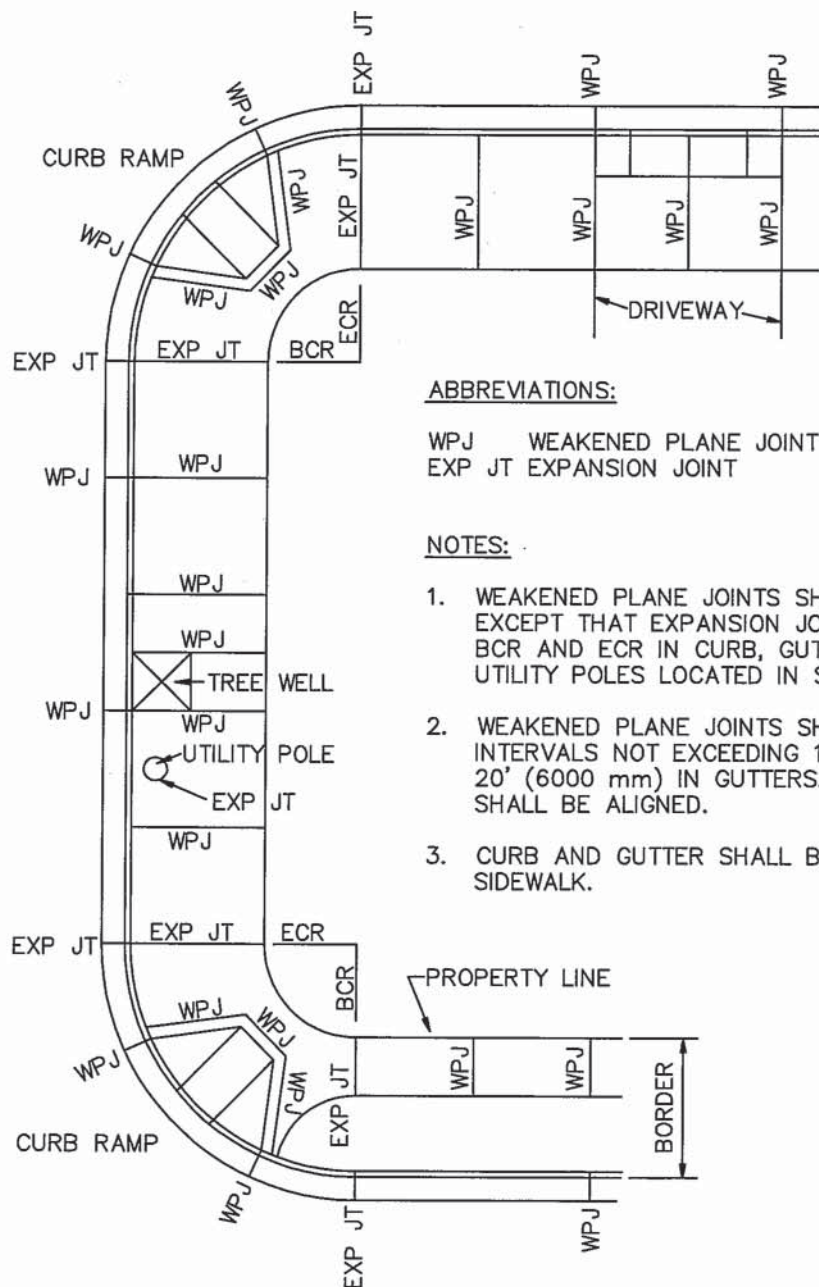


APPENDIX A

SPPWC AND CALTRANS STANDARD PLANS



ABBREVIATIONS:

WPJ WEAKENED PLANE JOINT BCR BEGINNING OF CURB RETURN
EXP JT EXPANSION JOINT ECR END OF CURB RETURN

NOTES:

1. WEAKENED PLANE JOINTS SHALL BE USED FOR ALL JOINTS, EXCEPT THAT EXPANSION JOINTS SHALL BE PLACED AT THE BCR AND ECR IN CURB, GUTTER AND SIDEWALK, AND AROUND UTILITY POLES LOCATED IN SIDEWALK AREAS.
2. WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED AT REGULAR INTERVALS NOT EXCEEDING 10' (3000 mm) IN WALKS AND 20' (6000 mm) IN GUTTERS. JOINTS IN CURB AND WALK SHALL BE ALIGNED.
3. CURB AND GUTTER SHALL BE CONSTRUCTED SEPARATELY FROM SIDEWALK.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE
PUBLIC WORKS STANDARDS INC.
GREENBOOK COMMITTEE
1984
REV. 1996, 2009

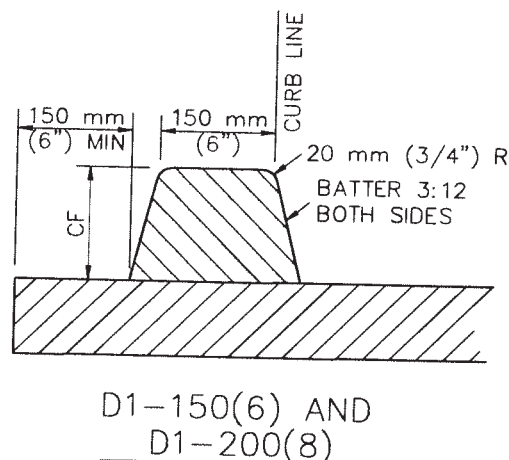
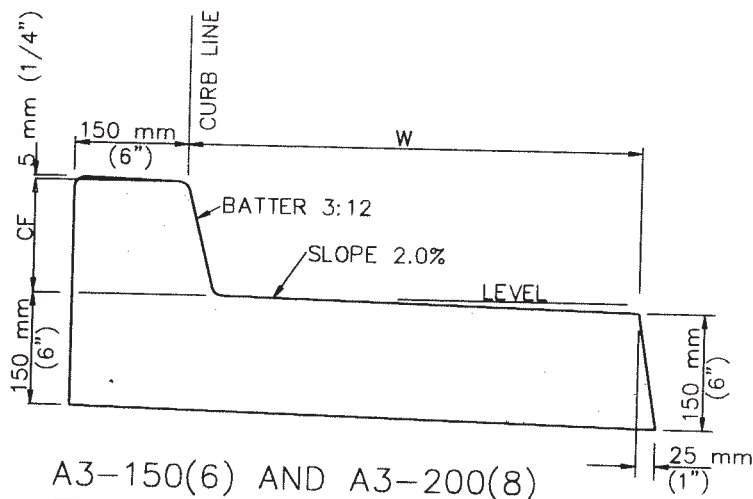
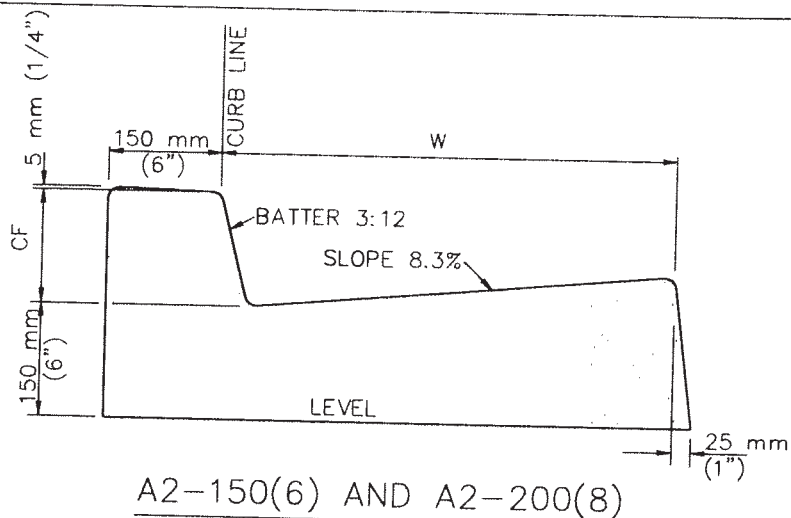
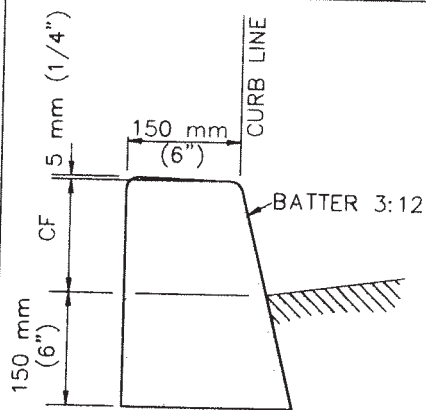
CURB AND SIDEWALK JOINTS

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

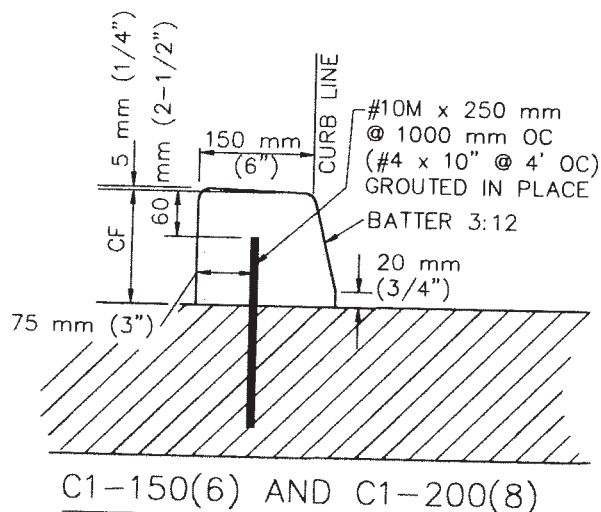
112-2

SHEET 1 OF 1



NOTES:

1. THE LAST NUMBER IN THE DESIGNATION IS THE CURB FACE (CF) HEIGHT, mm (INCHES).
2. GUTTER WIDTH, W, IS 600 mm (24") UNLESS OTHERWISE SPECIFIED.
3. TYPES A1, A2, A3 AND C1 SHALL BE CONSTRUCTED FROM PCC.
4. TYPE D1 CURB SHALL BE CONSTRUCTED FROM ASPHALT CONCRETE.
5. TYPE C1 CURB SHALL BE ANCHORED WITH STEEL DOWELS AS SHOWN OR WITH AN EPOXY APPROVED BY THE ENGINEER.
6. ALL EXPOSED CORNERS ON PCC CURBS AND GUTTERS SHALL BE ROUNDED WITH A 15 mm (1/2") RADIUS.
7. DIMENSIONS SHOWN ON THIS PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. USE EITHER METRIC OR ENGLISH VALUES, AS REQUIRED, BUT NOT BOTH, EXCEPT THAT ASTM 615 REINFORCING STEEL MAY BE SUBSTITUTED FOR ASTM 615M STEEL.



AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

PROMULGATED BY THE
PUBLIC WORKS STANDARDS INC.
GREENBOOK COMMITTEE
1984
REV. 1996

CURB AND GUTTER — BARRIER

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN
METRIC

120 - 1

SHEET 1 OF 1

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DATE	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS

Robert To Shatt
CHECKED (UNDERLINE ARCHITECT)

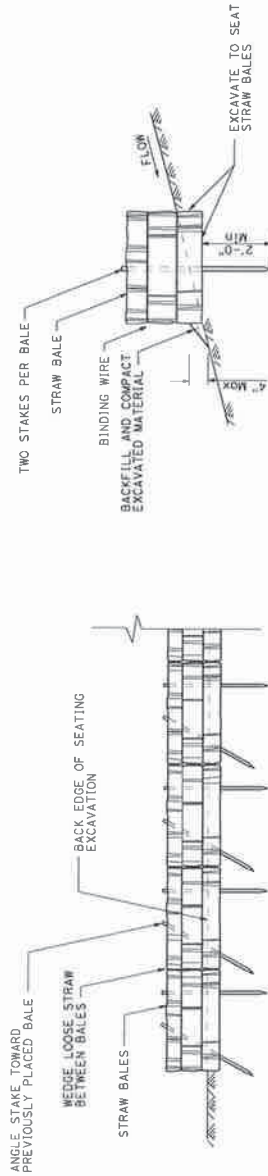
JANUARY 20, 2017
PLANS APPROVAL DATE

FOR THE STATE OF CALIFORNIA
IN THE COUNTY OF LOS ANGELES
FOR THE ACCOUNT OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION
IN CONNECTION WITH THE PROJECT OF THIS PLAN SHEET

TO ACCOMPANY PLANS DATED _____

NOTE:

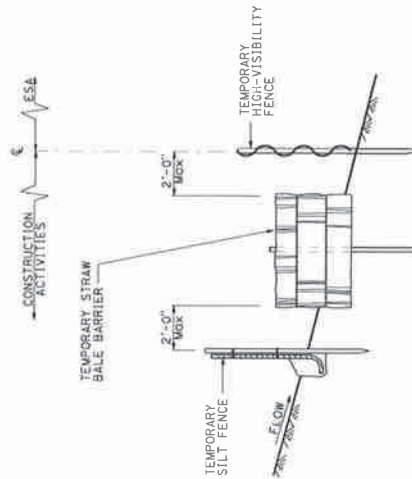
1. Temporary silt fence and temporary high-visibility fence shown for reference purposes only.



FRONT ELEVATION

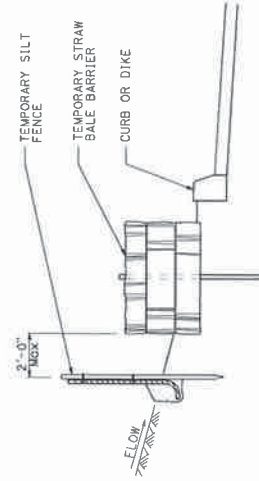
SECTION

TEMPORARY STRAW BALE BARRIER



SECTION

**PLACEMENT DETAIL
FOR TEMPORARY SILT FENCE
AND TEMPORARY HIGH-VISIBILITY FENCE
USED WITH TEMPORARY STRAW BALE BARRIER**
(See Note 1)



SECTION

**PLACEMENT DETAIL
FOR TEMPORARY SILT FENCE
USED WITH TEMPORARY
STRAW BALE BARRIER**
(See Note 1)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TEMPORARY WATER POLLUTION
CONTROL DETAILS
(TEMPORARY STRAW BALE BARRIER)**

NO SCALE

RSP T52 DATED JANUARY 20, 2017 SUPERSEDES STANDARD PLAN T52
DATED OCTOBER 30, 2015 - PAGE 260 OF THE STANDARD PLANS BOOK DATED 2015.

REVISED STANDARD PLAN RSP T52

Sheet	COUNTY	ROUTE	PROJECT NUMBER	SCALE
101	San Diego	163	101-101-101	1" = 10'

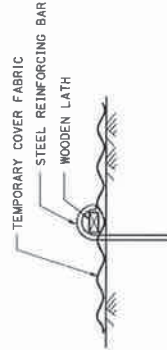
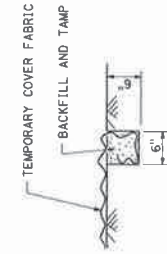
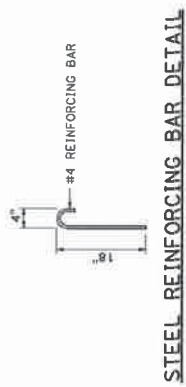
October 30, 2015

DESIGNED AND DRAWN BY: *[Signature]*

CHECKED BY: *[Signature]*

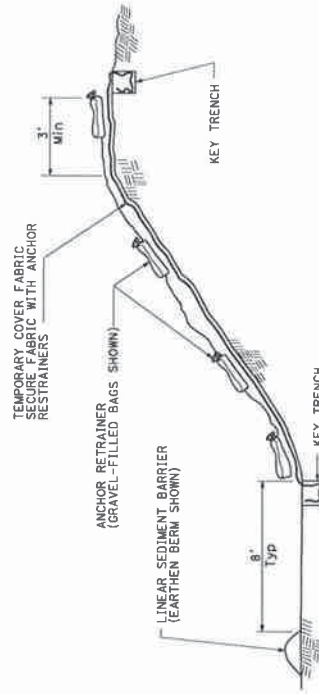
DATE: 10/30/15

THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SAN DIEGO DISTRICT OFFICE
101-101-101
SHEET 101 OF 101

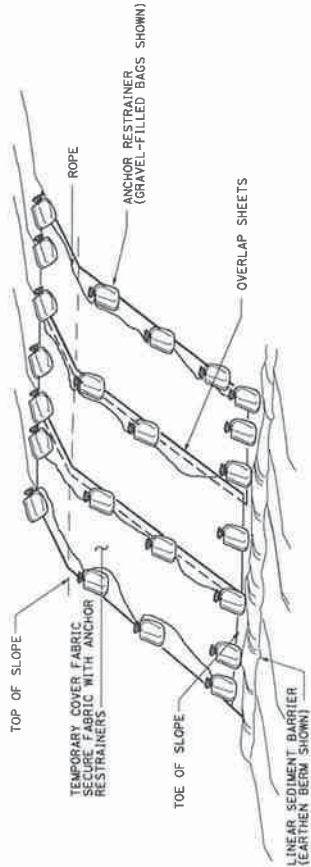


SECTION KEY TRENCH DETAIL

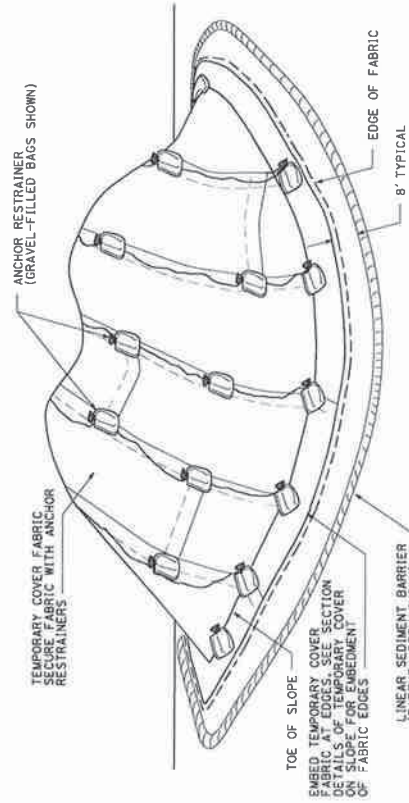
SECTION ANCHOR RESTRAINER
(Steel bar and wooden lath)



SECTION TEMPORARY COVER ON SLOPE



PERSPECTIVE TEMPORARY COVER ON SLOPE



PERSPECTIVE TEMPORARY COVER ON STOCKPILE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY COVER)

