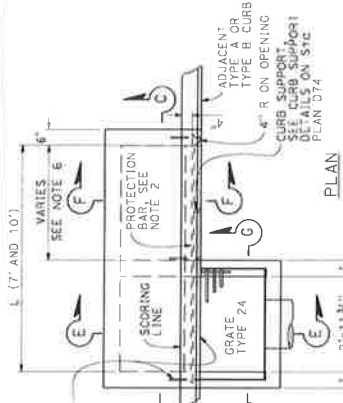
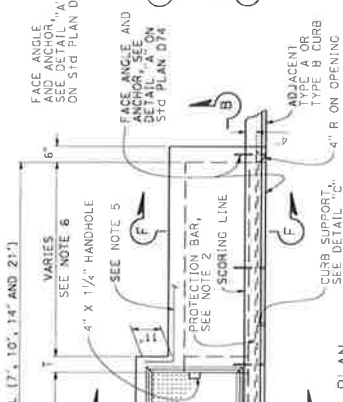


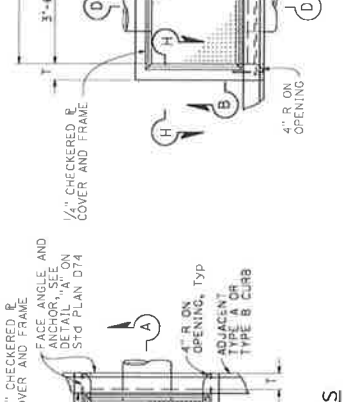
COUNTY OF LOS ANGELES  
 REGISTERED CIVIL ENGINEER  
 MAY 31, 2018  
 CIVIL ENGINEER  
 No. 42378  
 No. 42378-18  
 No. 42378-18



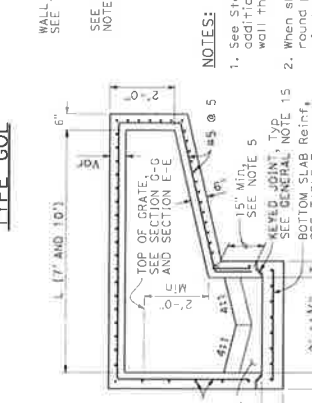
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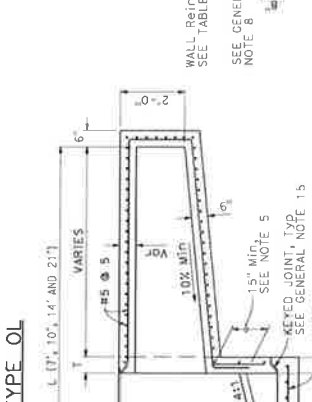
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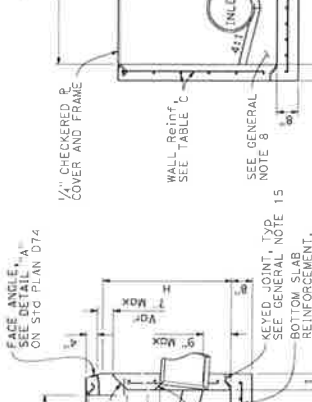
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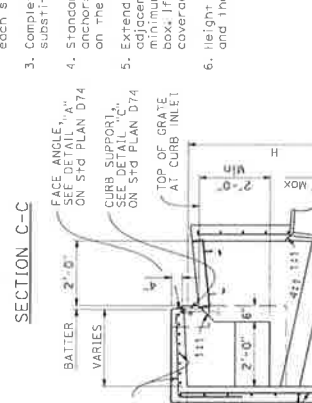
SECTION A-A



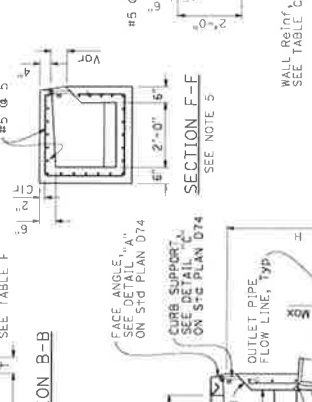
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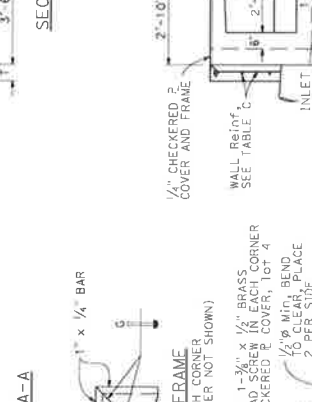
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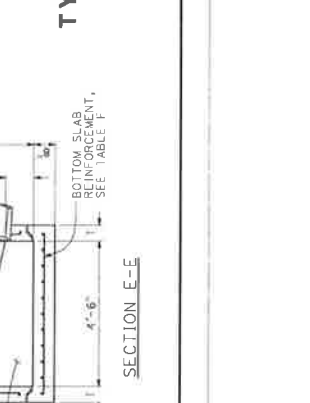
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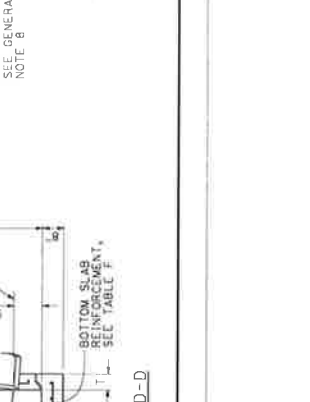
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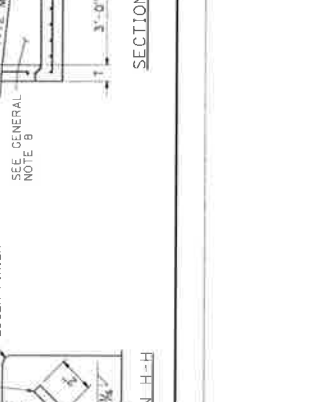
SECTION F-F



