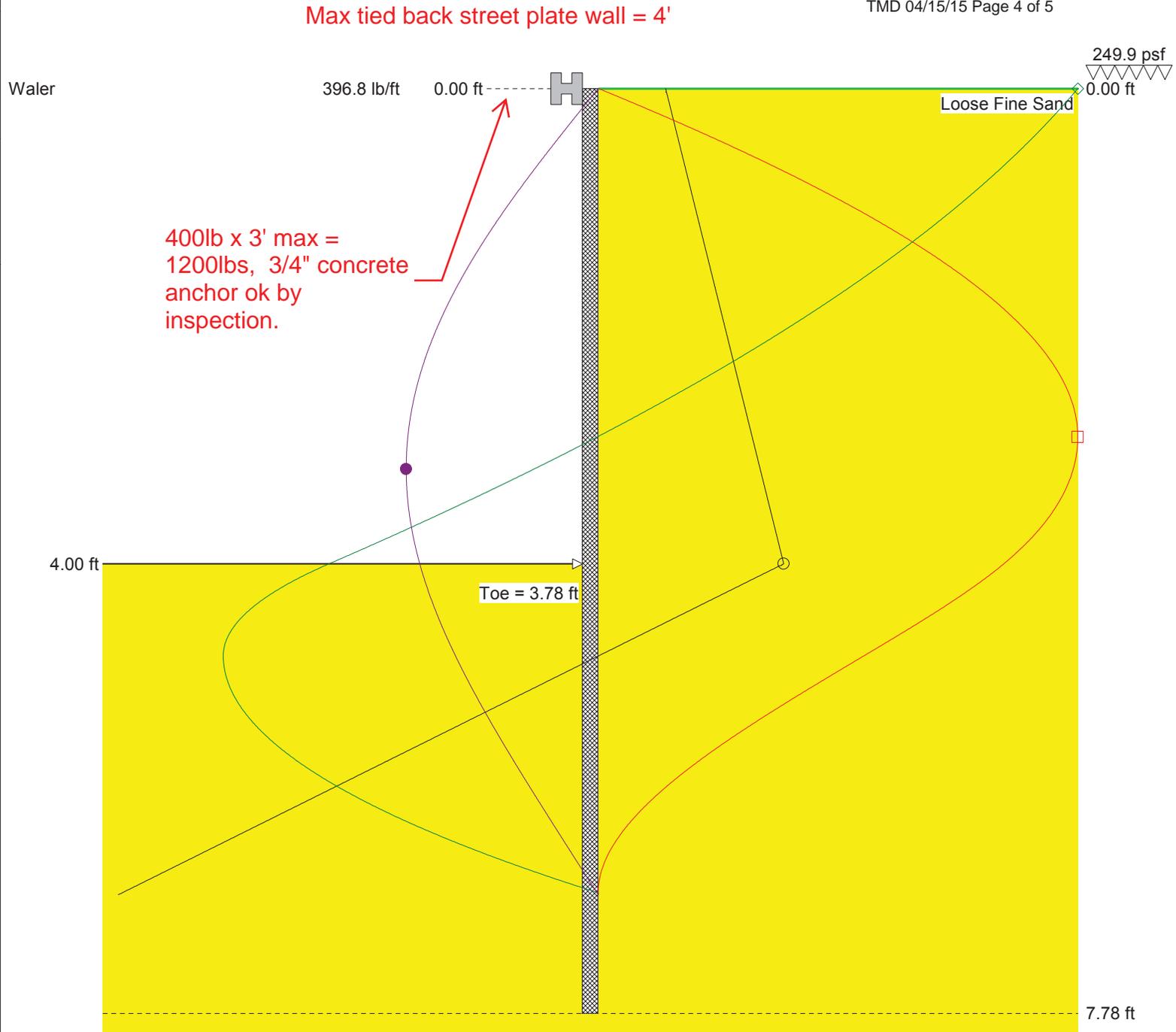
# PCL Civil Constructors

SupportIT, v2.34

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Tel/Fax: +44 (0)1292 477754  
Email: GTSOFTLtd@aol.com  
Web: www.GTSOFT.org

Sheet: 1" plate  
Works: Temporary  
Pressure: Rankine  
Analysis: Net Pressure  
FOS: 2.01 ( $K_p \div 1.5$ )  
Toe: Free Earth Support