NO SCALE

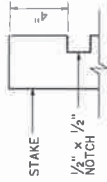
T53

DIS* COUNTY	ROUTE	POST MILES	SHEET TOTAL

October 30, 2015
 PLANE APPROVAL DATE
 THE STATE OF CALIFORNIA DEPT. OF TRANSPORTATION
 SAN FRANCISCO OFFICE
 FOR THE DISTRICT OF SAN FRANCISCO
 COUNTY OF SAN FRANCISCO

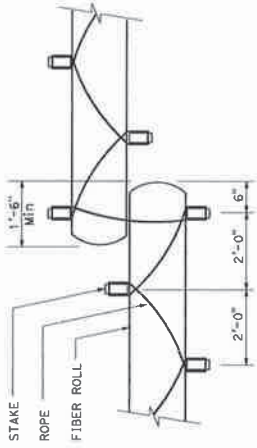
NOTES:

1. Temporary fiber roll spacing varies depending upon slope inclination.
2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



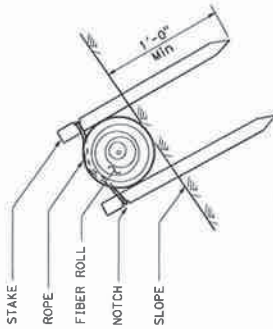
ELEVATION

STAKE NOTCH DETAIL

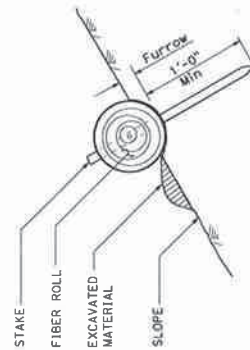


PLAN

TEMPORARY FIBER ROLL (TYPE 2)

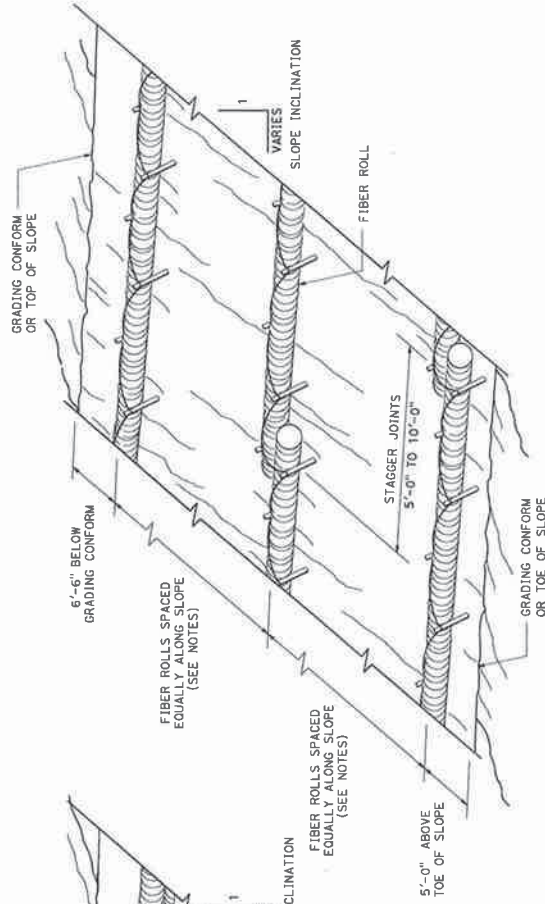


SECTION



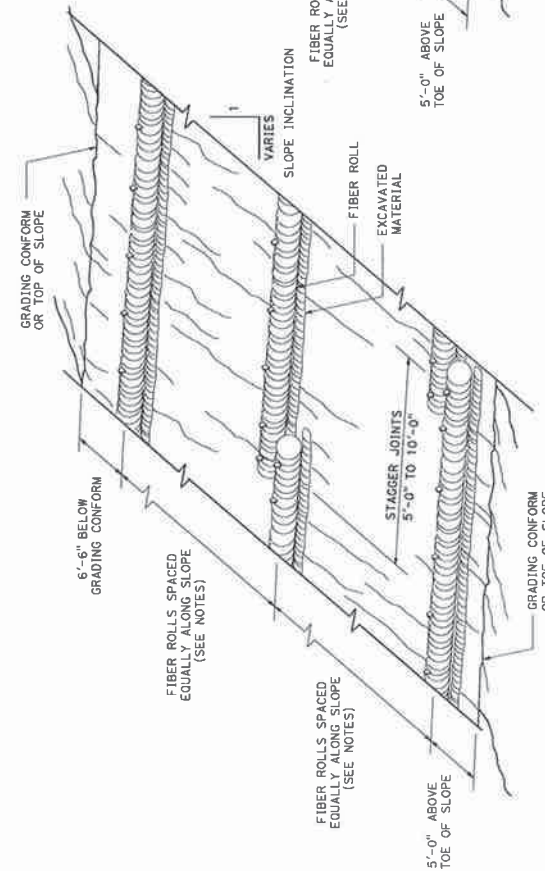
SECTION

TEMPORARY FIBER ROLL (TYPE 1)



PERSPECTIVE

TEMPORARY FIBER ROLL (TYPE 2)



PERSPECTIVE

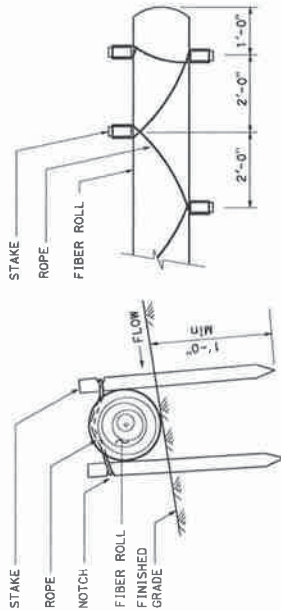
TEMPORARY FIBER ROLL (TYPE 1)

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**TEMPORARY WATER POLLUTION
 CONTROL DETAILS
 (TEMPORARY FIBER ROLL)**

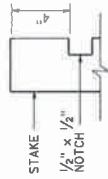
NO SCALE

T56

PROJECT COUNTY	ROUTE	POST MILE	POST MILE	POST MILE
Project 15		10.00	10.00	10.00
October 30, 2015				
DESIGNED LANDSCAPE ARCHITECT				
THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION				
FOR ADVICE ONLY, NOT BE RESPONSIBLE FOR THE DESIGN OF THIS PLAN SHEET.				



SECTION
STAKING AND LASHING DETAIL



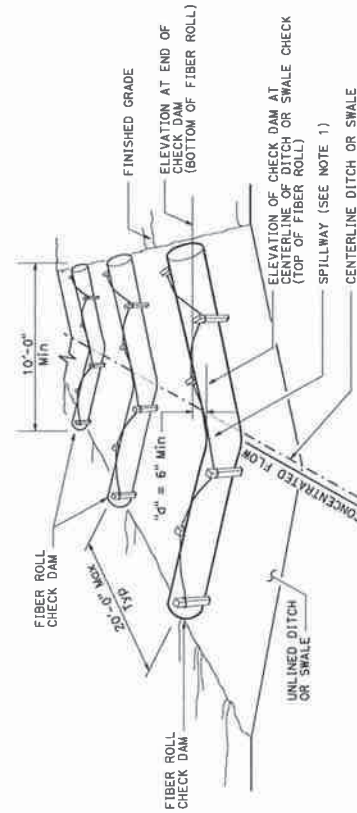
ELEVATION
STAKE NOTCH DETAIL



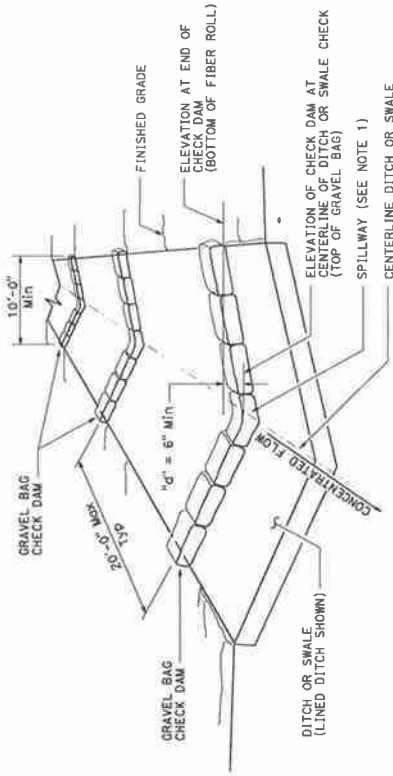
NOTE:

1. Spillway depth "d" shall be maintained to prevent flanking of concentrated flow around the ends of each check dam.

SECTION
TEMPORARY CHECK DAM (TYPE 2)



PERSPECTIVE
TEMPORARY CHECK DAM (TYPE 1)
(Total of 3 check dams shown)



PERSPECTIVE
TEMPORARY CHECK DAM (TYPE 2)
(Total of 3 check dams shown)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY WATER POLLUTION
CONTROL DETAILS
(TEMPORARY CHECK DAM)**

NO SCALE

T57

CITY	COUNTY	ROUTE	POST MILE	SECTION

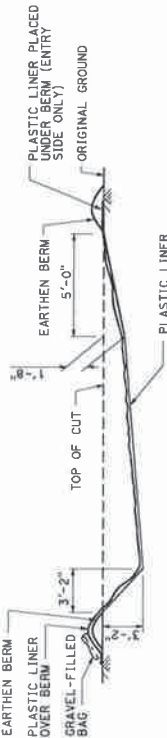
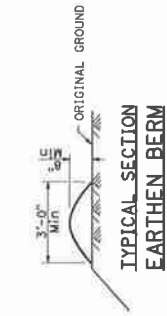
October 30, 2015

1. The concrete washout sign shall be installed within 30' to 100' of the temporary concrete washout facility.

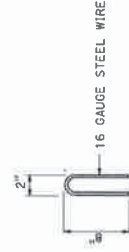
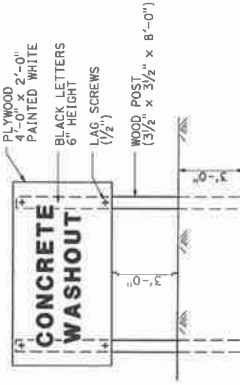
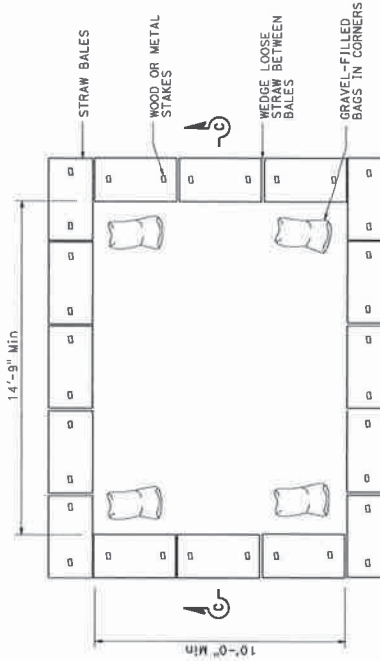
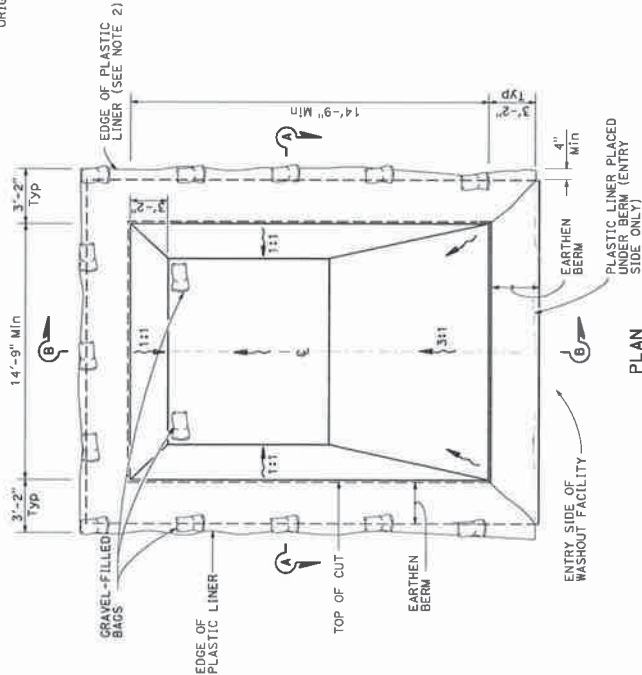
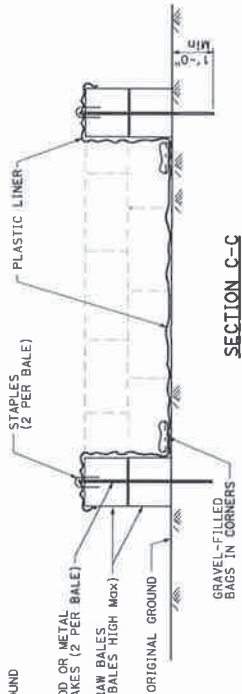
2. Plastic liner shall be anchored with gravel-filled facility.

NOTES:

1. The concrete washout sign shall be installed within 30' to 100' of the temporary concrete washout facility.
2. Plastic liner shall be anchored with gravel-filled facility.



SECTION B-B



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TEMPORARY WATER POLLUTION
CONTROL DETAILS
(TEMPORARY CONCRETE
WASHOUT FACILITY)**

NO SCALE

T59

STATE	COUNTY	ROUTE	POST MILE	SHEET NUMBER

October 30, 2015

PLANS SUBMITTED DATE

DESIGNED BY: *PLA B. RICH*

CHECKED BY: *ALAN L. GARDNER*

DATE OF THIS DRAWING: *10/30/15*

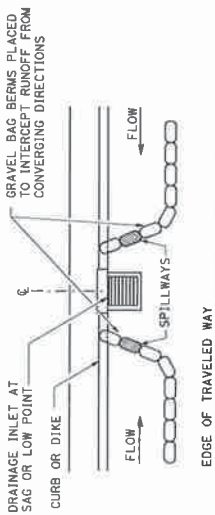
DATE OF THIS DRAWING: *10/30/15*

DATE OF THIS DRAWING: *10/30/15*

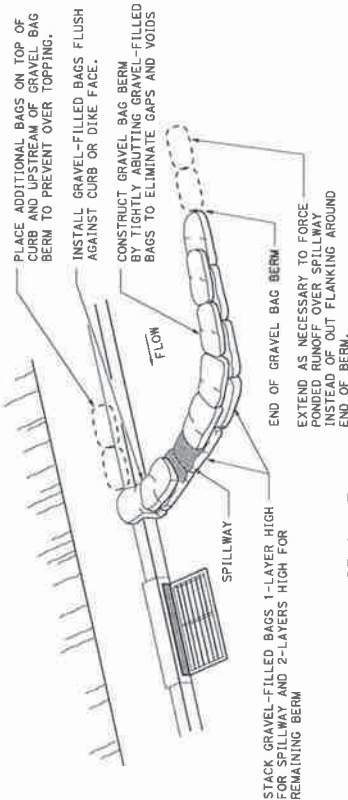
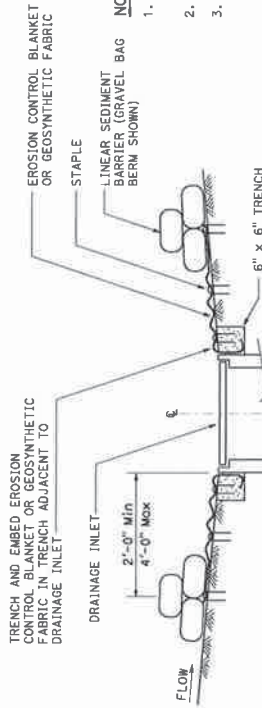
GRAVEL BAG BERM (TYPE 3A) SPACING TABLE

SLOPE OF ROADWAY (PERCENT)	1 TO 3.9	4 TO 5.9	6 TO 7.9	8 TO 10	10+
INTERVAL BETWEEN BERM	100'	75'	50'	25'	12'

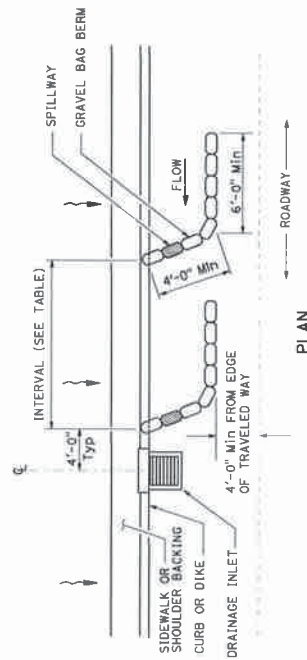
For slope of less than 1%, install barriers only if erosion/sediment is prevalent



**CONFIGURATION FOR SAG POINT INLET
(GRAVEL BAG BERM)**



PERSPECTIVE

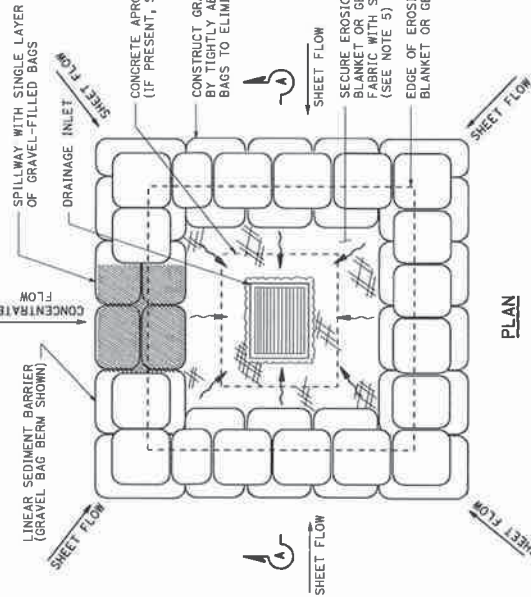


**TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 3A)
(GRAVEL BAG BERM)**

NOTES:

1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag berms upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric in edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated or paved.

