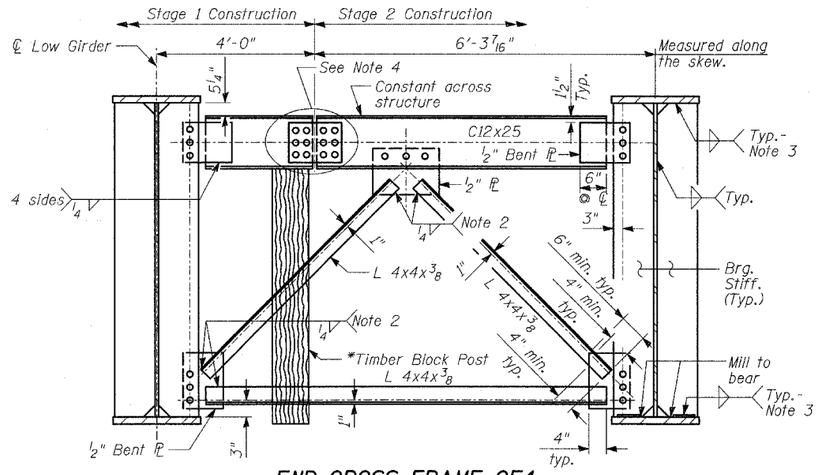
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	201
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-32
S-66- SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

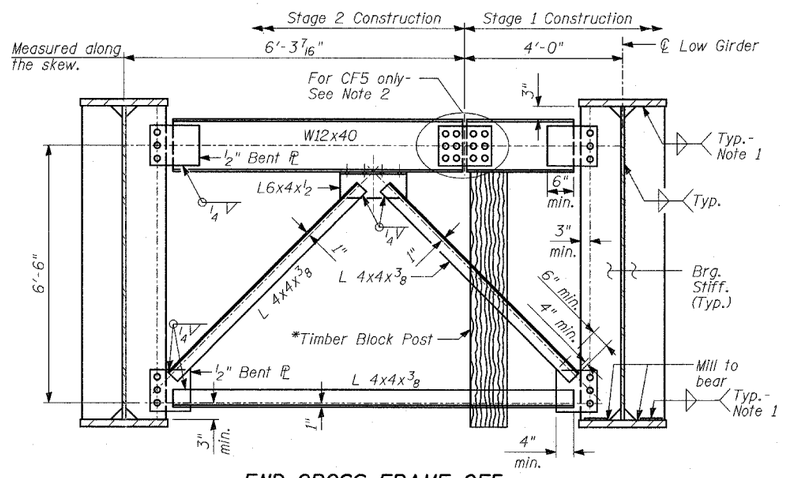
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



END CROSS FRAME CF4

1 Required

* Cost included with "Erecting Structural Steel".



END CROSS FRAME CF5

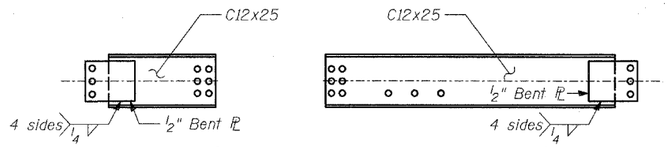
1 Required

NOTES FOR CROSS FRAME CF4

1. Place Cross Frame with channel flanges and outstanding angle legs outward from abutment backwall.
2. Weld on near side for 1/2" plate.
3. Stop weld 1/4" from each end of plate.
4. For additional details, see "End Cross Frame CF4 Components."

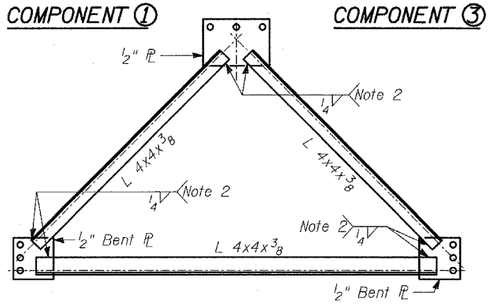
NOTES FOR END CROSS FRAME CF5

1. Stop weld 1/4" from each end of plate.
2. For additional details, see "End Cross Frame CF5 Components."



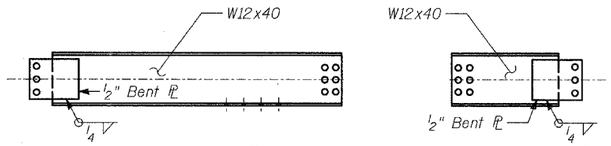
COMPONENT ①

COMPONENT ③



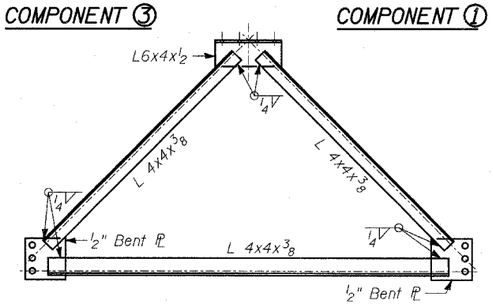
COMPONENT ②

END CROSS FRAME CF4 COMPONENTS



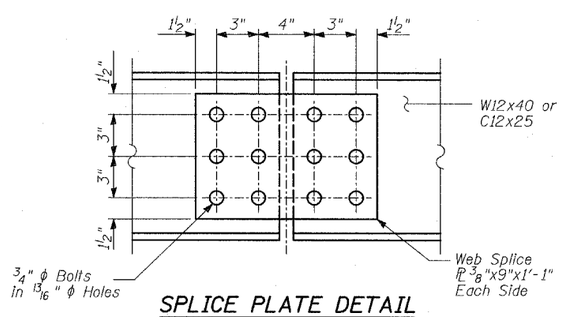
COMPONENT ③

COMPONENT ①



COMPONENT ②

END CROSS FRAME CF5 COMPONENTS



SPLICE PLATE DETAIL

CROSS FRAME CF4 AND CF5 CONSTRUCTION SEQUENCE

1. Order Cross Frame CF4 and CF5 in three components as shown.
2. Attach component (1) to the bearing stiffener on Girder nearest Stage Construction Line.
3. Place Timber Block Post between component (1) and bearing seat.
4. Pour Stage I deck and erect Stage II Girders.
5. Attach component (3) to the bearing stiffener on adjacent Stage 2 Construction Girder, and attach web slpice plates.
6. Remove Timber Block Post.
7. Install component (2) .
8. Complete remaining deck pours.

GENERAL NOTES

1. All bolts shall be 3/4"ϕ with 15/16" ϕ holes unless otherwise noted.
2. Two hardened washers required for each set of oversized holes.

TYLIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

FRAMING DETAILS II

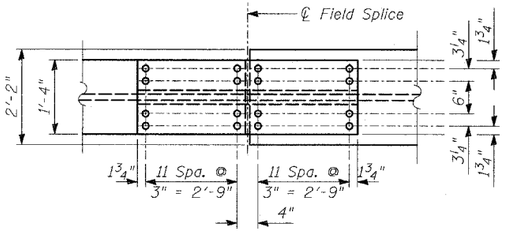
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

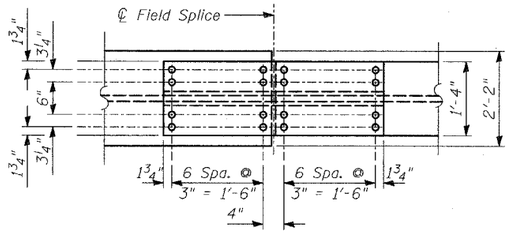
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	202
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-33
S-66- SHEETS

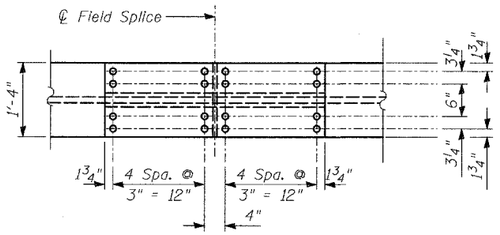
* 125X-HB-(1&2) R-1 CONTRACT # 60826



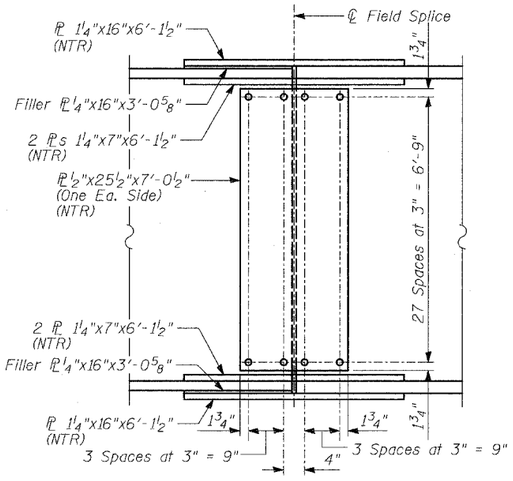
TOP FLANGE



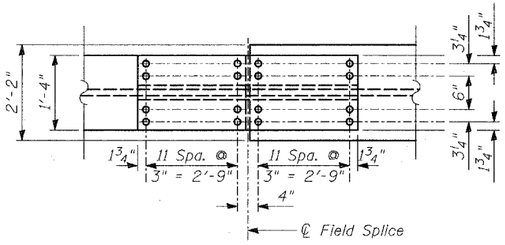
TOP FLANGE



TOP FLANGE

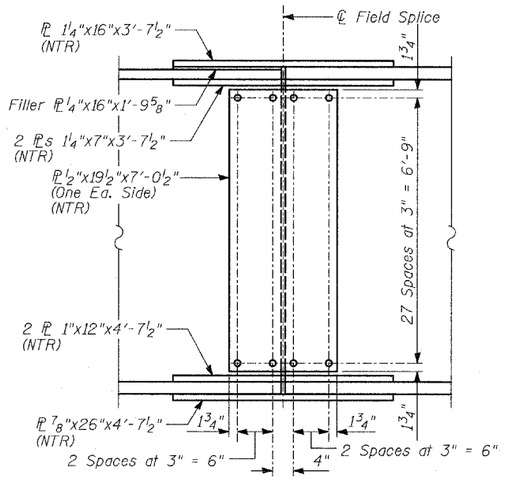


ELEVATION

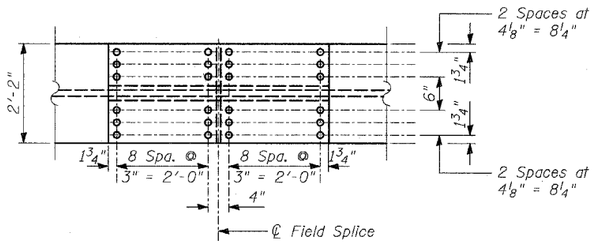


BOTTOM FLANGE

FIELD SPLICE #2 & #5

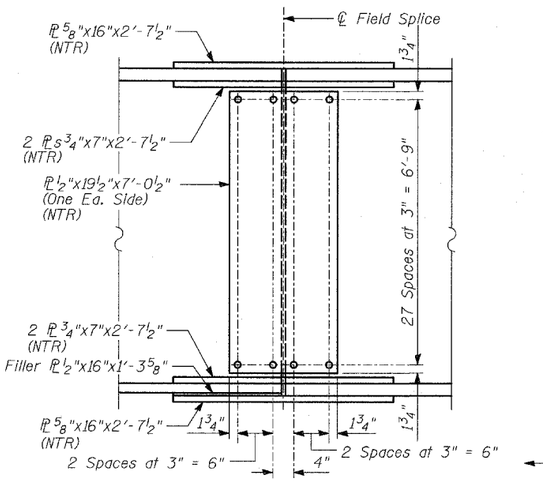


ELEVATION

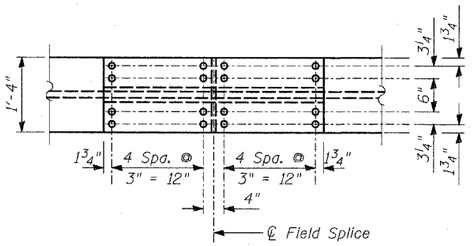


BOTTOM FLANGE

FIELD SPLICE #3 & #4

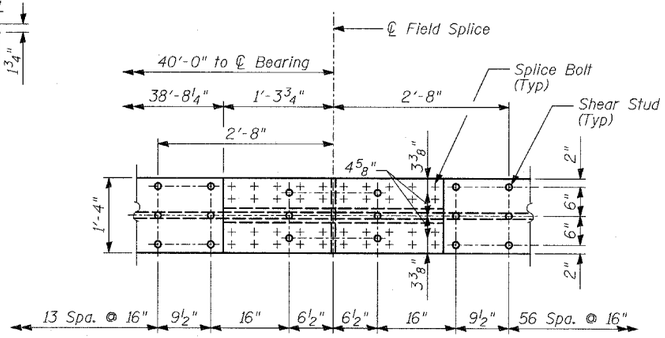


ELEVATION



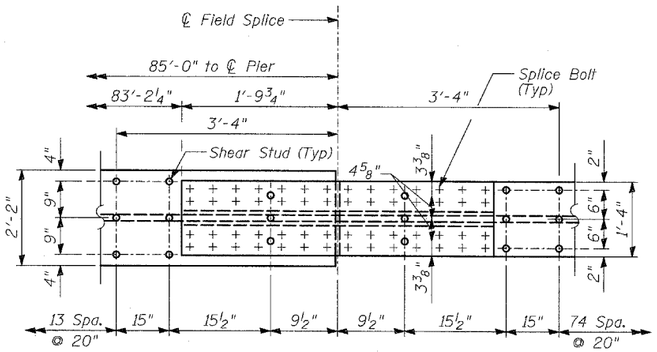
BOTTOM FLANGE

FIELD SPLICE #1 & #6



STUD LAYOUT AT FS #1 & #6

(Layout at FS #1 shown, at FS #6 opp. hand)



STUD LAYOUT AT FS #3 & #4

(Layout at FS #3 shown, at FS #4 opp. hand)

TYLIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

NOTES:

1. All bolts shall be ⅞"ϕ AASHTO M164/ASTM A325 with $^{15}/_{16}$"ϕ holes unless noted.
2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

FRAMING DETAILS III

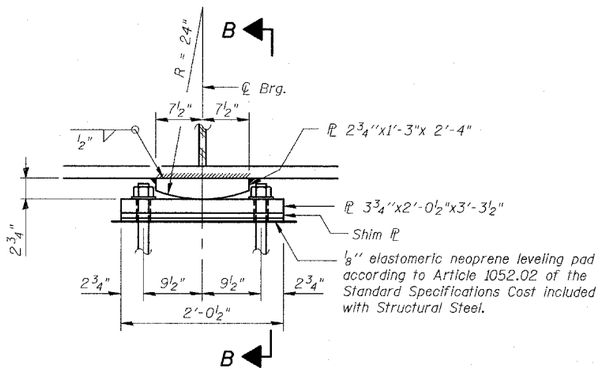
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

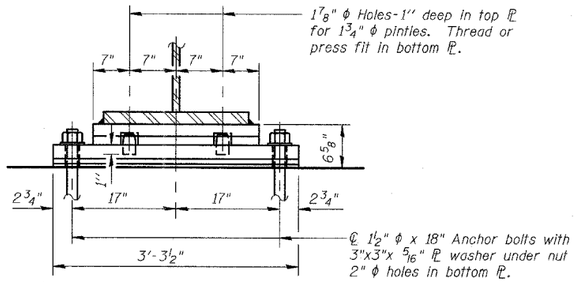
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	203
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-34
S-66- SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

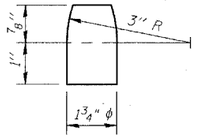


ELEVATION AT PIER



SECTION B-B

FIXED BEARING



PINTLE

Notes:

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternative material) of the grade and diameter specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts in fixed bearings may be either cast in place or installed in holes drilled after the supporting member is in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Anchor Bolts 1½"	Each	40

NOTES

1. Structural Steel for the fixed bearing, including pintles, shall be AASHTO M270 Grade 50.
2. Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	SP
DRAWN	-	MAF
CHECKED	-	AD

I-2-E1 9-01-03

FIXED BEARING

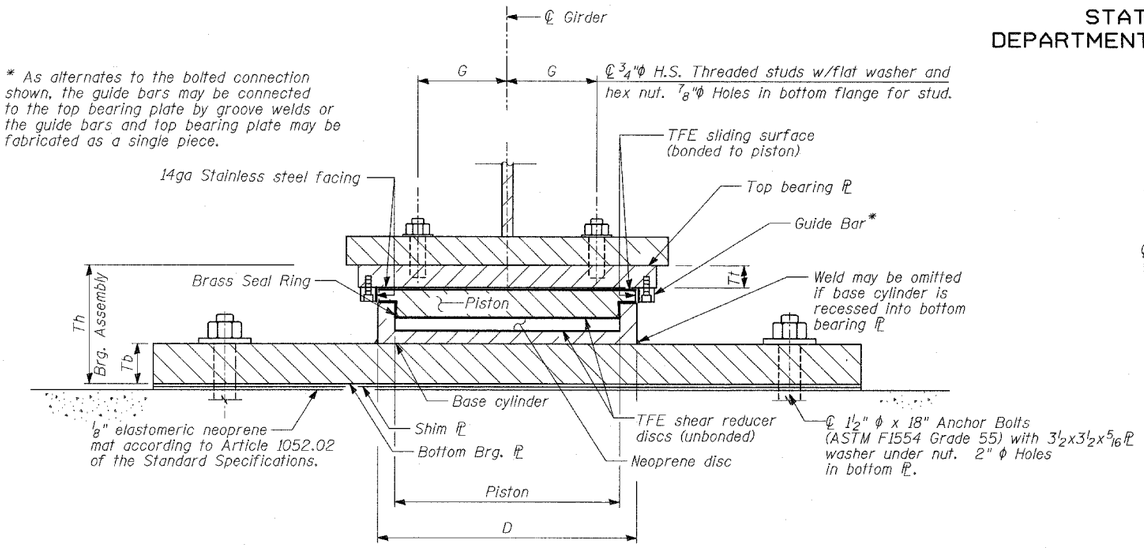
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	204
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

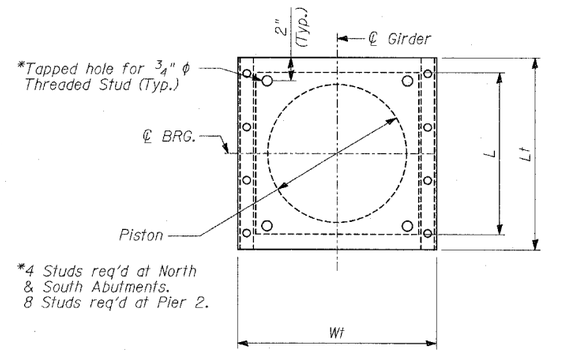
SHEET NO. - S-35
S-66- SHEETS

• 125X-HB-(1&2) R-1 CONTRACT • 60826

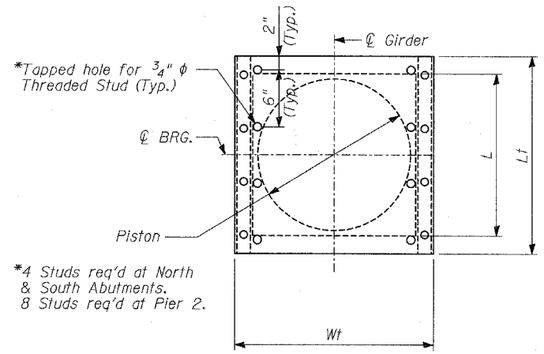


* As alternates to the bolted connection shown, the guide bars may be connected to the top bearing plate by groove welds or the guide bars and top bearing plate may be fabricated as a single piece.

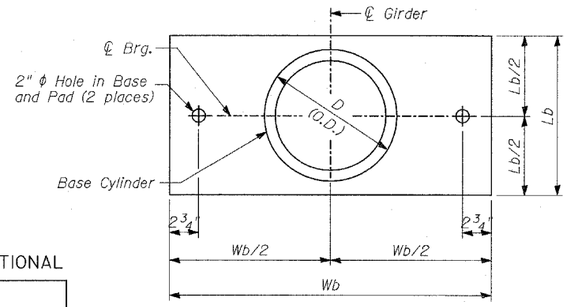
GUIDED EXPANSION POT BEARING



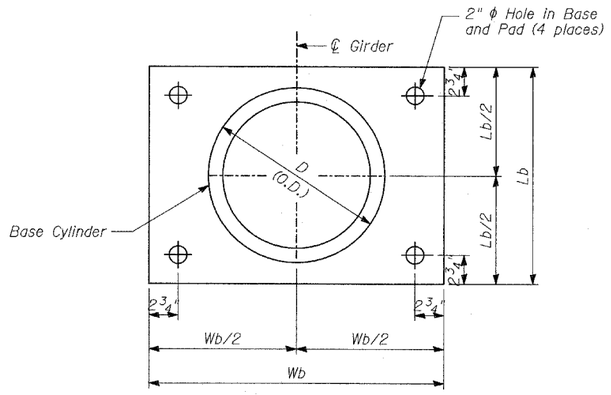
TOP BEARING ℄ - PISTON PLAN
(N. & S. Abutments)



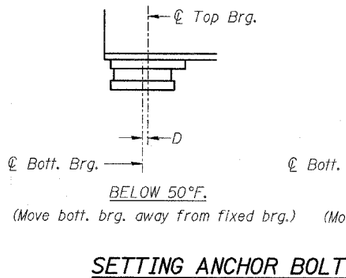
TOP BEARING ℄ - PISTON PLAN
(Pier 2)



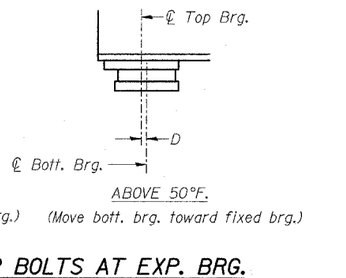
BOTTOM BEARING ℄ AND BASE CYLINDER PLAN
(N. & S. Abutments)



BOTTOM BEARING ℄ AND BASE CYLINDER PLAN
(Pier 2)



BELOW 50°F.
(Move bott. brg. away from fixed brg.)



ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

NOTES:

1. All structural steel for the top and bottom bearing plates shall conform to AASHTO M 270 Grade 50.
2. Cost of top and bottom bearing plates, 1/8" Elastomeric Neoprene, shim plates and threaded studs with washer shall be included with "Floating Bearings, Guided Expansion".
3. Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternative material) of the grade and diameter specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
4. Anchor bolts may be cast-in-place or installed in holes drilled after members are in place. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. See Sheet No. S-36 for anchor bolt installation.
6. Two 1/8" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

FLOATING BEARING, GUIDED EXPANSION TABLE

LOCATION	NO. REQ'D	VERT. LOAD CAPACITY	DESIGN VERT. LOAD	TOT. REQ'D MOVEMENT (in)	TOP PLATE (in)				BOTTOM PLATE (in)			BRG. ASSEMBLY (in)		
					Wt	Lt	Tt	G	Wb	Lb	Tb	D	L	Th
NORTH ABUTMENT	10	250K	197K	2.50	17.0	16.5	1.75	6.0	27.0	16.0	1.75	11.875	12.0	8.625
PIER 2	10	850K	820K	3.75	28.5	28.5	3.25	11.0	38.5	26.0	2.50	21.875	22.0	13.75
SOUTH ABUTMENT	10	250K	197K	6.25	17.0	20.5	1.50	6.0	27.0	16.0	1.75	11.875	12.0	8.375

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Erecting HLMR Bearings, Guided Expansion, 250 kips	Each	20
Erecting HLMR Bearings, Guided Expansion, 850 kips	Each	10
Anchor Bolts, 1 1/2"	Each	80

TYLIN INTERNATIONAL

DESIGNED	- SP
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

HIGH LOAD MULTI-ROTATION BEARINGS

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

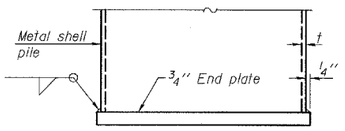
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	205
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-36
S-66- SHEETS

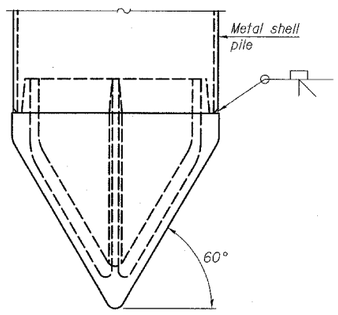
* 125X-HB-(1&2) R-1 CONTRACT # 60826

METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume ($yd.^3$/ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



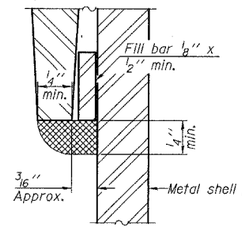
END PLATE ATTACHMENT



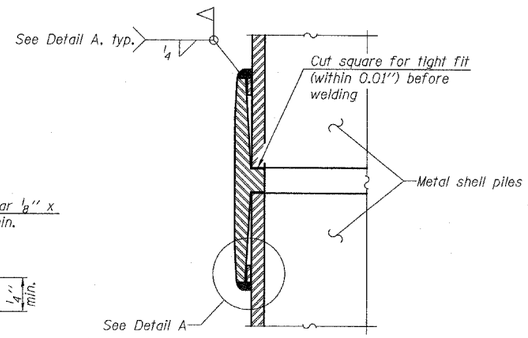
Note A:
When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

METAL SHELL PILE SHOE ATTACHMENT

(See Note A)

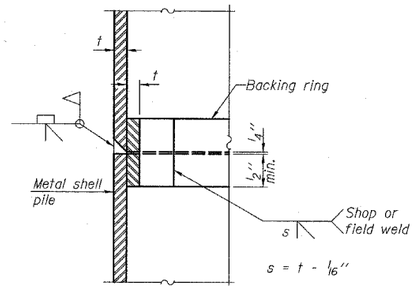


DETAIL A



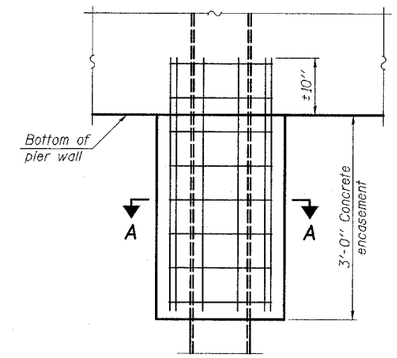
Notes:
The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
Pile segments shall be driven to solid contact with splicer before welding.

WELDED COMMERCIAL SPLICE

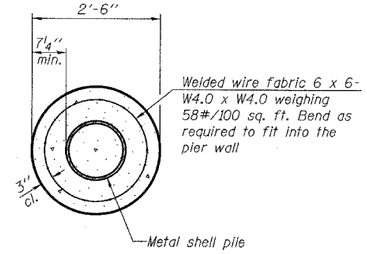


COMPLETE PENETRATION WELD SPLICE

Backing ring made from pile shell. Remove segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



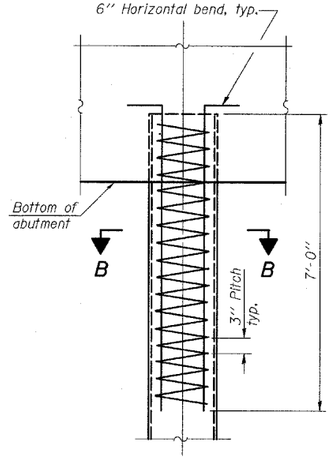
ELEVATION



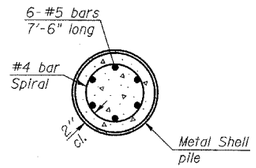
SECTION A-A

Note:
Forms for encasement may be omitted when soil conditions permit.

CONCRETE ENCASEMENT AT PIERS



ELEVATION



SECTION B-B

METAL SHELL REINFORCEMENT AT ABUTMENTS

Note:
The metal shell piles shall be according to ASTM A 252 Grade 3.

TYLIN INTERNATIONAL

DESIGNED	-	SP
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

F-MS 9-3-07

METAL SHELL PILES

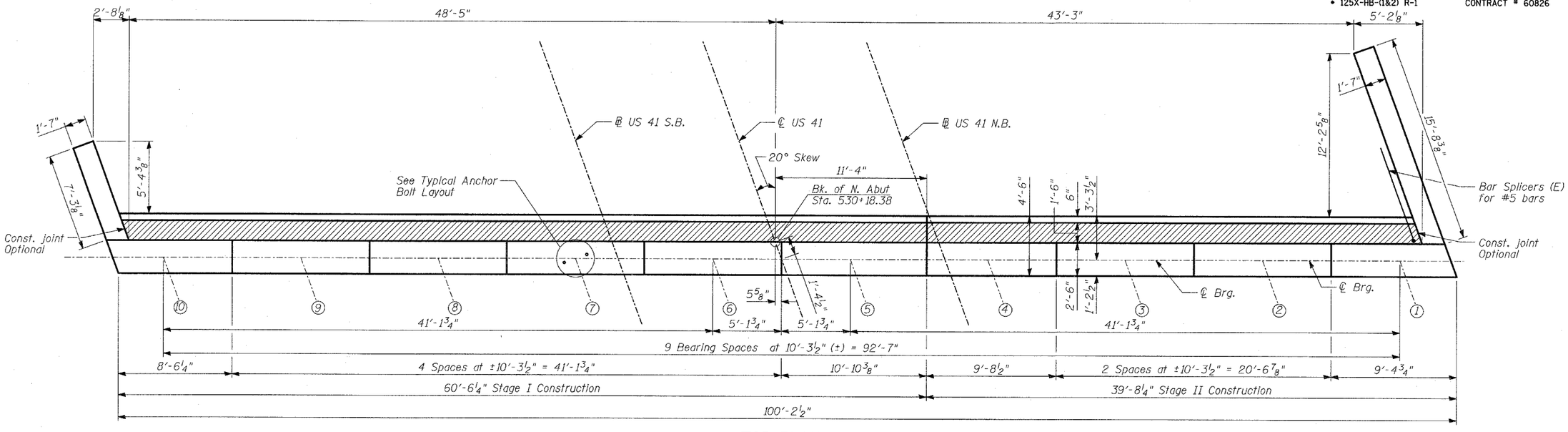
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

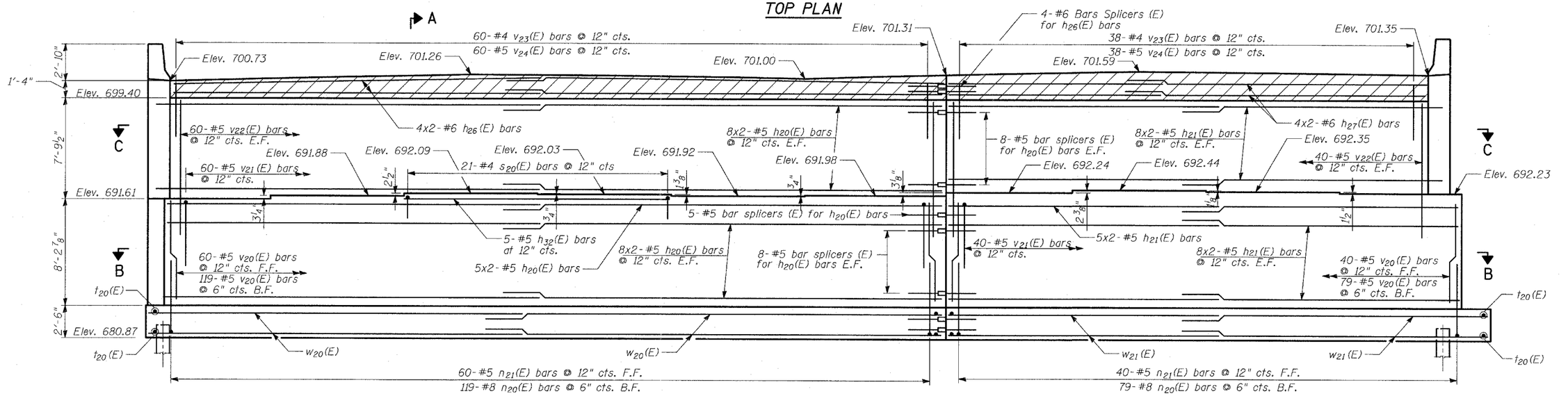
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	206
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-37
S-66 - SHEETS

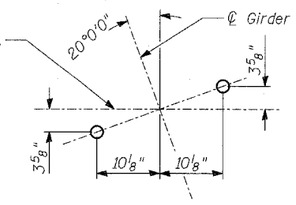
* 125X-HB-(1&2) R-1
CONTRACT # 60826



TOP PLAN



ELEVATION



TYPICAL ANCHOR BOLT LAYOUT

TYLIN INTERNATIONAL

DESIGNED	-	SP
CHECKED	-	AD
DRAWN	-	SP, MAF
CHECKED	-	AD

MIN. LAP LENGTHS

Bar	Lap
#5	2'-2"
#6	2'-7"

NOTES

1. For Sections A-A, see Sheet S-39.
2. For Sections B-B and C-C, see Sheet S-38.

LEGEND

B.F. denotes Back Face
F.F. denotes Front Face
E.F. denotes Each Face

NORTH ABUTMENT

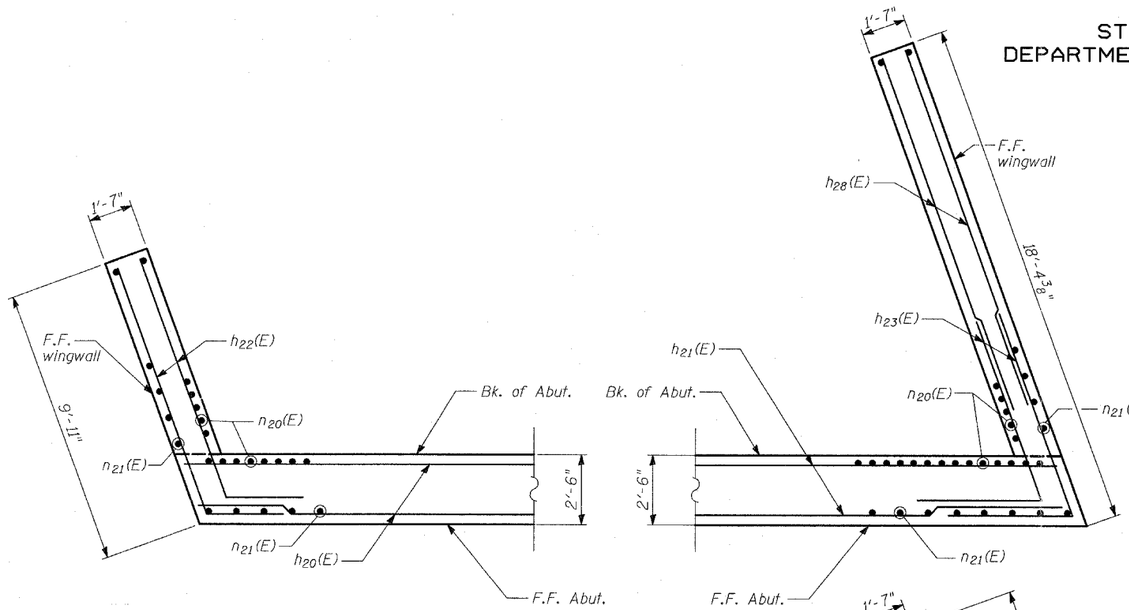
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

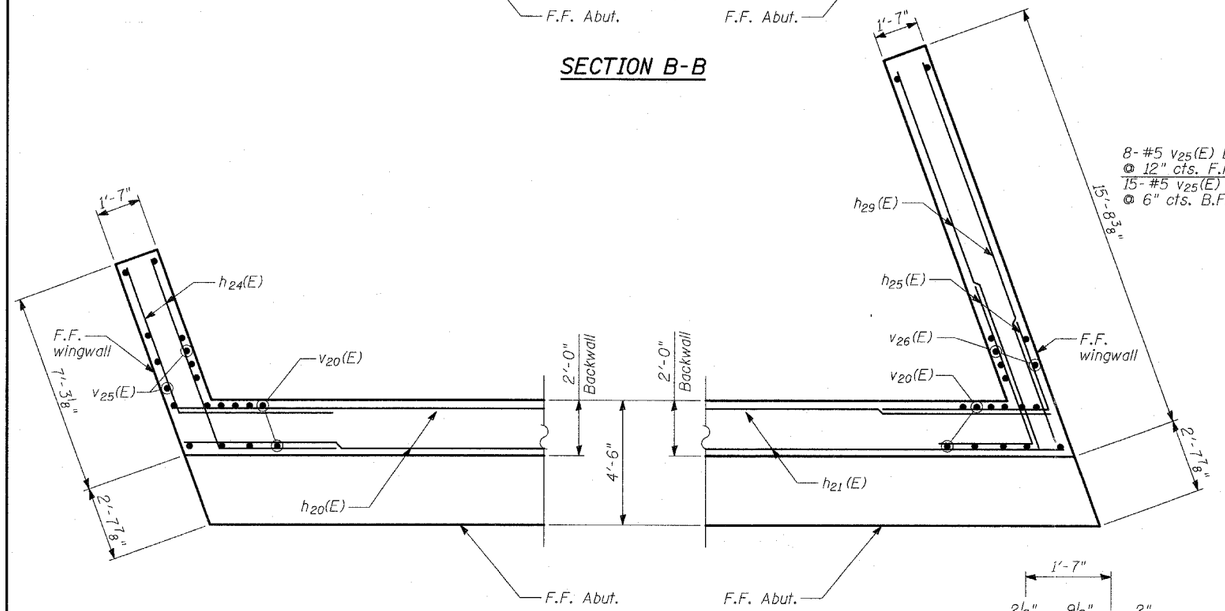
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	207
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-38
S-66- SHEETS

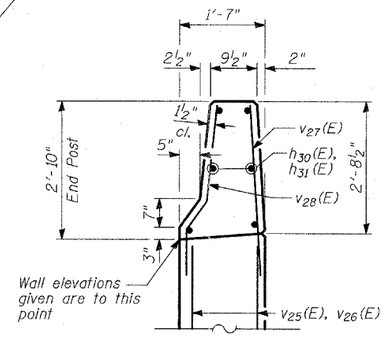
* 125X-HB-(1&2) R-1 CONTRACT * 60826



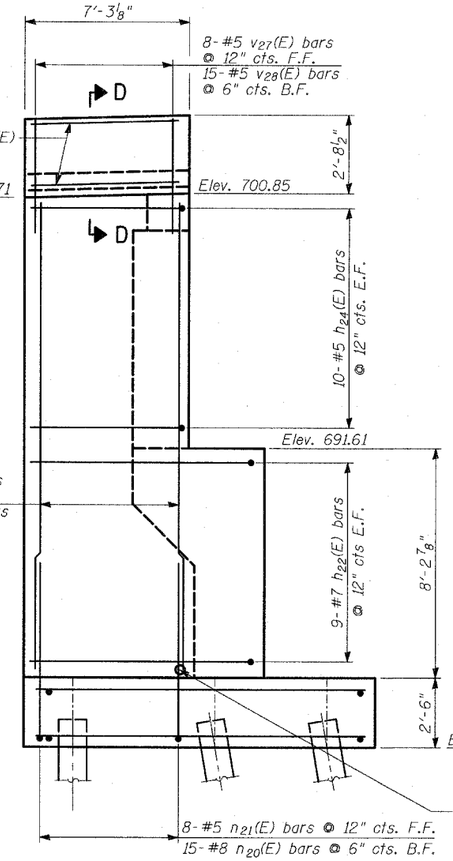
SECTION B-B



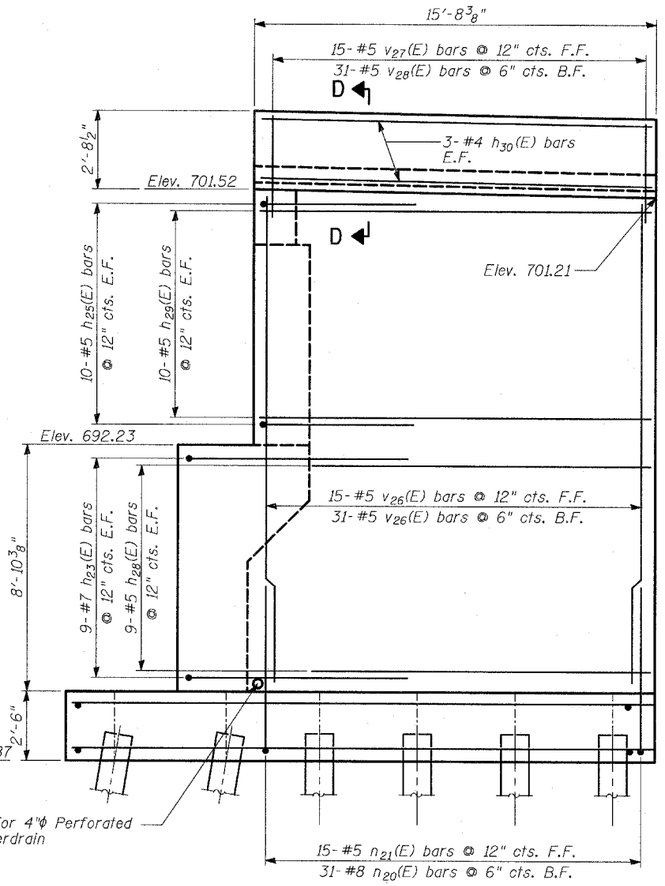
SECTION C-C



SECTION D-D



ELEVATION - NORTHWEST WINGWALL



ELEVATION - NORTHEAST WINGWALL

TY·LIN INTERNATIONAL

DESIGNED	-	SP
CHECKED	-	AD
DRAWN	-	SP, MAF
CHECKED	-	AD

LEGEND

F.F. denotes Front Face
B.F. denotes back Face

NORTH ABUTMENT
DETAILS I

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

PILE DATA:

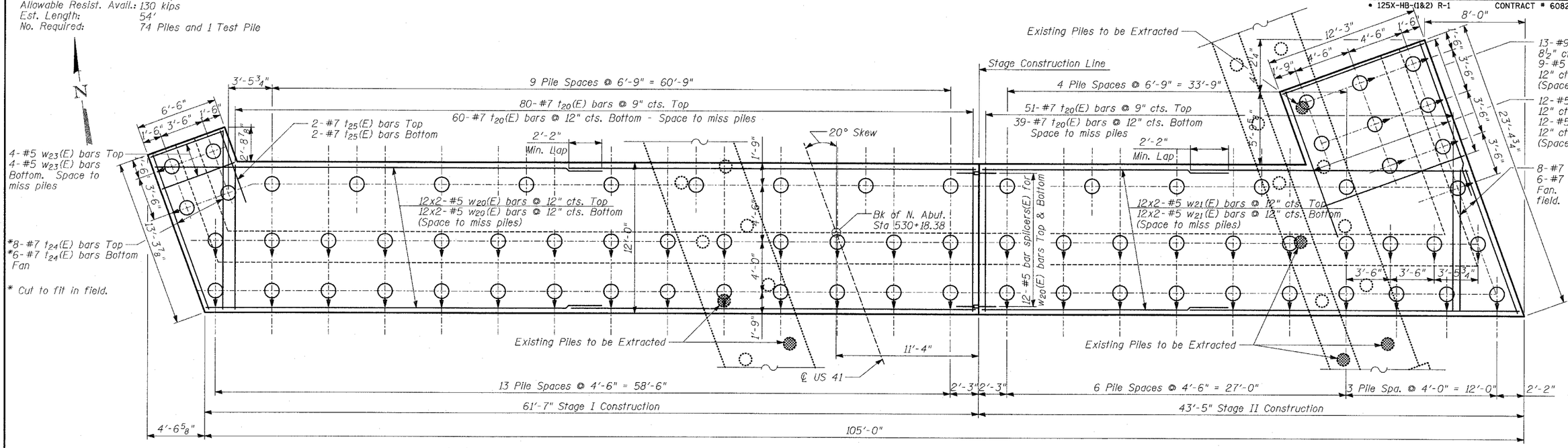
Type: 14" ϕ Metal Shell Piles w/$^3/_8$" Thick Walls
Nominal Req'd Bearing: 390 kips
Allowable Resist. Avail.: 130 kips
Est. Length: 54'
No. Required: 74 Piles and 1 Test Pile

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

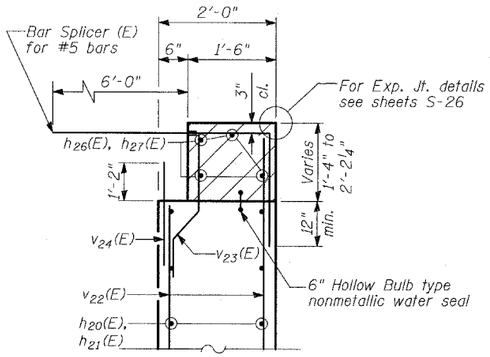
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	208
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-39
S-66 SHEETS

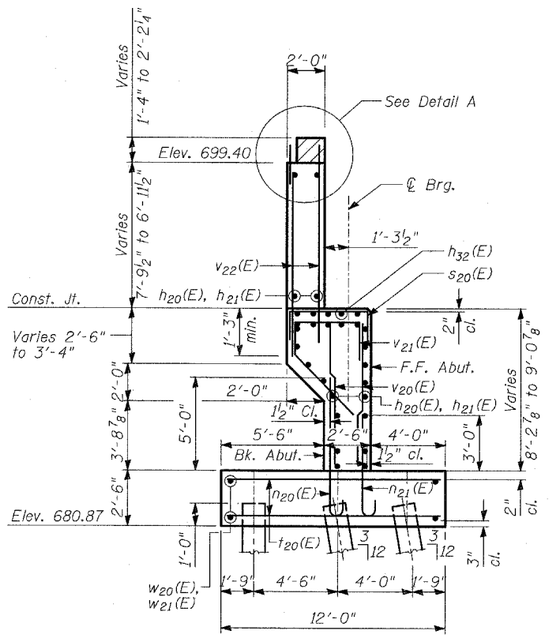
* 125X-HB-(1&2) R-1 CONTRACT # 60826



FOOTING PLAN - NORTH ABUTMENT



DETAIL A



SECTION A-A

NOTES

1. For details of Bar Splicers, see sheet S-28 of S-66.
2. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
3. Space reinforcement in cap to miss anchor bolts.
4. Pour steps monolithically with cap.

TY·LIN INTERNATIONAL

DESIGNED	- SP
CHECKED	- AD
DRAWN	- SP, MAF
CHECKED	- AD

NORTH ABUTMENT DETAILS II

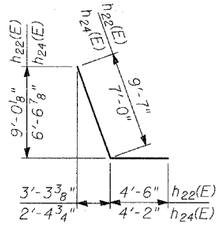
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

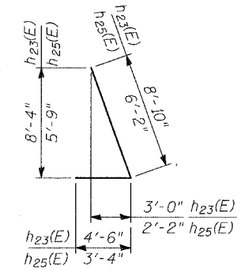
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	208A
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. "S-39A"
S-66 SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826



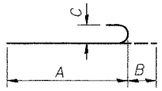
BAR $h_{22}(E)$ & $h_{24}(E)$



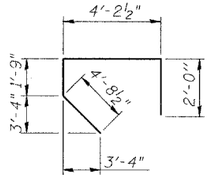
BAR $h_{23}(E)$ & $h_{25}(E)$

MARK TABLE

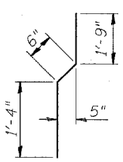
Bar	A	B	C
$n_{20}(E)$	7'-3"	11"	8"
$n_{21}(E)$	5'-3"	7"	5"



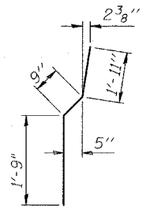
BAR $n_{20}(E)$ & $n_{21}(E)$



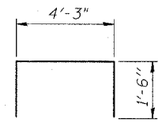
BAR $v_{21}(E)$



BAR $v_{23}(E)$



BAR $v_{28}(E)$



BAR $s_{20}(E)$

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
$h_{20}(E)$	74	#5	31'-8"	
$h_{21}(E)$	74	#5	20'-4"	
$h_{22}(E)$	18	#7	14'-1"	
$h_{23}(E)$	18	#7	13'-4"	
$h_{24}(E)$	20	#5	11'-2"	
$h_{25}(E)$	20	#5	9'-6"	
$h_{26}(E)$	8	#6	31'-5"	
$h_{27}(E)$	8	#6	21'-0"	
$h_{28}(E)$	18	#5	13'-0"	
$h_{29}(E)$	20	#5	15'-5"	
$h_{30}(E)$	6	#4	15'-5"	
$h_{31}(E)$	6	#4	7'-0"	
$h_{32}(E)$	5	#5	20'-7"	
$n_{20}(E)$	244	#8	8'-2"	
$n_{21}(E)$	123	#5	5'-10"	
$s_{20}(E)$	21	#5	7'-3"	
$t_{20}(E)$	230	#7	11'-8"	
$t_{21}(E)$	14	#7	12'-5"	
$t_{22}(E)$	13	#9	11'-11"	
$t_{23}(E)$	9	#5	11'-11"	
$t_{24}(E)$	14	#7	14'-2"	
$t_{25}(E)$	4	#7	6'-0"	
$v_{20}(E)$	298	#5	8'-0"	
$v_{21}(E)$	100	#5	12'-8"	
$v_{22}(E)$	200	#5	11'-0"	
$v_{23}(E)$	98	#5	3'-7"	
$v_{24}(E)$	98	#5	3'-8"	
$v_{25}(E)$	23	#5	17'-0"	
$v_{26}(E)$	46	#5	17'-5"	

BILL OF MATERIAL (CONT.)

$v_{27}(E)$	23	#5	4'-2"	
$v_{28}(E)$	46	#5	4'-5"	
$w_{20}(E)$	48	#5	33'-11"	
$w_{21}(E)$	48	#5	22'-10"	
$w_{22}(E)$	24	#5	12'-8"	
$w_{23}(E)$	8	#5	6'-3"	

Reinforcement Bars, Epoxy Coated	POUND	32,920
Porous Granular Embankment, (Special)	CU YD	1,066
Structure Excavation	CU YD	2,699
Concrete Structures	CU YD	332
Protective Coat	SQ YD	10
Pipe Underdrain For Structures, 6"	FOOT	131
Furnishing Metal Pile Shells 14"x 3/8"	FOOT	3,996
Driving Piles	FOOT	3,996
Test Pile Metal Shells	EACH	1
Concrete Sealer	SQ FT	251
Bar Splicers	EACH	163
Geocomposite Wall Drain	SQ YD	185
Pile Extraction	EACH	6

TY·LIN INTERNATIONAL

DESIGNED	- SP
CHECKED	- AD
DRAWN	- SP, MAF
CHECKED	- AD

NORTH ABUTMENT
DETAILS III

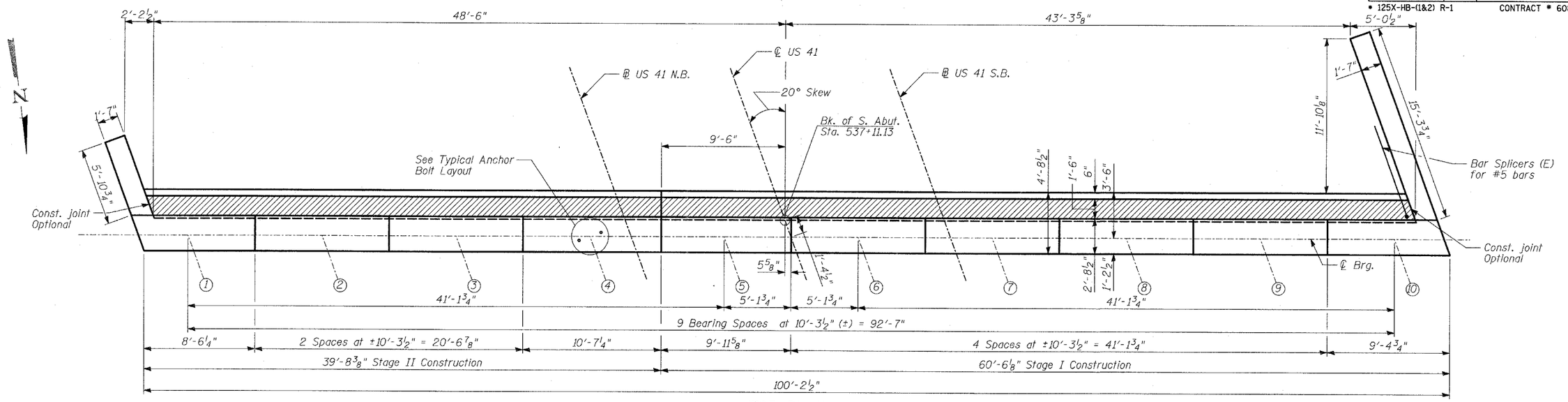
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

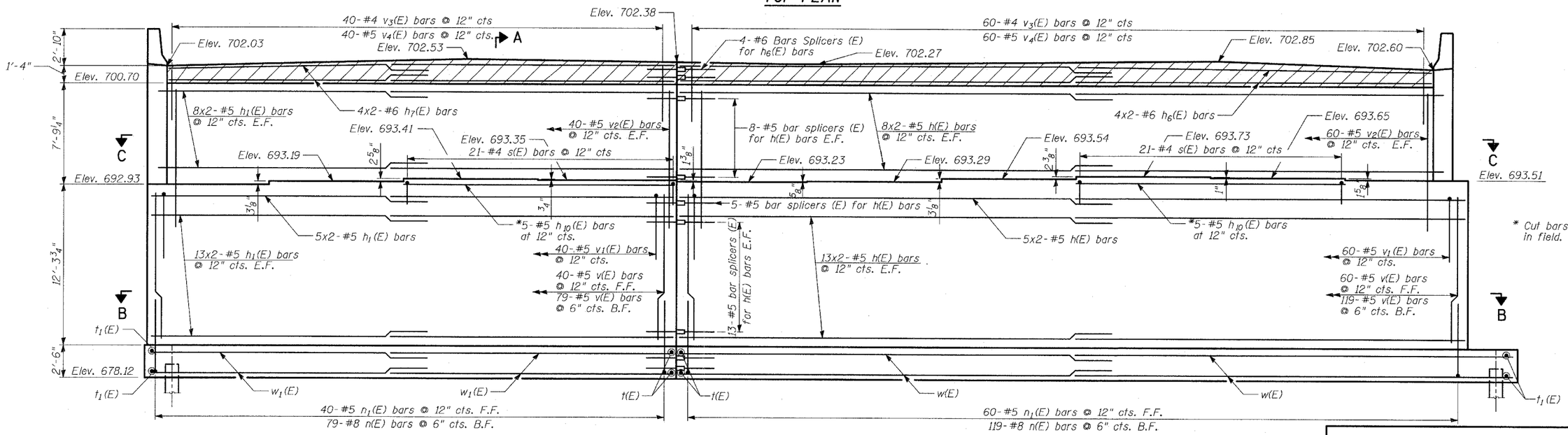
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	209
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - S-40
S-66- SHEETS

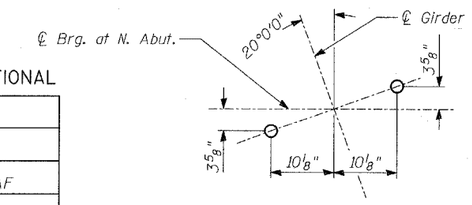
* 125X-HB-(1&2) R-1 CONTRACT * 60826



TOP PLAN



* Cut bars to fit in field.



TYPICAL ANCHOR BOLT LAYOUT

ELEVATION

MIN. LAP LENGTHS

Bar	Lap
#5	2'-2"
#6	2'-7"

NOTES

For Sections A-A, see Sheet S-42.
For Sections B-B and C-C, see Sheet S-41.

LEGEND

B.F. denotes Back Face
F.F. denotes Front Face
E.F. denotes Each Face

TYLIN INTERNATIONAL

DESIGNED	- SP
CHECKED	- AD
DRAWN	- SP, MAF
CHECKED	- AD

SOUTH ABUTMENT

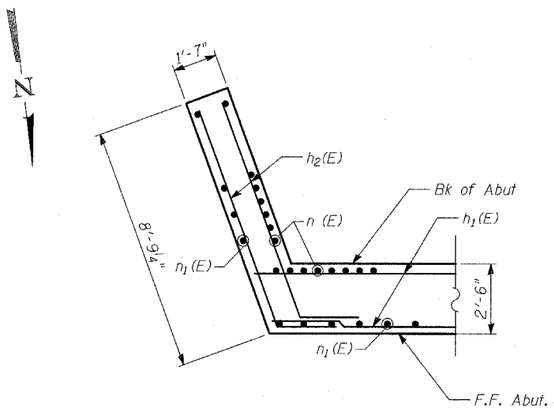
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

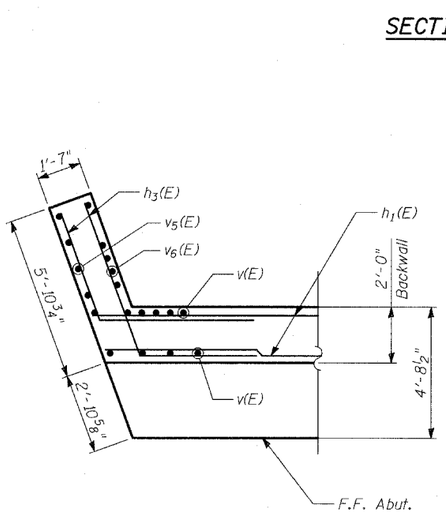
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	210
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-41
S-66- SHEETS

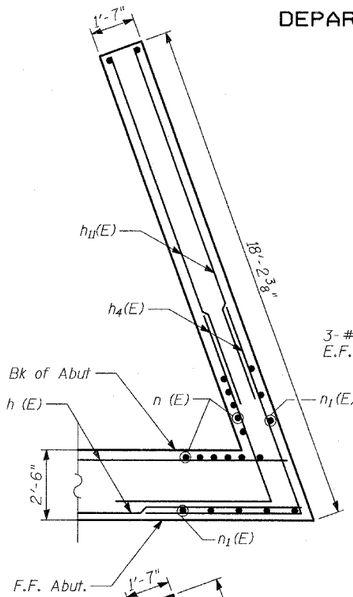
• 125X-HB-(1&2) R-1 CONTRACT # 60826

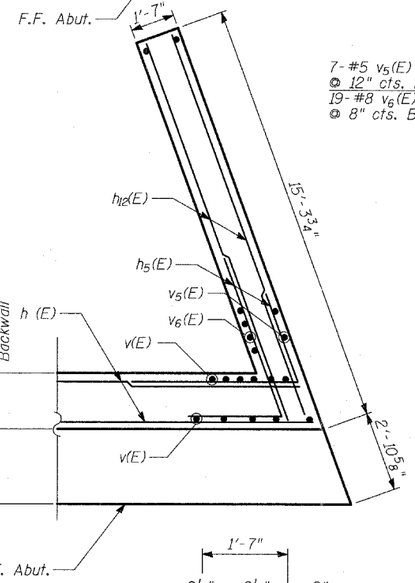


SECTION B-B

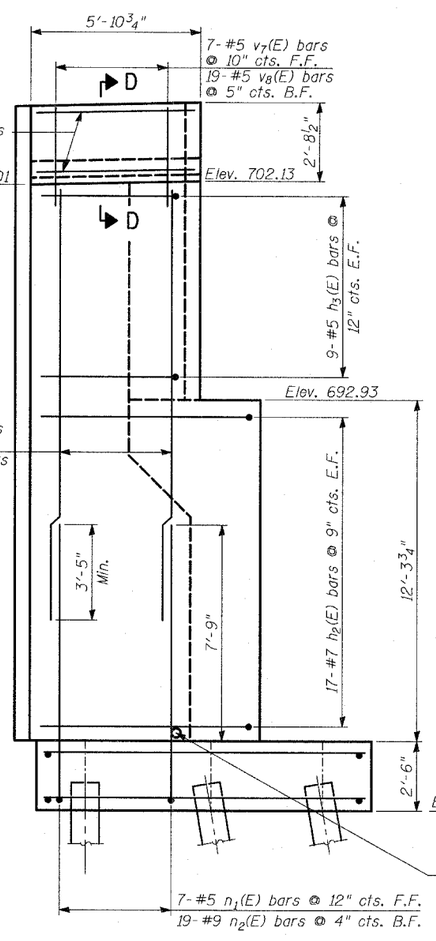


SECTION C-C

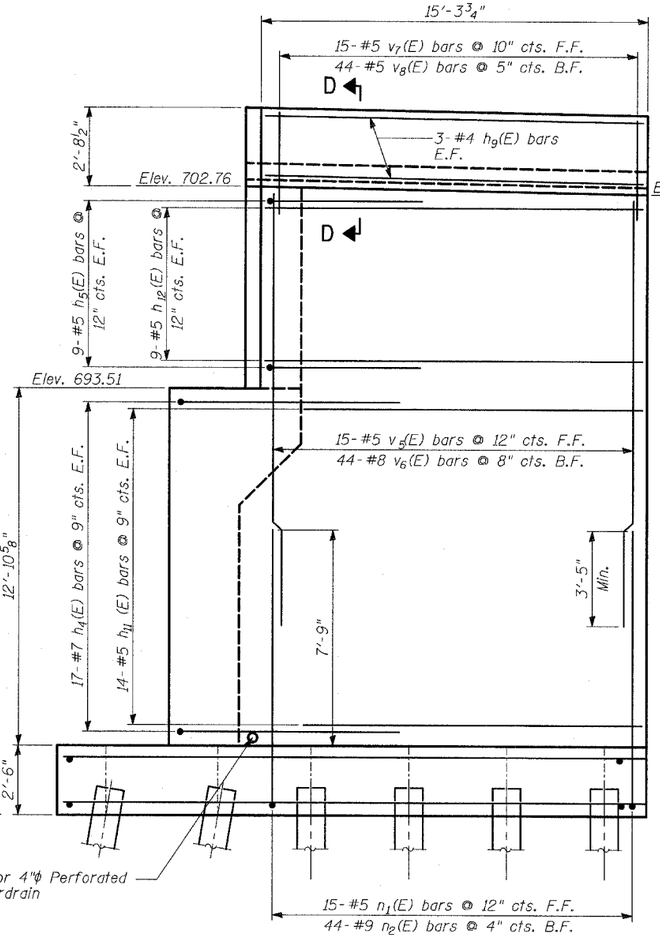




SECTION D-D



ELEVATION - SOUTHEAST WINGWALL



ELEVATION - SOUTHWEST WINGWALL

TYLIN INTERNATIONAL

DESIGNED	-	SP
CHECKED	-	AD
DRAWN	-	SP, MAF
CHECKED	-	AD

LEGEND

F.F. denotes Front Face
B.F. denotes back Face

SOUTH ABUTMENT
DETAILS I

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

PILE DATA:

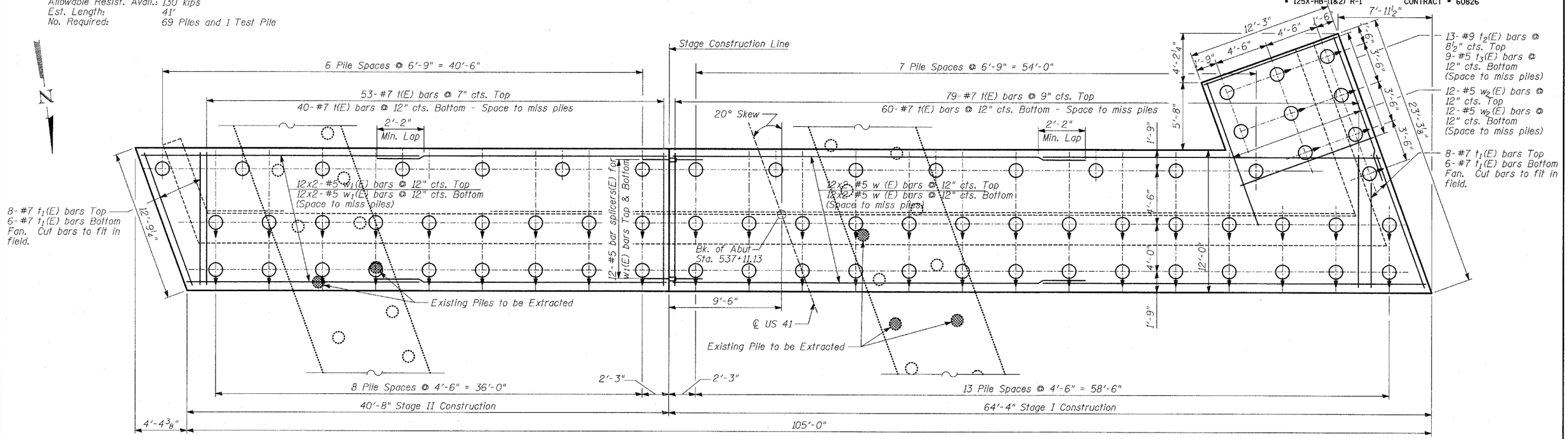
Type: 14" ϕ Metal Shell Piles w/$^3/_8$" Thick Walls
Nominal Req'd Bearing: 390 kips
Allowable Resist. Avail.: 130 kips
Est. Length: 41'
No. Required: 69 Piles and 1 Test Pile

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

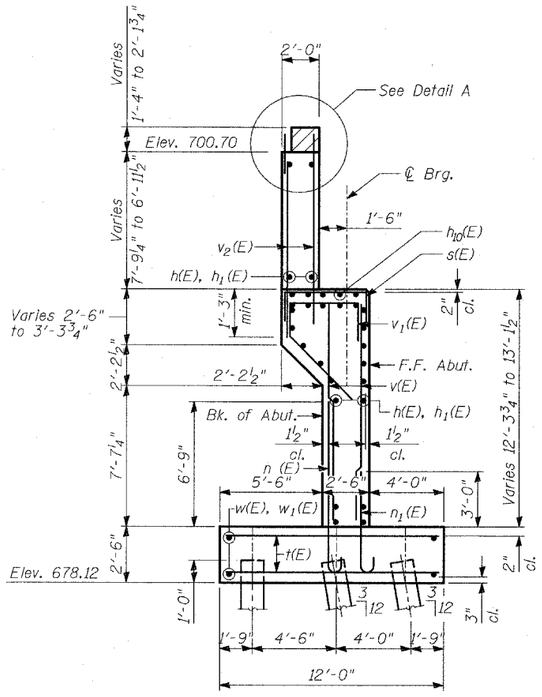
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	211
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. "S-42
S-66" SHEETS

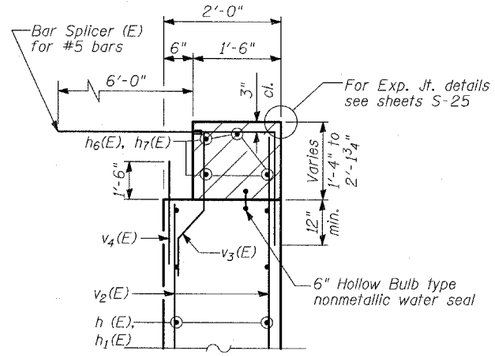
* 125X-HB-(1&2) R-1 CONTRACT # 60826



FOOTING PLAN - SOUTH ABUTMENT



SECTION A-A



DETAIL A

NOTES

1. Reinforcement bars designated (E) shall be epoxy coated.
2. For details of Bar Splicers, see sheet S-28 of S-66.
3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
4. Space reinforcement in cap to miss anchor bolts.
5. Pour steps monolithically with cap.