SECTION G-G



SECTION H-H



SECTION I-I

NOTES:

1. See Standard Plan D73F for General Notes and additional details. See Standard Plan D73C for tables, wall thickness "I" and quantities.
2. When shown on the project plans, place a 3/4" plain round protection bar horizontally across the length of the opening and bend back 4" into the inlet wall on each side.
3. Complete joint penetration butt welds may be substituted for the fillet welds on all anchors.
4. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
5. Extend all horizontal bars from inlet extensions into adjacent concrete elements of main inlet box a minimum of 15". Where shown, bend horizontal bars into box. If necessary rotate bars to maintain 2" clear coverage.
6. Height of curb opening will vary with the type of curb and the depth of the local depression.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**PRECAST  
 DRAINAGE INLETS  
 TYPES OS, OL AND GOL**  
 NO SCALE

D73A

Return to Table of Contents

STATE COUNTY ROUTE ROAD PROJECT SHEET NO. 101 (7/15)

**enr**  
REGISTERED CIVIL ENGINEER

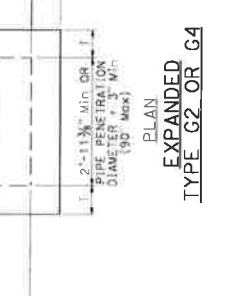
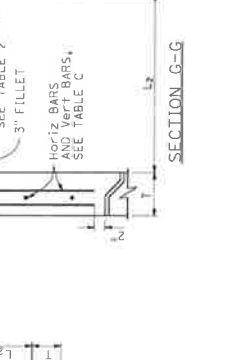
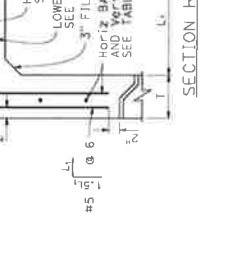
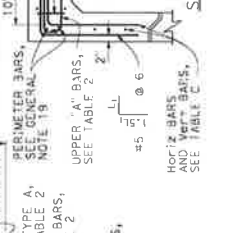
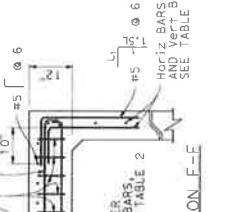
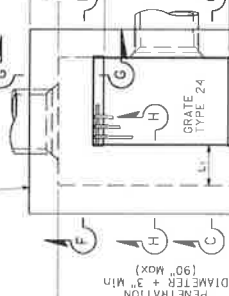
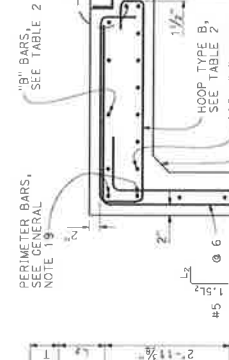
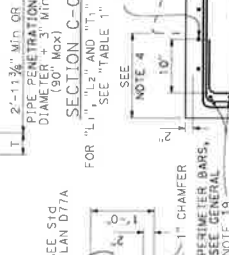
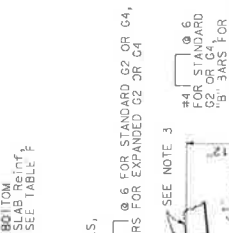
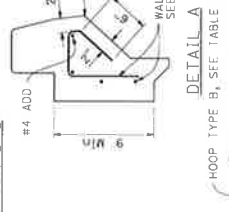
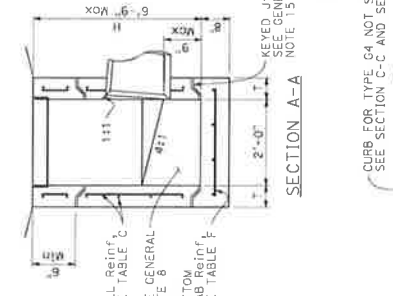
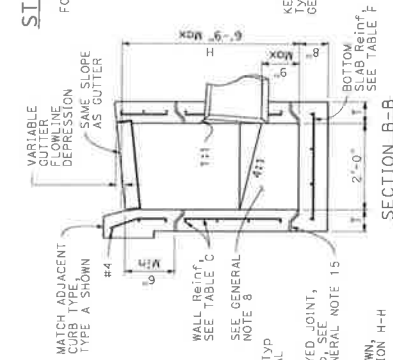
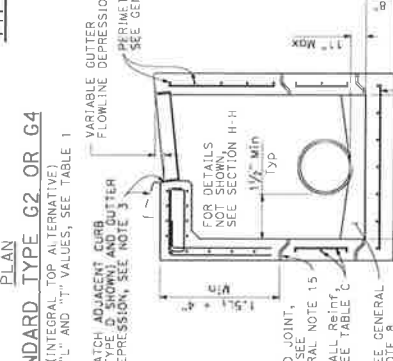
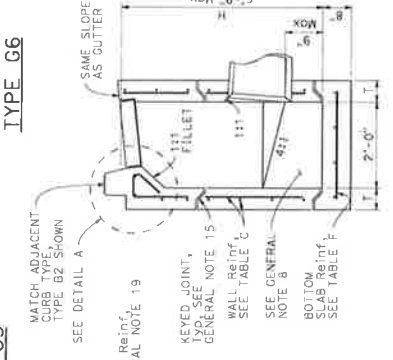
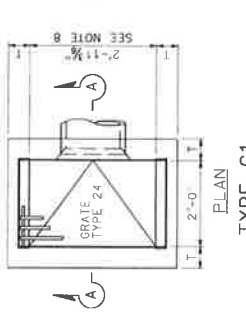
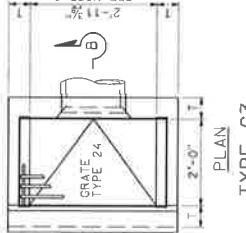
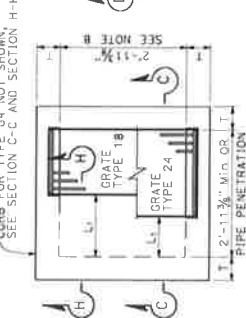
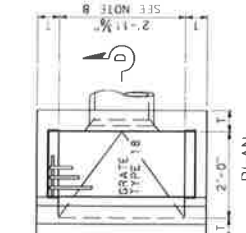
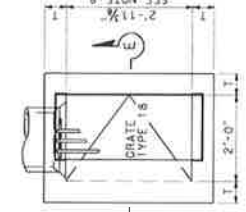
May 31, 2018  
DATE OF APPROVAL DATE  
NO. 52926  
EXPIRES 05-31-18  
STATE OF CALIFORNIA