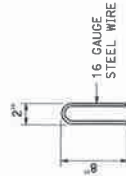
SECTION A-A



PLAN

**TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 3B)**

STAPLE DETAIL



**TEMPORARY WATER POLLUTION
CONTROL DETAILS
(TEMPORARY DRAINAGE
INLET PROTECTION)**

NO SCALE

T62

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

APPENDIX B

STRUCTURAL CALCULATIONS FOR EXISTING SHORING SYSTEM

LETTER OF TRANSMITTAL

A.E.S. CONSTRUCTION GROUP

8100 Balboa Place

Van Nuys, CA 91406

(818) 786-4125

(818) 786-4106

Transmittal No. 8563-0042-TI

To: James Guerrero

Harris & Associates

34 Executive Park, Suite 150

Irvine, CA 92614-4705

Phone: (949) 655-3900 FAX: (949) 655-3995

Job No:

IFB # 9-9226

Date:

November 1, 1999

RE:

Submittals

WE ARE SENDING YOU:

- | | | |
|--|--|---|
| ☐ Originals | ☒ Attached | ☐ Under Separate Courier |
| ☐ Shop Drawings | ☐ Specifications | ☐ Copy of Letter |
| ☐ Prints | ☐ Plans | ☐ Samples |
| | | ☒ Submittal |

COPIES	DATED	SUBMITTAL NUMBER	DESCRIPTION
8	11/01/99	031	Division 2 – Site Work (Foundation Pile, Inc.)
			Section 02160 – Excavation Support Systems
			- Shoring Plan with Calculations (Steel Sheet Piling)
			- Sheet Pile Specifications (XZ-85)

THESE TRANSMISSIONS ARE:

- | | | |
|--|--|---|
| ☐ For your approval | ☐ Approved as submitted | ☐ Resubmit with ____ copies for approval |
| ☐ For your Use | ☐ Approved as noted | ☐ Submit ____ copies for distribution |
| ☐ As per your request | ☐ Corrections noted | ☐ Return ____ corrected prints |
| ☒ For your review and comment(s) | ☐ _____ | |
| ☐ FOR BIDS DUE _____ | 19 _____ | ☐ PRINTS RETURNED AFTER LOAN TO US |

RECEIVED NOV - 5 1999

CC: John Glanville

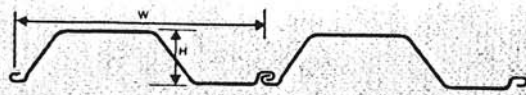
AESC Jobfile

Signature

INTERNATIONAL CONSTRUCTION SERVICES INC.

“L”

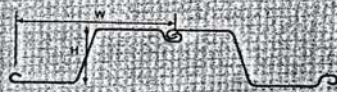
SERIES



Section	Thickness in (mm)	Height in (mm)	Nominal Width in (mm)	Section Area in ² (cm ²)	Weight lbs/lin ft. (kg/lin m)	Weight lbs/ft ² (kg/m ²)	Moment of Inertia in ⁴ /wall ft (cm ⁴ /wall m)	Radius of Gyration in (mm)	Section Modulus in ³ /wall ft (cm ³ /wall m)
L27	.106 (2.7)	4.08 (104)	19.7 (500)	2.84 (18.3)	9.91 (14.7)	6.04 (29.4)	4.70 (643)	1.64 (41.9)	2.22 (119)
L34	.134 (3.4)	4.10 (104)	19.7 (500)	3.58 (23.1)	12.5 (18.6)	7.62 (37.2)	5.89 (806)	1.64 (41.9)	2.77 (149)
L41	.164 (4.1)	4.12 (105)	19.7 (500)	4.39 (28.3)	15.0 (22.4)	9.17 (44.7)	7.02 (961)	1.64 (41.9)	3.30 (178)
L45	.177 (4.5)	4.13 (105)	19.7 (500)	4.74 (30.6)	16.2 (24.1)	9.90 (48.1)	7.69 (1050)	1.64 (41.9)	3.62 (195)
L50	.197 (5.0)	4.15 (106)	19.7 (500)	5.29 (34.1)	18.9 (28.2)	11.5 (56.3)	9.82 (1340)	1.74 (44.2)	4.14 (223)
L60	.236 (6.0)	4.18 (106)	19.7 (500)	6.37 (41.1)	22.3 (33.1)	13.6 (66.1)	11.8 (1610)	1.74 (44.2)	4.97 (268)
L65	.256 (6.5)	4.20 (107)	19.7 (500)	6.90 (44.5)	24.1 (35.8)	14.7 (71.6)	12.8 (1750)	1.74 (44.2)	5.38 (290)

“Z”

SERIES



Section	Thickness in (mm)	Height in (mm)	Nominal Width in (mm)	Section Area in ² (cm ²)	Weight lbs/lin ft. (kg/lin m)	Weight lbs/ft ² (kg/m ²)	Moment of Inertia in ⁴ /wall ft (cm ⁴ /wall m)	Radius of Gyration in (mm)	Section Modulus in ³ /wall ft (cm ³ /wall m)
Z55	.217 (5.50)	8.09 (206)	22.0 (559)	7.27 (46.9)	25.0 (37.1)	13.6 (65.5)	45.7 (6250)	3.39 (86.1)	11.4 (614)
Z60	.236 (6.00)	8.11 (206)	22.0 (559)	7.93 (51.1)	27.2 (40.4)	14.8 (71.5)	49.9 (6830)	3.40 (86.4)	12.4 (668)
Z65	.256 (6.50)	8.13 (207)	22.0 (559)	8.59 (55.4)	29.2 (43.3)	16.0 (77.4)	54.1 (7400)	3.41 (86.6)	13.4 (722)
Z70	.276 (7.00)	8.15 (207)	22.0 (559)	9.25 (59.7)	31.5 (46.7)	17.2 (83.7)	58.6 (8020)	3.42 (86.9)	14.4 (775)
Z75	.295 (7.50)	8.17 (208)	22.0 (559)	9.90 (63.9)	33.7 (50.0)	18.4 (89.5)	63.9 (8750)	3.44 (87.4)	15.6 (840)

“XZ”

SERIES



Section	Thickness in (mm)	Height in (mm)	Nominal Width in (mm)	Section Area in ² (cm ²)	Weight lbs/lin ft. (kg/lin m)	Weight lbs/ft ² (kg/m ²)	Moment of Inertia in ⁴ /wall ft (cm ⁴ /wall m)	Radius of Gyration in (mm)	Section Modulus in ³ /wall ft (cm ³ /wall m)
XZ85	.335 (8.50)	14.06 (357)	25.0 (635)	13.6 (87.6)	46.4 (69.0)	22.3 (109)	212 (29000)	5.70 (145)	30.2 (1630)
XZ90	.354 (9.00)	14.09 (358)	25.0 (635)	14.4 (92.7)	48.9 (72.7)	23.5 (115)	225 (30800)	5.70 (145)	31.8 (1710)
XZ95	.375 (9.50)	14.12 (359)	25.0 (635)	15.2 (98.2)	51.7 (76.9)	24.8 (121)	237 (32400)	5.70 (145)	33.5 (1800)
XZ100	.394 (10.0)	14.15 (360)	25.0 (635)	15.9 (103.0)	54.2 (80.7)	26.0 (127)	250 (34200)	5.71 (145)	35.3 (1900)

INTERNATIONAL CONSTRUCTION SERVICES, INC.

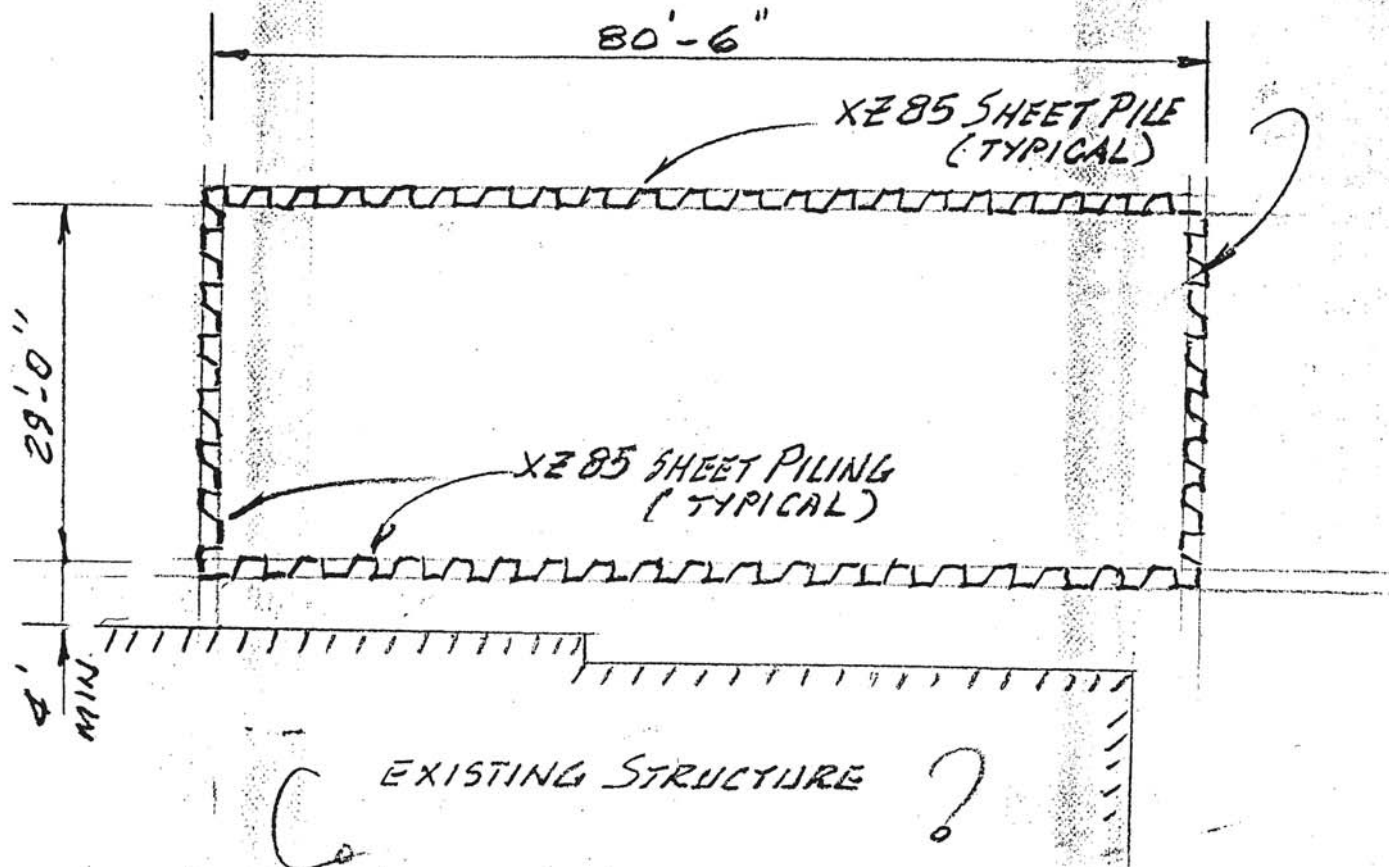
P.O. Box 15598

Phone: (412) 788-6430

Pittsburgh, PA 15244

Fax: (412) 788-9180

1 OF 6
10/19/99



REVISED SHORING PLAN
FACILITY MODIFICATION
LNG FUELED VEHICLE SITE
ORANGE COUNTY TRANSIT DISTRICT
SCALE: 1/16" = 1'-0"



Subject to the review of individual, verification of products, fit, dimensions, and field construction effects, and coordination with the local health department, in accordance with requirements of the Woburn Health Department.

Company: ABC Construction Date: 11-01-99
Signature: [Signature] Printed: Don Fox

	JOB NO.	
	BY	
	<u>JOE SMYTH</u>	
	DATE	
	<u>10/19/99</u>	
		 SOIL TESTERS 11421 Woodside Ave., Suite C Santee, California 92071 (619) 562-0500

REVISED SHORING DESIGN
FACILITY MODIFICATION
LNG SITE

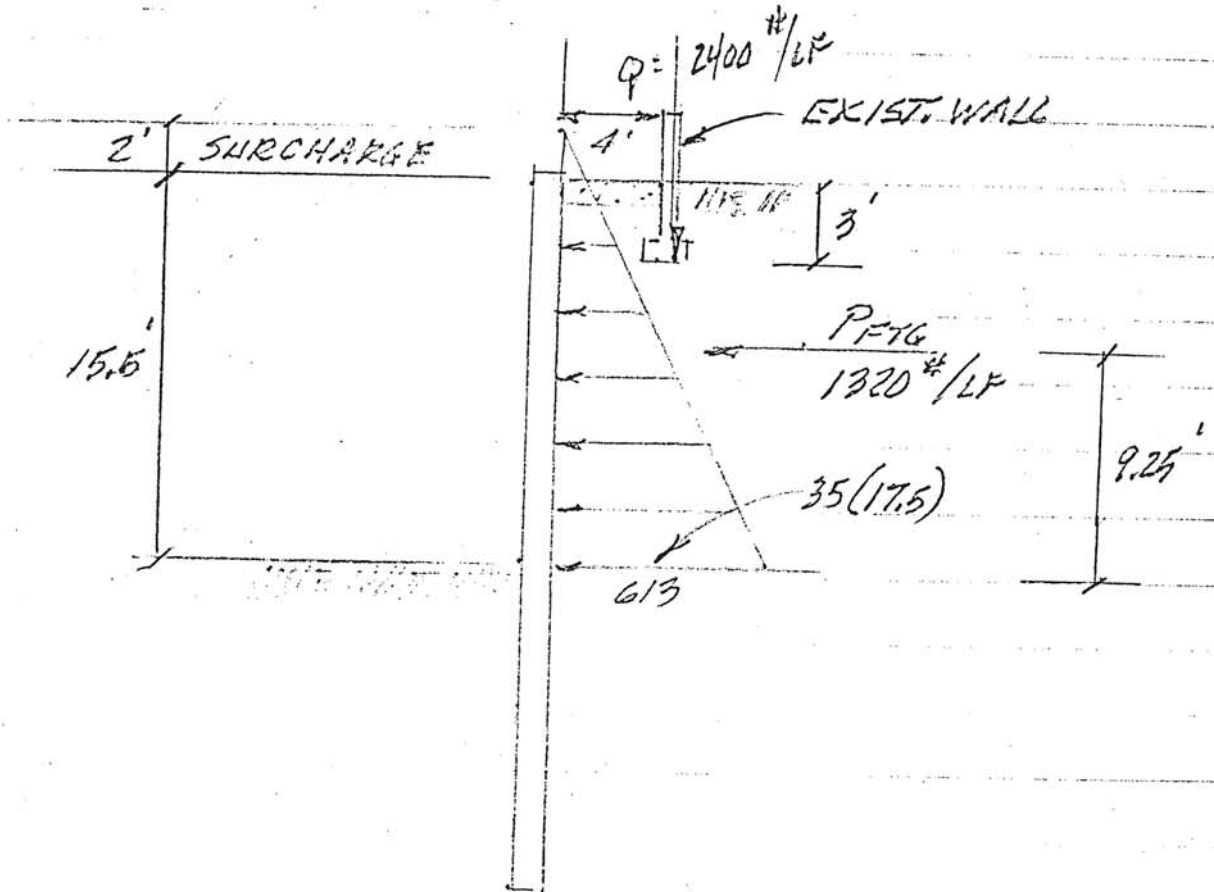
2 of 6

10/19/99

11790 CARDINAL CIRCLE

GARDEN GROVE, CA

CHECK XZ 85 SHEET PILING -
CANTILEVERED - 15'-6"



RESISTING SOILS:

USE Laterally LOADED
PILE ANALYSIS:

MED. DENSE TO DENSE
SUBMERGED SILTY SAND

FROM NAVDOKS FIG. 11-B

$$\text{DRY: } f = 30 \text{ tons/CF} = 35 \text{ #/in}^3$$

$$\text{SUB. } f_{\text{SUB}} = \frac{f_{\text{DRY}}}{2} = 17 \text{ #/in}^3$$

RETAINED SOILS:

PER SOILS INTERNATIONAL
REPORT - JUNE 27, 1975

LOOSE TO MED. DENSE SILTY
FINE MOIST SAND.

USE EQUIV. FLUID = 35 #/CF

SURCHARGE:

EXIST. WALL $\#FTG \approx 2400 \text{ #/LF}$

REVISED SHORING DESIGN
FACILITY MODIFICATION

3 OF 6
10/19/99

XZ 85 SHEET PILING $S = 31 \text{ in}^3$ $I = 211 \text{ in}^4$

CANTILEVERED:

$$P = 613 \frac{1}{2} (17.5) + 1320 = 5364 + 1320 \\ = 6684 \text{ \# / LF}$$

$$M = 5364 \left(\frac{17.5}{2} \right) + 1320 (9.25) \\ = 42606 \text{ \#-ft / LF}$$

FROM NAVDOCKS FIG 13-3

$$T = \frac{5}{4} \sqrt{\frac{EI}{P}} = \frac{5}{4} \sqrt{\frac{30 \times 10^6 (211)}{17}} \\ = 52 \text{ in}$$

USE EMBEDMENT = 37 = 13' MIN.

FROM NAVDOCKS FIG 13-4

WITH $L/T = 3$

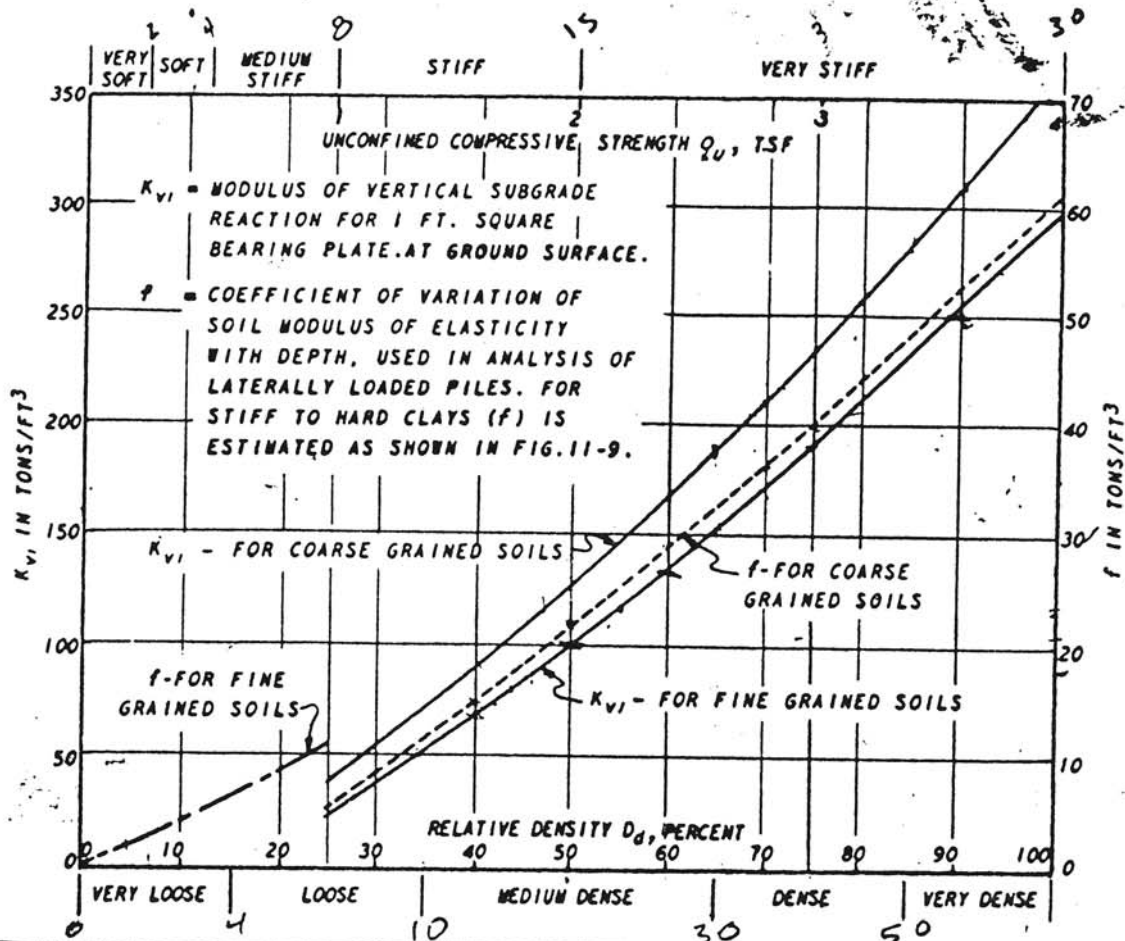
$$M_{\text{DESIGN}} \leq 0.8M + 0.7PT \\ = 0.8(42606) + 0.7(6684) \left(\frac{52}{12} \right) \\ = 54360 \text{ \#-ft}$$

$$S_{\text{REQD}} = M/f = \frac{54360 (12)}{24000} = 27 \text{ in}^3 < 31 \text{ in}^3 \\ \text{XZ 85}$$

USE XZ 85 SHEET PILING x 30' LONG

EMBEDMENT = 14 1/2' MIN.