TY·LIN INTERNATIONAL

DESIGNED	-	SP
CHECKED	-	AD
DRAWN	-	SP, MAF
CHECKED	-	AD

SOUTH ABUTMENT DETAILS II

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

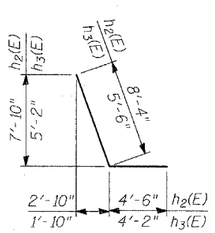
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	211A
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -S-42A
S-66- SHEETS

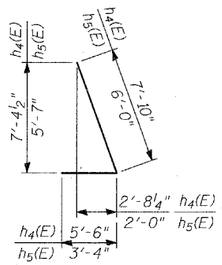
• 125X-HB-(1&2) R-1 CONTRACT # 60826

13- #9 $t_2(E)$ bars @ 8½" cts. Top
9- #5 $t_3(E)$ bars @ 12" cts. Bottom
(Space to miss piles)

FOOTING PLAN - SOUTH ABUTMENT



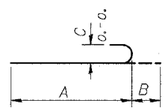
BAR $h_2(E)$ & $h_3(E)$



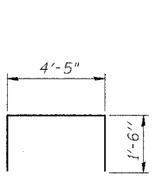
BAR $h_4(E)$ & $h_5(E)$

MARK TABLE

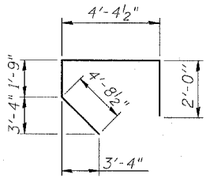
Bar	A	B	C
n(E)	8'-11"	11"	8"
$n_1(E)$	5'-2"	7"	5"
$n_2(E)$	9'-11"	1'-3"	$11\frac{3}{4}$"



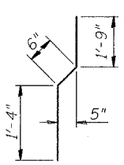
BAR n(E), $n_1(E)$ & $n_2(E)$



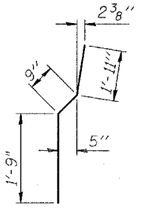
BAR s(E)



BAR $v_1(E)$



BAR $v_3(E)$



BAR $v_8(E)$

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	94	#5	31'-2"	
$h_1(E)$	94	#5	21'-2"	
$h_2(E)$	34	#7	12'-10"	
$h_3(E)$	18	#5	9'-8"	
$h_4(E)$	34	#7	13'-4"	
$h_5(E)$	18	#5	9'-4"	
$h_6(E)$	8	#6	30'-1"	
$h_7(E)$	8	#6	20'-11"	
$h_8(E)$	6	#4	6'-2"	
$h_9(E)$	6	#4	14'-5"	
$h_{10}(E)$	10	#5	20'-7"	
$h_{11}(E)$	28	#5	13'-3"	
$h_{12}(E)$	18	#5	14'-5"	
n(E)	198	#8	9'-10"	
$n_1(E)$	122	#5	5'-9"	
$n_2(E)$	63	#9	11'-2"	
s(E)	42	#5	7'-5"	
t(E)	232	#7	11'-8"	
$t_1(E)$	28	#7	12'-5"	
$t_2(E)$	13	#9	11'-11"	
$t_3(E)$	9	#5	11'-11"	
v(E)	298	#5	12'-0"	
$v_1(E)$	100	#5	12'-10"	
$v_2(E)$	200	#5	12'-10"	
$v_3(E)$	100	#5	3'-7"	
$v_4(E)$	100	#5	3'-8"	
$v_5(E)$	22	#5	19'-5"	
$v_6(E)$	63	#8	15'-6"	
$v_7(E)$	22	#5	4'-2"	

BILL OF MATERIAL (CONT.)

$v_8(E)$	63	#5	4'-5"	
w(E)	48	#5	33'-1"	
$w_1(E)$	48	#5	23'-5"	
$w_2(E)$	24	#5	12'-8"	
Reinforcement Bars, Epoxy Coated			POUND	39,490
Porous Granular Embankment, (Special)			CU YD	1,502
Structure Excavation			CU YD	2,337
Concrete Structures			CU YD	373
Protective Coat			SQ YD	9
Pipe Underdrain For Structures, 6"			FOOT	130
Furnishing Metal Pile Shells 14" x $\frac{3}{8}$"			FOOT	2,829
Driving Piles			FOOT	2,829
Test Pile Metal Shells			EACH	1
Concrete Sealer			SQ FT	272
Bar Splicers			EACH	175
Geocomposite Wall Drain			SQ YD	229
Pile Extraction			EACH	5

TY·LIN INTERNATIONAL

DESIGNED -	SP
CHECKED -	AD
DRAWN -	SP, MAF
CHECKED -	AD

SOUTH ABUTMENT
DETAILS III

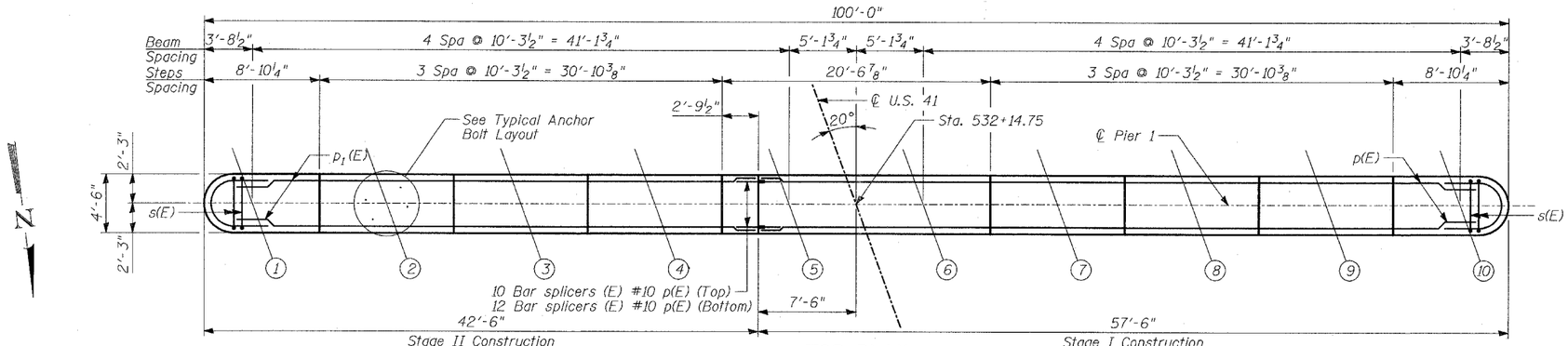
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

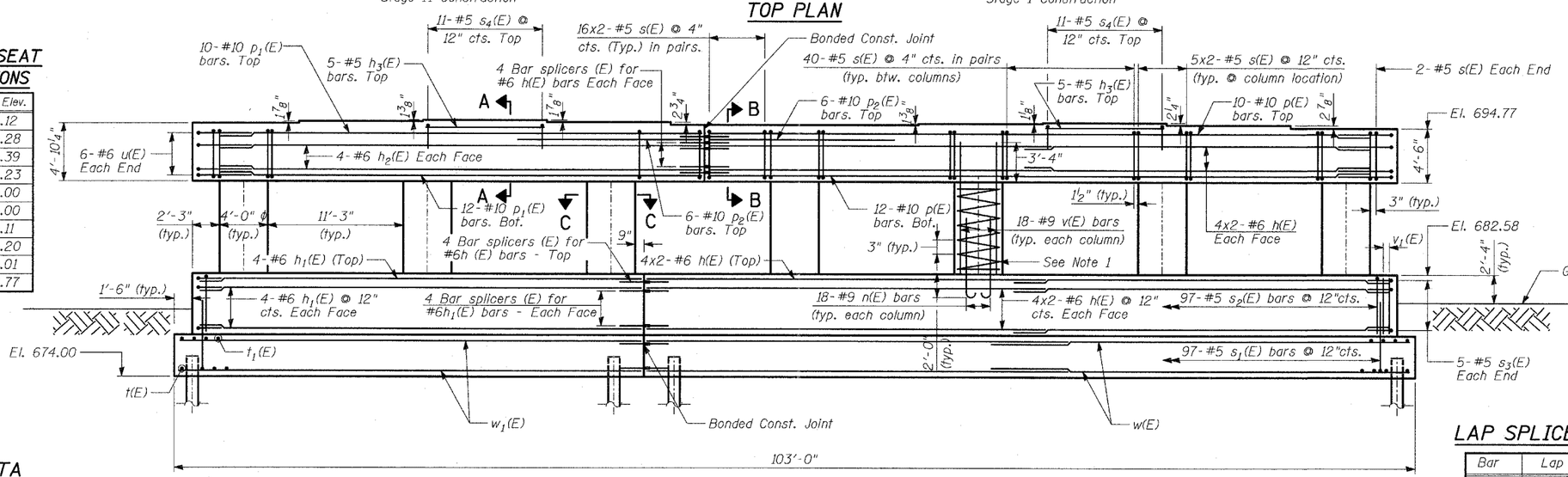
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	212
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-43
S-66 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826



TOP PLAN



BEARING SEAT ELEVATIONS

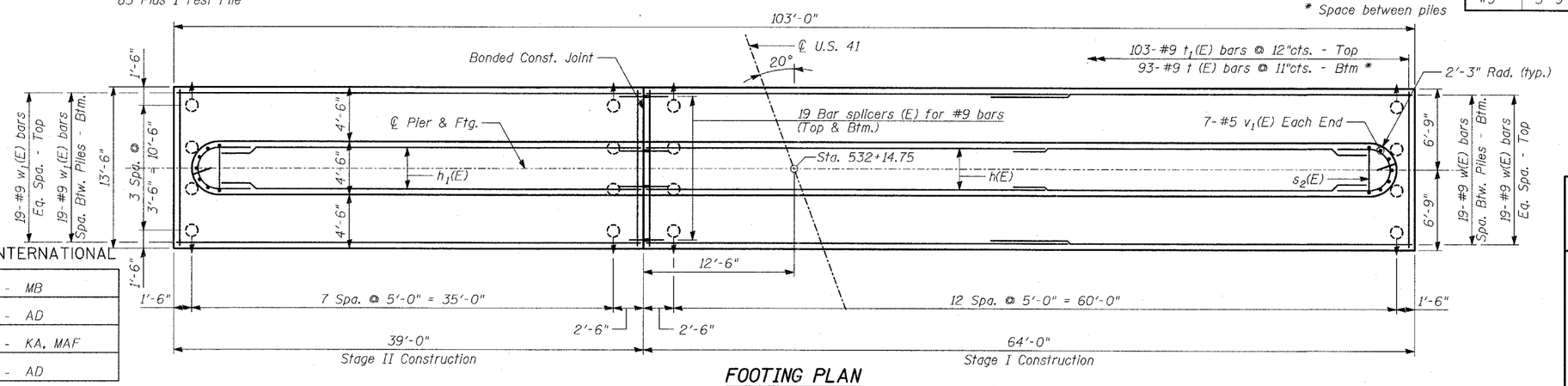
Girder	Seat Elev.
1	695.12
2	695.28
3	695.39
4	695.23
5	695.00
6	695.00
7	695.11
8	695.20
9	695.01
10	694.77

PILE DATA

Type:	Metal Shell - 14" ϕ x ⅜" wall
Nominal Required Bearing:	390 kips
Allowable Resistance Available:	130 kips
Est. Length:	50.0'
No. Req'd:	83 Plus 1 Test Pile

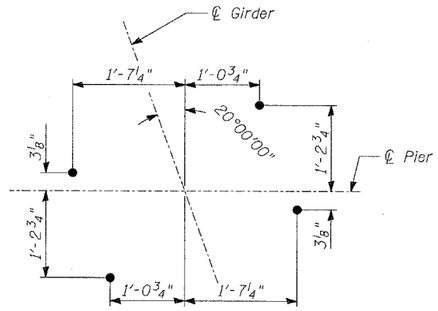
PIER 1 ELEVATION

(Looking South)



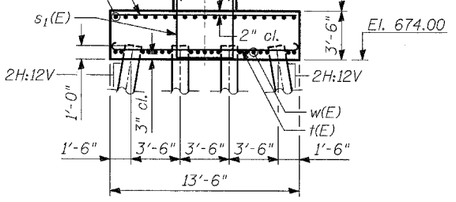
FOOTING PLAN

TYPICAL ANCHOR BOLTS LAYOUT



LAP SPLICES

Bar	Lap
#5	2'-2"
#6	2'-7"
#8	4'-6"
#9	5'-9"



END VIEW

Notes:

1. For spirals in each column, provide 1½ extra turns top & bottom. Extend spiral 2" into pier cap. Provide 4-#4 spacers or equivalent.
2. Space reinforcement in cap to miss anchor bolts.
3. Pour steps monolithically with cap.
4. Space bottom reinforcement in footing to miss piles.
5. See Sheet S-44 of S-66, for Sections A-A, B-B and C-C.

TYLIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- KA, MAF
CHECKED	- AD

PIER 1

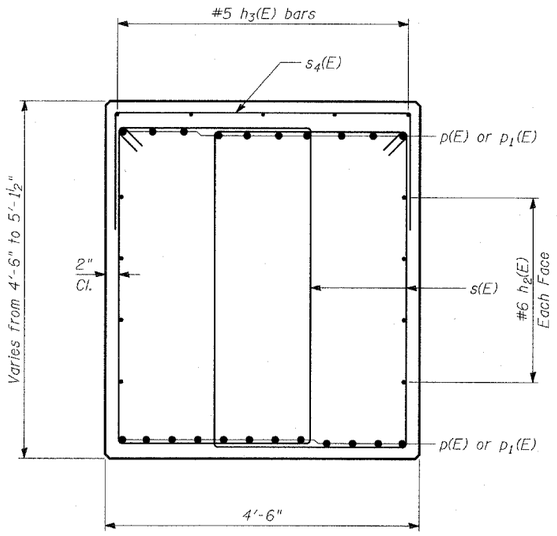
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

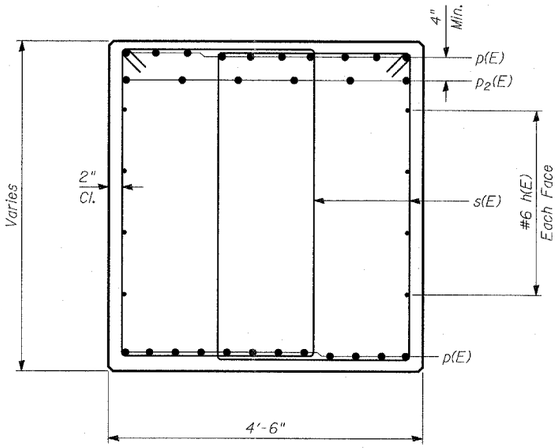
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	213
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-44
S-66- SHEETS

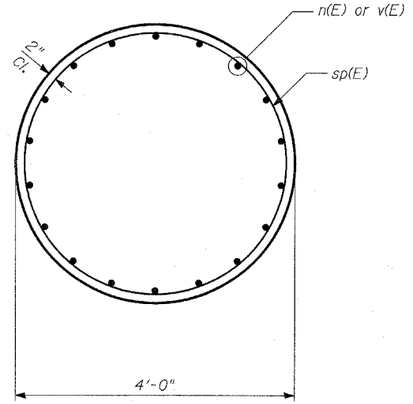
* 125X-HB-(1&2) R-1 CONTRACT # 60826



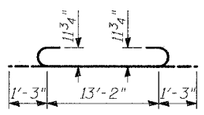
SECTION A-A



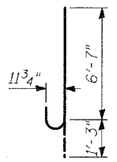
SECTION B-B



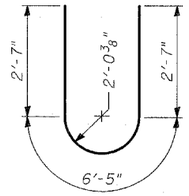
SECTION C-C



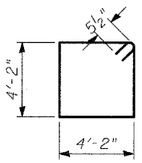
BAR t(E)



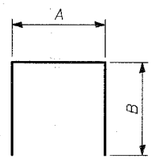
BAR n(E)



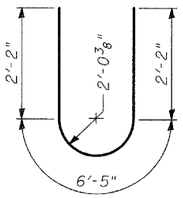
BAR u(E)



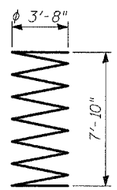
BAR s(E)



BARS s_1(E), s_2(E) & s_4(E)



BAR s_3(E)



BAR sp(E)

MARK TABLE

Bar	A	B
s_1(E)	4'-2"	5'-10"
s_2(E)	4'-2"	4'-5"
s_4(E)	4'-2"	2'-5"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	40	#6	31'-2"	
h_1(E)	12	#6	35'-1"	
h_2(E)	8	#6	40'-1"	
h_3(E)	10	#5	9'-10"	
n(E)	126	#9	7'-10"	
p(E)	22	#10	55'-2"	
p_1(E)	22	#10	40'-1"	
p_2(E)	12	#10	15'-6"	
s(E)	538	#5	17'-7"	
s_1(E)	97	#5	15'-10"	
s_2(E)	97	#5	13'-0"	
s_3(E)	10	#5	10'-9"	
s_4(E)	22	#5	10'-0"	
* sp(E)	7	#5	7'-10"	
t(E)	93	#9	15'-8"	
t_1(E)	103	#9	13'-2"	
u(E)	12	#6	11'-7"	
v(E)	126	#9	11'-0"	
v_1(E)	14	#5	4'-3"	
w(E)	76	#9	35'-0"	
w_1(E)	38	#9	38'-8"	
Reinforcement Bars, Epoxy Coated		POUND	60,870	
Structure Excavation		CU YD	3.901	
Concrete Structures		CU YD	377	
Furnishing Metal Pile Shells 14" x ⅜"		FOOT	4,150	
Driving Piles		FOOT	4,150	
Test Pile Metal Shells		EACH	1	
Bar Splicers		EACH	80	

* Length is height of spiral.

TY-LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD, MAF

PIER 1 DETAILS

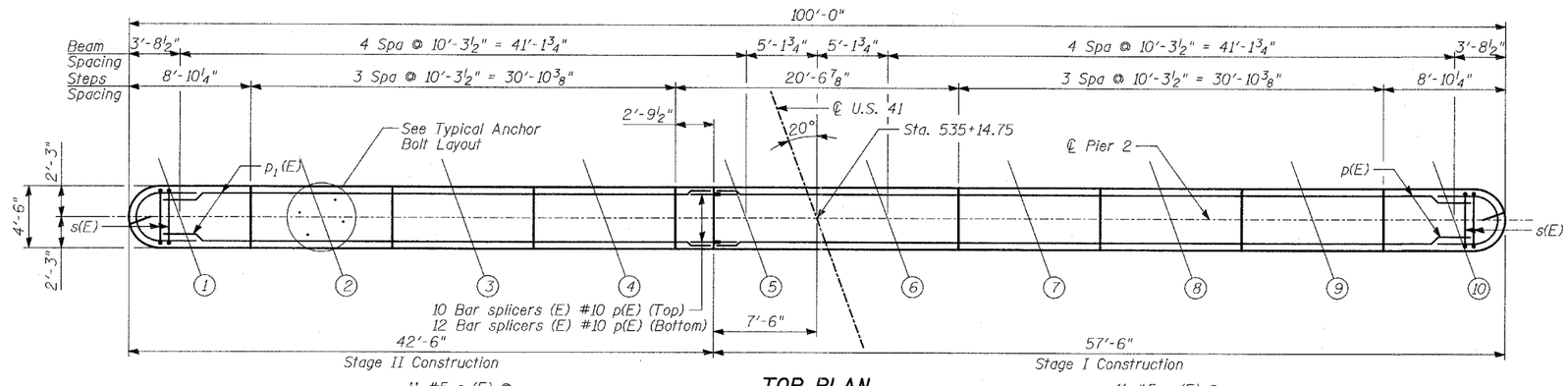
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	214
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. S-45
S-66 SHEETS

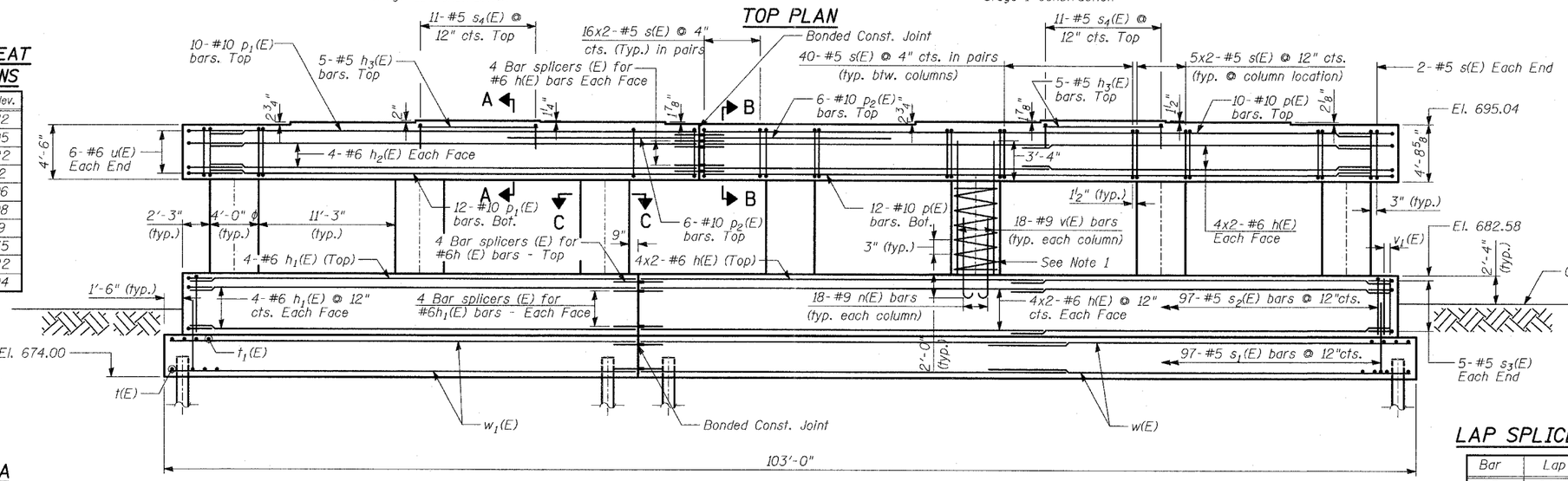
* 125X-HB-(1&2) R-1 CONTRACT * 60826



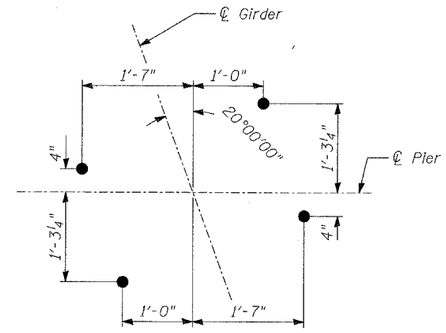
BEARING SEAT ELEVATIONS

Girder	Seat Elev.
1	694.82
2	695.05
3	695.22
4	695.12
5	694.96
6	694.98
7	695.19
8	695.35
9	695.22
10	695.04

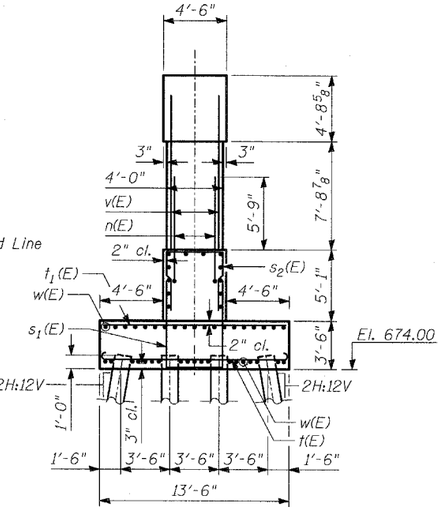
TOP PLAN



PIER 2 ELEVATION
(Looking South)



TYPICAL ANCHOR BOLTS LAYOUT



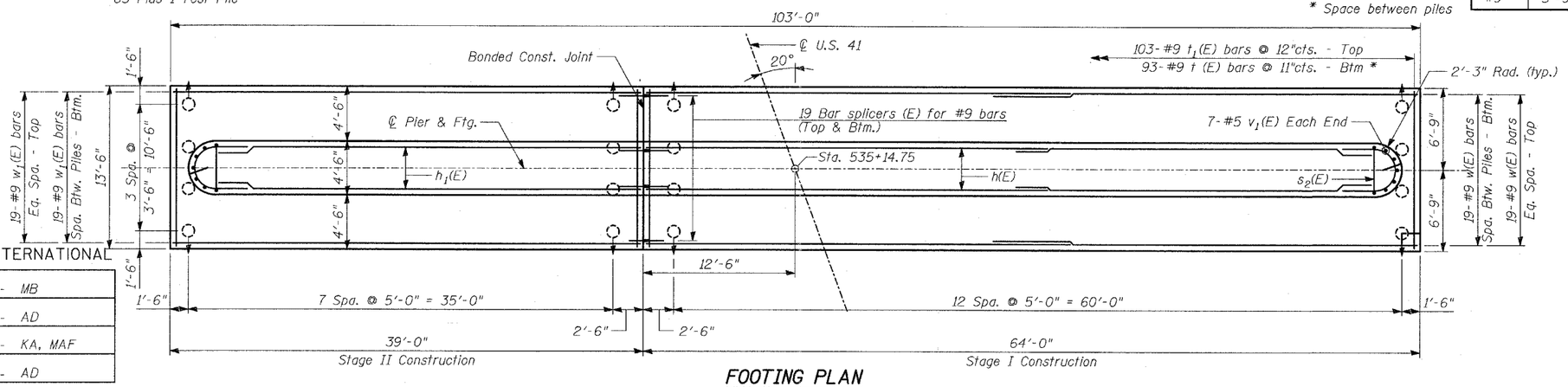
END VIEW

LAP SPLICES

Bar	Lap
#5	2'-2"
#6	2'-7"
#8	4'-6"
#9	5'-9"

PILE DATA

Type: Metal Shell - 14" ϕ x ⅜" wall
Nominal Required Bearing: 390 kips
Allowable Resistance Available: 130 kips
Est. Length: 48.0'
No. Req'd: 83 Plus 1 Test Pile



FOOTING PLAN

Notes:

1. For spirals in each column, provide 1½ extra turns top & bottom. Extend spiral 2" into pier cap. Provide 4-#4 spacers or equivalent.
2. Space reinforcement in cap to miss anchor bolts.
3. Pour steps monolithically with cap.
4. Space bottom reinforcement in footing to miss piles.
5. See Sheet S-46 of S-66, for Sections A-A, B-B and C-C.

TYLIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- KA, MAF
CHECKED	- AD

PIER 2

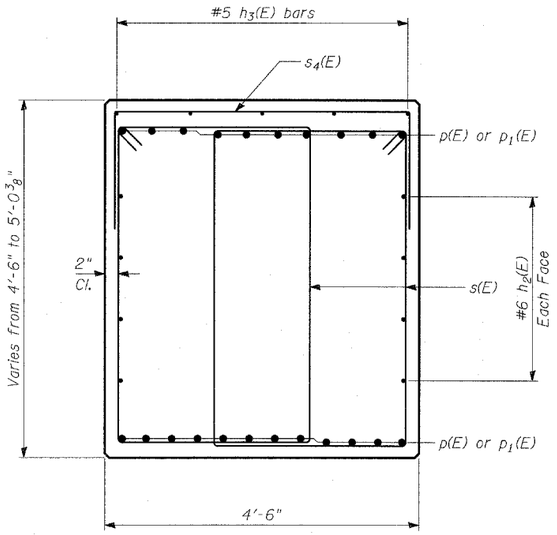
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

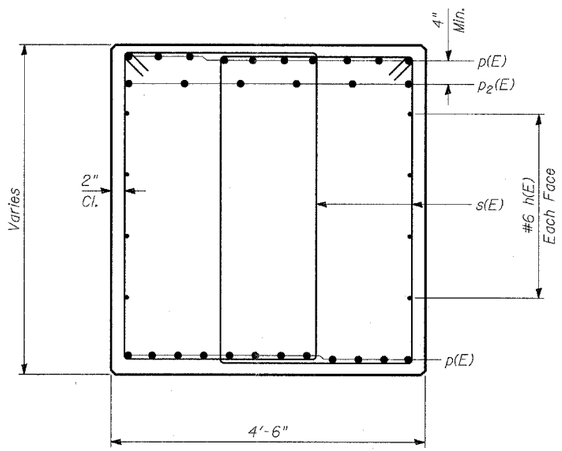
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	215
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-46
S-66- SHEETS

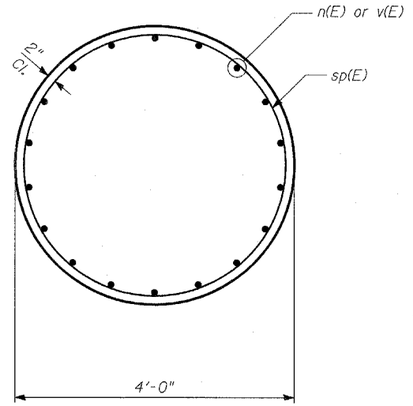
* 125X-HB-(1&2) R-1 CONTRACT * 60826



SECTION A-A



SECTION B-B

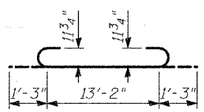


SECTION C-C

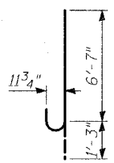
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	40	#6	31'-2"	
h_1(E)	12	#6	35'-1"	
h_2(E)	8	#6	40'-1"	
h_3(E)	10	#5	9'-10"	
n(E)	126	#9	7'-10"	
p(E)	22	#10	55'-2"	
p_1(E)	22	#10	40'-1"	
p_2(E)	12	#10	15'-6"	
s(E)	538	#5	17'-7"	
s_1(E)	97	#5	15'-10"	
s_2(E)	97	#5	13'-0"	
s_3(E)	10	#5	10'-9"	
s_4(E)	22	#5	10'-0"	
* sp(E)	7	#5	7'-11"	
t(E)	93	#9	15'-8"	
t_1(E)	103	#9	13'-2"	
u(E)	12	#6	11'-7"	
v(E)	126	#9	11'-1"	
v_1(E)	14	#5	4'-3"	
w(E)	76	#9	35'-0"	
w_1(E)	38	#9	38'-8"	
Reinforcement Bars, Epoxy Coated		POUND	60,930	
Structure Excavation		CU YD	3,658	
Concrete Structures		CU YD	376	
Furnishing Metal Pile Shells 14" x 3/8"		FOOT	3,984	
Driving Piles		FOOT	3,984	
Test Pile Metal Shells		EACH	1	
Bar Splicers		EACH	80	

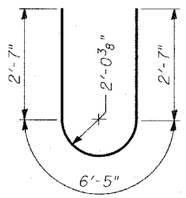
* Length is height of spiral.



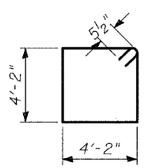
BAR t(E)



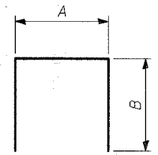
BAR n(E)



BAR u(E)



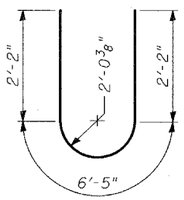
BAR s(E)



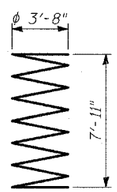
BARS s_1(E), s_2(E) & s_4(E)

MARK TABLE

Bar	A	B
s_1(E)	4'-2"	5'-10"
s_2(E)	4'-2"	4'-5"
s_4(E)	4'-2"	2'-5"



BAR s_3(E)



BAR sp(E)

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD, MAF

PIER 2 DETAILS

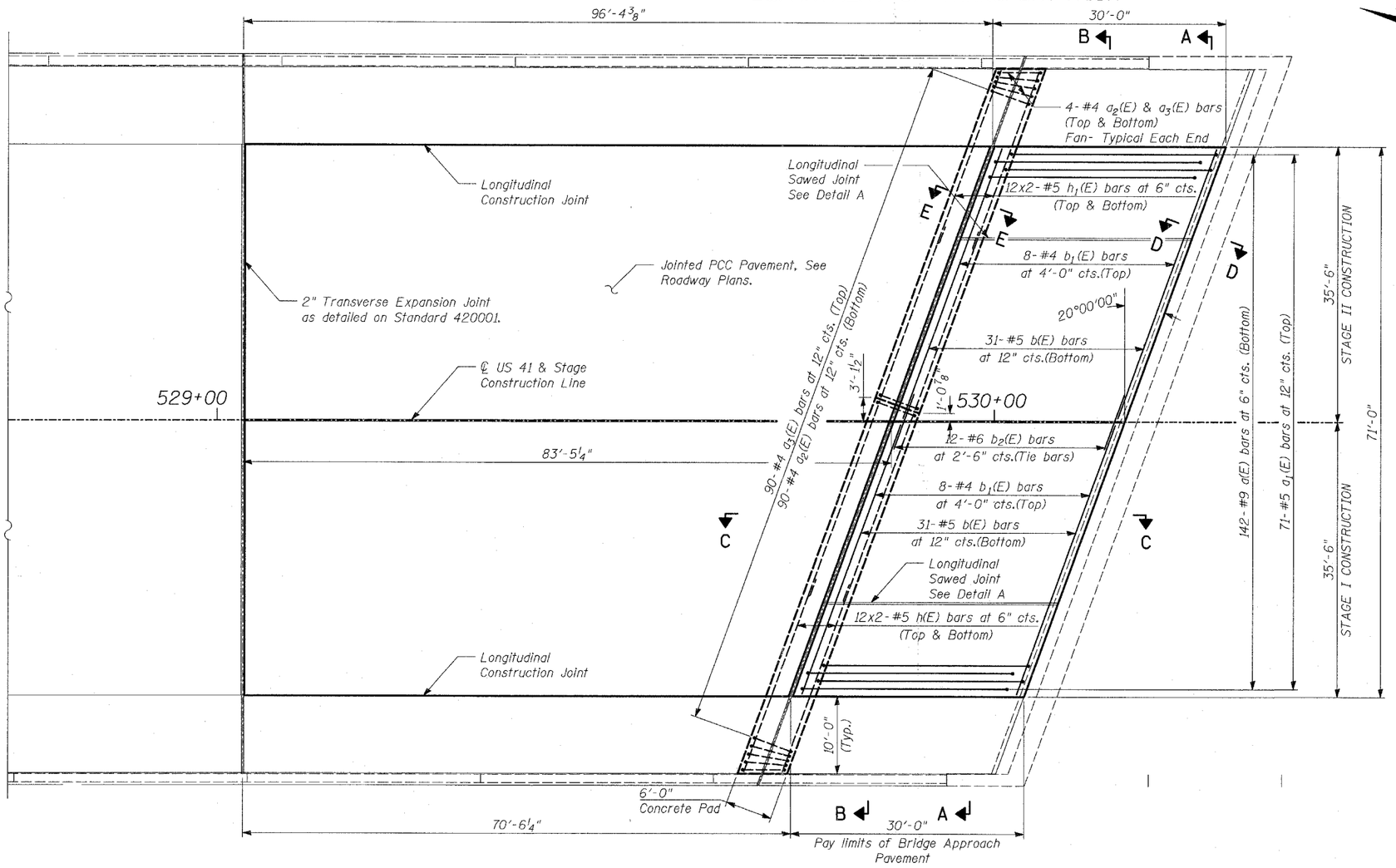
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

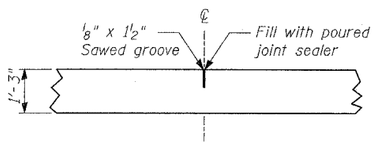
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	216
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-47
S-66- SHEETS

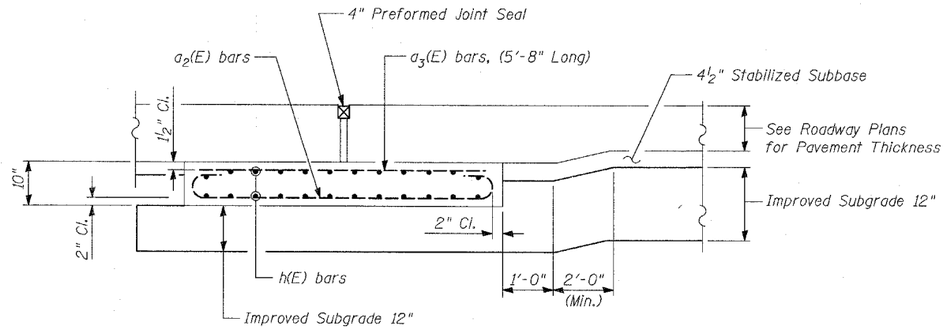
* 125X-HB-(1&2) R-1 CONTRACT # 60826



PLAN



DETAIL A
(Reinforcement Not Shown)



SECTION E-E - RIGID PAVEMENT
(Showing reinforcement)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	142	#9	29'-6"	
a_1(E)	71	#5	29'-6"	
a_2(E)	98	#4	6'-8"	
a_3(E)	98	#4	5'-8"	
b(E)	62	#5	35'-2"	
b_1(E)	16	#4	35'-2"	
b_2(E)	12	#6	2'-6"	
h(E)	48	#5	26'-9"	
h_1(E)	48	#5	24'-7"	
Reinforcement Bars, Epoxy Coated			POUND	22,500
Bridge Approach Pavement, Special			SQ YD	237
Protective Coat			SQ YD	252

Quantity of "Reinforcement bars, Epoxy Coated" is shown for information only.

NOTES:

1. See Standard 421001 for reinforcement details not shown.
2. See Standard 420001 for joint details not shown.
3. The cost of tie bars, expansion joint, preformed joint seal, polyethylene bond breaker, reinforcement bars, concrete, concrete pad (including reinforcement), 4" granular subbase and excavation shall be included in the cost of "Bridge Approach Pavement, (Special).

TY·LIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

NORTH BRIDGE APPROACH PAVEMENT
(1 OF 2)

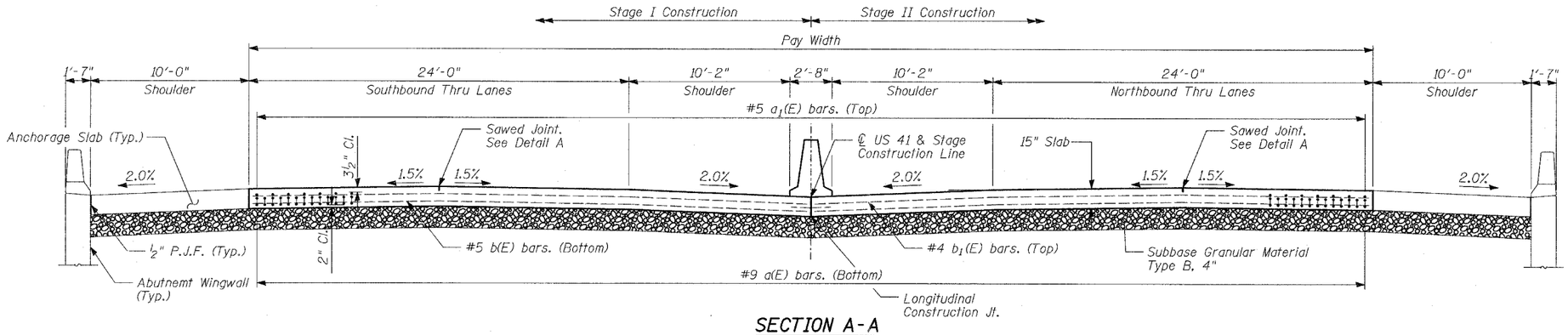
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	217
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-48
S-66- SHEETS

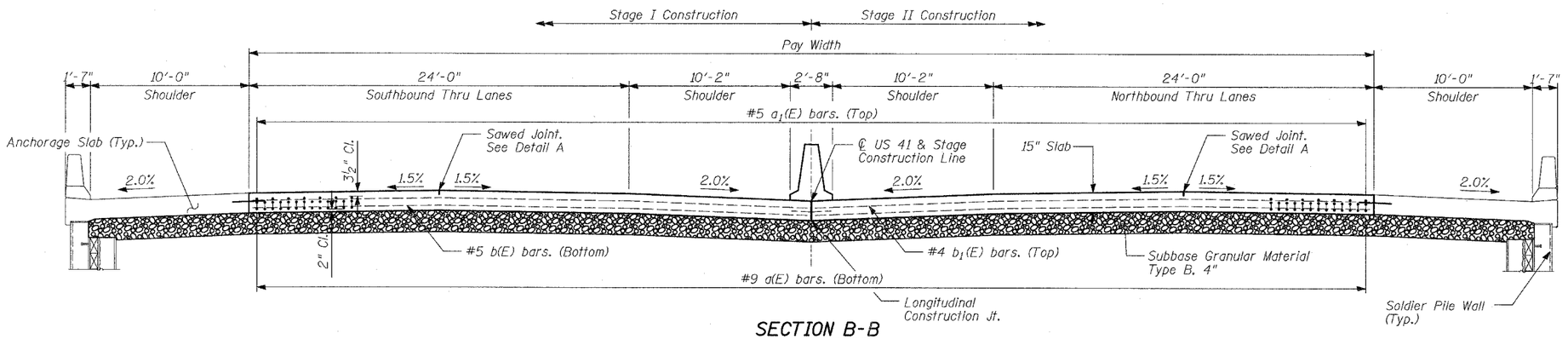
* 125X-HB-(1&2) R-1 CONTRACT * 60826

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



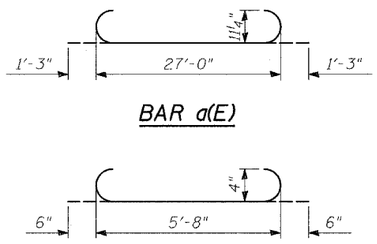
SECTION A-A

(See Plan for Dimensions not shown)



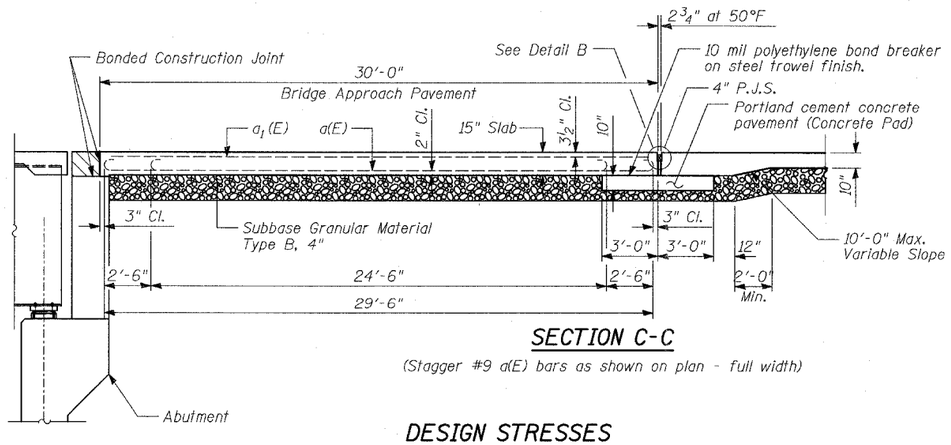
SECTION B-B

(See Plan for Dimensions not shown)



BAR a(E)

BAR a_2(E)

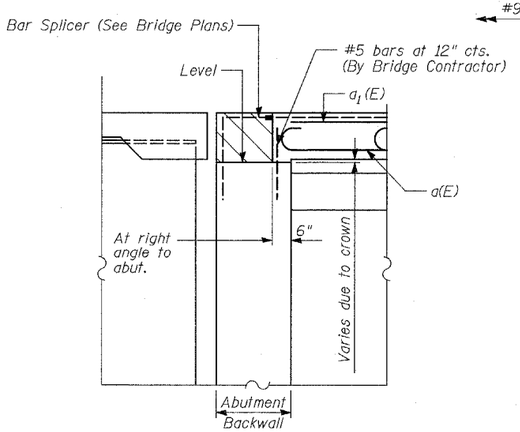


SECTION C-C

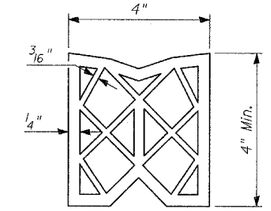
(Stagger #9 a(E) bars as shown on plan - full width)

DESIGN STRESSES

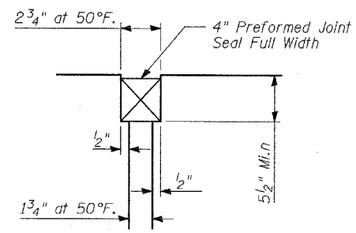
fy = 60,000 psi
f'c = 3,500 psi
n = 8.5



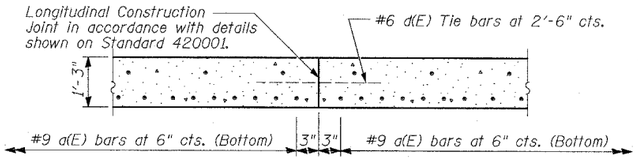
SECTION D-D



PREFORMED JOINT SEAL



DETAIL B



OPTIONAL LONGITUDINAL CONSTRUCTION JOINT

As approved by the Engineer, the Contractor may elect to reduce the widths of pour by use of the Optional Longitudinal Construction Joint shown. Joints shall be located at the edge of a traffic lane.

TY·LIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

NORTH BRIDGE APPROACH PAVEMENT (2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	218
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

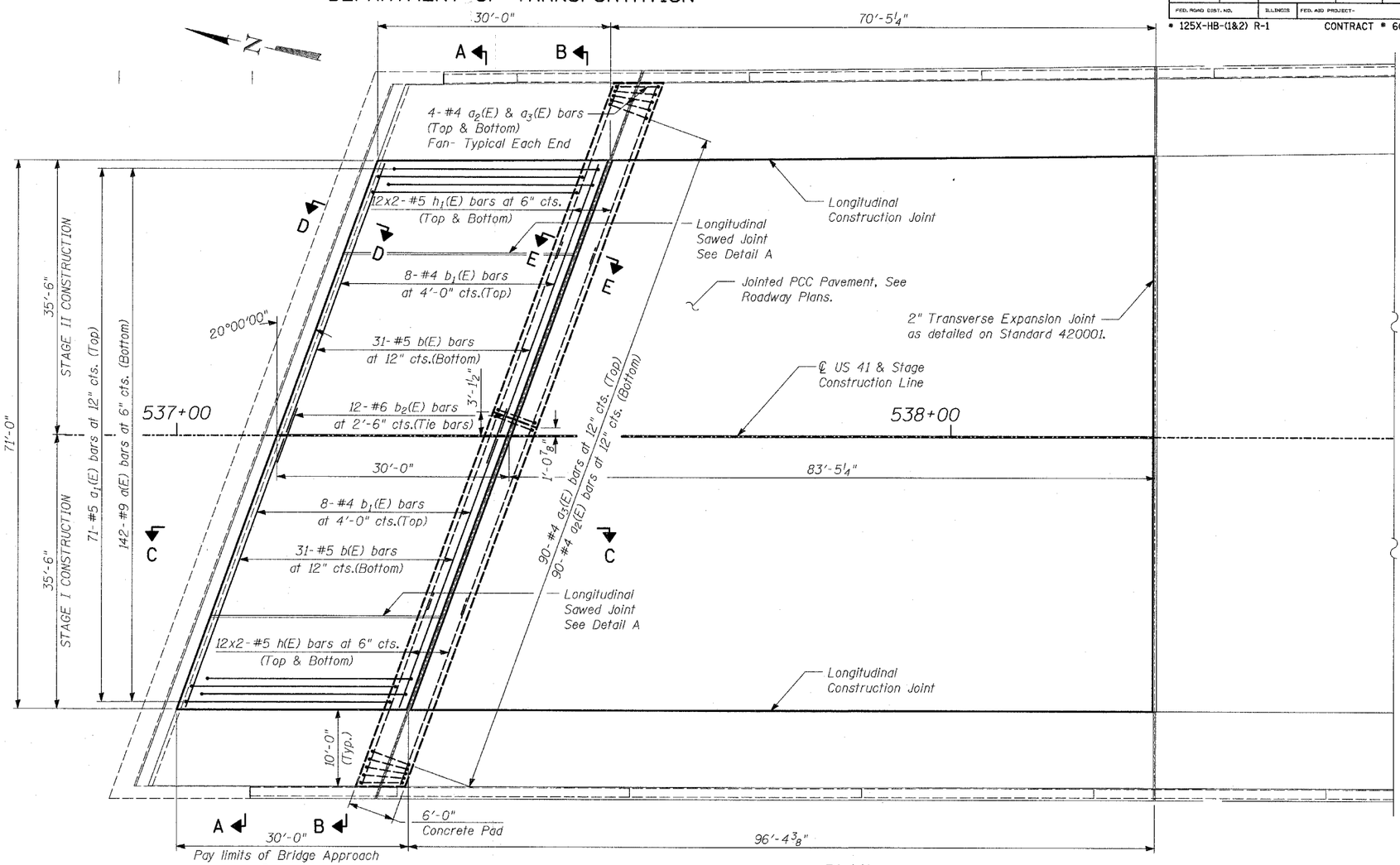
* 125X-HB-(1&2) R-1 CONTRACT # 60826

SHEET NO. -S-49
S-66- SHEETS

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)	142	#9	29'-6"	
a_1(E)	71	#5	29'-6"	
a_2(E)	98	#4	6'-8"	
a_3(E)	98	#4	5'-8"	
b(E)	62	#5	35'-2"	
b_1(E)	16	#4	35'-2"	
b_2(E)	12	#6	2'-6"	
h(E)	48	#5	26'-9"	
h_1(E)	48	#5	24'-7"	
Reinforcement Bars, Epoxy Coated			POUND	22,500
Bridge Approach Pavement, Special			SQ YD	237
Protective Coat			SQ YD	252

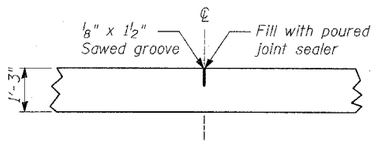
Quantity of "Reinforcement bars, Epoxy Coated" is shown for information only.



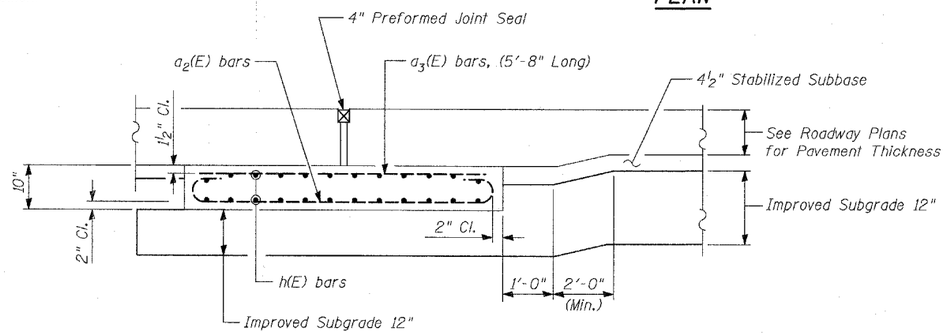
PLAN

NOTES:

1. See Standard 421001 for reinforcement details not shown.
2. See Standard 420001 for joint details not shown.
3. The cost of tie bars, expansion joint, preformed joint seal, polyethylene bond breaker, reinforcement bars, concrete, concrete pad (including reinforcement), 4" granular subbase and excavation shall be included in the cost of "Bridge Approach Pavement, (Special).



DETAIL A
(Reinforcement Not Shown)



SECTION E-E - RIGID PAVEMENT
(Showing reinforcement)

TY·LIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

SOUTH BRIDGE APPROACH PAVEMENT
(1 OF 2)

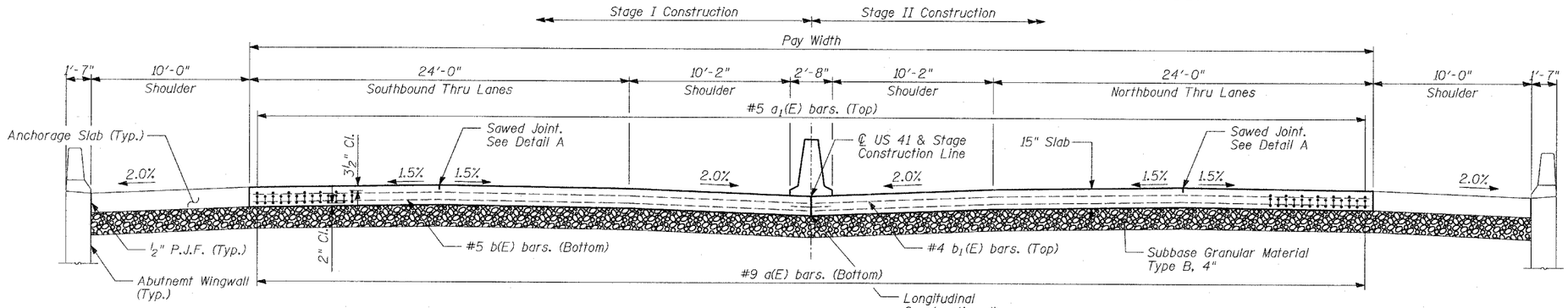
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	219
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - S-50
S-66- SHEETS

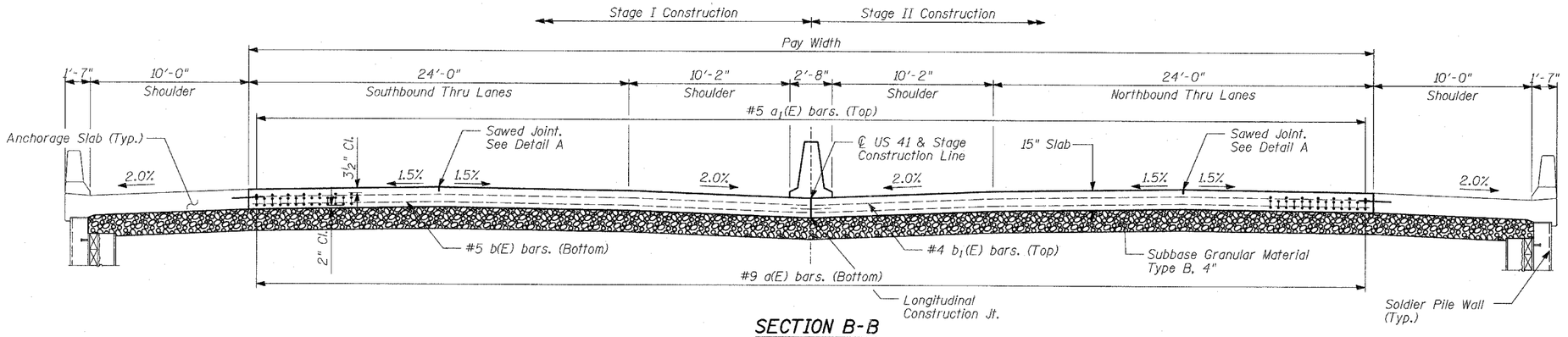
* 125X-HB-(1&2) R-1 CONTRACT # 60826

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



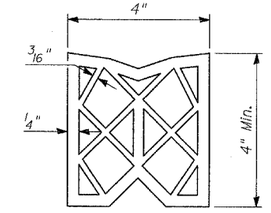
SECTION A-A

(See Plan for Dimensions not shown)

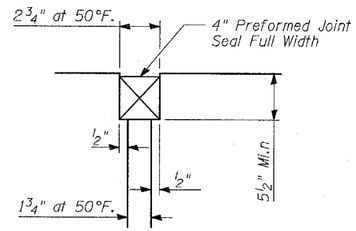


SECTION B-B

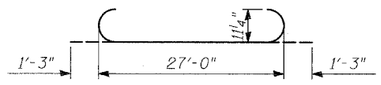
(See Plan for Dimensions not shown)



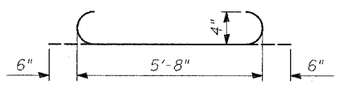
PREFORMED JOINT SEAL



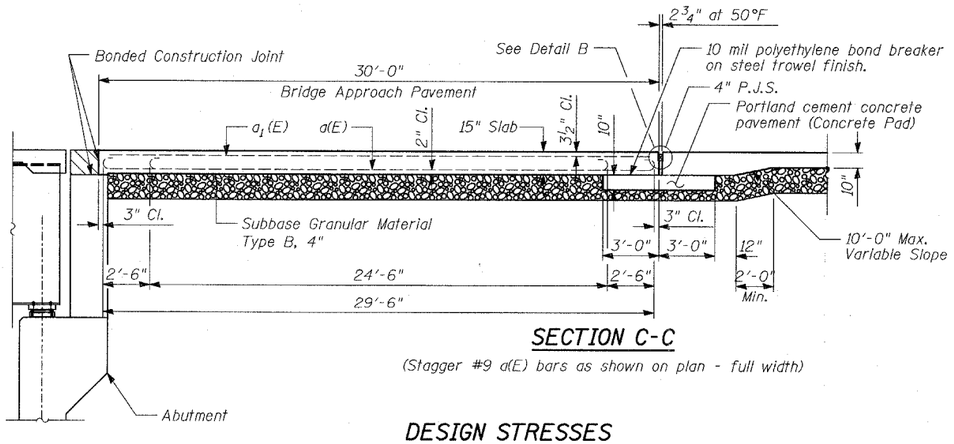
DETAIL B



BAR a(E)

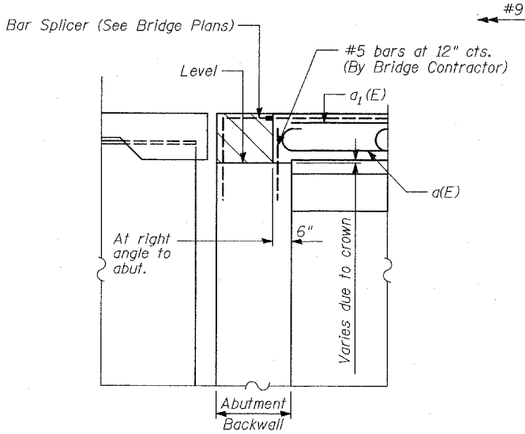


BAR a2(E)

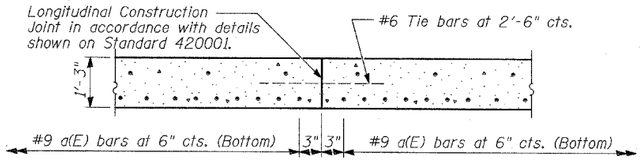


SECTION C-C

(Stagger #9 a(E) bars as shown on plan - full width)



SECTION D-D



OPTIONAL LONGITUDINAL CONSTRUCTION JOINT

As approved by the Engineer, the Contractor may elect to reduce the widths of pour by use of the Optional Longitudinal Construction Joint shown. Joints shall be located at the edge of a traffic lane.

