

# State of Alaska

Department of Transportation  
and Public Facilities  
Southeast Region

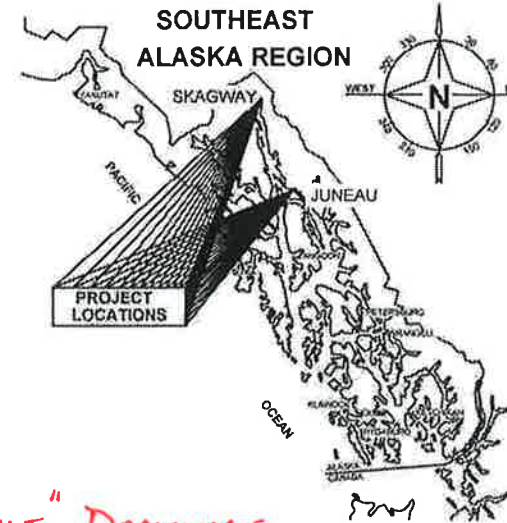
January 26, 2015

## SEA AREAWIDE AVALANCHE GATES

THANE ROAD AND KLONDIKE HIGHWAY  
PROJECT No. 67840/000S(845)

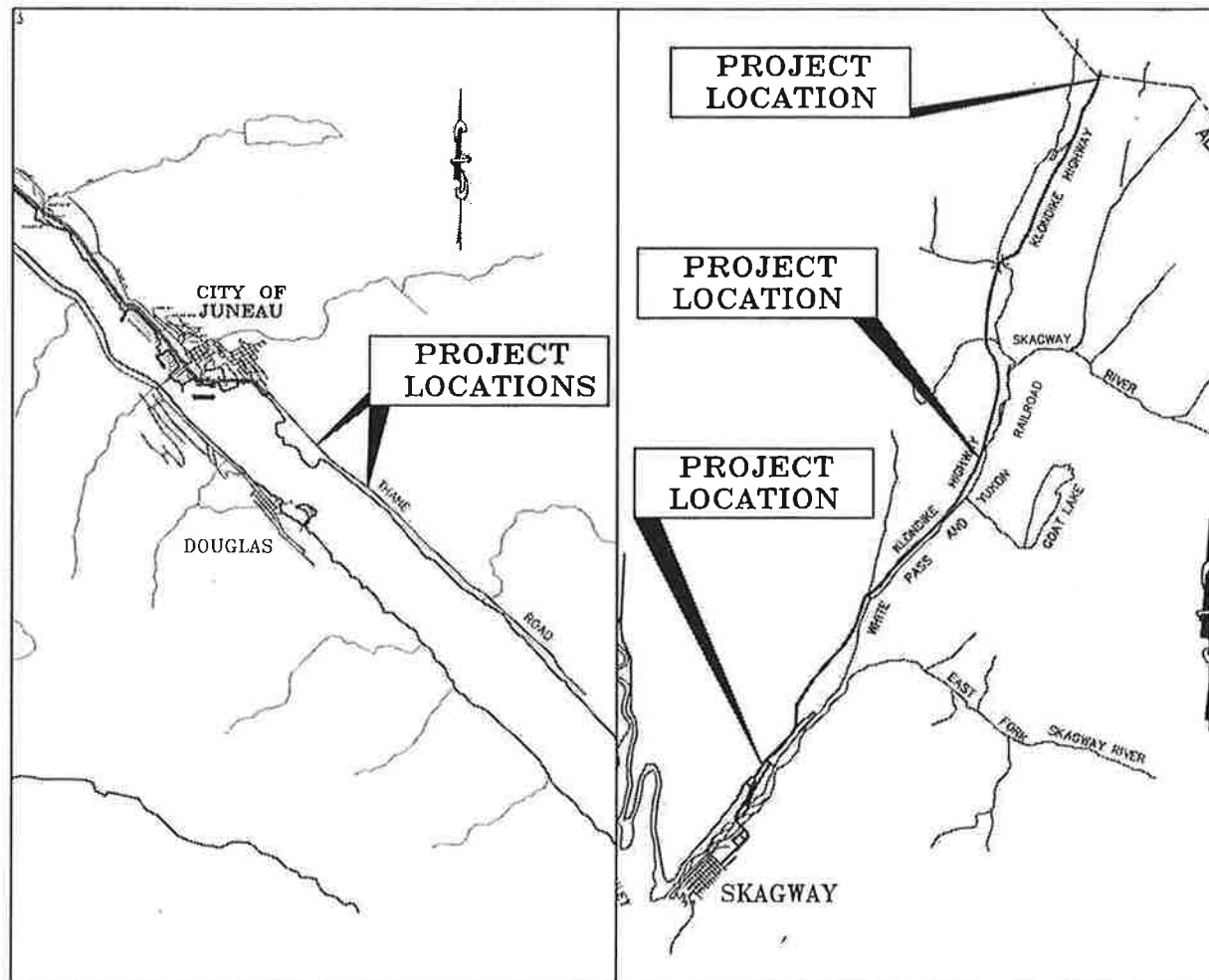
The undersigned hereby certifies that this duplicated document is an exact and true copy of the original.

*Cody Miller*



"AS-BUILT" DRAWINGS  
CONTRACTOR: BUILD ALASKA GENERAL CONTRACTING  
PROJECT ENGINEER: ANDREW CONRAD  
START DATE: 04/06/2015  
END DATE: 04/23/2015  
PROJECT ENGINEER: *Andrew Conrad* 5/7/15

INDEX	
SHEET NO.	DESCRIPTION
A1	TITLE SHEET
C1	ESTIMATE OF QUANTITIES
E1-E2	DETAILS
F1-F5	PLAN
H1	SIGNING
P1	EROSION SEDIMENT CONTROL PLAN
T1	TRAFFIC CONTROL
074600-320251	THANE ROAD AVALANCHE GATES
074600-200225	KLONDIKE HWY. AVALANCHE GATES
074007-X020	S-60 GATE MECHANISM (2 PGS.)
076203-518X	HIGH WIND BRACKETS (2 PGS.)
ABI	MISC. AS-BUILT DETAILS



VICINITY MAP

### DESIGN DESIGNATION THANE ROAD

A.D.T. 2012	=	1260
A.D.T. 2035	=	1410
D.H.V. (12.1%) 2035	=	170
% T	=	10.6%
V	=	35-45 M.P.H.
E.A.L.	=	360,000

### DESIGN DESIGNATION KLONDIKE HIGHWAY

A.D.T. 2012	=	560
A.D.T. 2035	=	630
D.H.V. (12.1%) 2035	=	210
% T	=	24.8%
V	=	35-45 M.P.H.
E.A.L.	=	250,000

### PROJECT SUMMARY

NUMBER OF GATES	=	5 GATES
LENGTH OF GUARDRAIL	=	50 / 125 FEET

THE FOLLOWING STANDARD DRAWINGS APPLY TO THIS PROJECT:

- G-00.02
- G-04.10S
- G-04.10W
- G-10.01
- ~~G-13.00~~
- E-13.00

PATH: G:\SEA\67840\ENC3\DISHEET  
COMPLIATION1 TITLE 67840.DWG  
CAMPBELL, ALEXANDER J (DOT)  
TAB: A1 Thursday, August 28, 2014 1:16:04 PM

STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
& PUBLIC FACILITIES  
SOUTHEAST REGION



APPROVED: *L. Pat Carroll* 8/29/14  
REGIONAL PRE-CONSTRUCTION ENGINEER DATE  
L. PAT CARROLL, P.E.

APPROVED: *Chuck Correa* 8/29/14  
DIRECTOR OF DESIGN & CONSTRUCTION DATE  
CHUCK CORREA, P.E.

CERTIFIED TRUE & CORRECT AS-BUILT OF ACTUAL FIELD  
CONDITION:  
*John A. Kjordan* 5/19/15  
CONSTRUCTION PROJECT MANAGER DATE

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	67840 / 000S(845)	2014	A1	12 / 19


ESTIMATE OF QUANTITIES			
ITEM NO	ITEM DESCRIPTION	PAY UNIT	QUANTITY
201(3B)	Clearing And Grubbing	Lump Sum	All Req'd
202(1)	Removal Of Structures And Obstructions	Lump Sum	All Req'd
606(1)	W-Beam Guardrail	Linear Foot	<del>128</del> 50
607(14A)	Avalanche Gate and Foundation	Each	5
615(1)	Standard Sign	Square Foot	83
<del>638(4)</del>	Fiber Roll - <i>L.O. #1</i>	<del>Linear Foot</del>	<del>100</del>
		<i>Lump Sum</i>	
640(1)	Mobilization And Demobilization	Lump Sum	All Req'd
640(4)	Worker Meals and Lodging, or Per Diem	Lump Sum	All Req'd
641(1)	Erosion, Sediment and Pollution Control Administration	Lump Sum	All Req'd
641(2)	Temporary Erosion, Sediment and Pollution Control	Contingent Sum	All Req'd
641(6)	Withholding	Contingent Sum	All Req'd
642(1)	Construction Surveying	Lump Sum	All Req'd
643(2)	Traffic Maintenance	Lump Sum	All Req'd
643(23)	Traffic Price Adjustment	Contingent Sum	All Req'd

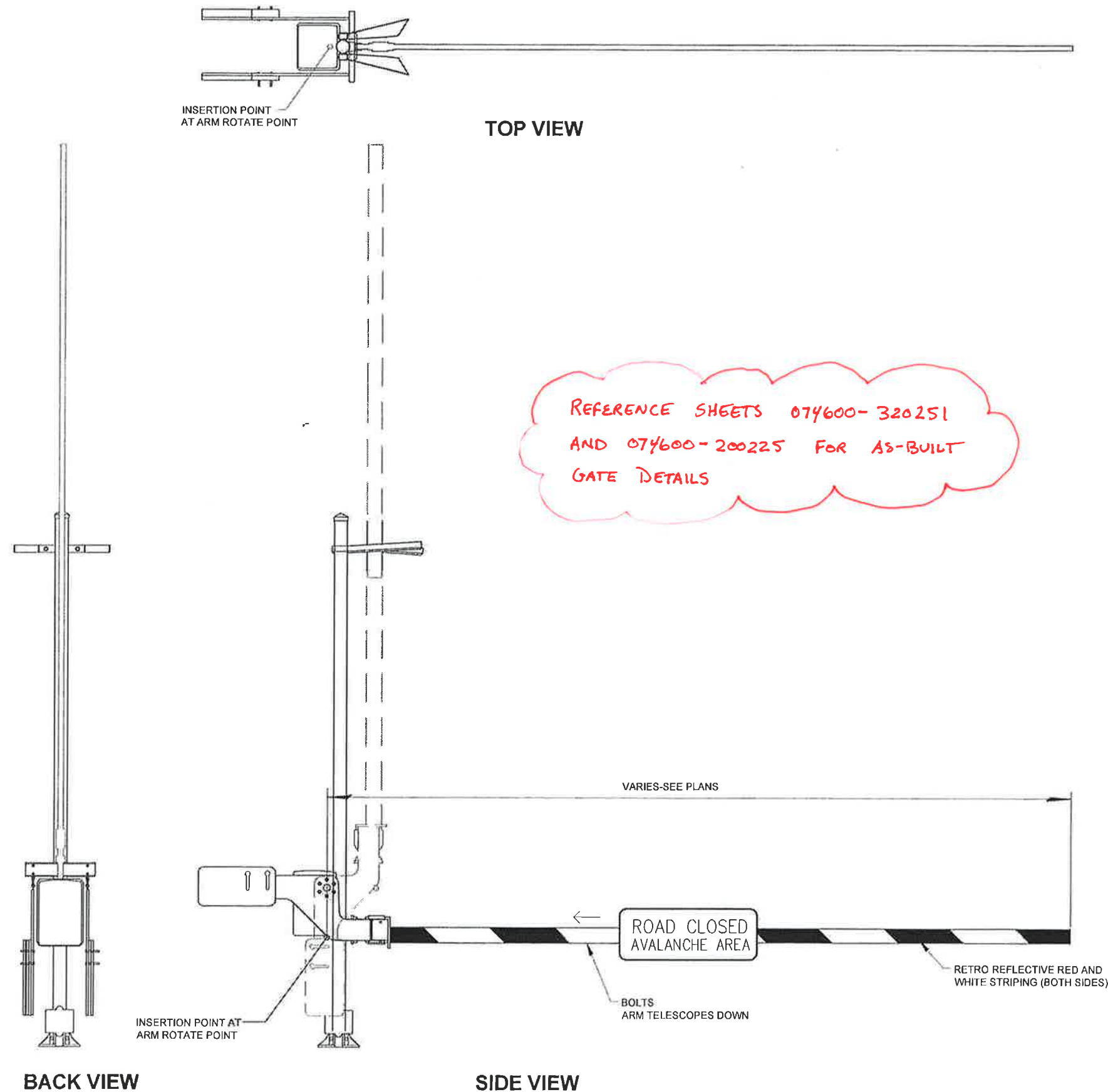
638(1a)

All REQ'D

PROJECT ENGINEER: *[Signature]*  
DATE: 5.7.15

DO NOT SCALE FROM THESE DRAWINGS USE DIMENSIONS

CHECKED BY: G. LOCKWOOD		STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES SOUTHEAST REGION										
		SEA- AREAWIDE AVALANCHE GATES PROJECT #67840										
		<b>ESTIMATE OF QUANTITIES</b>										
DESIGNED BY: N. PURVES		PROJECT DESIGNATION										
DRAWN BY: N. PURVES		YEAR										
PATH: Q:\SEA\67840\ENR\C3DSHEET COMPILATION\C1 ESTIMATE OF QUANTITIES 67840 AVE GATES DWG TAB: C1 Thursday, August 28, 2014 1:16:36 PM CAMPBELL, ALEXANDER J (DOT)		SHEET NO										
<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		REVISIONS			NO.	DATE	DESCRIPTION				TOTAL SHEETS	
REVISIONS												
NO.	DATE	DESCRIPTION										
67840 / 000S(845)		12 / 19										




REFERENCE SHEETS 074600-320251  
AND 074600-200225 FOR AS-BUILT  
GATE DETAILS

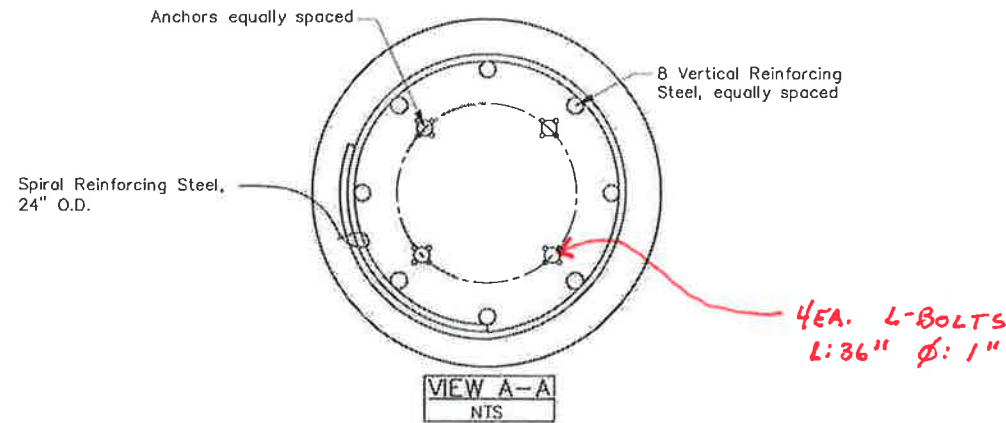
**NOTES:**

1. PROVIDE GATE ARMS IN THE LENGTHS SPECIFIED ON THE "PLAN AND SECTION SHEETS".
2. PLACE GATE ARM TO ALLOW FOR 6 TO 18 INCHES OF VERTICAL CLEARANCE ABOVE THE GUARDRAIL WHEN IN A DOWN POSITION.
3. GATES SHALL BE INSTALLED SO THAT GATE ARMS ARE PARALLEL WITH THE GROUND WHEN IN THE CLOSED POSITION AND VERTICAL WHEN IN THE OPEN POSITION.
4. INSTALL PAIRS OF GATES WITH GATE ARMS AT THE SAME ELEVATION.
5. PLACE ALL GATE COMPONENTS THAT ARE NOT AT GUARDRAIL LOCATION A MINIMUM OF 10 FEET FROM FOG LINE.