2606 MIL



DEFINITIONS

- σ_v = FOOTING SETTLEMENT
 q = FOOTING UNIT LOAD
 B = FOOTING WIDTH
 L = FOOTING LENGTH
 D = DEPTH OF FOOTING BELOW GROUND SURFACE
 E_s = MODULUS OF ELASTICITY OF SOIL
 C_s = SHAPE COEFFICIENT OF LOADED AREA
 FOR COARSE GRAINED SOILS AND VERY SOFT TO MEDIUM STIFF FINE GRAINED SOILS, E_s IS ASSUMED TO INCREASE LINEARLY WITH DEPTH ($E_s = fZ$).
 FOR STIFF TO HARD CLAYS E_s IS ASSUMED TO BE CONSTANT WITH DEPTH.

COARSE GRAINED SOILS

(MODULUS OF ELASTICITY INCREASING LINEARLY WITH DEPTH)

SHALLOW FOOTINGS $D \leq B$

FOR $B \leq 20$ FT:

$$\sigma_v = \frac{4 q B^2}{K_{vi} (B+1)^2}$$

FOR $B \geq 40$ FT:

$$\sigma_v = \frac{2 q B^2}{K_{vi} (B+1)^2}$$

INTERPOLATE FOR INTERMEDIATE VALUES OF B

DEEP FOUNDATION $D \geq 5B$

FOR $B \leq 20$ FT:

$$\sigma_v = \frac{2 q B^2}{K_{vi} (B+1)^2}$$

NOTES: 1. NON-PLASTIC SILT IS ANALYZED AS COARSE GRAINED SOIL WITH MODULUS OF ELASTICITY INCREASING LINEARLY WITH DEPTH.

2. VALUES OF K_{vi} SHOWN FOR COARSE GRAINED SOILS APPLY TO DRY OR MOIST MATERIAL WITH THE GROUND WATER LEVEL AT A DEPTH OF AT LEAST 1.5B BELOW BASE OF FOOTING. IF GROUND WATER IS AT BASE OF FOOTING USE $K_{vi}/2$ IN COMPUTING SETTLEMENT.

FIGURE 11-8

Immediate Settlement of Isolated Footings on Coarse Grained Soils

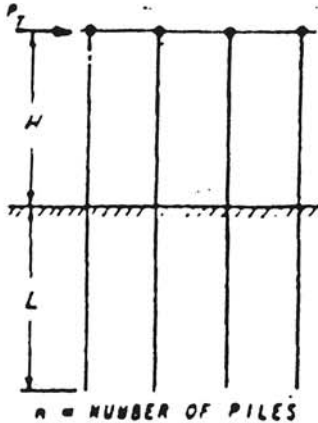
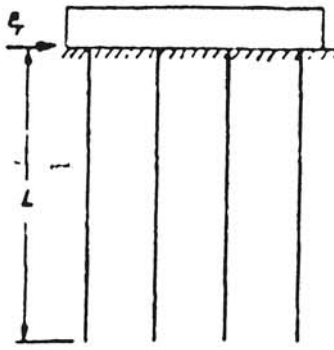
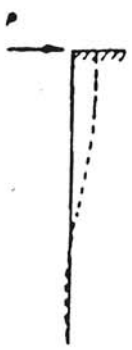
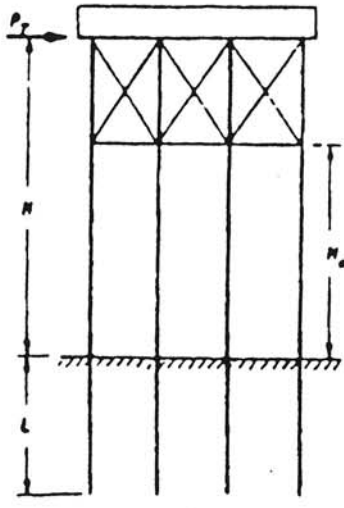
CONDITION	LOAD AT GROUND LINE	DESIGN PROCEDURE
 $n = \text{NUMBER OF PILES}$	FOR EACH PILE: $P = \frac{P_T}{n}$ $M = P \cdot H$  DEFLECTED POSITION	FOR DEFINITION OF PARAMETERS SEE FIG. 13-5. 1. COMPUTE RELATIVE STIFFNESS FACTOR $T = \left(\frac{EI}{P} \right)^{1/3}$ 2. SELECT CURVE FOR PROPER $\frac{H}{T}$ IN FIG. 13-4. 3. OBTAIN COEFFICIENTS F_0, F_M, R_s AT DEPTHS DESIRED. 4. COMPUTE DEFLECTION, MOMENT AND SHEAR AT DESIRED DEPTHS USING FORMULAS OF FIG. 13-4.
CASE I. PILES WITH FLEXIBLE CAP OR HINGED END CONDITION		
		1. PROCEED AS IN STEP 1, CASE I. 2. COMPUTE DEFLECTION AND MOMENT AT DESIRED DEPTHS USING COEFFICIENTS F_0, F_M AND FORMULAS OF FIG. 13-5. 3. MAXIMUM SHEAR OCCURS AT TOP OF PILE AND EQUALS $P = \frac{P_T}{n}$ IN EACH PILE.
CASE II. PILES WITH RIGID CAP AT GROUND SURFACE		
	DEFLECTED POSITION 	1. ASSUME A HINGE AT POINT (A) WITH A BALANCING MOMENT (M) APPLIED AT POINT (A). 2. COMPUTE SLOPE θ_2 ABOVE GROUND AS A FUNCTION OF n FROM CHARACTERISTICS OF SUPERSTRUCTURE. 3. COMPUTE SLOPE θ_1 FROM SLOPE COEFFICIENTS OF FIG. 13-6 AS FOLLOWS: $\theta_1 = F_0 \left(\frac{P_T^3}{EI} \right) + F_0 \left(\frac{MT}{EI} \right)$ 4. EQUATE $\theta_1 = \theta_2$ AND SOLVE FOR VALUE OF M. 5. KNOWING VALUES OF P AND M, SOLVE FOR DEFLECTION, SHEAR AND MOMENT AS IN CASE I. (NOTE: IF GROUND SURFACE AT PILE LOCATION IS INCLINED, LOAD P TAKEN BY EACH PILE IS PROPORTIONAL TO $1/n \cdot \sin \theta$)

FIGURE 13.3
Design Procedure for Laterally Loaded Piles

6056

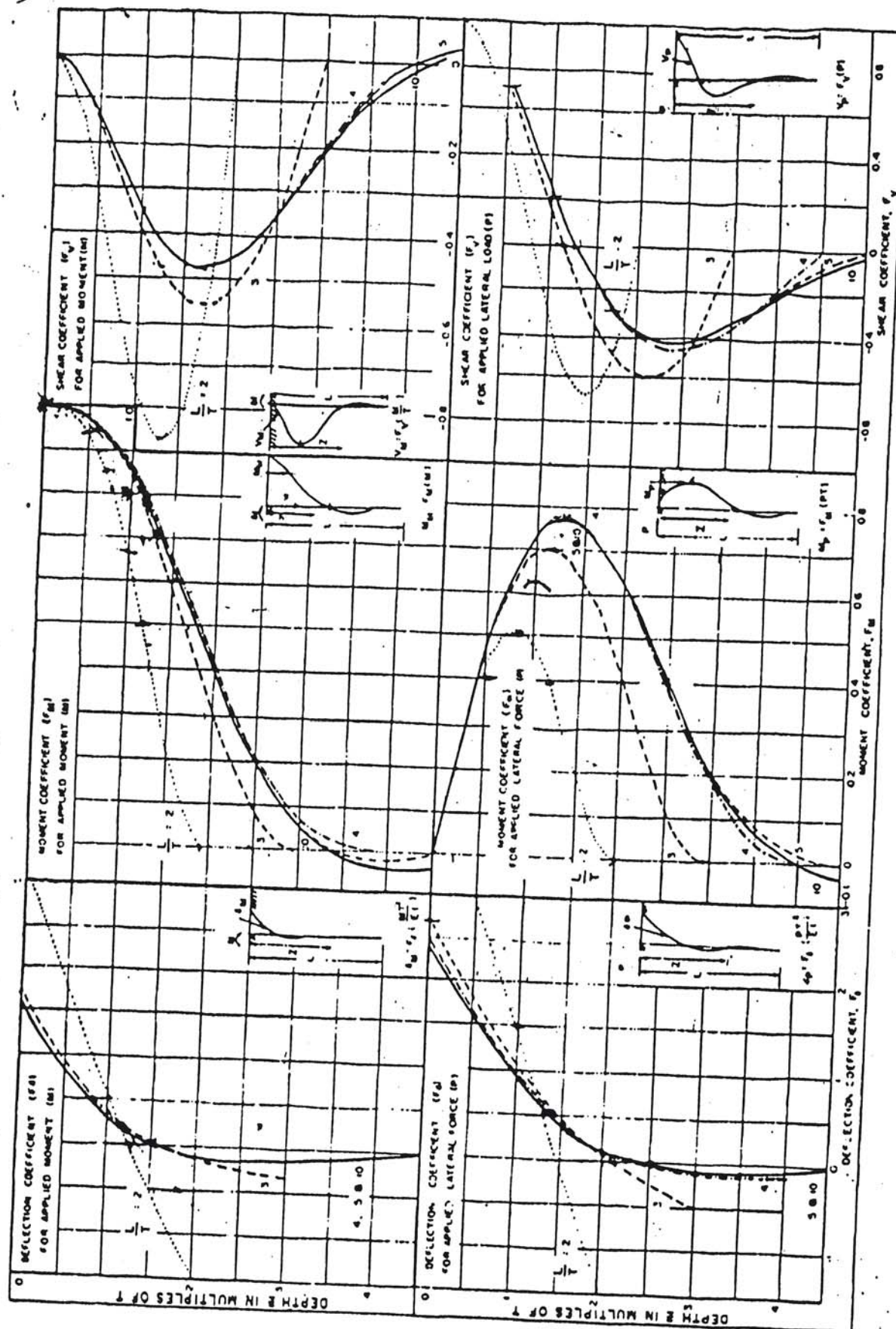


FIGURE 13-4
Influence Values for Pile with Applied Lateral Load or Moment
(Case 1. Flexible Cap or Hinged End Condition)



Harris & Associates

1717 East Via Burton
Anaheim, CA 92805

E-Mail:

RETURN SUBMITTAL TRANSMITTAL

Orange County Transportation Authori

LNG Facility Modifications Project

TO: Urbantec Engineers, Inc.
1835 W. Orangewood Ave., Suite 330
Orange, CA 92868

DATE: 11/17/2000

REF: Sub,sheet pile coating

ATTN: Roy Fassel

WE ARE SENDING:	SUBMITTED FOR:
☐ Shop Drawings	☐ Approval
☒ Letter	☐ Your Use/Information
☐ Prints	☒ As Requested
☐ Change Order	☐ Review and Comment
☐ Plans	SENT VIA:
☐ Samples	☒ Attached
☐ Specifications	☐ Separate Cover Via: Mail
☒ Other: Made from Submittal	☐ U.S. Mail
	☐ Overnight:

Item No.	Copies	Date	Spec. Section	Submittal No.	Revision No.	Description of Submittal	Current Status
1	1	11/17/200	02160	1.01A	002	Title: Excavation Support Systems Desc: Excavation Support Systems coating	APP

Corrections or comments made on the shop drawing during this review do not relieve the contractor from compliance with the requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The contractor is responsible for conforming and correlating all quantities and dimensions, selection, fabrication, processes, techniques of construction, coordinating his work with that of all other trades, and performing his work in a safe and satisfactory manner. Any discrepancy between contract documents and contractor submittal shall be the responsibility of the contractor.

STATUS CODES

AAN = Approved as Noted

APP = Approved

MCN = Make Corrections Noted

NET = No Exceptions Taken

R&R = Revise and Resubmit (RESUBMIT)

REJ = Rejected (RESUBMIT)

Remarks:

I received a call from Mike Dixon--the letter submitted is acceptable. Therefore, the sheeting calcs are acceptable. The pile without coating is accepted. We will return the letter as a submittal.

ATF

IF THERE ARE ANY QUESTIONS REGARDING THIS SUBMITTAL, DO NOT HESITATE TO CONTACT US

Signed:

Alex Naime

Dated:

11/17/00

Copies To: Transmittal and Attachments: 01.021.006, 02.005.030

HA Project Files:

File: 992-0439 Transmittal No. 00086

Page 1 of 1

f_a_tr_03

From: "Andrew T. Freitas" <afreitas@gfnet.com>
To: "Alex Naime" <octa@harris-assoc.com>
Subject: OCTA Anaheim -- Sheeting Calcs
Date: Thu, 16 Nov 2000 18:37:16 -0700
X-MSMail-Priority: Normal
X-Mailer: Microsoft Outlook Express 4.72.3155.0
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.3155.0

I received a call from Mike Dixon--the letter submitted is acceptable.
Therefore, the sheeting calcs are acceptable. The pile without coating is
accepted. We will return the letter as a submittal.

ATF

11/14/00

TO: JEFF
FOUNDATION PILE

FROM: JOE SMYTH

RE: LOAD CAPACITY
CORRODED XZ 85
SHEET PILE

PER THE CORRODED THICKNESS OF
0.295" VS 0.335" FOR XZ 85 SHEET PILE,
THE MOMENT OF INERTIA WOULD DECREASE
FROM 212 in^4 TO 187 in^4 .. THE SECTION
MODULUS WOULD DECREASE TO 26.6 in^3 ..

PER SHEET 2 OF 2 OF MY CALCULATIONS
DATED 06/20/00:

$$S_{RQD} = 24 \text{ in}^3 < 26.6 \text{ in}^3$$

CORRODED SECTION MODULUS

HENCE XZ 85 SHEET PILING OK



Joseph C. Smyth
11/14/00

FOUNDATION PILE, INC.

MAIN OFFICE: P.O. BOX 1167, FONTANA, CA. 92034 • TELEPHONE (909) 350-1584 • FAX (909) 350-0620

Contractors Lic. No. 960640-A

FAX NO.: 649-487-2349

DATE: June 22, 2000

4

(including cover sheet)

TO: URBANTEC

ATTN. ROY

RE: LNG ANAHEIM

FROM: JEFF REDMAN

ROY

ATTACHED SUBMITTALS FOR YOUR APPROVAL

CORROSION PROTECTION FOR PERMANENT SHEET PILES 1- PAGE

SHORING DESIGN 2- PAGES

THANKS


JEFF REDMAN
ASST. SALES MANAGER

CONTRACTOR SUBMITTAL FOR MANUFACTURER-DESIGNED STRUCTURE

GANNETT FLEMING, INC

The review of this shop drawing of a manufacturer-designed structure by Gannett Fleming, Inc. is solely to confirm that design calculations have been performed. Such calculations were performed by a registered professional engineer, the materials are as specified and the structure generally conforms with design intent. Such review does not include any review of the design, which was prepared by others.

Reviewed by MD

Date

7/14/00

Div. 18, CO 10, Sect 354

FOUNDATION PILE, INC.
P. O. Box 1167
Fontana CA 92334-0361

Attention: Mr. Jeff Redman
Assistant Sales Manager

Re: Corrosion Protection for Sheet Pile Wall
LNG Facility
Anaheim, California
MJS&A #00-0399HQ

GF. ml
~~Garden Grove Facility~~
~~Garden Grove, Calif.~~

You asked that we determine corrosion control measures for steel sheet piles for the referenced project. We have reviewed the soil report and catalog data on the sheet piles and Coopers Creek Chemical Corporation Hi-Build No. 741 coal tar epoxy coating you provided. *PF*

The proposed sheet piles will be driven about 31 feet deep to form a rectangular box 30 feet by 80 feet southeast of the proposed fuel and vacuum building. The interior will be excavated down 15 feet. One 80 foot long side will be permanent and has a required design life of 20 years. The other sides are planned to be removed in a few months. This report is for the permanent side.

The soil report shows the upper 30 feet to be fine to coarse sand, some silty sand, and a few silt or clay lenses. The water table was not encountered in the nine borings; the deepest was 40 feet deep.

Based on corrosion rates in NBS Monograph 58 "Corrosion of Steel Piling in Soils" we would expect a corrosion rate of 0.001 inches per year per side. Therefore, for a twenty-year design life provide a corrosion allowance of 0.02 inches where soil contact is on one side and 0.04 inches for soil contact on both sides. The XZ85 sheet piles have a thickness of 0.335 inches. Therefore if a thickness of 0.295 inches is sufficient in the highest stress areas, no coating is needed.

If a coating is needed, the Coopers Creek 741 epoxy is a satisfactory. It should be applied per manufacturer's recommendations to 25 mils dry thickness. In addition, the piles should be given a 12 mil coat if concrete is to be placed against them to prevent direct concrete contact.