DESIGN STRESSES

fy = 60,000 psi
f'c = 3,500 psi
n = 8.5

TYLIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

SOUTH BRIDGE APPROACH PAVEMENT (2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	220
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. " S-51
S-66" SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
825 Ambercrest Court Suite 204
Naperville, Illinois 60565
(630) 955-2956

SOIL BORING LOG

PAGE 1 of 3
DATE August 2-4, 2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-0209
Station
BORING NO. B-1
Station 529+94.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	4			SILTY CLAY LOAM- dark brown to brown- medium stiff to stiff (A-6)
	5			
	6	0.75P	15	
	4			
694.3	3			
-5	6	1.0P	13	
	5		131	CLAY-brown & gray- very stiff to hard (A-6)
	5			
	10	3.0B	10	
	7		127	
	10			
-10	12	4.1B	12	
687.8				
	9		127	CLAY-gray- very stiff to hard (A-6)
	12			
	18	5.5B	12	
	10			
	15			
-15	13		NR	
	4		127	
	8			
	18	3.7B	12	
	7		129	
	10			
-20	12	1.9B	10	
	8		128	CLAY-gray- very stiff to hard (A-6)
	6			
	13	2.5B	12	
	4		125	
	5			
-25	9	2.7B	13	
	8			
	8			
	10		NR	
	5			
-30	8	-	15	
664.8				
	11			
	5			
-35	4	NP	15	SANDY LOAM-gray-loose (A-2)
663.3				
	8			CLAY-gray-very stiff (A-6)
	9		132	
-40	12	3.7B	10	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
825 Ambercrest Court Suite 204
Naperville, Illinois 60565
(630) 955-2956

SOIL BORING LOG

PAGE 2 of 3
DATE August 2-4, 2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-0209
Station
BORING NO. B-1
Station 529+94.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				CLAY-gray-very stiff (A-6)
655.3				
	8			SANDY CLAY LOAM-gray- medium dense (A-2-6)
653.8	11			
-45	19	NP	17	
	8		133	CLAY-gray- very stiff to hard (A-6)
	11			
-50	19	5.3B	10	
	6		128	
	11			
-55	15	2.7B	12	
640.3				
	11			SILTY LOAM-gray-dense (A-4)
	16			
-60	16	NP	15	
				SILTY LOAM-gray-dense (A-4)
635.8				
	9		121	
	12			CLAY-gray-very stiff (A-6)
-65	15	2.8B	15	
629.8	5			
	6			
-70	18	NP	15	
				Fine SAND-gray-medium dense (A-3)
625.3				
	14			
	14			
-75	16	NP	15	SAND & GRAVEL-gray- medium dense to dense (A-1)
	27			
619.3	12			
-80	12	NP	13	CLAY-gray-stiff to very stiff (A-6)

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

BORING LOG B-1
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	221
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-52
S-66- SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 305-1388

SOIL BORING LOG

PAGE 3 of 3
DATE August 2-4, 2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-0209
Station
BORING NO. B-1
Station 529+94.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to very stiff (A-6)
	11		121	
	14			
-85	16	1.1B	15	
	7			
	10			
-90	16	2.0P	17	
	11		120	
	21			
-95	27	1.1B	15	
	8		120	
	12			
-100	21	2.8B	15	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to very stiff (A-6)
	10		113	
	12			
-105	14	2.5B	18	
	11		105	
	14			
-110	23	3.4B	23	
585.8				
	37			SILTY LOAM-gray-very dense (A-4)
	67			
583.8 -115	72	NP	17	
				End of Boring @ -115.0'
				Rotary Drilling to Completion
				85.0' Casing Used
				D-120 Safety Hammer
-120				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG B-1
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	222
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-53
S-66 SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2256

SOIL BORING LOG

PAGE 1 of 3
DATE 10/21/2004
LOGGED BY CS
GSI JOB No. Ø314

ROUTE FAP Rte. 346
DESCRIPTION New Overpass
TWNSHP Gurnee
LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake
DRILLING METHOD 3.25" HSA/Rotary
HAMMER TYPE CME-75 Auto Hammer
STRUCT. NO. SN Ø49-Ø2Ø9
Station
BORING NO. B-2
Station 530+12.2 US 41 Centerline
Offset 31.16' Left
Ground Surface Elev. 694.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs.

DEPTH (ft)		BLOWS (/6")	UCS Qu	MOIST (%)
	TOPSOIL-black (Fill)	6		
		5		
		4	-	17
691.2				
		2		
	CLAY-brown spotted black-stiff (A-6) Fill	2		
-5		4	1.25P	22
		4		111
687.2		9		
		10	5.3B	18
	CLAY-brown & gray-hard (A-6)			
685.2		4		109
		5		
-10	CLAY-gray-very stiff (A-6)	8	2.7B	18
683.2				
		5		
	SILT-gray-medium dense (A-4)	8		
		11	NP	19
681.2				
		5		110
		6		
-15	CLAY-gray-medium stiff to very stiff (A-6)	7	3.5B	17
		2		118
		4		
		6	Ø.9B	16
		3		110
		4		
-20		5	2.7B	17

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
		3		100
	CLAY-gray-medium stiff to very stiff (A-6)	4		
		7	1.8B	23
		3		99
		5		
-25		7	1.8B	25
668.2				
		5		
	SAND & GRAVEL-gray-medium dense (A-1)	9		
		11	NP	8
666.2				
		3		127
		7		
-30	CLAY-gray-medium stiff to very stiff (A-6)	9	2.7P	12
		6		
		6		
-35		7	2.2P	16
		3		
		4		
-40		6	1.5P	16

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2256

SOIL BORING LOG

PAGE 2 of 3
DATE 10/21/2004
LOGGED BY CS
GSI JOB No. Ø314

ROUTE FAP Rte. 346
DESCRIPTION New Overpass
TWNSHP Gurnee
LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake
DRILLING METHOD 3.25" HSA/Rotary
HAMMER TYPE CME-75 Auto Hammer
STRUCT. NO. SN Ø49-Ø2Ø9
Station
BORING NO. B-2
Station 530+12.2 US 41 Centerline
Offset 31.16' Left
Ground Surface Elev. 694.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs.

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	CLAY-gray-medium stiff to very stiff (A-6)			
	CLAY-gray-medium stiff to very stiff (A-6)			
		6		124
		8		
-45		13	3.5P	13
		9		122
		50/1"		
-50			3.9B	14
		10		
		19		
-55		22	4.0P	15
		5		105
		6		
-60		8	Ø.9B	23

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
631.2				
		12		
		14		
-65	SAND & GRAVEL-gray-medium dense (A-2-4)	15	NP	18
		14		
		14		
-70		12	NP	11
620.2		22		
		12		
		12	-	17
	CLAY-gray-very stiff to hard (A-6)			
		8		120
		9		
-80		13	3.5P	15

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	MAF
CHECKED	AD
DRAWN	MAF
CHECKED	AD

BORING LOG B-2
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-Ø2Ø9

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	223
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -S-54
S-66- SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 America Court, Suite 204
Naperville, Illinois 60565
(630) 955-2956

SOIL BORING LOG

PAGE 3 of 3
DATE 10/21/2004
LOGGED BY CS
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25' HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-2
Station 530+12.2 US 41 Centerline
Offset 31.16' Left
Ground Surface Elev. 694.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)		DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
				CLAY-gray-very stiff to hard (A-6)				
				CLAY-gray-very stiff to hard (A-6)				
					591.2			
	8					9		
	11					11		
-85	20	-	24	SILT-gray-dense to very dense (A-4)	-105	21	NP	17
						49		
	13							
	17					65		
-90	18	4.5P	14		584.2 -110	78	NP	12
				End of Boring @ -110.0' Hollow Stem Augers to -30.0' Rotary Drilling to Completion CME-75 Automatic Hammer				
	13							
	19							
-95	61	4.5P	20		-115			
	9		106					
	13							
-100	21	3.0P	22		-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	MAF
CHECKED	AD
DRAWN	MAF
CHECKED	AD

BORING LOG B-2
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	224
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

* 125X-HB-(1&2) R-1 CONTRACT # 60826

SHEET NO. - S-55
S-66- SHEETS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

PAGE 1 of 3
DATE 8/22-24/2004
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GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-3
Station 532+04.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.7

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs.

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
TOPSOIL-black (A-7)	697.2		12		*117*
CLAY-brown spotted black-hard (A-6) Fill			4		
	695.7		8	4.4B	13
CLAYEY TOPSOIL-black (A-7) Fill			6		
			4		
	692.7	-5	4	-	11
CLAY-brown & gray spotted black-stiff (A-6) Fill			3		*100*
			4		
	690.2		5	1.4B	22
CLAY-brown & gray-very stiff to hard (A-6)			8		*109*
			6		
		-10	10	6.0B	20
			5		*100*
			9		
			15	4.0B	24
			7		*101*
			4		
	683.2	-15	7	3.0B	25
CLAY to CLAY LOAM-gray-stiff to very stiff (A-6)			5		*117*
			7		
			10	3.4B	16
			5		*123*
			6		
	678.7	-20	7	2.2P	14

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY-gray-stiff to very stiff (A-6)			7		*115*
			10		
			10	2.8B	17
			4		*115*
			7		
		-25	9	3.0B	18
			8		*115*
			67		
			50/4"	2.8P	17
			3		*102*
			6		
		-30	7	1.5P	24
	665.2				
SAND & GRAVEL-gray-loose to medium dense (A-1)			5		
			2		
		-35	5		NR
			7		
			7		
		-40	8	NP	10

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

PAGE 2 of 3
DATE 8/22-24/2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-3
Station 532+04.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.7

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs.

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SILTY SAND & GRAVEL-gray-medium dense (A-2-4)			9		
			13		
		-45	8	NP	12
	652.7				
CLAY-gray-very stiff (A-6)			5		*127*
			8		
		-50	12	3.3P	12
			7		*122*
			11		
		-55	13	4.0P	14
	639.7		15		
SILT-gray-dense (A-4)			22		
		-60	17	NP	18

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SILT-gray-dense (A-4)	635.2				
CLAY-gray-very stiff (A-6)			7		*122*
			11		
		-65	13	4.0P	14
	629.7		11		
SANDY LOAM-gray-medium dense (A-2-6)			12		
		-70	13	NP	15
	625.2				
SAND-gray-dense (A-3)			12		
			15		
		-75	17	NP	18
	620.2		13		
CLAY-gray-stiff to very stiff (A-6)			11		
		-80	14	-	16

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

T·Y·LIN INTERNATIONAL

DESIGNED	- *MAF*
CHECKED	- *AD*
DRAWN	- *MAF*
CHECKED	- *AD*

BORING LOG B-3
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	225
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-56
S-66 SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
825 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2336

SOIL BORING LOG

PAGE 3 of 3
DATE 8/22-24/2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-0209
Station
BORING NO. B-3
Station 532+04.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.7

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to very stiff (A-6)
	4		123	
	9			
-85	11	3.3P	14	
	8			
	12			
-90	16		NR	
	6		119	
	16			
-95	16	4.5P	16	
	6			
	10			
-100	14	-	16	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to very stiff (A-6)
	4		118	
	9			
-105	12	3.5P	16	
	4		101	
	8			
-110	10	2.7B	25	
	10			
584.7				
	27			
583.7 -115	35	NP	18	SILT-gray-very dense (A-4)
				End of Boring @ -115.0'
				Hollow Stem Augers to -10.0'
				Rotary Drilling to Completion
				D-120 Safety Hammer
-120				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG B-3
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	226
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - S-57
S-66- SHEETS

• 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 305-2306

SOIL BORING LOG

PAGE 1 of 3
DATE 10/21/2004
LOGGED BY CS
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-4
Station 532+22.2 US 41 Centerline
Offset 31.16' Left
Ground Surface Elev. 683.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SANDY TOPSOIL with Gravel-black (Fill)
682.1				
	2			
	3			CLAY LOAM-brown spotted black-medium dense (A-6) Fill
	3	Ø.5P	18	
680.6				
	1		116	
	2			CLAY-gray-stiff to hard (A-6)
-5	6	3.ØB	17	
	2		113	
657.1	3			
	4	2.5B	18	SILTY LOAM-gray-medium dense (A-4)
655.6				
	2		102	
	4			CLAY-gray-stiff to hard (A-6)
-10	5	1.6B	18	
	4			
	5			
	7	3.ØP	2Ø	
	3		107	
	4			
-15	6	2.7B	23	
	2			Sand seam @ -16.5'.
	3			
	4	1.75P	14	
	3		116	
	4			
-20	5	3.7B	16	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	6		128	CLAY-gray-stiff to hard (A-6)
	6			
	7	3.4B	12	
	3		117	
	4			
-25	7	6.ØB	17	
	3			
	4			
	7	NP	19	
	3		124	
	5			
-3Ø	8	2.5B	13	CLAY-gray-stiff to hard (A-6)
	5		122	
	8			
-35	11	1.6B	14	
	6		126	
	12			
-4Ø	19	7.1B	13	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 305-2306

SOIL BORING LOG

PAGE 2 of 3
DATE 10/21/2004
LOGGED BY CS
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-4
Station 532+22.2 US 41 Centerline
Offset 31.16' Left
Ground Surface Elev. 683.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to hard (A-6)
	6		122	
	8			
-45	12	6.ØB	14	
	4		12Ø	
	8			
-5Ø	12	2.1B	23	
63Ø.6				
	13			
	14			SAND & GRAVEL-gray-dense (A-1-b)
-55	3Ø	NP	17	
625.6				
	13			SAND & GRAVEL-gray-medium dense to dense (A-1-a)
	14			
-6Ø	14	NP	3	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SAND & GRAVEL-gray-medium dense to dense (A-1-a)
	27			
	27			
618.6 -65	16	NP	26	
				CLAY-gray-very stiff to hard (A-6)
	9		122	
	16			
-7Ø	17	2.5B	14	
	1Ø			
	14			
-75	12		NR	
	11			
	58			
-8Ø	22	2.5P	16	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG B-4
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-Ø2Ø9

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	227
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. "S-58
S-66" SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 305-0206

SOIL BORING LOG

PAGE 3 of 3
DATE 10/21/2004
LOGGED BY CS
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-4
Station 532+22.2 US 41 Centerline
Offset 31.16' Left
Ground Surface Elev. 683.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-very stiff to hard (A-6)
	8			
-85	15 17	3.0P	21	
				SILT-gray-very dense (A-4)
	20			
578.6 -105	25 29	NP	12	
				End of Boring @ -105.0'
				Hollow Stem Augers to -30.0'
				Rotary Drilling to Completion
				CME-75 Automatic Hammer
	7		121	
-90	12 16	4.0B	15	
	12		120	
-95	19 24	3.4B	15	
584.6	13			
-100	15 42	NP	12	SILT-gray-very dense (A-4)
-110				
-115				
-120				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG B-4
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	228
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-59
S-66- SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amberst Court Suite 204
Naperville, Illinois 60565
(630) 355-2936

SOIL BORING LOG

PAGE 1 of 3
DATE 7/30-8/01-2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-5
Station 535+09.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.0

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SANDY TOPSOIL-black (Fill)
696.5				
	6		108	
	5			
	7	2.1B	18	
				CLAY-brown & gray spotted black- very stiff to hard (A-6) Fill
	2		104	
	4			
-5	6	2.1B	20	
				CLAY-gray-stiff to hard (A-6)
	3		108	
	4			
	3	5.0B	21	
	3		107	
	3			
-10	4	3.0B	21	
	8		108	
	10			
	13	2.8B	21	
684.5				
	4		109	
	8			
-15	13	3.7B	20	
				CLAY-gray-stiff to hard (A-6)
	14		114	
	17			
	22	5.8B	18	
	7		118	
	10			
-20	14	5.1B	16	
				CLAY-gray-stiff to hard (A-6)
-25	4			
	8		120	
	10			
	18	3.4B	15	
	4			
	6		118	
	6			
-25	8	1.6B	16	
	5		110	
	7			
	11	3.5B	20	
	5		108	
	8			
-30	11	4.1B	21	
	10		129	
	7			
-35	9	2.7B	12	
661.0				
				SAND & GRAVEL-gray- medium dense (A-1)
	13			
	9			
-40	10	NP	9	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

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Geotechnical, Environmental & Civil Engineering
805 Amberst Court Suite 204
Naperville, Illinois 60565
(630) 355-2936

SOIL BORING LOG

PAGE 2 of 3
DATE 7/30-8/01-2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-5
Station 535+09.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.0

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SAND & GRAVEL-gray- medium dense (A-1)
655.0				
	7		120	
	9			
-45	11	3.3P	15	
				CLAY-gray-stiff to very stiff (A-6)
	6		121	
	10			
-50	14	4.0P	14	
				SAND & GRAVEL-gray- medium dense (A-1)
	7			
	9			
-55	12	-	NR	
620.0				
	4		118	
	6			
-60	7	2.0P	16	
				CLAY-gray- medium stiff to very stiff (A-6)
-65	6			
	6		119	
	7			
	6	1.8B	16	
629.5				
	13			
	13			
-70	12	NP	14	
				SAND & GRAVEL-gray- medium dense (A-1)
	17			
	12			
-75	14	NP	9	
620.0				
	6		116	
	8			
-80	13	3.0P	17	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

BORING LOG B-5
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	229
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

* 125X-HB-(1&2) R-1 CONTRACT # 60826

SHEET NO. - S-60
S-66 SHEETS

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 955-2936

SOIL BORING LOG

PAGE 3 of 3
DATE 7/30-8/01-2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-5
Station 535+09.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.0

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY-gray- medium stiff to very stiff (A-6)	4		120		11		121
	8				16		
-85	9	2.8P	15	-105	20	4.5P	15
				CLAY-gray-hard (A-6)			
	5		121		9		119
	7				11		
608.0 -90	10	2.8P	15	-110	36	4.5P	16
				585.0			
CLAY-gray-hard (A-6)	8		123	CLAY-gray-medium stiff (A-6) Wet	8		92
	10				9		
-95	15	4.0P	14	583.0 -115	9	0.9B	31
				End of Boring @ -115.0' Hollow Stem Augers to -10.0' Rotary Drilling to Completion 80.0' Casing Used D-120 Safety Hammer			
	11		121				
	13						
-100	19	4.5P	15	-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer). ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206). The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

BORING LOG B-5
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	230
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-61
S-66 SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amberst Court Suite 204
Naperville, Illinois 60565
(630) 355-2998

SOIL BORING LOG

PAGE 1 of 3
DATE June 21, 2004
LOGGED BY AD
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN Ø49-Ø2Ø9
Station
BORING NO. B-6
Station 535+27.2 US 41 Centerline
Offset 31.2' Left
Ground Surface Elev. 683.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Soil Description
	5		100	CLAYEY TOPSOIL-black (A-7)
	5			
	7	0.4B	25	
679.7				
	5		113	CLAY-gray-stiff to very stiff (A-6)
	6			
-5	7	2.0P	18	
	5		116	
	7			
	16	2.5P	17	
	4		102	
	8			
-10	12	1.7B	24	
	9		101	
	11			
	12	2.1B	24	
	5		102	
	8			
-15	10	2.5B	24	
	4		111	
	8			
	13	1.9B	19	
	6		103	
	10			
-20	16	1.9B	24	

...continued

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Soil Description
	10			Poorly Graded SAND & GRAVEL-gray-dense to very dense (A-1)
	14			
	16	NP	11	
	24			
	32			
-25	45	NP	13	
657.7				
	35		125	CLAY-gray-hard (A-6)
	27			
	22	4.0P	13	
	100/3"			Apparent cobbles or boulder @ -28.5'.
-30			NR	
	9		121	
	10			
-35	19	4.5P	15	
	9		121	
	14			
-40	19	4.5P	15	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amberst Court Suite 204
Naperville, Illinois 60565
(630) 355-2998

SOIL BORING LOG

PAGE 2 of 3
DATE June 21, 2004
LOGGED BY JR
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN Ø49-Ø2Ø9
Station
BORING NO. B-6
Station 535+27.2 US 41 Centerline
Offset 31.2' Left
Ground Surface Elev. 683.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Soil Description
	7		118	CLAY-gray-stiff to very stiff (A-6)
	8			
-45	11	3.5P	16	
	10		119	
	6			
-50	9	2.5P	15	
629.7				
	14			Poorly Graded SAND with Gravel-gray-dense to very dense (A-1-b)
	17			
-55	26	NP	19	
	22			
	42			
-60	44	NP	11	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Soil Description
				Poorly Graded SAND with Gravel-gray-dense to very dense (A-1-b)
619.7				
	10		111	
	15			
-65	18	2.5P	19	
	12		120	CLAY-gray-hard (A-6)
	16			
-70	20	4.5P	15	
	10		120	
	15			
-75	18	4.5P	15	
	18			
	22			
-80	28	-	15	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	MAF
CHECKED	AD
DRAWN	MAF
CHECKED	AD

BORING LOG B-6
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-Ø2Ø9

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	231
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-62
S-66- SHEETS

• 125X-HB-(1&2) R-1 CONTRACT • 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2626

SOIL BORING LOG

PAGE 3 of 3
DATE June 21, 2004
LOGGED BY JR
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-6
Station 535+27.2 US 41 Centerline
Offset 31.2' Left
Ground Surface Elev. 683.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY-gray-hard (A-6)							
	18						
	28						
-85	39	4.5P	16	-105			
	87		122				
593.2 -90	37 38	4.5P	14	-110			
End of Boring @ -90.0' Hollow Stem Augers to -11.0' Rotary Drilling to Completion 70.0' Casing Used D-120 Safety Hammer							
-95				-115			
-100				-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG B-6
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	232
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-63
S-66- SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

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Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2900

SOIL BORING LOG

PAGE 1 of 3
DATE 6/23-7/30/2004
LOGGED BY AD
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-7
Station 537+19.4 US 41 Centerline
Offset 37.6' Right
Ground Surface Elev. 697.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAYEY TOPSOIL-black (A-7)
	6			
	7			
	11	1.75P	20	
693.2	7		101	
	10			CLAY-brown & gray- medium stiff to very stiff (A-6)
-5	10	1.4B	25	
	4		113	
	7			
	8	2.3B	18	
	2			
	3			
-10	4	2.0P	16	
	-			Drillers Observation: Unknown obstruction @ -11.0'.
	-		NR	
	10		102	
	22			
-15	22	0.5P	24	SAND-gray-dense (A-3)
	18			
	30			
	33		21	
679.2				
	11		114	CLAY-gray-stiff to very stiff (A-6)
	17			
-20	22	3.7B	18	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	8		110	CLAY-gray-stiff to very stiff (A-6)
	11			
	17	3.4B	20	
	9		104	
	11			
-25	16	2.3B	23	
	8		101	
	10			
	11	1.8B	25	
	9		103	
	8			
-30	10	1.5B	24	
663.2	18			
	24			
-35	20	NP	18	SAND-gray-dense (A-3)
659.7				
	8		111	CLAY-gray-very stiff (A-6)
	14			
657.2 -40	19	2.5B	19	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2900

SOIL BORING LOG

PAGE 2 of 3
DATE 6/23-7/30/2004
LOGGED BY AD
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-7
Station 537+19.4 US 41 Centerline
Offset 37.6' Right
Ground Surface Elev. 697.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SAND & GRAVEL-gray- medium dense (A-1)
	6			
	11			
-45	14	NP	23	
	11			
	15			
-50	17	NP	12	
644.7				
	9		123	CLAY-gray- medium stiff to very stiff (A-6)
	10			
-55	12	2.8B	14	
	11		117	
	8			
-60	9	2.8P	16	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray- medium stiff to very stiff (A-6) 625.6
				Fine SAND-gray-dense (A-3)
	15			
	20			
-65	21	NP	15	
	21			
	25			
-70	21	NP	15	
625.2				
	12			SAND & GRAVEL-gray-dense (A-1)
	20			
622.2 -75	22	NP	7	
				CLAY-gray-hard (A-6)
	7		X	
	10			
-80	14	1.9B	13	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG B-7
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	233
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -S-64
S-66- SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 305-1236

SOIL BORING LOG

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DATE 6/23-7/30/2004
LOGGED BY AD
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-0209
Station
BORING NO. B-7
Station 537+19.4 US 41 Centerline
Offset 37.6' Right
Ground Surface Elev. 697.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-hard (A-6)
	8		120	
	12			
-85	14	3.5P	15	
	8		124	
	10			
-90	16	4.5P	14	
				End of Boring @ -110.0'
				Hollow Stem Augers to -10.0'
				Rotary Drilling to Completion
				80.0' Casing Used
				D-120 Safety Hammer
	13			
	15			
-95	22	-	16	
	16		121	
	24			
-100	20	4.5P	15	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-hard (A-6)
	26			
	42			
-105	30	-	14	
	50			
	39			
587.2 -110	34	-	16	
-115				
-120				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

BORING LOG B-7
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	234
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - S-65
S-66- SHEETS

• 125X-HB-(1&2) R-1 CONTRACT # 60826

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 305-1206

SOIL BORING LOG

PAGE 1 of 3
DATE June 17-18, 2004
LOGGED BY AD
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station XX
BORING NO. B-8
Station 537+37.2 US 41 Centerline
Offset 30.97' Left
Ground Surface Elev. 690.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 679.4
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				TOPSOIL-black (A-7)
688.9	3		107	
	5			SILTY CLAY-trace organics-brown & gray spotted black-medium stiff to very stiff (A-6) Fill
	6	3.9B	18.9	
	2		106	
-5	4			
	4	0.9B	21.3	
684.4				
	3		112	CLAY-brown & gray-stiff to very stiff (A-6)
	2			
	6	2.0P	16.2	
	4			
-10	6			
	8	2.0P	18.1	
679.6				
	4		111	CLAY-gray-stiff to very stiff (A-6)
	6			
	7	1.3B	19.4	
	4			
-15	8			
	7	2.4B	20.5	
	3		124	
	7			
	7	2.3P	12.9	
	3		119	
-20	6			
	6	1.8B	15.5	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	4		96	CLAY-gray-stiff to very stiff (A-6)
	7			
	6	2.2B	20.6	
666.9				
	5			SAND with Gravel-gray-medium dense (A-1-b)
	8			
-25	9	NP	13.2	
664.9				
	4			CLAY-gray-very stiff to hard (A-6)
	5			
	11	3.7P	12.1	
	10		128	
	13			
-30	16	5.0B	11.7	
660.4				
				SAND with Gravel-gray-medium dense to dense (A-1-b)
	18			
	9			
-35	11	NP	12.8	
	8			
	14			
-40	19	NP	8.2	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 305-1206

SOIL BORING LOG

PAGE 2 of 3
DATE June 17-18, 2004
LOGGED BY AD
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-8
Station 537+37.2 US 41 Centerline
Offset 30.97' Left
Ground Surface Elev. 690.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 679.4
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SAND with Gravel-gray-medium dense to dense (A-1-b)
	20			
	11			
-45	17	NP	10.2	
641.9				
	6		123	CLAY-gray-hard (A-6)
	8			
-50	12	4.5P	13.9	
631.9				
	6			SAND-gray-medium dense to dense (A-3)
	5			
-60	6	NP	14.6	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SAND-gray-medium dense to dense (A-3)
	17			
	15			
-65	9	NP	11.9	
618.4				
	39			CLAY-gray-hard (A-6)
	22			
-70	19	NP	12.3	
	8		117	
	13			
-75	17	4.0P	16.4	
	7		122	
	10			
-80	11	4.0P	14.2	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG B-8
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	235
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -S-66
S-66-SHEETS

• 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amberley Court, Suite 204
Naperville, Illinois 60565
(630) 355-2626

SOIL BORING LOG

PAGE 3 of 3
DATE June 17-18, 2004
LOGGED BY AD
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-8
Station 537+37.2 US 41 Centerline
Offset 30.97' Left
Ground Surface Elev. 690.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 679.4 ▼
Upon Completion n/a ▽
After ____ Hrs. ____ ▽

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY-gray-hard (A-6)				CLAY-gray-hard (A-6)			
	11		130		16		101
	14				15		
-85	19	4.5P	11.3	585.4 -105	15	4.5P	24.9
				End of Boring @ -105.0'			
				Hollow Stem Augers to -11.0'			
				Rotary Drilling to Completion			
				75.0' Casing Used			
				D-120 Safety Hammer			
	10						
	11						
-90	25	4.5P	15.0	-110			
	11		124				
	13						
-95	16	4.5P	13.3	-115			
	15		123				
	12						
-100	14	4.5P	13.8	-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (2)

TYLIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG B-8
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-0209

Benchmark: BM #6 - Square cut in base of L.P. at N.E. corner of IL Route 132 and Magnolia (Speedway) 45.14' LT, Sta. 32+13.24 (IL 132 E.B. ℄), Elev. 696.47.

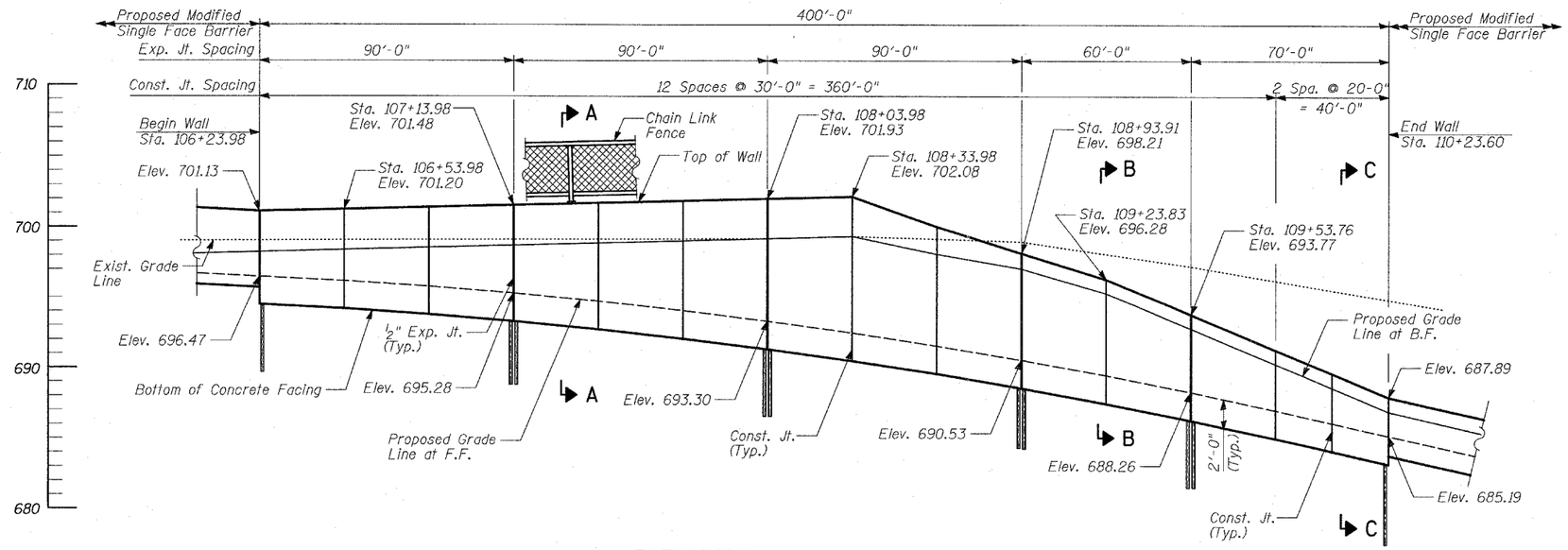
Existing Structure: None

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	236
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 1
15 - SHEETS

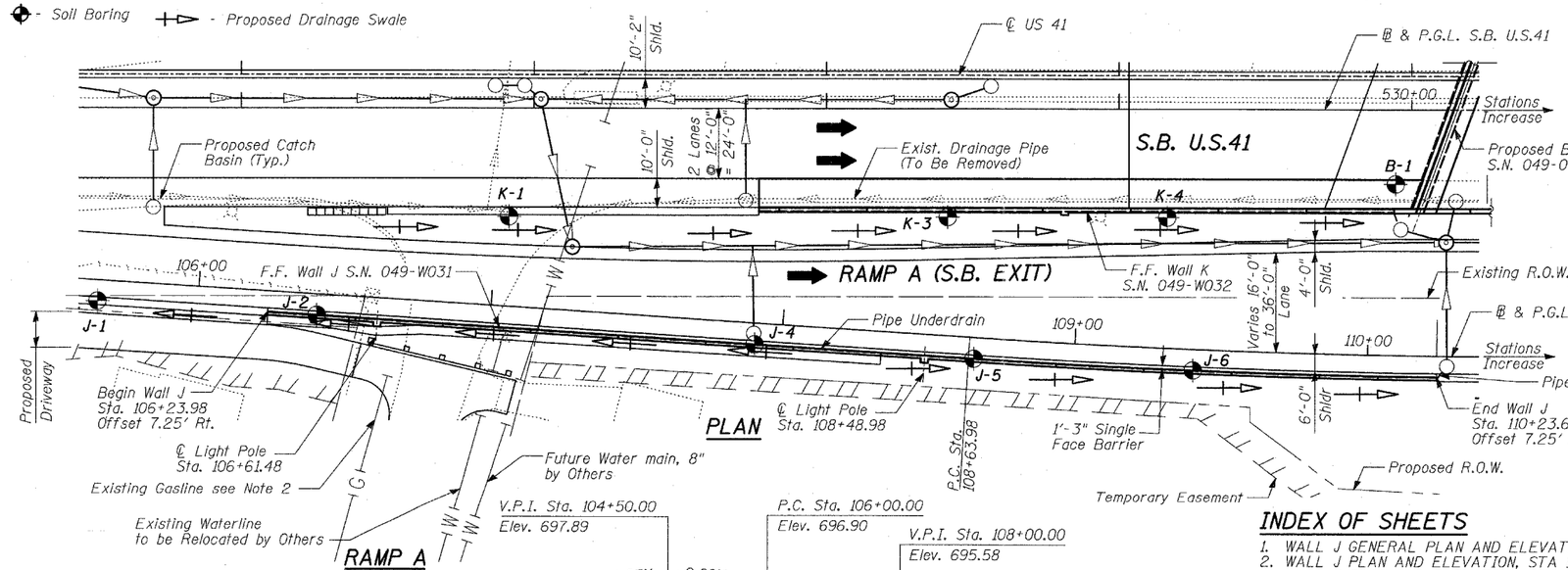
• 125X-HB-(1&2) R-1 CONTRACT • 60826



ELEVATION
(Looking at B.F.)

LEGEND

- ⊙ - Manhole
- ◯ - Catch Basin
- ⊕ - Soil Boring
- ⟶ - Prop. Storm Sewer
- ····· - Exist. Drain Pipe
- ⟶+ - Proposed Drainage Swale



TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	CU YD	385
Concrete Structures	CU YD	143
~~Anti-Graffiti Coating~~	~~SQ FT~~	~~3,075~~
~~Rustication Finish~~	~~SQ FT~~	~~1,423~~
Stud Shear Connectors	EACH	450
Untreated Timber Lagging	SQ FT	1,886
Reinforcement Bars, Epoxy Coated	POUND	13,900
Furnishing Soldier Piles (W Section)	FOOT	1,635
Geocomposite Wall Drain	SQ YD	232
Pipe Underdrains for Structures, 4"	FOOT	400
Drilling and Setting Soldier Piles (in Soil)	CU FT	8,992
Chain Link Fence, 42" Attached to Structure (Special)	FOOT	400

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications
For Highway Bridges

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 36,000 psi (structural steel M270 Grade 36)

NOTES:

1. Wall stations and offsets are given to the front face of the concrete facing, and are measured from Ramp A Baseline.
2. Existing utilities in conflict with soldier pile wall construction shall be abandoned or relocated according to direction given in roadway plans
3. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60 (IL Modified). See Special Provisions.
4. Reinforcement bars designated (E) shall be epoxy coated.
5. All exposed concrete edges shall be chamfered ¾" except as noted.
6. ~~Anti-Graffiti Coating shall be applied to exposed surfaces of the concrete facing.~~
7. All construction joints shall be bonded.

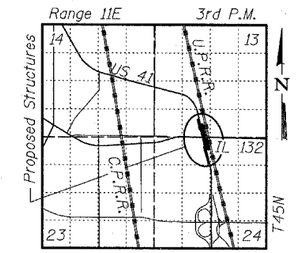
STATE OF ILLINOIS
SPIROS PANTAZIS
081-006448
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Signed _____
Spiros Pantazis, S.E. Il. Lic. No. 081-006448
Expires 11-30-2008.
For drawings 1 thru 15 of 15

Date 5/14/08

APPROVED
FOR STRUCTURAL ADEQUACY ONLY

Ralph E. Anderson (RA)
ENGINEER OF BRIDGES AND STRUCTURES



LOCATION SKETCH

INDEX OF SHEETS

1. WALL J GENERAL PLAN AND ELEVATION, STA 106+23.98 TO STA 110+23.60
2. WALL J PLAN AND ELEVATION, STA 106+23.98 TO 107+13.98
3. WALL J PLAN AND ELEVATION, STA 107+13.98 TO 108+03.98
4. WALL J PLAN AND ELEVATION, STA 108+03.98 TO 108+93.91
5. WALL J PLAN AND ELEVATION, STA 108+93.91 TO 109+53.76
6. WALL J PLAN AND ELEVATION, STA 109+53.76 TO 110+23.60
7. WALL J DETAILS (1 OF 2)
8. WALL J DETAILS (2 OF 2)
9. ~~RUSTICATION FINISH~~
10. CHAIN LINK FENCE, 42" ATTACHED TO STRUCTURE (SPECIAL)
11. BORING LOG J-1
12. BORING LOG J-2
13. BORING LOG J-4
14. BORING LOG J-5
15. BORING LOG J-6

TYLIN INTERNATIONAL

DESIGNED	MB
CHECKED	CM/AD
DRAWN	DE
CHECKED	CM/AD

HORIZONTAL CURVE DATA

Prop. Curve RAMPA-2
PI Sta. 109+61.45
= 3° 42' 07" (LT)
D = 1° 53' 59"
T = 97.47'
R = 3,016.00'
L = 194.87'
E = 1.57'
PC Sta. 108+63.98
PT Sta. 110+58.85

WALL J
GENERAL PLAN
STA 106+23.98 TO STA 110+23.60

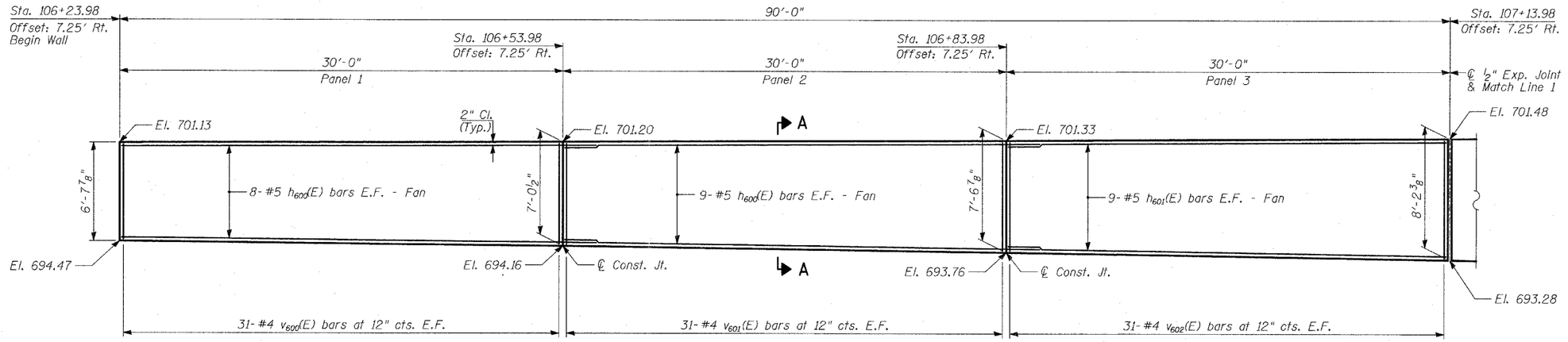
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	237
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

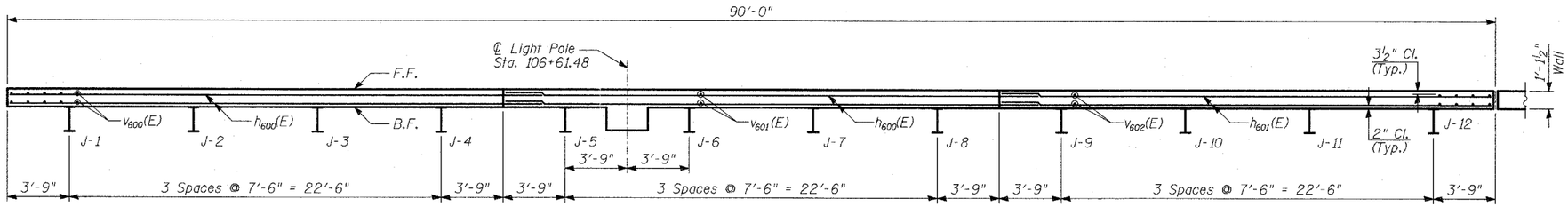
SHEET NO. - 2
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826



ELEVATION

(Offsets are Given From Baseline & P.G.L. Ramp A to F.F. of Wall)



PLAN

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
J-1	W18x106	27'-4"	696.41	669.08
J-2	W18x106	27'-4"	696.43	669.09
J-3	W18x106	27'-4"	696.44	669.11
J-4	W18x106	27'-4"	696.46	669.13
J-5	W18x106	27'-10"	696.49	668.65
J-6	W18x106	27'-10"	696.52	668.69
J-7	W18x106	27'-10"	696.55	668.72
J-8	W18x106	27'-10"	696.58	668.75
J-9	W18x106	28'-5"	696.62	668.20
J-10	W18x106	28'-5"	696.66	668.24
J-11	W18x106	28'-5"	696.69	668.28
J-12	W18x106	28'-5"	696.73	668.31

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 7 thru 10 of 15.
5. See Sheet 8 of 15 for Light Pole Mount Details.
6. Pile spacing measured along front face of wall.
7. For Bill of Material, see Sheet 8 of 15.
8. For Section A-A, see Sheet 7 of 15.

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	MAF

WALL J
PLAN AND ELEVATION
STA 106+23.98 TO STA 107+13.98

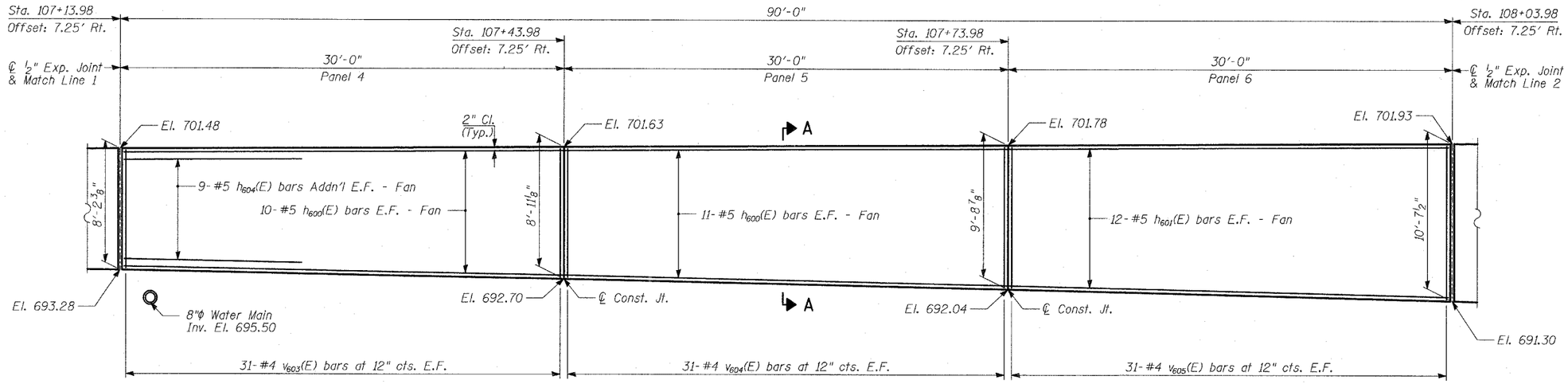
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	238
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

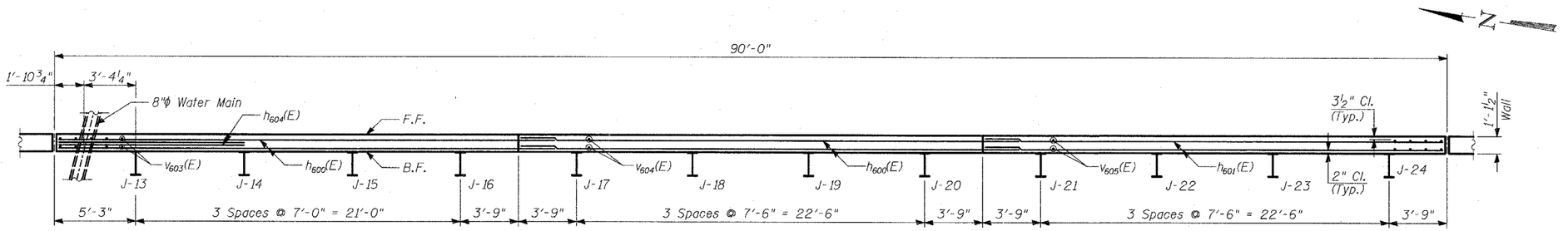
SHEET NO. - 3
15 - SHEETS

* 125X-HB-(1&2) R-1
CONTRACT # 60826



ELEVATION

(Offsets are Given From Baseline & P.G.L. Ramp A to F.F. of Wall)



PLAN

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
J-13	W21x111	32'-2"	696.77	664.60
J-14	W21x111	32'-2"	696.81	664.64
J-15	W21x111	32'-2"	696.84	664.68
J-16	W21x111	32'-2"	696.88	664.71
J-17	W21x111	32'-11"	696.92	664.00
J-18	W21x111	32'-11"	696.96	664.04
J-19	W21x111	32'-11"	696.99	664.08
J-20	W21x111	32'-11"	697.03	664.11
J-21	W21x111	33'-10"	697.07	663.24
J-22	W21x111	33'-10"	697.11	663.27
J-23	W21x111	33'-10"	697.14	663.31
J-24	W21x111	33'-10"	697.18	663.35

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 7 thru 10 of 15.
5. Pile spacing measured along front face of wall.
6. For Bill of Material, see Sheet 8 of 15.
7. For Section A-A, see Sheet 7 of 15.

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	MAF

WALL J
PLAN AND ELEVATION
STA 107+13.98 TO STA 108+03.98

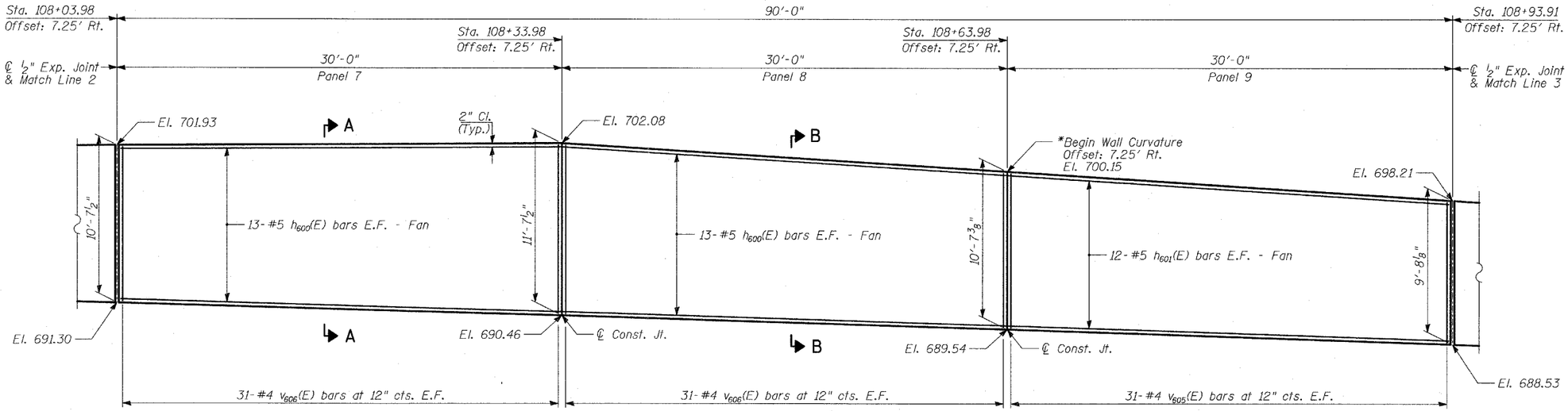
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	239
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

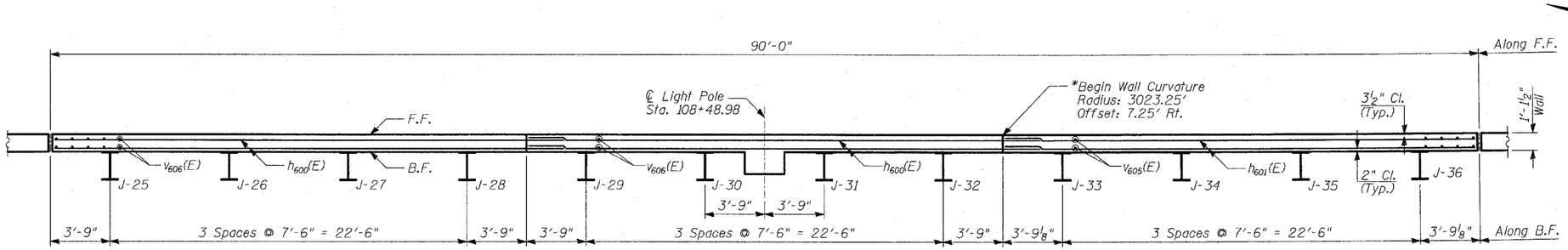
SHEET NO. - 4
15 - SHEETS

* 125X-HB-(1&2) R-1
CONTRACT * 60826



ELEVATION

(Offsets are Given From Baseline & P.G.L. Ramp A to F.F. of Wall)



PLAN

(*Wall to be built along straight chords between construction joints)

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
J-25	W21x111	34'-10"	697.22	662.39
J-26	W21x111	34'-10"	697.26	662.42
J-27	W21x111	34'-10"	697.29	662.46
J-28	W21x111	34'-10"	697.33	662.50
J-29	W21x111	35'-4"	697.60	662.27
J-30	W21x111	35'-4"	697.31	661.98
J-31	W21x111	35'-4"	697.02	661.69
J-32	W21x111	35'-4"	696.73	661.39
J-33	W21x111	35'-1"	696.43	661.35
J-34	W21x111	35'-1"	696.13	661.04
J-35	W21x111	35'-1"	695.82	660.74
J-36	W21x111	35'-1"	695.52	660.44

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 7 thru 10 of 15.
5. See Sheet 8 of 15 for Light Pole Mount Details.
6. Pile spacing measured along back face of wall.
7. For Bill of Material, see Sheet 8 of 15.
8. For Section A-A & B-B, see Sheet 7 of 15.

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	MAF

WALL J
PLAN AND ELEVATION
STA 108+03.98 TO STA 108+93.91

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

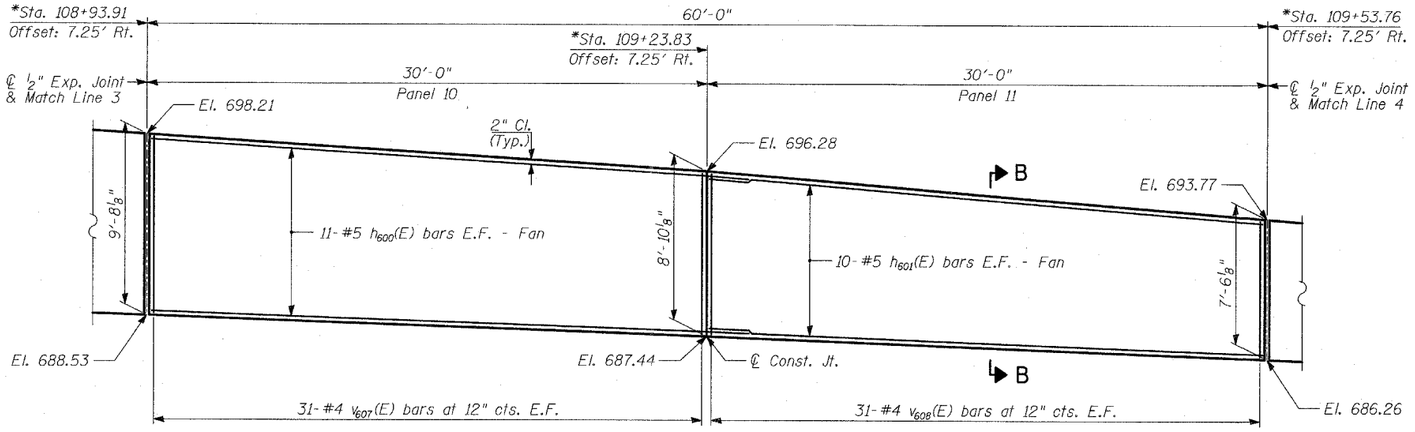
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	240
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - 5

15 - SHEETS

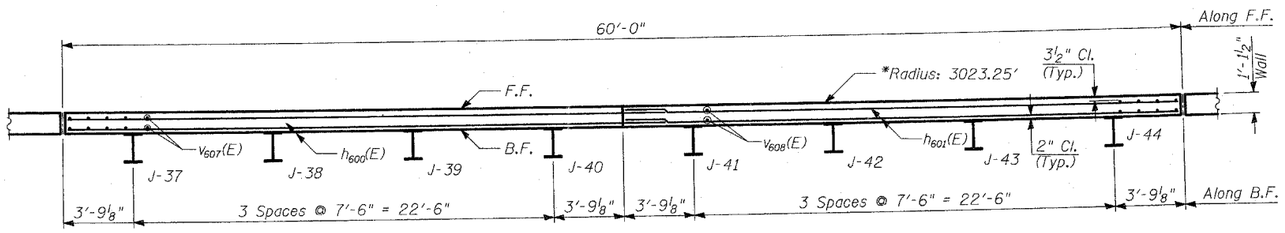
* 125X-HB-(1&2) R-1 CONTRACT * 60826

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



ELEVATION

(Offsets are Given From Baseline & P.G.L. Ramp A to F.F. of Wall)



PLAN

(*Wall to be built along straight chords between construction joints)

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
J-37	W18x106	30'-10"	695.17	664.34
J-38	W18x106	30'-10"	694.77	663.94
J-39	W18x106	30'-10"	694.38	663.54
J-40	W18x106	30'-10"	693.98	663.15
J-41	W18x106	30'-3"	693.47	663.22
J-42	W18x106	30'-3"	692.84	662.59
J-43	W18x106	30'-3"	692.21	661.96
J-44	W18x106	30'-3"	691.58	661.33

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	MAF

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 7 thru 10 of 15.
5. Pile spacing measured along back face of wall.
6. For Bill of Material, see Sheet 8 of 15.
7. For Section B-B, see Sheet 7 of 15.

WALL J
PLAN AND ELEVATION
STA 108+93.91 TO STA 109+53.76

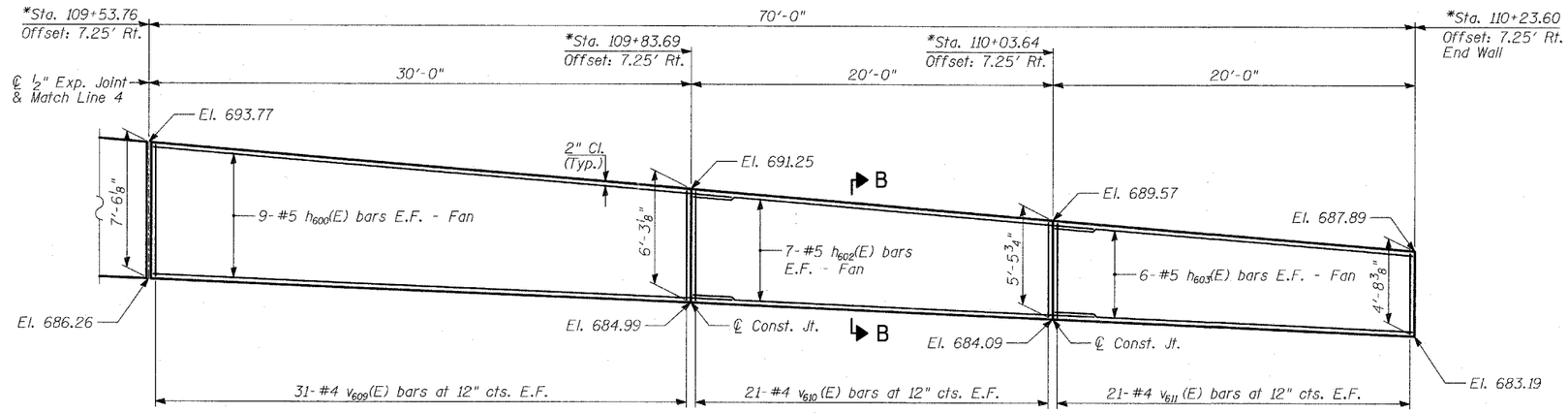
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W031

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	241
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - 6
15 - SHEETS

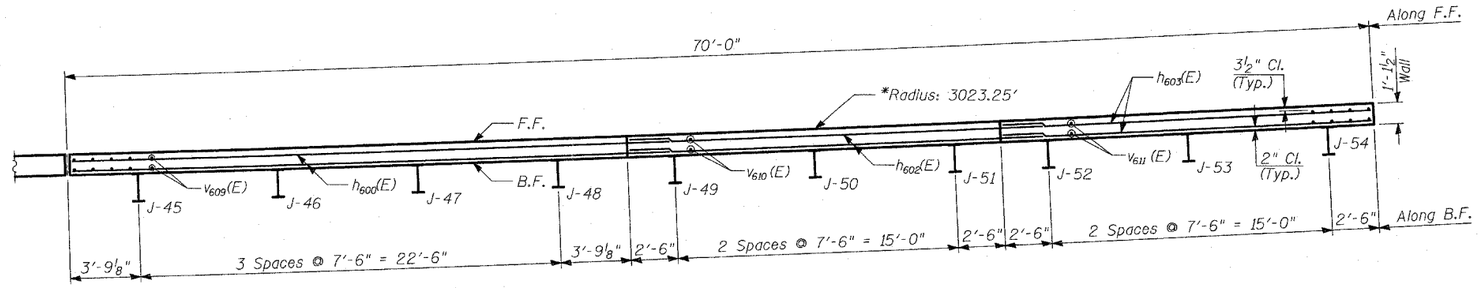
* 125X-HB-(1&2) R-1 CONTRACT * 60826



ELEVATION

(Offsets are Given From Baseline & P.G.L. Ramp A to F.F. of Wall)

Z



PLAN

(*Wall to be built along straight chords between construction joints)

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
J-45	W18x50	24'-11"	690.96	666.04
J-46	W18x50	24'-11"	690.33	665.41
J-47	W18x50	24'-11"	689.70	664.78
J-48	W18x50	24'-11"	689.07	664.15
J-49	W18x50	23'-8"	688.54	664.87
J-50	W18x50	23'-8"	687.91	664.24
J-51	W18x50	23'-8"	687.28	663.61
J-52	W18x50	22'-11"	686.86	663.94
J-53	W18x50	22'-11"	686.23	663.31
J-54	W18x50	22'-11"	685.60	662.68

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	MAF

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 7 thru 10 of 15.
5. Pile spacing measured along back face of wall.
6. For Bill of Material, see Sheet 8 of 15.
7. For Section B-B, see Sheet 7 of 15.