FOR THE PROJECT OF THE  
STATE OF CALIFORNIA

NOTES:

1. For notes and Table 2, see Standard Plan D73B.
2. For L<sub>1</sub> or L<sub>2</sub> when 2'-10", see Table 1 for wall thickness dimensions and see Table C in Standard Plan D73B for reinforcement. Otherwise, see Table 2 for wall thickness and reinforcement.

TABLE 1	
L <sub>1</sub> OR L <sub>2</sub> > 2'-10"	T
L <sub>1</sub> OR L <sub>2</sub> ≤ 2'-10"	12"



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**PRECAST  
DRAINAGE INLETS  
TYPES G1, G2, G3,  
G4, G5 AND G6**

NO SCALE

D73B

Return to Table of Contents

CIVIL COUNTY MOBILE STATE PROJECT NO. 1001100101

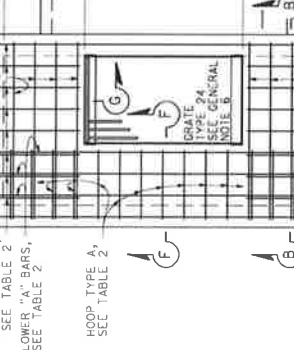
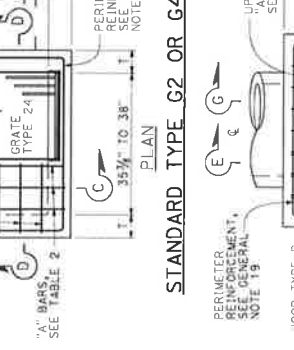
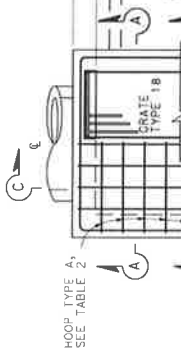
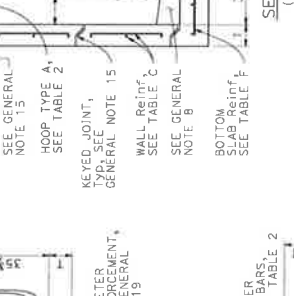
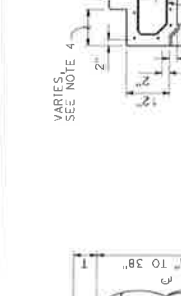
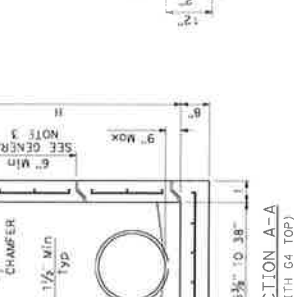
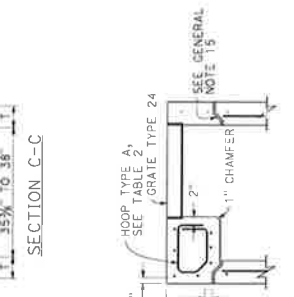
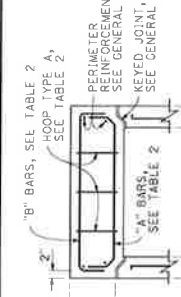
REGISTERED CIVIL ENGINEER