Sincerely,
M.J. SCHIFF & ASSOCIATES, INC

Paul R. Smith
Paul R. Smith, P.E.
jms folder 00-0399HQ



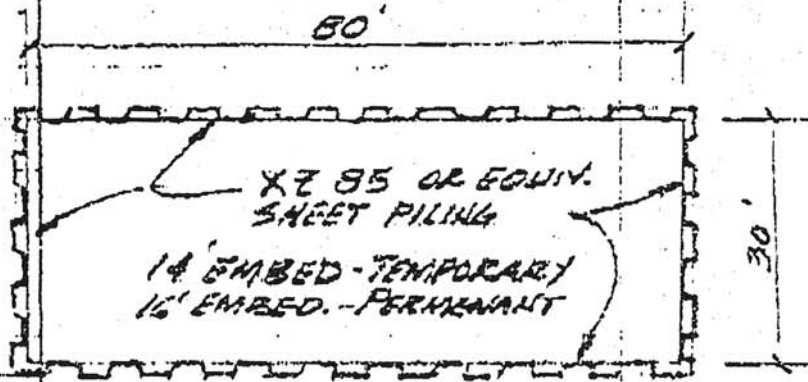
CORROSION AND CATHODIC PROTECTION ENGINEERING
PLANS & SPECIFICATIONS • FAILURE ANALYSIS • EXPERT WITNESS • CORROSION INVESTIGATION • DAMAGE ASSESSMENTS

SHORING DESIGN
FUEL TANK EXCAVATION
OCTO FACILITY

06/20/00

CA.

ANAHEIM



PLAN
SCALE: 1" = 20'

RESISTING SOILS:

PER SOILS INTERNATIONAL
MEDIUM DENSE TO DENSE
MED. TO COARSE SLIGHTLY
SILTY SANDS (N₆₀ 30 B/FT.)
140 - 90

CONSERVATIVELY USE

$K_p = 10.29 = 3.45$
 $\gamma = 115 \text{ lb/CF}$
EQUIV. FL = 397 lb/CF
SAY 400 lb/CF
(IGNORING FRICTION)

RETAINED SOILS:

PER REPORT BY SOILS INTERNATIONAL
8/8/80 + ADDENDUM 8/20/80.
APPROX. 5' OF LOOSE TO MOD.
DENSE SILTY FINE SAND OVER
APPROX. 10' MED DENSE MED.
TO COARSE SAND.

$\phi = 33^\circ$ $C = 300 \text{ lb/CF}$ $\gamma = 110 \text{ lb/CF}$
 $K_p = 0.29$
EQUIV FL = 32 lb/CF USE 35 lb/CF

SURCHARGE:

SLOW TRUCKS: USE 2'
EQUIV. SOIL

SHORING DESIGN
FUEL TANK EXCAVATION
OCTO FACILITY

2012
06/20/00

CA

ANAHEIM

2 SURCHARGE

15'

(40-35) Z

14' TEMPORARY

16' PERMANENT

///

XZ 85
SHEET PILING

P = 5058

35(17)

2.67'

595

46438

0.614

0.394

P_p = 3000 MAX

ZERO SHEAR :

$$365 \frac{Z}{2} (\bar{Z}) = 5058 \quad \bar{Z} = 5.27$$

M_{MAX} :

$$5058 (5.67 + 5.27) - \frac{1922 (5.27)}{2} [5.27] \\ = 55335 - 8897 = 46438$$

$$\frac{1922 (0.614)}{2} \frac{2}{3} 4 = 46438 \quad S_{ROD} = \frac{46438 (12)}{23000} = 24.4 \text{ in} \\ \text{VS } 31 \text{ in} \\ \text{XZ 85}$$

$$4 = 8.5'$$

$$\text{TOTAL EMBEDMENT REQD} = 5.27 + 8.50 = 13.77 \text{ SAY } 14'$$

NOTE : P_p MAX > 3000 PSF P_p MAX IN 11000 PSF

USE 16' EMBEDMENT FOR PERMANENT PILING !!

G.F.M.D

Are the permanent Piling coated with Coal tar epoxy coating according to attached Foundation Pile, Inc. report letter?

FOUNDATION PILE, INC.



P. O. Box 1167 • Fontana, CA 92334-0361 • Telephone (909) 350-1584 • Fax (909) 350-0620

October 28, 1999

2-99-072-CA

LNG Fueling Fac. Modification
Garden Grove, CA

AES Construction Group
16509 Saticoy St.
Van Nuys, CA 91406

Attn: John Glanville

Re: Coating

Gentlemen:

We reference M. J. Schiff & Associates letter dated Sept. 8, 1999 regarding pile coating. They recommended coating the bottom 12 ft. of 25 ft. sheets. Since the sheets are being lengthened to 30 ft. we will increase the coating coverage to the bottom 17 ft.

This was confirmed in writing to me this date from Paul Smith with M.J. Schiff. M. J. Schiff letter dated Oct. 28, 1999 is attached.

Sincerely,
FOUNDATION PILE, INC.

Roy G. Myrtinger
Sales Manager

RGM/maf

M.J. SCHIFF & ASSOCIATES, INC.

Consulting Corrosion Engineers - Since 1959
1308 Monte Vista Avenue, Suite 6
Upland, CA 91788

Phone: 909.931.1360 / Fax: 909.931.1361

E-mail: mjsa@mjs-a.com
<http://www.mjs-a.com>

October 28, 1999

FOUNDATION PILE, INC.

P. O. Box 1167
Fontana CA 92334-0361

Attention: Mr. Roy Mytinger

Re: Corrosion Protection for Sheet Pile Wall
LNG Facility
Garden Grove, California
Your Job #299072, MJS&A #99384

In our letter of September 8, 1999, we recommend that the sheet piles be coated with two 8-mil dry film thickness coats of Devtar 5A applied per manufacturer's recommendations on the bottom 12 feet of each 25 foot long pile. This would place the coating from the tip to about 6 feet above the water table.

You just sent us a fax stating the sheet pile length has been changed to 30 feet which will make them 5 feet deeper into the soil. Since the coating is intended to be in the area near the water table, the bottom 17 feet of each pile should be coated.

Please call if you have any questions.

Sincerely,
M.J. SCHIFF & ASSOCIATES, INC.



Paul R. Smith, P.E.

jobs folder\jobs-99\99384\99384rpt revised

M.J. SCHIFF & ASSOCIATES, INC.

Consulting Corrosion Engineers - Since 1959
1308 Monte Vista Avenue, Suite 6
Upland, CA 91786

Phone: 909.931.1360 / Fax: 909.931.1361

E-mail: mjsa@mjs-a.com

<http://www.mjs-a.com>

September 8, 1999

FOUNDATION PILE, INC.

P. O. Box 1167

Fontana CA 92334-0361

Attention: Mr. Roy Mytinger

Re: Corrosion Protection for Sheet Pile Wall
LNG Facility
Garden Grove, California
Your Job #299072, MJS&A #99384

You asked that we determine corrosion control measures for steel sheet piles for the referenced project. We have reviewed the sheet pile wall drawings, soil report, and catalog data on the sheet piles and Devtar 5A epoxy coating you provided.

The proposed sheet piles will be driven about 25 feet deep to form a rectangular box 26.5 feet by 80.5 feet. The box will be excavated, LNG tanks will be installed inside, then the tanks and box will be backfilled with the soil that was removed. The design life is 20 years.

The soil report shows the upper 30 feet to be mainly sand with some silty sand and silt. The water table is about 19 feet below grade.

These soils would not be particularly corrosive to driven steel piles. However corrosion would be expected in the region around the water table.

Therefore we recommend that the piles be coated with two 8-mil dry film thickness coats of Devtar 5A applied per manufacturer's recommendations on the bottom 12 feet of each pile. This would place the coating from the tip to about 6 feet above the water table.

Please call if you have any questions.

Sincerely,
M.J. SCHIFF & ASSOCIATES, INC.



Paul R. Smith, P.E.



jobs folder\jobs-99\99384\99384.rpt

APPENDIX C

California DIR Letter Dated 2012 and Requirements

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety & Health
Pressure Vessel Unit
1515 Clay Street, Suite 1302
Oakland CA 94612-1402
Tel: (510) 622-3052 Fax: (510) 622-3063



Page 1 of 1

September 14, 2012

James J. Kramer, P.E.
Principal Civil Engineer
Orange County Transportation Authority
550 South Main St
Orange CA 92863

Subject: Underground LNG Fuel Vessels

Dear Mr. Kramer,

Our office has reviewed the information you supplied in an email dated June 8, 2012 and followed up with additional information emailed dated June 16 and 22, 2012 concerning four underground Liquefied Natural Gas (LNG) vessels. These vessels are located at two different facilities; two are at the Garden Grove Bus Base 11790 Cardinal Circle Garden Grove CA and the other two are at the Anaheim Bus Base 1717 East Via Burton Anaheim CA. The LNG has been used to fuel your buses. The vessels were installed in 2000 and 2001. Acceptance of these installations was granted in letters dated January 13, 1999 and December 17, 1999, respectively, from the Division.

At each site, these LNG tanks are 25,000 gallons each and are ASME Code manufactured vacuum jacketed and are made of stainless steel. The vessels have continuously been monitored with an immersed current corrosion protection system to ensure that the vessel is protected from corrosion. The records you supplied indicate that vessel remain in good condition.

The vessels were installed without test plates that could be pulled up at a three year interval due to the immersed current system providing satisfactory corrosion protection. The original acceptance depended upon the vessels being exposed so a through external inspection could be performed at fifteen years after installation. This would be in 2015 and 2016.

Operations of the LNG facilities are scheduled to end in 2018. You have requested to not expose the tanks for an external inspection and wait until the operations cease and then remove them from service. This request is based upon the positive corrosion protection that has been in place since the vessels were installed. It is also based upon the low level of risk of a leak occurring and not being noticed. Because the vessels are vacuum jacketed, any through wall corrosion in the outer jacket will result in a loss of vacuum. This will cause the LNG contained in the inner vessel to increase in temperature and pressure which will result in a system upset and shutdown. If this occurs, the vessels shall be emptied and uncovered for a complete inspection prior to any filling operations taking place.

Your request is acceptable. The vessels shall be removed from no later than December 31, 2018.

Sincerely,

A handwritten signature in black ink, appearing to read "Donald C. Cook". The signature is fluid and cursive, with the first name "Donald" and last name "Cook" clearly distinguishable.

Donald C. Cook
Principal Safety Engineer

APPENDIX D

SCAQMD Requirements

(Adopted December 4, 1987)(Amended April 1, 1988)(Amended July 14, 1995)
(Amended May 2, 2008)

**RULE 1149. STORAGE TANK AND PIPELINE CLEANING AND
DEGASSING**

(a) Purpose and Applicability

The purpose of this rule is to reduce Volatile Organic Compounds (VOCs) and toxics emissions from roof landings, cleaning, maintenance, testing, repair and removal of storage tanks and pipelines. This rule applies to the cleaning and degassing of a pipeline opened to atmosphere outside the boundaries of a facility, stationary tank, reservoir, or other container, storing or last used to store VOCs.

(b) Definitions

- (1) CLEANING is the process of washing or rinsing a stationary tank, reservoir, pipelines, or other container or removing vapor, sludge, or rinsing liquid from a stationary tank, reservoir, or other container.
- (2) DEGASSING is the process of removing organic gases from a stationary tank, reservoir, pipelines, or other container.
- (3) DRAIN-DRY BREAKOUT TANK is an above ground storage tank designed such that the floating roof rests on support legs no higher than one foot along the tank shell with a bottom sloped to a sump or sumps such that no product or sludge remains on the tank bottom and walls after emptying except clingage and is primarily used to receive product from pipelines and to distribute product back into pipelines.
- (4) EXEMPT COMPOUNDS are defined in Rule 102 -- Definition of Terms.
- (5) FACILITY means any source or group of sources or other air contaminant-emitting activities that are located on one or more contiguous properties within the District, in actual physical contact or separated solely by a public roadway or other public right of way, and are owned by the same person (or by persons under common control).
- (6) LIQUID BALANCING is a process in which an organic liquid having a Reid vapor pressure subject to this rule is replaced in a floating roof storage tank by an organic liquid with a Reid vapor pressure that is not subject to this rule without landing the floating roof on its internal supports.

- (7) LIQUID LEAK is the dripping of liquid VOC at the rate of more than three drops per minute.
 - (8) NATURAL GAS is a mixture of hydrocarbons, with at least 80 percent methane by volume and less than 10 percent by weight VOC, determined according to the test method specified in paragraph (d)(3).
 - (9) REID VAPOR PRESSURE (RVP) is the vapor pressure of a product determined in a volume of air four times greater than the liquid volume at 100° F.
 - (10) VAPOR LEAK is the detection of gaseous volatile organic compounds in excess of 5,000 ppmv, measured as methane.
 - (11) VAPOR TIGHT CONDITION is a condition that exists when the reading on a portable hydrocarbon analyzer is less than 500 parts per million (ppm), measured as methane, above background, measured using EPA Reference Method 21.
 - (12) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102.
- (c) Requirements
- (1) A stationary tank, reservoir, or container of equal or greater capacity and containing or last containing any organic liquid with a vapor pressure equal or greater than in Table 1 shall not be opened to the atmosphere unless the emissions are controlled by one of the following:
 - (A) Liquid balancing; or
 - (B) Other control techniques such that the gaseous VOC concentration within the tank, reservoir or other container is reduced to less than 5,000 ppmv, measured as methane, for at least one hour after degassing operations have ceased.

Table 1 Capacity and Vapor Pressure Rule Applicability	
Capacity gallons (liters)	Vapor Pressure (RVP)
500 (1,893)	3.9 psia
26,420 (100,000)	2.6 psia
100,000 (378,500)	0.5 psia

- (2) The roof of a floating storage tank containing or last containing a VOC liquid with a Reid vapor pressure greater than 25 mm Hg (0.5 psi) may not rest upon its support legs after it has been emptied unless emissions are controlled by one of the following:
 - (A) The vapor space created is vented to a control device approved by the Executive Officer; or
 - (B) The gaseous VOC concentration within the tank, reservoir or other container is reduced to less than 5,000 ppmv, measured as methane, for at least one hour after degassing operations have ceased.
- (3) In lieu of meeting the requirements of paragraph (c)(2), drain-dry breakout tanks shall be maintained in a vapor tight condition outside the tank shell while the roof is resting upon its support legs and shall be monitored monthly. Records shall be maintained pursuant to paragraph (c)(11). Owners or operators of facilities requiring tank modifications to meet the drain-dry breakout tank definition and utilize this compliance option shall make the modifications according to the following schedule:
 - (A) At least 1/4 of the tanks subject to this provision by August 1, 2009;
 - (B) At least 1/2 of the tanks subject to this provision by August 1, 2010;
 - (C) At least 3/4 of the tanks subject to this provision by August 1, 2011; and
 - (D) All tanks subject to this provision by August 1, 2012.

By August 1, 2008, an owner or operator shall submit to the District a compliance plan identifying the applicable tanks and the schedule for modification completion. Applicable tanks shall be maintained in a vapor tight condition outside the tank shell while resting upon its support legs and monitored monthly.
- (4) Effective June 1, 2008, pipelines with a diameter of 6 inches or greater containing or last containing a VOC liquid with a Reid vapor pressure greater than 134 mm Hg (2.6 psi) shall not be opened to the atmosphere unless emissions are controlled by one of the following:
 - (A) The vapor space created is vented to a control device approved by the Executive Officer; or

- (B) The gaseous VOC concentration within the pipeline is reduced to less than 5,000 ppmv, measured as methane, for at least one hour after degassing operations have ceased; or
- (C) The gaseous VOC concentration outside the pipeline, as measured pursuant to paragraph (d)(1) while the pipeline is open, is less than 5,000 ppmv, measured as methane.

The process of removing liquid from pipelines shall be continuous and the liquid shall be immediately transferred into a container that meets the requirements of paragraph (c)(9). During the liquid removal process, the gaseous VOC concentration standard stated in paragraph (c)(4) will not apply.

- (5) Equipment used in the cleaning or degassing process shall be free of liquid and vapor leaks. This includes, but is not limited to: the degassing equipment, vacuum truck, pumps, hoses, and connections.
- (6) Effective June 1, 2008, vacuum trucks used to remove liquid, sludge or vapors from tanks or pipelines subject to this rule shall not exhaust vapors to the atmosphere greater than 500 ppmv, measured as methane. Until January 1, 2009, this provision will not apply after the tank or pipeline has met the requirements of paragraphs (c)(1), (c)(3) or (c)(4).
- (7) The District shall be notified of the intent to degas any tank or pipeline subject to the rule. Initial notifications shall be submitted in a written format approved by the Executive Officer at least two (2) hours and no more than two (2) days prior to the start of the degassing operation. The initial notification shall include:
 - (A) Start date and time;
 - (B) Tank or pipeline owner, address, tank location and applicable tank permit numbers;
 - (C) Degassing operator's name, contact person, telephone number and applicable control equipment permit numbers; and
 - (D) Tank or pipeline capacity, volume of space degassed and materials stored.

A follow-up notification, using a form approved by the Executive Officer which is fully completed, including associated notification fees, as set forth in Rule 301 – Permitting and Associated Fees, must be submitted to the District postmarked, received or delivered no later than three business days following the degassing activity.

- (8) The VOC concentration in the exhaust stream of any control device shall be less than 500 ppmv, measured as methane. When carbon adsorption is used for degassing:
 - (A) An organic vapor monitor/analyzer approved by the Executive Officer or designee shall be installed and operated at any exit of the carbon adsorption device to determine the concentration of hydrocarbon discharged to the atmosphere.
 - (B) An owner or operator shall not regenerate any spent carbon from a carbon adsorber unless the regeneration is conducted using equipment operating under a valid permit to operate issued by the Executive Officer or designee.
- (9) Any liquids or sludge removed from the tank or pipeline prior to the tank meeting the requirements of paragraphs (c)(1), (c)(3) or (c)(4), shall be handled or disposed of in closed containers that are free of liquid and vapor leaks or in a manner previously approved by the Executive Officer.
- (10) A person engaged in the off-site cleaning or degassing of stationary storage tanks shall complete the cleaning and degassing operations in accordance with the requirements of subdivision (c) within 14 days of receiving the tanks.
- (11) Records shall be maintained by the owner and operator for two (2) years, or five (5) years if the facility is a Title V facility, and be made available to the Executive Officer or designee upon request. The records shall include, but are not limited to:
 - (A) All notification requirements under paragraph (c)(7);
 - (B) Tank or pipeline owner, address and applicable tank permit numbers;
 - (C) Tank or pipeline degassing operator's name, contact person, telephone number and applicable control equipment permit numbers;
 - (D) Tank or pipeline capacity, volume of vapor space degassed and materials stored;
 - (E) The flow rate and gaseous VOC concentration vented to the degassing equipment, if applicable;
 - (F) The gaseous VOC concentration of the degassing equipment exhaust, if applicable;

- (G) The total amount of VOC processed in the degassing equipment, if applicable; and
- (H) All readings measured according to EPA Reference Test Method 21, as specified in subdivision (d).