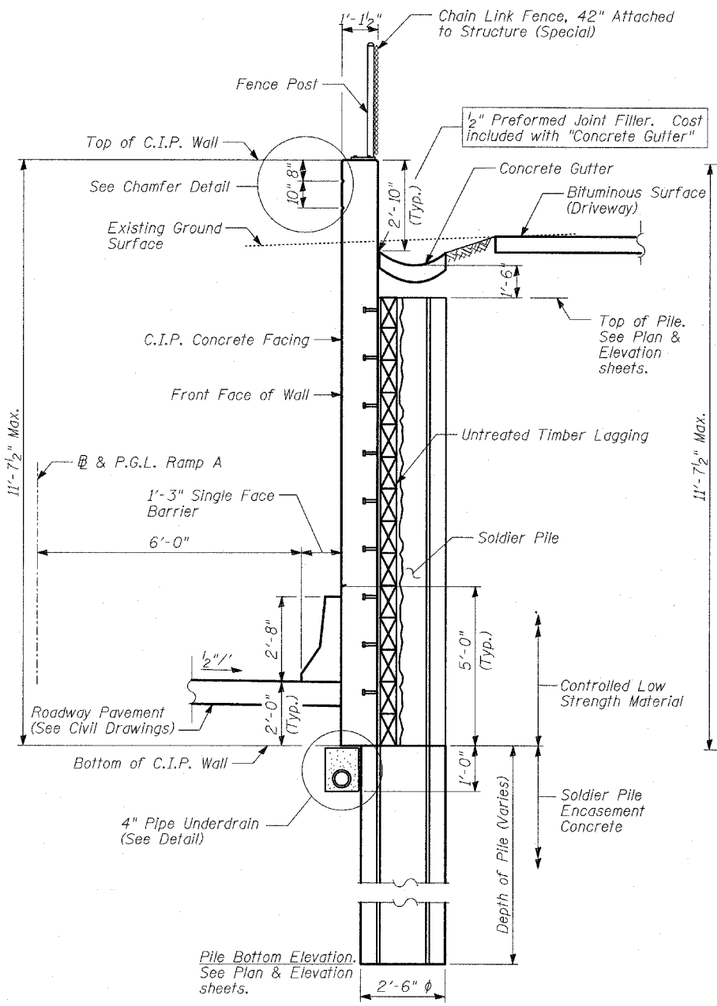
WALL J
PLAN AND ELEVATION
STA 109+53.76 TO STA 110+23.60

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

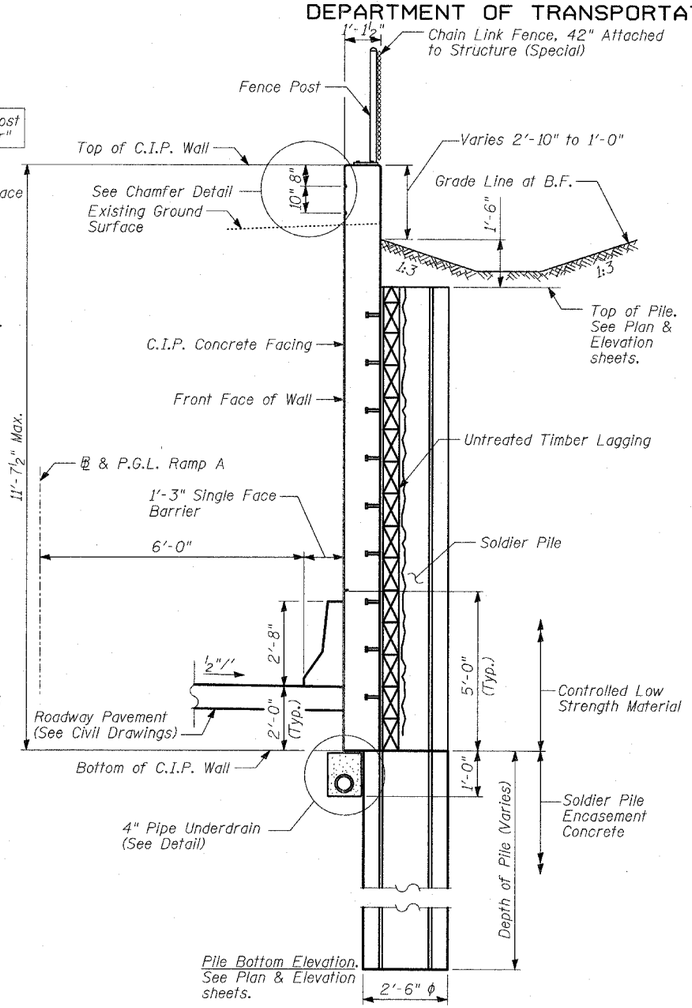
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	242
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - 7
15 - SHEETS
* 125X-HB-(1&2) R-1
CONTRACT # 60826



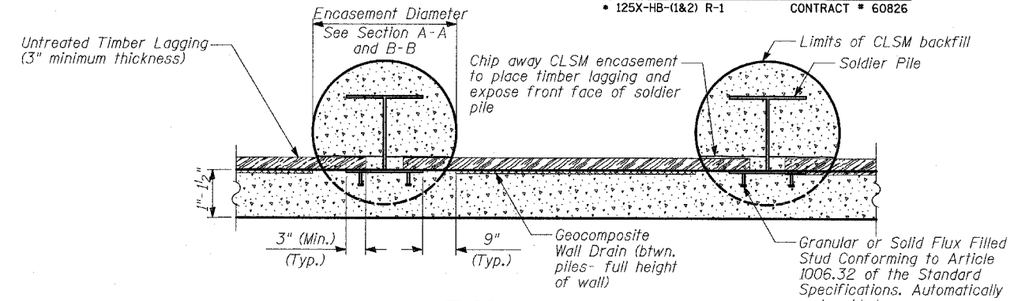
SECTION A-A

Sta. 106+23.98 to Sta. 108+33.98

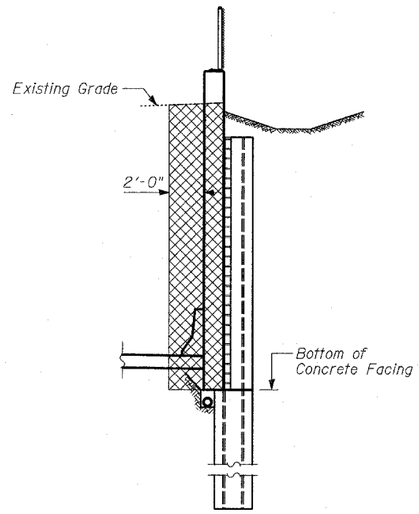


SECTION B-B

Sta. 108+33.98 to Sta. 110+23.60

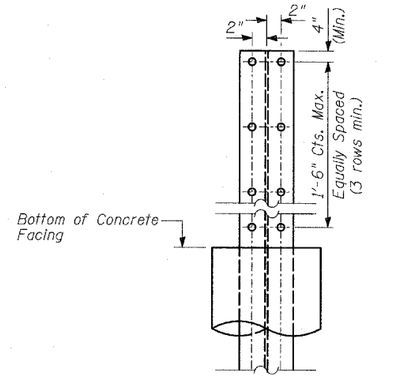


TYPICAL SECTION THRU SOLDIER PILE WALL

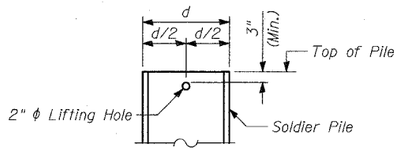


STRUCTURE EXCAVATION

(For Proposed Wall)

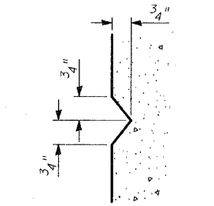


SHEAR STUD CONNECTOR DETAIL



LIFTING HOLE DETAIL

Lifting Hole to be Provided if Necessary. Cost included with "Furnishing Soldier Piles (W Section).

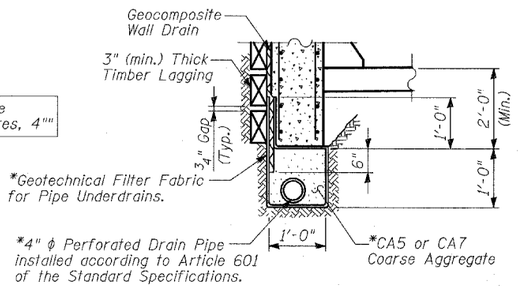


CHAMFER DETAIL

Cost of Chamfer included with "Concrete Structures"

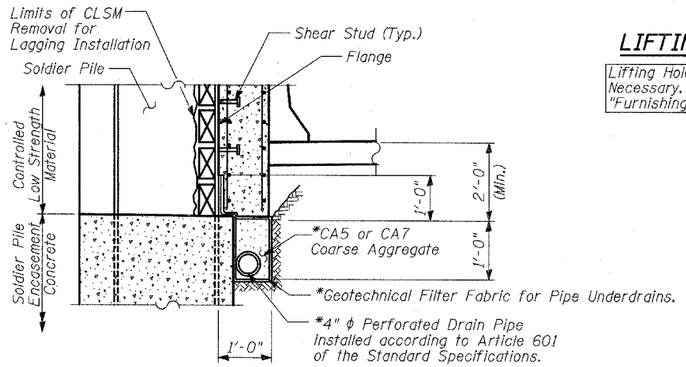
NOTES:

1. The Geocomposite Wall Drain shall be constructed according to Section 591 of the Standard Specifications.
2. The Contractor is responsible for the design and performance of the lagging using no less than 3" nominal rough-sawn thickness and the minimum tabulated unit stress in bending (f_b), used in the design of timber lagging shall be 1000 psi.
3. Stud shear connectors shall be ¾" ϕ x 6" granular or solid flux filled headed studs, automatically end welded to the front flange of the soldier piles.



*Cost included with "Pipe Underdrains for Structures, 4""

PIPE UNDERDRAIN DETAIL BETWEEN SOLDIER PILES



PIPE UNDERDRAIN DETAIL AT SOLDIER PILE

TYLIN INTERNATIONAL	
DESIGNED	- MB
CHECKED	- AD
DRAWN	- MAF
CHECKED	- MAF

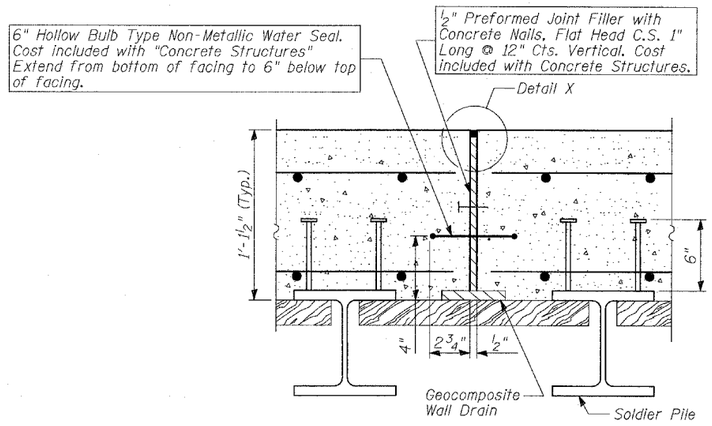
WALL J DETAILS
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-WØ31

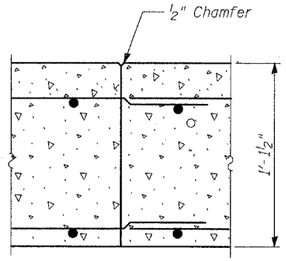
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	243
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 8
15 - SHEETS
• 125X-HB-(1&2) R-1
CONTRACT # 60826

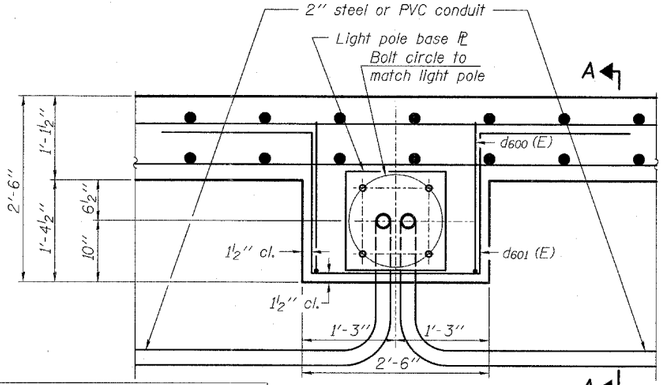


EXPANSION JOINT DETAIL



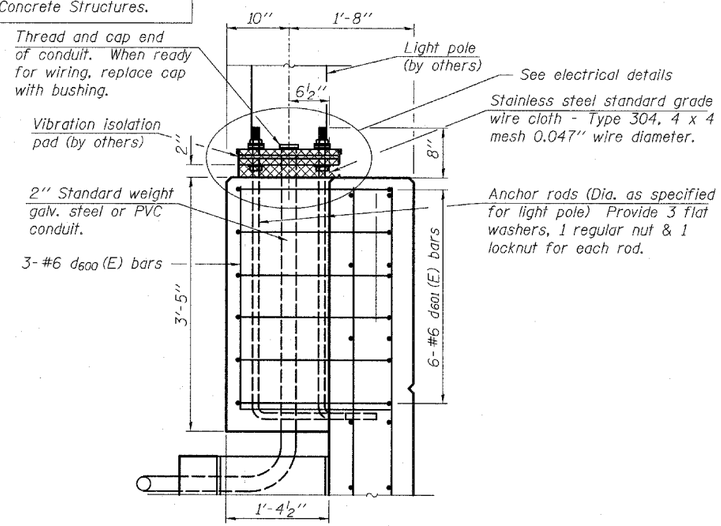
WALL

CONSTRUCTION JOINT DETAIL



PLAN

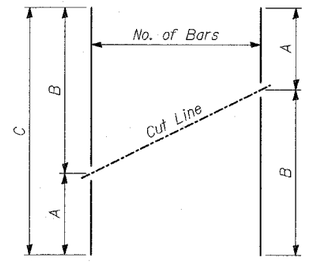
Note:
Cost of anchor rods and conduit is included with Concrete Structures.



SECTION A-A

BAR TABLE SCHEDULE

Bar	No. of Sets Required	No. of Bars Per Set	A	B	C
$V_{600}(E)$	1	31	6'-4"	6'-9"	13'-1"
$V_{601}(E)$	1	31	6'-9"	7'-3"	14'-0"
$V_{602}(E)$	1	31	7'-3"	7'-11"	15'-2"
$V_{603}(E)$	1	31	7'-11"	8'-8"	16'-7"
$V_{604}(E)$	1	31	8'-8"	9'-5"	18'-1"
$V_{605}(E)$	2	31	9'-5"	10'-4"	19'-9"
$V_{606}(E)$	2	31	10'-4"	11'-4"	21'-8"
$V_{607}(E)$	1	31	9'-5"	8'-7"	18'-0"
$V_{608}(E)$	1	31	8'-7"	7'-3"	15'-10"
$V_{609}(E)$	1	31	7'-3"	6'-0"	13'-3"
$V_{610}(E)$	1	21	6'-0"	5'-2"	11'-2"
$V_{611}(E)$	1	21	5'-2"	4'-5"	9'-7"

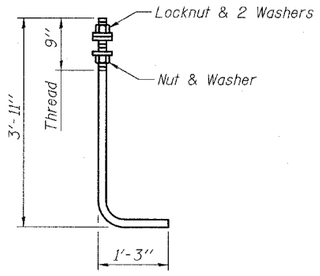


SERIES OF BAR CUTTING DIAGRAM

See table for dimensions.
Order Bars Full Length, Cut as Shown Normal to Bar Axis and Use Remainder of Bars in Opposite Face.

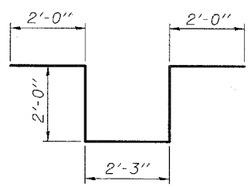
BILL OF MATERIAL

Bar	Number	Size	Length	Shape
$d_{600}(E)$	6	#6	5'-0"	L
$d_{601}(E)$	12	#6	10'-3"	
$h_{600}(E)$	168	#5	32'-2"	
$h_{601}(E)$	86	#5	29'-8"	
$h_{602}(E)$	14	#5	22'-2"	
$h_{603}(E)$	12	#5	19'-8"	
$h_{604}(E)$	18	#5	12'-0"	
$V_{600}(E)$	31	#4	13'-1"	
$V_{601}(E)$	31	#4	14'-0"	
$V_{602}(E)$	31	#4	15'-2"	
$V_{603}(E)$	31	#4	16'-7"	
$V_{604}(E)$	31	#4	18'-1"	
$V_{605}(E)$	62	#4	19'-9"	
$V_{606}(E)$	62	#4	21'-8"	
$V_{607}(E)$	31	#4	18'-0"	
$V_{608}(E)$	31	#4	15'-10"	
$V_{609}(E)$	31	#4	13'-3"	
$V_{610}(E)$	21	#4	11'-2"	
$V_{611}(E)$	21	#4	9'-7"	
Reinforcement Bars, Epoxy Coated		POUND	13,900	
Structure Excavation		CU YD	385	
Concrete Structures		CU YD	143	
Anti-Graffiti Coating		SQ FT	3,075	
Stud Shear Connectors		EACH	450	
Untreated Timber Lagging		SQ FT	1,886	
Furnishing Soldier Piles (W Section)		FOOT	1,635	
Geocomposite Wall Drain		SQ YD	232	
Pipe Underdrains for Structures, 4"		FOOT	400	
Drilling and Setting Soldier Piles (in Soil)		CU FT	8,992	



ANCHOR ROD

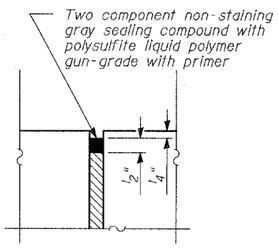
Diameter as specified for light poles.
(ASTM F 1554 Grade 105)



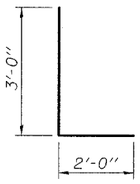
BAR $d_{601}(E)$

LAP SPLICES

Bar	Lap (Minimum)
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"



DETAIL X



BAR $d_{600}(E)$

TYLIN INTERNATIONAL

DESIGNED	-	MB , MAF
CHECKED	-	AD
DRAWN	-	CM , MAF
CHECKED	-	MAF

WALL J DETAILS
(2 OF 2)

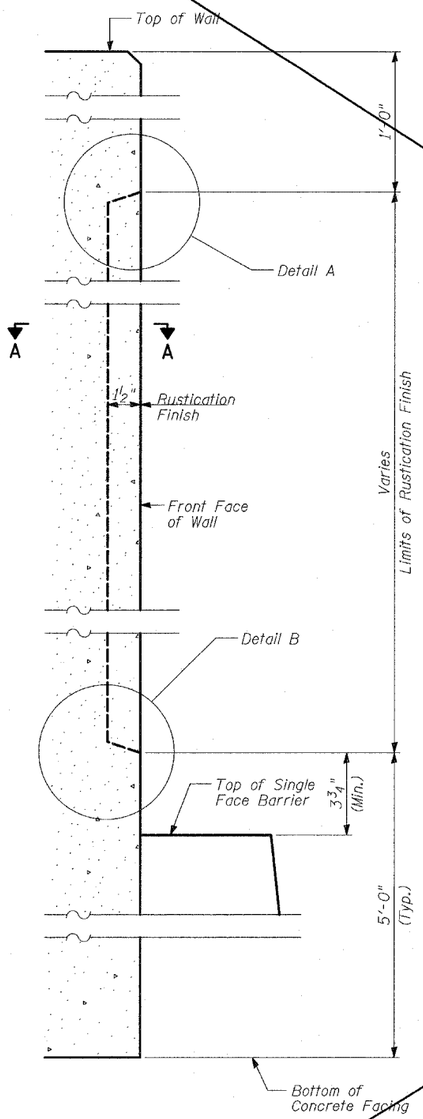
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

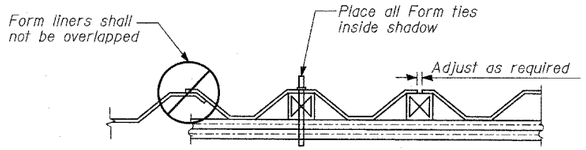
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	244
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 9
15 SHEETS

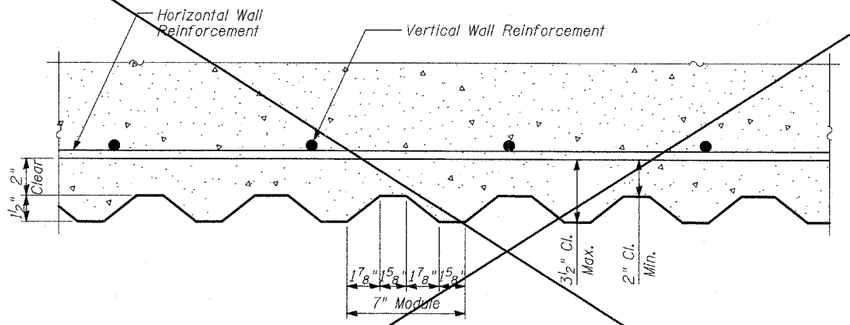
• 125X-HB-(1&2) R-1 CONTRACT # 60826



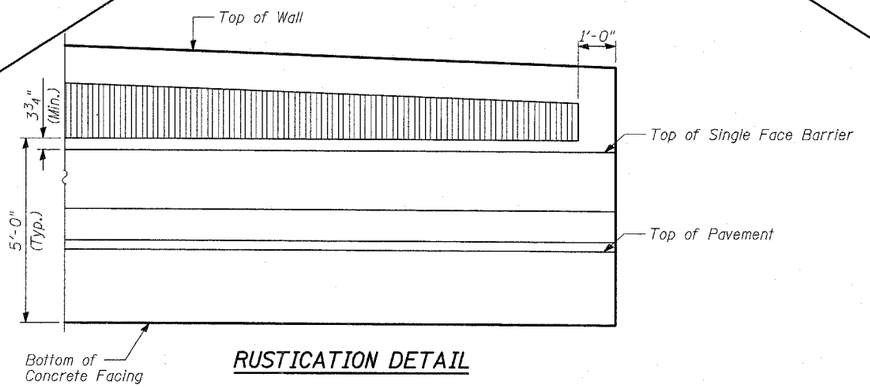
WALL DETAIL



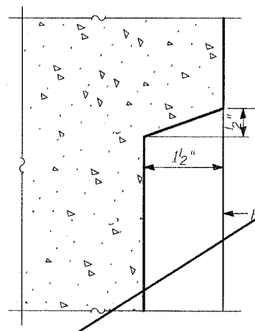
SUGGESTED FORMWORK DETAIL



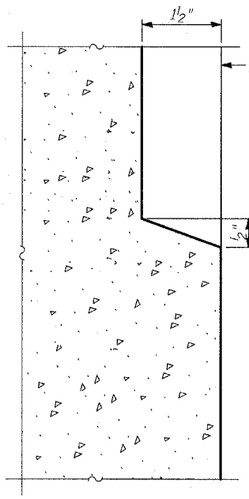
SECTION A-A



RUSTICATION DETAIL



DETAIL A



DETAIL B

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Rustication Finish	SQ FT	XXX

NOTES:

1. See Sheet 8 of 15 for expansion and construction joint details.

TYLIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

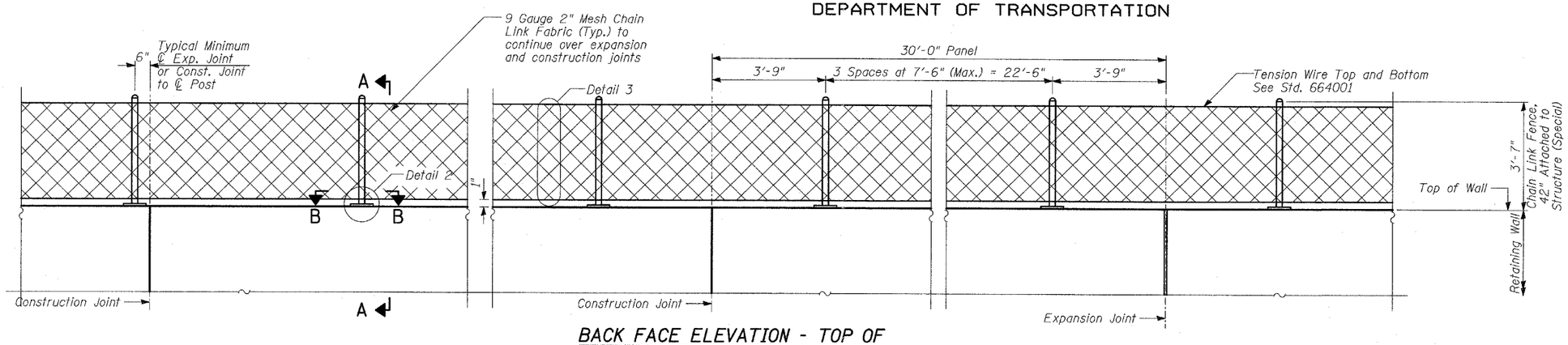
RUSTICATION FINISH

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

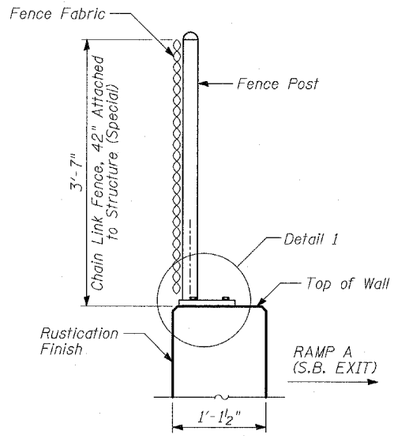
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	245
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

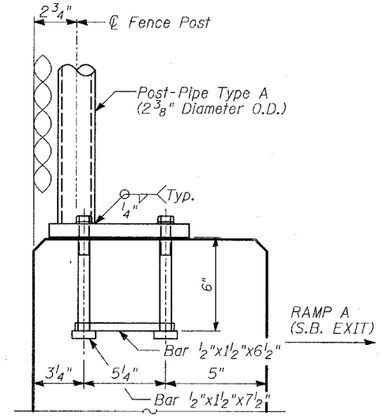
SHEET NO. - 10
15 - SHEETS
• 125X-HB-(1&2) R-1
CONTRACT # 60826



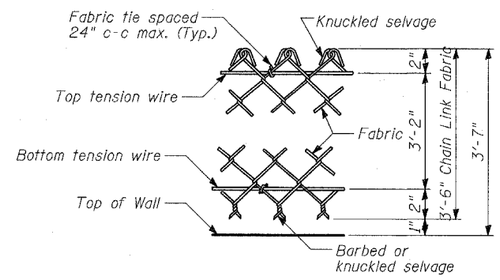
BACK FACE ELEVATION - TOP OF RETAINING WALL CHAIN LINK FENCE



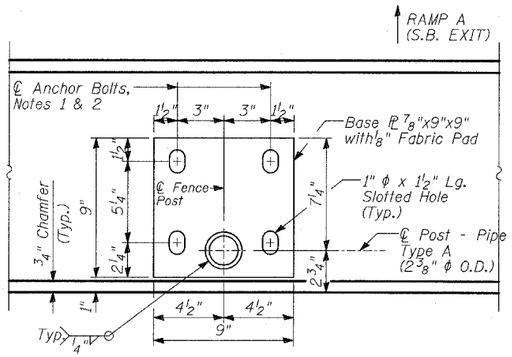
SECTION A-A



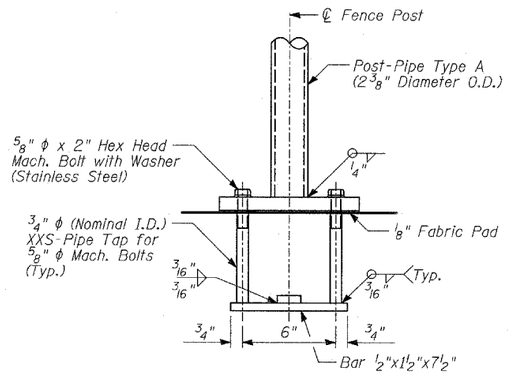
DETAIL 1



DETAIL 3



SECTION B-B
BASE PLATE PLAN



DETAIL 2

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Chain Link Fence, 42" Attached to Structure (Special)	FOOT	400

NOTES:

1. In lieu of the cast-in-place anchor bolt assembly shown, the Contractor has the option of drilling and epoxy grouting ⅝" diameter anchor rods with 1¼" diameter washers. The Contractor shall use the capsule or the adhesive cartridge type anchor rods that have been previously tested and given prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or adhesive cartridge shall be sealed with pre-measured amounts of adhesive chemical. Anchor rod threading to be peened after nuts are installed.
2. For additional chain link details, see Standard 664001.
3. Adjust fence and posts to clear light poles.

TYLIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

CHAIN LINK FENCE, 42" ATTACHED TO STRUCTURE (SPECIAL)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	246
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 11
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 955-2906

SOIL BORING LOG

PAGE 1 of 2
DATE July 27, 2004
LOGGED BY JR
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25' Hollow Stem Auger HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN Ø49-WØ31
Station
BORING NO. J-1
Station 105+65.7 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. 697.7

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 678.7
Upon Completion Dry
After ____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				TOPSOIL-black (A-7) 696.7
	5		135	
	6			
	12	3.7B	9	
	6		142	CLAY-brown & gray-hard (A-6)
	7			
-5	13	5.3B	7	
	5		122	
	11			CLAY-gray-
	20	6.2B	11	very stiff (A-6)
	6		126	
	8			
-10	14	7.1B	13	
	3		130	
	6			
	16	4.4B	12	
				684.2
	2		134	
	6			
-15	8	2.1B	11	
	2		129	CLAY-gray-
	5			stiff to very stiff (A-6)
	8	2.7B	12	
▼	3		138	
	5			
-20	13	2.5B	13	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	5		114	CLAY-gray-
	11			stiff to very stiff (A-6)
	14	3.0B	18	
	3		126	
	4			
-25	11	1.9B	14	
	3		128	
	4			
-30	10	3.4B	10	
	4		125	
	11			
-30	12	3.8P	12	
	2		127	
	3			
-35	20	2.0P	13	
	6		128	
	11			
-40	16	2.7B	14	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 955-2906

SOIL BORING LOG

PAGE 2 of 2
DATE July 27, 2004
LOGGED BY JR
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25' Hollow Stem Auger HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN Ø49-WØ31
Station
BORING NO. J-1
Station 105+65.7 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. 697.7

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 678.7
Upon Completion Dry
After ____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-
				stiff to hard (A-6)
	5		128	CLAY-gray-
				stiff to hard (A-6)
	7			
-45	14	2.5P	16	
				632.7
				Fine SAND-gray-medium dense (A-3)
	2		124	
	3			
-50	5	1.3P	16	
				627.7
				End of Boring @ -70.0'
				Hollow Stem Augers
				D-120 Safety Hammer
	8		131	
	13			
-55	25	4.5P	12	
	5		127	
	10			
-60	16	2.7B	12	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	8		127
	11		
-65	15	3.5B	12
	5		
	6		
-70	11	NP	16
-75			
-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	MAF
CHECKED	AD
DRAWN	MAF
CHECKED	AD

BORING LOG J-1

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	247
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 12
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amberly Court Suite 204
Naperville, Illinois 60565
(630) 355-2886

SOIL BORING LOG

PAGE 1 of 2
DATE 10/21/2004
LOGGED BY RJ
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-W031
Station
BORING NO. J-2
Station 106+40.7 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. XX ft

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	8			TOPSOIL-dark brown to black (A-7)
	10			
	14	-	14	
				CLAY-gray-medium stiff to very stiff (A-6)
	8			
	10			
-5	13	4.5+P	10	CLAY-brown-hard (A-6)
	8			
	10			
	17	4.5+P	15	
	5		117	
	8			
-10	13	6.2B	14	
	4		109	
	4			
	7	1.8B	18	
				CLAY-gray-medium stiff to very stiff (A-6)
	3		111	
	5			
-15	6	2.7B	16	
	3		111	
	3			
	4	0.9B	19	
	2		121	
	3			
-20	5	2.2B	15	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	3		114	
	5			
	6	2.7B	17	
	3		100	
	3			
-25	4	0.9B	26	
	2		96	
	3			
	4	0.9B	26	
	3		104	
	4			
-30	5	1.8B	23	
	2			
	4			
	5			
-35	5	0.5P	21	
	4		123	
	8			
-40	9	3.4B	14	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amberly Court Suite 204
Naperville, Illinois 60565
(630) 355-2886

SOIL BORING LOG

PAGE 2 of 2
DATE 10/21/2004
LOGGED BY RJ
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-W031
Station
BORING NO. J-2
Station 106+40.7 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. XX ft

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-medium stiff to very stiff (A-6)
	4		103	
	7			
-45	7	2.0P	24	
	5		124	
	8			
-50	9	3.1B	16	
				CLAY-gray-very stiff to hard (A-6)
	10			
	11			
-55	23	4.5+P	13	
	6			
	6			
-60	10	2.5P	15	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-very stiff to hard (A-6)
	9		114	
	8			
-65	9	2.5B	18	
	1			
	1			
-70	1	NP	12	SANDY LOAM to LOAM-gray-very loose (A-4)
	5			
	7			SAND & GRAVEL-gray-medium dense (A-1-b)
-75	13	NP	4	
				End of Boring @ -75.0'
				Hollow Stem Augers to -12.5'
				Rotary Drilling To Completion
				D-120 Safety Hammer
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY-LIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

BORING LOG J-2

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W031

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	248
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 13
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 305-2958

SOIL BORING LOG

PAGE 1 of 2
DATE 10/6/2004
LOGGED BY RJ
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25' HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ31
Station
BORING NO. J-4
Station 107+90.7 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. 699.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				TOPSOIL-dark brown (A-7)
698.1				
	8			
	10			CLAY LOAM-brown & gray-hard (A-6) Fill
	11	4.5+P	9	
	12			
	14			
-5	16	4.5+P	9	CLAY-gray-stiff to hard (A-6)
693.6				
	13		120	CLAY-brown & gray-hard (A-6)
	12			
	16	9.4B	14	
	13		117	
	12			
-10	16	7.1B	16	
688.6				
	8		114	CLAY-gray-stiff to hard (A-6)
	10			
	15	4.4B	18	
	4		124	
	8			
-15	16	4.8B	13	
	5		125	
	7			
	9	3.2B	13	
	3		117	
	4			
-20	6	1.8B	16	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	3		108	
	4			
	4	1.4B	21	
	3		117	
	4			
-25	5	2.1B	16	CLAY-gray-stiff to hard (A-6)
	4		102	
	5			
	8	1.8B	24	
	4		104	
	6			
-30	8	2.5B	23	
	4		126	
	10			
	9			
-35	10	2.7B	13	
	4		125	
	5			
-40	7	2.0P	13	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 305-2958

SOIL BORING LOG

PAGE 2 of 2
DATE 10/6/2004
LOGGED BY RJ
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25' HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ31
Station
BORING NO. J-4
Station 107+90.7 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. 699.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SILTY LOAM-gray-very dense (A-4)
636.1				
	5		119	
	7			CLAY-gray-hard (A-6)
634.6				
-45	8	2.3P	16	CLAY-gray-stiff to hard (A-6)
				End of Boring @ -65.0'
				Hollow Stem Augers to -10.0'
				Rotary Drilling to Completion
				CME-75 Automatic Hammer
	8		126	
	9			
-50	12	3.5B	13	
	10		125	
	15			
-55	22	8.0B	13	
641.1				
	28			SILTY LOAM-gray-very dense (A-4)
	44			
-60	36	NP	14	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
-65	20	4.4B	17
-70			
-75			
-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG J-4

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	249
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 14
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
825 Ambert Court, Suite 204
Naperville, Illinois 60565
(630) 955-1938

SOIL BORING LOG

PAGE 1 of 2
DATE 10/21-22/2004
LOGGED BY RJ
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25' Hollow Stem Auger HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-W031
Station
BORING NO. J-5
Station 108+65.7 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. 699.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 646.3
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	7			SANDY TOPSOIL with Gravel-dark brown (Fill)
	7			
	11	-	11	
696.3				
	13			CLAY-gray-stiff to hard (A-6)
	12			
-5	14	4.5P	16	
				CLAY-brown-stiff to hard (A-6)
	10			
	12			
	15	4.5P	16	
	7		110	
	11			
-10	13	8.8B	17	
	6		107	
	9			
	8	2.7B	18	
	5		111	
	5			
-15	6	1.8B	19	
683.8				
	5			
	9			SANDY CLAY-brown-medium dense (A-6)
	7	-	9	
681.3				
	3		124	CLAY-gray-stiff to very stiff (A-6)
	4			
-20	7	3.0B	13	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	3		115
	4		
	6	1.8B	17
	3		107
	4		
-25	6	1.8B	21
	3		104
	4		
	8	2.7B	21
	4		106
	5		
-30	8	3.5B	22
	3		
	4		
-35	6	1.75P	18
	10		
	11		
-40	15	4.5P	13

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
825 Ambert Court, Suite 204
Naperville, Illinois 60565
(630) 955-1938

SOIL BORING LOG

PAGE 2 of 2
DATE 10/21-22/2004
LOGGED BY RJ
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25' Hollow Stem Auger HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-W031
Station
BORING NO. J-5
Station 108+65.7 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. 699.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 646.3
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				CLAY-gray-stiff to hard (A-6)
	7			
	8			
-45	7	-	13	
	10			
	12			
-50	13	3.0P	18	
626.8				
	8		114	SAND-gray-dense (A-1-b)
624.8				
	11			
-55	15	4.0B	18	
	5		124	
	9			
-60	9	2.7B	17	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				CLAY-gray-very stiff to hard (A-6)
	7		136	
	8			
	10			
-65	15	4.5P	9	
	4		108	
	6			
-70	8	2.0P	21	
	22			
-75	15	NP	13	End of Boring @ -75.0' Hollow Stem Augers D-120 Safety Hammer
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG J-5

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W031

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	250
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - 15
15 - SHEETS

• 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2868

SOIL BORING LOG

PAGE 1 of 2
DATE 10/7/2004
LOGGED BY RJ
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ31
Station
BORING NO. J-6
Station 109+40.6 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. 697.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs.

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	TOPSOIL-black (A-7) 696.4				
		16		107	
		9			
	CLAY-dark brown to brown-hard (A-6) Fill	9	8.8B	15	
		18		118	
		16			
-5		23	10.6B	15	
	691.4				
		8		119	
		10			
		12	9.3B	16	
	CLAY-brown-hard (A-6)				
		6		118	
-10		14	4.5B	16	
		7		112	
		9			
		11	4.1B	19	
	683.9				
		6		117	
		7			
-15		10	2.5B	16	
	CLAY-gray- very stiff to hard (A-6)				
		5		118	
		6			
		8	4.8B	16	
		3		114	
		4			
-20		6	2.0P	18	

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	CLAY-gray-very stiff to hard (A-6)	5		116	
		5			
		7	2.3B	17	
	673.9				
		3		102	
		5			
-25		5	1.8B	24	
	CLAY-gray-medium stiff to stiff (A-6) Wet				
		3		100	
		3			
		5	1.4B	25	
		3		99	
		5			
-30		14	0.9B	26	
		3		124	
		4			
-35		5	1.5P	21	
		5		99	
		5			
-40		7	1.25B	26	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2868

SOIL BORING LOG

PAGE 2 of 2
DATE 10/7/2004
LOGGED BY RJ
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ31
Station
BORING NO. J-6
Station 109+40.6 Ramp A Baseline
Offset 7.25' Right
Ground Surface Elev. 697.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs.

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	CLAY-gray-medium stiff to stiff (A-6) Wet				
	653.9				
		8		129	
		11			
-45	CLAY-gray-hard (A-6)	12	6.0B	12	
	648.9				
		7			
		12			
-50		15	NP	19	
	SILT-gray-medium dense (A-4)				
	643.9				
		10		124	
		12			
-55		14	4.6B	13	
	CLAY-gray-very stiff to hard (A-6)				
		13		121	
		21			
-60		26	4.5P	14	

DEPTH (ft)		BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	CLAY-gray-very stiff to hard (A-6)				
		7		119	
	632.4				
-65		16	3.7B	16	
	End of Boring @ -65.0'				
	Hollow Stem Augers to -10.0'				
	Rotary Drilling to Completion				
	CME-75 Automatic Hammer				
-70					
-75					
-80					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

BORING LOG J-6

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ31

Benchmark: BM #6 - Square cut in base of L.P. at N.E. corner of IL Route 132 and Magnolia (Speedway) 45.14' LT. Sta. 32+13.24 (IL 132 E.B. ℄). Elev. 696.47.

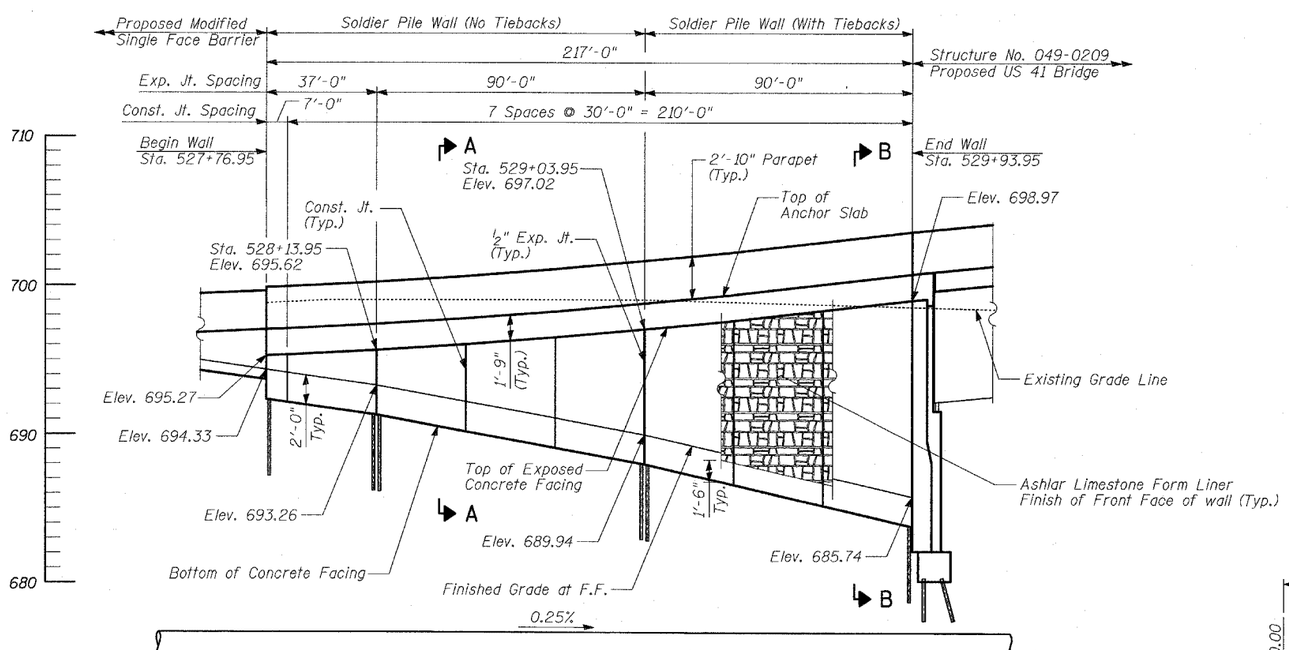
Existing Structure: None.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	251
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 1
15 - SHEETS

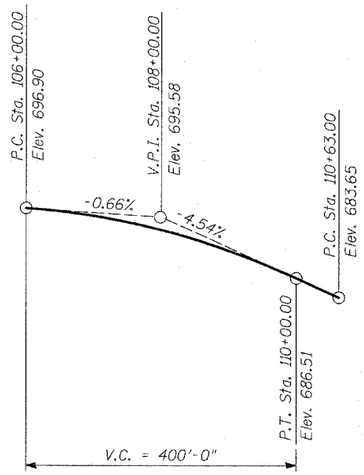
* 125X-HB-(1&2) R-1 CONTRACT * 60826



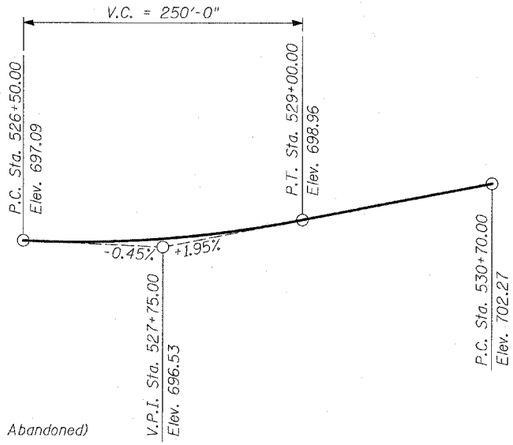
ELEVATION
(Looking at F.F.)

LEGEND

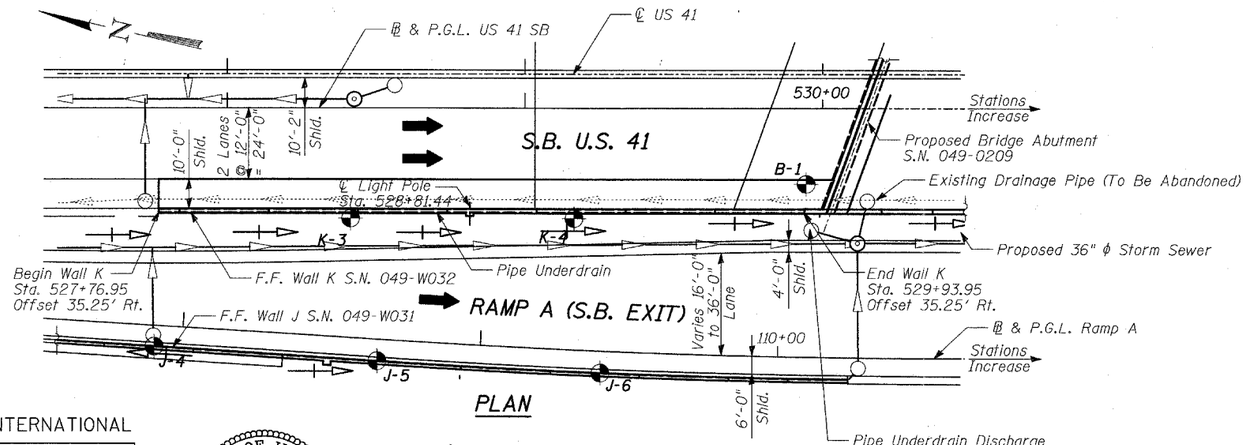
- ⊙ - Manhole
- ◯ - Catch Basin
- ◆ - Soil Boring
- → - Prop. Storm Sewer
- ····· - Exist. Drain Pipe
- → - Proposed Drainage Swale



PROFILE GRADE RAMP A



PROFILE GRADE U.S. 41 S.B.



PLAN

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	CU YD	537
Concrete Structures	CU YD	112
Concrete Superstructure	CU YD	149
Protective Coat	SQ YD	332
Form Liner Textured Surface	SQ YD	171
Furnishing and Erecting Structural Steel	POUND	4,660
Stud Shear Connectors	EACH	330
Untreated Timber Lagging	SQ FT	1,536
Furnishing Soldier Piles (W Section)	FOOT	937
Reinforcement Bars, Epoxy Coated	POUND	27,110
Geocomposite Wall Drain	SQ YD	183
Pipe Underdrains for Structures, 4"	FOOT	217
Drilling and Setting Soldier Piles (In Soil)	CU FT	5,098
~~Anti Graffiti Coating~~	~~SQ FT~~	~~2,404~~

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications For Highway Bridges

DESIGN STRESSES

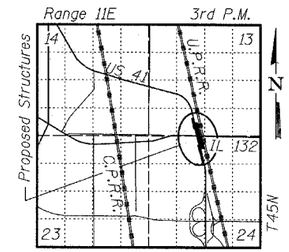
FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 36,000 psi (structural steel M270 Grade 36)
f_s = 150,000 psi (tierods)

NOTES:

1. Wall stations and offsets are given to the front face of the concrete facing, and are measured from US 41 SB Baseline.
2. Existing utilities in conflict with soldier pile wall construction shall be abandoned or relocated according to direction given in roadway plans
3. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60 (IL Modified). See Special Provisions.
4. Reinforcement bars designated (E) shall be epoxy coated.
5. All exposed concrete edges shall be chamfered 3/4" except as noted.
6. Slipforming of the parapet is not allowed.
7. All construction joints shall be bonded.
8. Soldier Pile Wall design can accomodate disturbance in front of wall for installation of proposed storm sewer. Lagging pay limits are to proposed bottom of C.I.P. concrete facing.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E Anderson (TJH)
ENGINEER OF BRIDGES AND STRUCTURES



LOCATION SKETCH

INDEX OF SHEETS

1. WALL K GENERAL PLAN , STA 527+76.95 TO 529+93.95
2. WALL K PLAN AND ELEVATION, STA 527+76.95 TO 528+13.95
3. WALL K PLAN AND ELEVATION, STA 528+13.95 TO 529+03.95
4. WALL K PLAN AND ELEVATION, STA 529+03.95 TO 529+93.95
5. WALL K SECTIONS AND DETAILS (1 OF 2)
6. WALL K SECTIONS AND DETAILS (2 OF 2)
7. WALL K TIE BACK AND DEADMAN DETAILS
8. WALL K ANCHORAGE SLAB AND PARAPET (1 OF 2)
9. WALL K ANCHORAGE SLAB AND PARAPET (2 OF 2)
10. WALL K MISCELLANEOUS DETAILS
11. ~~WALL K RUSTIGATION DETAILS~~
12. BORING LOG K3
13. BORING LOG K4
14. BORING LOG B1 (1 OF 2)
15. BORING LOG B1 (2 OF 2)

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- DE
CHECKED	- CM/AD

STATE OF ILLINOIS
SPIROS PANTAZIS
081-006448
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Signed _____
Spiros Pantazis, S.E. Il. Lic. No. 081-006448
Expires 11-30-2008.

Date 5/14/08

For drawings 1 thru 15 of 15

WALL K
GENERAL PLAN
STA 527+76.95 TO STA 529+93.95

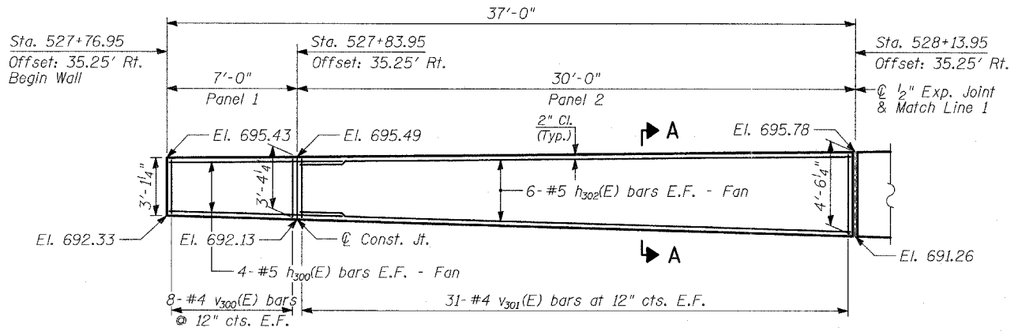
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ32

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	252
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 2
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826



ELEVATION

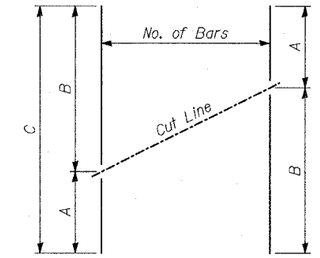
(Offsets are Given From US41 SB Baseline to F.F. of Wall)

BAR TABLE SCHEDULE

Bar	No. of Sets Required	No. of Bars Per Set	A	B	C
$v_{300}(E)$	1	8	2'-10"	3'-1"	5'-11"
$v_{301}(E)$	1	31	3'-1"	4'-3"	7'-4"
$v_{302}(E)$	1	31	4'-3"	5'-9"	10'-0"
$v_{303}(E)$	1	31	5'-9"	7'-4"	13'-1"
$v_{304}(E)$	1	31	7'-4"	8'-11"	16'-3"
$v_{305}(E)$	1	31	8'-11"	10'-11"	19'-10"
$v_{306}(E)$	1	31	10'-11"	13'-0"	23'-11"
$v_{307}(E)$	1	31	13'-0"	15'-1"	28'-1"

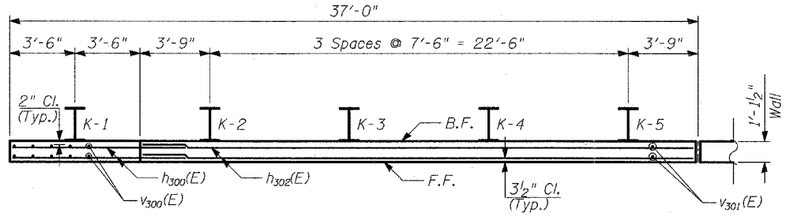
BILL OF MATERIAL

Bar	Number	Size	Length	Shape
$h_{300}(E)$	8	#5	9'-0"	
$h_{301}(E)$	84	#5	32'-0"	
$h_{302}(E)$	64	#5	29'-8"	
$v_{300}(E)$	8	#4	5'-11"	
$v_{301}(E)$	31	#4	7'-4"	
$v_{302}(E)$	31	#4	10'-0"	
$v_{303}(E)$	31	#4	13'-1"	
$v_{304}(E)$	31	#4	16'-3"	
$v_{305}(E)$	31	#4	19'-10"	
$v_{306}(E)$	31	#4	23'-11"	
$v_{307}(E)$	31	#4	28'-1"	
Reinforcement Bars, Epoxy Coated			Pound	7,350
Concrete Structures			CU YD	78
Form Liner Textured Surface			SQ YD	171
Furnishing Soldier Piles (W Section)			FOOT	937
Drilling and Setting Soldier Piles (in Soil)			CU FT	5,098



SERIES OF BAR CUTTING DIAGRAM

See table for dimensions.
Order Bars Full Length, Cut as Shown Normal to Bar Axis and Use Remainder of Bars in Opposite Face.



PLAN

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
K-1	W21x111	31'-9"	694.0	662.2
K-2	W21x111	32'-11"	694.0	661.1
K-3	W21x111	32'-11"	694.1	661.2
K-4	W21x111	32'-11"	694.2	661.3
K-5	W21x111	32'-11"	694.3	661.3

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 5 thru 11 of 15.
5. Pile spacing measured along front face of wall.
6. For Section A-A, See Sheet 5 of 15.

WALL K
PLAN AND ELEVATION
STA 527+76.95 TO STA 528+13.95

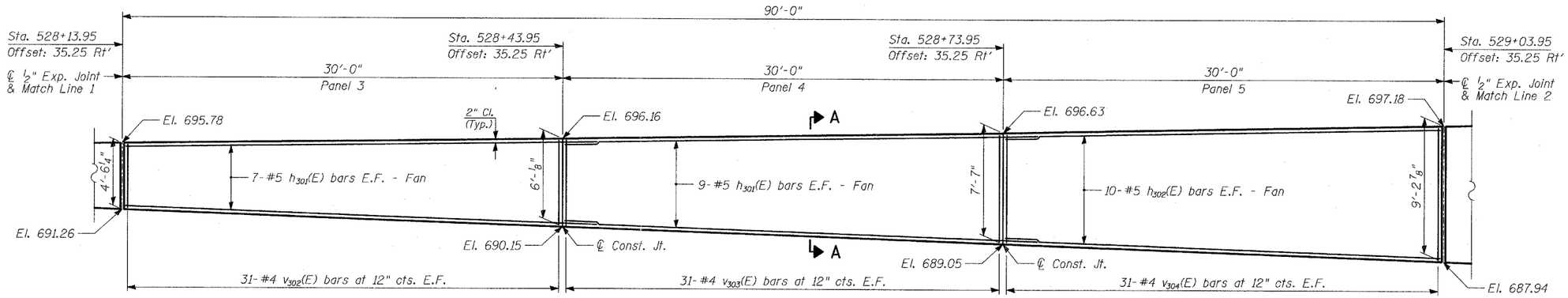
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ32

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	253
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

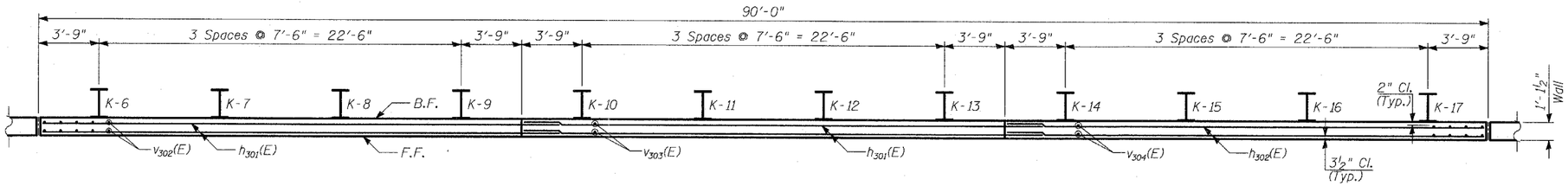
SHEET NO. - 3
15 - SHEETS

• 125X-HB-(1&2) R-1 CONTRACT • 60826



ELEVATION

(Offsets are Given From US41 SB Baseline to F.F. of Wall)



PLAN

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
K-6	W21x111	34'-4"	694.3	660.0
K-7	W21x111	34'-4"	694.4	660.1
K-8	W21x111	34'-4"	694.5	660.2
K-9	W21x111	34'-4"	694.6	660.2
K-10	W21x111	35'-11"	694.7	658.8
K-11	W21x111	35'-11"	694.8	658.9
K-12	W21x111	35'-11"	695.0	659.0
K-13	W21x111	35'-11"	695.1	659.2
K-14	W21x111	37'-7"	695.2	657.6
K-15	W21x111	37'-7"	695.3	657.7
K-16	W21x111	37'-7"	695.5	657.9
K-17	W21x111	37'-7"	695.6	658.0

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 5 thru 11 of 15.
5. Pile spacing measured along front face of wall.
6. For Bill of Material, see Sheet 2 of 15.
7. For Section A-A, see Sheet 5 of 15.

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

WALL K
PLAN AND ELEVATION
STA 528+13.95 TO STA 529+03.95

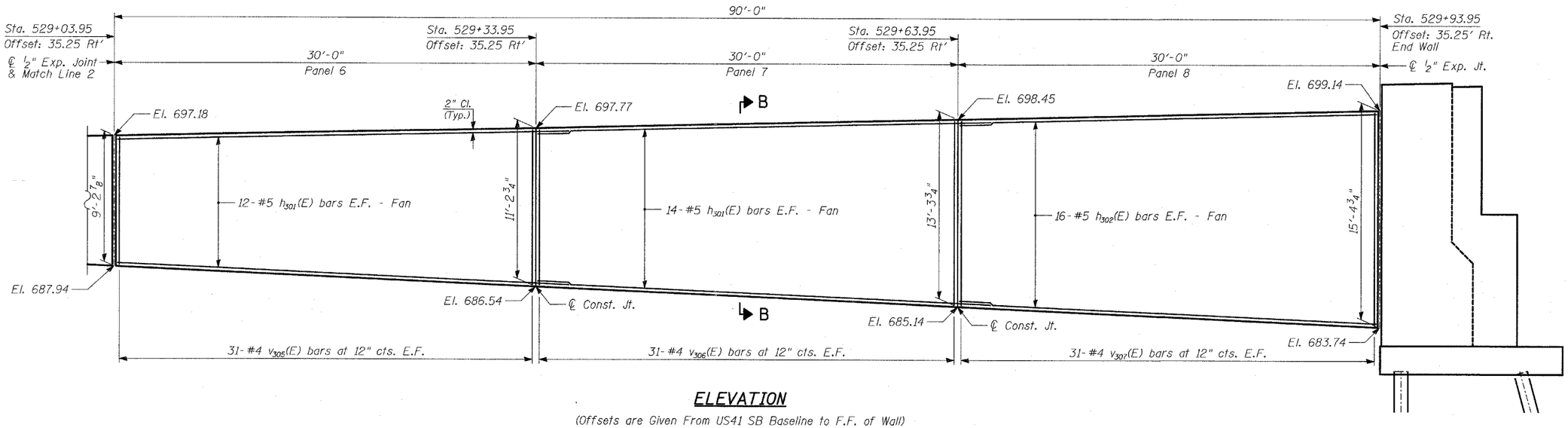
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ32

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	254
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

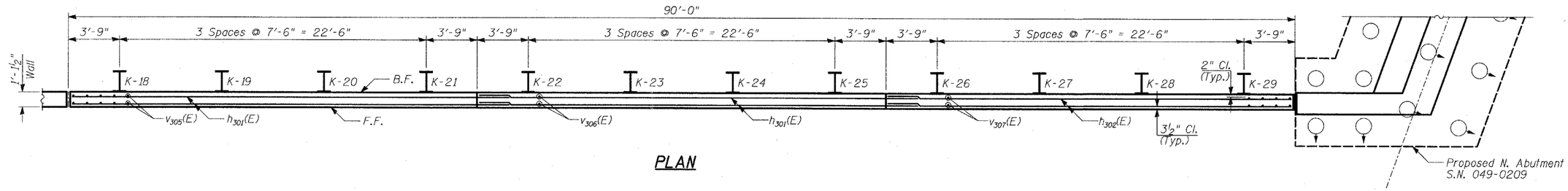
SHEET NO. - 4
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826



ELEVATION

(Offsets are Given From US41 SB Baseline to F.F. of Wall)



PLAN

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
K-18	W18x97	26'-5"	695.7	669.3
K-19	W18x97	26'-5"	695.9	669.5
K-20	W18x97	26'-5"	696.0	669.6
K-21	W18x97	26'-5"	696.2	669.8
K-22	W18x97	28'-6"	696.3	667.8
K-23	W18x97	28'-6"	696.5	668.0
K-24	W18x97	28'-6"	696.7	668.2
K-25	W18x97	28'-6"	696.8	668.3
K-26	W18x97	30'-7"	697.0	666.4
K-27	W18x97	30'-7"	697.2	666.6
K-28	W18x97	30'-7"	697.4	666.8
K-29	W18x97	30'-7"	697.5	667.0

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 5 thru 11 of 15.
5. Pile spacing measured along front face of wall.
6. For Bill of Material, see Sheet 2 of 15.
7. For Section B-B, see Sheet 6 of 15.