	Maximum	d (ft)
○	226.6 psf	4.00
□	657.6 ftlb/ft	2.93
◇	396.3 lb/ft	0.00
●	0.2 in	3.20



Sheet: 1" plate  
Works: Temporary  
Pressure: Rankine  
Analysis: Net Pressure  
FOS: 2.01 ( $K_p \div 1.5$ )  
Toe: Free Earth Support

**Input Data**

Depth Of Excavation = 4.00ft  
Surcharge = 249.9psf

Depth Of Active Water = 20.00ft  
Depth Of Passive Water = 20.00ft

HLS Wingwall SOE Rev 0  
Water Density = 62.4pcf  
Minimum Fluid Density = 31.82pcf

**Soil Profile**

Depth (ft)	Soil Name	$\gamma$ (pcf)	$\gamma'$ (pcf)	C (psf)	$C_a$ (psf)	$\phi$ (°)	$\delta$ (°)	$K_a$	$K_{ac}$	$K_p$	$K_{pc}$
0.00	Loose Fine Sand	109.20	65.55	0.0	0.0	30.0	0.0	0.33	0.00	3.00 (2.00)	0.00 (0.00)

( ) indicates factored value used in embedment calculation. Factor(s):  $K_p \div 1.5$

**Solution**

**Sheet**

Sheet Name	E (psi)	I (in <sup>4</sup> /ft)	f (psi)	Z (in <sup>3</sup> /ft)	Allowed $M_{max}$ (ftlb/ft)	b (in)	A (in <sup>2</sup> /ft)	W (lb/ft)	Upstand (ft)	Toe (ft)	Length (ft)
1" plate	3.04E+07	1.00	25000.0	2.00	4166.7	12.00	12.00	41.0	0.00	3.78	7.78