(d) Test Methods

For the purpose of this rule, the following test methods shall be used.

- (1) Measurement of gaseous VOC concentrations shall be conducted according to EPA Reference Method 21 using an appropriate analyzer calibrated with methane at a distance of 1 cm (0.4 inch) or less from the source. For pipelines, the probe inlet shall be located one foot away from the opening in the pipeline. When determining compliance with subparagraphs (c)(1)(B) or (c)(2)(B), the probe inlet of the monitoring instrument shall be located no more than 1 foot above the bottom of the tank or no more than 1 foot above the surface of the sludge material on the bottom of the tank. For upright, cylindrical aboveground tanks, the probe inlet shall be located at least 2 feet away from the inner surface of the tank wall.
- (2) Reid vapor pressure is determined by ASTM D 323-90.
- (3) The VOC content of gases shall be determined according to ASTM Method D 1945.

(e) Exemptions

- (1) The provisions of this rule shall not apply to the degassing of less than 100 feet of a pipeline.
- (2) The provisions of this rule shall not apply to the degassing of less than 0.25 miles of a pipeline that contained or previously contained any organic liquid having a Reid vapor pressure less than 202 mm Hg (3.9 psi).
- (3) The provisions of subdivision (c) shall not apply to natural gas pipelines.
- (4) The provisions of subdivision (c) shall not apply while connecting or disconnecting degassing equipment, sampling emissions, purging inert gas from pipelines when reintroducing product or while connecting or disconnecting pipelines and associated control techniques or control equipment.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

**RULE 1166 -- VOLATILE ORGANIC COMPOUND EMISSIONS FROM
DECONTAMINATION OF SOIL**

(Adopted August 5, 1988)(Amended July 14, 1995)(Amended May 11, 2001)

(a) Applicability

This rule sets requirements to control the emission of Volatile Organic Compounds (VOC) from excavating, grading, handling and treating VOC-contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition.

(b) Definitions

- (1) EXCAVATION is the process of digging out and removing materials, including any material necessary to that process such as the digging out and removal of asphalt or concrete necessary to expose, dig out and remove known VOC contaminated soil.
- (2) GRADING is the process of leveling off to produce a smooth surface including the removal of any material necessary to that process such as asphalt and concrete necessary to expose known VOC contaminated soil.
- (3) SOIL DECONTAMINATION MEASURE is any process approved by the Executive Officer to remediate, destroy, remove, or encapsulate VOC and VOC-contaminated soil.
- (4) UNDERGROUND STORAGE TANK means any one or combination of tanks, including pipes connected thereto, which is used for the storage of organic liquid which is more than 50% beneath the surface of the ground.
- (5) VOC CONTAMINATED SOIL is a soil which registers a concentration of 50 ppm or greater of Volatile Organic Compounds as measured before suppression materials have been applied and at a distance of no more than three inches from the surface of the excavated soil with an organic vapor analyzer calibrated with hexane.
- (6) VOC CONTAMINATED SOIL MITIGATION PLAN is a plan to minimize VOC emissions to the atmosphere during excavation and any subsequent handling of VOC-contaminated soil.

- (7) VOLATILE ORGANIC COMPOUND (VOC) is any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds. Exempt compounds are defined in Rule 102—Definition Of Terms.
 - (8) VOLATILE ORGANIC MATERIALS include gasoline, diesel, crude oil, lubricant, waste oil, adhesive, paint, stain, solvent, resin, monomer, and/or any other material containing VOC.
- (c) Requirements
- (1) A person excavating an underground storage tank and/or transfer piping storing or previously storing VOC materials, or excavating or grading soil containing VOC materials shall:
 - (A) Apply for, obtain and operate pursuant to a mitigation plan approved by the Executive Officer prior to commencement of excavation or handling. The mitigation plan general requirement and application requirements are found in Attachment A to this rule. A copy of the approved plan must be on site during the entire excavation period.
 - (B) Notify the Executive Officer at least 24 hours prior to excavation using a form approved by the Executive Officer which is fully completed.

If the excavation does not commence on start date, renotification is required.

An alternative notification procedure may be authorized for multiple excavations within a single facility, with prior written approval from the Executive Officer.
 - (C) Monitor for VOC contamination pursuant to subdivision (e), at least once every 15 minutes commencing at the beginning of excavation or grading and record all VOC concentration readings in a format approved by the Executive Officer; and
 - (D) When VOC-contaminated soil is detected during excavation or grading:
 - (i) Implement the approved mitigation plan (Attachment A).
 - (ii) Notify the Executive Officer within 24 hours of detection of VOC-contaminated soil.

- (iii) Monitor and record VOC concentration readings as prescribed in the plan. Monitoring records must be kept available on site.
 - (iv) Keep calibration records for all monitoring instruments available on site.
- (2) A person handling VOC-contaminated soil at or from an excavation or grading site shall:
 - (A) Segregate VOC-contaminated stockpiles from non-VOC contaminated stockpiles such that mixing of the stockpiles does not take place.
 - (B) Spray VOC-contaminated soil stockpiles with water and/or approved vapor suppressant and cover them with plastic sheeting for all periods of inactivity lasting more than one hour.
 - (C) Conduct a daily visual inspection of all covered VOC contaminated soil stockpiles to ensure the integrity of the plastic covered surfaces. A daily inspection record must be maintained on site.
 - (D) Comply with the provisions in subparagraph (c) (1)(A) and clause (c)(1)(D)(i).
 - (E) Maintain a record of the identification and business addresses of the generator, transporter and storage/treatment facilities. Such record shall be signed by each party at the time custody is transferred.
 - (F) Treat or remove contaminated soil from an excavation or grading site within 30 days from the time of excavation.
- (3) If the VOC concentration in the excavated soil is measured at greater than 1000 ppm, spray the soil with water or vapor suppressant and:
 - (A) As soon as possible, but not more than 15 minutes, place the soil in sealed containers, or
 - (B) As soon as possible, but not more than 15 minutes, load into trucks, moisten with additional water, cover and transport off site, or
 - (C) Implement other alternative storage methods approved in writing by the Executive Officer.

- (4) A person treating VOC-contaminated soil shall:
 - (A) Obtain a permit to construct and operate treatment equipment, as applicable, from the Executive Officer, and
 - (B) Implement VOC-contaminated soil decontamination measures, as approved by the Executive Officer in writing, which result in Best Available Control Technology applied during all segments, and which include, but are not limited to, at least one of the following:
 - (i) Installation and operation of an underground VOC collection system and a disposal system prior to excavation.
 - (ii) Collection and disposal of the VOC from the excavated soil on-site using equipment approved by the Executive Officer.
 - (iii) Any equivalent VOC-contaminated soil control measure previously approved in writing by the Executive Officer.
- (5) A person shall not engage in or allow any on-site or off-site spreading, grading or screening of VOC-contaminated soil, which results in uncontrolled evaporation of VOC to the atmosphere.
- (6) Loading trucks for contaminated soil must meet the following:
 - (A) The truck and trailer shall be adequately tarped prior to leaving the site; no excavated materials shall extend above the sides or rear of the truck or trailer to prevent soil spillage during transport, and
 - (B) The exterior of the truck, trailer and tires shall be cleaned off prior to the truck leaving the site.
- (d) Exemptions
 - (1) The provisions of this rule shall not apply to the following:
 - (A) Excavation, handling, and treating of less than one (1) cubic yard of contaminated soil.
 - (B) Removal of soil for sampling purposes.
 - (C) Accidental spillage of five (5) gallons or less of VOC containing material.

- (2) The provisions of paragraphs (c)(1) and (c)(2) shall not apply to soil excavation or handling as a result of an emergency as declared by an authorized health officer, agricultural commissioner, fire protection officer, or other authorized agency officer. Whenever possible, the Executive Officer shall be notified by telephone prior to commencing such excavation. The Executive Officer shall be notified in writing no later than 48 hours following such excavation. Written notification shall include written emergency declaration from the authorized officer.
- (e) Test Methods
 - (1) A person shall measure excavated soils for volatile organic compounds to determine contamination by:
 - (A) Using an organic vapor analyzer calibrated with hexane, complying with 40 CFR Part 60 Appendix A, EPA Reference Method 21 Section 3 or any equivalent method with prior approval in writing by the Executive Officer. If other calibrating gases are used, then the measured readings shall be correlated to and expressed as hexane.
 - (B) Placing the probe inlet at a distance of no more than three inches from the surface of the excavated soil and while slowly moving the probe across the soil surface, observe the instrument readout. If an increased meter reading is observed, continue to sample the excavated soil until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately double the instrument response time. If the maximum observed meter reading is greater than the 50 ppm standard in the regulation, record and report the results.
 - (2) The presence of VOC in stored or spillage materials shall be determined by SCAQMD Method 313 [Determination of Presence of Volatile Organic Compounds (VOC) in Headspace] and/or Method 304 (Determination of Volatile Organic Compounds in Various Materials) contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.

(f) Enforcement

- (1) Violation of any provision of this rule or the violation of the approved mitigation plan shall be grounds for the Executive Officer to amend or revoke the mitigation plan, in addition to penalties provided by the Health & Safety Code.
- (2) If the owner or operator is served with a Notice of Violation for creating a public nuisance, the owner or operator shall suspend operation until the public nuisance is mitigated to the satisfaction of the Executive Officer.

ATTACHMENT A
GENERAL MITIGATION PLANS REQUIREMENTS

VOC Contaminated Soil Mitigation Plans shall be written to minimize VOC emissions to the atmosphere during excavation, grading, handling and treatment of VOC contaminated soil. VOC Contaminated Soil Mitigation Plans shall consist of three types: Various Locations, Site Specific and Facility Treatment.

- (1) General Requirements
 - (A) A plan is not transferable.
 - (B) A person responsible for the excavation, grading or handling of VOC contaminated soil must be completely familiar with the plan and must adhere to the plan requirement. The Executive Officer may require that the plan be signed by the owner and/or operator.
 - (C) A plan may be amended upon renewal.
 - (D) Permission to excavate, grade or handle VOC contaminated soil may be withdrawn by the District upon a finding by the Executive Officer that the excavation, grading or handling of the VOC contaminated soil is causing a public nuisance or violating other AQMD rules or regulations.
- (2) Various Location Plans:
 - (A) Shall be limited to the excavation of 2000 cubic yards or less of VOC contaminated soil in any consecutive 12 month period at the same site.
 - (B) Shall not be used in conjunction with any other various location plan at the same site within a consecutive 12-month period.
 - (C) Shall expire after one year from issuance unless renewed.
 - (D) Shall not be issued for nor used for operations that involve grading, soil treatment or remediation, or landfills.
- (3) Site Specific Plans:
 - (A) Shall be for excavation of greater than 2000 cubic yards of VOC contaminated soil.
 - (B) Shall be issued for specific excavation or grading locations for a period not to exceed two years.
 - (C) Shall not be renewable.

- (4) Facility Treatment Plans:
 - (A) Shall be issued for a treatment facility at a permanent location.
 - (B) Shall expire after one year from issuance unless renewed.
- (5) Applications for Site Specific Plans shall contain as a minimum:
 - (A) Reasons for excavation or grading.
 - (B) Cause of VOC soil contamination and history of the site.
 - (C) Description of tanks or piping associated with the soil contamination.
 - (D) An estimate of the amount of contaminated soil.
 - (E) The operating schedule for excavation and removal.
 - (F) Description of how the excavation or grading will be conducted.
 - (G) Description of mitigation measures for dust, odors and VOC.
 - (H) Details of disposal of VOC contaminated soil, including the ultimate receptor.
 - (I) Description of monitoring equipment and techniques.
 - (J) A map showing the facility layout, property line, and surrounding area up to 2500 feet away, and including any schools, residential areas or other sensitive receptors such as hospitals or locations where children or elderly people live or work.
 - (K) Designation of a person who can conduct a site inspection with the Executive Officer prior to issuance of the plan.
- (6) Applications for Facility Treatment Plans shall at a minimum:
 - (A) Include a list of all AQMD permits to construct or operate which have been issued for that treatment and control equipment.
 - (B) Provide for the implementation of VOC-contaminated soil decontamination measures, as approved by the Executive Officer in writing, which result in Best Available Control Technology during all operations.
 - (C) Provide a map showing the facility layout including the location of all proposed VOC and non-VOC contaminated soil stockpiles.
 - (D) Specify the total amount of VOC contaminated soil proposed to be stockpiled on site.
 - (E) Provide for VOC contaminated soil stockpiles to be kept moist with water or suppressant and be covered to prevent fugitive emissions.

- (F) Provide for VOC contaminated soil stockpiles to be segregated from non-VOC contaminated soil stockpiles.
 - (G) Provide for maintenance of records for stockpiles according to the source name, address and dates of reception.
 - (H) Provide for records of the generator, transporter and storage/treatment facilities and indicate their identification and business addresses. Such records shall be signed by each party at the time custody is transferred.
 - (I) Provide a map showing the facility layout, property line, and surrounding area up to 2500 feet away, and including any schools, residential area or other sensitive receptors such as hospitals, or locations where children or elderly people live or work.
 - (J) Designation of a person who can conduct a site inspection with the Executive Officer prior to issuance of the plan.
 - (K) Specify the operating schedule and maximum amount of VOC-contaminated soil proposed to be remediated on a daily basis.
- (7) In approving a plan, the Executive Officer require reasonable conditions deemed necessary to ensure the operations comply with the plan and AQMD rules. The conditions may include, but shall not be limited to, procedures for ensuring responsibility for the implementation of the plan, accessibility to the site for AQMD staff, notification of actions required by the plan, identification of emission receptors, monitoring and testing, suppression and covering of stockpiles, prevention of public nuisance from VOC or dust emissions, prevention of fugitive emissions of VOC contaminated soil, loading of truck trailers, and disposal and treatment.
- (8) In approving a plan, the Executive Officer may require any records deemed necessary to be maintained by the operator to demonstrate compliance with the plan. Such records shall be retained for at least 2 years and be made available to the Executive officer upon request.

APPENDIX E

UST Removal Guidelines City of Anaheim



City of Anaheim
Fire Department
Fire Prevention Bureau



Specifications and Requirements

Subject: UNDERGROUND STORAGE TANK REMOVAL GUIDELINES

References: California Fire Code, 2007 Edition; California Health & Safety Code, Chapter 6.7; California Code of Regulations, Title 23, Division 3, Chapter 16

A permit must be obtained from the Anaheim Fire Department prior to the start of underground storage tank (UST) removal activities, and be maintained on site at all times with a copy of the approved removal plans. Failure to obtain a permit or abide by these guidelines may result in the issuance of a citation. The Public Works and Planning Departments must acknowledge review of the plans for the project prior to permit issuance.

Obtaining a Permit

To obtain a permit, submit the following to the Anaheim Fire Department, Hazardous Materials Section, located at 201 S. Anaheim Blvd., #300, Anaheim, CA 92805:

1. Facility Closure Plan (if applicable)
2. City Building Division Permits (if applicable)
3. Copy of current City Business License
4. Copy of Workers' Compensation Coverage
5. Copy of California Contractor's License (A, B, C-36, D-40 only)
6. Copy of Hazardous Substance Removal Certification
7. Completed Permit Application
8. Three (3) sets of plans which include: tank(s) size, current and past contents, location of tank(s) and piping, utilities, structures, property lines and streets
9. Appropriate Permit Fee
10. Statement indicating whether UST(s) will be transported as hazardous or non-hazardous waste
11. UPCF UST Facility Information and Tank Information forms
12. A statement from the property owner indicating the intended disposition of the property once the tanks have been removed (i.e., reinstallation, sale of property)

THE UST REMOVAL PERMIT IS VALID FOR ONE (1) YEAR.

UST Removal as Hazardous or Non-Hazardous Waste

1. HAZARDOUS WASTE

Tanks to be removed and transported as hazardous waste must be dry iced at a ratio of not less than 10 pounds per 1,000 gallons of tank capacity. A tank may not be lifted from the excavation until it has been demonstrated to the Fire Department representative that the atmosphere in the tank is less than 10% LEL or 5% oxygen. The Uniform Hazardous Waste Manifest(s) must be used for all tanks and/or piping disposed of as hazardous waste.

2. NON-HAZARDOUS WASTE

Tanks and piping to be removed and transported as non-hazardous waste must be triple-rinsed and certified by a registered Marine Chemist or Industrial Hygienist. Tanks may not be lifted from the excavation until a copy of the certification for each tank and associated piping is presented to a representative of the Fire Department.

Underground Storage Tank Removal Procedures

Upon issuance of the permit, notify this department **48 hours prior** to starting the project. A representative of this department may visit, or remain, on the site(s) to verify compliance with these guidelines. A properly calibrated and serviced Combustible Gas Indicator must be provided for determining LEL and/or oxygen concentrations.

City of Anaheim
Fire Department
Fire Prevention Bureau
Specifications and Requirements

The site must be secured to prevent pedestrian and vehicular access and “NO SMOKING” signs shall be posted. Appropriate size and number of fire extinguishers shall be on site at all times.