PROJECT ENGINEER: *[Signature]*  
DATE: 5.7.15

DO NOT SCALE FROM THESE DRAWINGS USE DIMENSIONS

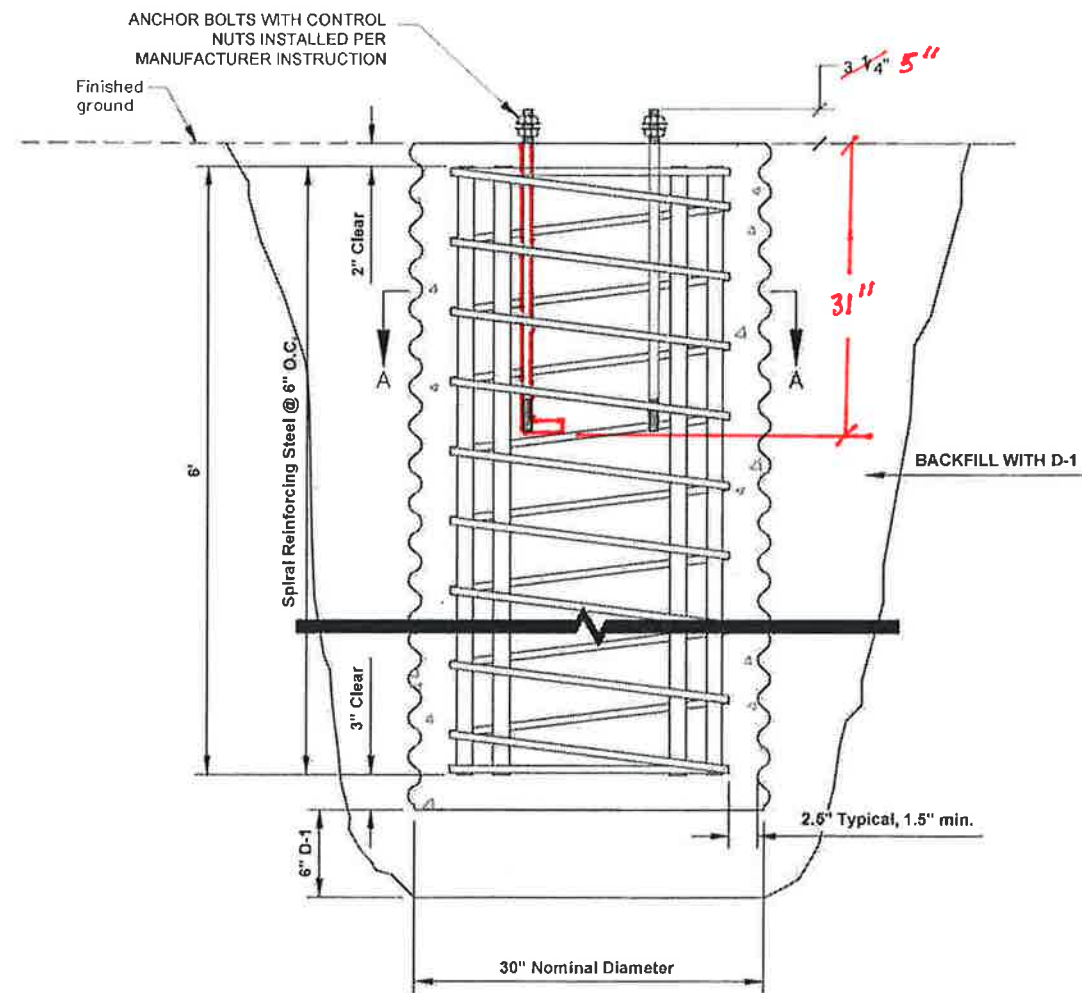
CHECKED BY: G. LOCKWOOD 		STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES SOUTHEAST REGION SEA- AREAWIDE AVALANCHE GATES PROJECT #67840												
DESIGNED BY: N. PURVES DRAWN BY: N. PURVES		<b>AVALANCHE GATE DETAIL</b>												
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REVISIONS														
NO	DATE	DESCRIPTION												



MATERIAL REQUIREMENTS		
Concrete	Class A	$f'_c = 4000$ psi
CMP	AASHTO M218	14 ga.
Vertical Reinforcing Steel	AASHTO M31 #11	GR 60
Spiral Reinforcing Steel	AASHTO M31 #5	GR 60
<b>ANCHOR BOLTS</b>	<b>ASTM F1554</b>	<b>GR55</b>

**NOTES:**

1. Place foundation in drilled or excavated hole with centerline of foundation located at the station, offset, and elevation specified in plans. Set foundation to satisfy the conditions depicted in clearance detail.
2. Form the foundation in corrugated metal pipe conforming to Subsection 707-2.01 of the Specifications.
3. Provide 1.5 extra turns at each end of the spiral reinforcing steel. Reinforcing steel shall not be spliced. Tie vertical reinforcing steel to each intersection of the spiral reinforcing steel.
4. Complete all concrete work in conformance with Sections 501, 503, and 660 of the Specifications. Use a tube with a hopper head or other approved device when dropping concrete more than 5 feet per Subsection 501-3.08. Vibrate concrete during placement by mechanical vibration per Subsection 501-3.08. Ensure anchor threads are protected from contact with concrete during pour.
5. Excavate 0.5' below foundation and backfill entire foundations with D-1 according to Section 205-3.03, with material conforming with 703-2.03 D-1. Compact each lift of maximum density.
6. Install all anchors according to the manufacturer's written installation instructions. Anchors shall be installed plumb. Anchors greater than 1:40 out-of-plumb will result in foundation rejection.

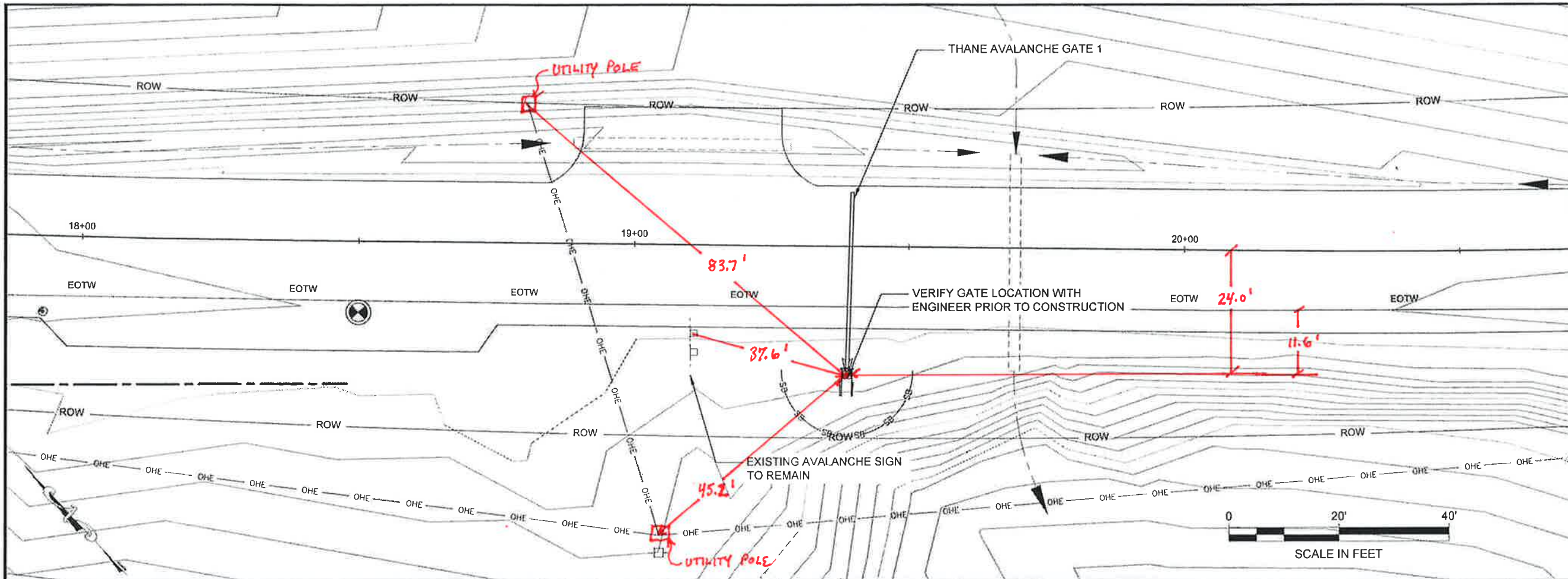


PROJECT ENGINEER: *[Signature]*  
 DATE: 5.7.15

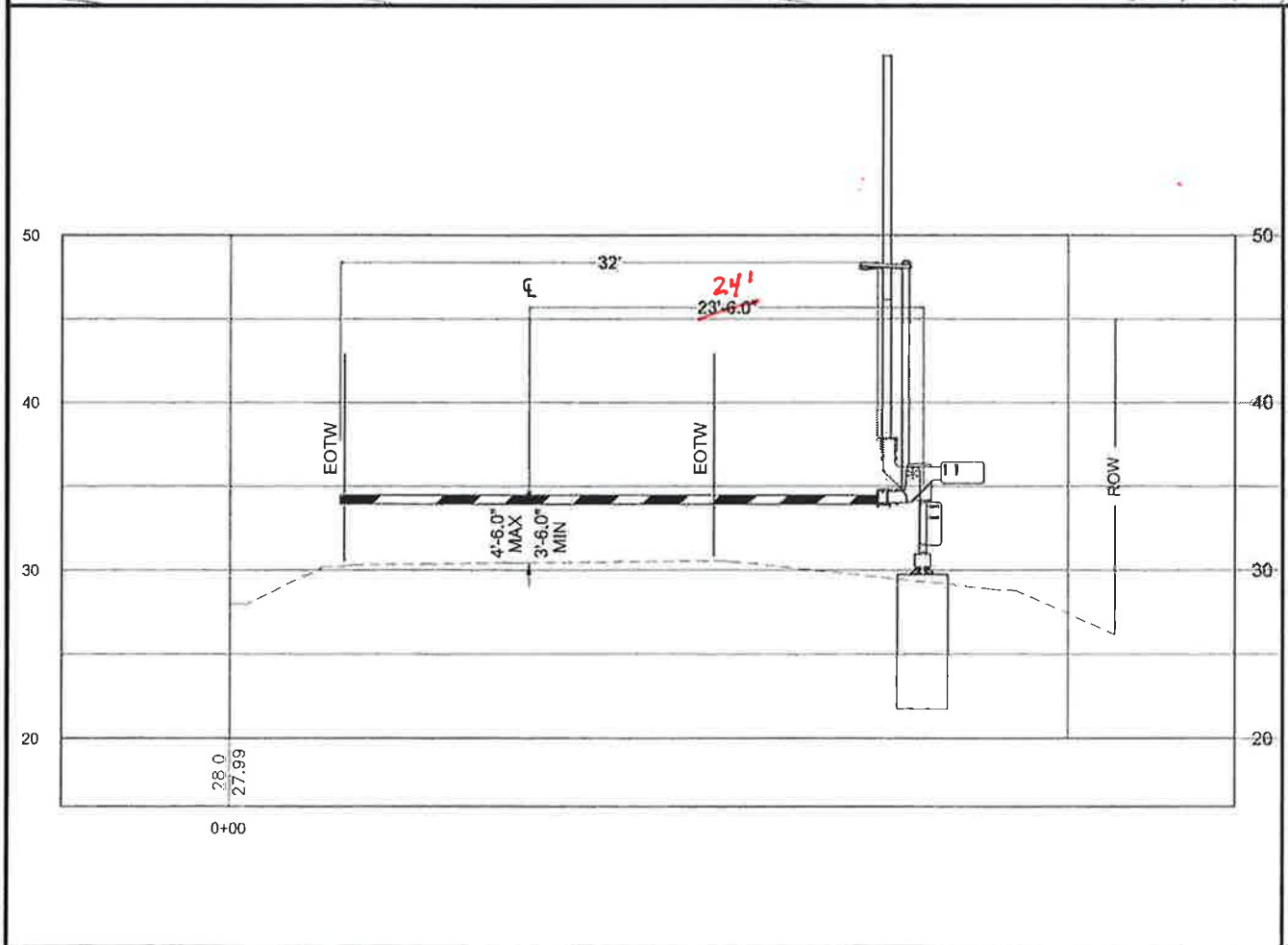
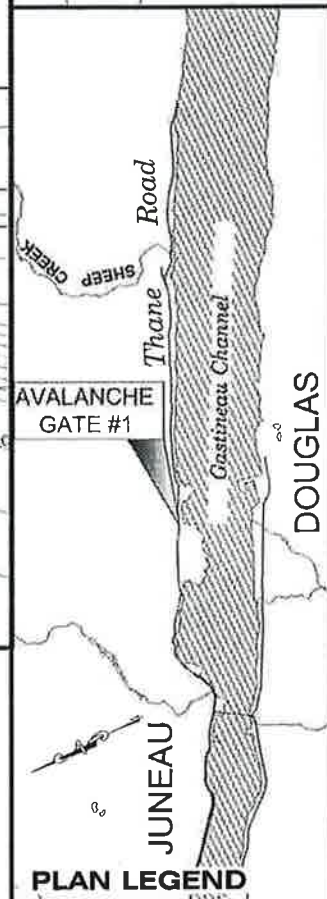
DO NOT SCALE FROM THESE DRAWINGS USE DIMENSIONS