May 31, 2018

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

FOR THE PROJECT OF COUNTY HIGHWAY 1001100101  
CONSTRUCTION OF THE ROADWAY

- NOTES:**
- See Standard Plan D73C for General Notes and additional details. See Standard Plan D73C for additional tables, wall thickness "1", and quantities.
  - Type G4 inlet can use Grate Type 18 or 24, Type G2 Inlet uses Grate Type 24.
  - G4 inlet details are the same as the G2 with the addition of a curb and sloped grate that matches the adjacent curb and gutter depression.
  - Dimension will vary with different grates, curb types, box width and wall thickness.
  - 2" unless inler is expanded in the Span "A" direction, then clearance is 2" plus the diameter of the lower "A" bar.
  - See Standard Plan D73B for Integral top slab alternative.
  - Interior dimension of lower sections of inlets for Types G2 and G4 may be 3'-0" provided top section conforms to the requirements for frame and grate types on Standard Plan D77A. The wall thickness of top sections may transition from 1" to 1 1/2" to meet this requirement. Minimum height of thickened wall shall be "1".



**TABLE 2 - TOP SLAB REINFORCEMENT**

16 BAR DIAMETERS	"A" & "B" BARS	W/O CURB	W/O CURB
VARIES	VARIES	VARIES	VARIES
"A" BARS	4 @ 5 (2 BARS MIN)	4 @ 5 (2 BARS MIN)	4 @ 5 (2 BARS MIN)
"B" BARS	4 @ 5 (2 BARS MIN)	4 @ 5 (2 BARS MIN)	4 @ 5 (2 BARS MIN)
HOOPS	4 @ 5 (2 BARS MIN)	4 @ 5 (2 BARS MIN)	4 @ 5 (2 BARS MIN)

ROTATE "A" AND "B" BARS SO HOOKED ENDS WILL MAINTAIN 2" CLEAR COVERAGE.



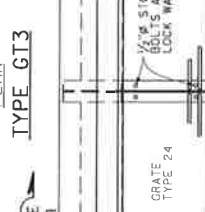
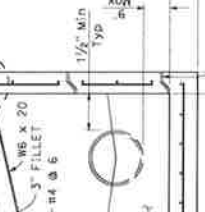
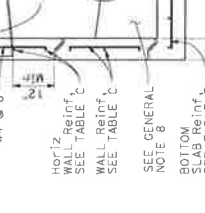
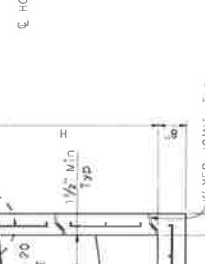
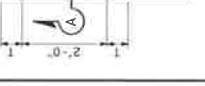
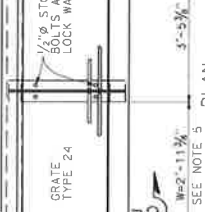
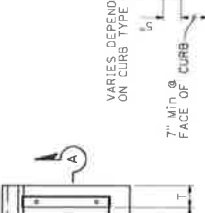
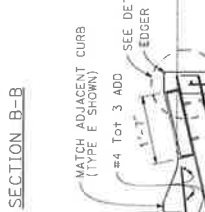
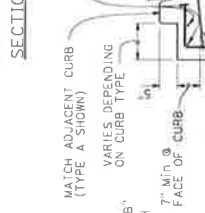
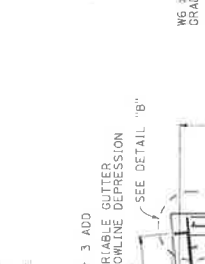
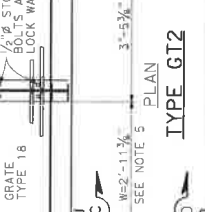
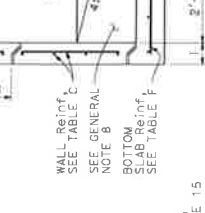
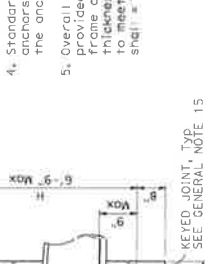
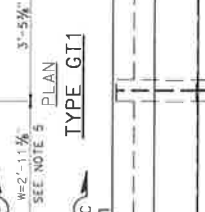
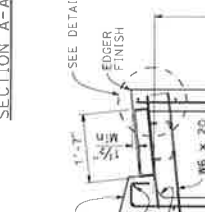
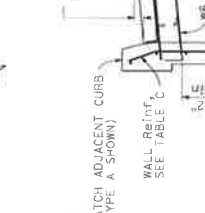
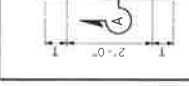
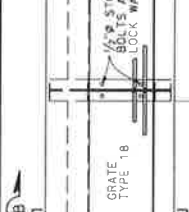
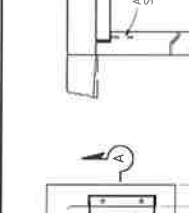
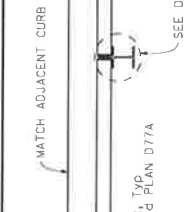
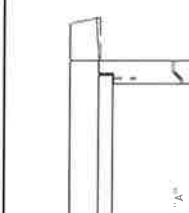
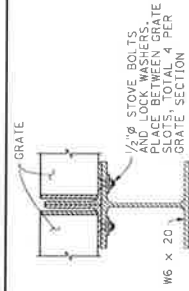
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**PRECAST DRAINAGE INLETS**  
TYPES G1, G2 G3, G4, G5 AND G6