1. If the amount of remaining materials in the tank(s) exceeds 60 gallons and is a Class I or II liquid (gasoline and diesel), a flammable/content permit must be obtained. Notify this department 48 hours in advance to schedule the flammable/content removal inspection. Remove as much material from the tank(s) as possible and dispose of properly.
2. Purge all piping of hazardous materials and vapors. Accomplish this by flushing a sufficient quantity of water through all piping back into the tank(s).
3. The ground surface covering may then be cut and removed. Excavation to expose the tank(s) and piping may begin, being careful not to puncture the tank(s) or cause a spark. Only the top surface of the tank(s) may be uncovered at this point. Disconnect, but leave in place, all piping in their trenches. Equipment and supplies shall be readily available to control any vapor emissions, such as bulldozer, back hoe, skip loader, heavy plastics, etc.
4. Access the tank(s) through existing openings. Do not cut any new, or expand existing, openings without prior approval from a registered Marine Chemist or registered Industrial Hygienist. Only cold cutting on top of tanks with an atmosphere of less than 10% LEL or 5% oxygen in the top third of the tank will be approved.
5. If tank(s) are to be removed as non-hazardous waste, begin degassing, if required, according to SCAQMD (909-396-2000) regulations. Begin cleaning the tank(s), and properly collect waste rinse material for disposal. Continue degassing as necessary. After achieving the acceptable SCAQMD permit level and demonstrating an acceptable level (see #6) to the Fire Department representative, holes may be cut on the top of the tank. After cleaning and triple rinsing is completed, the tank(s) shall be inspected, certified and marked by a registered Marine Chemist or registered Industrial Hygienist. An official signed certificate must be shown to the Fire Department representative prior to further excavating around the tank(s). Uniform Hazardous Waste Manifest(s) must be completed and shown to the Fire Department representative prior to the rinse waste leaving the site.
6. If tank(s) are to be removed as hazardous waste, remove as much liquid from the tank(s) as possible. Add a minimum of 10 pounds of dry ice per 1,000 gallons tank capacity for each tank. Allow adequate time for the dry ice to displace the oxygen in the tank(s). An atmosphere of less than 5% oxygen shall be achieved and demonstrated to the Fire Department representative prior to further excavating around the tank(s).
7. Upon completion of the excavation, the Fire Department representative shall give the approval for the removal of the tank(s). An additional % LEL or % oxygen reading may be necessary at this time. If the tank(s) are being disposed as Hazardous Waste, an additional oxygen concentration reading in the tank(s) is required to verify that it is below 5%. Any tank above this 5% shall not be removed and will require additional dry ice.
8. A crane is required for removal of all tanks above 550 gallon capacity. After lifting a tank from the excavation, the Fire Department representative will inspect if for evidence of a release and determine the overall condition. Upon completion of this evaluation, the tank must go directly to an approved transportation vehicle and be properly secured.
9. All piping and electrical wiring associated with the tank(s) shall be removed and disposed of properly, unless removal might compromise the integrity of a structure. Abandonment-in-place of any piping or wiring requires prior approval from this department. Upon approval, piping shall be purged, filled and capped.
10. Soil and/or ground water samples shall be taken after removal of the tank(s), but before the piping is removed. Soil samples may only be collected in brass or stainless steel cylinders with caps, Teflon and labels. A sealable cooler, with a cooling material, must be on site prior to the start of any sampling. The Fire Department representative will direct all soil and/or water sampling. At a minimum, samples shall be taken under each dispenser, every 20 feet of product piping (so as to include fittings) and ends of each tank. Stock pile samples of soil at roughly every 25 cubic yards are also required.

City of Anaheim
Fire Department
Fire Prevention Bureau
Specifications and Requirements

11. The “Chain of Custody” will be prepared by the Fire Department representative and shall accompany the samples to a State Certified Laboratory for testing. The analyses to be conducted, as indicated on the Chain of Custody, are dictated by the State Water Resources Control Board’s approved methods for each substance that was previously stored in the tank(s). Laboratory analyses must occur within the allowable holding period. The official written report of the analytical results and the completed **white copy** of the “Chain of Custody” must be sent directly from the laboratory to the Anaheim Fire Department within **thirty (30) days** of the sampling date.

Laboratory Testing of Samples Taken

All soil and water samples taken as part of a tank removal project must be analyzed for the hazardous material(s) and certain ingredients present in the tank over the life of the tank by a laboratory that is state certified for all of the EPA approved test methods used. The Anaheim Fire Department does not specify which test methods to be used on each sample, only the chemical(s) to be analyzed for.

Also, if the TRPH on a used oil sample is greater than 1,000 ppm, then EPA method 8260 must be used for MTBE, BTXE and chlorinated solvents.

Closure/Completion Letter

Upon satisfactory completion of the above activities and the receipt of the eight items listed below, a letter will be issued to the UST(s) owner(s) stating that the project has been completed to the extent of the Anaheim Fire Department’s jurisdiction. However, this does not include any cleanup activities that may be required by the Anaheim Public Utilities Department, Environmental Services.

The following items shall be submitted to the Anaheim Fire Department within **thirty (30) days** of the conclusion of sampling:

1. White copy of Chain of Custody
2. Laboratory results for all samples tested
3. Destruction Certificate for all tanks and piping
4. Photocopy of all Uniform Hazardous Waste Manifests as left site
5. Photocopy of all Uniform Hazardous Waste Manifests signed by the TSDF
6. Marine Chemist/Industrial Hygienist Certificate
7. Unauthorized Release Report (URR)
8. SCAQMD Monitoring Records

**For further information regarding these requirements contact: Hazardous Materials Section at
(714) 765-4040 between the hours of
8:00 a.m. to 5:00 p.m., Monday through Friday.**

APPENDIX F

UST Removal Guidelines City of Garden Grove

These guidelines apply to the owner of an underground storage tank (UST) subject to the permanent closure requirements of the California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Storage Tank Regulations, Article 7, Closure Requirements, and their agents, who are removing a UST and/or its associated piping.

1. Obtain a Facility Modification Application from Orange County Health Care Agency (OCHCA) Environmental Health. Applications may be obtained in person at the address provided below, or by calling Environmental Health at (714) 433-6000, or downloaded from the following website: <http://occupainfo.com/forms>.
2. At least 30 calendar days prior to the expected UST removal date, submit a completed Facility Modification Application, four sets of plans (drawing size not to exceed 11x17 inches) and a closure fee to Environmental Health at the office address given below. Plans must include:
 - a. A site location map, tank information/details, and
 - b. A plot plan that:
 - i. Identifies site location, inclusive of cross streets and a North arrow,
 - ii. Shows existing structures, utilities, and all existing USTs and associated piping,
 - iii. Identifies the USTs and/or piping to be removed,
 - iv. Clearly identifies the entire length of piping proposed for closure in place, if appropriate, See Section 7 (c) below for a description of piping that may be closed in place, and
 - v. Includes the size of the USTs to be removed and the types of hazardous substances that have been stored in the USTs.
3. Obtain closure and/or excavation permits from the appropriate agencies such as the County Planning and Development Services Department or city building department, the Orange County Fire Authority or local fire department and the South Coast Air Quality Management District (AQMD).
4. Submit a copy of the Hazardous Substance Removal Certification issued to the contractor performing the removal work. Section 7058.7 (e) of the Business and Professions Code states "A contractor may not install or remove a UST unless the contractor has passed the hazardous substance certification examination developed pursuant to this section." A contractor who is not certified may bid on or contract for the removal of a UST, if the work is performed by a contractor who is certified.
5. Schedule a UST removal inspection with Environmental Health's Hazardous Materials Mitigation Section. Environmental Health staff must be onsite to observe the condition of the UST(s) during removal and direct sampling to determine whether a reportable unauthorized release has occurred. Provide at least 48-hour notice to Environmental Health when scheduling an onsite inspection. A concurrent inspection must be scheduled with the Orange County Fire Authority or local fire department, which must also be represented at the UST removal. Alternate accommodations must be made in advance of field activities if Fire personnel decline the opportunity to be onsite during tank removal activities.

6. When removing a UST system and/or its piping, the owner of the UST(s) must comply with applicable provisions of the California Code of Regulations (CCR) Division 3, Chapter 16, Article 7, Closure Requirements. These include provisions of Section 2672 (b) & (c) which including the following:
 - a. All residual liquid, solids, or sludge from the UST and/or its piping shall be removed and handled as hazardous waste or recyclable material;
 - b. If the UST to be removed contained a hazardous substance that could produce flammable vapors at standard temperature and pressure, then the USTs shall be inerted to levels that shall preclude explosion or to such lower vapor levels as may be required by the Orange County Fire Authority or local fire department. (Note: A representative from the Orange County Fire Authority or local fire department must be present prior to initiating this procedure.); and,
 - c. The UST and/or its associated piping shall be removed and disposed. Where removal of piping might damage structures or other in use piping is contained in a common trench, that piping may be closed in place after being emptied of all contents and capped.
7. Per CCR Section 2651 (d), the owner of a UST must demonstrate upon closure that no unauthorized release has occurred. This demonstration shall be based on sensory observations, monitoring equipment readings, soil sample analysis and/or water sample analysis. Sample collection activities are to be performed by staff provided by the project consultant or the laboratory doing the sample analysis.
 - a. Samples must be obtained from the excavations of any UST and/or piping removed. Regulations require two samples, one at each end of each UST removed and samples for each 20 linear feet of pipe trenching. Where closure in place of piping is necessary and where soil samples cannot otherwise be obtained, soil borings placed near the piping trench may be required. Further, in an effort to obtain data required for evaluation under State Water Board Resolution No. 2012-0062, sidewall samples from depths between 0-10 feet below ground surface may be required.
 - b. Samples are to be collected, handled and analyzed at the owner's expense per CCR Section 2649 and as indicated below:
 - i. The laboratory doing the sample analysis or the project consultant must provide adequate supplies of thin-walled stainless steel or brass cylinder sample holders with fitted polyethylene caps, labels, plastic bags and Teflon sheets. A cooler or ice chest with ice is also required to be onsite;
 - ii. When a sample is collected, each end of the collection cylinder should first be covered with a Teflon sheet. Caps should then be placed on the ends of the cylinder and an identifying label attached. Next, the cylinder should be placed in a cooler or ice chest to be chilled. The sample should be placed in a sealed plastic bag before chilling where needed to prevent water damage to the label;
 - iii. The samples should be transported, per arrangements made by the tank owner, to a State Certified Laboratory soon after the completion of sampling. A Chain of Custody form, completed by Environmental Health staff directing the sampling, must accompany the samples to the laboratory. The receiving laboratory should indicate in the designated laboratory section of the Chain of Custody form whether the

samples were received in a chilled state and whether County seals were intact upon arrival, and;

- iv. Samples collected at diesel or gasoline storage sites must be analyzed by an appropriate method for total petroleum hydrocarbons (TPH). TPH (GC/FID) with carbon chain identification is recommended for diesel sites. Total purgeable petroleum hydrocarbons [TPPH (GC/MS)] as gasoline is recommended for gasoline sites. In additional analysis by EPA Method 8260B full scan is required to analyze for volatile organic compounds (VOCs) that include benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, ethanol, Methyl Tertiary Butyl Ether (MTBE) and all other fuel oxygenates. Samples collected at waste oil tank storage sites must be analyzed for TPH with carbon chain identification using EPA Method 8015 or for total recoverable petroleum hydrocarbons using EPA Method 1664, for full scan VOCs including BTEX, MTBE and all other fuel oxygenates, and chlorinated solvents by EPA Method 8260B, and for polycyclic aromatic hydrocarbons using EPA Method 8310 or 8270C (SIM Mode)¹. Detection limits for all reported constituents must meet appropriate data quality objectives.
8. The detection of a reportable unauthorized release, based on field observations and/or the results of the soil and groundwater sample analysis, shall require compliance with the reporting requirements of CCR Section 2652 and the initial abatement and corrective action requirements of Articles 5 and 11 of Title 23, Division 3, Chapter 16, CCR.
9. The owner of the UST should provide site security to prevent unauthorized public access into excavated areas. This security may include temporary fencing or a twenty-four (24) hour security guard.
10. The owner of the UST shall have equipment onsite available to control any vapor emissions. The equipment may include bulldozers to backfill excavations and/or tarps to cover contaminated soil.
11. Documentation required to be forwarded to this Agency after UST removal includes:
 - a. A copy of the certificate of UST destruction,
 - b. Copies, signed by the receiving State permitted facility, of all Uniform Hazardous Waste Manifests used to transport the residual or rinseate liquid, solids, or sludge waste removed from the tanks, and
 - c. Original (wet) copies of the laboratory analytical report, and the white copy of the OCHCA Chain of Custody form, sent with samples to the laboratory, with all required information completed by the laboratory.

Where the above requirements are successfully completed and an unauthorized release requiring further action is not discovered, a completion of a UST closure letter will be issued to the UST owner by Environmental Health. Should an unauthorized release be discovered, Environmental Health's Site Mitigation Section will open a UST cleanup case and, upon satisfactory completion of the required corrective action, a letter of remedial action completion will be issued.

If you have any questions or need additional information, please contact the Environmental Health Hazardous Materials Mitigation Section at (714) 433-6000.

¹ Analytical methods listed above are subject to revision or update by EPA. Suggested test methods may require updating as analytical procedures are promulgated.

APPENDIX G

CALTRANS TRANSPORTATION PERMIT

CHAPTER II

TYPE OF PERMITS

200 GENERAL

This chapter covers the four types of permits that are authorized to be written.

The Single Trip Permit, the Annual Permit, the Repetitive Permit and the Direct Crossing Permit.

201 SINGLE TRIP PERMIT

A single trip permit is a permit issued for a qualifying load or vehicle moving one way and returning unladen or with the same type of load, if requested, within the specified time limits of the permit.

Qualifying loads are those single item, non-reducible units complying with CVC Section 320.5 that exceed statute limits for size and/or weight. Permits are issued for vehicles/loads reduced to their least dimension or weight. Overheight loads must be carried on a drop-deck semitrailer unless the length of the item exceeds the length of the loading deck. In this case, it may be appropriate to be hauled on a flatbed trailer if the load requires full deck support.

Permits shall not be issued for dimensions or weights that can be reduced to legal limits by repositioning and/or practical removal of a part, portion or unit therefrom. Additional items may be hauled provided the item(s) do not exceed the dimensions of the vehicle or permitted item and the loaded vehicle is of legal axle and gross weight.

A single trip permit shall be written for a minimum of 5 days with additional time granted, as justified, considering the length of haul, the type of load being transported, and possible delays en route due to construction and/or inclement weather (fog, rain, snow, etc.)

A single trip permit is authorized at a maximum width of 14'0"; a maximum overall length of 135'0"; a maximum rear overhang of 35'; a maximum front overhang of 30'; a maximum height not to be less than 3" below the lowest structure on the permitted route and a maximum of Purple weight. However there are some maximum dimensions as stipulated in the California Vehicle Code (CVC) that cannot be exceeded (e.g., 14' wide manufactured homes, 12' wide roof trusses).

The following is an alphabetical listing of frequently issued single trip permits and the maximum dimensions and weights authorized without prior approval from the Chief, Transportation Permit Branch.

201.1 BATCH PLANTS, TRAILER MOUNTED

Width - 14'0"

Length - Under Study

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Chart weight Purple

Overhang - Under Study

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

201.2 BOATS

Width - 15'0"

Variance required for boats greater than 14'0" in width except that Districts may approve any variance up to 15'0".

Length - Legal, unless it cannot be hauled on a legal length semitrailer within a legal length tractor, semitrailer combination.

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Chart Weight Purple. Single trip permits are not available if weight is involved unless an inspection report is on file for the boat trailer or concurrence has been obtained from the Headquarters Permit Office or a Headquarters Vehicle Inspector. Weight may be written if hauled on a heavy haul semitrailer normally used for extra legal weight loads other than boats and which is exempt from inspection under the heavy haul inspection policy.

Overhang - Legal per CVC 35410 If overhang exceeds statute limits, approval must be obtained from Headquarters Permit Office through the variance process (See Chapter IV).

201.3 CONCRETE FORMS

No permit available--must be hauled within the provision of the California Vehicle Code (except for Concrete Pipe and Concrete Vault forms. See this chapter).

201.4 CONCRETE PANELS, IN HORIZONTAL POSITION

Width - 12'0"

Length - Legal

Height - Legal

Weight - Legal

Overhang - Legal

201.5 CONCRETE PANELS - IN INCLINE OR SLANTED POSITION

Width - 12'0" (Legal when loaded on an "A" frame back-to-back)

Length - Legal

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Legal (Chart weight when loaded back-to-back on an "A" frame, one panel each side.)

Overhang - Legal

201.6 CONCRETE PANELS - IN VERTICAL POSITION

Width - Legal

Length - Legal

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Legal

Overhang - Legal

201.7 CONCRETE PILES

Gross weight in excess of 80,000 pounds will be allowed when all concrete piles on a load exceeds 80 feet. Gross weight will be allowed in conformance with formula B. Internal axle groups will also have to comply with Formula B.

Loads of long (over 80 feet) and short piles may not be mixed and receive a permit to exceed legal axle or legal gross weight. Variance approval from

Headquarters Permits is required when transporting piles greater than 80' in length.

201.8 CONCRETE PIPE

Width - 14'0"

Length - Legal

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Chart Weight Purple, except for large aqueduct projects, then green weight when more than 10 trips are requested.

Overhang - Legal

201.9 CONCRETE PIPE FORMS

Concrete pipe forms shall be considered non-reducible and shall be routinely issued permits in conformance with Caltrans policy governing all other single piece non-reducible items.

201.10 CONCRETE PUMP - SELF-PROPELLED

Width - 10'0"

Length - Legal

Height - Legal

Weight - Green or Unbonused Purple

Overhang - Under Study

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

201.11 CONCRETE PUMP - TRAILER MOUNTED

Width - 10'0"

Length - Legal

Height - Legal

Weight - Green or Unbonused Purple as determined by Headquarters Vehicle Inspector

Overhang - Legal

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or Headquarters Vehicle Inspector.

201.12 CONCRETE UTILITY BOXES

Width - 14'0"

Length - Legal

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Chart Weight Purple

Overhang - Legal

201.13 CONCRETE VAULTS

Width - 14'0"

Length - Legal

Height - 3" vertical clearance of the lowest structure in the permitted route.

Weight - Chart Weight Purple

Overhang - Legal

201.14 CONCRETE VAULT FORMS

Concrete vault forms shall be considered non-reducible and shall be routinely issued permits in conformance with Caltrans policy governing all other single piece non-reducible items.

201.15 CONTAINERIZED LOADS (Sea Containers)

Subject to California Weight and Size law. No permit available. For specialized transport protection, reasonable size provisions may be allowed where justified for protection of critical surfaces.

201.16 CONSTRUCTION EQUIPMENT, IMPLEMENTS OF HUSBANDRY AND OTHER EQUIPMENT

Width - 14'0" except for dozer blades, draft arms of scrapers and tracks on crawler type equipment (hydraulic hoes, cranes, draglines, harvesters, etc.) Under these conditions, width may be written up to 14'6".

Length - 135'0"

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Chart Weight Purple

Overhang - Legal per CVC 35410

If overhang exceeds statute limits, approval must be obtained from Headquarters Permit Office through the variance process (Chapter IV).

200.17 CONVEYORS - HAULED AS A LOAD

Width - 14'0"

Length - 135'0"

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Chart Weight Purple

Overhang - Legal per CVC 35410

If overhang exceeds statute limits, approval must be obtained from Headquarters Permit Office through the variance process (Chapter IV).

201.18 CONVEYORS - TOWED ON OWN WHEELS

Width - 14'0"

Length - 135'0"

Height - 3" vertical clearance of the lowest structure on the permitted route

Weight - Chart Weight Purple

Overhang - Under Study

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

201.19 CRANES, TRUCK

Width - 13'0" (Hard Metal) 13'4" at tire bulge

Length - 80'0" (Includes Boom Dolly, Trailer and Overhang)

Height - Legal

Weight - Purple, as determined by a Headquarters Vehicle Inspector.

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

Overhang - Legal per CVC 25410

If overhang exceeds statute limits, approval must be obtained from Headquarters Permit Office through the variance process (Chapter IV).