CHECKED BY: G. LOCKWOOD	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES SOUTHEAST REGION				
DESIGNED BY: N. PURVES DRAWN BY: N. PURVES	SEA- AREAWIDE AVALANCHE GATES PROJECT #67840				
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TAG: E2 Thursday, August 28, 2014 1:17:29 PM CAMPBELL, ALEXANDER J (DOT)					
REVISIONS		PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
NO.	DATE	DESCRIPTION	67840 / 000S(845)	2014	E2

19



PATH: Q:\SEA\67840\ENC3\DISHEET  
 COMPILATION\F1-2 THANE\_LOCATIONS  
 67840 AVE-GATES.DWG  
 CAMPBELL, ALEXANDER J (DOT)  
 TAB: F1 Thursday, August 28, 2014 1:18:08 PM  
 ADDENDUM NUMBER  
 ATTACHMENT NUMBER  
 RECORD OF REVISIONS  
 No. DATE DESCRIPTION



**THANE SITE 1 SUMMARY**

ITEM NUMBER	QUANTITY	DESCRIPTION OF WORK
607(14A)	1 EA	GATE AND FOUNDATION

PROJECT ENGINEER: *[Signature]*  
 DATE: 5.7.15

**LEGEND**

— OHE —	OVERHEAD ELECTRIC/UTILITIES
— SB —	SEDIMENT BARRIER
— EOTW —	EDGE OF TRAVELED WAY
— — —	EXISTING DRAIN PATTERN
⊕ ⊙ ⊗ ⊛	EXISTING MONUMENT

CHECKED BY: G. LOCKWOOD

DESIGNED BY: N. PURVES  
 DRAWN BY: N. PURVES

STATE OF ALASKA  
 DEPARTMENT OF TRANSPORTATION  
 & PUBLIC FACILITIES  
 DESIGN & ENGINEERING SERVICES  
 DIVISION-SOUTHEAST REGION

**SEA-AREAWIDE  
 AVALANCHE GATES  
 PROJECT #67840**

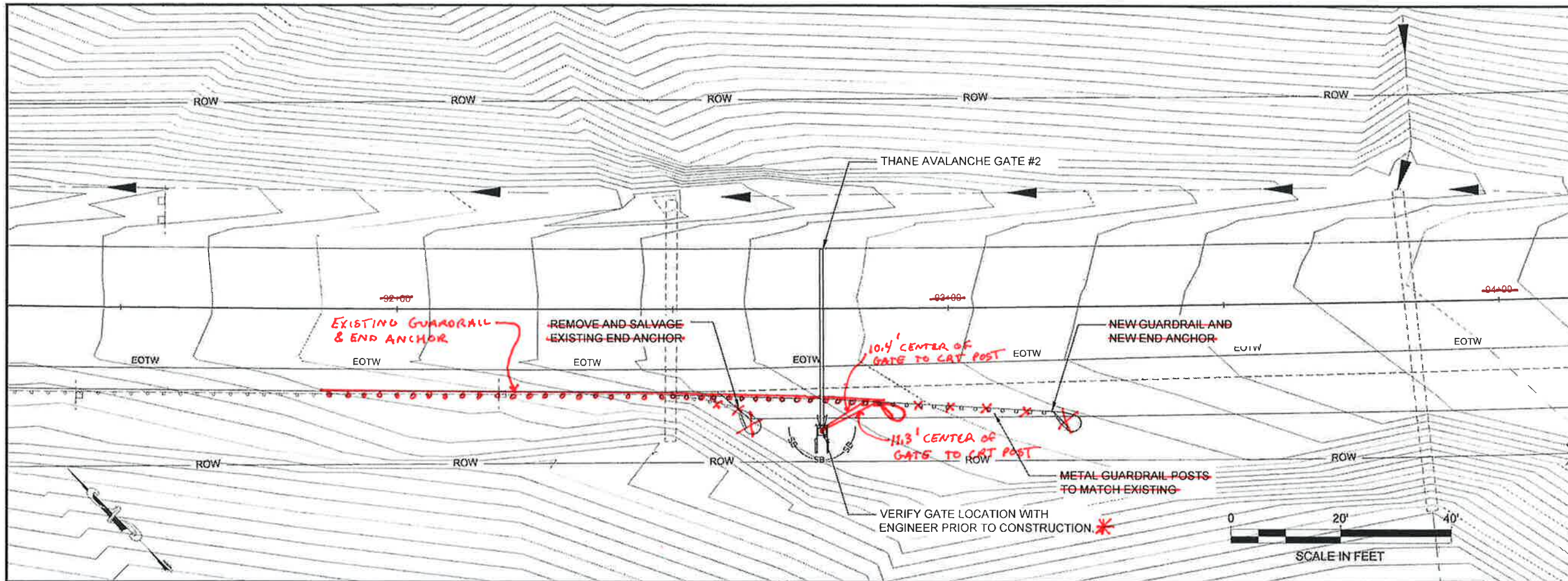
**PLAN**

PROJECT DESIGNATION  
**67840 / 000S(845)**

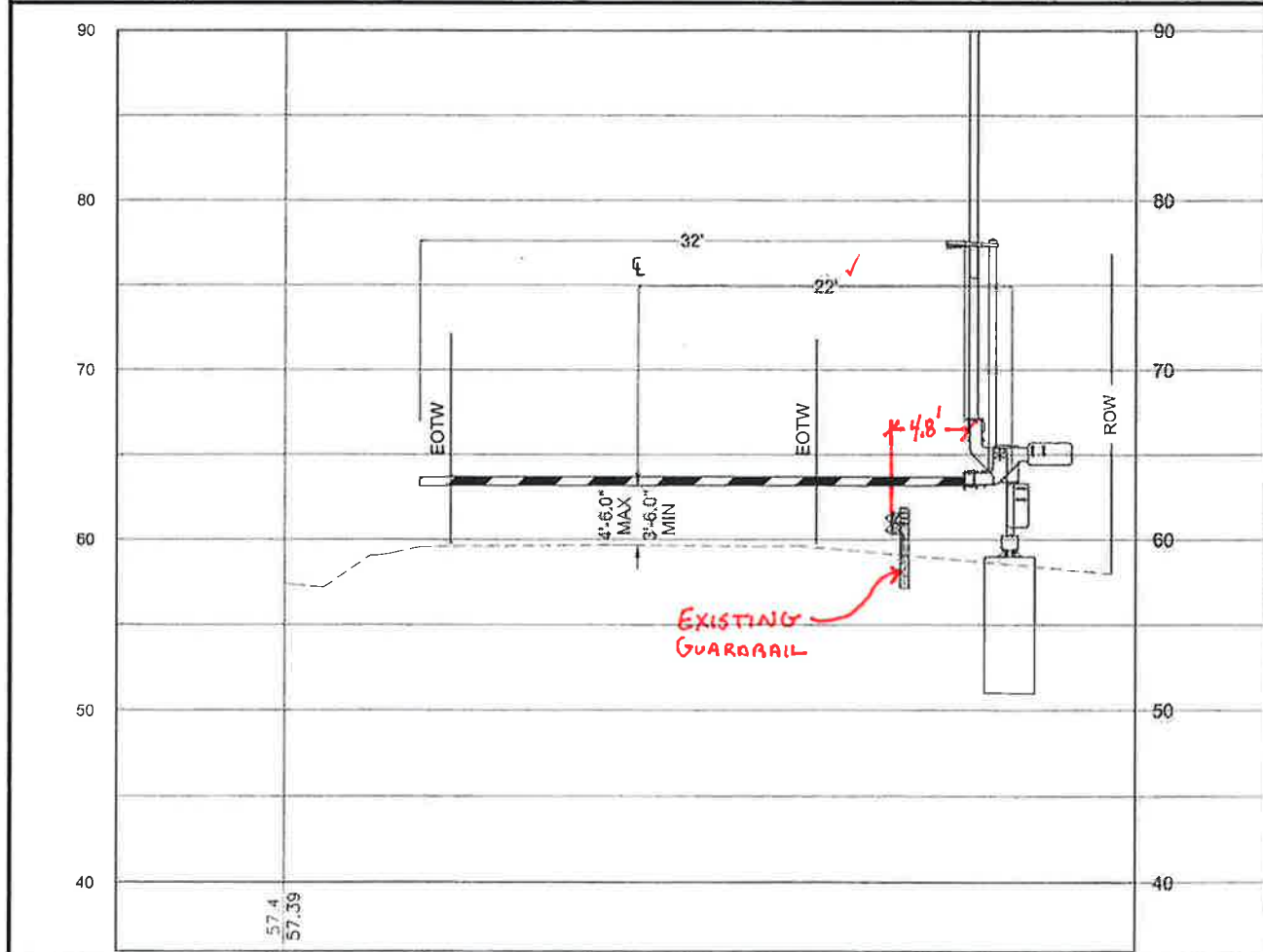
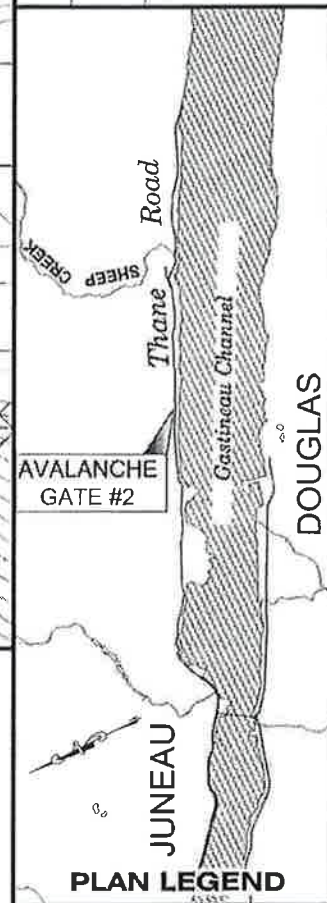
STATE	YEAR
ALASKA	2014

SHEET NUMBER	TOTAL SHEETS
F1	12 / 19

DO NOT SCALE FROM THESE DRAWINGS USE DIMENSIONS



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 COMPILATION\F1-2 THANE\_LOCATIONS  
 67840 AVE-GATES.DWG  
 CAMPBELL, ALEXANDER J (DOT)  
 TAB: F2 Thursday, August 28, 2014 1:19:00 PM  
 ADDENDUM NUMBER  
 ATTACHMENT NUMBER



\* GATE INSTALLED 0.4 MILES SOUTH OF PLANNED LOCATION BEHIND EXISTING GUARDRAIL.

THANE SITE 2 SUMMARY		
ITEM NUMBER	QUANTITY	DESCRIPTION OF WORK
202(1)	12.5 FT	REMOVE/SALVAGE W-BEAM GUARDRAIL
202(1)	1 EA	REMOVE/SALVAGE END ANCHOR
606(1)	75 FT	W-BEAM GUARDRAIL
INCLUDED IN 606(1)	1 EA	NEW END ANCHOR
607(7)	1 EA	GATE AND FOUNDATION

LEGEND	
— OHE —	OVERHEAD ELECTRIC/UTILITIES
— SB —	SEDIMENT BARRIER
— EOTW —	EDGE OF TRAVELED WAY
— — —	EXISTING DRAIN PATTERN
⊕ ⊙ ⊗ ⊛ ⊞	EXISTING MONUMENT

PROJECT ENGINEER: *[Signature]*  
 DATE: 5.7.15

CHECKED BY: G. LOCKWOOD

DESIGNED BY: N. PURVES  
 DRAWN BY: N. PURVES

STATE OF ALASKA  
 DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES  
 DESIGN & ENGINEERING SERVICES  
 DIVISION-SOUTHEAST REGION

SEA-AREAWIDE  
 AVALANCHE GATES  
 PROJECT #67840

PLAN  
 PROJECT DESIGNATION  
 67840 / 000S(845)

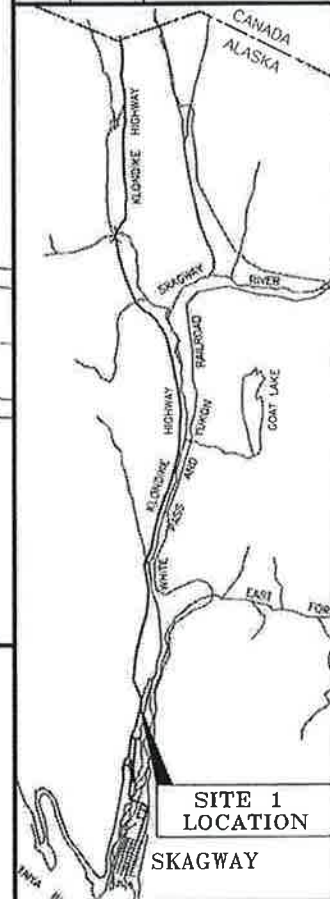
STATE	YEAR
ALASKA	2014
SHEET NUMBER	TOTAL SHEETS
F2	12 / 19

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DOT&PF  
SKAGWAY  
MAINTENANCE  
STATION

PATH:Q:\SEA\67840\ENC\3\DSHEET  
COMPILATION\F3-5  
KLONDIKE\_LOCATIONS 67840  
AVE-GATES.DWG  
CAMPBELL, ALEXANDER J (DOT)  
TAB: F3 Thursday, August 28, 2014 1:20:27 PM