NO SCALE

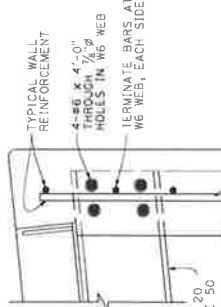
**D73C**

REGISTERED CIVIL ENGINEER  
 May 31, 2018  
 STATE OF CALIFORNIA  
 No. 52874  
 Exp. 05-31-18  
 CIVIL ENGINEER  
 201 N. Main  
 Suite 200  
 San Jose, CA 95131  
 Tel: 408-298-1111  
 Fax: 408-298-1112  
 www.candc-engineers.com



NOTES:

1. See Standard Plan D73C for General Notes and additional details. See Standard Plan D73C for tables, wall thicknesses, and quantities.
2. W=2'-11 1/2" for one grate. Add 3'-5 1/2" for additional grates in tandem.
3. Complete joint penetration putt welds may be substituted for the fillet welds on all anchors.
4. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
5. Overall interior length of lower sections may be 6'-6" provided top section conforms to the requirements for frame and grate types on Standard Plan D77A. The wall thickness of top sections may transition from 1" to 1 1/4" to meet this requirement. Minimum height of thickened wall shall be 1'-1 1/2".



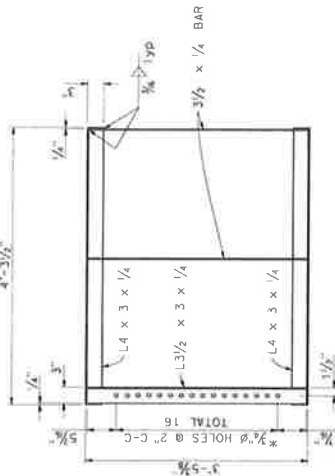
TYPICAL WALL REINFORCEMENT  
 4 #6 x 4'-0" THROUGH 1/2" HOLES IN W6 WEB  
 TERMINATE BARS AT W6 WEB, EACH SIDE  
 W6 x 20 GRADE 50  
 1/4" HOLE, TYP.  
 1 1/2" DIM.  
 1 1/2" DIM.  
 DETAIL "B"  
 (SIMILAR OPPOSITE END OF W6)

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**PRECAST DRAINAGE INLETS**  
**TYPES GT1, GT2, GT3 AND GT4**  
 NO SCALE

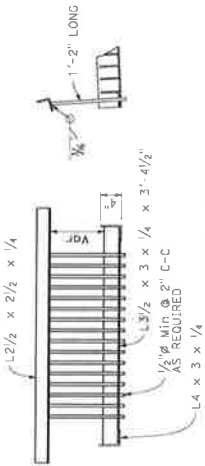
D73D

PROJECT NO.	ROUTE	COUNTY	SECTION

MAY 31, 2018  
 THIS APPROVAL IS VALID FOR THE TERM OF THE CONTRACT AND IS NOT TO BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.



**GRATE FRAME FOR TYPE GDO INLET**  
 \* HOLES REQUIRED ONLY WITH TRASH RACK



**TRASH RACK**  
 FOR USE WITH PUMP INSTALLATION

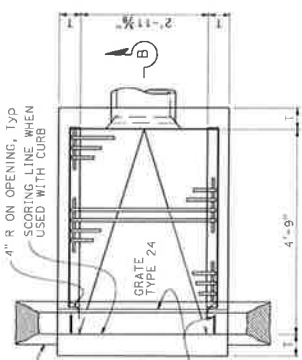
**NOTES:**

1. See Standard Plan D73F for General Notes and additional details. See Standard Plan D73G for tables, wall thickness "T" and quantities.
2. Where shown on the project plans, place a 3/8" plain round protection bar horizontally across the length of the opening and bend back 4" into the inlet wall on each side.
3. Complete joint penetration butt welds may be substituted for the fillet welds on all anchors.
4. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.