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- CM
CHECKED	- AD

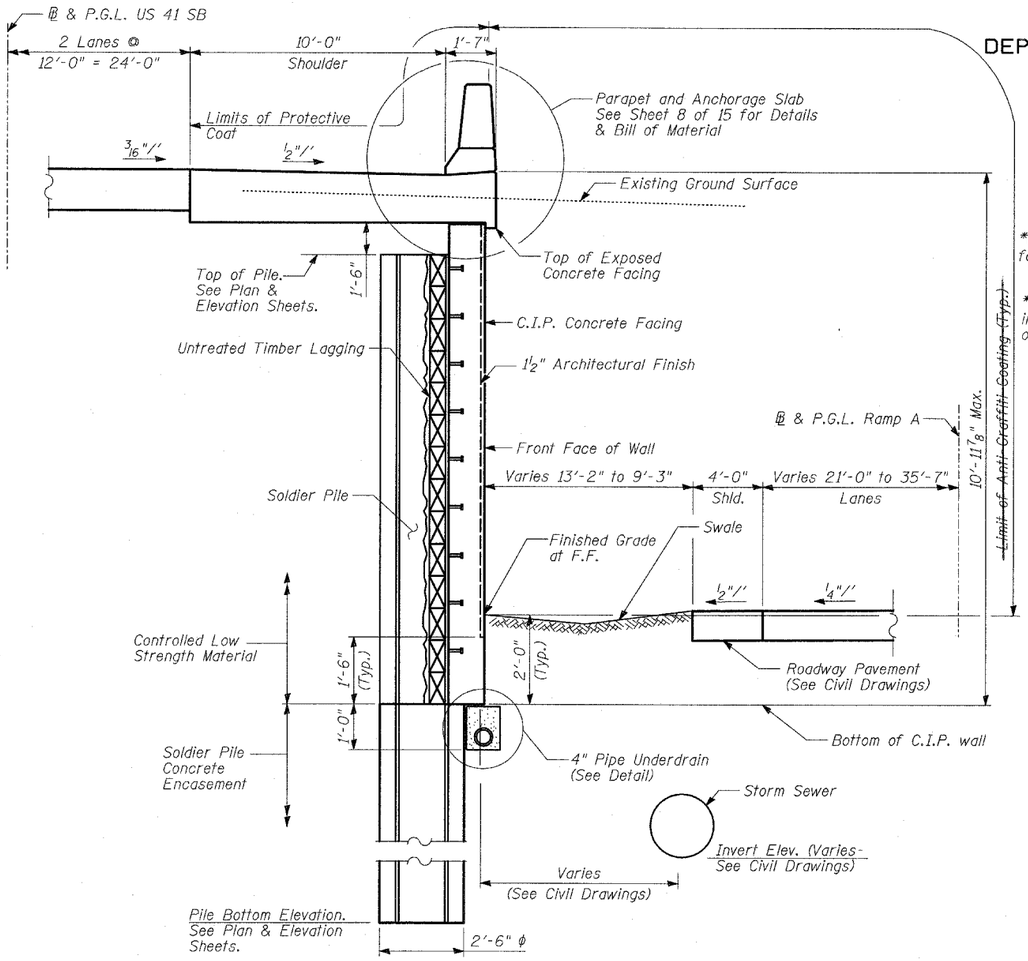
WALL K
PLAN AND ELEVATION
STA 529+03.95 TO STA 529+93.95

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W032

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

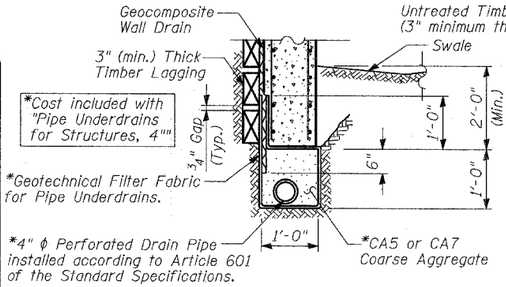
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	255
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 5
15 - SHEETS
* 125X-HB-(1&2) R-1
CONTRACT # 60826

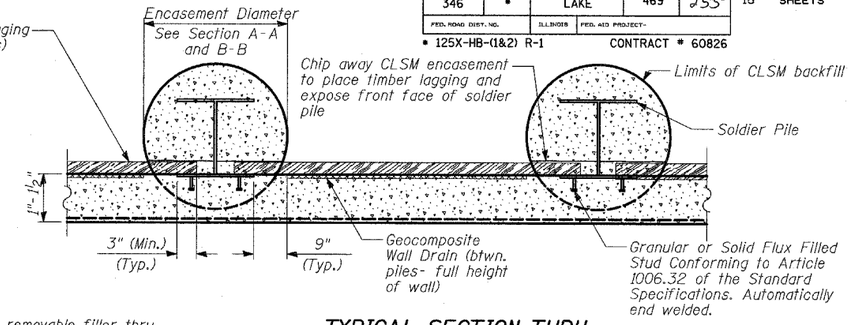


SECTION A-A

Sta. 527+76.95 to Sta. 529+03.95

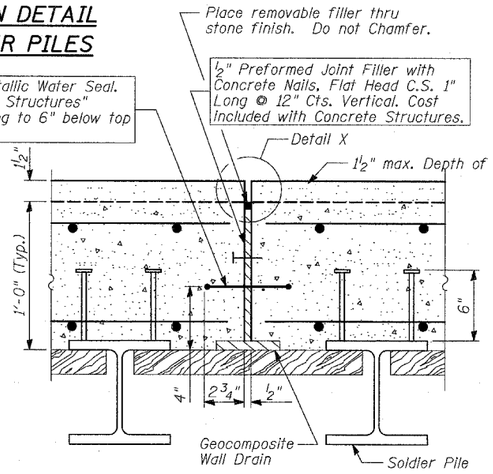


PIPE UNDERDRAIN DETAIL BETWEEN SOLDIER PILES

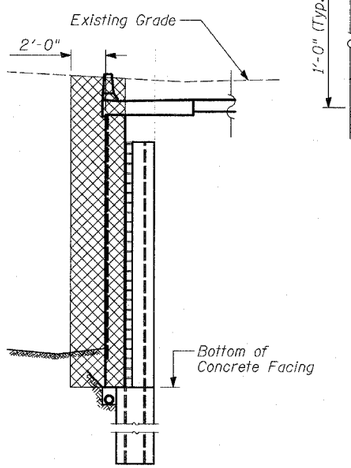


TYPICAL SECTION THRU SOLDIER PILE WALL

6" Hollow Bulb Type Non-Metallic Water Seal. Cost included with "Concrete Structures" Extend from bottom of facing to 6" below top of facing.

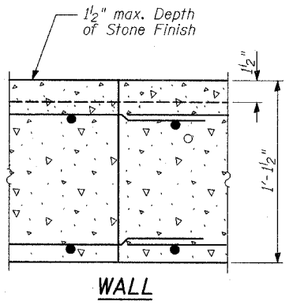


EXPANSION JOINT DETAIL



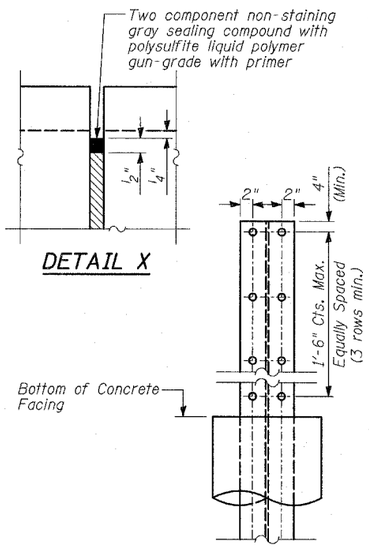
STRUCTURE EXCAVATION

(For Proposed Wall)



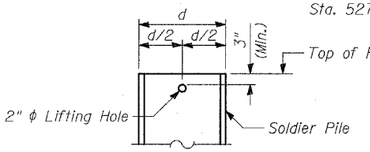
WALL

CONSTRUCTION JOINT DETAIL



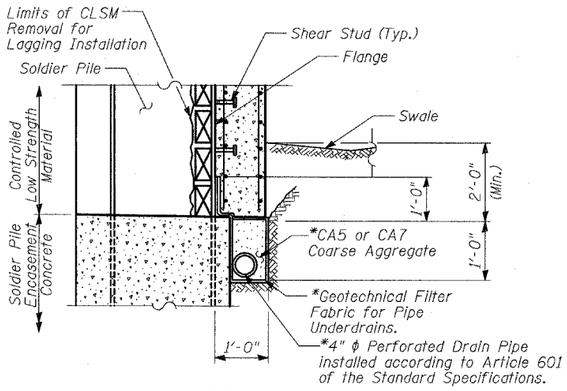
DETAIL X

SHEAR STUD CONNECTOR DETAIL



LIFTING HOLE DETAIL

Lifting Hole to be Provided if Necessary. Cost included with "Furnishing Soldier Piles (W Section).



PIPE UNDERDRAIN DETAIL AT SOLDIER PILE

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	CU YD	266
Stud Shear Connectors	EACH	330
Untreated Timber Lagging	SQ FT	1,536
Geocomposite Wall Drain	SQ YD	183
Pipe Underdrains for Structures, 4"	FOOT	217

NOTES:

1. The Geocomposite Wall Drain shall be constructed according to Section 591 of the Standard Specifications.
2. The Contractor is responsible for the design and performance of the lagging using no less than 3" nominal rough-sawn thickness and the minimum tabulated unit stress in bending (f_b), used in the design of timber lagging shall be 1000 psi.
3. Stud shear connectors shall be 3/4" ϕ x 6" granular or solid flux filled headed studs, automatically end welded to the front flange of the soldier piles.

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

WALL K SECTIONS AND DETAILS (1 OF 2)

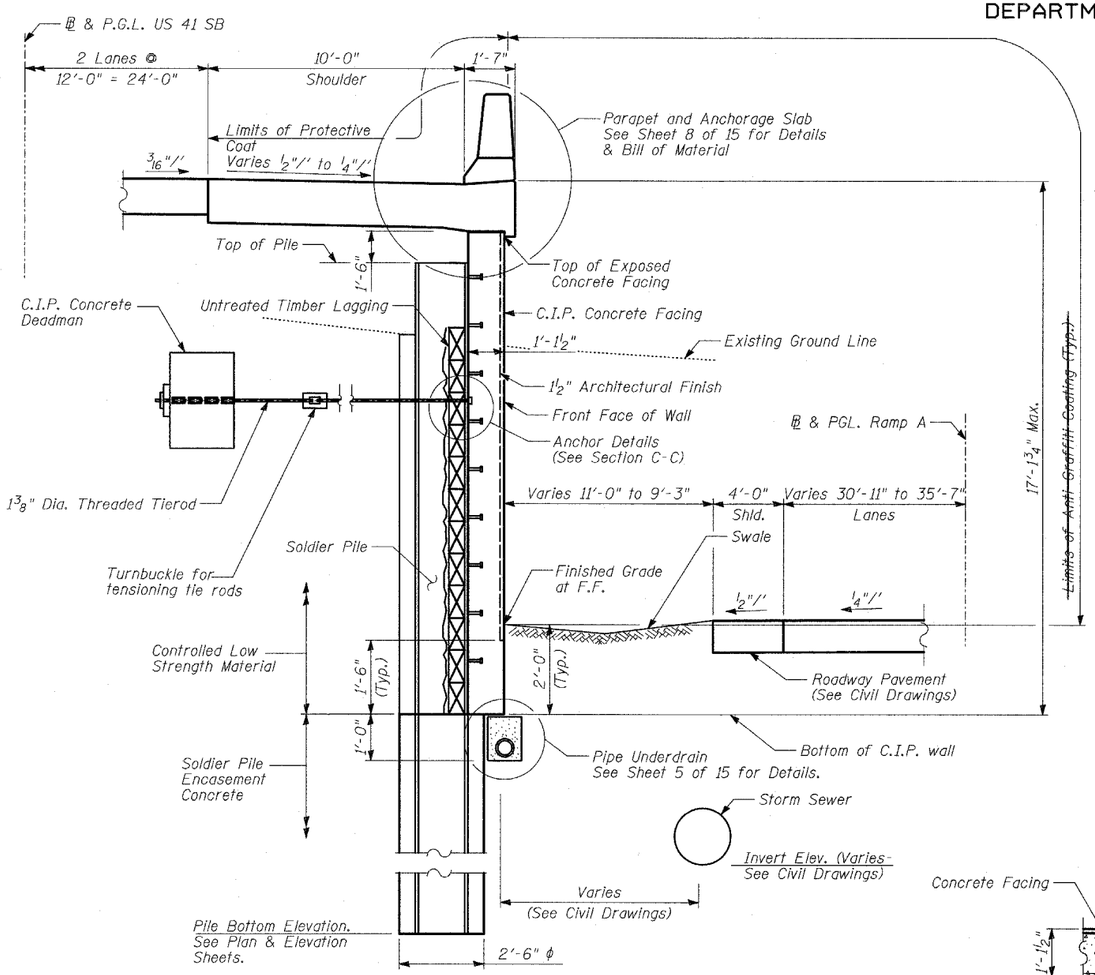
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W032

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	256
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

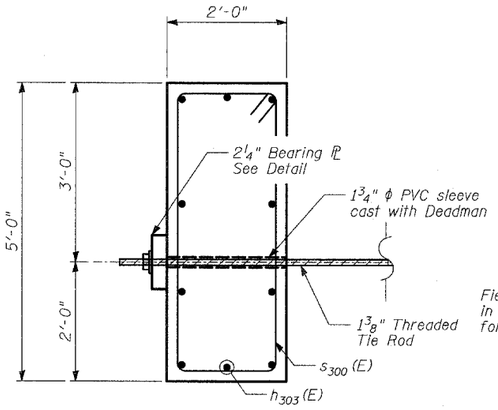
SHEET NO. 6 OF 15 SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

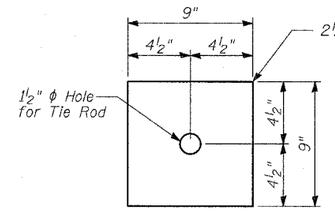


SECTION B-B

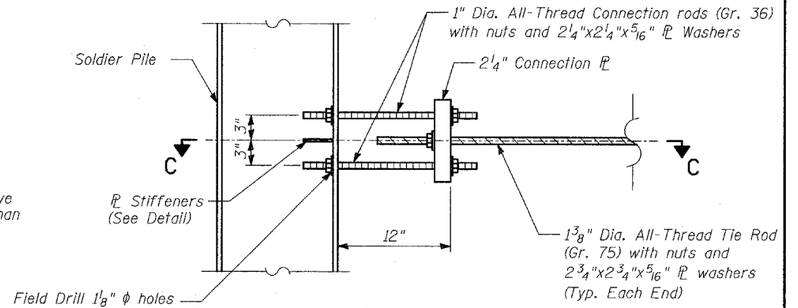
Sta. 529+03.95 to Sta. 529+93.95



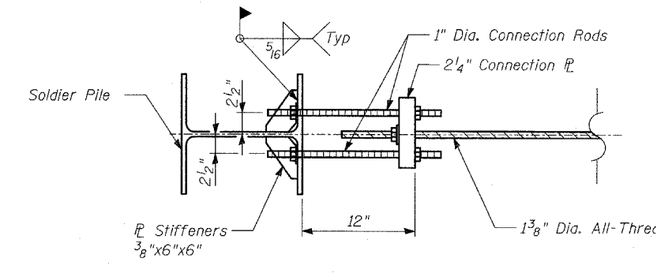
SECTION - CONCRETE DEADMAN



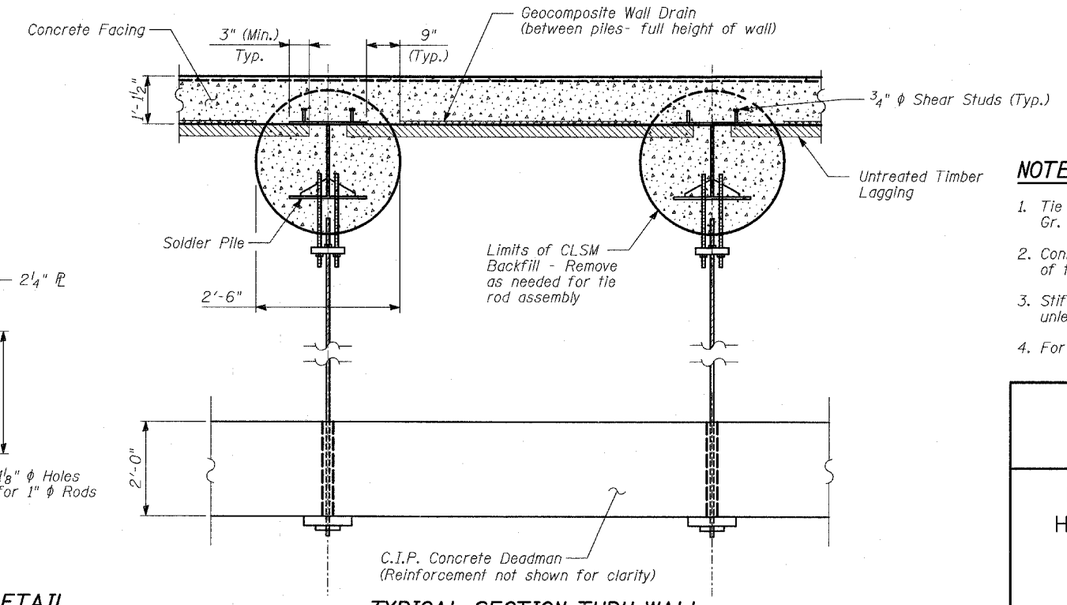
BEARING PLATE DETAIL



ANCHOR DETAIL (ELEVATION)



SECTION C-C (PLAN)



TYPICAL SECTION THRU WALL

(With Tiebacks)

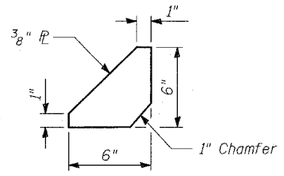
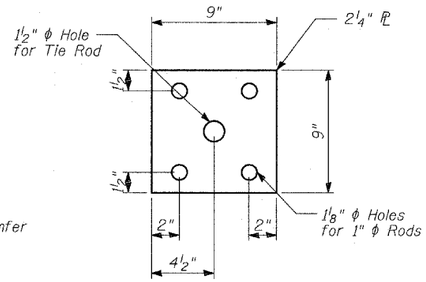


PLATE STIFFENER DETAIL



CONNECTION PLATE DETAIL

NOTES:

1. Tie Rods shall meet the requirements of ASTM A615, Gr. 75 of the diameter specified.
2. Connection Rods shall meet the requirements of ASTM A36 of the diameter specified.
3. Stiffener, Bearing, and Connection plates shall be ASTM A36, unless otherwise noted.
4. For additional Soldier Pile Wall details, see Sheet 5 of 15.

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

WALL K SECTIONS AND DETAILS (2 OF 2)

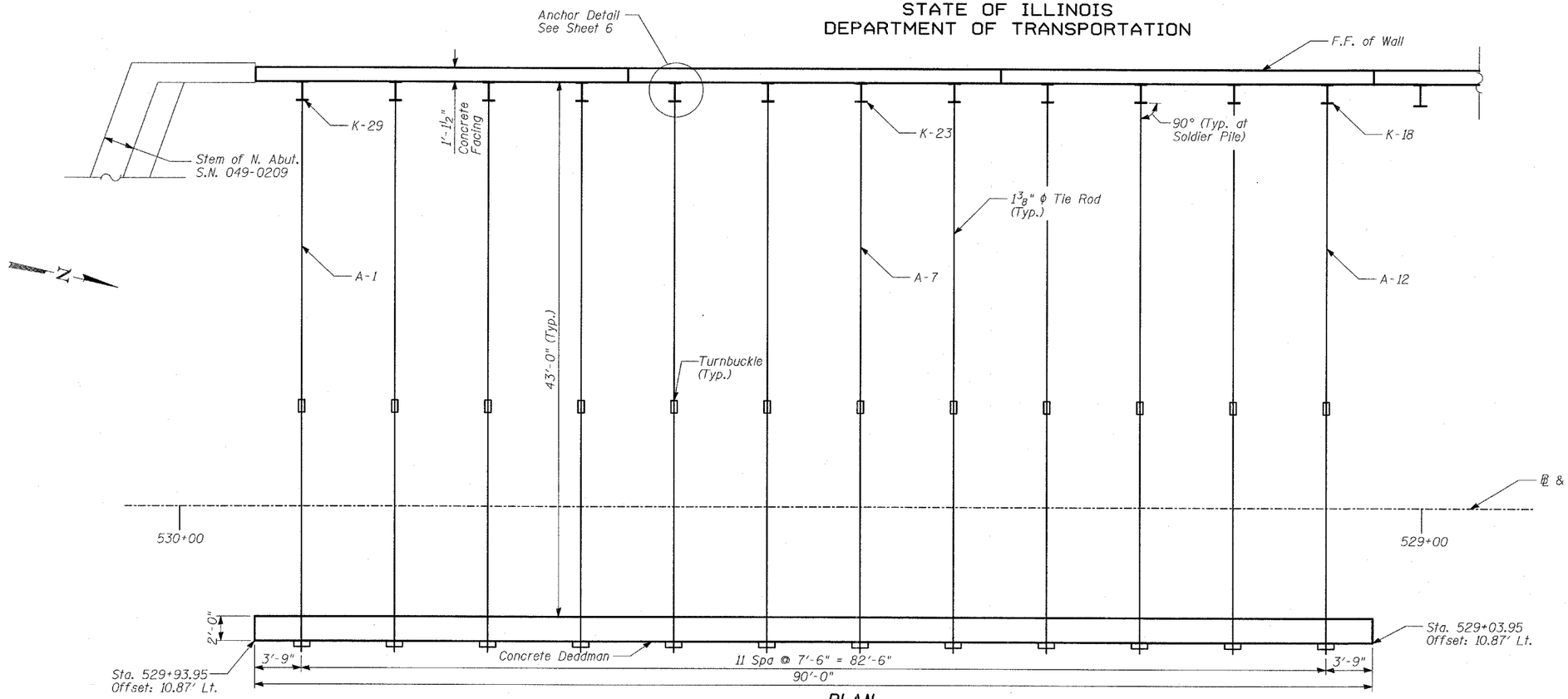
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W032

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	257
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

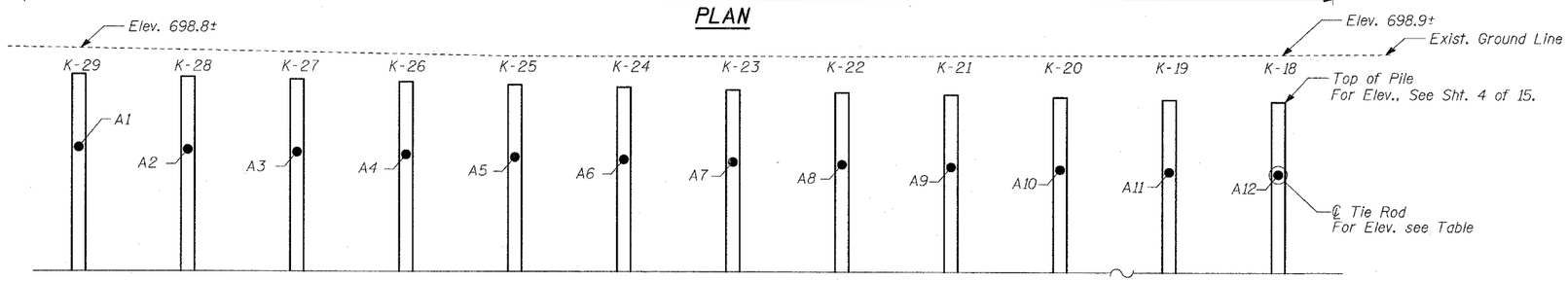
SHEET NO. - 7
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

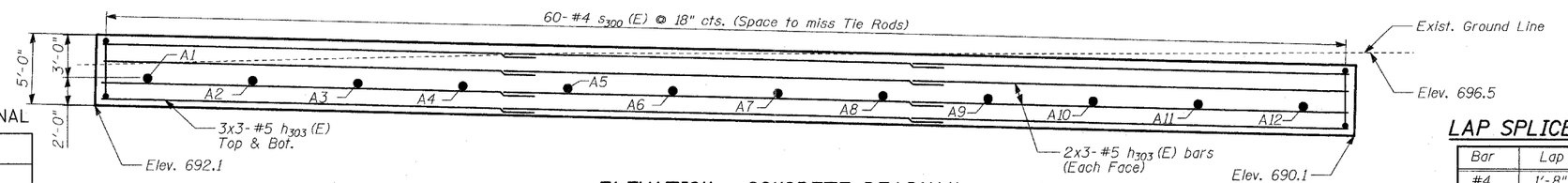


PLAN



ELEVATION - SOLDIER PILES

(Looking West)

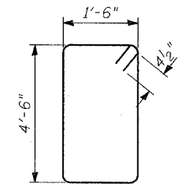


ELEVATION - CONCRETE DEADMAN

(Looking West)

ANCHOR TIE ROD

Anchor Tie Rod	Elevation
A1	694.0
A2	693.9
A3	693.7
A4	693.5
A5	693.3
A6	693.2
A7	693.0
A8	692.8
A9	692.7
A10	692.5
A11	692.4
A12	692.2



BAR s_{300} (E)

DEADMAN BAR LIST AND BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h_{303} (E)	30	#5	31'-4"	
s_{300} (E)	60	#4	12'-9"	
Reinforcement Bars, Epoxy Coated			POUND	1,500
Concrete Structures			CU YD	34
Furnishing and Erecting Structural Steel			POUND	4,660
Structure Excavation			CU YD	271

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

WALL K
TIE BACK AND DEADMAN DETAILS

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ32

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	258
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - 8
15 - SHEETS

• 125X-HB-(1&2) R-1 CONTRACT • 60826

217'-0" End to End of Barrier

S.N. 049-0209

90'-7¼"

Matchline A

Parapet & Slab Joint Spacing

2 Spa @ 11'-10⅜" = 23'-8¾"

2 Spa @ 18'-5¼" = 36'-10½"

2 Spa @ 15'-0" = 30'-0"

2'-10" Barrier
2'-0"
7"
1'-3" Slab
3"

b_{302}(E)

✱7-#4 e_{301}(E) bars

1-#8 e_{307}(E) F.F.

✱7-#4 e_{302}(E) bars

1x2-#8 e_{306}(E) F.F.

✱7-#4 e_{300}(E) bars

b_{301}(E)

b_{303}(E)

a_{300}(E)

a_{301}(E)

238-#5 d_{300}(E) bars @ 11" cts.

Parapet Joint (Full height of barrier)

1-#4 e_{311}(E) B.F.

1x2-#4 e_{310}(E) B.F.

Parapet Joint (Full height of barrier)

INSIDE ELEVATION OF BARRIER

✱ See Section D-D

Z

D

6'-3⅛"

23'-8¾"

66'-10½"

Matchline A

C

238-#5 d_{301}(E) bars @ 11" cts.

Exp. Jt. in slab

Exp. Jt. in slab

1'-7"

10'-0"

11'-7"

Begin Barrier
Sta. 529+93.95
Offset 34.00' Rt.

5-#6 a_{300}(E) bars (Top)
5-#6 a_{301}(E) bars (Bot)
Fan & Cut in field for fit

℄ Exp. Jt.
Sta. 529+70.23
Offset 34.00' Rt.

5-#6 a_{300}(E) bars (Top)
5-#6 a_{301}(E) bars (Bot)
Fan & Cut in field for fit

13x2-#4 b_{302}(E) bars
Top & Bot as shown in cross section

13x2-#4 b_{301}(E) bars @ 12" cts.
Top as shown in cross section
13x3-#4 b_{303}(E) bars @ 12" cts.
Bot. as shown in cross section

See Control Joint Detail - Slab (Typ.)

℄ Exp. Jt.
Sta. 529+03.35
Offset 34.00' Rt.

20°

23-#6 a_{300}(E) bars @ 12" cts. (Top)
23-#6 a_{301}(E) bars @ 12" cts. (Bot.)

192-#6 a_{300}(E) bars @ 12" cts. (Top)
192-#6 a_{301}(E) bars @ 12" cts. (Bot.)

228-#6 a_{302}(E) bars @ 12" cts.

C

D

30'-0"

70'-6¼"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_{300}(E)	230	#6	12'-8"	
a_{301}(E)	230	#6	11'-3"	
a_{302}(E)	228	#6	2'-6"	
b_{300}(E)	39	#4	31'-0"	
b_{301}(E)	52	#4	36'-1"	
b_{302}(E)	52	#4	15'-9"	
b_{303}(E)	39	#4	24'-7"	
b_{304}(E)	52	#4	23'-8"	
d_{300}(E)	238	#5	5'-7"	
d_{301}(E)	238	#5	7'-5"	
d_{302}(E)	3	#6	4'-5"	
d_{303}(E)	5	#6	8'-11"	
e_{300}(E)	56	#4	14'-9"	
e_{301}(E)	14	#4	11'-6"	
e_{302}(E)	21	#4	18'-1"	
e_{303}(E)	7	#4	17'-6"	
e_{304}(E)	1	#8	36'-1"	
e_{305}(E)	3	#8	32'-11"	
e_{306}(E)	2	#8	35'-7"	
e_{307}(E)	1	#8	23'-5"	
e_{308}(E)	1	#4	36'-1"	
e_{309}(E)	3	#4	31'-0"	
e_{310}(E)	2	#4	34'-2"	
e_{311}(E)	1	#4	23'-5"	
Concrete Superstructure		CU YD	149	
Reinforcement Bars, Epoxy Coated		Pound	18,260	
Protective Coat		SQ YD	332	

PLAN

*Cost Included with Concrete Superstructure.

2" Min.
*½" P.J.F.
Top of Exposed Concrete Facing
4"
Front Face of Wall
*See Note B

DETAIL A

Note B:
*Bond breaker membrane on top and front of fascia wall.

1'-2"
5"
10'-0" Shoulder
2"
9½"
2½"
1½" cl. min.
1½" cl. min.
2'-0"
e_{300}(E) thru e_{303}(E)
d_{301}(E)
¾" Notch
d_{300}(E)
2'-0"
2'-10" Parapet
Const. Jt. (Optional)
Const. Jt. (Mandatory)
8½"
e_{304}(E) thru e_{307}(E)
e_{308}(E) thru e_{311}(E)
1'-9"
1½" cl.
7"
3"
See Note A
a_{300}(E)
2" cl.
Const. Jt.
b_{300}(E) thru b_{302}(E)
a_{302}(E)
1'-3"
See Detail A
b_{300}(E) thru b_{304}(E)
a_{301}(E)
1'-3"
2'-6"
2" cl.
Top of Exposed Concrete Facing
4"
Front Face of Wall
1½"
b_{301}(E) thru b_{304}(E)
Soldier Pile
1'-1½"

Note A:
Sta 527+76.95 to 529+33.95 - ½"/'
Sta 529+33.95 to 529+93.95 - Varies ½"/' to ¼"/'

SECTION D-D

1'-7"
10'-0" Shoulder
*½" P.J.F.
1'-3"
Abutment Wingwall

SECTION C-C

11'-3"
1'-5"

BAR a_{300}(E)

7⅞"
2⅝" Rad.
2'-2¾"
2'-2⅝"
9"
5¾"

BAR d_{300}(E)

7"
2½" Rad.
1'-11"
2'-0"
1'-2"
1'-10½"
5"
1'-10"

BAR d_{301}(E)

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. Offsets are measured from ℄ & P.G.L. SB US 41.
2. Work this sheet with Sheet 9 of 15.
3. Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

TYLIN INTERNATIONAL

DESIGNED	MB
CHECKED	AD
DRAWN	DE
CHECKED	AD

WALL K
ANCHORAGE SLAB AND PARAPET
(1 OF 2)

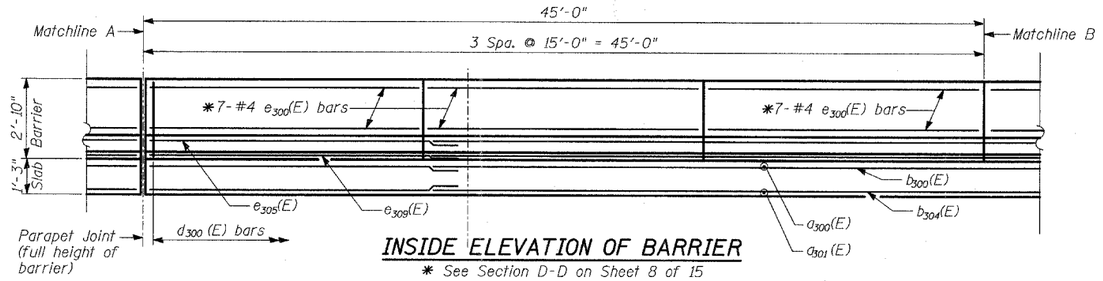
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W032

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	259
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 9
15 - SHEETS

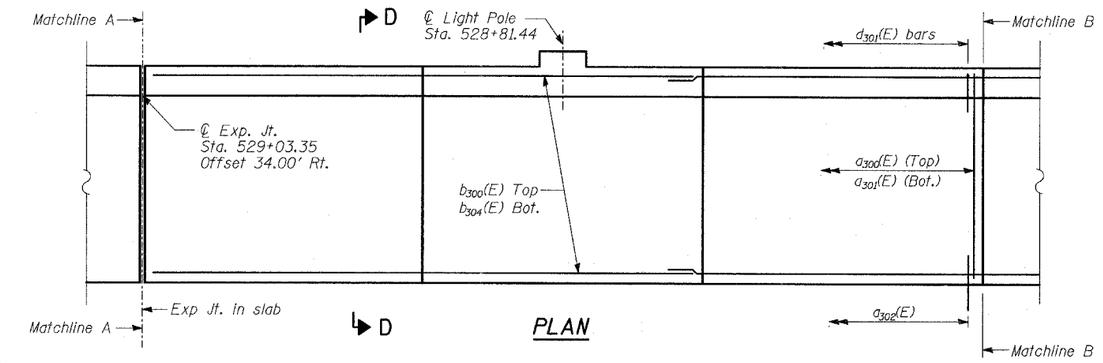
* 125X-HB-(1&2) R-1 CONTRACT * 60826

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

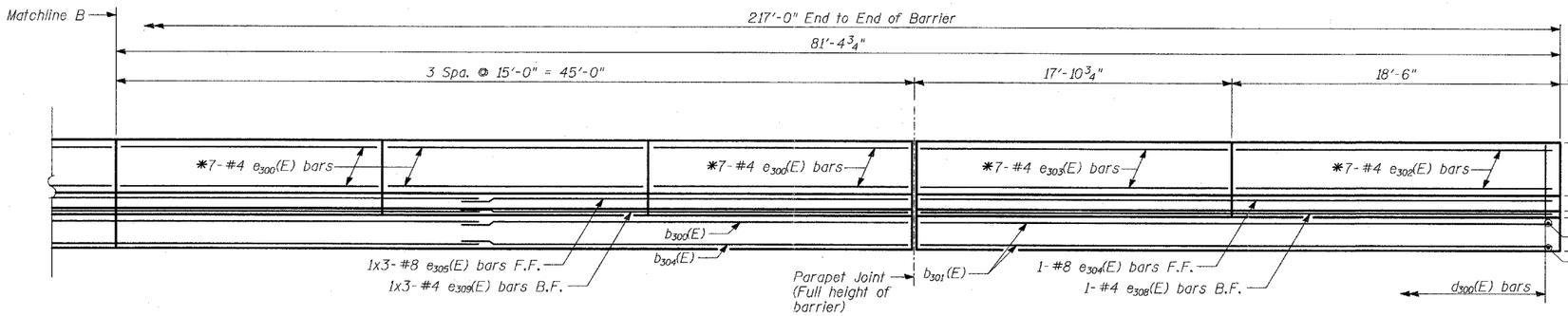


INSIDE ELEVATION OF BARRIER

* See Section D-D on Sheet 8 of 15

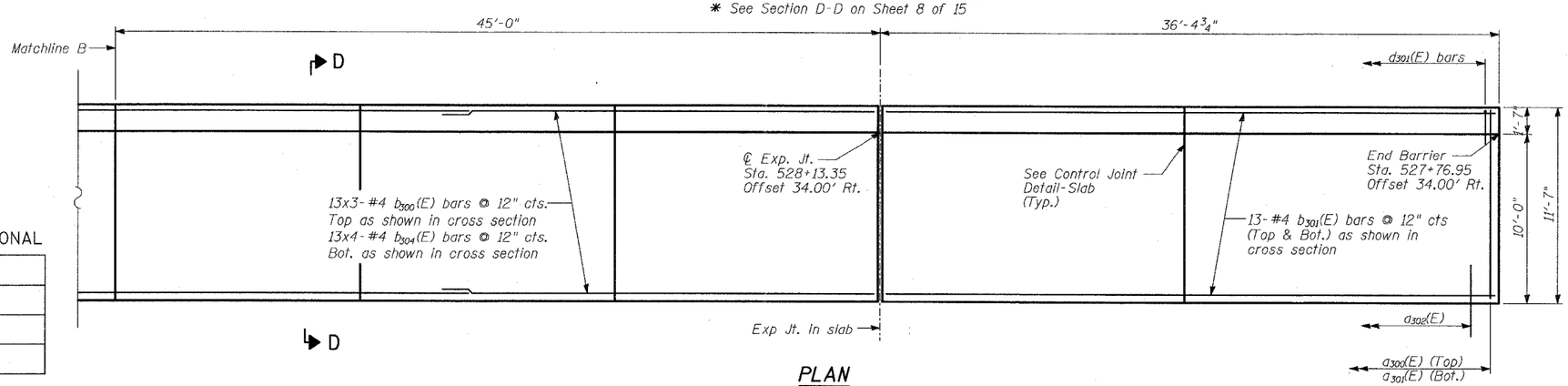


PLAN



INSIDE ELEVATION OF BARRIER

* See Section D-D on Sheet 8 of 15



PLAN

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. Offsets are measured from ℄ & P.G.L. SB US 41.
2. Work this sheet with Sheet 8 of 15.
3. See Sheet 10 of 15 for Light Pole Mount Details.
4. Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

TYLIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- DE
CHECKED	- AD

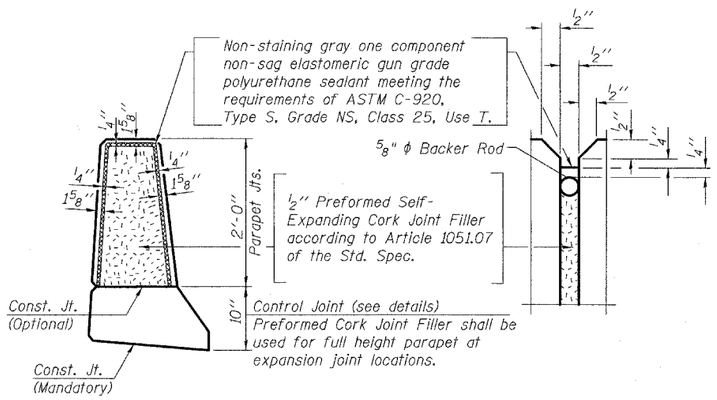
WALL K
ANCHORAGE SLAB AND PARAPET
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W032

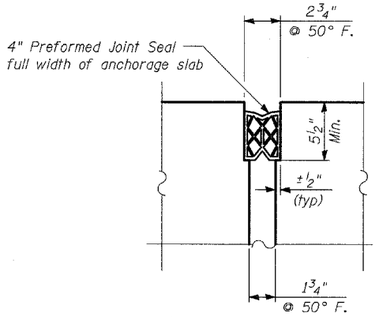
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	260
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

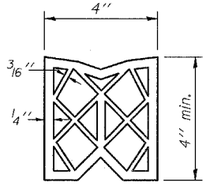
SHEET NO. - 10
15 - SHEETS
* 125X-HB-(1&2) R-1
CONTRACT # 60826



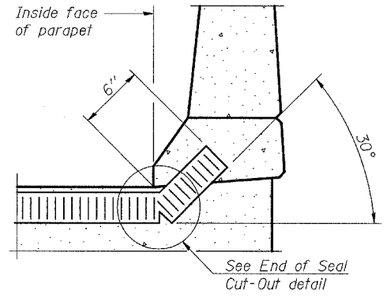
PARAPET JOINT DETAILS
(Cost included with Concrete Superstructure)



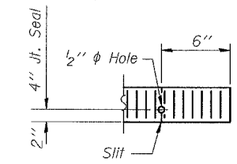
SECTION



PREFORMED JOINT SEAL

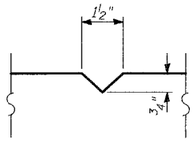


END OF SEAL TREATMENT AT PARAPET

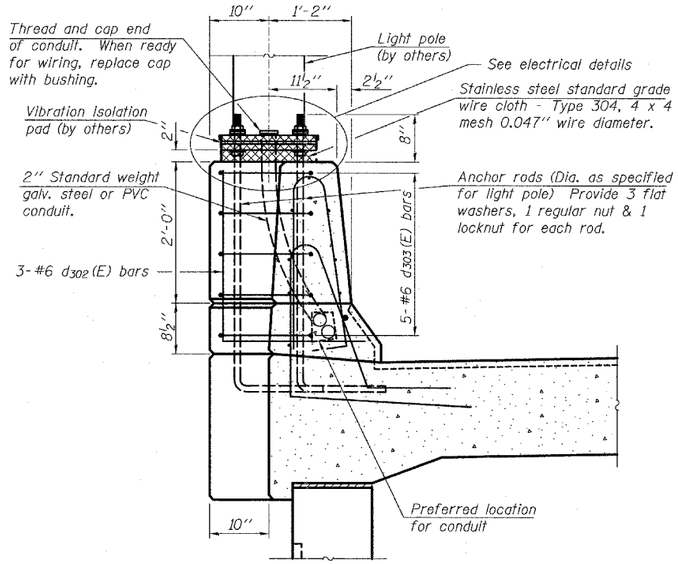


END OF SEAL CUT-OUT

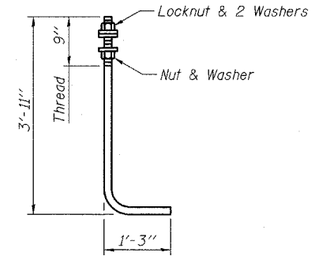
DETAIL - EXPANSION JOINT IN SLAB



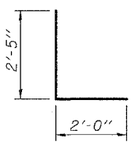
CONTROL JOINT DETAIL-PARAPET



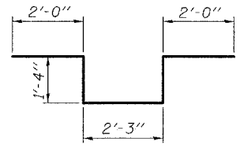
SECTION A-A



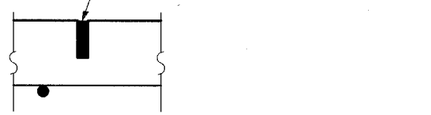
ANCHOR ROD
Diameter as specified for light poles.
(ASTM F 1554 Grade 105)



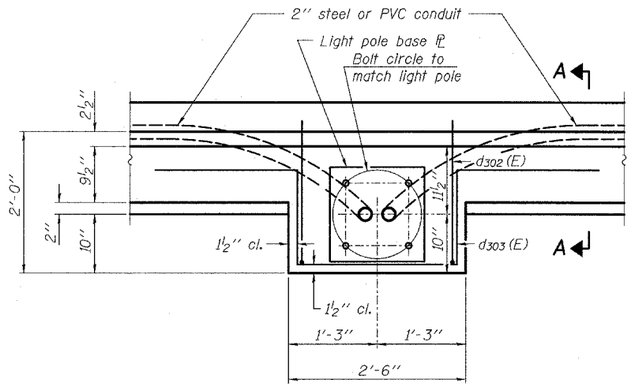
BAR d_{302}(E)



BAR d_{303}(E)



CONTROL JOINT DETAIL-SLAB
(Cost included with Concrete Structures)



PLAN

Note:
Cost of anchor rods and conduit is included with Concrete Superstructure.

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- CM
CHECKED	- AD

WALL K
MISCELLANEOUS DETAILS

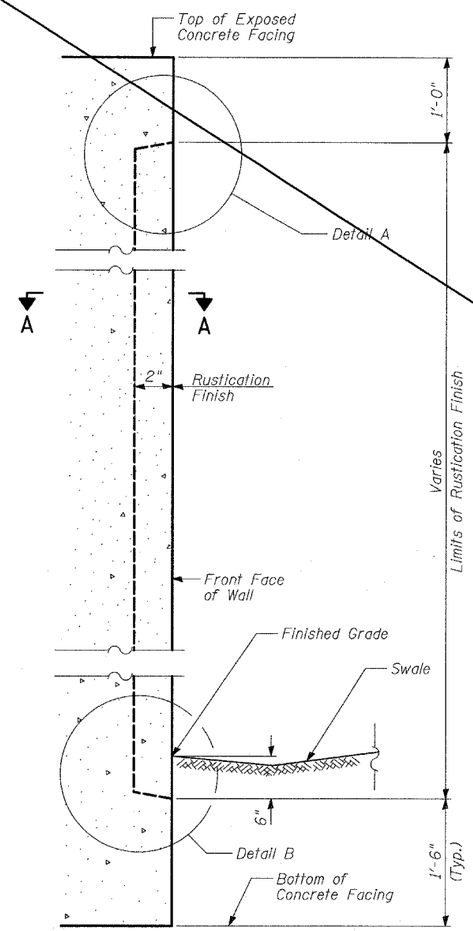
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W032

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

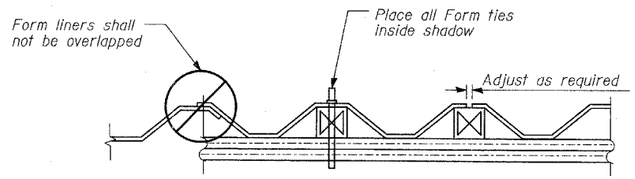
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	261
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 11
15 SHEETS

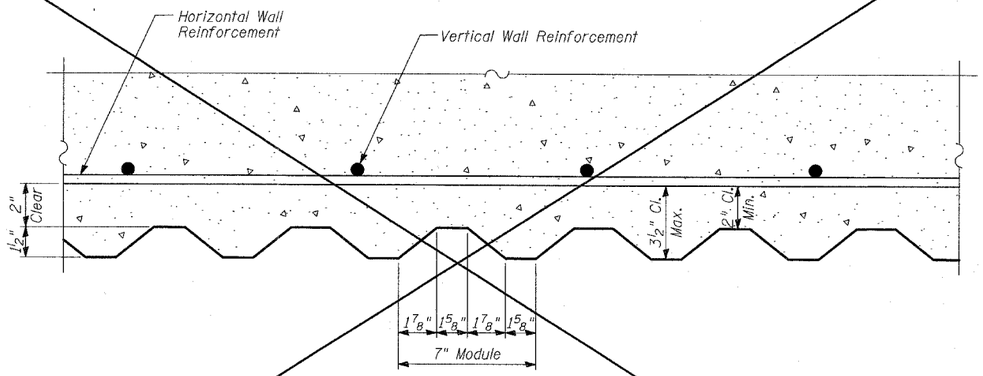
• 125X-HB-(1&2) R-1 CONTRACT # 60826



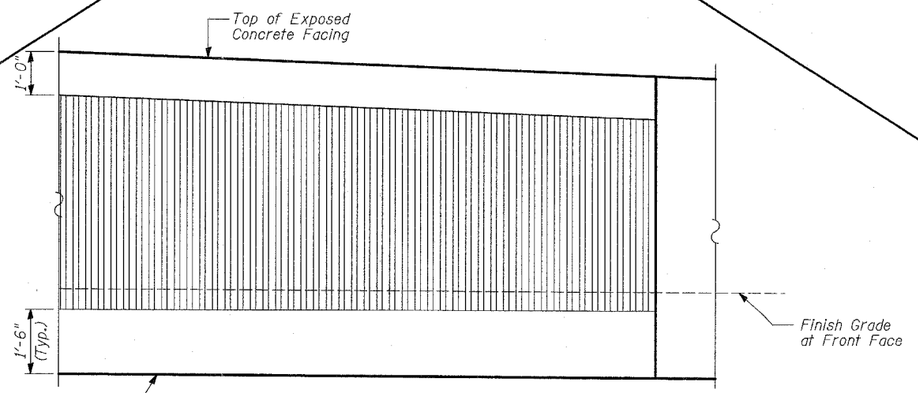
WALL DETAIL



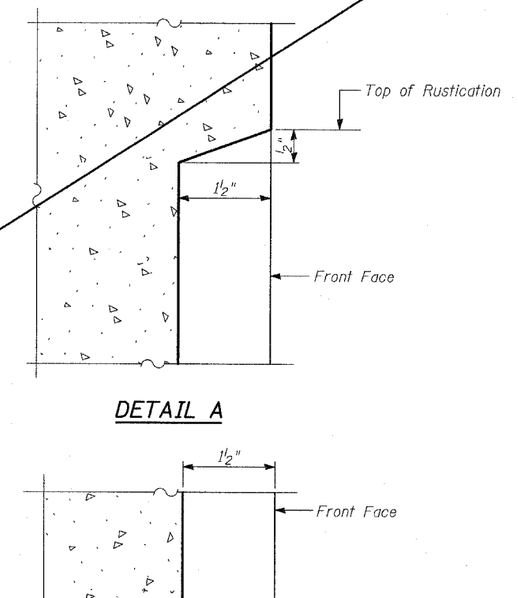
SUGGESTED FORMWORK DETAIL



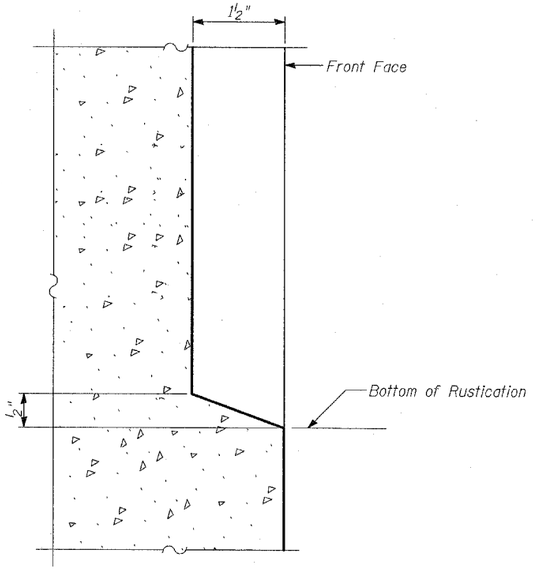
SECTION A-A



RUSTICATION DETAIL
(At Interior Panel with Embankment)



DETAIL A



DETAIL B

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Rustication Finish	SQ FT	1,271

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- CM
CHECKED	- AD

NOTES:

1. See Sheet 5 of 15 for expansion and construction joint details.

WALL K
RUSTICATION DETAILS

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ32

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	262
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 12
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2626

SOIL BORING LOG

PAGE 1 of 2
DATE August 4-5, 2004
LOGGED BY TOB
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN Ø49-WØ32
Station
BORING NO. K-3
Station 528+41.5 US 41 Centerline
Offset 48.75' Right
Ground Surface Elev. 699.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Soil Description
	6			TOPSOIL-black (A-7)
697.6	5			
	7	4.5P	13	CLAY-brown & gray-hard (A-6)
	9		115	
-5	9 14	7.25B	17	
	11		113	
	15 15	9.5B	18	
	9		112	
-10	13 19	7.1B	19	
688.6	7		118	
	11 15	6.5B	16	CLAY-gray-stiff to hard (A-6)
	5		112	
-15	8 13	5.8B	19	
	9		117	
	10 15	4.4B	17	
	6		111	
-20	10 13	4.25B	19	
	5		115	CLAY-gray-stiff to hard (A-6)
	6			
	10	2.8B	17	
	4		112	
-25	4 6	1.8B	19	
673.6	3		99	
	5 6	1.6B	26	
	3		98	CLAY-gray-stiff (A-6) Wet
	4			
-30	6	1.9B	27	
	7		118	
665.6	7			
-35	9	NP	16	SILTY LOAM-gray-medium dense to dense (A-4)
	6			
	11			
-40	23		NR	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services Inc.
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805 Amherst Court, Suite 204
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SOIL BORING LOG

PAGE 2 of 2
DATE August 4-5, 2004
LOGGED BY TOB
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN Ø49-WØ32
Station
BORING NO. K-3
Station 528+41.5 US 41 Centerline
Offset 48.75' Right
Ground Surface Elev. 699.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Soil Description
				SILTY LOAM-gray-medium dense to dense (A-4)
658.6				
				CLAY-gray-very stiff to hard (A-6)
	5		107	
	7			
-45	10	2.7B	21	
	8		126	
	11			
-50	14	4.0P	12	
	13		124	
	15			
-55	20	4.3P	13	
	10		117	
	12			
639.6 -60	14	3.8P	16	
				SANDY LOAM-gray-medium dense (A-2)
	16			
	12			
-65	14	NP	15	
	22			
	14			
-70	14	NP	19	
	16			
	15			
-75	13	NP	20	
	12			
	16			
619.6 -80	15		NR	End of Boring @ -80.0'
				Hollow Stem Augers to -10.0'
				Rotary Drilling to Completion
				80.0' Casing Used
				D-120 Safety Hammer

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	-	SNB
CHECKED	-	AD
DRAWN	-	SNB
CHECKED	-	AD

BORING LOG K-3

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ32

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	263
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 13
15 - SHEETS

• 125X-HB-(1&2) R-1 CONTRACT • 60826

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 305-2936

SOIL BORING LOG

PAGE 1 of 2
DATE 10/22/2004
LOGGED BY TOB
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" Hollow Stem Auger HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-WØ32
Station
BORING NO. K-4
Station 529+16.5 US 41 Centerline
Offset 48.75' Right
Ground Surface Elev. 698.7

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SANDY TOPSOIL-black (A-7)		3		
		3		
		3	-	13
	695.2			
		2		102
CLAY-gray-stiff to hard (A-6)		4		
	-5	5	2.5B	23
CLAY-brown & gray-very stiff to hard (A-6)		6		107
		6		
		8	2.1B	21
		6		113
		6		
	-10	9	4.25B	15
		8		119
		11		
		12	5.3B	16
	684.7			
		6		112
CLAY-gray-stiff to hard (A-6)		7		
	-15	11	4.4B	17
		5		112
		6		
		8	3.5B	17
		4		113
		4		
	-20	6	1.8B	17
		4		107
	-25	5		
		7	1.8B	22
		4		104
		5		
		6	1.8B	23
		3		103
		4		
	-30	7	2.5B	23
		3		115
		4		
	-35	5	1.0B	23
		5		108
		6		
	-40	8	3.5B	21

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 305-2936

SOIL BORING LOG

PAGE 2 of 2
DATE 10/22/2004
LOGGED BY TOB
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" Hollow Stem Auger HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-WØ32
Station
BORING NO. K-4
Station 529+16.5 US 41 Centerline
Offset 48.75' Right
Ground Surface Elev. 698.7

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY-gray-stiff to hard (A-6)		3		123
	-45	5	2.7B	14
		6		127
	-50	7	4.4B	12
		12		130
	-55	13	7.1B	11
	640.7			
SILT-gray-dense to very dense (A-4)		25		
		39		
	-60	29		NR
SILT-gray-dense to very dense (A-4)		5		
		10		
	-65	20	NP	19
	630.7			
SAND-gray-dense (A-1-b)		9		
		17		
	628.7 -70	23	NP	13
End of Boring @ -70.0' Hollow Stem Augers D-120 Safety Hammer				
	-75			
	-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY-LIN INTERNATIONAL

DESIGNED	- SNB
CHECKED	- AD
DRAWN	- SNB
CHECKED	- AD

BORING LOG K-4

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ32

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	264
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 14
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2936

SOIL BORING LOG

PAGE 1 of 3
DATE August 2-4, 2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-1
Station 529+94.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material
	4			SILTY CLAY LOAM- dark brown to brown- medium stiff to stiff (A-6)
	5			
	6	0.75P	15	
	4			
694.3	3			
-5	6	1.0P	13	
	5		131	CLAY-brown & gray- very stiff to hard (A-6)
	5			
	10	3.0B	10	
	7		127	
	10			
-10	12	4.1B	12	
687.8				
	9		127	CLAY-gray- very stiff to hard (A-6)
	12			
	18	5.5B	12	
	10			
	15			
-15	13		NR	
	4		127	
	8			
	18	3.7B	12	
	7		129	
	10			
-20	12	1.9B	10	
	8		128	CLAY-gray- very stiff to hard (A-6)
	6			
	13	2.5B	12	
	4		125	
	5			
-25	9	2.7B	13	
	8			
	10		NR	
	6			
-30	8	-	15	
664.8	11			
-35	4	NP	15	SANDY LOAM-gray-loose (A-2)
663.3				
	8			CLAY-gray-very stiff (A-6)
	9		132	
	11			
-40	12	3.7B	10	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2936

SOIL BORING LOG

PAGE 2 of 3
DATE August 2-4, 2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-1
Station 529+94.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Material
				CLAY-gray-very stiff (A-6)
655.3	8			
	11			SANDY CLAY LOAM-gray- medium dense (A-2-6)
653.8 -45	19	NP	17	
				CLAY-gray- very stiff to hard (A-6)
	8		133	
	11			
-50	19	5.3B	10	
	6		128	
	11			
-55	15	2.7B	12	
640.3	11			
SILTY LOAM-gray-dense (A-4)	16			
-60	16	NP	15	
				SILTY LOAM-gray-dense (A-4)
635.8	9		121	
	12			CLAY-gray-very stiff (A-6)
-65	15	2.8B	15	
629.8	5			
	6			
-70	18	NP	15	Fine SAND-gray-medium dense (A-3)
625.3	14			
	14			SAND & GRAVEL-gray- medium dense to dense (A-1)
-75	16	NP	15	
619.3	12			
-80	12	NP	13	CLAY-gray-stiff to very stiff (A-6)

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	-	SNB
CHECKED	-	AD
DRAWN	-	SNB
CHECKED	-	AD

BORING LOG B-1
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W032

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	265
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 15
15 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2356

SOIL BORING LOG

PAGE 3 of 3
DATE August 2-4, 2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD Rotary HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-0209
Station
BORING NO. B-1
Station 529+94.5 US 41 Centerline
Offset 37.05' Right
Ground Surface Elev. 698.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to very stiff (A-6)
	11		121	
	14			
-85	16	1.1B	15	
	7			
	10			
-90	16	2.0P	17	
	11		120	
	21			
-95	27	1.1B	15	
	8		120	
	12			
-100	21	2.8B	15	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to very stiff (A-6)
	10		113	
	12			
-105	14	2.5B	18	
	11		105	
	14			
-110	23	3.4B	23	
585.8				
	37			SILTY LOAM-gray-very dense (A-4)
	67			
583.8 -115	72	NP	17	
				End of Boring @ -115.0' Rotary Drilling to Completion 85.0' Casing Used D-120 Safety Hammer
-120				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	-	SNB
CHECKED	-	AD
DRAWN	-	SNB
CHECKED	-	AD

BORING LOG B-1
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W032

Benchmark: BM #6 - Square cut in base of L.P. at N.E. corner of IL Route 132 and Magnolia (Speedway) 45.14' LT, Sta. 32+13.24 (IL 132 E.B. ℄), Elev. 696.47.

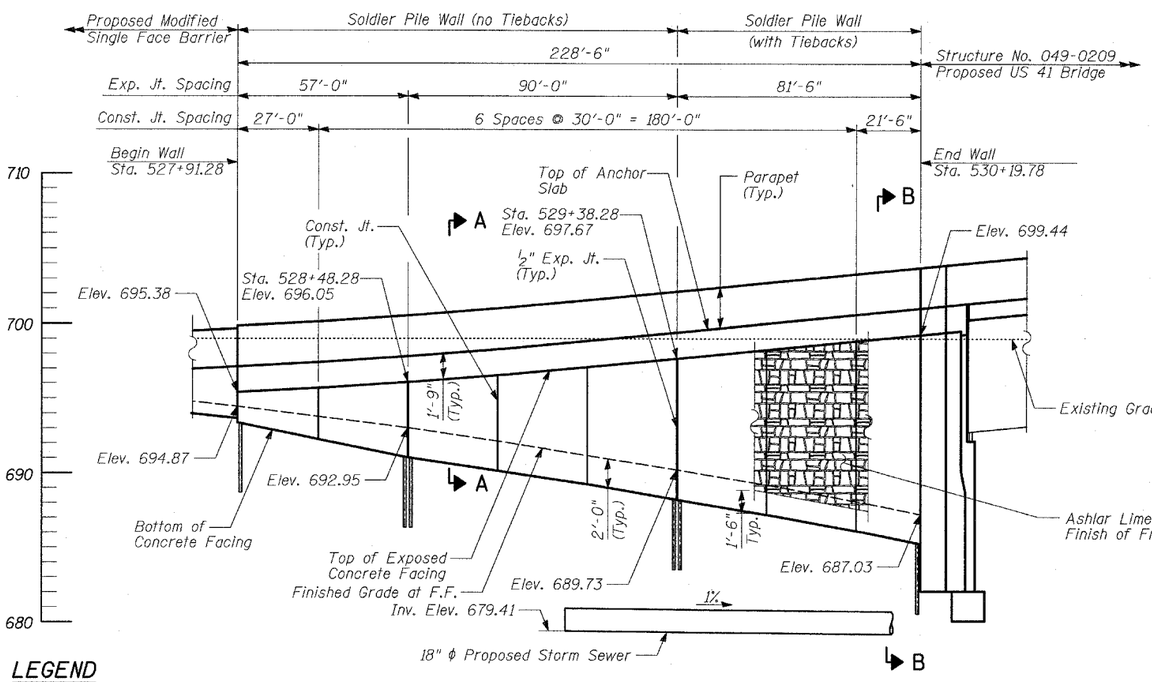
Existing Structure: None.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

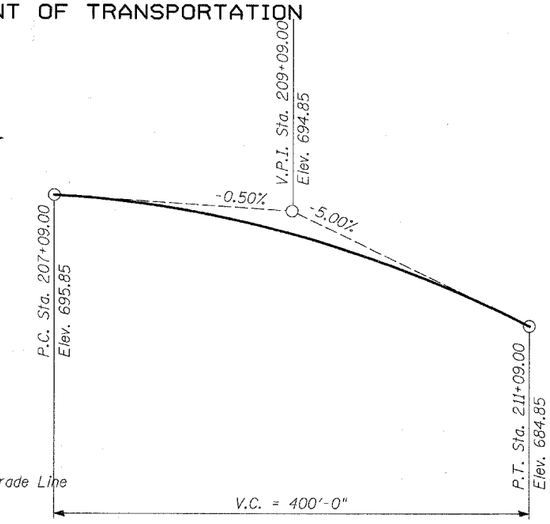
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	266
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - 1
16 - SHEETS

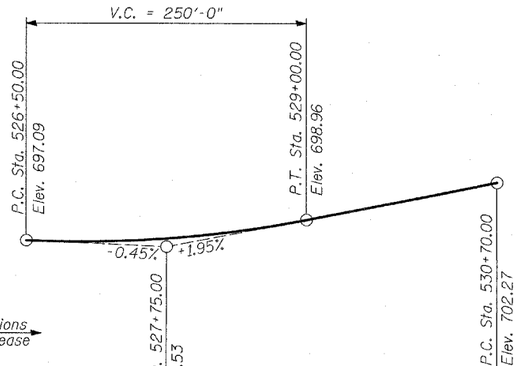
• 125X-HB-(1&2) R-1 CONTRACT • 60826



ELEVATION
(Looking at B.F.)