ADDENDUM NUMBER		
ATTACHMENT NUMBER		
RECORD OF REVISIONS		
No.	DATE	DESCRIPTION



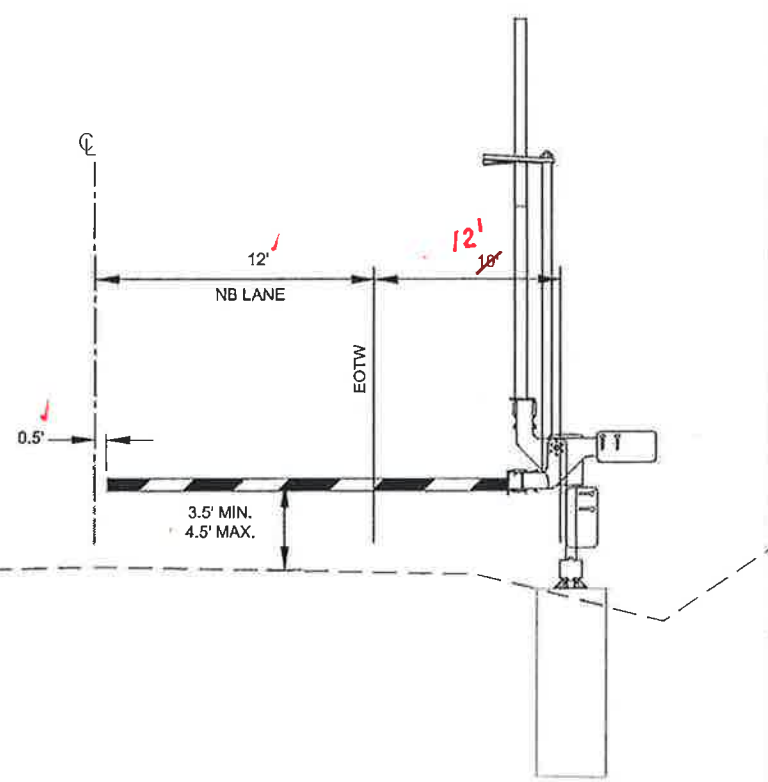
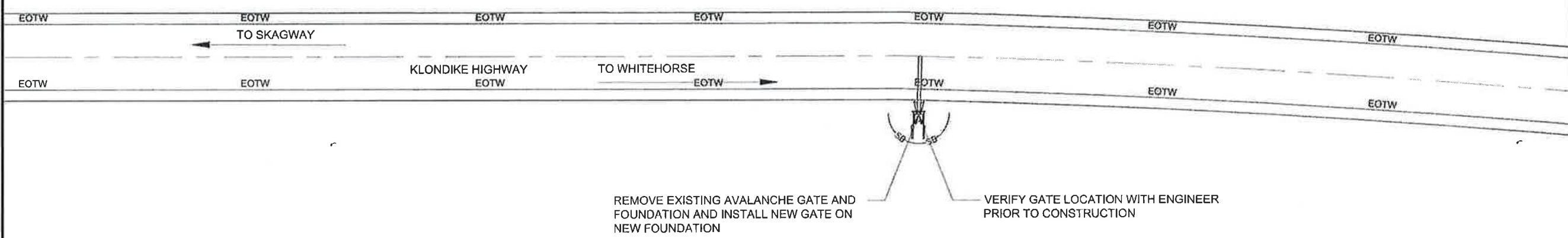
CHECKED BY: G. LOCKWOOD



DESIGNED BY: N. PURVES  
DRAWN BY: N. PURVES

STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
& PUBLIC FACILITIES  
DESIGN & ENGINEERING SERVICES  
DIVISION-SOUTHEAST REGION  
**SEA-AREAWIDE  
AVALANCHE GATES  
PROJECT #67840**

<b>PLAN</b>	
PROJECT DESIGNATION <b>67840 / 000S(845)</b>	
STATE <b>ALASKA</b>	YEAR <b>2014</b>
SHEET NUMBER <b>F3</b>	TOTAL SHEETS <b>12 / 19</b>



KLONDIKE SITE 1 SUMMARY		
ITEM NO.	QUANTITY	DESCRIPTION OF WORK
202(1)	1 EA	REMOVE GATE AND FOUNDATION
607(7)	1 EA	GATE AND FOUNDATION

PROJECT ENGINEER: *[Signature]*  
DATE: 5-7-15

LEGEND	
— OHE —	OVERHEAD ELECTRIC/UTILITIES
— SB —	SEDIMENT BARRIER
— EOTW —	EDGE OF TRAVELED WAY
— — — — —	EXISTING DRAIN PATTERN
⊕ ⊗ ⊙ ⊛	EXISTING MONUMENT

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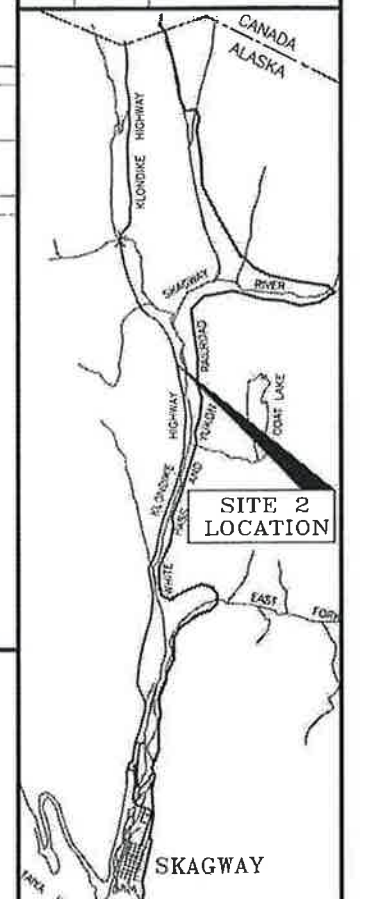
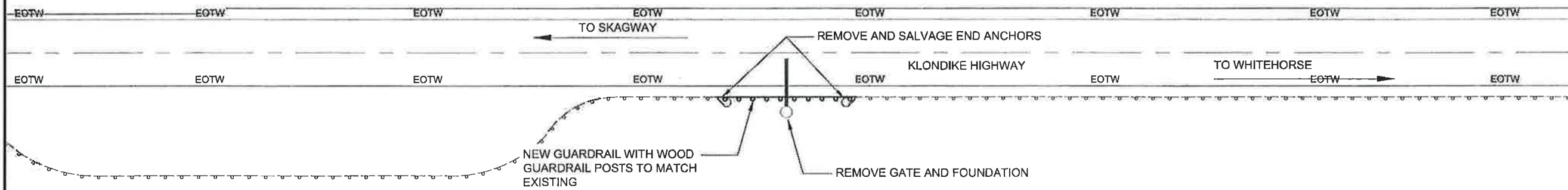
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 COMPIATIONF3-5  
 KLONDIKE LOCATIONS 67840  
 AVALANCHE GATES  
 CAMPBELL, ALEXANDER J (DOT)  
 TAB: F4 Thursday, August 28, 2014 1:20:45 PM

ADDENDUM NUMBER

ATTACHMENT NUMBER

RECORD OF REVISIONS

No.	DATE	DESCRIPTION



KLONDIKE SITE 2 SUMMARY		
ITEM NO.	QUANTITY	DESCRIPTION OF WORK
202(1)	1 EA	REMOVE GATE AND FOUNDATION
202(1)	1 EA	REMOVE AND SALVAGE END ANCHOR
202(1)	1 EA	REMOVE AND SALVAGE END ANCHOR
606(1)	50 FT	W-BEAM GUARDRAIL

PROJECT ENGINEER: *[Signature]*  
 DATE: 5.7.15

LEGEND	
— OHE —	OVERHEAD ELECTRIC/UTILITIES
— SB — SB —	SEDIMENT BARRIER
— EOTW —	EDGE OF TRAVELED WAY
— — — — —	EXISTING DRAIN PATTERN
⊕ ⊗ ⊙ ⊗ ⊕	EXISTING MONUMENT

CHECKED BY: G. LOCKWOOD

DESIGNED BY: N. PURVES  
 DRAWN BY: N. PURVES

STATE OF ALASKA  
 DEPARTMENT OF TRANSPORTATION  
 & PUBLIC FACILITIES  
 DESIGN & ENGINEERING SERVICES  
 DIVISION-SOUTHEAST REGION

**SEA-AREAWIDE  
 AVALANCHE GATES  
 PROJECT #67840**



**PLAN**

PROJECT DESIGNATION  
**67840 / 000S(845)**

STATE	YEAR
ALASKA	2014
SHEET NUMBER	TOTAL SHEETS
F4	12 / 19



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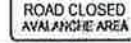



THANE SITE 1 SIGN SUMMARY							
OFFSET BEFORE GATE	TYPE	LEGEND	SIZE (INCHES)		AREA (SQ. FT)	SIGN FACES	REMARKS
			HEIGHT	WIDTH			
0.0'	R11-101		24	60	10	NW	ATTACH SIGN TO THE CENTER OF THE AVALANCHE GATE ARM PER MANUFACTURER INSTRUCTION.
<del>350'</del> 411'	FOLD DOWN W14-103		36	36	9	NW	<del>125'</del> 411' FT SIGN OFFSET TOWARDS JUNEAU



**NOTE:**

THIS SUMMARY IS FOR APPROXIMATE SIGN LOCATIONS. INSTALL SIGNS USING PLAN GATE LOCATIONS AS POINT OF BEGINNING FOR MEASUREMENTS OR AS DIRECTED BY THE ENGINEER.


THANE SITE 2 SIGN SUMMARY							
OFFSET BEFORE GATE	TYPE	LEGEND	SIZE (INCHES)		AREA (SQ. FT)	SIGN FACES	REMARKS
			HEIGHT	WIDTH			
0.0'	R11-101		24	60	10	NW	ATTACH SIGN TO THE CENTER OF THE AVALANCHE GATE ARM PER MANUFACTURER INSTRUCTION.
<del>350'</del> 291'	FOLD DOWN W14-103		36	36	9	NW	<del>350'</del> 291' FT SIGN OFFSET AWAY FROM JUNEAU

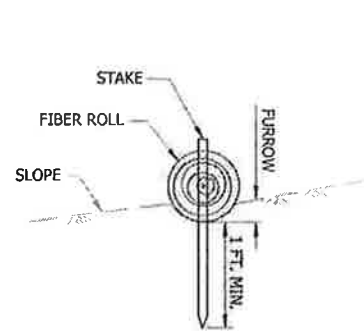
KLONDIKE SITE 1 SIGN SUMMARY							
OFFSET BEFORE GATE	TYPE	LEGEND	SIZE (INCHES)		AREA (SQ. FT)	SIGN FACES	REMARKS
			HEIGHT	WIDTH			
0.0'	R11-101		24	60	10	SW	ATTACH SIGN TO THE CENTER OF THE AVALANCHE GATE ARM PER MANUFACTURER INSTRUCTION.
<del>350'</del> 250'	FOLD DOWN W14-103		36	36	9	SW	<del>125'</del> 250' FT SIGN OFFSET TOWARD SKAGWAY

PROJECT ENGINEER:   
DATE: 5.7.15

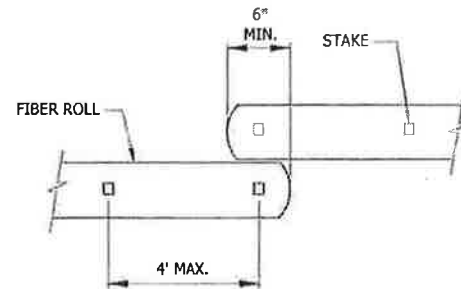
KLONDIKE SITE 3 SIGN SUMMARY							
OFFSET BEFORE GATE	TYPE	LEGEND	SIZE (INCHES)		AREA (SQ. FT)	SIGN FACES	REMARKS
			HEIGHT	WIDTH			
0.0'	R11-101		24	60	10	N	ATTACH SIGN TO THE CENTER OF THE AVALANCHE GATE ARM PER MANUFACTURER INSTRUCTION ON GATE BLOCKING ACCESS TO SKAGWAY.
<del>350'</del> 662.3'	FOLD DOWN W14-103		48	48	16	N	<del>125'</del> 662.3' FT SIGN OFFSET TOWARD CANADA

DO NOT SCALE FROM THESE DRAWINGS USE DIMENSIONS

 CHECKED BY: G. LOCKWOOD DESIGNED BY: N. PURVES DRAWN BY: N. PURVES	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES SOUTHEAST REGION SEA- AREAWIDE AVALANCHE GATES PROJECT #67840										
	<b>SIGNING</b>										
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REVISIONS											
NO.	DATE	DESCRIPTION									
SHEET NO. H1	TOTAL SHEETS 12	19									

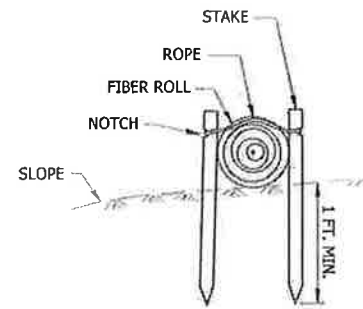


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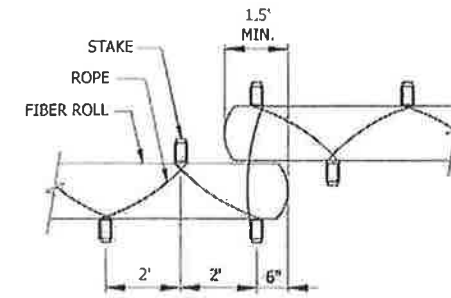


**PLAN**

**FIBER ROLL (TYPE 1)**

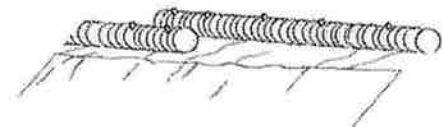


**SECTION**



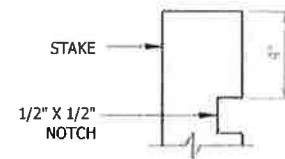
**PLAN**

**FIBER ROLL (TYPE 2)**



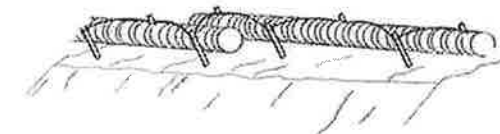
**PERSPECTIVE**

**FIBER ROLL (TYPE 1)**



**STAKE**

**FIBER ROLL (TYPE 2)**



**PERSPECTIVE**

**TYPICAL FIBER ROLL DETAIL**

THE LOCATION AND LENGTH OF FIBER ROLLS IS DEPENDENT ON THE CONDITIONS OF THE SITE. LAP ADJACENT FIBER ROLLS TO PREVENT SEDIMENT BYPASS. ANCHOR AS NECESSARY TO FIRMLY SECURE FIBER ROLLS AND PROVIDE CONTINUOUS CONTACT WITH THE SURFACE ON WHICH IT IS INSTALLED.