Load Model: Area Distribution

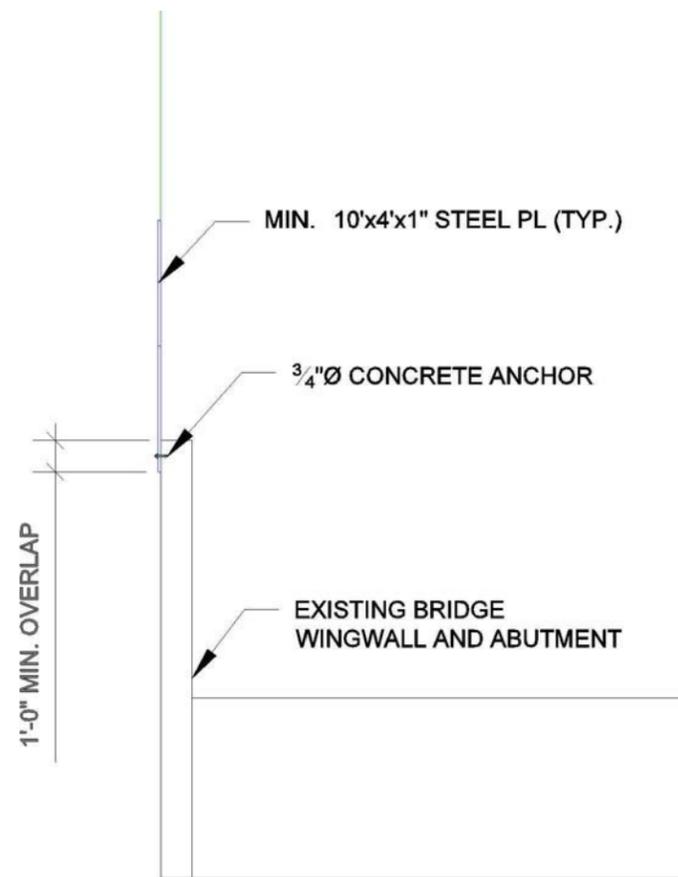
**Supports**

d (ft)	Type	Load (lb/ft)
0.00	Waler	396.8

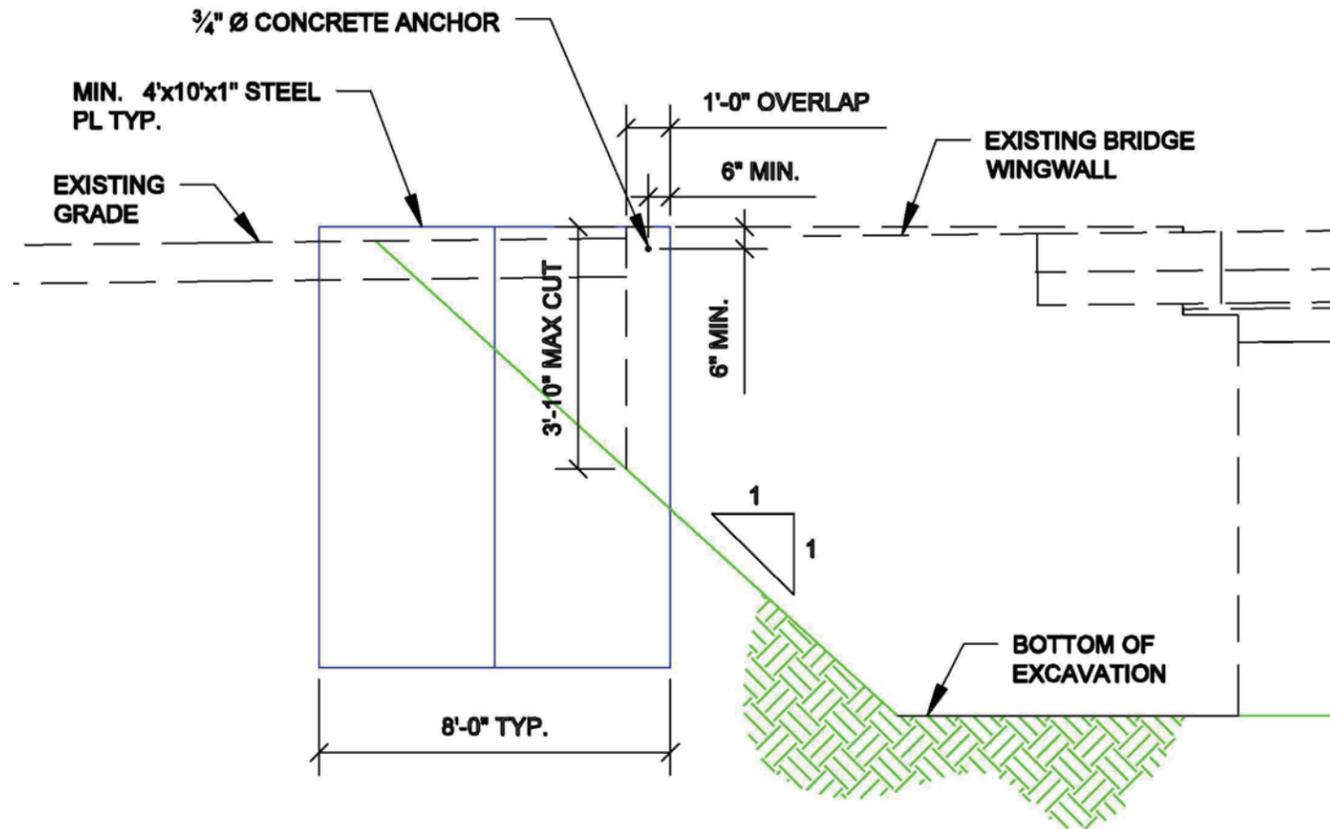
**Maxima**

	Maximum	Depth (ft)
Pressure	226.6 psf	4.00
Bending Moment	657.6 ftlb/ft	2.93
Deflection	0.2 in	3.20
Shear Force	396.3 lb/ft	0.00





**PLAN - TYPICAL ABUTMENT WINGWALL SOE**



**ELEVATION - TYPICAL ABUTMENT WINGWALL SOE**

**GENERAL NOTES**

DRAWINGS SHALL NOT BE SCALED

**MATERIAL PROPERTIES**

- PLATE - GR. 36, Fy = 36 KSI MIN.

Revision No. & Date		Vermont Agency of Transportation			Drawing Status	Name	Date	PCL Civil Constructors, Inc.	
					Apr 15 2015 2:12 PM			3810 Northdale Blvd. Suite 200, Tampa Florida 33624 (813)-264-9500 ; Fax: (813)-264-6689	
Road No.	County / City	Financial Project ID No.			FOR CONSTRUCTION	Drawn By	04/15/15	PCL Project / Job No.	
I-91	Hartford	IM 091-2(79)				Design By	TMD	04/14/15	I-91 Hartford / 5515002
					Check By	TMD	04/15/15	Drawing Title	
								TYP. ABUTMENT SOE WALL	
								Sheet No.	
								01	