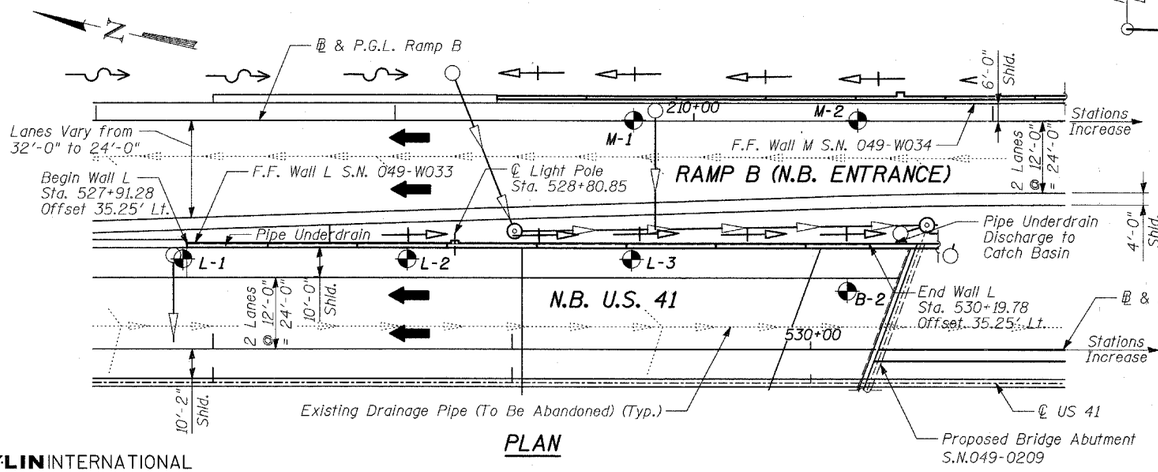
PROFILE GRADE RAMP B



PROFILE GRADE N.B. U.S. 41

LEGEND

- ⊙ - Manhole
- ◯ - Catch Basin
- ⊕ - Soil Boring
- ⟶ - Prop. Storm Sewer
- ····· - Exist. Drain Pipe
- ⟶ - Proposed Drainage Swale



PLAN

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	CU YD	325
Concrete Structures	CU YD	109
Concrete Superstructure	CU YD	158
Protective Coat	SQ YD	350
Form Liner Textured Surface	SQ YD	175
Furnishing and Erecting Structural Steel	POUND	4,220
Stud Shear Connectors	EACH	344
Untreated Timber Lagging	SQ FT	1,571
Furnishing Soldier Piles (HP Section)	FOOT	168
Furnishing Soldier Piles (W Section)	FOOT	662
Reinforcement Bars, Epoxy Coated	POUND	28,340
Geocomposite Wall Drain	SQ YD	188
Pipe Underdrains for Structures, 4"	FOOT	229
Drilling and Setting Soldier Piles (in Soil)	CU FT	4,398
~~Anti Graffiti Coating~~	~~SQ FT~~	~~2,485~~

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications For Highway Bridges

DESIGN STRESSES

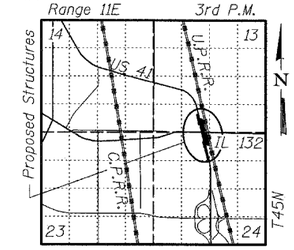
FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 36,000 psi (structural steel M270 Grade 36)
f'_s = 150,000 psi (tie rods)

NOTES:

1. Wall stations and offsets are given to the front face of the concrete facing, and are measured from NB US 41 Baseline.
2. Existing utilities in conflict with soldier pile wall construction shall be abandoned or relocated according to direction given in roadway plans
3. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60 (IL Modified). See Special Provisions.
4. Reinforcement bars designated (E) shall be epoxy coated.
5. All exposed concrete edges shall be chamfered ¾" except as noted.
6. Slipforming of the parapet is not allowed.
7. All construction joints shall be bonded.
8. Soldier Pile Wall design can accomodate disturbance in front of wall for installation of proposed storm sewer. Lagging pay limits are to proposed bottom of C.I.P. concrete facing.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E. Anderson (TJD)
ENGINEER OF BRIDGES AND STRUCTURES



LOCATION SKETCH

INDEX OF SHEETS

1. WALL L GENERAL PLAN, STA 527+91.28 TO STA 530+28.28
2. WALL L PLAN AND ELEVATION, STA 527+91.28 TO 528+48.28
3. WALL L PLAN AND ELEVATION, STA 528+48.28 TO 529+38.28
4. WALL L PLAN AND ELEVATION, STA 529+38.28 TO 530+28.28
5. WALL L SECTIONS AND DETAILS (1 OF 2)
6. WALL L SECTIONS AND DETAILS (2 OF 2)
7. WALL L TIE BACK AND DEADMAN DETAILS
8. WALL L ANCHORAGE SLAB AND PARAPET (1 OF 2)
9. WALL L ANCHORAGE SLAB AND PARAPET (2 OF 2)
10. WALL L MISCELLANEOUS DETAILS
11. ~~WALL L RUSTICATION DETAILS~~
12. BORING LOG L-1
13. BORING LOG L-2
14. BORING LOG L-3
15. BORING LOG B-2 (1 OF 2)
16. BORING LOG B-2 (2 OF 2)

WALL L
GENERAL PLAN
STA 527+91.28 TO STA 530+19.78

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ33

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	CM/AD
DRAWN	-	DE
CHECKED	-	CM/AD

STATE OF ILLINOIS
SPIROS PANTAZIS
081-006448
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Signed _____
Spiros Pantazis, S.E. Il. Lic. No. 081-006448 Expires 11-30-2008.
Date 5/14/08

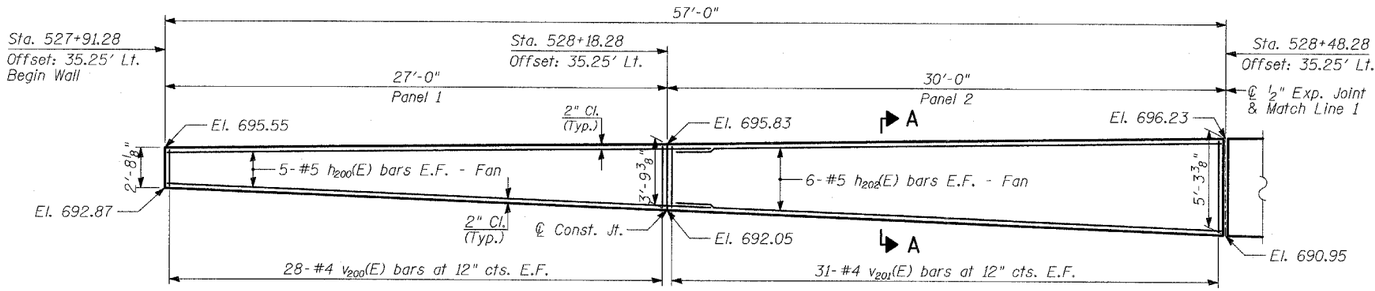
For drawings 1 thru 16 of 16

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	267
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 2 16 SHEETS

• 125X-HB-(1&2) R-1 CONTRACT # 60826



ELEVATION

(Offsets are Given From US41 NB Baseline to F.F. of Wall)

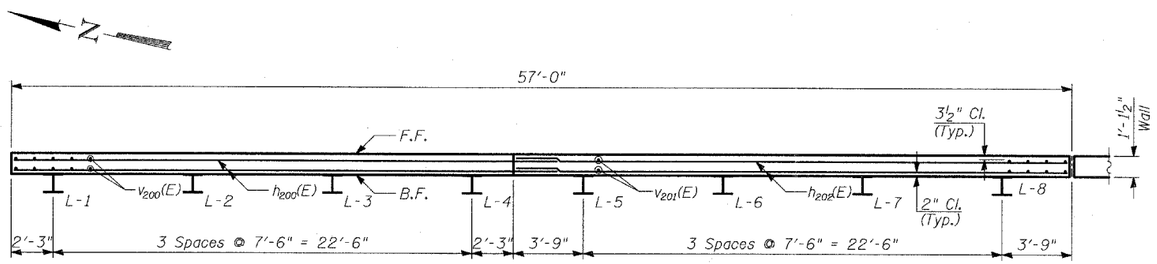
BAR TABLE SCHEDULE

Bar	No. of Sets Required	No. of Bars Per Set	A	B	C
$v_{200}(E)$	1	28	2'-5"	3'-6"	5'-11"
$v_{201}(E)$	1	31	3'-6"	5'-0"	8'-6"
$v_{202}(E)$	1	31	5'-0"	6'-7"	11'-7"
$v_{203}(E)$	1	31	6'-7"	8'-3"	14'-10"
$v_{204}(E)$	1	31	8'-3"	9'-10"	18'-1"
$v_{205}(E)$	1	31	9'-10"	11'-4"	21'-2"
$v_{206}(E)$	1	31	11'-4"	12'-11"	24'-3"
$v_{207}(E)$	1	22	12'-11"	14'-3"	27'-2"

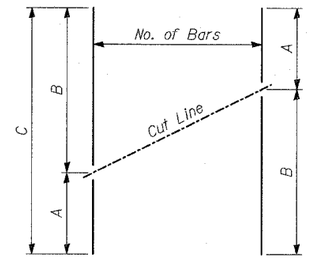
BILL OF MATERIAL

Bar	Number	Size	Length	Shape
$v_{200}(E)$	28	#4	5'-11"	——
$v_{201}(E)$	31	#4	8'-6"	——
$v_{202}(E)$	31	#4	11'-7"	——
$v_{203}(E)$	31	#4	14'-10"	——
$v_{204}(E)$	31	#4	18'-1"	——
$v_{205}(E)$	31	#4	21'-2"	——
$v_{206}(E)$	31	#4	24'-3"	——
$v_{207}(E)$	22	#4	27'-2"	——
$h_{200}(E)$	10	#5	29'-0"	——
$h_{201}(E)$	90	#5	32'-0"	——
$h_{202}(E)$	34	#5	29'-8"	——
$h_{203}(E)$	32	#5	21'-2"	——

Reinforcement Bars, Epoxy Coated	POUND	7,620
Concrete Structures	CU YD	80
Form Liner Textured Surface	SQ YD	175
Furnishing Soldier Piles (HP Section)	FOOT	168
Furnishing Soldier Piles (W Section)	FOOT	662
Drilling and Setting Soldier Piles (In Soil)	CU FT	4,398



PLAN



SERIES OF BAR CUTTING DIAGRAM

See table for dimensions.
Order Bars Full Length, Cut as Shown Normal to Bar Axis and Use Remainder of Bars in Opposite Face.

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
L-1	HP12x63	20'-3"	694.1	673.8
L-2	HP12x63	20'-3"	694.2	673.9
L-3	HP12x63	20'-3"	694.2	674.0
L-4	HP12x63	20'-3"	694.3	674.1
L-5	HP12x63	21'-8"	694.4	672.7
L-6	HP12x63	21'-8"	694.5	672.8
L-7	HP12x63	21'-8"	694.6	672.9
L-8	HP12x63	21'-8"	694.7	673.0

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 5 thru 11 of 16.
5. Pile spacing measured along front face of wall.
6. For Section A-A, See Sheet 5 of 16.

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- TB
CHECKED	- AD

WALL L
PLAN AND ELEVATION
STA 527+91.28 TO STA 528+48.28

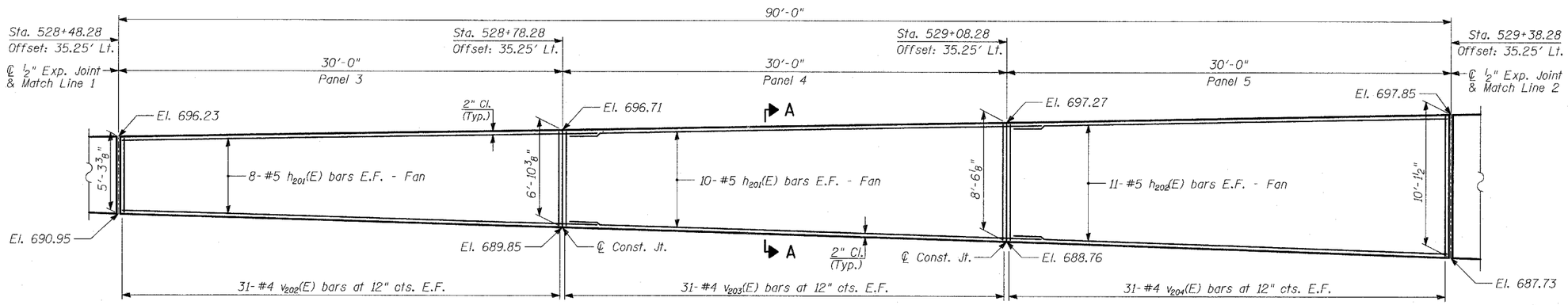
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ33

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	268
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

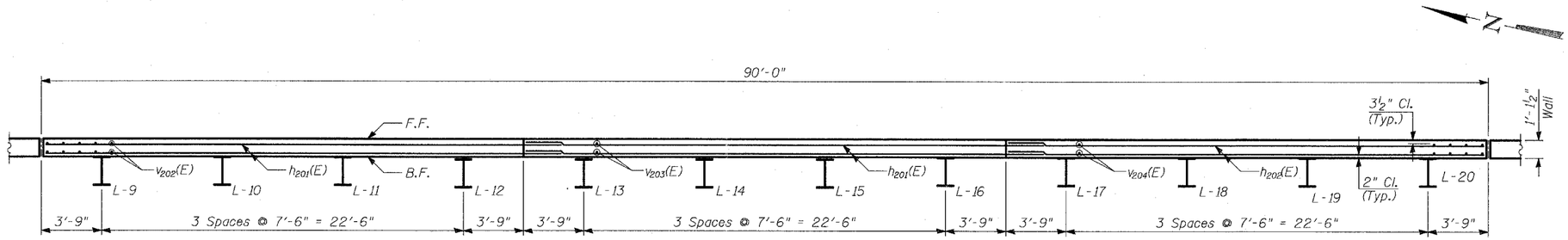
SHEET NO. - 3
16 - SHEETS

• 125X-HB-(1&2) R-1 CONTRACT • 60826



ELEVATION

(Offsets are Given From US41 NB Baseline to F.F. of Wall)



PLAN

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
L-9	W18x130	30'-2"	694.8	664.6
L-10	W18x130	30'-2"	694.9	664.7
L-11	W18x130	30'-2"	695.0	664.9
L-12	W18x130	30'-2"	695.2	665.0
L-13	W18x130	31'-10"	695.3	663.4
L-14	W18x130	31'-10"	695.4	663.6
L-15	W18x130	31'-10"	695.6	663.7
L-16	W18x130	31'-10"	695.7	663.9
L-17	W18x130	33'-6"	695.8	662.3
L-18	W18x130	33'-6"	696.0	662.5
L-19	W18x130	33'-6"	696.1	662.6
L-20	W18x130	33'-6"	696.3	662.8

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	TB
CHECKED	-	AD

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 5 thru 11 of 16.
5. Pile spacing measured along front face of wall.
6. For Bill of Material, see Sheet 2 of 16.
7. For Section A-A, See Sheet 5 of 16.

WALL L
PLAN AND ELEVATION
STA 528+48.28 TO STA 529+38.28

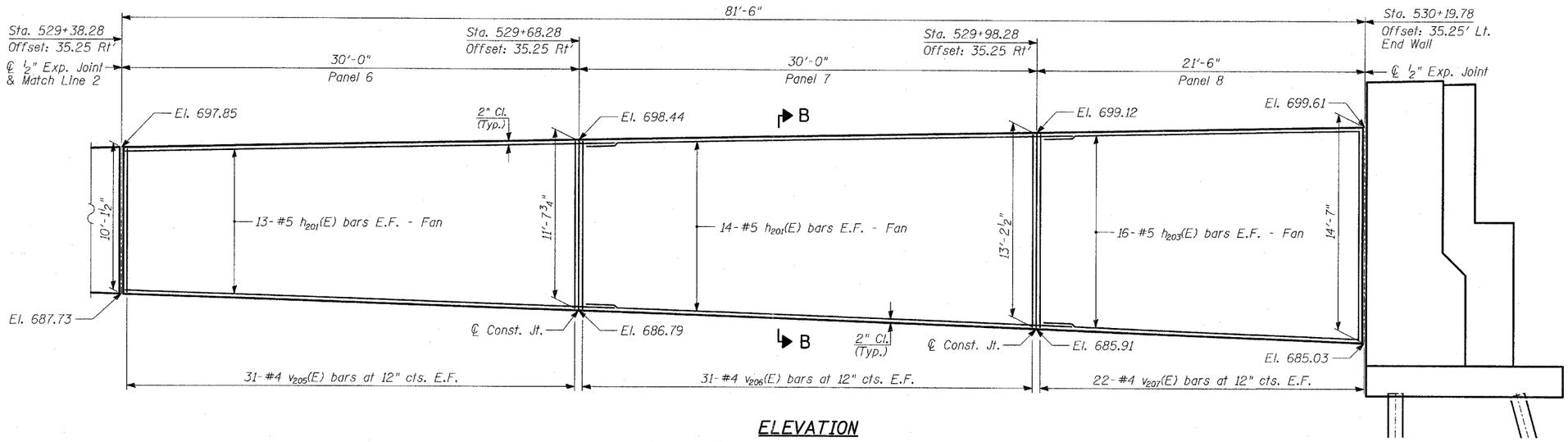
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	269
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

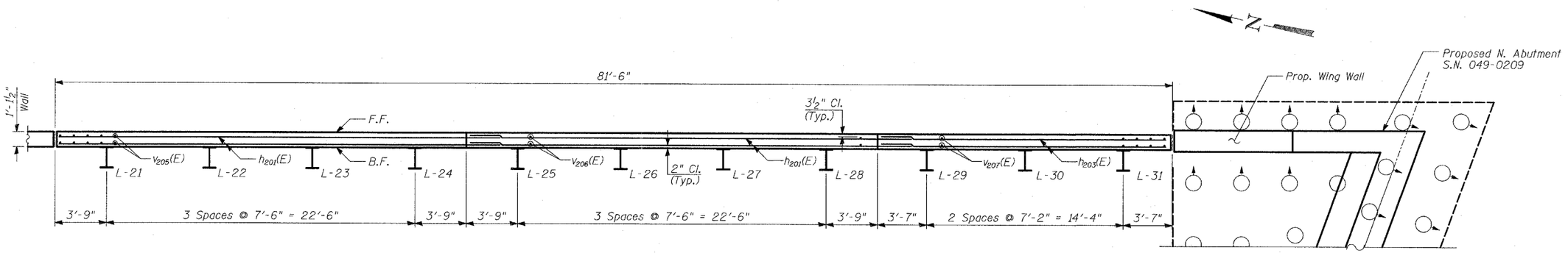
SHEET NO. - 4
16 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826



ELEVATION

(Offsets are Given From US41 NB Baseline to F.F. of Wall)



PLAN

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
L-21	W18x97	24'-0"	696.4	672.4
L-22	W18x97	24'-0"	696.6	672.6
L-23	W18x97	24'-0"	696.7	672.7
L-24	W18x97	24'-0"	696.9	672.9
L-25	W18x97	25'-7"	697.0	671.4
L-26	W18x97	25'-7"	697.2	671.6
L-27	W18x97	25'-7"	697.4	671.8
L-28	W18x97	25'-7"	697.5	672.0
L-29	W18x97	26'-11"	697.7	670.8
L-30	W18x97	26'-11"	697.9	671.0
L-31	W18x97	26'-11"	698.0	671.1

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 5 thru 11 of 16.
5. Pile spacing measured along front face of wall.
6. For Bill of Material, see Sheet 2 of 16.
7. For Section B-B, see Sheet 6 of 16.

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- TB
CHECKED	- AD

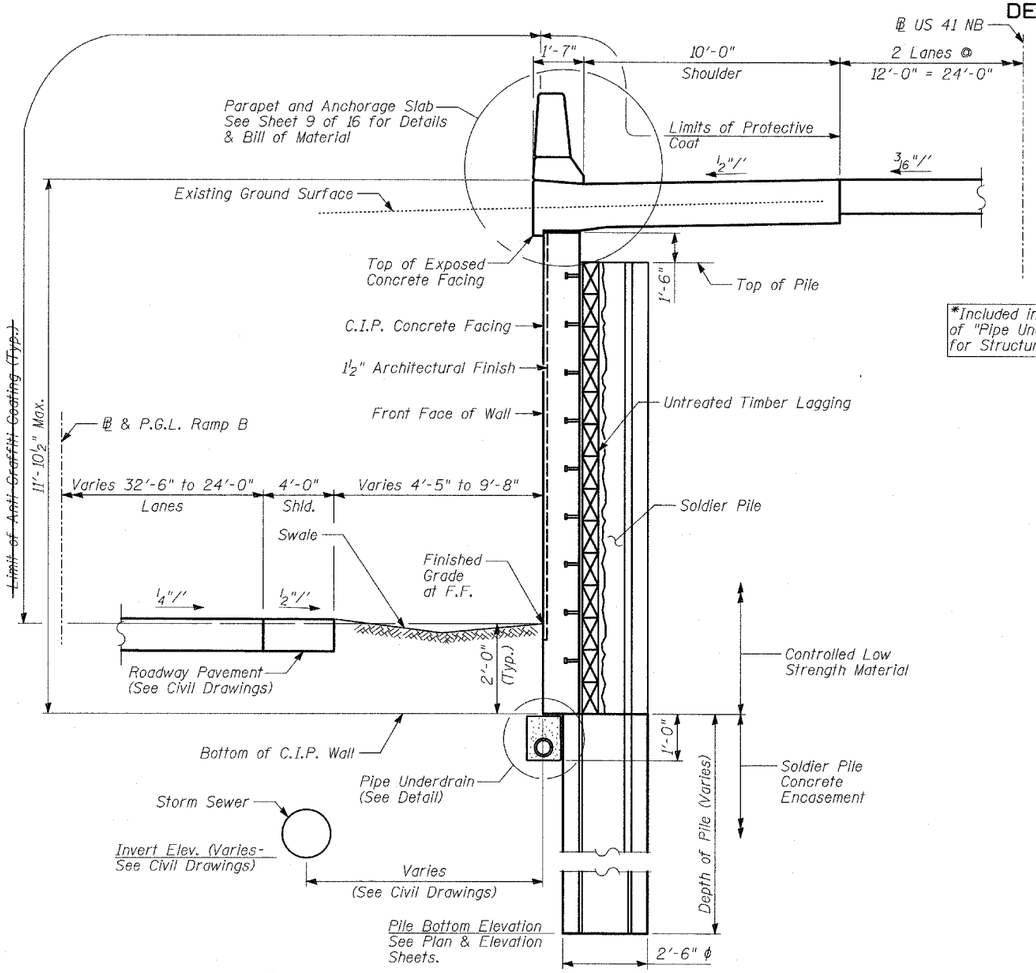
WALL L
PLAN AND ELEVATION
STA 529+38.28 TO STA 530+19.78

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ33

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

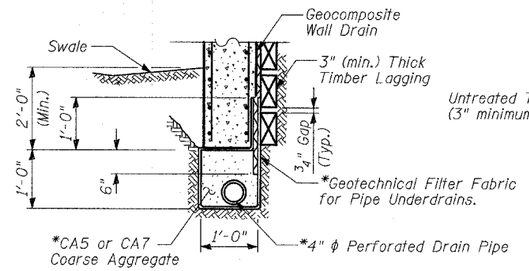
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	270
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - 5
16 - SHEETS
* 125X-HB-(1&2) R-1
CONTRACT * 60826



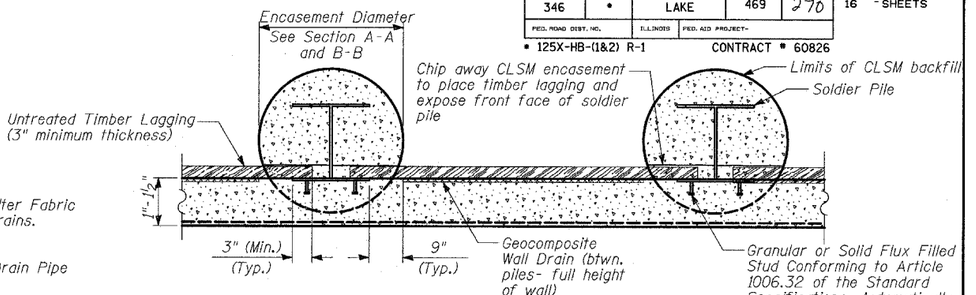
SECTION A-A

Sta. 527+91.28 to Sta. 529+38.28



*Included in the cost of "Pipe Underdrains for Structures, 4"

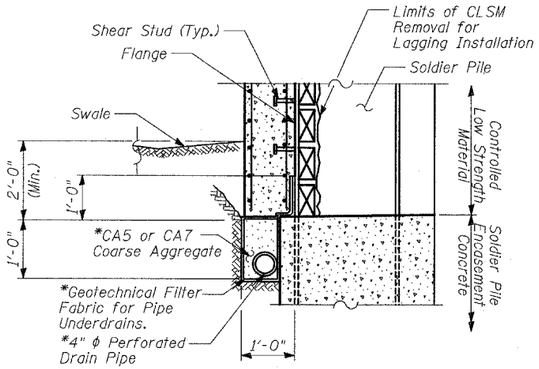
PIPE UNDERDRAIN DETAIL BETWEEN SOLDIER PILES



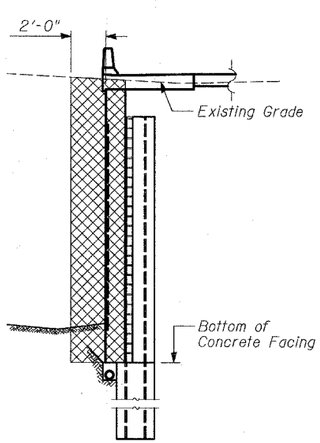
TYPICAL SECTION THRU SOLDIER PILE WALL

LIFTING HOLE DETAIL

Lifting Hole to be Provided if Necessary. Cost included with "Furnishing Soldier Piles (W Section).

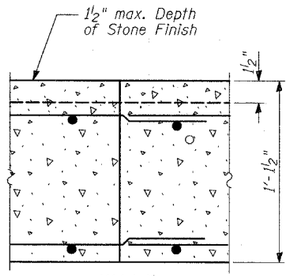


PIPE UNDERDRAIN DETAIL AT SOLDIER PILE



STRUCTURE EXCAVATION

(For Proposed Wall)

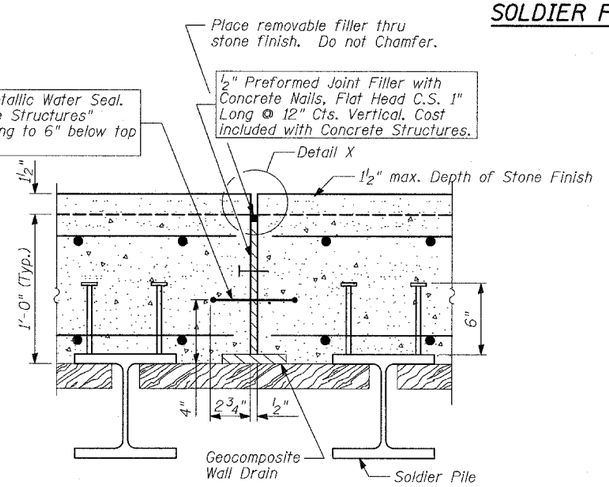


WALL

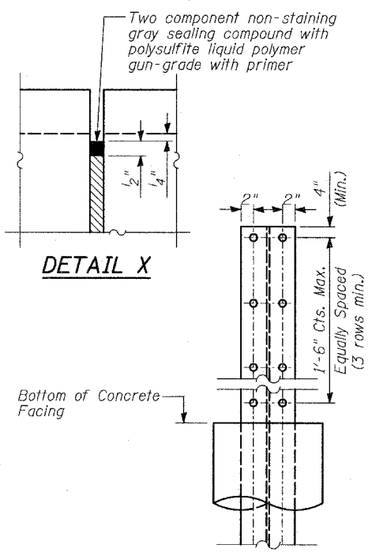
CONSTRUCTION JOINT DETAIL

6" Hollow Bulb Type Non-Metallic Water Seal. Cost included with "Concrete Structures" Extend from bottom of facing to 6" below top of facing.

1/2" Preformed Joint Filler with Concrete Nails, Flat Head C.S. 1" Long @ 12" Cts. Vertical. Cost included with Concrete Structures.



EXPANSION JOINT DETAIL



DETAIL X

SHEAR STUD CONNECTOR DETAIL

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	CU YD	239
Stud Shear Connectors	EACH	344
Untreated Timber Lagging	SQ FT	1,571
Geocomposite Wall Drain	SQ YD	188
Pipe Underdrains for Structures, 4"	FOOT	229

NOTES:

1. The Geocomposite Wall Drain shall be constructed according to Section 591 of the Standard Specifications.
2. The Contractor is responsible for the design and performance of the lagging using no less than 3" nominal rough-sawn thickness and the minimum tabulated unit stress in bending (f_b), used in the design of timber lagging shall be 1000 psi.
3. Stud shear connectors shall be 3/4" ϕ x 6" granular or solid flux filled headed studs, automatically end welded to the front flange of the soldier piles.

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

WALL L SECTIONS AND DETAILS (1 OF 2)

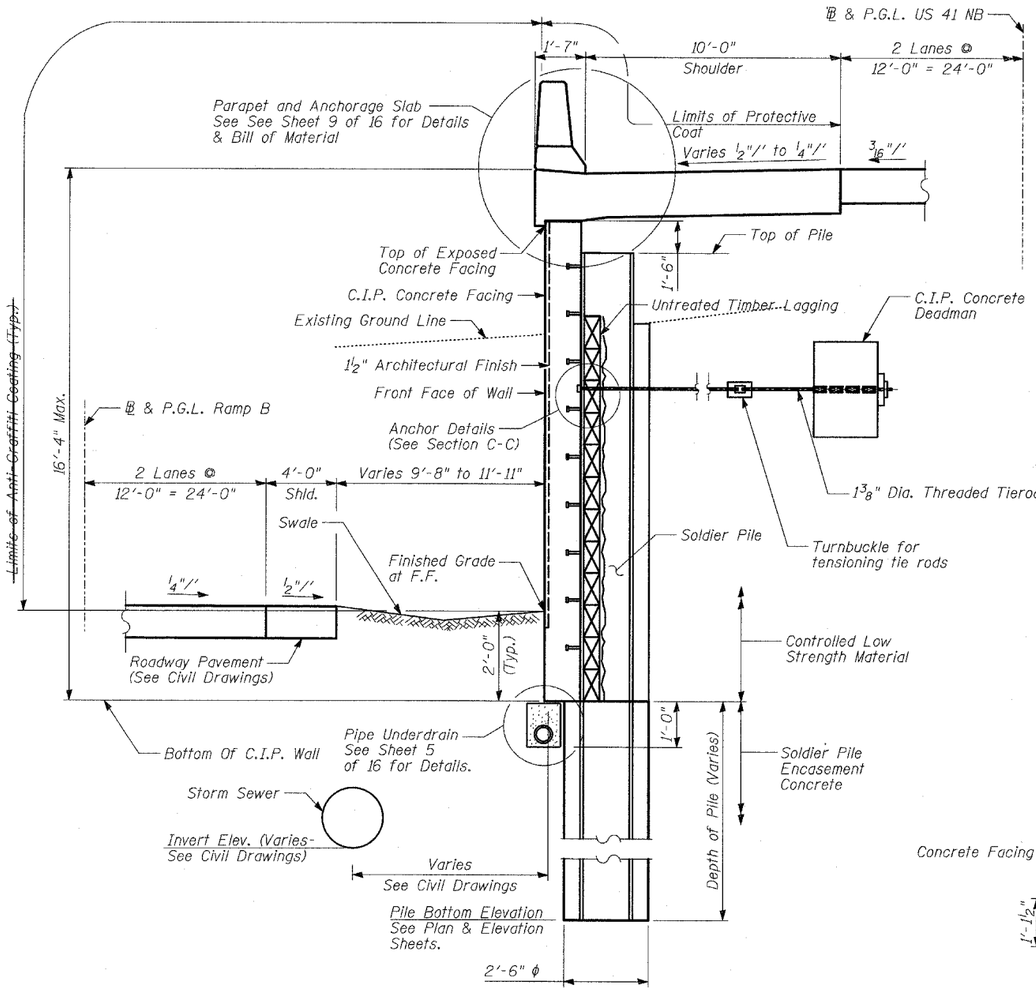
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	271
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 6
16 - SHEETS

• 125X-HB-(1&2) R-1 CONTRACT # 60826



SECTION B-B

Sta. 529+38.28 to Sta. 530+19.78

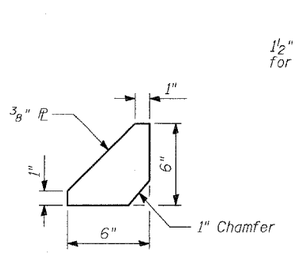
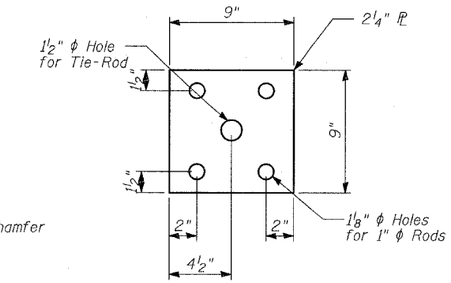
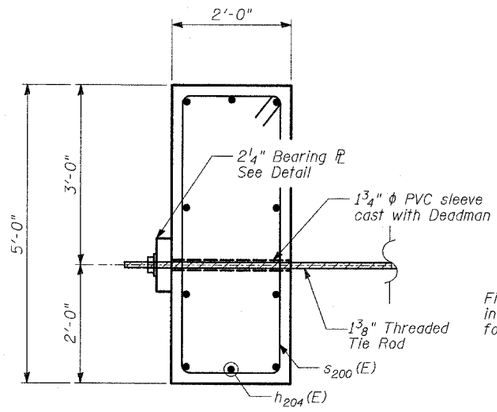


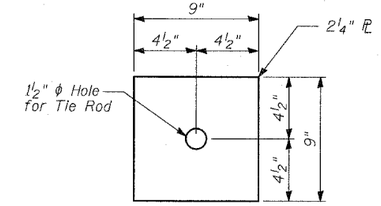
PLATE STIFFENER DETAIL



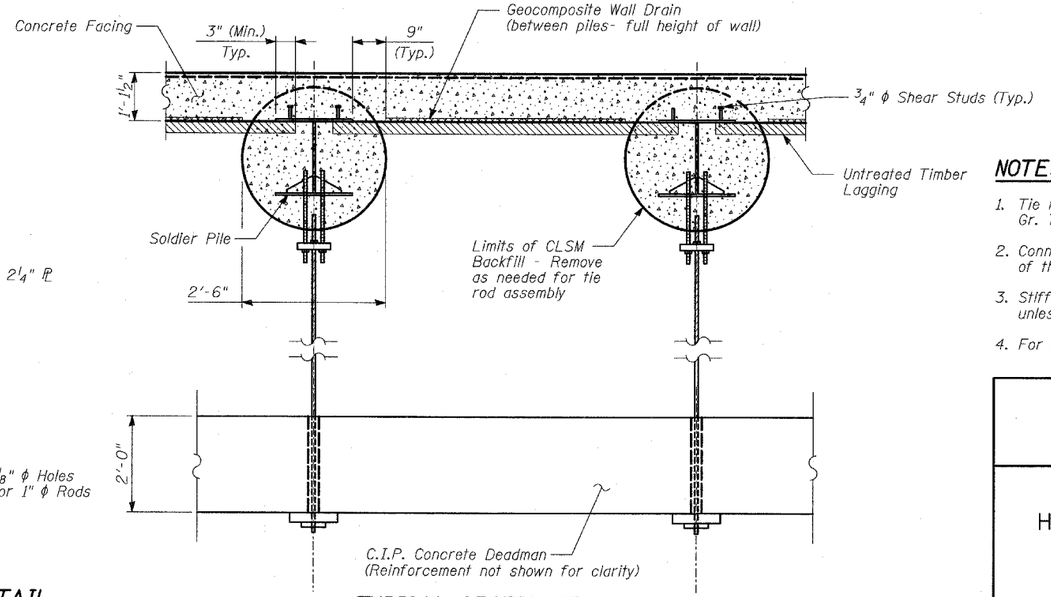
CONNECTION PLATE DETAIL



SECTION - CONCRETE DEADMAN

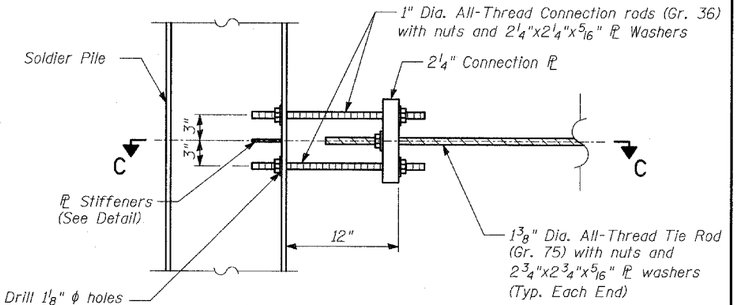


BEARING PLATE DETAIL

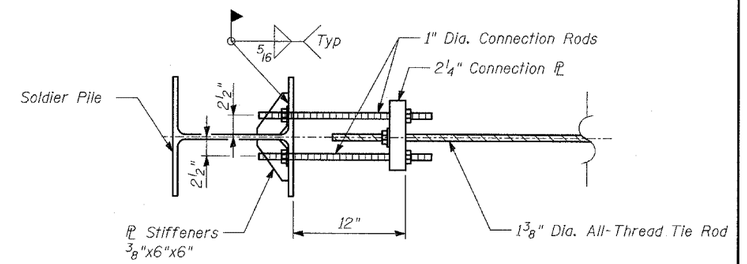


TYPICAL SECTION THRU WALL

(With Tiebacks)



ANCHOR DETAIL (ELEVATION)



SECTION C-C (PLAN)

NOTES:

1. Tie Rods shall meet the requirements of ASTM A615, Gr. 75 of the diameter specified.
2. Connection Rods shall meet the requirements of ASTM A36 of the diameter specified.
3. Stiffener, Bearing, and Connection plates shall be ASTM A36, unless otherwise noted.
4. For additional Soldier Pile Wall details, see Sheet 5 of 16.

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

WALL L SECTIONS AND DETAILS (2 OF 2)

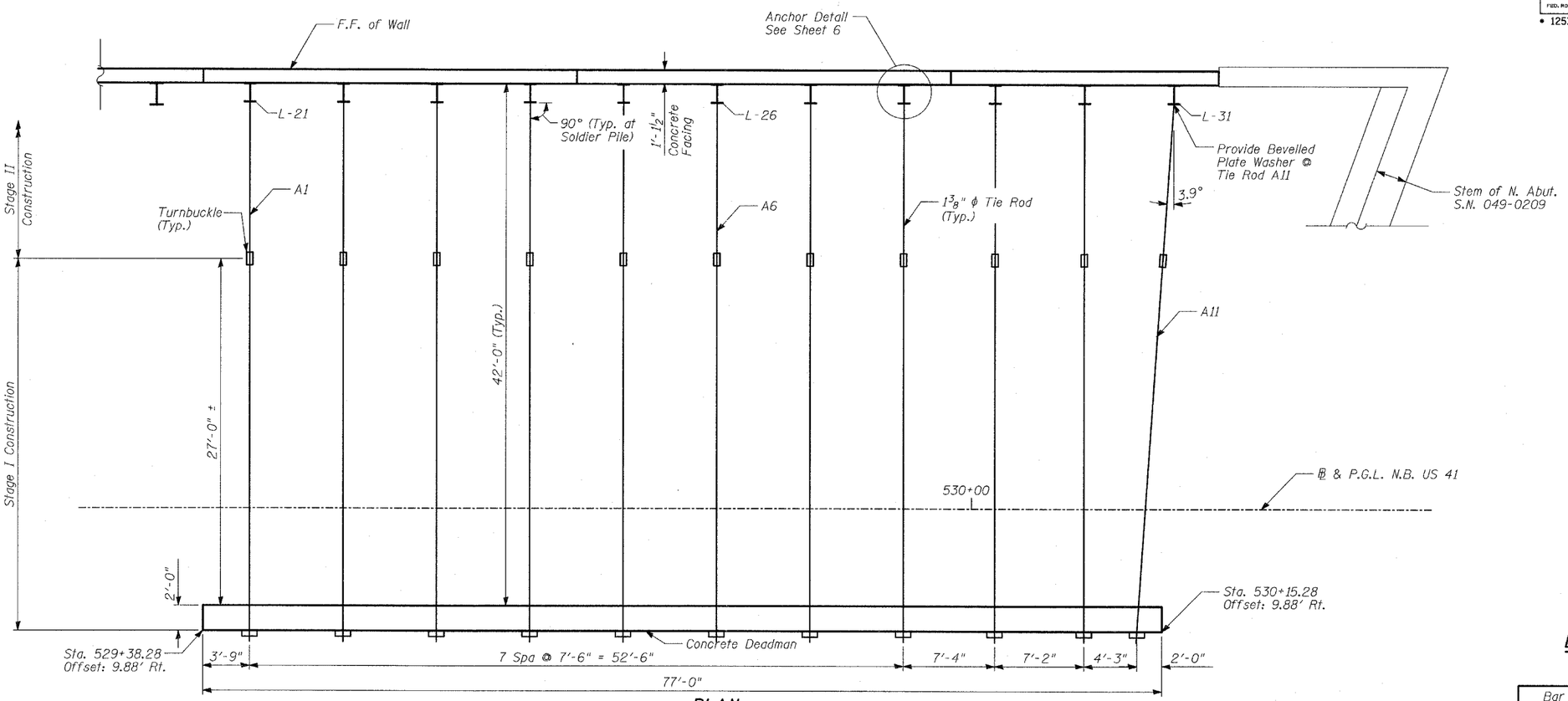
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

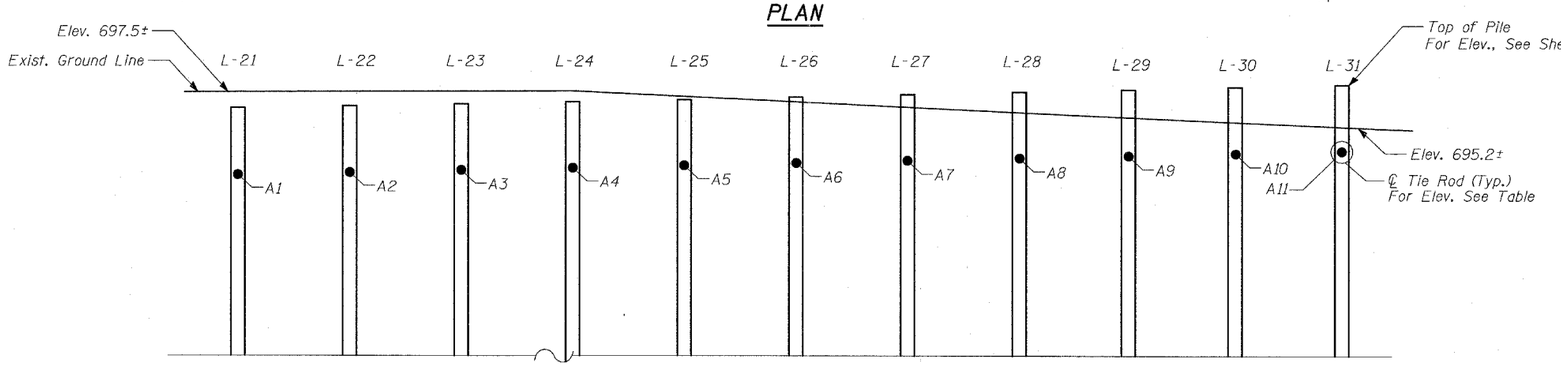
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	272
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 7
16 - SHEETS

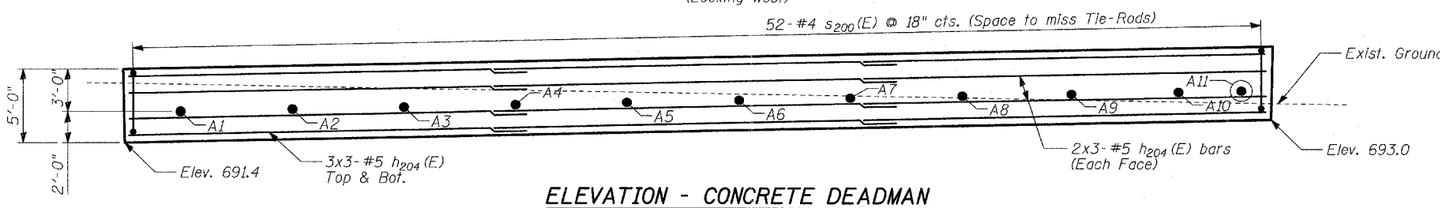
• 125X-HB-(1&2) R-1 CONTRACT # 60826



PLAN



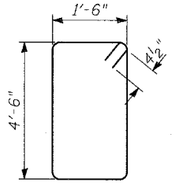
ELEVATION - SOLDIER PILES
(Looking West)



ELEVATION - CONCRETE DEADMAN
(Looking West)

ANCHOR TIE ROD

Anchor Tie Rod	Elevation
A1	693.4
A2	693.6
A3	693.7
A4	693.9
A5	694.0
A6	694.2
A7	694.4
A8	694.5
A9	694.7
A10	694.9
A11	695.0



BAR s_{400} (E)

DEADMAN BAR LIST AND BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h_{204} (E)	30	#5	27'-0"	——
s_{200} (E)	52	#4	12'-9"	□
Reinforcement Bars, Epoxy Coated			POUND	1,290
Concrete Structures			CU YD	29
Furnishing and Erecting Structural Steel			POUND	4,220
Structure Excavation			CU YD	86

NOTES:

1. Install Concrete Deadman and portion of Tie Rod as indicated during Stage I Construction.
2. Install Turnbuckle and remaining section of Tie Rod along with Soldier Piles in Stage II Construction

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

WALL L
TIE BACK AND DEADMAN DETAILS

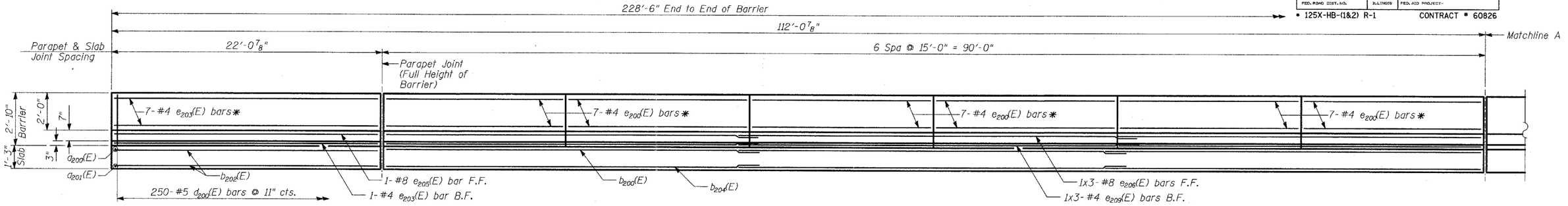
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	273
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

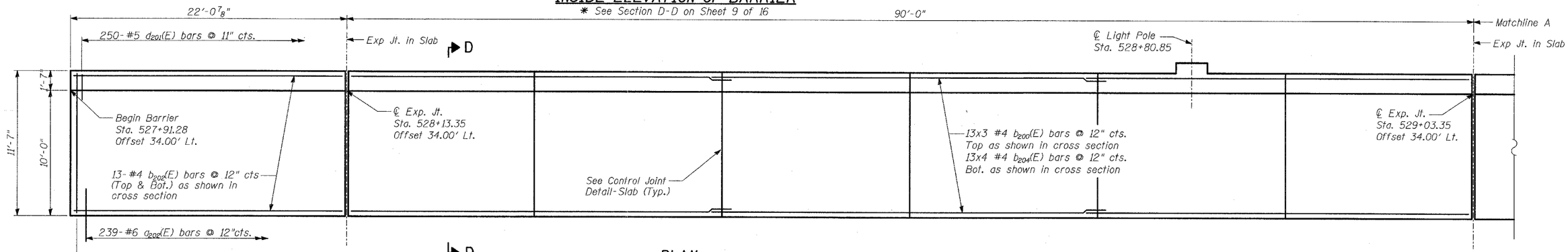
• 125X-HB-(1&2) R-1 CONTRACT • 60826

SHEET NO. - 8
16 - SHEETS

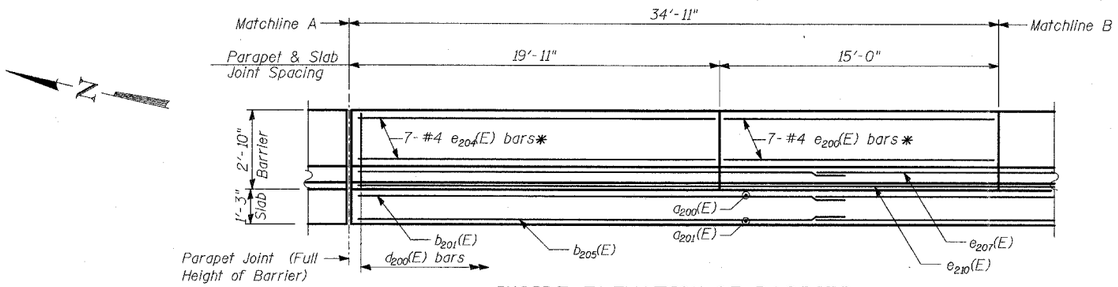


INSIDE ELEVATION OF BARRIER

* See Section D-D on Sheet 9 of 16

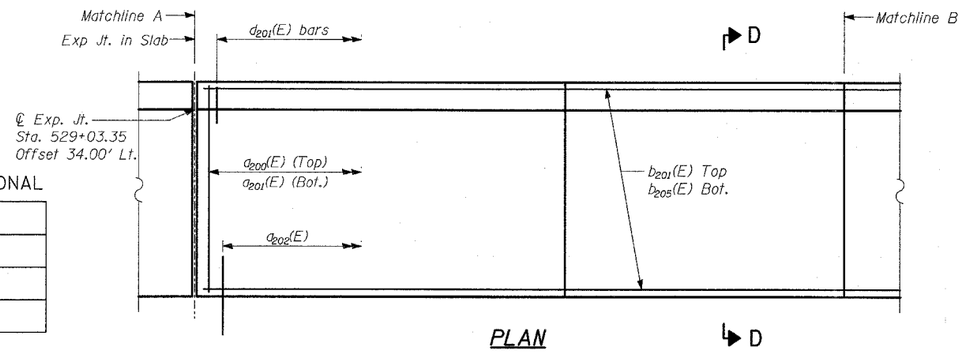


PLAN



INSIDE ELEVATION OF BARRIER

* See Section D-D on Sheet 9 of 16



PLAN

NOTES:

1. Offsets are measured from ℄ & P.G.L. NB US 41.
2. Work this sheet with Sheet 9 of 16.
3. See Sheet 10 of 16 for Light Pole Mount Details.
4. Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- DE
CHECKED	- AD

WALL L
ANCHORAGE SLAB AND PARAPET
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ33

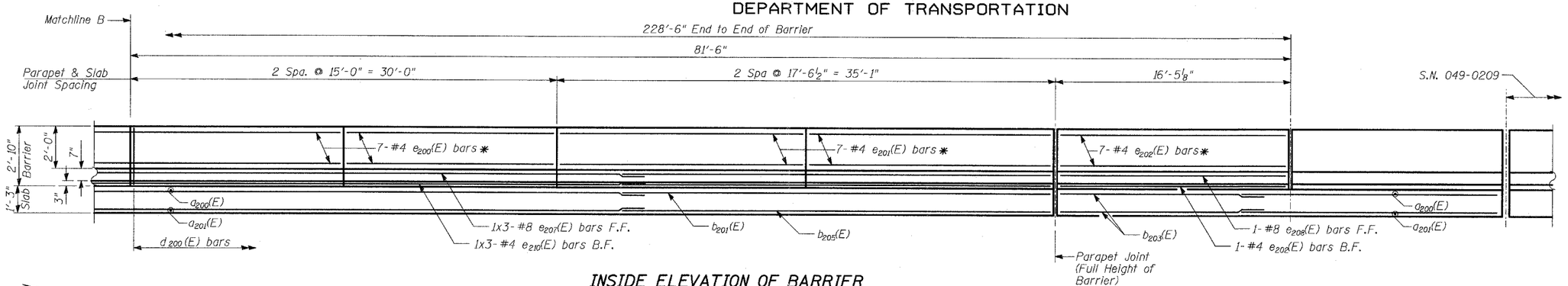
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	274
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - 9
16 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

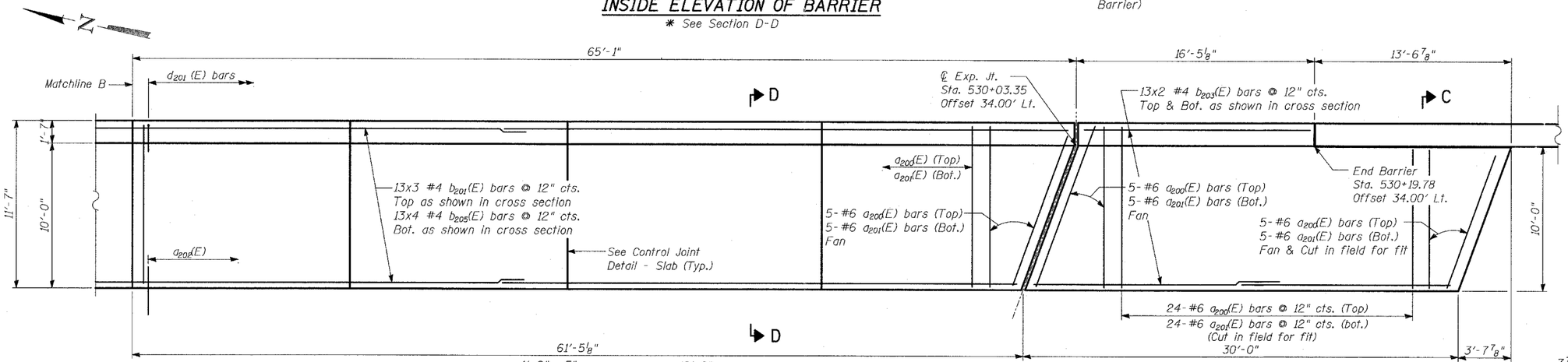
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION

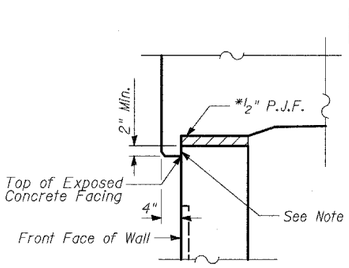


INSIDE ELEVATION OF BARRIER

* See Section D-D



PLAN



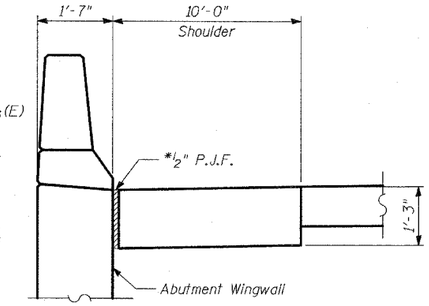
DETAIL A

Note B:
*Bond breaker membrane on top and front of fascia wall

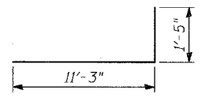
*Cost included with Concrete Superstructure.

SECTION D-D

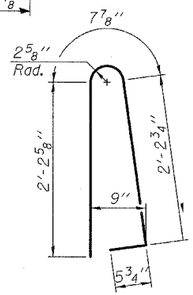
Note A:
Sta 527+91.28 to 529+68.28 - ½"/'
Sta 529+68.28 to 530+28.28 - Varies ½"/' to ¼"/'



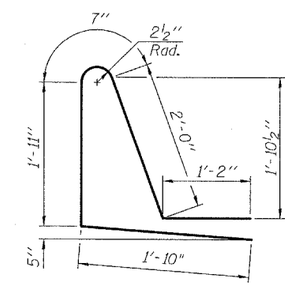
SECTION C-C



BAR a200(E)



BAR d200(E)



BAR d201(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a200(E)	246	#6	12'-8"	
a201(E)	246	#6	11'-3"	
a202(E)	239	#6	2'-6"	
b200(E)	39	#4	31'-0"	
b201(E)	39	#4	34'-4"	
b202(E)	26	#4	21'-9"	
b203(E)	52	#4	15'-8"	
b204(E)	52	#4	23'-8"	
b205(E)	52	#4	26'-2"	
d200(E)	250	#5	5'-7"	
d201(E)	250	#5	7'-5"	
d202(E)	3	#6	4'-5"	
d203(E)	5	#6	8'-11"	
e200(E)	63	#4	14'-9"	
e201(E)	14	#4	17'-3"	
e202(E)	8	#4	16'-1"	
e203(E)	8	#4	21'-9"	
e204(E)	7	#4	19'-7"	
e205(E)	1	#8	21'-9"	
e206(E)	3	#8	32'-11"	
e207(E)	3	#8	36'-3"	
e208(E)	1	#8	16'-1"	
e209(E)	3	#4	31'-0"	
e210(E)	3	#4	34'-4"	
Protective Coat		Sq. Yd.	350	
Concrete Superstructure		Cu. Yd.	158	
Reinforcement Bars, Epoxy Coated		Pound	19,430	

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	DE
CHECKED	-	AD

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES:

1. Offsets are measured from ℄ & P.G.L. NB US 41.
2. Work this sheet with Sheets 8 of 16.
3. Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

WALL L
ANCHORAGE SLAB AND PARAPET
(2 OF 2)

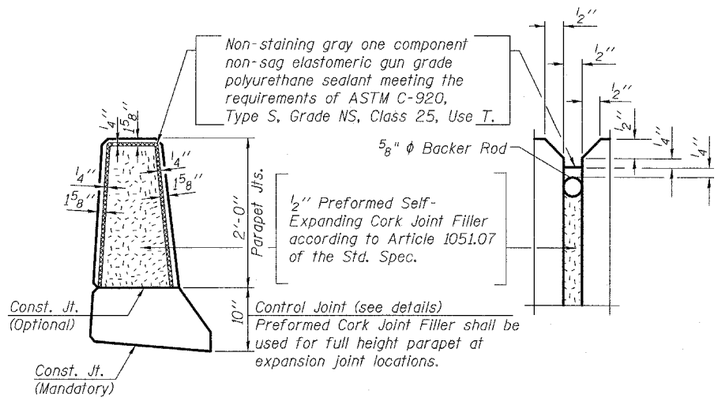
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

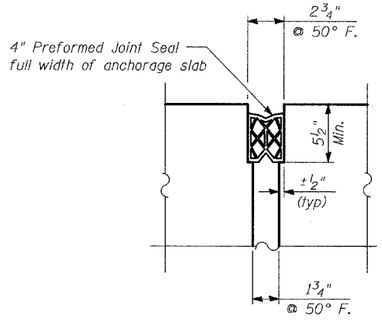
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	275
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 10
16 - SHEETS

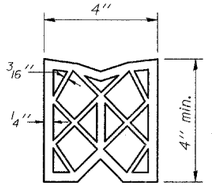
• 125X-HB-(1&2) R-1 CONTRACT • 60826



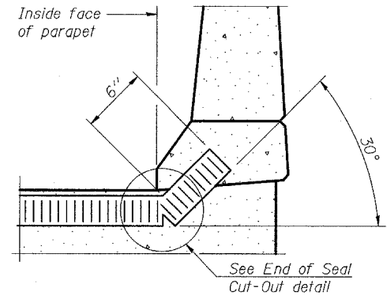
PARAPET JOINT DETAILS
(Cost included with Concrete Superstructure)



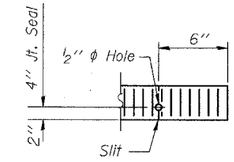
SECTION



PREFORMED JOINT SEAL

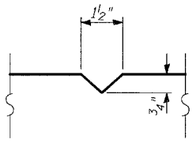


END OF SEAL TREATMENT AT PARAPET

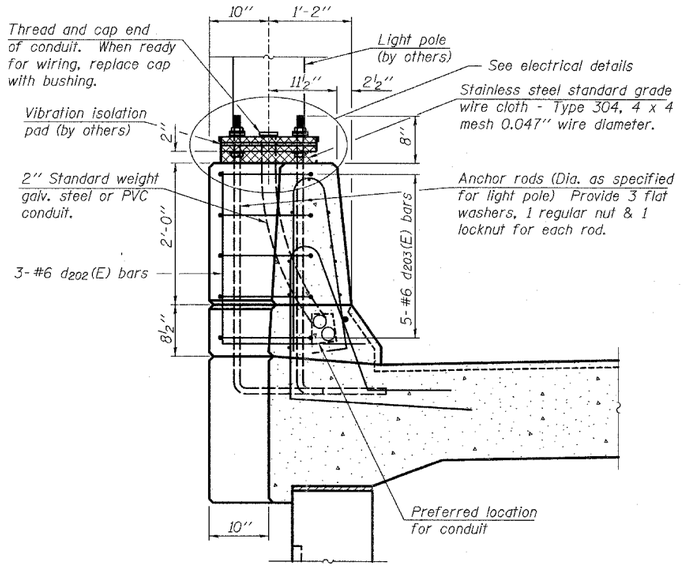


END OF SEAL CUT-OUT

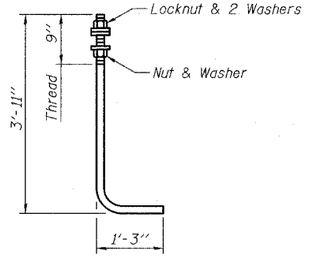
DETAIL - EXPANSION JOINT IN SLAB



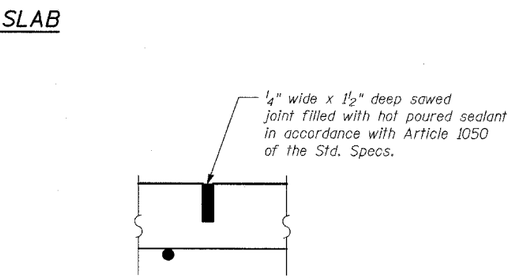
CONTROL JOINT DETAIL-PARAPET



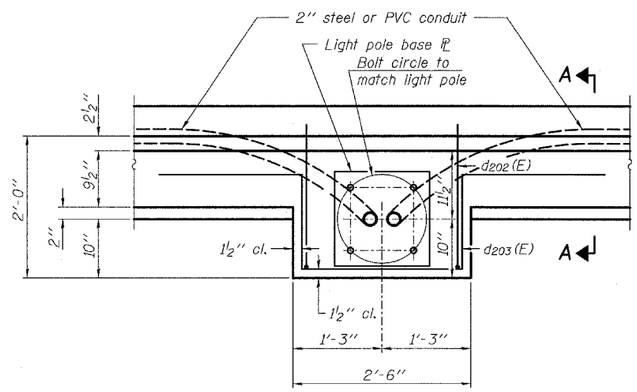
SECTION A-A



ANCHOR ROD
Diameter as specified for light poles.
(ASTM F 1554 Grade 105)

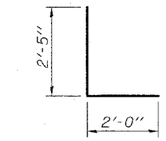


CONTROL JOINT DETAIL-SLAB
(Cost included with Concrete Structures)

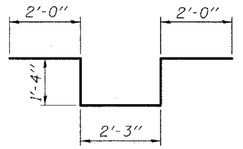


PLAN

Note:
Cost of anchor rods and conduit is included with Concrete Superstructure.