**ESCP NOTES**

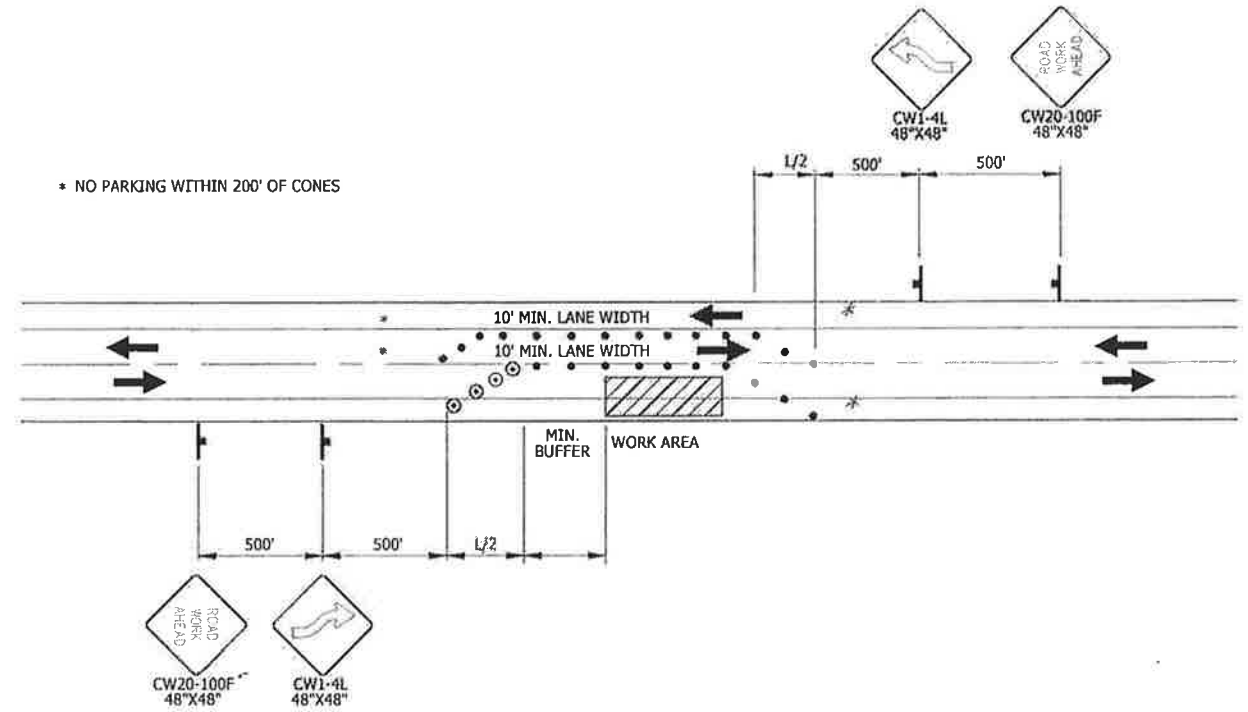
1. FIBER ROLL MUST BE IN PLACE BEFORE BEGINNING CONSTRUCTION ACTIVITIES.
2. THE LOCATIONS OF TEMPORARY EROSION & SEDIMENT POLLUTION CONTROLS ARE RECOMMENDATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE AND IMPLEMENT A WQCP ACCORDING TO SECTION 641 OF THE SPECS.
3. ADDITIONAL FIBER ROLL MAY NEED TO BE ADDED AT THE DISCRETION OF THE PROJECT ENGINEER.
4. EROSION CONTROL MEASURES WILL BE EVALUATED BY THE ENGINEER BASED ON EFFECTIVENESS. THOSE FOUND INEFFECTIVE MUST BE REPLACED OR REPAIRED WITHIN 24 HOURS FOLLOWING NOTIFICATION.
5. MAINTAIN DEVICES. MONITOR DAILY.
6. FIBER ROLLS WILL BE REMOVED AFTER CONSTRUCTION IS COMPLETE.

DO NOT SCALE FROM THESE DRAWINGS USE DIMENSIONS

CHECKED BY: G. LOCKWOOD		STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES SOUTHEAST REGION			
DESIGNED BY: N. PURVES		SEA- AREAWIDE AVALANCHE GATES PROJECT #67840			
DRAWN BY: N. PURVES					
PATH: Q:\SEA\67840\EN\CD\DISHEET COMPILATION\P1 ESCP 67840 AVE-GATES.DWG					
TAB: P1 Thursday, August 28, 2014 2:05:30 PM CAMPBELL, ALEXANDER J (DOT)					
REVISIONS		PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
NO.	DATE	DESCRIPTION	67840 / 000S(845)	2014	P1
					19

## TRAFFIC CONTROL NOTES

1. A MINIMUM OF TWO LANES SHALL BE MAINTAINED AT ALL TIMES, THROUGH ALL WORK AREAS, EXCEPT DURING FLAGGING OPERATIONS.
2. TEMPORARY DRIVING LANES SHALL HAVE A MINIMUM WIDTH OF 10'-0".
3. CONSTRUCTION SIGNING SHALL BE IN PLACE ONLY WHEN THE CONDITIONS EXIST FOR WHICH THE SIGNS ARE INTENDED.
4. BALLOON LIGHTS SHALL BE PROVIDED FOR FLAGGER STATIONS DURING NIGHT OPERATIONS.
5. A SINGLE FLAGGER MAY BE APPROVED BY THE ENGINEER IF THE ENTIRE WORK AREA IS LESS THAN 300' AND VISIBLE FROM THE FLAGGER STATION.
6. CHANNELIZATION DEVICES IF USED AT NIGHT SHALL BE LIT IN ACCORDANCE WITH THE ALASKA TRAFFIC MANUAL.
7. IT IS THE INTENT OF THIS TRAFFIC CONTROL PLAN (TCP) TO ILLUSTRATE SOME, NOT ALL, OF THE TRAFFIC CONTROL SETUPS WHICH WILL BE REQUIRED ON THIS PROJECT. PLANS FOR CONFIGURATIONS NOT COVERED BY THE TCP SHALL BE CREATED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. WHERE APPROPRIATE, THEY SHALL INCORPORATE APPLICABLE PORTIONS OF DETAILS ON THESE SHEETS REFER TO 643-1.03.
8. IF FLAGGERS ARE UTILIZED, THE MAXIMUM WAIT SHALL BE 5 MINUTES.

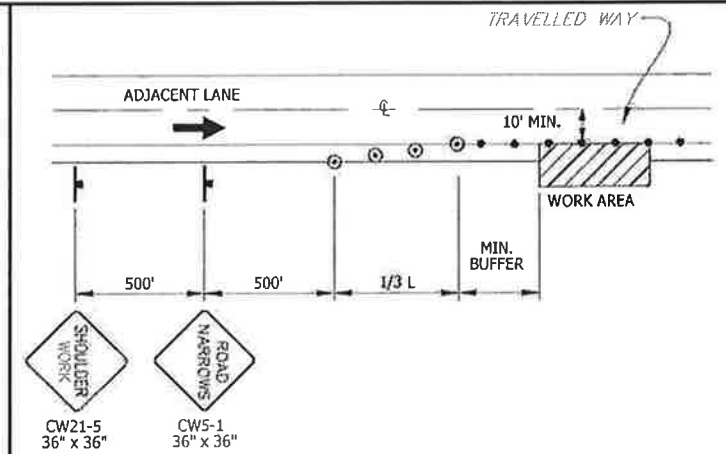


**TWO-WAY TRAFFIC USING LEFT LANE**

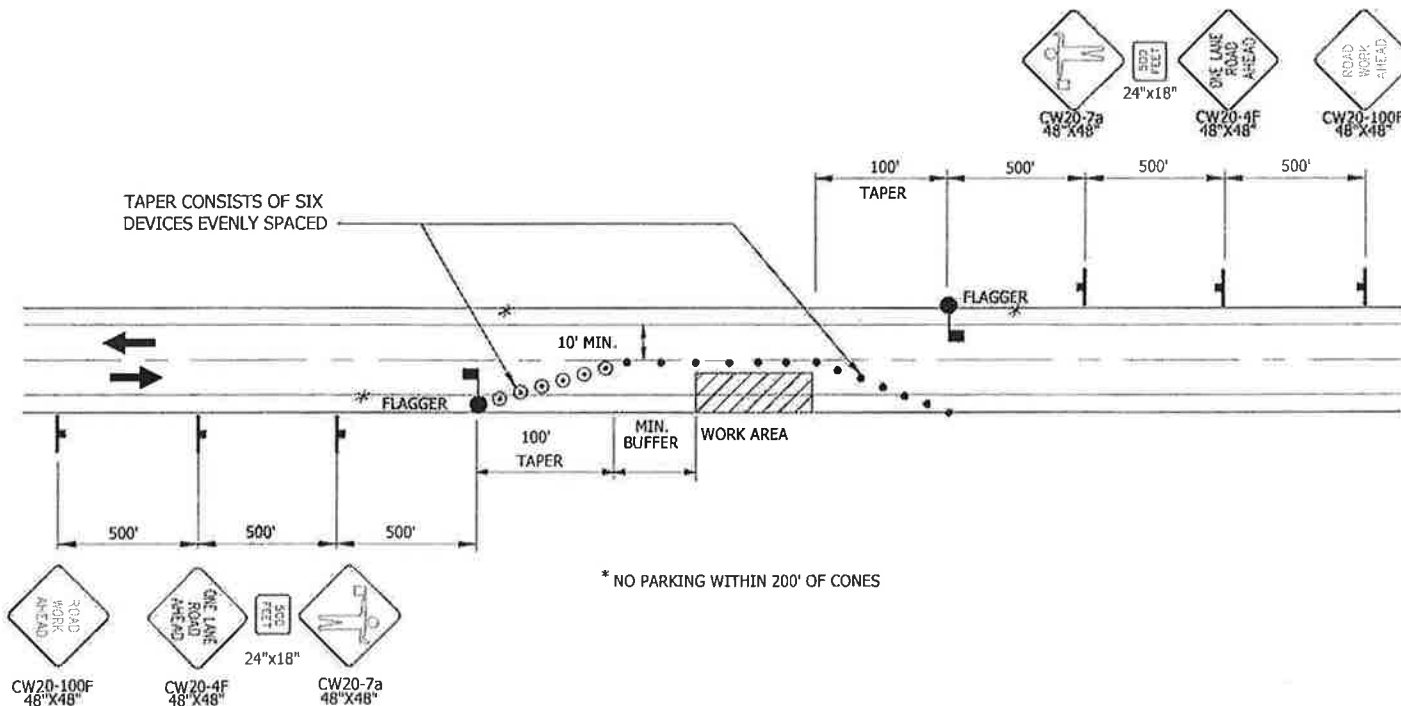
### LEGEND

- SIGN
- CONE
- DRUM

SPEED (MPH)	MIN MERGING TAPER LENGTH (L) IN FEET WIDTH OF OFFSET (W) IN FEET			MIN NUMBER OF DEVICES WIDTH OF OFFSET (W) IN FEET			MAX DEVICE SPACING IN FEET		BUFFER SPACE (FT)
	10'	11'	12'	10'	11'	12'	ALONG TAPER	ALONG TANGENT	
25 OR BELOW	105	115	125	6	6	6	25	50	155
30	150	165	180	6	7	7	30	60	200
35	205	225	245	7	8	8	35	70	250
40	270	295	320	8	9	9	40	80	305
45	450	485	540	11	12	13	45	90	360
50	500	550	600	11	12	13	50	100	425
55	550	605	660	11	12	13	55	110	485
60	600	660	720	11	12	13	60	120	570



**SHOULDER WORK**



**SINGLE LANE CLOSURE  
TWO LANE ROAD**

DO NOT SCALE FROM THESE DRAWINGS USE DIMENSIONS

CHECKED BY: G. LOCKWOOD	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES SOUTHEAST REGION
	SEA- AREAWIDE AVALANCHE GATES PROJECT #67840
	<b>TRAFFIC CONTROL</b>
DESIGNED BY: N. PURVES	PROJECT DESIGNATION: 67840 / 000S(845)
DRAWN BY: N. PURVES	YEAR: 2014
PATH: Q:\SEA\67840\EN\CD\DISHEET COMPILATION\T1 TRAFFIC CONTROL 67840 AVE-GATES.DWG	SHEET NO: T1
TAB: T1 Thursday, August 28, 2014 2:07:09 PM CAMPBELL, ALEXANDER J (DOT)	TOTAL SHEETS: 12

REVISIONS

ZONE	REV	DESCRIPTION	DATE	DRAWN	APPROVED
	A	RELEASE B008771	2/11/15	RCB	PDW
	B	B008803 CUSTOMER REQUESTED CHANGES / SUBMITTAL	HOLD	RCB	

BILL OF MATERIAL

ITEM NO.	QTY.	U.O.M.	PART NUMBER	DESCRIPTION	# NOT SHOWN
1	2	EA	074600-W00200A	GATE, S-60 AVALANCHE W/ HARDWARE	
2	2	EA	070755-3740GS	COUNTERWEIGHT PACKAGE, 37-40'	
3	2	EA	076227-7X1	BRACKET & ADAPTOR	
4	2	EA	076800-40XD	ARM 40' COMBO BASIC DIAMOND	
5	2	EA	041933-X	BASE, 5" ALUMINUM SPLIT	
6	2	EA	035045-503X	PINNACLE 4" & 5" SS	
7	2	EA	076203-518XS	SUPPORT, HIGH WIND FOR GATES,	

Submittal #7.2  
SEA Areawide Avalanche  
2/24/15

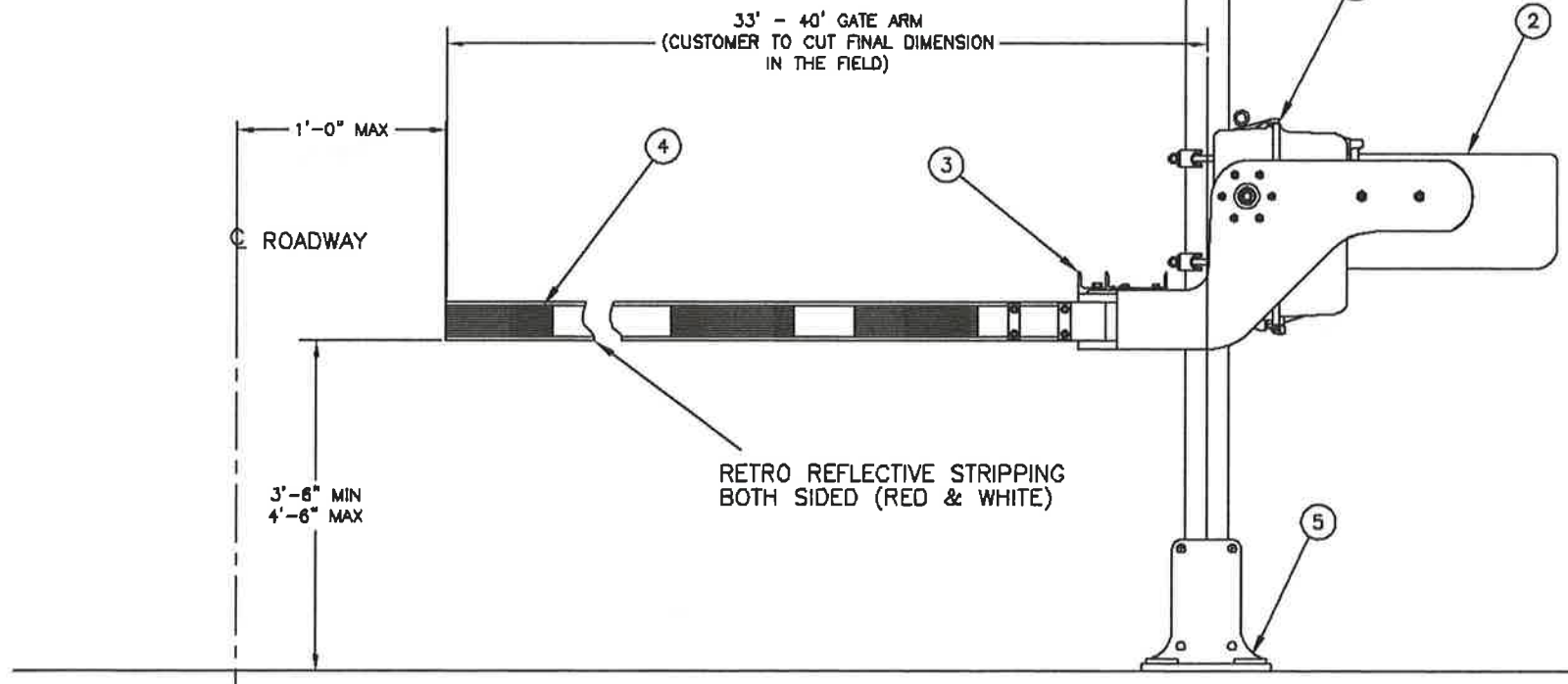
THANE ROAD AVALANCHE GATES

AVALANCHE GATES ARE MODIFIED RAILROAD HIGHWAY CROSSING GATES THAT ARE HAND CRANKABLE, HAS TERMINALS INSIDE THAT ARE SPACED APART SO JUMPER CABLES CAN BE USED AND DOES HAVE A TOGGLE SWITCH FOR OPERATION IF POWERED. A MODIFIED LOCK BAR KEEPS THE GATE IN THE VERTICAL POSITION. SEE 074007-X020 FOR INTERNAL DETAILS.