201.20 DRILL RIGS (WATER, OIL, OTHER) SELF PROPELLED/TRAILER MOUNTED

Width - 14'0"

Length - Legal

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Chart Weight Purple, as determined by Headquarters Vehicle Inspector

Overhang - Legal

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

201.21 FARM TRACTORS

Width - 14'0"

Length - Legal

Height - 3" vertical clearance of the lowest structure in the permitted route.

Weight - Chart Weight Purple

201.22 FIRE TRUCKS

Under Study

201.23 FIXED LOAD VEHICLE, SELF-PROPELLED/TRAILER MOUNTED

Width - 14'0"

Length - As determined by Headquarters Vehicle Inspector

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Chart Weight Purple

Overhang - Legal per CVC 35410

If overhang exceeds statute limits, approval must be obtained from Headquarters Permit Office through the variance process (See Chapter IV).

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

201.24 FIXED WIDTH SEMITRAILERS

A five-axle tractor semitrailer combination which has a fixed extralegal width is eligible for single trip permits with a qualifying load. (Load width equals or exceeds semitrailer width.) See Military Vehicle - Oversize Tactical (M172A1) for exception to this section.

Width - 14'0" (14'6" for specific construction equipment)

Length - Where load justifies it, extra legal length will be permitted

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Chart Weight Purple

Overhang - Legal per CVC 35410

201.25 HAZARDOUS MATERIAL

No permit available except for rocket motors - Refer all requests to the California Highway Patrol Motor Carrier Section.

(916) 445-6211 for License
(916) 445-1865 for inspection/route

See Radioactive Waste in this Chapter.

201.26 HEIGHT POLE

Single trip permits for unlimited height will be permitted for checking clearances on conventional highways.

Single trip permits for the expressed purpose of "Running-a-Route" on freeways or expressways are not permitted.

A permit is not required when escorting a permitted load or vehicle or when surveying a route for a permitted overheight load.

201.27 HOUSE MOVES

All house moves shall be treated as a variance to normal permit policy (See Chapter IV).

201.28 LAMINATED WOOD BEAMS

Length - 135'0" in combination overall length (may require a steerable dolly, dependent on the route).

Beams 80' or less must be hauled legal per CVC 35414.

201.29 LETTUCE COOLERS (Trailer Mounted)

Width - 14'0"

Length - As determined by Headquarters Vehicle Inspector

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Chart Weight Purple as determined by a Headquarters Vehicle Inspector

Overhang - Legal per CVC 35410.

If overhang exceeds statute limits, approval must be obtained from Headquarters Permit Office through the variance process (See Chapter IV).

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

201.30 LOG LOADERS (Self-Propelled)

Width - 10'0"

Length - Legal

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Chart Weight Purple, as determined by Headquarters Vehicle Inspector

**Overhang - 2/3 wheel base if first sold in California after January 1, 1988.
Unlimited if first sold in California prior to January 1, 1988.**

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

201.31 MAGNETIC RESONANCE IMAGING (MRI) MOBILE UNIT

A. "Mobile Unit A" is self propelled, ie: a single unit, 40' long motor truck. This unit must be "legal" ;in all respects. There are no permits available.

B. "Mobile Unit B" is a Fixed Load Towed Mobile MRI unit. It will require inspection by a Headquarters Vehicle Inspector.

It will take on the appearance of three (axle tractor and a two axle van type (enclosed) semitrailer (KP hookup). The permitted dimensions for this unit are as follows:

Height - Legal

Weight - Chart Weight Purple

Length - 60' box, 85' O.A.L.

King Pin - 53'

Width - 12'0" box; 12' 6" includes appurtenances (eaves, lights, door knobs, etc.). Pilot car will be required when the width exceeds 12'0" and in accordance with the pilot car table and criteria for permit vehicles and/or loads.

201.32 MAGNETIC RESONANCE IMAGING (MRI) (Hauled as a load)

Width - 14'0"

Length - 85'0" (70' maximum for housing, includes tongue)

King Pin - 65'0" maximum

Height - Legal

Weight - Chart Weight Purple

201.33 MANUFACTURED HOMES

Width - 14'0"

Length - 105'0" (80' maximum for housing, includes tongue).

Height - 3" vertical clearance of lowest structure on permitted route.

Weight - 6,000 lbs. maximum per axle under towed unit.

Permits are available only to transporters or licensed manufacturers and dealers (CVC 35790(2)(e)).

201.34 MILITARY TANKS

Width - 14'0"

Length - 135'0"

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Chart Weight Purple (cannot be "roaded" at extralegal weight)

Overhang - Legal

201.35 MILITARY TANK TRANSPORTER (M747)

Width - 11'4" unladen from base to base.

Length - Legal

Height - Legal

Weight - Legal

May exceed 80,000 pounds unladen with a permit to move from base to base only.
May haul any other load not to exceed legal axle weight nor 80,000 pounds gross weight.

Overhang - Legal

201.36 MILITARY VEHICLES - OVERSIZE TACTICAL (M172A1)

Width - 14'0"

Length - Legal

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Chart Weight Purple

Overhang - Legal

The M172A1 semitrailer is fixed at 9'7" width

201.37 MOBILE HOME FRAMES, STACKED

Width - 14'0"

Length - 105'0" (80' maximum for frames, including tongue)

Height - Legal

Weight - Legal

201.38 PILOT CAR

A permit is not required when escorting a permitted load or vehicle or when surveying a route for a permitted overheight load.

201.39 RADIOACTIVE WASTE

Width - Legal

Weight - Chart Weight Purple

Length - 135'0"

Height - Legal

Nuclear Regulatory Commission (NRC) identification number must be shown on the permit.

201.40 RE-BAR

No permit available without approval from the Chief, Transportation Permit Branch through the variance process (see Chapter IV).

201.41 REELED TUBING - TRAILER MOUNTED

Width - 14'0"

Length - Legal

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Chart Weight Purple

Overhang - Legal per CVC 35410

If overhang exceeds statute limits, approval must be obtained from Headquarters Permit Office through the variance process (See Chapter IV).

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

201.42 SCRAPERS

Width - 14'6" with draft arms 14'0" with draft arms removed

Length - 135'0"

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Chart Weight Purple

Overhang - Legal

201.43 STACKERS - HAULED AS A LOAD

Width - 14'0"

Length - 135'0"

Height - 3" vertical clearance of the lowest structure on the permitted route

Weight - Chart Weight Purple

Overhang - Legal

If overhang exceeds statute limits, approval must be obtained from Headquarters Permit Office through the variance process (See Chapter IV).

201.44 STACKERS - TOWED ON OWN WHEELS

Width - 14'0"

Length - 135'0"

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Chart Weight Purple as determined by a Headquarters Vehicle Inspector

Overhang - Under study

Single trip permits are not available unless an inspection report is on file or concurrence has been obtained from Headquarters Permit Office or a Headquarters Vehicle Inspector.

201.45 STEEL BEAMS

135'0" in overall combination length with written justification to the District Permit Engineer of non-reducibility in excess of 80'.

(May require a steerable dolly, depending on the route to be used).

Headquarters approval not required.

201.46 STEEL PLATE OF FIRST MANUFACTURE - in Horizontal Position

Width - 12'0"

Length - Legal

Height - Legal

Weight - Legal

Overhang - Legal

201.47 STEEL PLATE - In Incline or Slanted Position

Width - 12'0"

Length - Legal

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Legal

Overhang - Legal

201.48 STEEL PLATE - In Vertical Position

Width - Legal

Length - Legal

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Legal

Overhang - Legal

201.49 STEEL POLES

135'0" in combination length (includes pole, tractor and pole or pipe dolly) if used as light standards, antennas, transmission poles, etc., that are of special fabrication and cannot be spliced. (May require a steerable dolly, depending on the route to be used).

Headquarters approval not required.

201.50 SWIMMING POOLS

Width - 14'0"

Length - Legal

Height - 14'6"

Weight - Legal

Overhang - Legal

200.51 TREES

Width - 12'0" (District Permit Engineer may issued up to 14'0" if the tree is of a delicate nature and the limbs can not be tied or otherwise restricted to 12'0") (Anything over 14'0" requires variance approval, See Chapter IV).

Length - Legal

Height - Legal

Weight - Legal

Overhang - Legal

201.52 TIRES (OVERSIZE)

Overheight permit only with 3" vertical clearance of lowest structure on the permitted route.

201.53 TOW TRUCK, 2-AXLE

Width - 14'0"

Length - 135'0" For qualifying non-reducible vehicles or vehicle combinations (CVC 320.5)

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - 22,500 pounds on the single drive axle.

Chart weight purple for all other axles.

The permit may be written for any distance from origin to destination. Review application for routing according to the number of axles actually on the ground.

201.54 TOW TRUCK, 3-AXLE

Width - 14'0"

Length - 135'0" For qualifying non-reducible vehicles or vehicle combinations (CVC 320.5).

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Chart Weight Purple

The permit may be written for any distance from origin to destination. Review application for routing according to the number of axles actually on the ground.

201.55 TRAILER COACH (PARK MODELS)

Width - 12'0"

Length - Legal

Height - Legal

Weight - 6,000 lbs. maximum per axle under towed unit.

Permits are available only to a transporter or licensed manufacturers and dealers (CVC 3790(2)e).

201.56 TRUSSES - in Horizontal Position

Width - 12'0"

Length - Legal

Height - Legal

Weight - Legal

Overhang - Legal

201.57 TRUSSES - in Incline or Slanted Position

Width - 12'0"

Length - Legal

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Legal.

Overhang - Legal

201.58 TRUSSES - in Vertical Position

Width - Legal

Length - Legal

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Legal

Overhang - Legal

201.59 WALL SECTIONS (ONE-PIECE ROOF OR FLOOR) in Horizontal Position

Width - 12'0"

Length - Legal

Height - Legal

Weight - Legal

Overhang - Legal

201.60 WALL SECTIONS (ONE-PIECE ROOF OR FLOOR) in Incline or Slanted Position

Width - 12'0"

Length - Legal

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Legal

Overhang - Legal

201.61 WALL SECTIONS (ONE-PIECE ROOF OR FLOOR) in Vertical Position

Width - Legal

Length - Legal

Height - 3" vertical clearance of lowest structure on the permitted route.

Weight - Legal

Overhang - Legal

201.62 WOODEN POLES

Same as Laminated Wood Beams

201.63 YARDERS

Single trip permits are not available unless an inspection report is on file.

202 ANNUAL PERMITS

202.1 10' WIDE MANUFACTURED HOME

Width - 10'0"

Length - 105'0" (80'0" maximum for housing, includes tongue)

Height - 14'0"

Weight - 6,000 lbs. maximum per axle under towed unit

Range - Statewide, except on restricted routes.

Permits are available only to transporters or licensed manufacturers and dealers (CVC 35790)(2)e). In this case, a transporter is one who is in the business of moving manufactured homes and possesses an HCD decal.

202.2 12' WIDE MANUFACTURED HOME

Width - 12'0"

Length - 105'0" (80'0" maximum for housing, includes tongue)

Height - 14'0"

Weight - 6,000 lbs. maximum per axle under towed unit

Range - Statewide Arterial System.

Permits are available only to transporters or licensed manufacturers and dealers (CVC 35790)(2)e). In this case, a transporter is one who is in the business of moving manufactured homes and possesses an HCD decal.

202.3 PARK TRAILER COACH

Width - 12'0"

Length - Legal per 35401 CVC 65'0" combination (40'0" maximum for housing, includes tongue)

Height - 14'0" (Legal)

Weight - 6,000 lbs. maximum per axle under towed unit. Permits are available only to transporters or licensed manufacturers or dealers (CVC 35790(2)e). In this case, a transporter is one who is in the business of moving manufactured homes and possesses an HCD decal or has a license issued by the DMV to move a trailer coach (park model) or a recreational vehicle.

Range - Statewide Arterial System

202.4 STATEWIDE EXTRALEGAL (12'0" Wide OWL)

Width - 12'0"

Length - Legal per 35401 CVC

Height - 14'0" (Legal)

Weight - Legal

Overhang - Legal

Range - Statewide Arterial System

202.5 LOCAL EXTRALEGAL (12'0" Wide OWL)

Width - 12'0"

Length - Legal per 35401 CVC

Height - 14'0"

Weight - Legal

Overhang - Legal

Range - 100-mile radius

202.6 LOCAL EXTRALEGAL 8/12 WHEEL SEMITRAILER w/WEIGHT

Width - 12'0"

Length - Legal per 35401 CVC

Height - 14'0" (Legal)

Weight - Chart Weight Green

Overhang - Legal

Range - 100-mile radius

202.7 LOCAL EXTRALEGAL 16-WHEEL SEMITRAILER w/4'6" AXLE SPACING

Width - 12'0"

Length - Legal per 35401 CVC

Height - 14'0" (Legal)

Weight - Chart Weight - Bonused Green

Overhang - Legal

Range - 100-mile radius

202.8 LOCAL EXTRALEGAL 16-WHEEL SEMITRAILER w/5'9" AXLE SPACING

Width - 12'0"

Length - Legal per 35401 CVC

Height - 14'0"

Weight - Chart Weight - Bonused Green

Overhang - Legal

Range - 100-mile radius

202.9 FIXED WIDTH SEMITRAILER (Grandfather)

Width - 12'0"

Length - Legal per 35401 CVC

Height - 14'0" (Legal)

Weight - Chart Weight Green

Overhang - Legal

Range - 100-mile radius

202.10 UNLADEN MULTI-VEHICLE COMBINATION STATEWIDE

Width - 10'0"

Length - 85'0"

Height - 14'0" (Legal)

Weight - All axles legal, gross not to exceed 80,000 pounds.

Overhang - Legal

Range - Statewide

202.11 UNLADEN MULTI-VEHICLE COMBINATION LOCAL

Width - 11'0"

Length - 110'0"

Height - 14'0" (Legal)

Weight - All axles legal, gross not to exceed 80,000 pounds.

Overhang - Legal

Range - 100-mile radius

202.12 TRUCK CRANES 10' OR LESS IN WIDTH, Green Weight

Width - 10'0"

Length - 80'0" (Includes boom dolly, trailer, and overhang)

Height - 14'0" (Legal)

Weight - Green

**Overhang - 30'0" maximum rear (dolly)
35'0" maximum rear (trailer)**

Range - 100-mile radius

202.13 TRUCK CRANES, OVER 10' IN WIDTH, Green Weight

Width - 11'4" Hard Metal, 11'4" at Tire Bulge

Length - 80'0" (Includes boom dolly, trailer, and overhang)

Height - 14'0" (Legal)

Weight - Green

**Overhang - 30'0" maximum rear (dolly)
35'0" maximum rear (trailer)**

Range - 100-mile radius

202.14 TRUCK CRANE, Green Weight

Width - 11'4" Hard Metal, 11'4" at Tire Bulge

Length - 80'0" Includes Overhang

Height - 14'0" (Legal)

Weight - Green

Overhang - 30'0" maximum front, 25'0" rear

Range - 100-mile radius

202.15 TRUCK CRANES , 10' OR LESS IN WIDTH, Purple Weight

Width - 10'0"

Length - 80'0" (Includes boom dolly, trailer, and overhang)

Height - 14'0" (Legal)

Weight - Purple

**Overhang - 30'0" maximum rear (dolly)
35'0" maximum rear (trailer)**

Range - 75-mile radius

202.16 TRUCK CRANES, OVER 10' IN WIDTH, Purple Weight

Width - 11'4" Hard Metal, 11'4" at Tire Bulge

Length - 80'0" (Includes boom dolly, trailer, and overhang)

Height - 14'0"

Weight - Purple

**Overhang - 30'0" maximum rear (dolly)
35'0" maximum rear (trailer)**

Range - 75-mile radius

202.17 TRUCK CRANES - Purple Weight

Width - 11'4" Hard Metal, 11'4" at Tire Bulge

Length - 80'0"

Height - 14'0" (Legal)

Weight - Purple

Overhang - 30'0 maximum front, 25'0" rear

Range - 75-mile radius

202.18 FIXED LOAD, DRIVEN OR TOWED, Green Weight

202.19

Width - 10'0"

Length - Legal

Height - Legal

Weight - Green

Overhang - Legal

Range - 100-mile radius

202.20 FIXED LOAD, DRIVEN OR TOWED, Purple Weight

202.21

Width - 10'0"

Length - Legal

Height - Legal

Weight - Purple

Overhang - Legal

Range - 75-mile radius

202.22 TOW TRUCK, 2-AXLE

Width - Legal

Length - Tow truck plus length of legal combination

Height - Legal

Weight - 22,500 pounds on single drive Chart Weight Green for all other axles

Extralegal axle weight is authorized on routes within a 100-mile radius of the base of operation as shown on maps established by each district.

202.23 TOW TRUCK, 3-AXLE

Width - Legal

Length - Tow Truck plus length of legal combination

Height - Legal

Weight - Chart Weight Green

Extralegal axle weight is authorized on routes within a 100-mile radius of the base of operation as shown on maps established by each district.

203 REPETITIVE PERMITS

203.1 TWO-VEHICLE COMBINATION ONLY

Width - 12'0"

Length - Legal

Height - Legal

Weight - Green, Bonused

Range - From Point A to B to C and Return

Saturday and Sunday permitted if pilot car or detours are not required.

Valid for six-month period.

203.2 ANY VEHICLE COMBINATION (See Concrete Pipe)

Width - 14'0" (14'6" for specific Construction Equipment)

Length - 135'0"

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - Bonus Purple

Range - From Point A to B to C and Return

Valid for six-month period, Monday through Friday, Daylight hours. If overheight is involved, permit shall be valid for a period of 30 days, renewal by Transportation Permit Rider.

203.3 FOR PIPE (ANY VEHICLE COMBINATION) (SEE CONCRETE PIPE)

Width - 14'0"

Length - 135'0"

Height - 3" vertical clearance of the lowest structure on the permitted route.

Weight - First ten (10) loads, chart weight purple; remaining loads chart weight green

Range - From Point A to B and return, valid for six-month period, Monday through Friday, daylight hours for the first ten (10) loads; remaining loads may move on Saturday and Sunday unless prohibited by other weekend restrictions. If overheight is allowed, permit shall be valid for a period of 30 days, renewal by Transportation Permit Rider.

204 DIRECT CROSSING PERMIT

A vehicle which is driven or moved upon a highway only for the purpose of crossing the highway from one property to another in accordance with a permit issued by the Department of Transportation is exempt from registration.

This permit does not allow longitudinal travel on the highway nor does it allow over-dimensional or overweight vehicles or loads. A separate permit is required for extralegal vehicles or loads for direct crossing and/or longitudinal movements.

Permits for over-dimensional and/or overweight vehicles or loads on city or county streets or roads must be obtained from the city or county that has jurisdiction over the city or county streets or roads.