BAR $d_{202}(E)$



BAR $d_{203}(E)$

TYLIN INTERNATIONAL

DESIGNED	-	MB, MAF
CHECKED	-	AD
DRAWN	-	CM, MAF
CHECKED	-	AD

WALL L
MISCELLANEOUS DETAILS

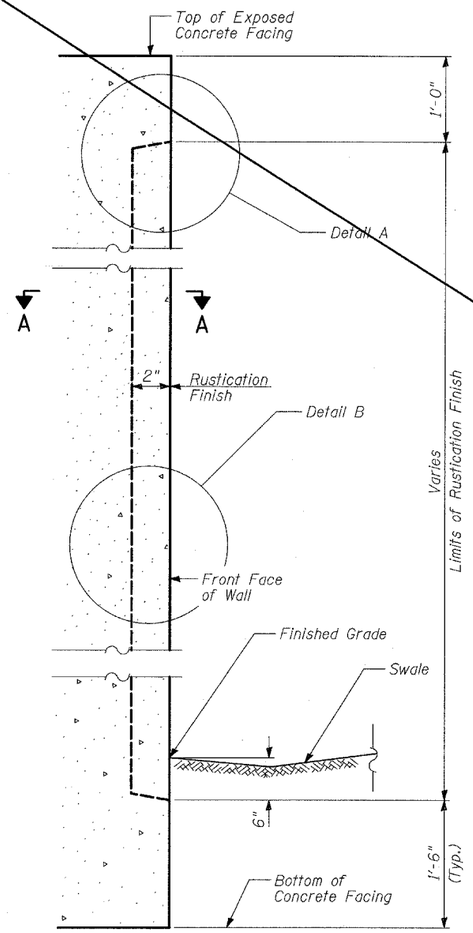
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

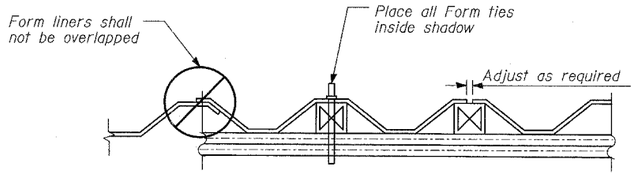
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	276
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 11
16 SHEETS

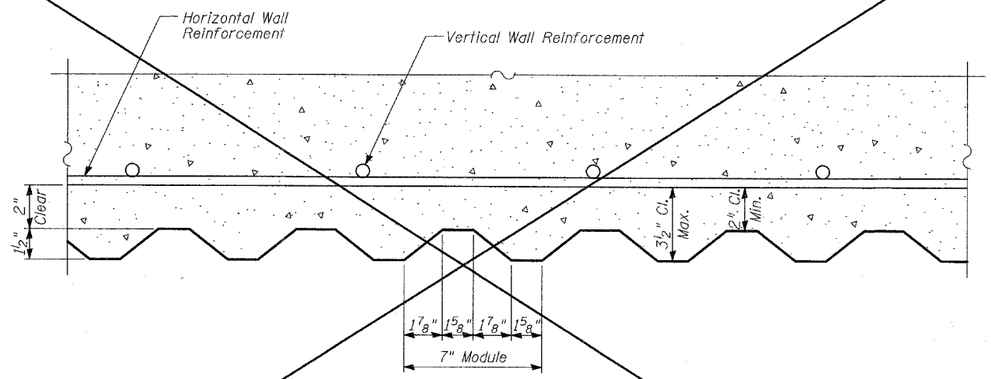
* 125X-HB-(1&2) R-1 CONTRACT # 60826



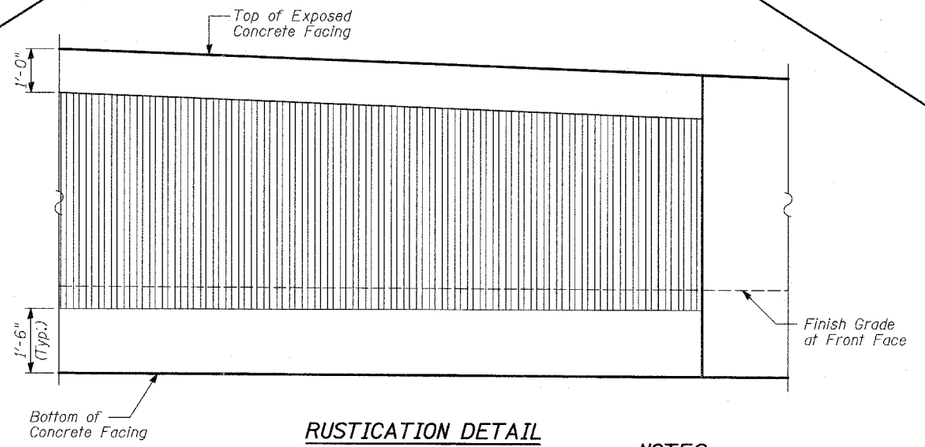
WALL DETAIL



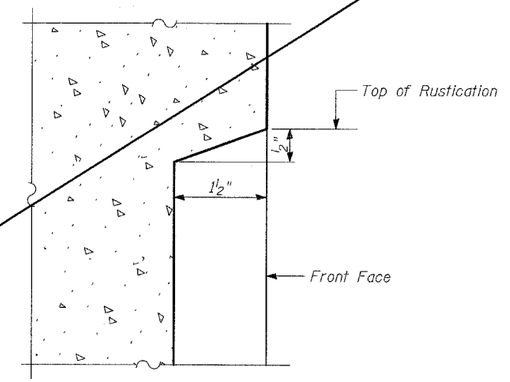
SUGGESTED FORMWORK DETAIL



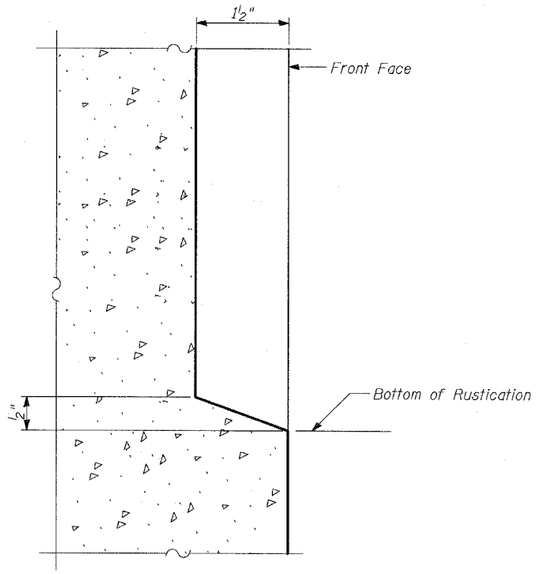
SECTION A-A



RUSTICATION DETAIL
(At Interior Panel with Embankment)



DETAIL A



DETAIL B

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Rustication Finish	SQ FT	1,293

NOTES:

1. See Sheet 5 of 16 for expansion and construction joint details.

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- CM
CHECKED	- AD

WALL L
RUSTICATION DETAILS

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	277
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

* 125X-HB-(1&2) R-1 CONTRACT # 60826

SHEET NO. - 12
16 - SHEETS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

PAGE 1 of 2
DATE 10/13/2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-W033
Station
BORING NO. L-1
Station 527+89.9 US 41 Centerline
Offset 41.75' Left
Ground Surface Elev. 699.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ___ Hrs. ___

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
3.0" ASPHALT, 9.0" CRUSHED STONE	698.2				
CLAY LOAM-brown & gray-very stiff (A-6) Fill			4		
			5		
			8	3.5P	14
			8		*122*
			6		
		-5	7	2.1B	14
	693.2				
CLAY-brown-very stiff to hard (A-6)			7		*110*
			8		
			10	6.2B	19
			10		*116*
			10		
		-10	10	5.5B	17
			7		*108*
			6		
			9	2.7B	21
	686.2				
CLAY-gray-stiff to very stiff (A-6)			3		*106*
			4		
		-15	4	1.0B	22
			3		*108*
			4		
			6	1.3P	20
			3		*118*
			13		
		-20	28	3.5P	16
CLAY-gray-medium stiff to very stiff (A-6)			6		*114*
			9		
			15	3.5B	18
			3		*111*
			4		
		-25	7	1.5P	19
			4		*102*
			4		
			6	0.9B	24
			4		*103*
			6		
		-30	6	1.8B	24
			5		
			6		
		-35	7	1.5P	20
			4		
			6		
		-40	11	3.0P	12

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

PAGE 2 of 2
DATE 10/13/2004
LOGGED BY TOB
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE D-120 Safety Hammer

STRUCT. NO. SN 049-W033
Station
BORING NO. L-1
Station 527+89.9 US 41 Centerline
Offset 41.75' Left
Ground Surface Elev. 699.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ___ Hrs. ___

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY-gray-medium stiff to very stiff (A-6)			5		
			3		
		-45	2	1.0P	24
			7		*128*
			8		
		-50	10	2.8B	12
	545.2				
SILTY LOAM-gray-very dense (A-4)			11		
			35		
		-55	33	NP	12
	641.2				
CLAY LOAM-gray-hard (A-4/A-6)			7		
			13		
		-60	16	NP	13
CLAY LOAM-gray-hard (A-4/A-6)					
	636.2				
SILTY LOAM-gray-very dense (A-4)			19		
			22		
		-65	18	NP	15
	631.2				
SANDY LOAM-gray-very dense (A-2-6)			15		
			29		
	629.2	-70	35	NP	14
End of Boring @ -70.0' Hollow Stem Augers to -10.0' Rotary Drilling to Completion D-120 Safety Hammer					
		-75			
		-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	- SNB
CHECKED	- AD
DRAWN	- SNB
CHECKED	- AD

BORING LOG L-1

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	278
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 13
16 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
825 Ambert Court Suite 204
Naperville, Illinois 60565
(630) 355-2936

SOIL BORING LOG

PAGE 1 of 2
DATE 10/27/2004
LOGGED BY C&S
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" Hollow Stem Auger HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN Ø49-WØ33
Station
BORING NO. L-2
Station 528+64.9 US 41 Centerline
Offset 41.75' Left
Ground Surface Elev. 699.3

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				20.Ø" ASPHALT & CONCRETE
697.6				
	2		116	
	2			CLAY LOAM-brown & gray spotted black-stiff (A-6) Fill
	4	1.6B	7	
	1			
-5	2	-	19	
	1		108	
693.3				
	3			CLAY-brown & gray-hard (A-6)
	7	5.2B	19	
	3		112	
-10	7	6.2B	18	
	4		108	
688.3				
	6			CLAY-gray-very stiff to hard (A-6)
	8	4.ØB	20	
	2		107	
	4			
-15	6	3.ØB	22	
	3		105	
	4			
	6	3.ØB	22	
	5		123	
	7			
-20	8	4.25B	14	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	6		118	CLAY-gray-very stiff to hard (A-6)
	8			
	12	3.4B	16	
671.3				
	6		116	
	8			
-25	12	3.ØP	17	CLAY-gray- very stiff to stiff (A-6)
	4		103	
	7			
	8	1.8B	24	
	3		98	
	5			
-30	6	1.6B	26	
666.3				
	3			
	7			
-35	14	NP	11	SANDY CLAY LOAM-gray- medium dense (A-2-6)
	2			
	4			
-40	7	NP	12	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
825 Ambert Court Suite 204
Naperville, Illinois 60565
(630) 355-2936

SOIL BORING LOG

PAGE 2 of 2
DATE 10/27/2004
LOGGED BY C&S
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" Hollow Stem Auger HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN Ø49-WØ33
Station
BORING NO. L-2
Station 528+64.9 US 41 Centerline
Offset 41.75' Left
Ground Surface Elev. 699.3

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SANDY CLAY LOAM-gray- medium dense (A-2-6)
661.3				
	4		128	
	6			
-45	10	3.2B	12	CLAY-gray-stiff to very stiff (A-6)
	3		109	
	7			
-50	8	1.6B	20	
	9			
	11			
-55	23	3.ØP	20	
	11			
	13			
-60	14	3.ØP	15	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to very stiff (A-6)
636.3				
	20		103	
	18			
-65	16	3.4B	15	SILTY CLAY-gray-very stiff (A-6)
631.3				
	10		121	
	16			
-70	17	3.5P	15	CLAY-gray-very stiff (A-6)
626.3				
	10			
	12			
-75	12	NP	13	SANDY LOAM-gray- medium dense (A-2-6)
624.3				
				End of Boring @ -75.Ø'
				Hollow Stem Augers to -10.Ø'
				Rotary Drilling to Completion
				D-120 Safety Hammer
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	-	SNB
CHECKED	-	AD
DRAWN	-	SNB
CHECKED	-	AD

BORING LOG L-2

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ33

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	279
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 14
16 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2866

SOIL BORING LOG

PAGE 1 of 2
DATE 10/13/2004
LOGGED BY RJ
GSI JOB No. 0314

ROUTE FAP Rte. 346
DESCRIPTION New Overpass
TWNSHP Gurnee
LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake
DRILLING METHOD 3.25" HSA/Rotary
HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-W033
Station
BORING NO. L-3
Station 529+39.9 US 41 Centerline
Offset 41.75' Left
Ground Surface Elev. 699.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				3.0" ASPHALT, 3.0" CRUSHED STONE
	2			
	5			
	9	1.0P	17	CLAY to CLAY LOAM- dark brown-stiff (A-6) Fill
	3		99	
	5			
-5	8	1.1B	25	
693.4				
	5		115	
	12			CLAY-brown-very stiff to hard (A-6)
	13	7.1B	17	
	5		114	
	13			
-10	16	5.3B	18	
	7		112	
	13			
	21	3.5B	18	
	11		117	
	12			
-15	15	4.8B	16	
683.4				
	2		107	CLAY-gray-stiff (A-6)
	4			
	3	1.25B	21	
680.9				
	7			LOAM-gray-medium dense (A-4)
-20	11	NP	14	
673.4				LOAM-gray-medium dense (A-4)
	3		120	
	5			
	8	1.9B	18	CLAY-gray-stiff to very stiff (A-6)
	8		115	
	7			
-25	10	3.5B	17	
	4		101	
	6			
	10	2.7B	24	
	3		101	
	7			
-30	8	2.1B	24	
666.4				
	5			CLAY LOAM-gray-very stiff (A-4/A-6)
	6			
-35	6	2.0P	11	
661.4				
	5		121	CLAY-gray-very stiff (A-6)
	6			
-40	8	2.3P	15	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2866

SOIL BORING LOG

PAGE 2 of 2
DATE 10/13/2004
LOGGED BY RJ
GSI JOB No. 0314

ROUTE FAP Rte. 346
DESCRIPTION New Overpass
TWNSHP Gurnee
LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake
DRILLING METHOD 3.25" HSA/Rotary
HAMMER TYPE D-120 Safety Hammer
STRUCT. NO. SN 049-W033
Station
BORING NO. L-3
Station 529+39.9 US 41 Centerline
Offset 41.75' Left
Ground Surface Elev. 699.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				CLAYEY SAND & GRAVEL- gray-medium dense (A-2-6)
	10			
	14			
-45	11	NP	12	
651.4				
	8		125	CLAY-gray-hard (A-6)
	17			
-50	23	4.5P	13	
	9			
	13			
-55	21		NR	
	9			
	13			
-60	17	4.0P	14	
641.4				CLAY-gray-hard (A-6)
	8		119	
	11			
-65	12	4.5P	15	
	19			CLAYEY SAND & GRAVEL- gray-dense (A-2-6)
	22			
629.4 -70	25	NP	15	
				End of Boring @ -70.0'
				Hollow Stem Augers to -10.0'
				Rotary Drilling to Completion
				D-120 Safety Hammer
-75				
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	-	SNB
CHECKED	-	AD
DRAWN	-	SNB
CHECKED	-	AD

BORING LOG L-3

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	280
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 15
16 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2900

SOIL BORING LOG

PAGE 1 of 3
DATE 10/21/2004
LOGGED BY CS
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-2
Station 530+12.2 US 41 Centerline
Offset 31.16' Left
Ground Surface Elev. 694.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	6			TOPSOIL-black (Fill)
	5			
	4	-	17	
691.2				
	2			CLAY-brown spotted black-stiff (A-6) Fill
-5	2			
	4	1.25P	22	
	4		111	
687.2				
	9			CLAY-brown & gray-hard (A-6)
	10	5.3B	18	
685.2				
	4		109	
	5			CLAY-gray-very stiff (A-6)
-10	8	2.7B	18	
683.2				
	5			SILT-gray-medium dense (A-4)
	8			
	11	NP	19	
681.2				
	5		110	CLAY-gray-medium stiff to very stiff (A-6)
	6			
-15	7	3.5B	17	
	2		118	
	4			
	6	0.9B	16	
	3		110	
	4			
-20	5	2.7B	17	
	3			CLAY-gray-medium stiff to very stiff (A-6)
	4			
-25	7	1.8B	25	
668.2				
	5			SAND & GRAVEL-gray-medium dense (A-1)
	9			
	11	NP	8	
666.2				
	3		127	CLAY-gray-medium stiff to very stiff (A-6)
	7			
-30	9	2.7P	12	
	6			
	6			
-35	7	2.2P	16	
	3			
	4			
-40	6	1.5P	16	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (2)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2900

SOIL BORING LOG

PAGE 2 of 3
DATE 10/21/2004
LOGGED BY CS
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-2
Station 530+12.2 US 41 Centerline
Offset 31.16' Left
Ground Surface Elev. 694.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-medium stiff to very stiff (A-6)
	6		124	
	8			
-45	13	3.5P	13	
	9		122	
	50/1"			
-50		3.9B	14	
	10			
	19			
-55	22	4.0P	15	
	5		105	
	6			
-60	8	0.9B	23	
	12			CLAY-gray-medium stiff to very stiff (A-6)
	12			
	14			
-65	15	NP	18	SAND & GRAVEL-gray-medium dense (A-2-4)
	14			
	14			
-70	12	NP	11	
	12			
	12			
-75	12	-	17	CLAY-gray-very stiff to hard (A-6)
	8		120	
	9			
-80	13	3.5P	15	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (2)

TY·LIN INTERNATIONAL

DESIGNED	-	SNB
CHECKED	-	AD
DRAWN	-	SNB
CHECKED	-	AD

BORING LOG B-2
(1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	281
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 16
16 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 American Court, Suite 204
Naperville, Illinois 60565
(630) 305-0306

SOIL BORING LOG

PAGE 3 of 3
DATE 10/21/2004
LOGGED BY CS
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN 049-0209
Station
BORING NO. B-2
Station 530+12.2 US 41 Centerline
Offset 31.16' Left
Ground Surface Elev. 594.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-very stiff to hard (A-6)
				CLAY-gray-very stiff to hard (A-6)
				591.2
	8			
	11			
-85	20	-	24	SILT-gray-dense to very dense (A-4)
	13			
	17			
-90	18	4.5P	14	
				584.2
				End of Boring @ -110.0'
				Hollow Stem Augers to -30.0'
				Rotary Drilling to Completion
				CME-75 Automatic Hammer
	13			
	19			
-95	61	4.5P	20	
	9		106	
	13			
-100	21	3.0P	22	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	9			
	11			
-105	21	NP	17	
	49			
	65			
-110	78	NP	12	
-115				
-120				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (2)

TY·LIN INTERNATIONAL

DESIGNED	-	SNB
CHECKED	-	AD
DRAWN	-	SNB
CHECKED	-	AD

BORING LOG B-2
(2 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W033

Benchmark: BM #6 - Square cut in base of L.P. at N.E. corner of IL Route 132 and Magnolia (Speedway) 45.14' LT, Sta. 32+13.24 (IL 132 E.B. ℄), Elev. 696.47.

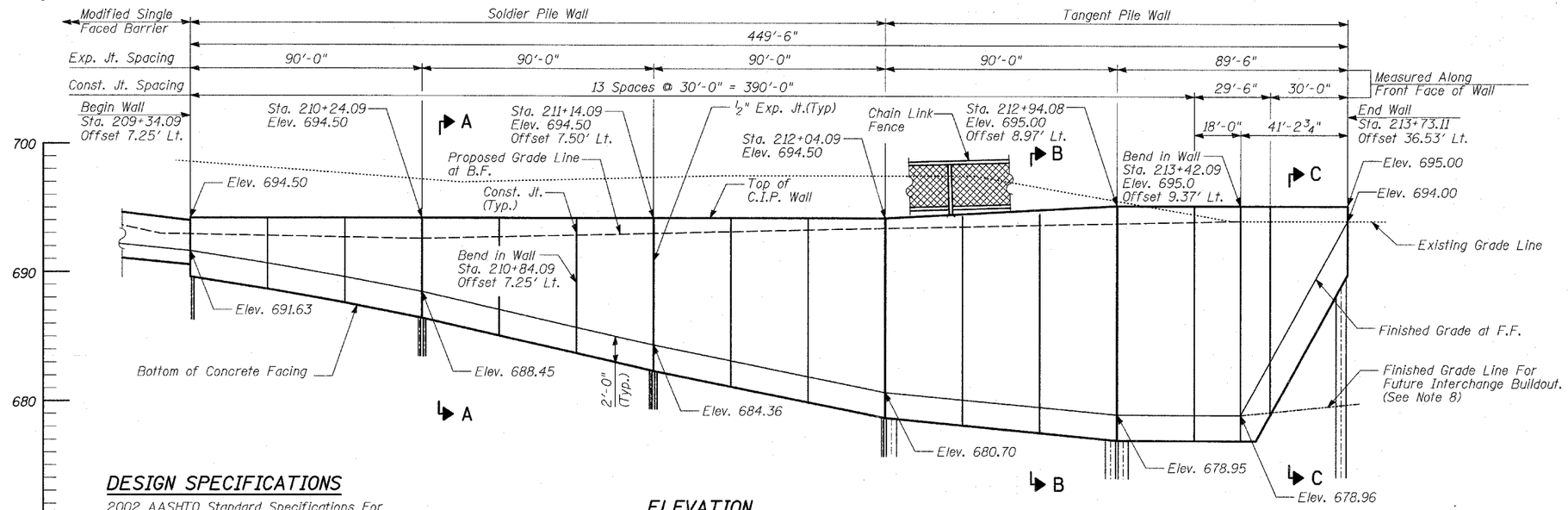
Existing Structure: None.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	282
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 1
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826



ELEVATION
(Looking at F.F.)

LEGEND

- ⊙ - Manhole
- ◯ - Catch Basin
- ⊕ - Soil Boring
- —▶— - Prop. Storm Sewer
- ·····▶ - Exist. Drain Pipe
- ⊢▶⊣ - Proposed Drainage Swale

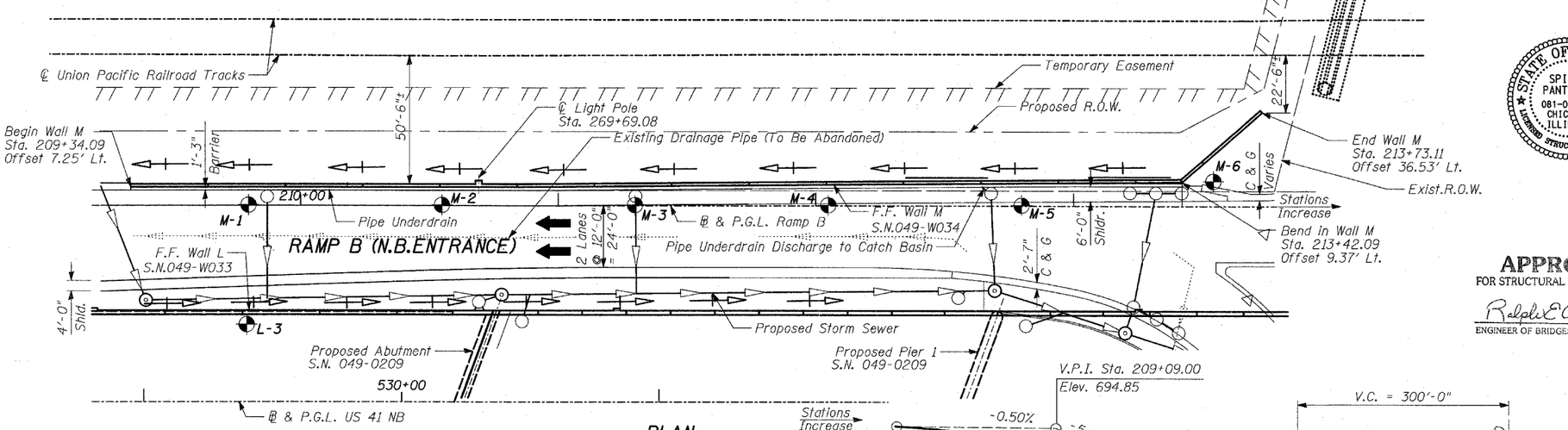
DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications For Highway Bridges

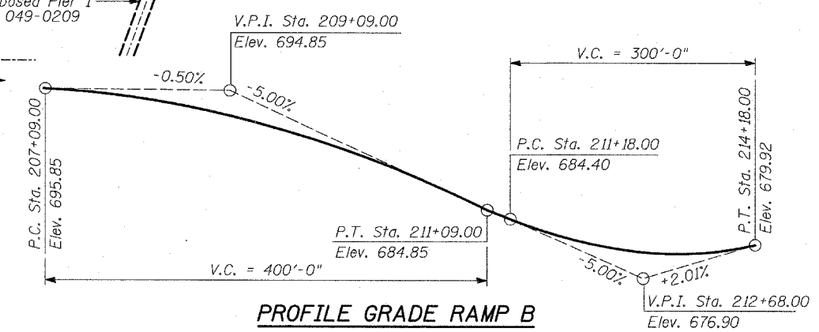
DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 36,000 psi (structural steel M270 Grade 36)



PLAN



PROFILE GRADE RAMP B

INDEX OF SHEETS

1. WALL M GENERAL PLAN AND ELEVATION, STA 209+34.09 TO STA 213+73.11
2. WALL M PLAN AND ELEVATION, STA 209+34.09 TO 210+24.09
3. WALL M PLAN AND ELEVATION, STA 210+24.09 TO 211+14.09
4. WALL M PLAN AND ELEVATION, STA 211+14.09 TO 212+04.08
5. WALL M PLAN AND ELEVATION, STA 212+04.08 TO 212+94.08
6. WALL M PLAN AND ELEVATION, STA 212+94.08 TO 213+73.11
7. WALL M REINFORCEMENT DETAILS
8. WALL M DETAILS (1 OF 2)
9. WALL M DETAILS (2 OF 2)
10. CHAIN LINK FENCE DETAILS
11. ~~RUSTICATION FINISH~~
12. BORING LOG M-1
13. BORING LOG M-2
14. BORING LOG M-3
15. BORING LOG M-4
16. BORING LOG M-5
17. BORING LOG M-6

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	CU YD	770
Concrete Structures	CU YD	233
~~Anti-Graffiti Coating~~	~~SQ FT~~	~~5,415~~
~~Rustication Finish~~	~~SQ FT~~	~~4,458~~
Stud Shear Connectors	EACH	408
Untreated Timber Lagging	SQ FT	2,202
Furnishing Soldier Piles (W Section)	FOOT	1,240
Reinforcement Bars	POUND	177,650
Reinforcement Bars, Epoxy Coated	POUND	36,560
Drilled Shaft In Soil	CU YD	795
Geocomposite Wall Drain	SQ YD	546
Pipe Underdrains for Structures, 4"	FOOT	450
Drilling and Setting Soldier Piles (in Soil)	CU FT	8,459
Chain Link Fence, 42" Attached to Structure(Special)	FOOT	450

NOTES:

1. Wall stations and offsets are given to the front face of the concrete facing, and are measured from Ramp A Baseline.
2. Existing utilities in conflict with soldier pile wall construction shall be abandoned or relocated according to direction given in roadway plans
3. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60 (IL Modified). See Special Provisions.
4. Reinforcement Bars designated (E) shall be Epoxy Coated.
5. All exposed concrete edges shall be chamfered ¾" except as noted.
6. ~~Anti-Graffiti Coating shall be applied to exposed surfaces of the concrete facing.~~
7. All construction joints shall be bonded.
8. Design wall heights from Sta.213+42.08 to Sta.213+73.11 will be for the Future Interchange Buildout which will accommodate widening of IL132.

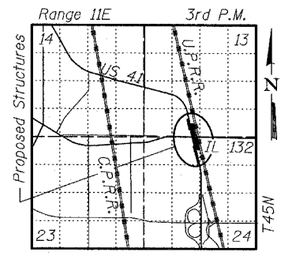
STATE OF ILLINOIS
SPIROS PANTAZIS
081-006448
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Signed _____
Spiros Pantazis, S.E. Il. Lic. No. 081-006448
Expires 11-30-2008.

For drawings 1 thru 17 of 17

Date 5/14/08

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E Anderson (TJV)
ENGINEER OF BRIDGES AND STRUCTURES



LOCATION SKETCH

WALL M
GENERAL PLAN AND ELEVATION
STA 209+34.09 TO STA 213+73.11

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

TY-LIN INTERNATIONAL

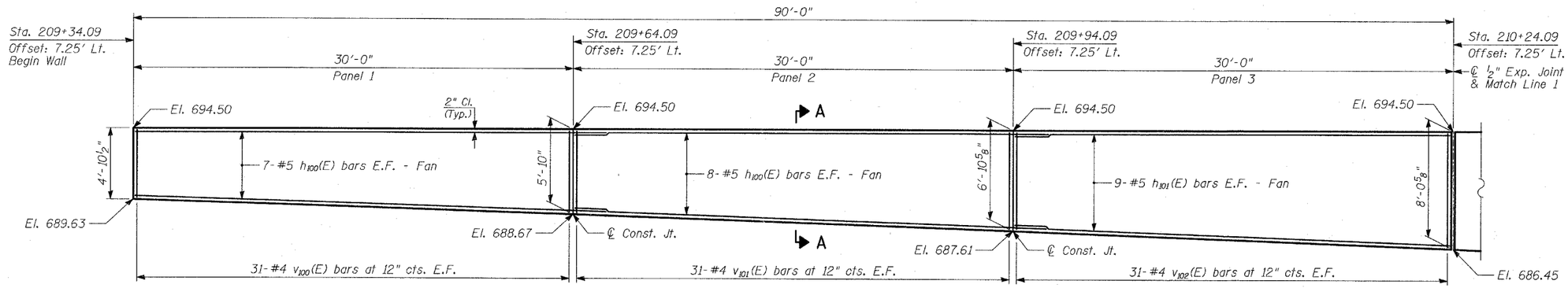
DESIGNED	-	MB
CHECKED	-	CM/AD
DRAWN	-	DE
CHECKED	-	CM/AD

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	283
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

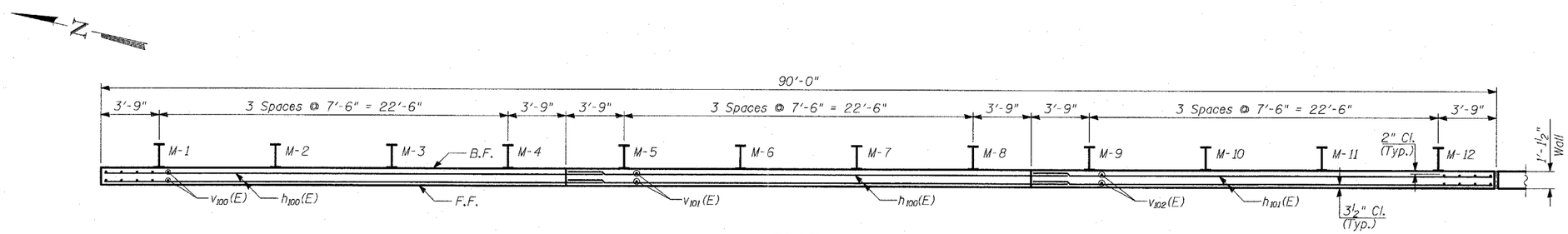
SHEET NO. - 2
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826



ELEVATION

(Offsets are given from Ramp B baseline to F.F. Wall)



PLAN

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
M-1	W18x65	24'-0"	691.50	667.50
M-2	W18x65	24'-0"	691.50	667.50
M-3	W18x65	24'-0"	691.50	667.50
M-4	W18x65	24'-0"	691.50	667.50
M-5	W18x65	25'-0"	691.30	666.30
M-6	W18x65	25'-0"	691.30	666.30
M-7	W18x65	25'-0"	691.30	666.30
M-8	W18x65	25'-0"	691.30	666.30
M-9	W18x65	25'-6"	691.00	665.50
M-10	W18x65	25'-6"	691.00	665.50
M-11	W18x65	25'-6"	691.00	665.50
M-12	W18x65	25'-6"	691.00	665.50

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 3 thru 8 of 17.
5. Pile spacing measured along front face of wall.
6. For Bill of Material, see Sheet 7.
7. For Section A-A, see Sheet 8.

WALL M
PLAN AND ELEVATION
STA 209+34.09 TO STA 210+24.09

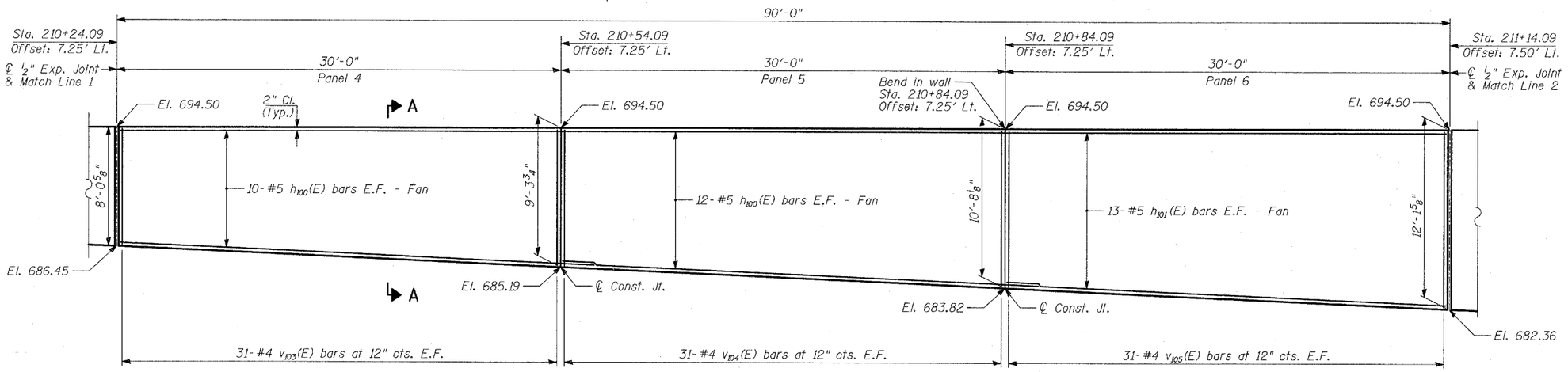
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W034

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	284
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

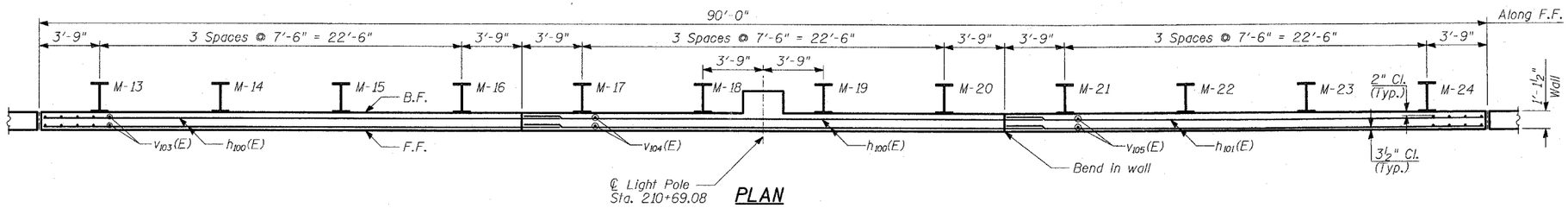
SHEET NO. - 3
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826



ELEVATION

(Offsets are given from Ramp B baseline to F.F. Wall)



PLAN

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
M-13	W21x147	34'-0"	691.1	657.1
M-14	W21x147	34-0"	691.1	657.1
M-15	W21x147	34'-0"	691.1	657.1
M-16	W21x147	34'-0"	691.1	657.1
M-17	W21x147	35'-0"	691.2	656.2
M-18	W21x147	35'-0"	691.2	656.2
M-19	W21x147	35'-0"	691.2	656.2
M-20	W21x147	35'-0"	691.2	656.2
M-21	W21x147	37'-0"	691.3	654.3
M-22	W21x147	37'-0"	691.3	654.3
M-23	W21x147	37'-0"	691.3	654.3
M-24	W21x147	37'-0"	691.3	654.3

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 2 thru 8 of 17.
5. See Sheet 7 of 17 for Light Pole Mount Details.
6. Pile spacing measured along front face of wall.
7. For Bill of Material, see Sheet 7.
8. For Section A-A, see Sheet 8.

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

WALL M
PLAN AND ELEVATION
STA 210+24.09 TO STA 211+14.09

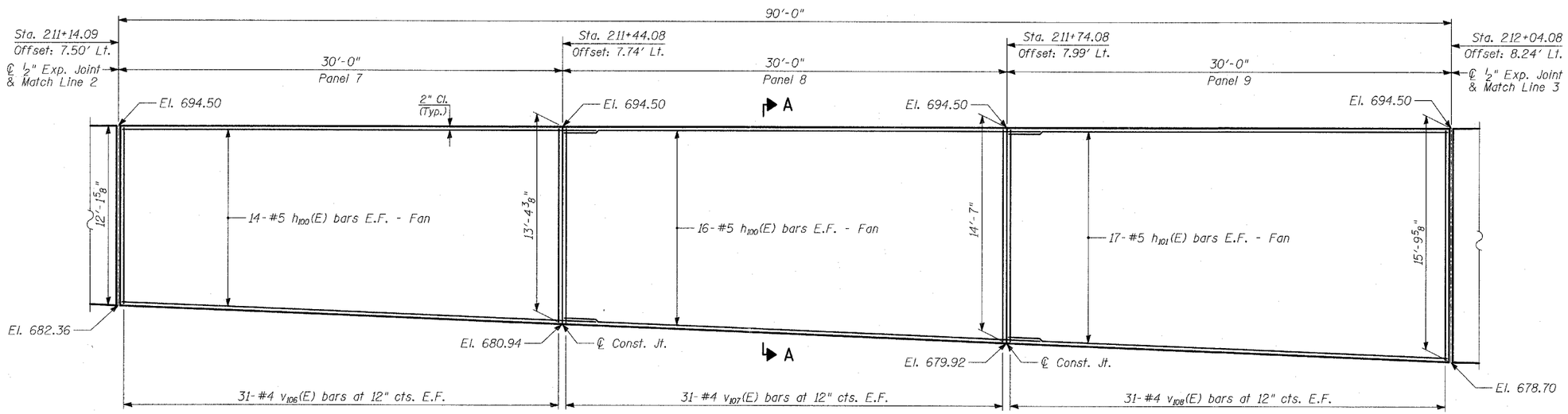
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W034

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

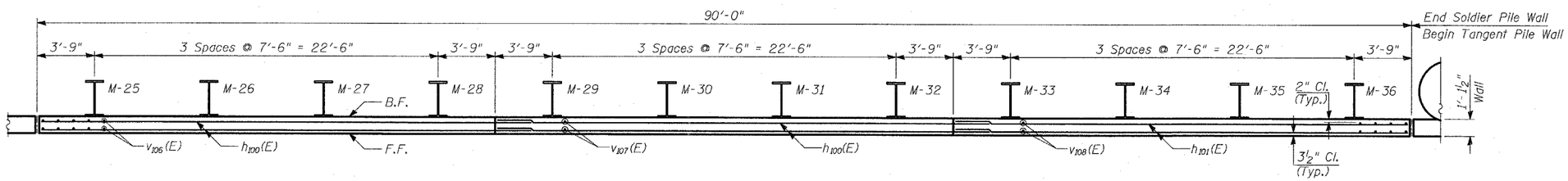
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	285
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 4
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826



ELEVATION
(Offsets are given from Ramp B baseline to F.F. Wall)



PLAN

PILE SUMMARY

Pile Label	Pile Size	Length	Top of Pile Elevation	Bot. of Pile Elevation
M-25	W27x194	42'-0"	691.4	649.4
M-26	W27x194	42'-0"	691.4	649.4
M-27	W27x194	42'-0"	691.4	649.4
M-28	W27x194	42'-0"	691.4	649.4
M-29	W27x194	43'-0"	691.6	648.6
M-30	W27x194	43'-0"	691.6	648.6
M-31	W27x194	43'-0"	691.6	648.6
M-32	W27x194	43'-0"	691.6	648.6
M-33	W27x194	44'-0"	691.7	647.7
M-34	W27x194	44'-0"	691.7	647.7
M-35	W27x194	44'-0"	691.7	647.7
M-36	W27x194	44'-0"	691.7	647.7

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- CM
CHECKED	- AD

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 2 thru 8 of 17.
5. Pile spacing measured along front face of wall.
6. For Bill of Material, see Sheet 7.
7. For Section A-A, see Sheet 8.

WALL M
PLAN AND ELEVATION
STA 211+14.09 TO STA 212+04.08

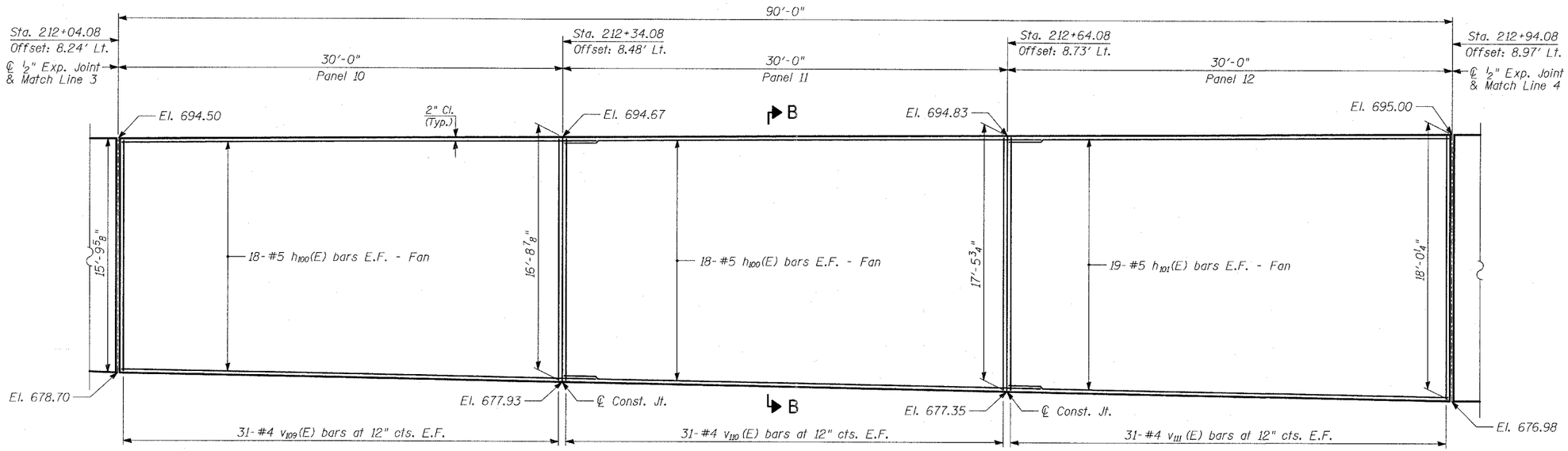
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	236
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

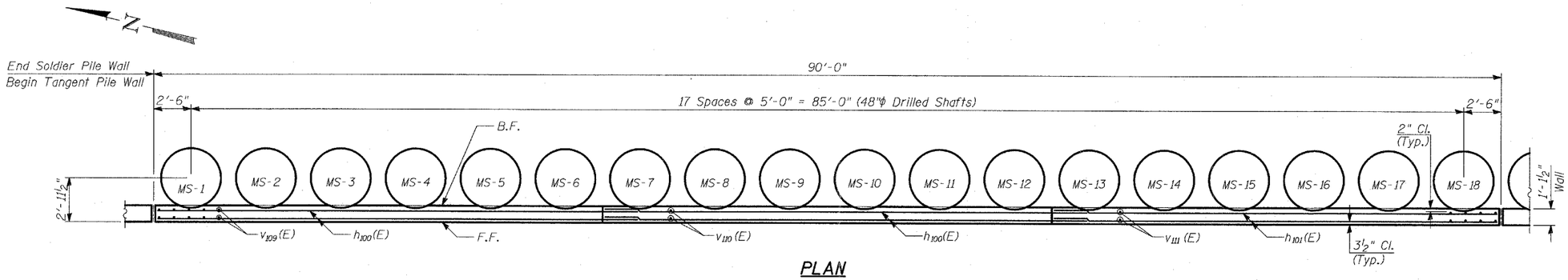
SHEET NO. - 5
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826



ELEVATION

(Offsets are given from Ramp B baseline to F.F. of Wall)



PLAN

DRILLED SHAFT SUMMARY

Shaft Mark	Length	Top Elevation	Bottom Elevation	Reinforcing (Vertical)	Reinforcing (spiral)
MS-1	46'-6"	691.30	644.80	20-v_{120}	sp_{100}
MS-2	46'-6"	691.33	644.83	20-v_{120}	sp_{100}
MS-3	46'-6"	691.35	644.85	20-v_{120}	sp_{100}
MS-4	46'-6"	691.38	644.88	20-v_{120}	sp_{100}
MS-5	46'-6"	691.40	644.90	20-v_{120}	sp_{100}
MS-6	46'-6"	691.43	644.93	20-v_{120}	sp_{100}
MS-7	47'-2"	691.45	644.28	20-v_{121}	sp_{101}
MS-8	47'-2"	691.46	644.29	20-v_{121}	sp_{101}
MS-9	47'-2"	691.47	644.31	20-v_{121}	sp_{101}

Shaft Mark	Length	Top Elevation	Bottom Elevation	Reinforcing (Vertical)	Reinforcing (spiral)
MS-10	47'-2"	691.49	644.32	20-v_{121}	sp_{101}
MS-11	47'-2"	691.50	644.33	20-v_{121}	sp_{101}
MS-12	47'-2"	691.51	644.35	20-v_{121}	sp_{101}
MS-13	47'-8"	691.53	643.86	20-v_{122}	sp_{102}
MS-14	47'-8"	691.54	643.88	20-v_{122}	sp_{102}
MS-15	47'-8"	691.56	643.89	20-v_{122}	sp_{102}
MS-16	47'-8"	691.57	643.91	20-v_{122}	sp_{102}
MS-17	47'-8"	691.59	643.92	20-v_{122}	sp_{102}
MS-18	47'-8"	691.60	643.94	20-v_{122}	sp_{102}

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 2 thru 9 of 17.
5. Drilled Shaft spacing measured along front face of wall.
6. For Bill of Material, see Sheet 7.
7. For Section B-B, see Sheet 9.

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

WALL M
PLAN AND ELEVATION
STA 212+04.08 TO STA 212+94.08

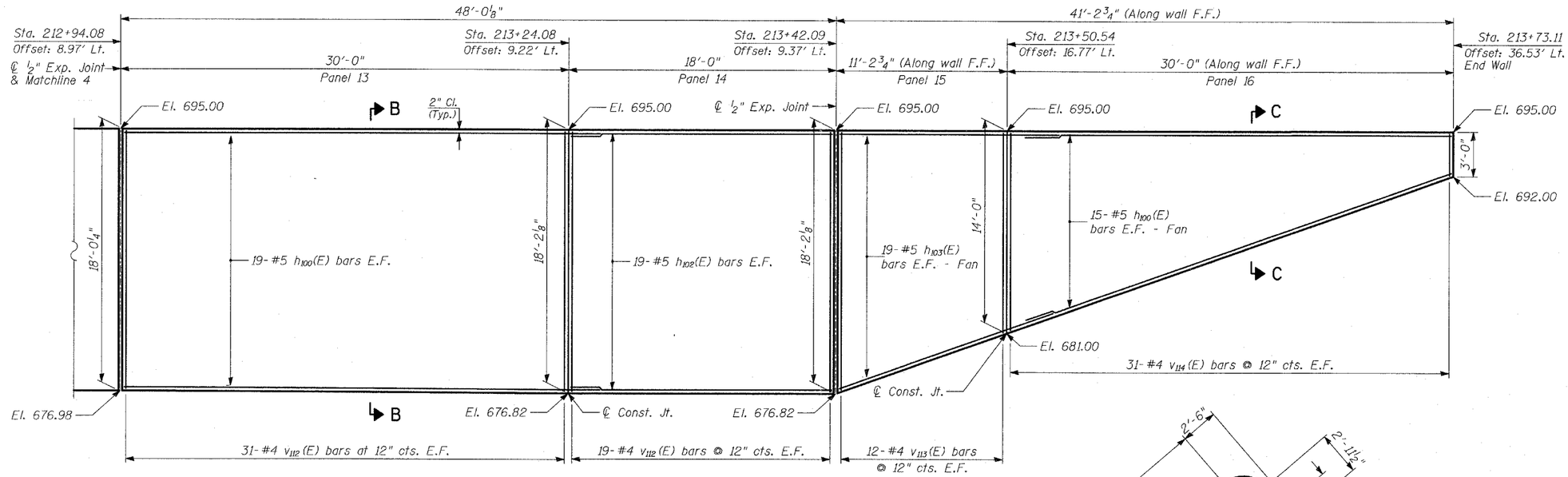
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	237
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

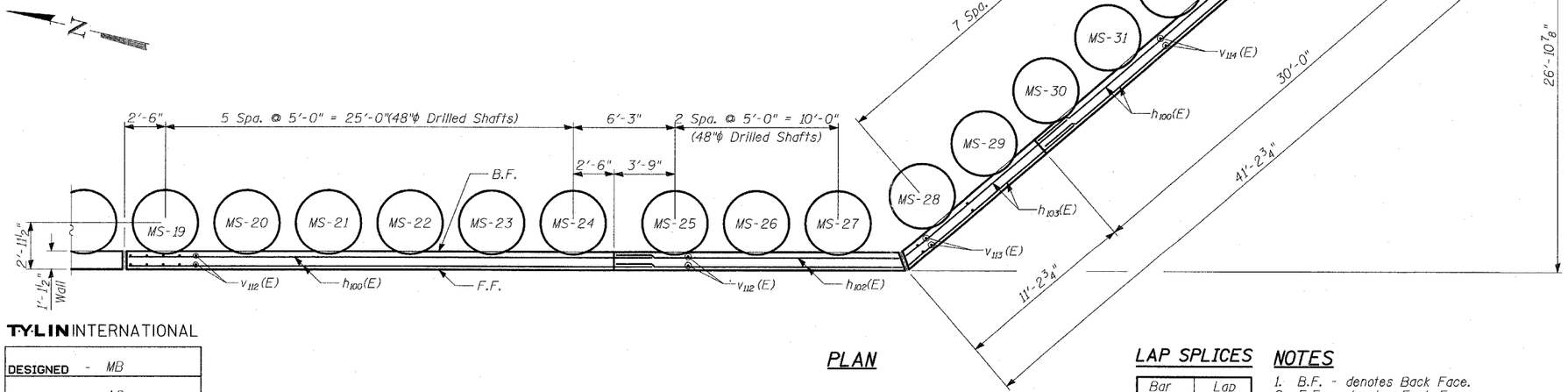
SHEET NO. 6 17 SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826



ELEVATION

(Offsets are given from Ramp B baseline to F.F. Wall)



PLAN

DRILLED SHAFT SUMMARY

Shaft Label	Length	Top Elevation	Bottom Elevation	Reinforcing (Vertical)	Reinforcing (spiral)
MS-19	50'-0"	691.63	641.63	20-v123	sp103
MS-20	50'-0"	691.67	641.67	20-v123	sp103
MS-21	50'-0"	691.71	641.71	20-v123	sp103
MS-22	50'-0"	691.74	641.74	20-v123	sp103
MS-23	50'-0"	691.78	641.78	20-v123	sp103
MS-24	50'-0"	691.82	641.82	20-v123	sp103
MS-25	50'-2"	691.87	641.70	20-v123	sp103
MS-26	50'-2"	691.91	641.74	20-v123	sp103
MS-27	50'-2"	691.95	641.78	20-v123	sp103
MS-28	50'-11"	692.05	641.13	20-v124	sp104
MS-29	50'-11"	692.13	641.22	20-v124	sp104
MS-30	50'-11"	692.22	641.30	20-v124	sp104
MS-31	50'-11"	692.31	641.39	20-v124	sp104
MS-32	50'-11"	692.39	641.48	20-v124	sp104
MS-33	50'-11"	692.48	641.57	20-v124	sp104
MS-34	50'-11"	692.57	641.65	20-v124	sp104
MS-35	50'-11"	692.66	641.74	20-v124	sp104

TY·LIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

NOTES

1. B.F. - denotes Back Face.
2. E.F. - denotes Each Face.
3. F.F. - denotes Front Face.
4. Work this Sheet with Sheets 2 thru 9 of 17.
5. Drilled Shaft spacing measured along front face of wall.
6. For Bill of Material, see Sheet 7.
7. For Section B-B and C-C, see Sheet 9.

WALL M
PLAN AND ELEVATION
STA 212+94.08 TO STA 213+73.11

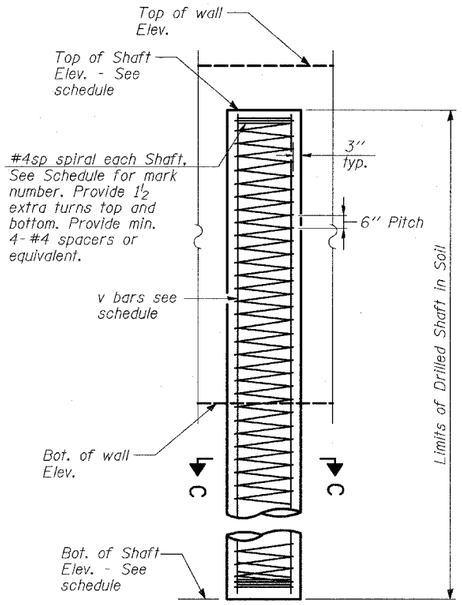
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

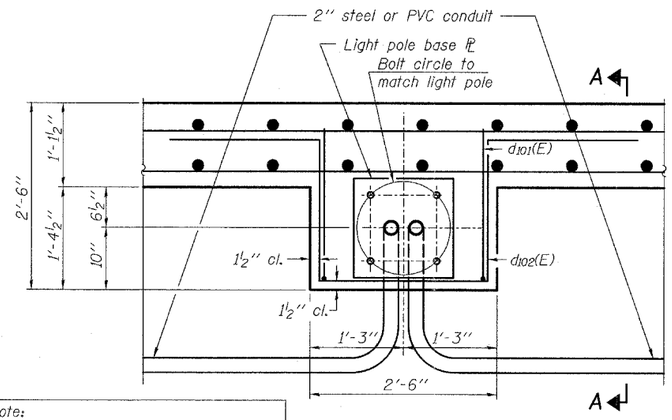
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	288
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 7
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

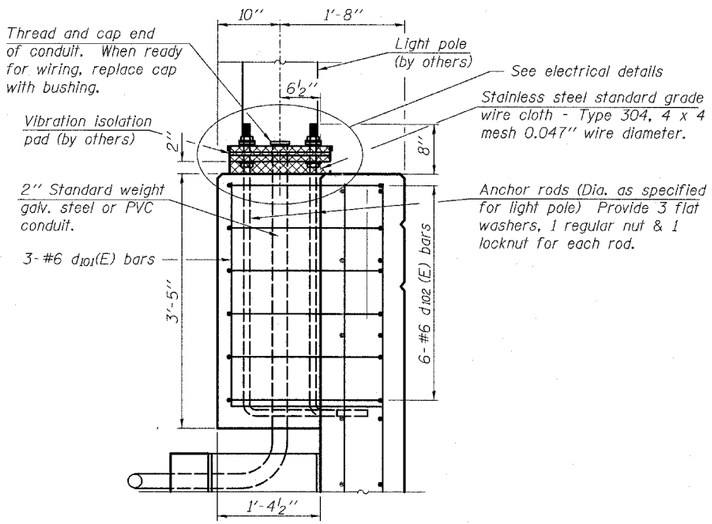


DRILLED SHAFT ELEVATION

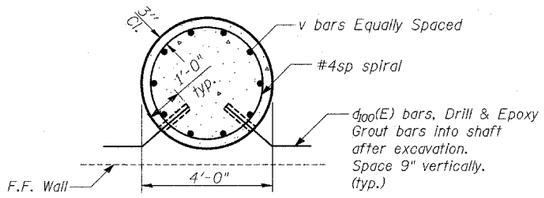


Note:
Cost of anchor rods and conduit is included with Concrete Structures.

PLAN



SECTION A-A



SECTION D-D

Drill & Epoxy Grout $d_{100}(E)$ bars according to Article 584 of the Standard Specifications. The cost shall be included with "Reinforcement Bars, Epoxy Coated".

BAR LIST AND BILL OF MATERIAL

Bar	No. of Sets Required	No. of Bars Per Set	A	B	C
$v_{100}(E)$	1	31	4'-7"	5'-6"	10'-1"
$v_{101}(E)$	1	31	5'-6"	6'-7"	12'-1"
$v_{102}(E)$	1	31	6'-7"	7'-9"	14'-4"
$v_{103}(E)$	1	31	7'-9"	9'-1"	16'-10"
$v_{104}(E)$	1	31	9'-1"	10'-6"	19'-7"
$v_{105}(E)$	1	31	10'-6"	11'-10"	22'-4"
$v_{106}(E)$	1	31	11'-10"	13'-1"	24'-11"
$v_{107}(E)$	1	31	13'-1"	14'-3"	27'-4"
$v_{108}(E)$	1	31	14'-3"	15'-6"	29'-9"
$v_{109}(E)$	1	31	15'-6"	16'-3"	31'-9"
$v_{110}(E)$	1	31	16'-3"	17'-0"	33'-3"
$v_{111}(E)$	1	31	17'-0"	17'-9"	34'-9"
$v_{113}(E)$	1	12	17'-11"	13'-9"	31'-8"
$v_{114}(E)$	1	31	13'-9"	2'-9"	16'-6"

SERIES OF BAR CUTTING DIAGRAM

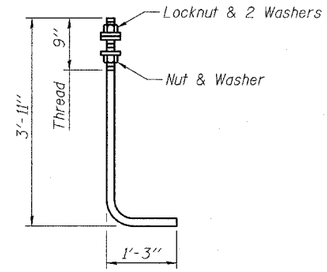
See table for dimensions.
Order Bars Full Length, Cut as Shown Normal to Bar Axis and Use Remainder of Bars in Opposite Face.

BAR LIST AND BILL OF MATERIAL

	Bar	Number	Size	Length	Shape
	$d_{100}(E)$	4,950	#5	3'-0"	
	$d_{101}(E)$	3	#6	5'-0"	
	$d_{102}(E)$	6	#6	10'-3"	
	$h_{100}(E)$	274	#5	32'-2"	
	$h_{101}(E)$	116	#5	29'-8"	
	$h_{102}(E)$	38	#5	17'-6"	
	$h_{103}(E)$	38	#5	15'-1"	
	$v_{100}(E)$	31	#4	10'-1"	
	$v_{101}(E)$	31	#4	12'-1"	
	$v_{102}(E)$	31	#4	14'-4"	
	$v_{103}(E)$	31	#4	16'-10"	
	$v_{104}(E)$	31	#4	19'-7"	
	$v_{105}(E)$	31	#4	22'-4"	
	$v_{106}(E)$	31	#4	24'-11"	
	$v_{107}(E)$	31	#4	27'-4"	
	$v_{108}(E)$	31	#4	29'-9"	
	$v_{109}(E)$	31	#4	31'-9"	
	$v_{110}(E)$	31	#4	33'-3"	
	$v_{111}(E)$	31	#4	34'-9"	
	$v_{112}(E)$	50	#4	17'-10"	
	$v_{113}(E)$	12	#4	31'-8"	
	$v_{114}(E)$	31	#4	16'-6"	
**	sp_{100}	6	#4	46'-0"	
**	sp_{101}	6	#4	46'-8"	
**	sp_{102}	6	#4	47'-2"	
**	sp_{103}	9	#4	49'-8"	
**	sp_{104}	8	#4	50'-5"	
	v_{120}	120	#10	46'-0"	
	v_{121}	120	#10	46'-8"	
	v_{122}	120	#10	47'-2"	
	v_{123}	180	#10	49'-8"	
	v_{124}	160	#10	50'-5"	

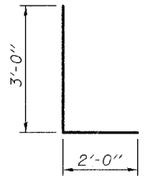
Reinforcement Bars, Epoxy Coated	Pound	36,560
Concrete Structures	CU YD	233
Anti-Graffiti Coating	SQ FT	5,415
Furnishing Soldier Piles (W Section)	FOOT	1,240
Drilling and Setting Soldier Piles (in Soil)	CU FT	8,459
Drilled Shaft in Soil	CU YD	795
Reinforcement Bars	Pound	177,650

Minimum Lap for Spirals = 1½ Turns
** Length is Height of Spiral.