PROJECT ENGINEER: *[Signature]*  
DATE: 5.7.15

5"φ 6061-T6 ALUMINUM  
MAST ARM, SCH. 40  
OD: 5.563"

16' AS SHOWN  
(CUSTOMER SUPPLIED  
MAST)



- NOTES:
1. ALL HARDWARE STAINLESS STEEL.
  2. GATE ARM WITH HIGH INTENSITY TAPE.
  3. CUSTOMER SUPPLIED MAST.
  4. ASSEMBLED IN FIELD.

<p><b>SIEMENS</b></p> <p>2400 NELSON MILLER PARKWAY, LOUISVILLE, KY 40223</p>		<p>SIEMENS INDUSTRY INC.</p> <p>2400 NELSON MILLER PARKWAY, LOUISVILLE, KY 40223</p>	
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REVISIONS

ZONE	REV	DESCRIPTION	DATE	DRAWN	APPROVED
	A	RELEASE B008771	2/11/15	RCB	PDW
	B	B006803 CUSTOMER REQUESTED CHANGES / SUBMITTAL	HOLD	RCB	

Submittal #7.2  
SEA Areawide Avalanche Gate  
2/24/15

BILL OF MATERIAL

ITEM NO.	QTY.	U.O.M.	PART NUMBER	DESCRIPTION	# NOT SHOWN
1	3	EA	074600-W00200A	GATE, S-60 AVALANCHE W/ HARDWARE	
2	3	EA	070755-2328GS	KIT, COUNTERWEIGHT 17' - 32'	
3	3	EA	076227-7X1	BRACKET & ADAPTOR	
4	3	EA	076800-32XD	ARM 32' COMBO R&W	
5	2	EA	041933-X	BASE, 5" ALUMINUM SPLIT	
6	2	EA	035045-503X	PINNACLE 4" & 5" SS	
7	2	EA	076203-518XS	SUPPORT, HIGH WIND FOR GATES,	

PROJECT ENGINEER: *[Signature]*  
DATE: 5.7.15

**KLONDIKE HIGHWAY AVALANCHE GATES**

AVALANCHE GATES ARE MODIFIED RAILROAD HIGHWAY CROSSING GATES THAT ARE HAND CRANKABLE, HAS TERMINALS INSIDE THAT ARE SPACED APART SO JUMPER CABLES CAN BE USED AND DOES HAVE A TOGGLE SWITCH FOR OPERATION IF POWERED. A MODIFIED LOCK BAR KEEPS THE GATE IN THE VERTICAL POSITION. SEE 074007-X020 FOR INTERNAL GATE DETAILS.

5" φ 6061-T6 ALUMINUM  
MAST ARM, SCH. 40  
OD: 5.563"

16' AS SHOWN  
(CUSTOMER SUPPLIED  
MAST)

19' - 32' GATE ARM  
(CUSTOMER TO CUT FINAL DIMENSION  
IN THE FIELD)

1'-0" MAX

ROADWAY

RETRO REFLECTIVE STRIPPING  
BOTH SIDES (RED & WHITE)

3'-6" MIN  
4'-6" MAX

NOTES:

1. ALL HARDWARE STAINLESS STEEL.
2. GATE ARM WITH HIGH INTENSITY TAPE.
3. CUSTOMER SUPPLIED MAST.
4. ASSEMBLED IN FIELD.

SIEMENS

SIEMENS INDUSTRY INC.  
2400 NELSON MILLER PARKWAY, LOUISVILLE, KY 40223

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TOLERANCE LEVEL C	DRAWN	RCB	TITLE
FRACTIONAL INCH DIMENSIONS	DRN DATE	2/10/15	S-60 AVALANCHE GATE
FRACTIONS ±1/16	DESIGN	RCB	20' ARM
ANGLES 1/2°	CHECKED	PDW	(CUSTOMER ASSEMBLED)
UNLESS NOTED	ECR NO	B008771	
DWG. SCALE 1"=1'-0"	REL. DATE	2/10/15	
MATERIAL	SEE BOM		

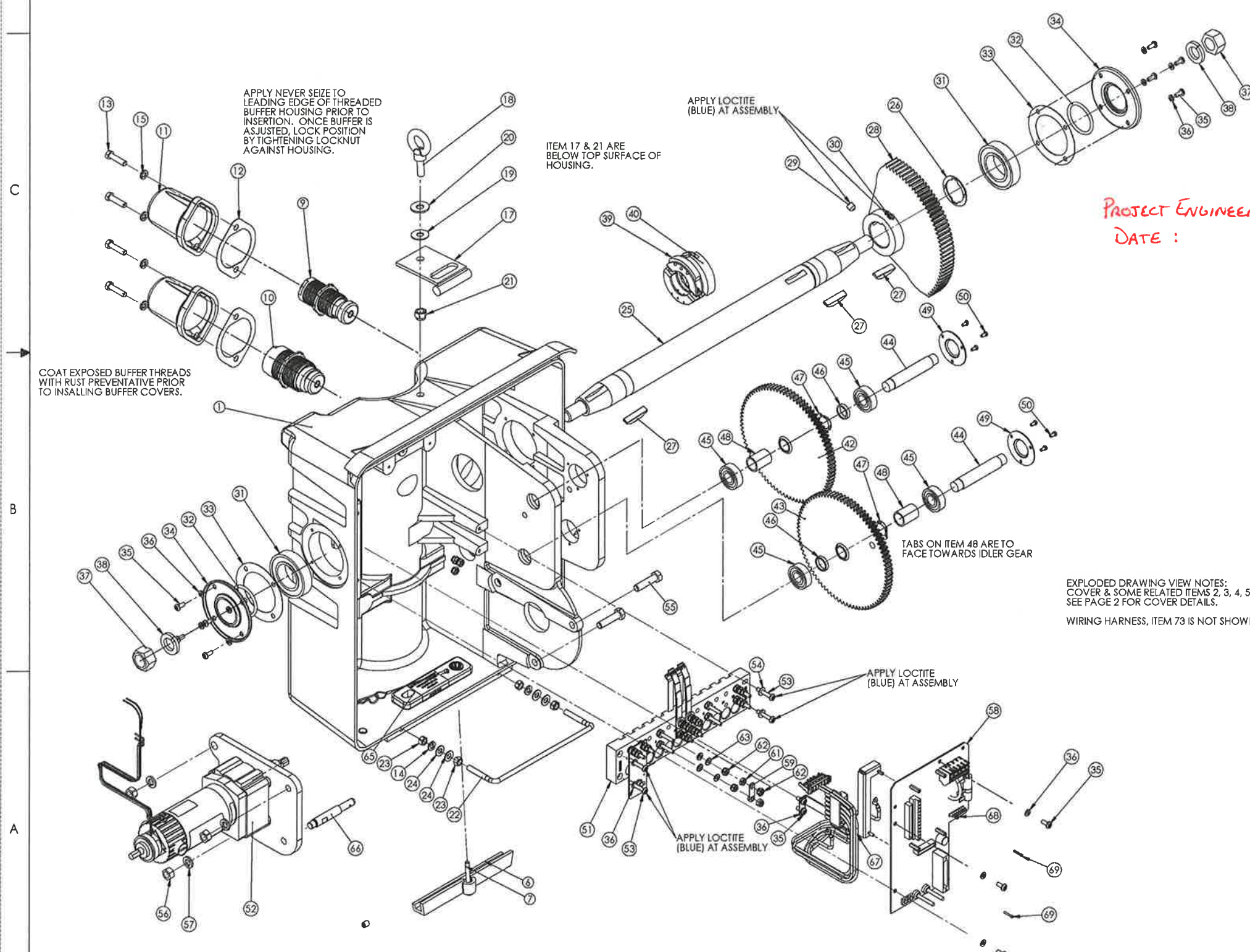
SIZE NO. 074600-200225

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APVD
	A	4912 INITIAL RELEASE	3-1-07	RCB MSD
	B	4997 CHANGED # 65 FROM QTY 2 TO 1	3-16-07	RCB BA
	C	5646 CHANGED #13 FROM 004089-HSC	2-7-08	RCB BT

**Submittal #7.2 SEA Areawide Avalanche Gates**  
**2/24/15**  
**S-60 Mechanism**

ITEM NO.	QTY.	REQD.	UOM	PART NUMBER	DESCRIPTION	* NOT SHOWN
66	1		EA	074035-14	PIN, REACTION, S-60	
67	1		EA	Z610-39557-0001	BRACKET, S-60 PCB STANDOFF	
68	2		EA	001802-MSC	W LKS M #4	
69	2		EA	007754-SSC	SCREW CAP SOC 4-40 X 3/4 STL	
70	1		EA	074050-X	KIT, S-60 MAINT. & INST.	
71	1		EA	074007-18	DECAL, S-60 AVALANCHE GATE	
72	1		EA	075014-X6	ASSY, S-60 AVALANCHE WIRING	
73	1		EA	098222-T01708	PANDUIT TIE BASE	
74	1		EA	012-00-000	ADHESIVE	
75	1		EA	017-00-000	LUBRICANT, GEAR	
76	1		EA	017-00-004	SPRAY, TEFLON	
77	1		EA	019-02-000	TP 2' MASKING	

BILL OF MATERIAL						
ITEM NO.	QTY.	REQD.	UOM	PART NUMBER	DESCRIPTION	* NOT SHOWN
1	1		EA	073001-1	CABINET, GATE	
2	1		EA	073002-X	WELDMENT, COVER	
3	1		EA	070909-4	HANDLE, LATCH	
4	1		EA	070919-2	ROD, LATCH	
5	1		EA	004658-E	SS SH 3/8-16 X .50	
6	1		EA	070968-4	RETAINER, HINGE	
7	1		EA	002692-HE	MS HH 5/16-18 X2.5	
8	1		EA	070559-A	GASKET, COVER	
9	1		EA	070903-X	BUFFER ASSY, UPPER	
10	1		EA	070903-2X	BUFFER ASSY, LOWER	
11	2		EA	070902-1	CAP, BUFFER	
12	2		EA	070926-1	GASKET, BUFFER CAP	
13	4		EA	004090-HE	CS HH 3/8-16 X 1.5	
14	2		EA	001810-ME	W LKS M 3/8	
15	4		EA	001810-MSC	W LKS M 3/8	
16	1		EA	007304-2	CONNECTOR, RELIEF	
17	1		EA	070919-3X	WELDMENT, PLATE	
18	1		EA	007099	EB 1/2-13 X 1.50	
19	1		EA	070980-4	WASHER, NEOPRENE	
20	1		EA	001755-E	W FA 1/2	
21	1		EA	002327-FLSC	N FL F-1 1/2-13	
22	1		EA	070968-2	BOLT, HINGE	
23	4		EA	002104-E	N HX 3/8-16	
24	4		EA	001726-E	W WR 3/8	
25	1		EA	074028	MAIN SHAFT, GATE	
26	1		EA	070584	RING, RETAINING	
27	3		EA	007149	KEY UX WOODRUFF	
28	1		EA	073003	GEAR, SEGMENT	
29	1		EA	004706-SC	SS SH 1/2-13 X .50	
30	1		EA	004708-SC	SS SH 1/2-13 X .75	
31	2		EA	075284	BEARING, 2"	
32	2		EA	070585	O-RING 2"	
33	2		EA	070747-3	GASKET, SEAL PLATE	
34	2		EA	073008	PLATE, BEARING SEAL	
35	13		EA	002659-PEX	MS PH 1/4-20 X.625	
36	16		EA	001808-ME	W LKS M 1/4	
37	2		EA	002118-SC	N HX 1-8	
38	2		EA	001817-MSC	W LKS M 1"	
39	1		EA	070633-500AX	CAM ASSY, PHENOLIC	
40	1		EA	073014-AX	SWITCH ASSY, SNAP	
41	2		EA	004003-SSC	CS SH 1/4-20 X.875	
42	1		EA	073004	GEAR & PINION UP	
43	1		EA	073005	GEAR & PINION, LOWER, S-20/S-40	
44	2		EA	073007-1	SHAFT, GEAR	
45	4		EA	070588	BEARING 3/4	
46	2		EA	073009-3	SPACER 1/4	
47	2		EA	070695-500	WASHER, SPRING	
48	2		EA	073009-2	SPACER 1-1/2	
49	2		EA	073007-2	COVER, BEARING	
50	6		EA	002614-HHE	MS HH 10-32 X .375	
51	1		EA	074030-X006	TERMINAL BD ASSY, S-60 2 CAM	
52	1		EA	074070-X5	ASSY, S-60 MOTOR & ADAPTOR	
53	4		EA	002665-PEX	MS PH 1/4-20 X 1.5	
54	2		EA	001717-E	W FA 1/4 STNLS	
55	3		EA	004170-HSC	CS HH 1/2-13 X 2	
56	3		EA	002108-SC	N HX 1/2-13	
57	3		EA	001812-MSC	W LKS M 1/2	
58	1		EA	9000-25527-0001	ASSY, S-60 ENTRANCE PCB	
59	2		EA	024620-3X	TEST LINK ASSY, 1" CENTERS	
60	2		EA	024620-13	NUT, GOLD TEST	
61	2		EA	023832	NUT, CLAMP AAR (FLAT) 14-24	
62	18		EA	023831	NUT, BINDING AAR, SHOULDER, 14-24	
63	12		EA	023834	WASHER, BEVELED AAR (FLAT)	
64	5		EA	104824	TIE, CABLE	
65	1		EA	074035-X11A	ASSY, S-60 AVALANCHE GATE STOP BAR	