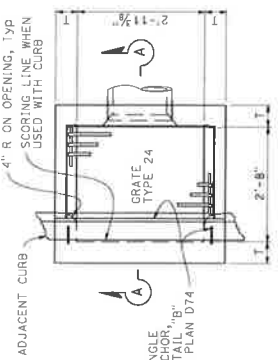
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**PRECAST  
 DRAINAGE INLETS  
 TYPES GO AND GDO**  
 NO SCALE

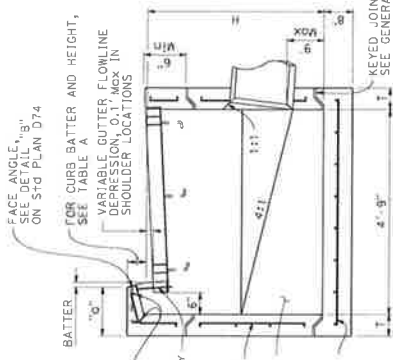
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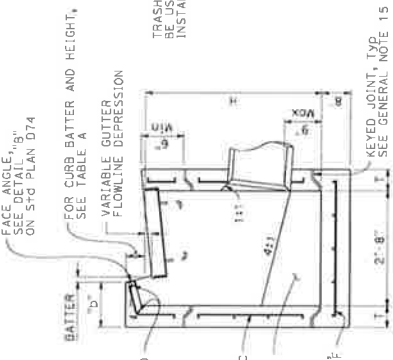
**PLAN  
 TYPE GDO**



**PLAN  
 TYPE GO**



**SECTION A-A**



**SECTION B-B**

CURB TYPE	NORMAL CURB HEIGHT	CURB BATTER	"a"	"b"	INLET DIMENSION
A1-6	6"	1/2"	T+7/2"	T+6/2"	
A1-8	8"	2"	T+7"	T+6"	
B1-6	6"	4"	T+5"	T+4"	
TYPE A DIKE	6"	3"	T+6"	T+5"	

Height of curb opening will vary with the Type of curb and the depth of the local depression.

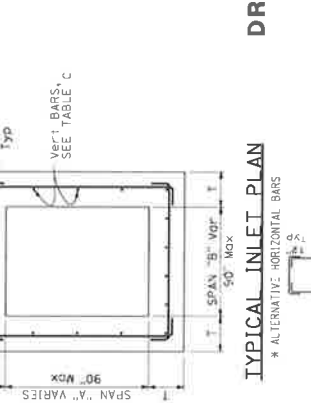
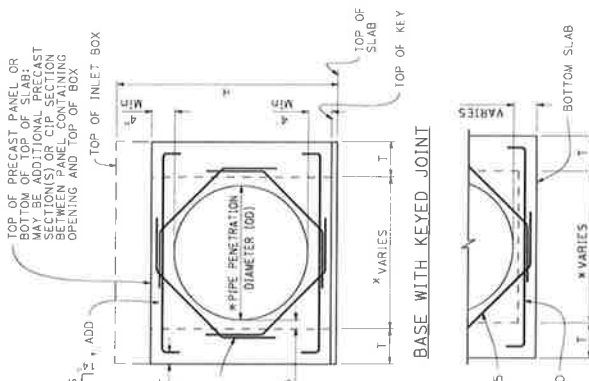
May 31, 2018
   
 REGISTERED CIVIL ENGINEER
   
 No. 00000000000000000000
   
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SPAN 'A' OR 'B' (IN)	L (IN)
38 TO 50	40
51 TO 64	47
65 TO 76	53
77 TO 90	60

**DESIGN NOTES:**

- Design Specifications: AASHTO LRFD Bridge Design Specifications, 6th edition with 2012 Interims and Errata and CA Amendments.
- Live Load (AASHTO LRFD 3.6.1.2): HL-93, consists of design truck or tandem, and design lane load. Dynamic Load Allowance,  $IM = 33\%$ . Multiple presence factor,  $MPF = 1.0$ . Design one load per span, including 1.0 dead load of 8 kips without impact factor was used for top slabs that are above a curb.
- Earth Load: Vertical pressure = 140 pcf. Lateral pressure: SEE TABLE C ON STANDARD PLAN D73G. Downdrag:  $\phi = 34^\circ$  and  $\lambda = 120$  pcf.
- Buoyancy:  $\gamma_w = 62.4$  pcf to finished grade.
- Reinforced Concrete:  $f'_c = 5.0$  ksi,  $f_y = 60.0$  ksi.
- Tables are based on the worst case from the level ground and sloped ground.
- Soil pressures shown are factored per AASHTO LRFD and include self-weight, live load and downdrag.

1--#6  $\frac{1}{2}$  ADD  
 1--#6  $\frac{1}{2}$  ADD  
 1--#6  $\frac{1}{2}$  ADD



1--#6  $\frac{1}{2}$  ADD  
 1--#6  $\frac{1}{2}$  ADD  
 1--#6  $\frac{1}{2}$  ADD