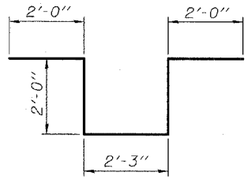


ANCHOR ROD

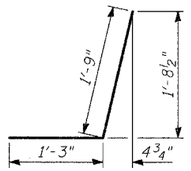
Diameter as specified for light poles.
(ASTM F 1554 Grade 105)



BAR $d_{101}(E)$



BAR $d_{102}(E)$



BAR $d_{100}(E)$

LAP SPLICES

Bar	Lap
#4	1'-8"
#5	2'-2"
#6	2'-7"
#8	4'-6"

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- CM
CHECKED	- AD

WALL M
REINFORCEMENT DETAILS

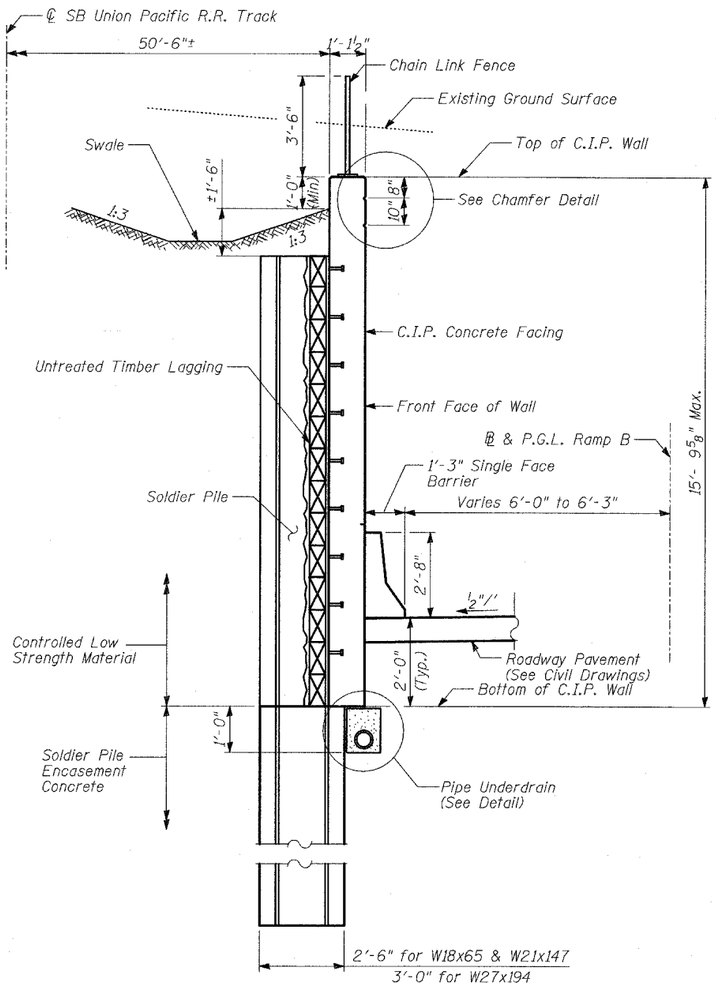
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	289
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

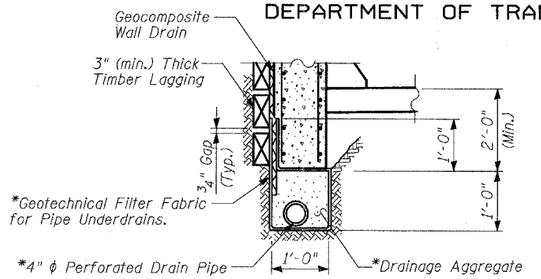
SHEET NO. - 8
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826



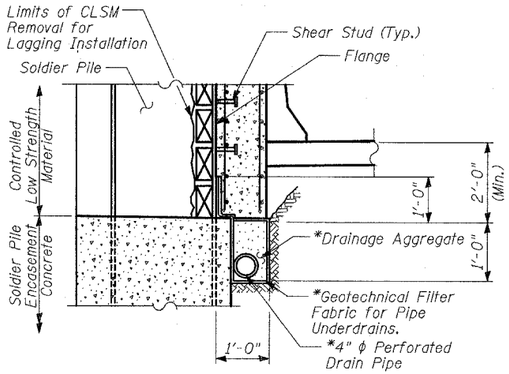
SECTION A-A

Sta. 209+34.09 to Sta. 212+04.09
(Soldier Pile Wall)

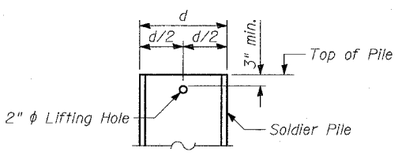


PIPE UNDERDRAIN DETAIL BETWEEN SOLDIER PILES

*Included in the cost of "Pipe Underdrains for Structures"

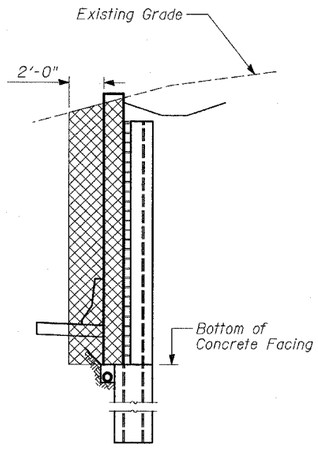


PIPE UNDERDRAIN DETAIL AT SOLDIER PILE



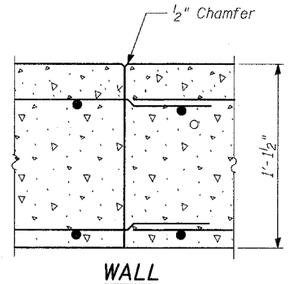
LIFTING HOLE DETAIL

Lifting hole to be provided if necessary. Cost included with "Furnishing Soldier Piles (W Section)"



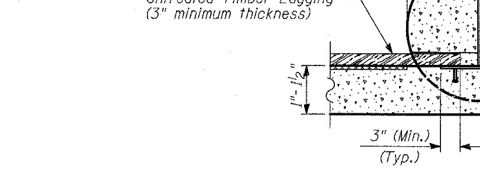
STRUCTURE EXCAVATION

(For Proposed Wall)

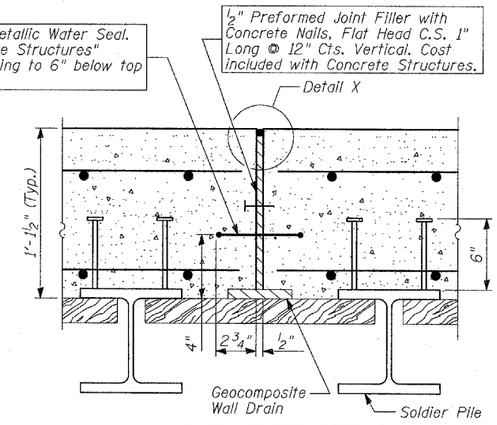


WALL CONSTRUCTION JOINT DETAIL

6" Hollow Bulb Type Non-Metallic Water Seal. Cost included with "Concrete Structures" Extend from bottom of facing to 6" below top of facing.



TYPICAL SECTION THRU SOLDIER PILE WALL

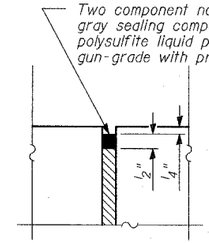


EXPANSION JOINT DETAIL

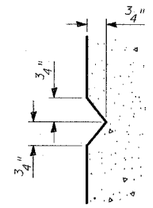
ITEM	UNIT	TOTAL
Structure Excavation	CU YD	770
Stud Shear Connectors	EACH	408
Untreated Timber Lagging	SQ FT	2,202
Geocomposite Wall Drain	SQ YD	546
Pipe Underdrains for Structures, 4"	FOOT	450

NOTES: BILL OF MATERIAL

1. The Geocomposite Wall Drain shall be constructed according to Section 591 of the Standard Specifications.
2. The Contractor is responsible for the design and performance of the lagging using no less than 3" nominal rough-sawn thickness and the minimum tabulated unit stress in bending (f_b), used in the design of timber lagging shall be 1000 psi.
3. Stud shear connectors shall be ¾" ϕ x 6" granular or solid flux filled headed studs, automatically end welded to the front flange of the soldier piles.

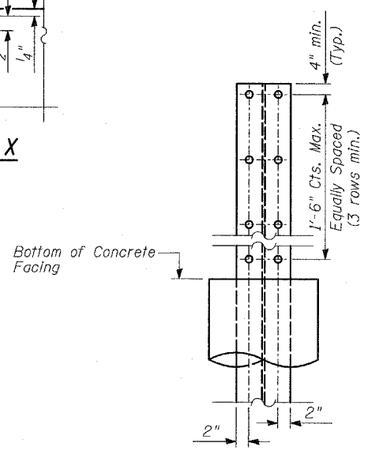


DETAIL X



CHAMFER DETAIL

Cost of Chamfer included with "Concrete Structures"



SHEAR STUD CONNECTOR DETAIL

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	AD
DRAWN	-	CM
CHECKED	-	AD

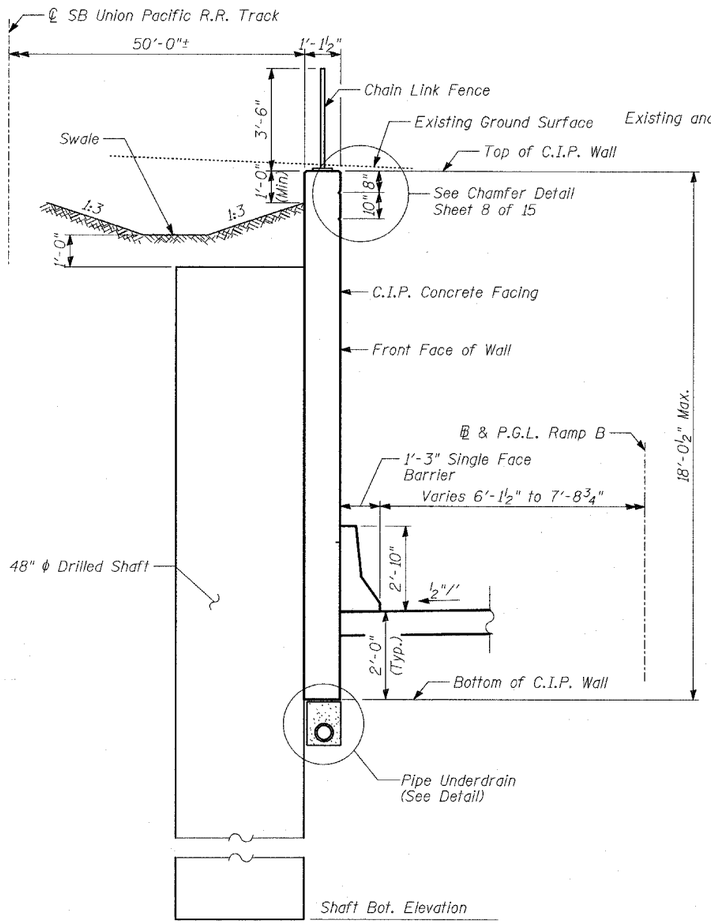
WALL M
DETAILS (1 OF 2)

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W034

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

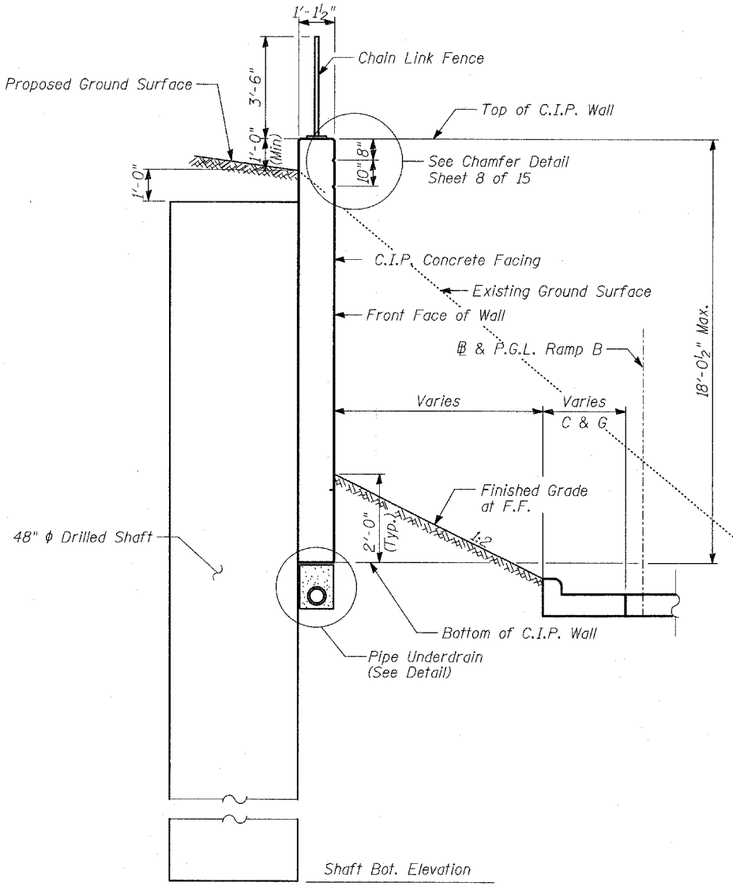
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	290
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 9
17 - SHEETS
• 125X-HB-(1&2) R-1
CONTRACT * 60826



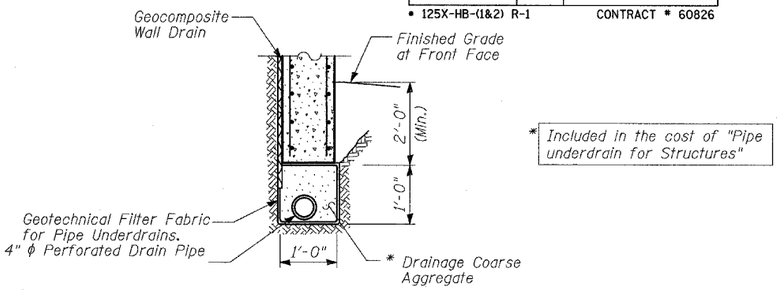
SECTION B-B

Sta. 212+04.09 to Sta. 213+42.09
(Tangent Pile Wall)



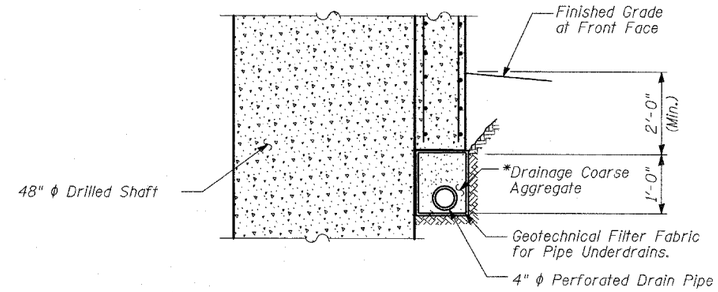
SECTION C-C

Sta. 213+42.09 to Sta. 213.73.11
(Tangent Pile Wall)

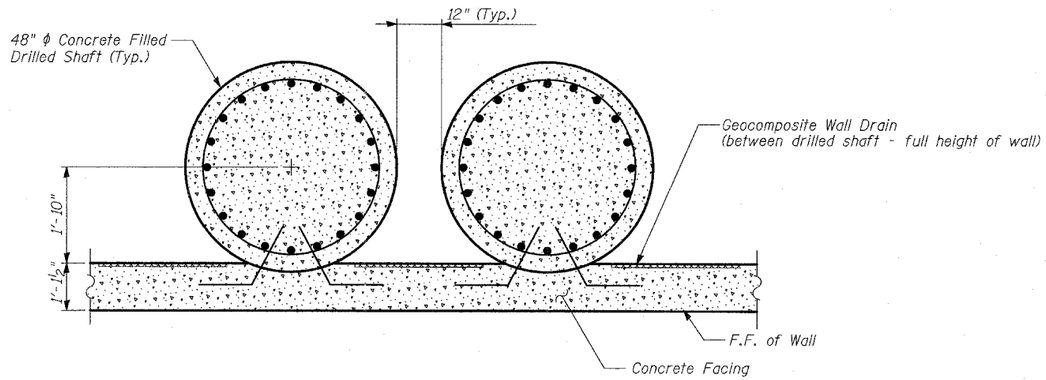


* Included in the cost of "Pipe underdrain for Structures"

PIPE UNDERDRAIN DETAIL BETWEEN DRILLED SHAFTS



PIPE UNDERDRAIN DETAIL AT DRILLED SHAFT



TYPICAL SECTION THRU TANGENT PILE WALL

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	CM/AD
DRAWN	-	DE
CHECKED	-	CM/AD

WALL M
DETAILS (2 OF 2)

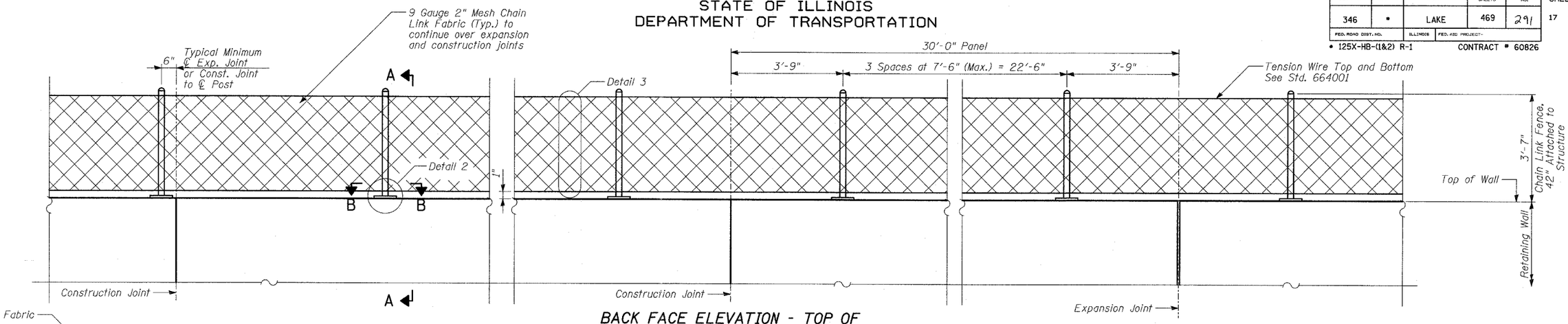
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

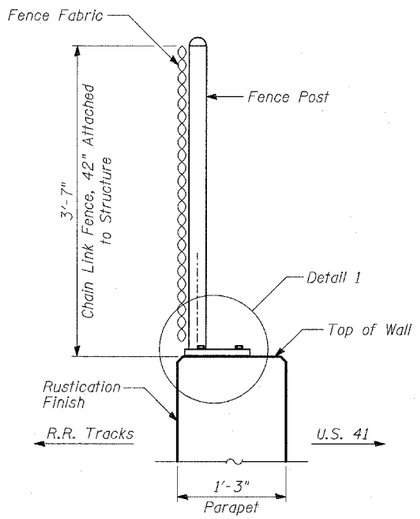
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	291
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

* 125X-HB-(1&2) R-1 CONTRACT # 60826

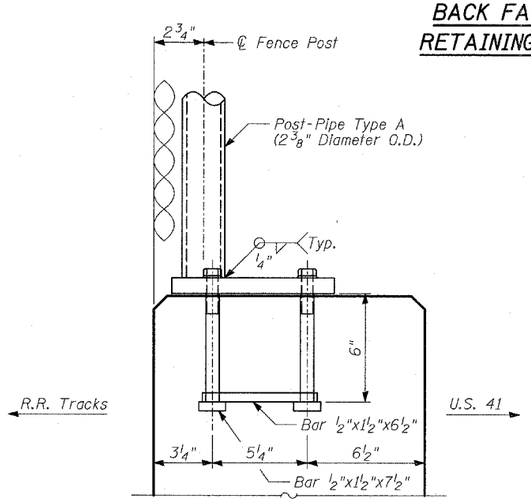
SHEET NO. - 10 - 17 - SHEETS



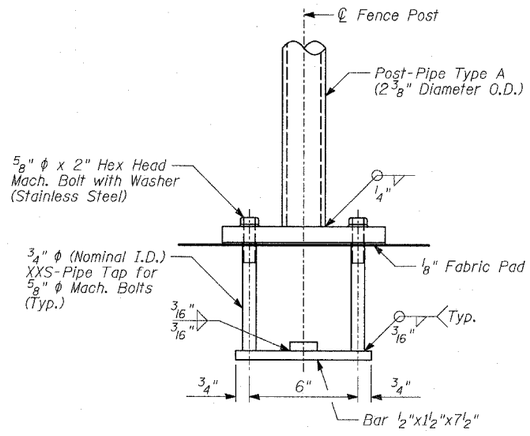
BACK FACE ELEVATION - TOP OF RETAINING WALL CHAIN LINK FENCE



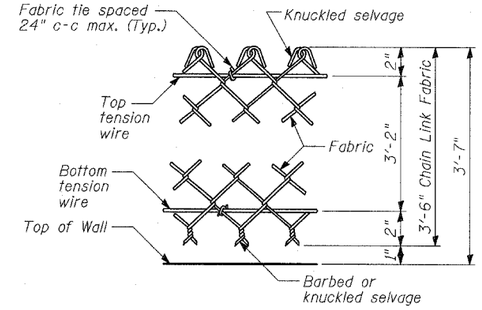
SECTION A-A



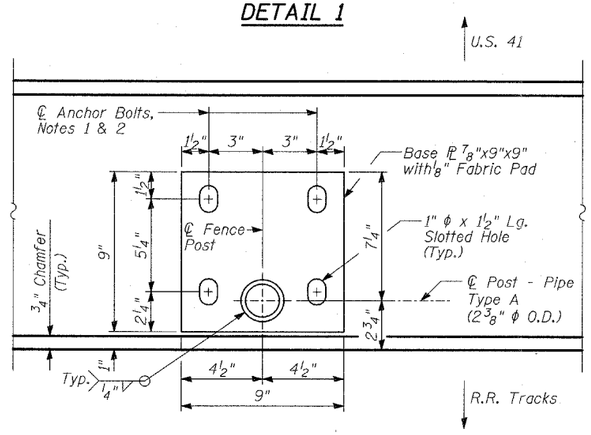
DETAIL 1



DETAIL 2



DETAIL 3



SECTION B-B BASE PLATE PLAN

ITEM	UNIT	TOTAL
Chain Link Fence, 42" Attached to Structure	FOOT	450

BILL OF MATERIAL

NOTES:

1. In lieu of the cast-in-place anchor bolt assembly shown, the Contractor has the option of drilling and epoxy grouting 5/8" diameter anchor rods with 1 1/4" diameter washers. The Contractor shall use the capsule or the adhesive cartridge type anchor rods that have been previously tested and given prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or adhesive cartridge shall be sealed with pre-measured amounts of adhesive chemical. Anchor rod threading to be peened after nuts are installed.
2. For additional chain link details, see Standard 664001.
3. Adjust fence and post spacing to clear light pole.

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- CM
CHECKED	- AD

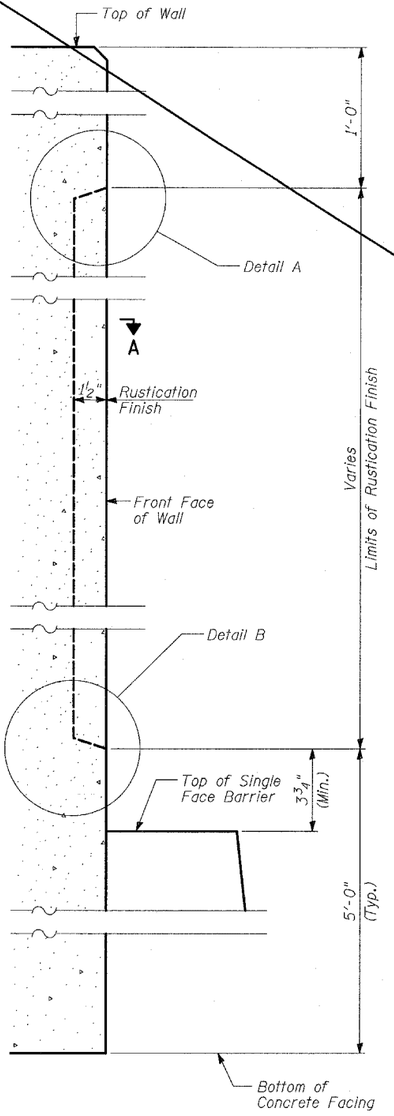
CHAIN LINK FENCE DETAILS

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W034

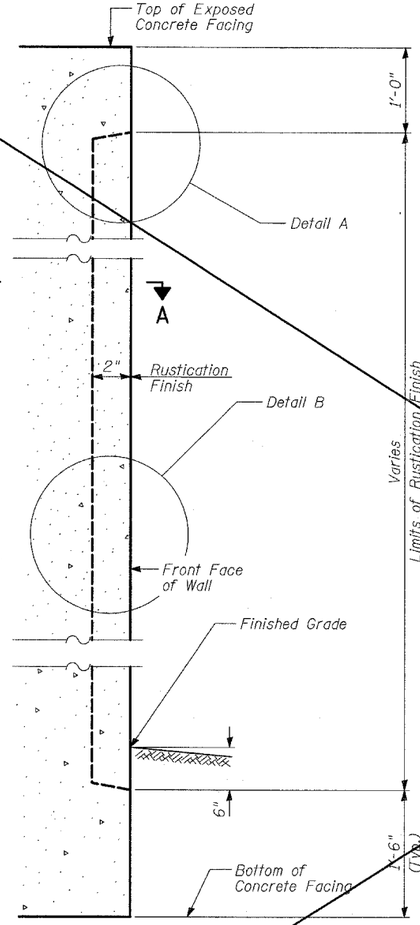
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	292
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

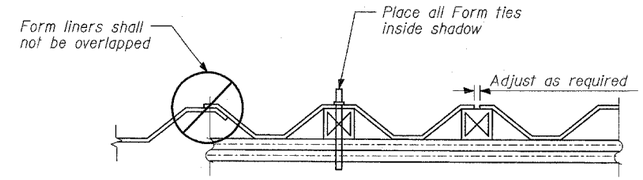
SHEET NO. 11
17 SHEETS
* 125X-HB-(1&2) R-1
CONTRACT * 60826



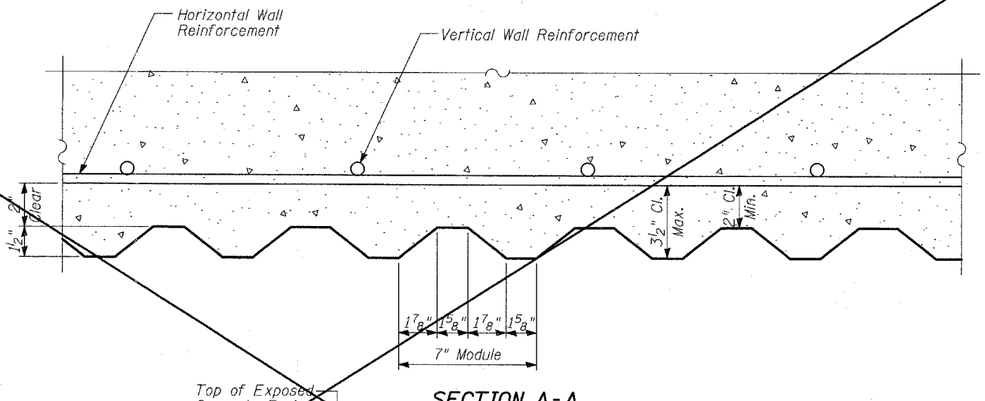
WALL DETAIL
(At Interior Panel with Barrier)



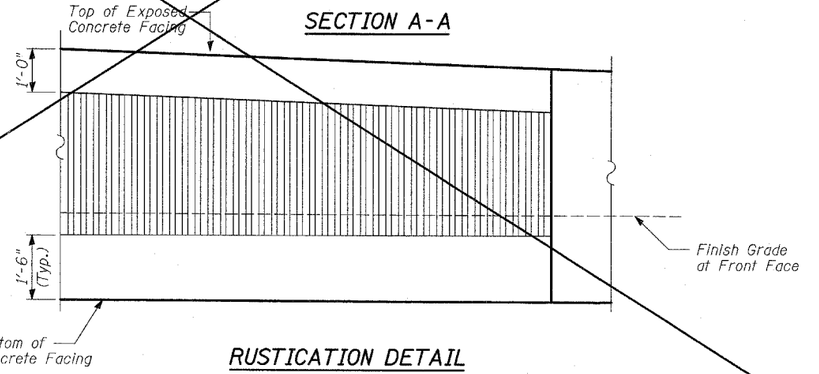
WALL DETAIL
(At Interior Panel with Embankment)



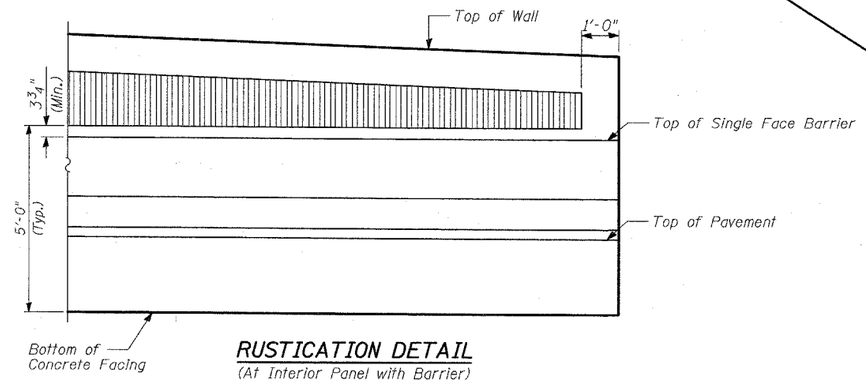
SUGGESTED FORMWORK DETAIL



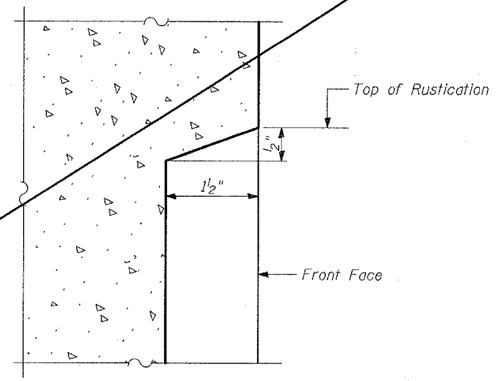
SECTION A-A



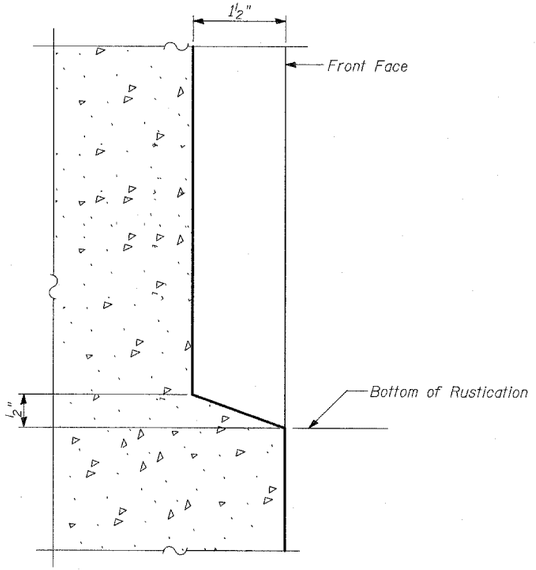
RUSTICATION DETAIL
(At Interior Panel with Embankment)



RUSTICATION DETAIL
(At Interior Panel with Barrier)



DETAIL A



DETAIL B

TY·LIN INTERNATIONAL

DESIGNED	- MB
CHECKED	- AD
DRAWN	- CM
CHECKED	- AD

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Rustication Finish	SQ FT	~~4,450~~

RUSTICATION FINISH

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-WØ34

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	293
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 12
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
825 Ambert Court, Suite 204
Naperville, Illinois 60565
(630) 355-2936

SOIL BORING LOG

PAGE 1 of 2
DATE 10/12/2004
LOGGED BY RJ
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-1
Station 209+79.8 Ramp B Baseline
Offset Ø.25' Left
Ground Surface Elev. 698.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				TOPSOIL with Sand & Gravel- dark brown (Fill)
	5			
	4			
	6	-	15	
694.7				
	9			
	7			CLAY-gray-stiff to hard (A-6)
-5	8	4.5+P	14	
				CLAY-brown & gray-hard (A-6)
	10		118	
	13			
	13	10.1S	14	
	6		103	
	12			
-10	17	5.7B	17	
687.2				
	6		126	
	13			CLAY-gray-stiff to hard (A-6)
	17	6.4B	16	
	5		122	
	6			
-15	11	3.7B	17	
	5		122	
	7			
	9	2.8B	19	
	1		116	
	3			
-20	8	4.8B	18	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	4		118	
	6			
	11	2.7B	18	
	3		107	
	3			
-25	6	1.9B	21	
	5		113	
	7			
	11	3.2B	22	
	3		108	
	5			
-30	6	2.1B	24	
	2			
	4			
-35	7	2.0P	14	
	5		111	
	6			
-40	9	1.6B	24	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
825 Ambert Court, Suite 204
Naperville, Illinois 60565
(630) 355-2936

SOIL BORING LOG

PAGE 2 of 2
DATE 10/12/2004
LOGGED BY RJ
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-1
Station 209+79.8 Ramp B Baseline
Offset Ø.25' Left
Ground Surface Elev. 698.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	4		122	
	5			
-45	7	1.6B	18	CLAY-gray-stiff to hard (A-6)
	10		138	
	13			
-50	16	4.5P	13	
644.7				
	7		131	
	16			SILTY CLAY LOAM-gray- hard (A-4/A-6)
-55	20	4.5P	14	
	9		135	
	14			
-60	17	4.5P	15	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SILTY CLAY LOAM-gray- stiff to very stiff (A-4/A-6)
634.7				
	13			
	13			
-65	13	NP	16	SILTY LOAM-gray- medium dense (A-4)
629.7				
	10			
	15			
-70	14	NP	20	SAND & GRAVEL-gray- medium dense (A-1-b)
625.0				
	14			
	16			
-75	14	NP	7	SAND & GRAVEL-gray- medium dense to dense (A-1-a)
	9			End of Boring @ -80.0' Hollow Stem Augers to -10.0' Rotary Drilling to Completion CME-75 Automatic Hammer
618.5	12			
-80	10	NP	9	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	MAF
CHECKED	AD
DRAWN	MAF
CHECKED	AD

BORING LOG M-1

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	294
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 13
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

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LOGGED BY Patrick
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" Hollow Stem Augers HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN 049-W034
Station
BORING NO. M-2
Station 210+54.8 Ramp B Baseline
Offset 0.25' Left
Ground Surface Elev. 698.5

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 660.0 ▼
Upon Completion n/a ▽
After ___ Hrs. ___

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Sand & Gravel (Fill)	697.5				
TOPSOIL-black (A-7)			4		
			2		
			3	-	33
	695.0				
CLAY-brown & gray-medium stiff to stiff (A-6)			3		*100*
			4		
		-5	5	1.6B	21
			2		*113*
			3		
			2	0.9B	16
	690.5				
CLAY-brown & gray-hard (A-6)			4		*118*
			7		
		-10	9	4.4B	16
			3		*118*
			8		
			12	5.1B	16
	685.5				
CLAY-gray-stiff to very stiff (A-6)			2		*111*
			5		
		-15	7	3.9B	19
			1		
			3		
			6	2.0P	20
			2		
			5		
		-20	7	2.5P	18
CLAY-gray-stiff to very stiff (A-6)			3		*101*
			7		
			9	3.5B	25
			1		*102*
			3		
		-25	3	2.7B	23
			3		*119*
			4		
			6	2.7B	15
			3		*115*
			4		
		-30	5	2.5B	18
			2		
			4		
		-35	4	1.0P	20
			3		*119*
			5		
		-40	10	1.8B	21

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

SOIL BORING LOG

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Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
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(630) 355-2838

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LOGGED BY Patrick
GSI JOB No. 0314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" Hollow Stem Augers HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN 049-W034
Station
BORING NO. M-2
Station 210+54.8 Ramp B Baseline
Offset 0.25' Left
Ground Surface Elev. 698.5

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 660.0 ▼
Upon Completion n/a ▽
After ___ Hrs. ___

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY-gray-stiff to hard (A-6)			2		*115*
			4		
		-45	5	1.6B	19
			3		*118*
			8		
		-50	8	3.4B	16
			4		*119*
			10		
		-55	15	6.2B	16
			6		*122*
			10		
		-60	13	6.2B	14
CLAY-gray-stiff to hard (A-6)	635.0				
SAND & GRAVEL-gray-loose (A-1)			1		
			1		
	633.5	-65	1	NP	25
End of Boring @ -65.0' Hollow Stem Augers CME-75 Automatic Hammer					
		-70			
		-75			
		-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG M-2

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. 049-W034

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	295
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

SHEET NO. - 14
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2856

SOIL BORING LOG

PAGE 1 of 2
DATE 10/25/2004
LOGGED BY RJ
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25' HSA/Rotary HAMMER TYPE CME-75 Auto Hammer
STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-3
Station 211+29.8 Ramp B Baseline
Offset Ø.25' Left
Ground Surface Elev. 698.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				Sand & Gravel (Fill) 698.6
	3			CLAY-brown & gray spotted black-stiff (A-6) Fill 696.5
	3			
	4	1.5P	19	
	5		120	CLAY-brown & gray - very stiff to hard (A-6)
	7			
-5	9	4.1B	15	
	6		112	
	16			
	23	5.5B	16	
	9		111	
-10	17			
	30	2.1B	19	
687.6				
	9		118	CLAY-gray-stiff to very stiff (A-6)
	19			
	26	3.4B	16	
	6		105	
-15	8			
	14	3.4B	23	
	5		118	
	8			
	12	1.8B	15	
	5		125	
-20	8			
	11	1.8B	13	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to very stiff (A-6) 678.6
	3			
	4			CLAY LOAM-gray-loose (A-4)
	5	NP	13	
				675.1
	5		130	
	15			
-25	24	Ø.9B	11	
	5		107	
	9			
	15	1.9B	21	CLAY-gray-stiff to very stiff (A-6)
	5		102	
	8			
-30	10	1.9B	24	
	4			
	5			
-35	6	1.9B	21	
	8		122	
	11			
-40	10	3.ØP	14	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2856

SOIL BORING LOG

PAGE 2 of 2
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LOGGED BY RJ
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25' HSA/Rotary HAMMER TYPE CME-75 Auto Hammer
STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-3
Station 211+29.8 Ramp B Baseline
Offset Ø.25' Left
Ground Surface Elev. 698.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to very stiff (A-6) 655.6
	5		120	
	9			
-45	10	2.5B	15	
	5			
	8			
-50	11	3.ØP	14	
	11		128	
	12			
-55	13	4.5P	12	
	8		123	
	19			
-60	33	5.8B	14	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-very stiff to hard (A-6)
	9			
	12			
633.6 -65	26	-	22	
				End of Boring @ -65.Ø'
				Hollow Stem Augers to -10.Ø'
				Rotary Drilling to Completion
				CME-75 Automatic Hammer
-70				
-75				
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TYLIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

BORING LOG M-3

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	296
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 15
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services, Inc.
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Naperville, Illinois 60565
(630) 355-2956

SOIL BORING LOG

PAGE 1 of 2
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LOGGED BY TOB
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-4
Station 212+Ø4.8 Ramp B Baseline
Offset Ø.25' Left
Ground Surface Elev. 698.3

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				TOPSOIL with Sand & Gravel-dark brown (Fill)
697.3				
	4			
	3			CLAY-brown, gray & black-very stiff (A-6) Fill
	4	3.5P	15	
694.8				
	3			CLAY-brown & gray-medium stiff (A-6)
-5	4			
	5	Ø.9B	15	
692.3				
	5			
	8			
	8	4.6B	16	CLAY-brown & gray-hard (A-6)
	7			
	9			
-10	15	7.4B	16	
	8			
	10			
	16	4.25B	16	
683.3 -15	5			
	7			SILTY LOAM to LOAM-gray-medium dense (A-4)
	10	5.5B	19	
	4			CLAY-gray-stiff to very stiff (A-6)
	5			
	6	2.3B	19	
	5			
	6			CLAY-gray-very stiff to hard (A-6)
-20	8	2.8B	18	
	3			
	4			
	5	1.9B	20	CLAY-gray-stiff to very stiff (A-6)
665.3				
	4			
	5			
	6	1.9B	17	
-30	7	2.3B	24	
	5			
	7			
659.8				
-35	7			
	3	NP	15	SILTY LOAM to LOAM-gray-medium dense (A-4)
	6			
	8			
-40	12	3.0P	16	CLAY-gray-very stiff to hard (A-6)

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%

Geo Services, Inc.
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805 Amherst Court - Suite 204
Naperville, Illinois 60565
(630) 355-2956

SOIL BORING LOG

PAGE 2 of 2
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LOGGED BY TOB
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-4
Station 212+Ø4.8 Ramp B Baseline
Offset Ø.25' Left
Ground Surface Elev. 698.3

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				CLAY-gray-very stiff to hard (A-6)
634.8				
	10			
	14			
-65	15	NP	18	
				SAND-gray-medium dense (A-3)
	12			
	12			
-70	14	NP	17	
624.3	16			
	22			SAND & GRAVEL-gray-dense (A-1)
623.3 -75	22	NP	10	
				End of Boring @ -75.Ø'
				Hollow Stem Augers to -10.Ø'
				Rotary Drilling to Completion
				CME-75 Automatic Hammer
-80				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				CLAY-gray-very stiff to hard (A-6)
	6			
	9			
-45	12	3.5P	16	
	7			
	10			
-50	13	-	17	
	10			
	11			
-55	15	4.25B	14	
	11			
	14			
-60	13	4.5P	15	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%

TY·LIN INTERNATIONAL

DESIGNED	MAF
CHECKED	AD
DRAWN	MAF
CHECKED	AD

BORING LOG M-4

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	297
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 16
17 - SHEETS

* 125X-HB-(1&2) R-1 CONTRACT # 60826

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Geo Services Inc.
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805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2256

SOIL BORING LOG

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GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-5
Station 212+79.8 Ramp B Baseline
Offset Ø.25'Left
Ground Surface Elev. 698.5

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				TOPSOIL with Sand & Gravel-dark brown (Fill)
697.5				
	2			
	2			CLAY-brown, gray & black-
	2	1.5P	23	stiff (A-6) Fill
695.5				
	1			CLAY-dark brown & gray-
	1			medium stiff (A-6) Wet
-5	3	Ø.75P	29	
693.Ø				
	2			
	2			
	3	3.ØP	17	
	2			CLAY-brown & gray-
				stiff to hard (A-6)
-10	6	1.8B	21	
	2			
	5			
	8	7.4B	16	
685.5				
	3			
	7			
-15	9	2.7B	17	
				CLAY-gray-stiff to very stiff (A-6)
	4			
	6			
	8	1.4B	19	
	4			
	6			
-20	8	3.5B	17	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	3		111	CLAY-gray-stiff to very stiff (A-6)
	4			
	8	2.ØB	19	
	2		114	
	4			
-25	6	1.8B	18	
	3		108	
	9			
	11	2.7B	20	
	3		102	
	6			
-30	8	2.5B	24	
	5		118	
	9			
-35	9	3.ØP	14	
	4		112	
	8			
-40	10	2.5P	19	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2256

SOIL BORING LOG

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LOGGED BY CS
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer

STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-5
Station 212+79.8 Ramp B Baseline
Offset Ø.25'Left
Ground Surface Elev. 698.5

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff to hard (A-6)
	3		112	
	4			
-45	6	1.ØB	20	
	5		129	
	10			
-5Ø	13	4.5P	11	
645.5				
	19		123	
	38			
-55	31	2.3B	14	
				SILTY CLAY LOAM to SILTY LOAM-
				very dense (A-4/A-6)
	29			
	45			
-6Ø	61	4.5+P	13	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SILTY CLAY LOAM to SILTY LOAM-
				very dense (A-4/A-6)
635.5				
	4			
	15			SILT-gray-medium dense (A-4)
-65	13	NP	19	
				End of Boring @ -65.Ø'
				Hollow Stem Augers to -4Ø.Ø'
				Rotary Drilling to Completion
				CME-75 Automatic Hammer
-7Ø				
-75				
-8Ø				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	-	MAF
CHECKED	-	AD
DRAWN	-	MAF
CHECKED	-	AD

BORING LOG M-5

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	298
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 17
17 -SHEETS

* 125X-HB-(1&2) R-1 CONTRACT * 60826

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2626

SOIL BORING LOG

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LOGGED BY CS
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer
STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-6
Station 213+54.2 Ramp B Baseline
Offset 9.73' Left
Ground Surface Elev. 699.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				TOPSOIL-black 698.7
	7			
	13			
	15	4.ØP	12	CLAY-brown & gray-hard (A-6) Fill
	8			
	8			
-5	8	4.5+P	11	CLAY-gray-very stiff to hard (A-6)
	4			
	7			
691.7	9	-	1Ø	
	9			
	13			
-1Ø	13	4.5+P	15	CLAY-brown & gray- very stiff to hard (A-6)
	8			
	13			
	14	7.ØB	16	
	8			
	1Ø			
-15	16	3.6S	13	
683.2				
	3		119	
	4			
	7	2.7B	16	CLAY-gray-very stiff to hard (A-6)
	3		115	
	4			
-2Ø	7	2.5B	17	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	3		112	
	4			
	7	4.4B	19	
	3		1Ø2	
	5			
-25	9	3.4B	23	
	3		1Ø2	
	5			
	7	2.5B	24	
	3			Sand & gravel seam @ -29.Ø'.
	4			
-3Ø	7	2.5B	2Ø	
	4		111	
	3			
-35	7	2.5B	19	
	5		113	
	9			
-4Ø	18	2.5P	18	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2626

SOIL BORING LOG

PAGE 2 of 2
DATE 10/25/2004
LOGGED BY CS
GSI JOB No. Ø314

ROUTE FAP Rte. 346 DESCRIPTION New Overpass
TWNSHP Gurnee LOCATION TWP 44 N, R 6E on the south boundary of Sec 28
COUNTY Lake DRILLING METHOD 3.25" HSA/Rotary HAMMER TYPE CME-75 Auto Hammer
STRUCT. NO. SN Ø49-WØ34
Station
BORING NO. M-6
Station 213+54.2 Ramp B Baseline
Offset 9.73' Left
Ground Surface Elev. 699.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	5		115	
	6			CLAY-gray-very stiff to hard (A-6)
-45	11	3.1B	17	
	13			
	16			
-5Ø	21		NR	
				CLAYEY SAND & GRAVEL- gray-dense (A-2-6)
	6		13Ø	
	12			
-55	16	4.5P	13	
	11		13Ø	
	13			
-6Ø	17	2.2B	11	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-very stiff to hard (A-6)
	7		118	
	8			
-65	19	3.ØP	16	Sand & gravel seam @ -29.Ø'.
63Ø.7				
	19			
	18			
-7Ø	18		NR	
	18			
	19			
623.2 -75	22	NP	12	
				End of Boring @ -75.Ø' Hollow Stem Augers to -35.Ø' Rotary Drilling to Completion CME-75 Automatic Hammer
-8Ø				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)

TY·LIN INTERNATIONAL

DESIGNED	- MAF
CHECKED	- AD
DRAWN	- MAF
CHECKED	- AD

BORING LOG M-6

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ34

Benchmark: BM #6 - Square cut in base of L.P. at N.E. corner of IL Route 132 and Magnolia (Speedway) 45.14' LT, Sta. 32+13.24 (IL 132 E.B. ℄), Elev. 696.47.

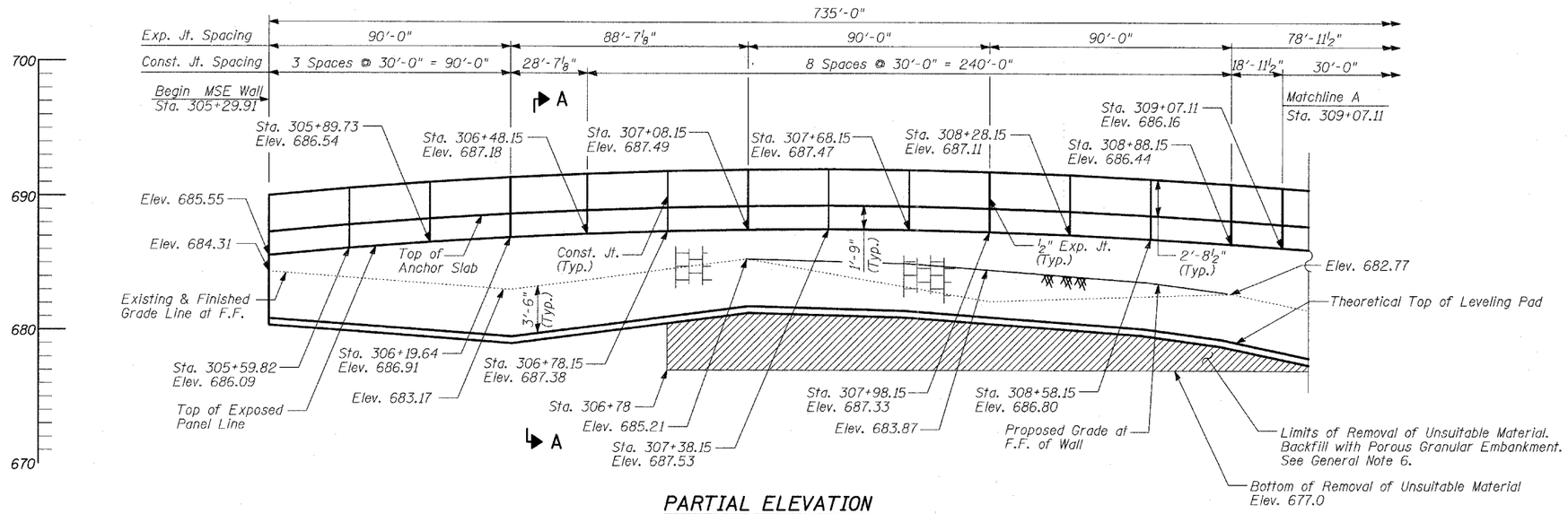
Existing Structure: None.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

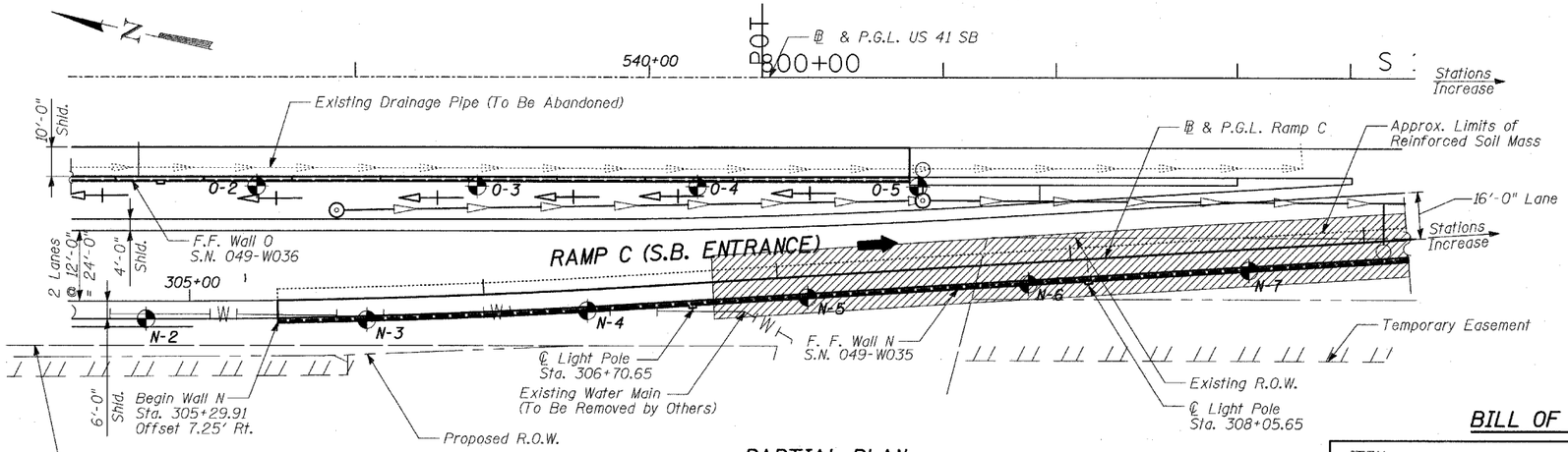
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	•	LAKE	469	299
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 1
15 - SHEETS

• 125X-HB-(1&2) R-1 CONTRACT • 60826



PARTIAL ELEVATION
(Looking at F.F.)



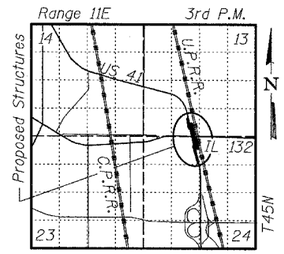
PARTIAL PLAN

LEGEND

- Manhole
- Catch Basin
- Soil Boring
- Prop. Storm Sewer
- Exist. Drain Pipe
- Proposed Drainage Swale
- Removal of Unsuitable Material

INDEX OF SHEETS:

1. WALL N GENERAL PLAN AND ELEVATION, STA 305+29.91 TO STA 309+07.11
2. WALL N GENERAL PLAN AND ELEVATION, STA 309+07.11 TO STA 312+64.94
3. ANCHORAGE SLAB AND PARAPET (1 OF 5)
4. ANCHORAGE SLAB AND PARAPET (2 OF 5)
5. ANCHORAGE SLAB AND PARAPET (3 OF 5)
6. ANCHORAGE SLAB AND PARAPET (4 OF 5)
7. ANCHORAGE SLAB AND PARAPET (5 OF 5)
8. ANCHORAGE SLAB AND PARAPET SECTIONS AND BAR LIST
9. ANCHORAGE SLAB AND PARAPET DETAILS
10. BORING LOGS N-2 & N-3
11. BORING LOGS N-4 & N-5
12. BORING LOGS N-6 & N-7
13. BORING LOGS N-8 & N-9
14. BORING LOGS N-10 & N-11
15. BORING LOG N-12



LOCATION SKETCH

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications For Highway Bridges

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)

GENERAL NOTES:

1. Wall stations and offsets are given to the front face of the Precast concrete wall panels, and are measured from Ramp C Baseline.
2. Reinforcement bars shall conform to the requirements of ASTM A706, Grade 60 (IL Modified). See Special Provisions.
3. Reinforcement bars designated (E) shall be epoxy coated.
4. All exposed concrete edges shall be chamfered 3/4" except as noted.
5. Slipforming of the parapet is not allowed.
6. The limits and quantities of removal and replacement shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Removal and Disposal of Unsuitable Material	CU YD	373
Porous Granular Embankment	CU YD	373
Structure Excavation	CU YD	1,001
Concrete Superstructure	CU YD	353
Protective Coat	SQ YD	798
Reinforcement Bars, Epoxy Coated	POUND	50,260
Mechanically Stabilized Earth Retaining Wall	SQ FT	4,418
~~Anti-Graffiti Coating~~	~~SQ FT~~	~~5,362~~

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	CM/AD
DRAWN	-	DE
CHECKED	-	CM/AD

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E. Anderson (Stm)
ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS
SPIROS PANTAZIS
081-006448
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Signed _____
Spiros Pantazis, S.E. Il. Lic. No. 081-006448
Expires 11-30-2008.

Date 5/14/08

For drawings 1 thru 15 of 15

WALL N
GENERAL PLAN
STA 305+29.91 TO STA 309+07.11

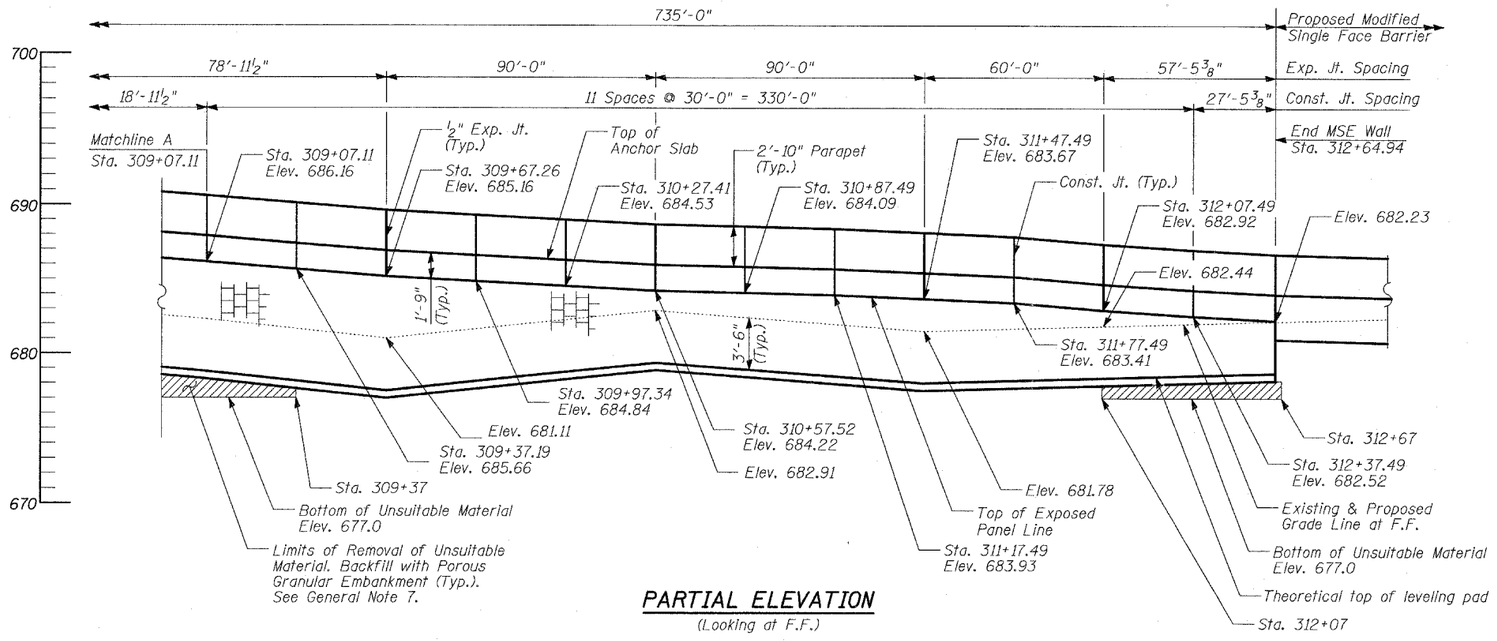
FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ35

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

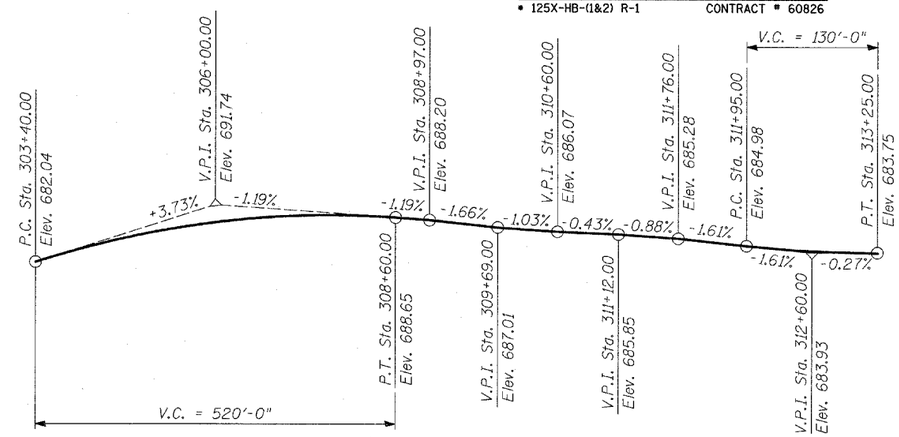
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
346	*	LAKE	469	300
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - 2
15 - SHEETS

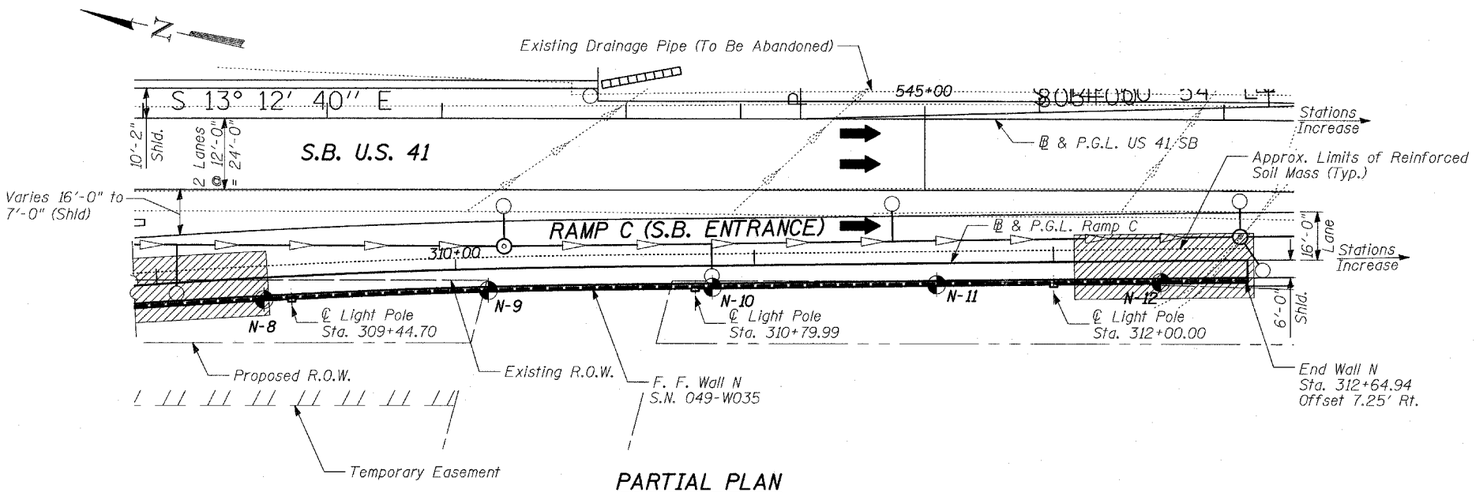
* 125X-HB-(1&2) R-1 CONTRACT * 60826



PARTIAL ELEVATION
(Looking at F.F.)



PROFILE GRADE RAMP C



PARTIAL PLAN

RAMP C
HORIZONTAL CURVE DATA

Prop. Curve RAMPC-1
PI Sta. 305+69.32
Δ = 3° 35' 30" (LT)
D = 2° 16' 38"
R = 2,516.00'
L = 157.72'
E = 1.24'
PC Sta. 304+90.43
PT Sta. 306+48.15
T = 78.88'

Prop. Curve RAMPC-2
PI Sta. 309+82.33
Δ = 2° 53' 16" (RT)
D = 1° 55' 12"
T = 75.22'
R = 2,984.00'
L = 150.40'
E = 0.95'
PC Sta. 309+07.11
PT Sta. 310+57.51

NOTES:

1. For General Notes, see Sheet 1.

LEGEND

- Manhole
- Catch Basin
- Soil Boring
- Prop. Storm Sewer
- Exist. Drain Pipe
- Proposed Drainage Swale
- Removal of Unsuitable Material

TYLIN INTERNATIONAL

DESIGNED	-	MB
CHECKED	-	CM/AD
DRAWN	-	DE
CHECKED	-	CM/AD

WALL N
GENERAL PLAN
STA 309+07.11 TO 312+64.94

FAP 346 (U.S. ROUTE 41 - SKOKIE HIGHWAY) OVER ILLINOIS ROUTE 132
SECTION 125X-HB-(1&2)R-1
LAKE COUNTY
S.N. Ø49-WØ35