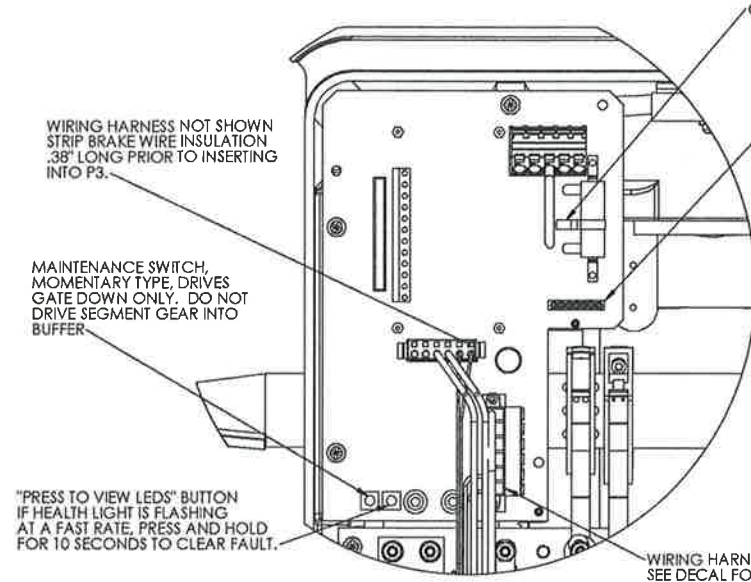
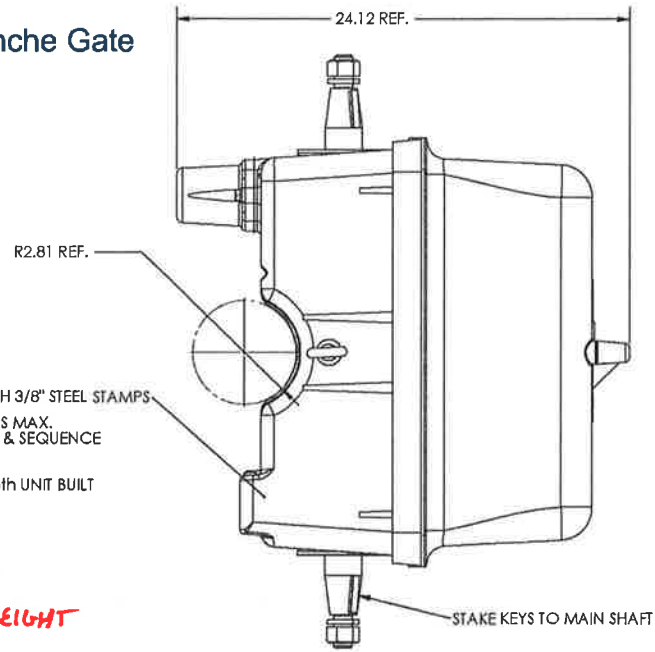


PROJECT ENGINEER: *[Signature]*  
 DATE: 5-7-15

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	TOLERANCE LEVEL C FRACTIONAL INCH DIMENSIONS FRACTIONS ±1/16 ANGLES ±2° UNLESS NOTED	DRAWN RCB DRN DATE 2-9-07 DESIGN RCB CHECKED MSD ECR 4912	MATERIAL SEE BOM		SIZE D NO. 074007-X020
	DWG. SCALE 1:12 REL. DATE 3-1-07	SHEET 1 OF 2			
	DATA FILE: 074007-X020.slddrw				

Submittal #7.2

SEA Areawide Avalanche Gate  
2/24/15  
S-60 Mechanism

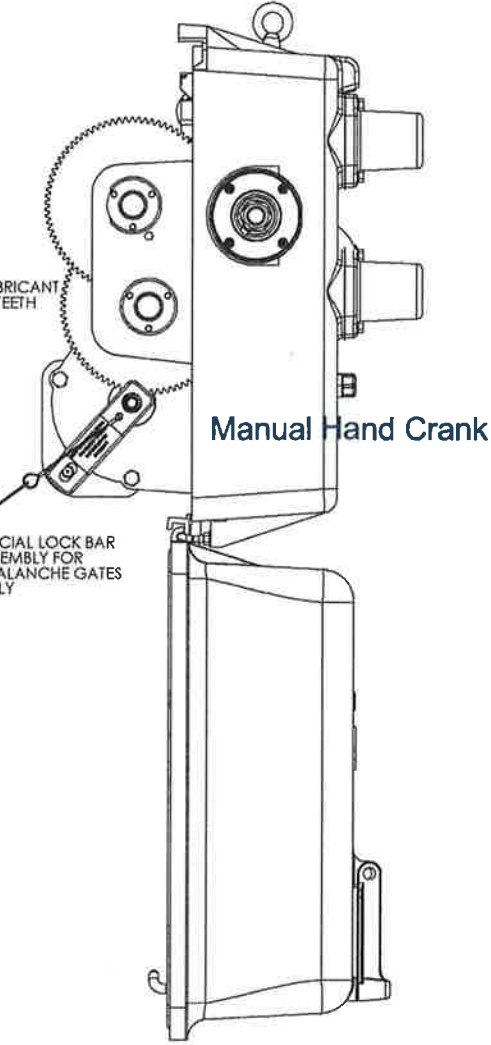
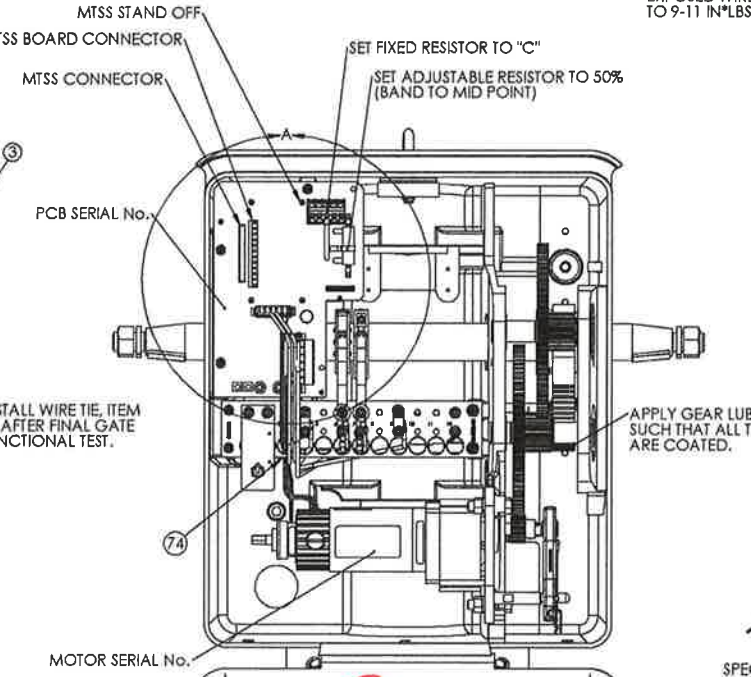
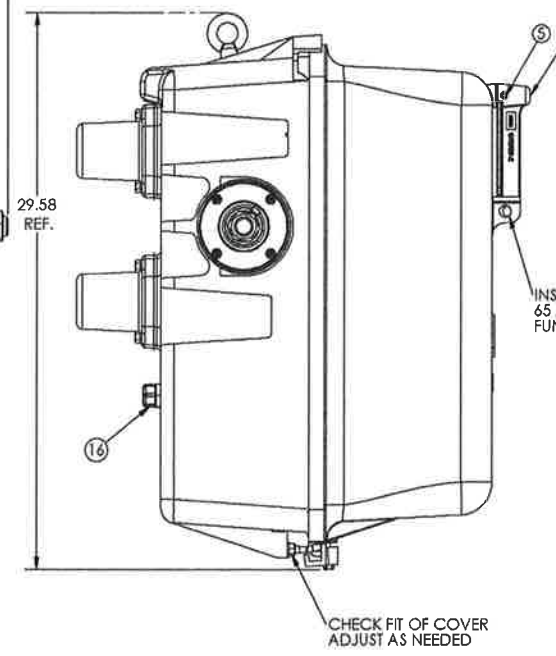
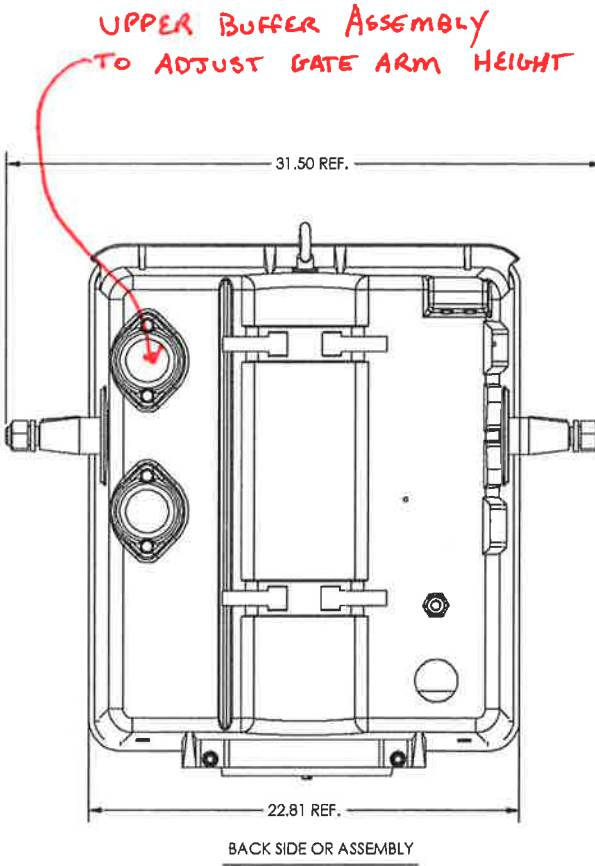
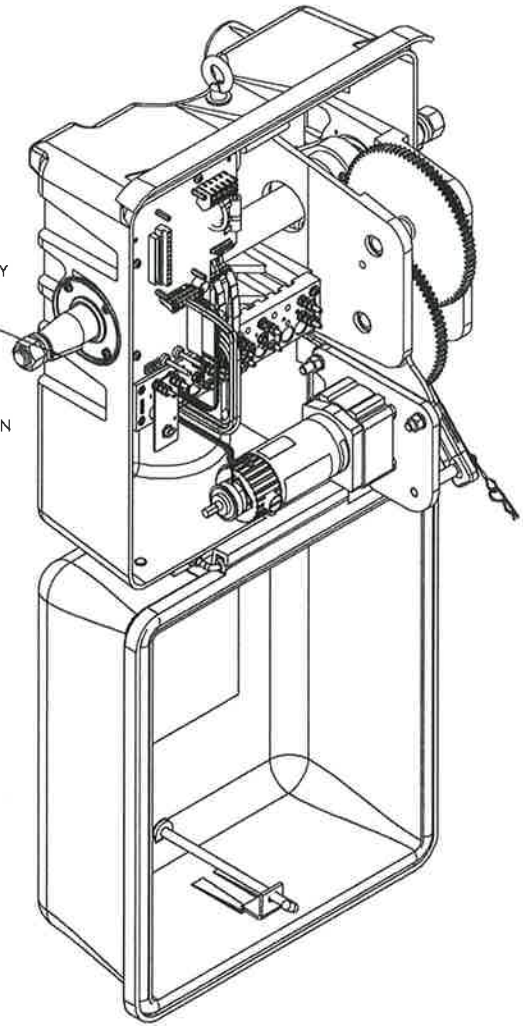


CHECK THAT SCREW ON ADJUSTABLE RESISTOR BAND IS TIGHT

VISUAL DIAGNOSTIC LED INDICATORS ALL LIGHT FUNCTIONS EXCEPT "HEALTH" WILL GO DARK TO CONSERVE POWER AFTER A PREDETERMINED TIME. TO VIEW STATUS OF LEDS, MOMENTARILY PRESS THE "PRESS TO VIEW LEDS" BUTTON.

BY CYCLING GATE, ALL LEDS WILL LIGHT EXCEPT THE OVERLOAD. TO CHECK OVERLOAD CIRCUIT, OBSTRUCT DRIVE TRAIN, OVERLOAD CIRCUIT WILL TRIP IN 1 SECOND AND RESTORE IN 10 SECONDS. AN OBSTRUCTION BELOW 70 DEGREES WHILE DRIVING DOWN WILL NOT TRIP OVERLOAD.

WIRING HARNESS NOT SHOWN SEE DECAL FOR BRAKE & MOTOR WIRE ROUTING. BRAKE WIRES ARE TO BE TWISTED A MINIMUM OF 4 TURNS PER FOOT. APPLY WIRE TIES TO HOLD BRAKE & MOTOR WIRES NEATLY TO HARNESS. ENSURE MOTOR WIRE LEADS HAVE .43" OF EXPOSED WIRE AND ARE TORQUED TO 9-11 IN\*LB.