**GENERAL NOTES:**

- "L" is measured from top of bottom slab to the normal gutter grade line undepressed at the curb face.
- For "L" wall thickness and reinforcement, see Table C on Standard Plan D73G.
- Wall reinforcement must be placed at the center of wall thickness with horizontal bars placed on the exterior face unless otherwise noted. Top slab concrete shall be cast on the interior side face unless otherwise noted. Short independent wall sections or height adjustment rings 6" to 24" high must have a minimum of two #4 horizontal bars. Reinforcement spacing is in inches unless otherwise noted.
- Steps - None required where "L" is less than 2'-6". Where "L" is 2'-6" or more, install steps with lowest step 1'-0" above the bottom of the wall and be finished below bottom of lid. The distance between steps must not exceed 4'-0" and be finished below throughout the length of the wall. Place steps in the wall without an opening. Steps inlets may be substituted for the bar steps. Step inlets must comply with State Industrial Safety Requirements. See Standard Plan D74 for step details.
- Reinforcement - Reinforcement to wall the exterior side of the opening, place additional reinforcement equivalent to half the reinforcement in the adjacent wall. Bars must be the same size as the larger of the main vertical or horizontal bars. Extend bars one development length past the intersection with the adjacent diagonal bar, or where bars intersect mid-thickness of adjacent wall bottom or top of non-continuous wall, bar ends as required into same plane.
- Set inlet so that grate bars are parallel to direction of principal surface flow.
- Curb section must match adjacent curb.
- Except for inlets used as junction boxes, basin floors must have wood trowel finish and be cast on top of the bottom slab. Grout must be placed prior to backfill.
- See Standard Plans D77A and D77B for grate and frame details and weights of miscellaneous iron and steel.
- See Standard Plans D76A and D76B for gutter depression details.
- See Standard Plans A87A and A87B for curb and dike details.
- Details shown apply to metal, concrete and plastic pipe(s).
- The Contractor may use WWR instead of bar reinforcement. The ratio of bar reinforcement to WWR shall be based on the yield strength ratio.
- Seal precast inlets connection openings between wall and pipe with non-shrink grout or resilient connectors as specified in the Special Provisions. Precast inlets shall have mortared connections conforming to details for Type GCP Inlet shown on Standard Plan D75B. See Standard Specifications for mortar composition.
- Where shown, provide precast inlets with separate top sections for final grade adjustment. Provide keyed joints with tongue and groove connections between top and wall, multiple wall sections, and wall and bottom slab. Joint design may vary but must be 1" to 3" in depth. For tongue type joints, tongue down orientation is not allowed. For keyed joints, keyway up, keyway down or tongue up configurations are allowed. Only one key type is allowed for each drainage inlet.
- Non-shrink grout can be used for upper most joint to facilitate final top grade adjustment.
- Provide a level and firm sand bedding on which to place precast inlets. Extend sand bedding under all structure backfill.
- For Integral Base, see Detail "A".
- Perimeter reinforcement must not be smaller than main bars and extend a minimum of 3' from precast inlets. Reinforcement and may be tack welded at outer corners when using ASTM A706 weldable bars.
- Inlet extensions may be cast in place after placement of main box and placement and compaction of backfill. Top slab must be 3" thick. All slab and wall thicknesses must be per Standard Plan D77A. All reinforcement shall extend a minimum of 24" from precast main inlet box.

1--#6  $\frac{1}{2}$  ADD  
 1--#6  $\frac{1}{2}$  ADD  
 1--#6  $\frac{1}{2}$  ADD

**PRECAST INLET NOTES**  
NO SCALE

**TYPICAL INLET PLAN**  
\* ALTERNATIVE: HORIZONTAL BARS

**SKewed PIPE PLAN**  
\* ADJUST PIPE PENETRATION AND BOX WIDTH FOR SKEWED PIPES.

**D73F**

Return to Table of Contents

ROUTE 101, PROJECT NO. 15-0000-0001, SHEET NO. 15-0000-0001

REGISTERED CIVIL ENGINEER

NOV 31, 2018

STATE OF CALIFORNIA  
 PROFESSIONAL ENGINEER  
 CIVIL ENGINEERING  
 15-0000-0001

**TABLE A - CONCRETE QUANTITIES**

TYPE	H=3'-0" TO 8'-0"		H=8'-1" TO 20'-0"	
	H=3'-0" (CY)	ADDITIONAL REINFORCEMENT PER FOOT (CY)	H=8'-1" (CY)	ADDITIONAL REINFORCEMENT PER FOOT (CY)
G1	0.95	0.220	SEE NOTE 2	SEE NOTE 2
G2	1.25	0.255	SEE NOTE 2	SEE NOTE 2
G3	1.06	0.220	SEE NOTE 2	SEE NOTE 2
G4 (TYPE 18)	1.41	0.255	2.71	0.255
G4 (TYPE 24)	1.36	0.255	2.65	0.255
G5	1.09	0.220	SEE NOTE 2	SEE NOTE 2
G6	1.14	0.220	SEE NOTE 2	SEE NOTE 2
G7	1.28	0.278	2.69	0.278
G8	1.92	0.278	3.33	0.278
G9	2.43	0.278	3.84	0.278
G10	3.16	0.278	4.57	0.278
G11	4.59	0.278	5.99	0.278
G12	2.36	0.313	4.04	0.434
G13	2.84	0.313	4.53	0.434
G14	2.30	0.480	SEE NOTE 2	SEE NOTE 2
G15	2.71	0.530	5.40	0.530
G16	2.29	0.480	SEE NOTE 2	SEE NOTE 2
G17	2.69	0.530	5.39	0.530
G18	1.25	0.245	2.37	0.245
G19	1.64	0.322	3.37	0.446

\* Quantities are based on the minimum interior dimensions.