CAM SETTINGS  
CAM #6 (POWER DOWN) CLOSED 70 TO 90 DEGREES  
CAM #7 (POWER UP) CLOSED 0 TO 89 DEGREES

THREAD SIZE	HEX NUT SIZE	TORQUE
4-40	3/32" ALLEN	6 in*lbs
10-32	-	32 in*lbs
14-24	7/16	6 ft*lbs
1/4"-20	7/16	6 ft*lbs
5/16"-18	1/2	15 ft*lbs
3/8"-16	9/16	25 ft*lbs
1/2"-13	3/4	55 ft*lbs
1"-8	1 1/2	140 ft*lbs

WEIGHT = EST. 320#

Terminal 7 & 9 12VDC  
for Jumper Cable Application

PROJECT ENGINEER: *[Signature]*  
DATE: 5.7.15

**SAFETRAN systems**

TITLE  
**MECHANISM, S-60  
AVALANCHE GATE  
4 CONTACT, NO HEATER**

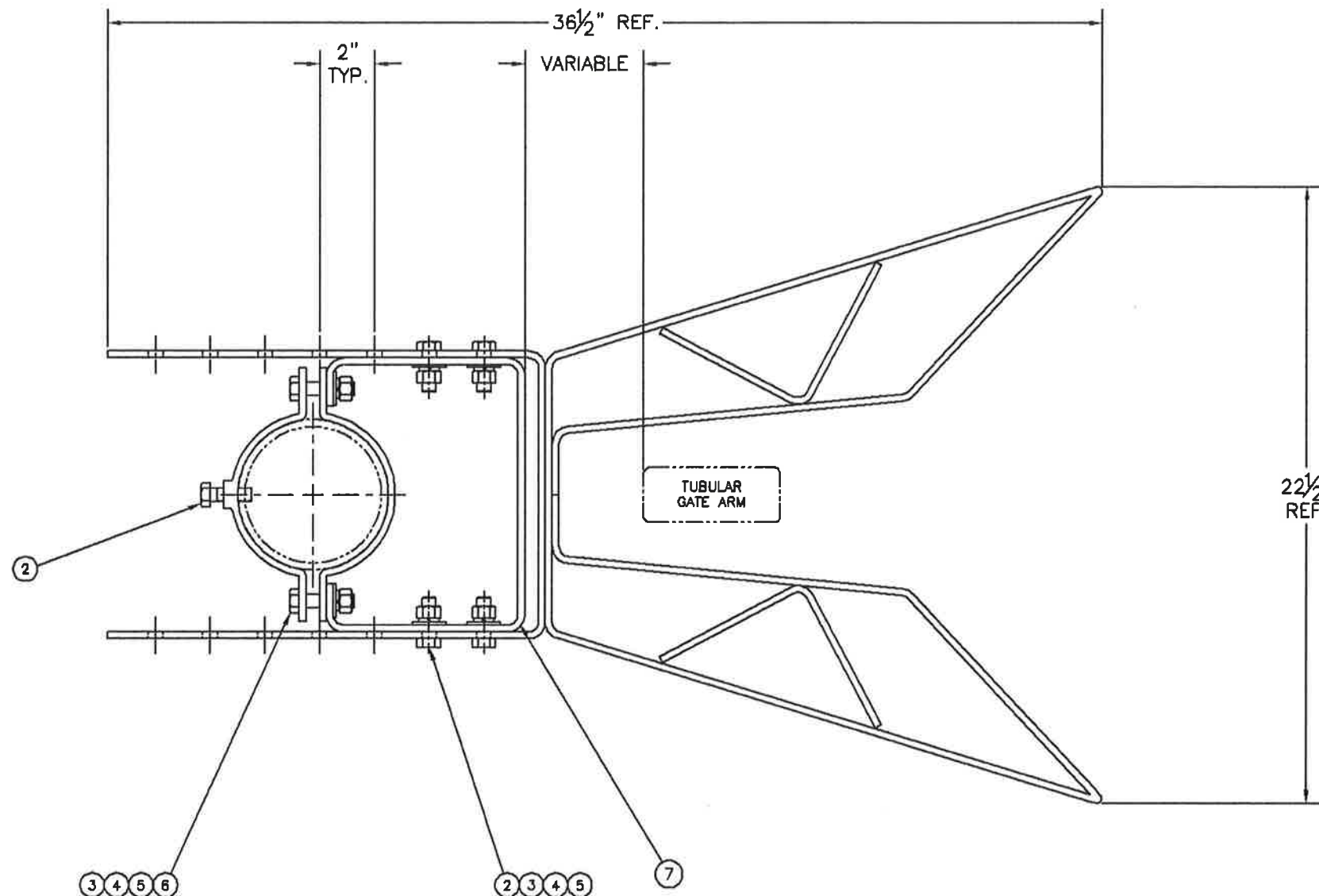
SIZE NO.  
**D 074007-X020**

SHEET 2 OF 2

REVISIONS					
ZONE	REV	DESCRIPTION	DATE	DRAWN	APPROVED
-		A0073 NEW DESIGN	1/2/92	MW	
-		A4325 MOVED WIND SUPPORT TO CLOSEST MTG. HOLES			
-	B	001693 CREATED A RAW STOCK KIT; REDRAWN	9/11/03	MSD	BA
-	C	3701 CHG BOM REMOVED KIT	9/19/05	BA	MAM
-	D	6229 ADDED NOTE TO DEBURR WELDS	10/3/08	BA	BT

Submittal #7.2  
SEA Areawide Avalanche Gt.  
2/24/15

BILL OF MATERIAL					
ITEM NO.	QTY.	U.O.M.	PART NUMBER	DESCRIPTION	* NOT SHOWN
2	5	EA	004168-HSC	CS HH 1/2-13 X 1.5	
3	8	EA	001812-MSC	W LKS M 1/2	
4	6	EA	002108-SC	N HX 1/2-13	
5	8	EA	001755-C	W FA 1/2 X 1-3/8	
6	2	EA	004170-HSC	CS HH 1/2-13 X 2	
7	1	EA	076203-46	BRACKET, SUPPORT	
8	2	EA	035015-A	CLAMP, 5" AL PIPE	
9	1	EA	076203-50	BRACE, SUPPORT	ALUMINUM
10	2	EA	076203-48	BRACE, SUPPORT	
11	2	EA	076203-49	REINFORCEMENT	
12	1	EA	076203-47	BRACE, SUPPORT	
13	1	EA	035014-3	SLUG, WELD	



NOTE: BALOONS 8,9,10,11,12 & 13  
ARE ON SHEET 2 OF 2

WELDING DETAIL  
SHEET 2 OF 2

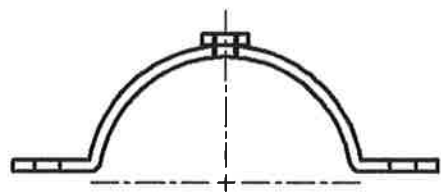
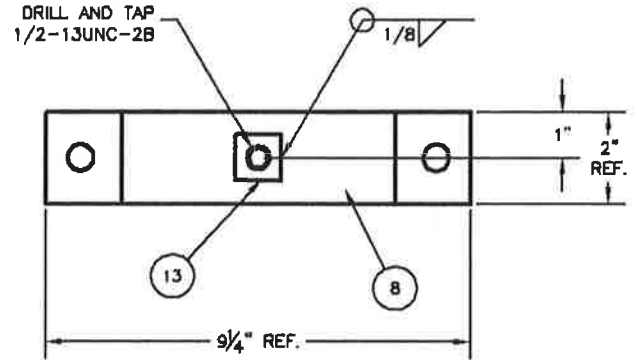
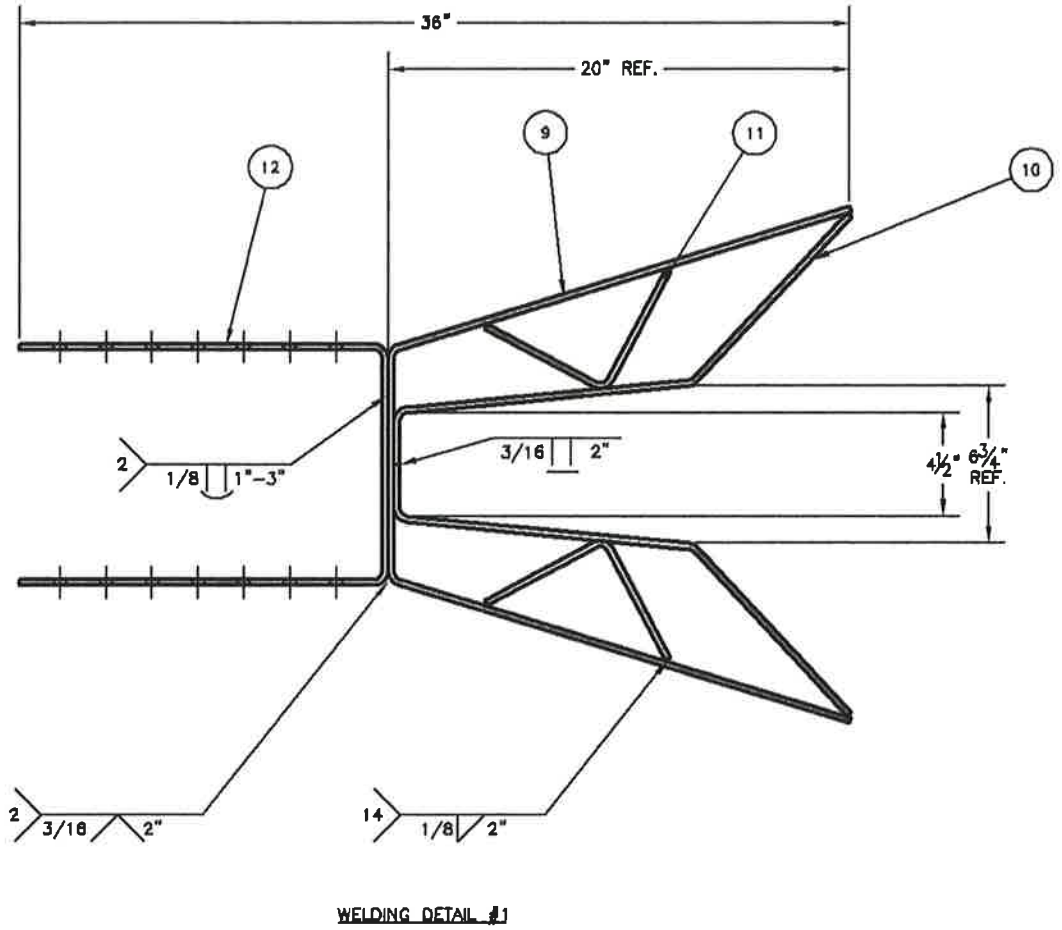
PROJECT ENGINEER: *[Signature]*  
DATE: 5.7.15

NOTE: DEBURR ALL WELDS

AAR 3.2.22

SAFETAN SYSTEMS CORPORATION, KENTUCKY DIVISION 2400 NELSON MILLER PARKWAY, LOUISVILLE, KY 40223		TITLE HIGH WIND SUPPORT FOR GATE ARM, 5" PIPE MTG.	
TOLERANCE LEVEL C FRACTIONAL INCH DIMENSIONS FRACTIONS ±1/16 ANGLES ±2° UNLESS NOTED	DRAWN MW DRN DATE 12/12/91 DESIGN - CHECKED - ECR NO A0073 REL. DATE 1/2/92	SIZE NO. D 076203-518X	
DWR. SCALE 3/8" = 1" MATERIAL SEE BOM		SHEET 1 OF 2	

Submittal #7.2  
 SEA Areawide Avalanche Gates  
 2/24/15



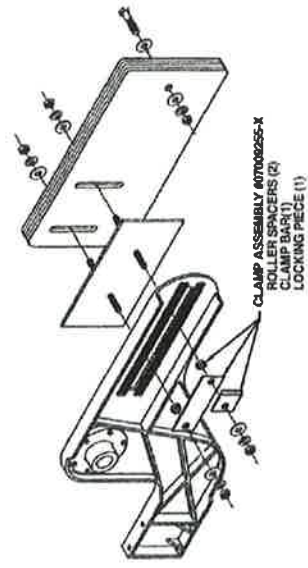
WELDING DETAIL #2  
 SCALE: 1/2" = 1"

NOTE: DEBURR ALL WELDS

PROJECT ENGINEER: *[Signature]*  
 DATE: 5.7.15

TITLE HIGH WIND SUPPORT FOR GATE ARM, PIPE MTG. WELDED COMPONENTS	
SIZE NO. D	076203-518X
SCALE: 1/4" = 1"	SHEET 2 OF 2

Clamp & Roller Assembly Counterweight



- Ease of Counter Weight Adjustment
- Positions Rollers
- Furnished on Stud Plate Assemblies for Both S-40 & S-60 Gates

Safetran's Counterweight Clamp and Roller Assembly #070925-X is designed to ease the process of counterweight adjustment when setting horizontal gate arm torque.

In practice, the new assembly positions the rollers in the adjustment slot of the gate arm support. When the hex nuts are loosened the clamp bar and locking piece are disengaged from the gate arm support and the counterweights are easily moved to the proper position.

The new assembly will be furnished on stud plate assemblies for both S-20 and S-40 gate assemblies and is available for purchase for replacement of the existing two bolt ratchets (#070924).

Specifications

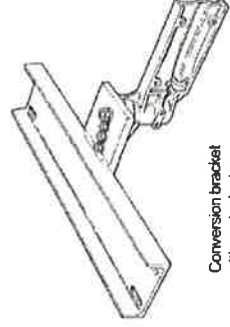
COMPONENTS — Steel with Zinc plate color chromate finish.

Ordering Information

To order, specify Clamp Assembly #070925-X.

Conversion Bracket Assemblies for S-20, S-40 and S-60 (Mast Mounted) Gates

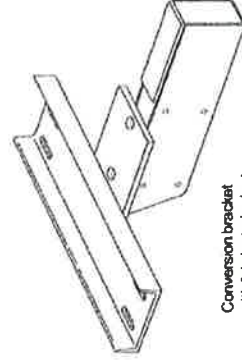
Adaptable to Gates Manufactured by Alstom and Western Cullen Hayes, Inc.



Conversion bracket with cast adapter

To order, specify description and part number.

Item No.	Description	Qty. Req'd	Part No.
* 1	Complete Assy. w/Hdwr. — As Shown	1	076207-22X1
2	Bracket, Conversion w/In	1	076207-17X
3	Adapter, Cast Steel	3	076203-601X
4	Replacement Mounting Pin w/Hardware (not shown)	1	076207-22X1



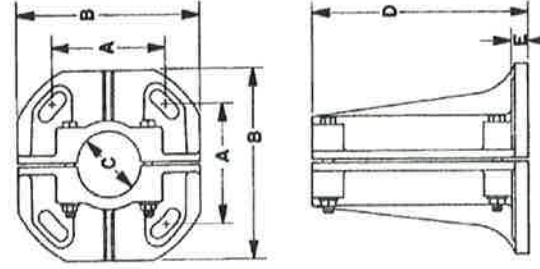
Conversion bracket with fabricated adapter

To order, specify description and part number.

Item No.	Description	Qty. Req'd	Part No.
1	Complete Assy. w/Hdwr. — As Shown	1	076207-22X1
2	Bracket, Conversion	1	076207-402
3	Adapter, Fabricated	3	076203-601X
4	Retainer with Hardware	2	076215-X
5	Pivot Pin with Hardware (not shown)	1	076203-605X

GRADE CROSSING WARNING

Bases  
Split Bases for Heavy Loading



- Designed Especially for Heavy Loading
- Slotted Holes for Easier Installation

Safetran's 5-, 6-, and 8-Inch Split Bases are constructed of cast aluminum. All 3 bases are designed for 11-11/16 x 11-11/16 inch bolt spacing.

Ordering Information

To order, specify description and part number

Description	Part No.	Dimensions in inches				
		A	B	C	D	E
* 6" Split Base	041923-X	11-11/16	17	5-9/16	17	1-5/8
8" Split Base	041919-X	11-11/16	17	8-5/8	17	1-5/8

SEA: AREAWING AVALANCHE GATES  
PROJECT #: 67840/0005(845)  
MISC. AS-BUILT DETAILS  
SHEET: AB1

GRADE CROSSING WARNING

PROJECT ENGINEER: *[Signature]*  
DATE: 5-7-15