**TABLE B - REINFORCEMENT QUANTITIES**

TYPE	H=3'-0" TO 8'-0"		H=8'-1" TO 20'-0"	
	H=3'-0" (LB)	ADDITIONAL REINFORCEMENT PER FOOT (LB)	H=8'-1" (LB)	ADDITIONAL REINFORCEMENT PER FOOT (LB)
G1	88.5	21.90	SEE NOTE 2	SEE NOTE 2
G2	151.5	24.34	277.4	38.64
G3	92.9	21.90	SEE NOTE 2	SEE NOTE 2
G4 (TYPE 18)	134.4	24.54	260.3	38.64
G4 (TYPE 24)	125.1	24.54	251.0	38.64
G5	92.5	21.90	SEE NOTE 2	SEE NOTE 2
G6	92.5	21.90	SEE NOTE 2	SEE NOTE 2
G7	145.8	35.37	327.8	49.60
G8	328.0	35.37	510.0	49.60
G9	467.5	35.37	649.5	49.60
G10	667.5	35.37	849.5	49.60
G11	1026.1	35.37	1238.1	49.60
G12	474.7	45.17	706.8	74.02
G13	604.9	45.17	836.9	74.02
G14	349.0	80.48	SEE NOTE 2	SEE NOTE 2
G15	403.7	86.82	849.1	135.15
G16	347.0	86.82	849.1	135.15
G17	403.7	86.82	849.1	135.15
G18	99.8	23.75	221.7	37.46
G19	208.8	46.22	446.2	75.61

\* Quantities are based on the minimum interior dimensions.

**TABLE D**

INLET	CURB USED IN QUANTITIES
G1	-
G2	-
G3	A1-B
G4 (TYPE 18)	A1-B
G4 (TYPE 24)	A1-B
G5	B1-A
G6	/E
G7	-
G8	-
G9	-
G10	-
G11	-
G12	D-6
G13	E
G14	A7-B
G15	-
G16	-
G17	-
G18	-
G19	-

**TABLE C - WALL REINFORCEMENT**

TYPE	H (6'-0" (T=8', U=1))		8'-0" < H < 20'-0" (T=8', U=1)	
	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
G1	#406	#308	#404 (T=6')	#308
G2	#406	#308	#404 (T=6')	#308
G3	#406	#308	#404 (T=6')	#308
G4	#406	#308	#404 (T=6')	#308
G5	#406	#308	#404 (T=6')	#308
G6	#406	#308	#404 (T=6')	#308
G7	#406	#308	#404 (T=6')	#308
G8	#406	#308	#404 (T=6')	#308
G9	#406	#308	#404 (T=6')	#308
G10	#406	#308	#404 (T=6')	#308
G11	#406	#308	#404 (T=6')	#308
G12	#406	#308	#404 (T=6')	#308
G13	#406	#308	#404 (T=6')	#308
G14	#406	#308	#404 (T=6')	#308
G15	#406	#308	#404 (T=6')	#308
G16	#406	#308	#404 (T=6')	#308
G17	#406	#308	#404 (T=6')	#308
G18	#406	#308	#404 (T=6')	#308
G19	#406	#308	#404 (T=6')	#308

\* See Detail A on Standard Plan D73F for additional vertical bars at the base.  
 \*\* a = Larger interior span

**TABLE E**

TYPE	SOIL PRESSURE BELOW BASE SLAB (ksf)	
	H < 6'-9"	B < C < H < 20'-0"
G1	2.89	5.68
G2	2.89	5.68
G3	2.36	4.93
G4	3.51	-
G5	3.51	-
G6	3.51	-
G7	3.51	-
G8	3.51	-
G9	3.51	-
G10	3.51	-
G11	3.51	-
G12	3.51	-
G13	3.51	-
G14	3.51	-
G15	3.51	-
G16	3.51	-
G17	3.51	-
G18	3.51	-
G19	3.51	-

\* Main Box  
 \*\* a = Larger interior span

**TABLE F**

TYPE	BASE SLAB REINFORCEMENT (T=8', U=1)	
	H < 6'-9"	B < C < H < 20'-0"
G1	#406 (EW)	#405 (EW)
G2	#406 (EW)	#405 (EW)
G3	#406 (EW)	#405 (EW)
G4	#406 (EW)	#405 (EW)
G5	#406 (EW)	#405 (EW)
G6	#406 (EW)	#405 (EW)
G7	#406 (EW)	#405 (EW)
G8	#406 (EW)	#405 (EW)
G9	#406 (EW)	#405 (EW)
G10	#406 (EW)	#405 (EW)
G11	#406 (EW)	#405 (EW)
G12	#406 (EW)	#405 (EW)
G13	#406 (EW)	#405 (EW)
G14	#406 (EW)	#405 (EW)
G15	#406 (EW)	#405 (EW)
G16	#406 (EW)	#405 (EW)
G17	#406 (EW)	#405 (EW)
G18	#406 (EW)	#405 (EW)
G19	#406 (EW)	#405 (EW)

(EW) Each Way  
 \* Main Box  
 \*\* a = Larger interior span

**NOTES:**

- No deduction or adjustment was made to the quantities of concrete and reinforcement for pipe openings, floor alternatives or curb type.
- Maximum allowable height is 6'-9".
- Quantities are approximate and for design purposes only.
- Design is based on envelope of level and sloped ground.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**PRECAST INLET TABLES**  
 NO SCALE

**D73G**

Return to Table of Contents