
Appendix 13

Work Plan for Installation of Permanent Fence

Work Plan for Installation of Permanent Fence
North Post-Closure Area
Square D Company
1060 East 3rd Street
Beaumont, California

Purpose:

This Work Plan describes the installation of permanent security fencing to replace existing temporary fencing.

Location:

The work will be conducted at the North Post-Closure Area (NPCA), a property located in the northwestern section of the former Square D Company (Square D) manufacturing facility in Beaumont, California. Square D was a manufacturer of copper products and various metal-contaminated hazardous wastes were buried in place under a membrane and asphalt containment cap.

Scope of Work:

The NPCA consists of a large flat asphalt area currently used for the temporary storage of wooden pallets. The northern, southern, and western boundaries of the NPCA are enclosed by a permanent chain-link fence as shown on Figure A. The fence is constructed of galvanized steel posts set in concrete foundations. A temporary chain-link fence encloses the southeastern boundary of the site with posts mounted on flat metal plates with sandbag support. In addition, there are two access gates to the NPCA, located on the eastern and western boundaries of the site.

The scope of work includes the following tasks:

- Removal and disposal of existing temporary fencing and gates;
- Installation of new permanent fencing;
- Installation of new gate;
- Installation of warning signs; and
- Removal of security cameras (optional).

Specifications:

Contractor shall remove approximately 300 linear feet of temporary fencing at the site. The material shall be cut, placed in bin waste containers, and transported offsite for recycling or proper disposal as a non-hazardous solid waste.

The new permanent chain-link fencing shall be installed per Section 206-6, "Chain Link Fence", of the latest version of the "Greenbook" Standard Specifications for Public Works Construction and the Standard Plans Detail No 600-0, "Chain Link Fence and Gates". A copy of the specified Fencing Section and Detail is enclosed with this work plan.

The Contractor shall install approximately 300 linear feet of permanent fencing along the southeastern boundary of the site. The fence will be constructed of galvanized steel posts set in concrete foundations. The fence will be 6 feet high and the posts are to be set at 50-foot or less intervals. The fencing will include a top rail. Three strands of barbed wire with supporting 45-degree brackets will also be installed along the top edge of the fence.

A new double-swing drive gate shall also be constructed at the east entry point to the NPCA. The drive gate shall be 6 feet high with a minimum width opening of 25 feet. Each leaf gate shall be approximately 12-1/2 feet wide, constructed with a complete pipe frame and a diagonal tension rod.

The standard footing detail in the Greenbook specification shall be modified to increase the width to a minimum of 18 inches in diameter for all footings to provide adequate support. Each post footing will be located along the toe of the outer slope of the NPCA. The footings for the fence and gate posts will be carefully excavated to a not-to-exceed depth of 20 inches below grade. The final inches below grade will be excavated **by hand** to avoid damaging a 30-millimeter thick geotextile membrane that is located approximately 22 inches below surface grade within the NPCA asphalt cap. This membrane will not be damaged or punctured during the excavation of each fence post foundations. All excavated areas shall be examined and approved by a Professional Engineer familiar with the geotextile membrane design prior to setting any fence posts and pouring concrete. Any damage to the membrane will be documented, and adequately repaired and sealed by the Contractor prior to completing the work.

Contractor shall inspect all sections of the existing permanent fencing enclosing the NPCA and advise Owner if additional repairs are required.

Contractor shall also provide metal Hazardous waste notification signs stating, "Danger – Unauthorized Personnel Keep Out" posted at approximate 100-foot intervals around the fenced perimeter of the NPCA. The signs will be printed in English and Spanish, approximately 2 feet square, and will be legible from a distance of 25 feet.

Following installation of the permanent fencing, the Owner may direct the Contractor to disconnect and remove the existing security cameras installed at the site. All associated electrical

wiring and conduit shall be properly de-energized and permanently locked out prior to cut, removal to grade, and disposal off-site. All security cameras shall be removed with associated support brackets and returned to the Owner for potential reuse.

The base metal for aluminum railing shall be ASA alloy designation 6063-T6. Pipe and tubing shall be extruded conforming to requirements of ASTM B 429, plates and sheets shall be rolled conforming to ASTM B 209, and rods, bars, or shapes shall be extruded conforming to ASTM B 221.

206-5.2 Flexible Metal Guardrail Materials. Unless otherwise provided on the Plans or in the Specifications, materials and construction for the railings shall conform to the following requirements:

The rail elements, terminal sections, bolts, nuts, and other fittings shall conform to the specifications of AASHTO M 180, except as modified in this subsection. The edges and center of the rail element shall contact each post or block. Rail element joints shall be lapped not less than 315mm (12-1/2 inches) and bolted. The rail metal shall be open hearth, oxygen furnace, or electric furnace steel and, in addition to conforming to the requirements of AASHTO M 180, shall withstand without cracking, a cold bend of 180 degrees around a mandrel of a diameter equal to two and one-half times the thickness of the plate.

Two certified copies of mill tests reports of each heat, from which the rail element is formed, shall be furnished to the Engineer.

The ends of each length of railing shall be fitted with terminal sections.

Workmanship shall be equivalent to commercial practice and all edges, bolt holes, and surfaces shall be free of torn metal, burrs, sharp edges, and protrusions.

Bolts shall have shoulders of such shape that will prevent them from turning.

Rail elements shall be fabricated for splicing at wood posts at intervals not to exceed 4m (12.5 feet).

The rail element shall have full bearing at joints. When the radius of curvature is 50m (150 feet) or less, the rail element shall be shaped in the shop.

Railing parts furnished under these specifications shall be interchangeable with similar parts regardless of source.

Unless otherwise specified, the rail elements, terminal sections, bolts, nuts, and other fittings shall be galvanized in accordance with 210-3.

Posts, including blocks, shall be "Construction" grade, Douglas fir, free of heart center.

The posts and blocks shall be pressure treated after fabrication with creosote, creosote-coal tar solution, creosote-petroleum solution (50-50), pentachlorophenol (oil borne), or copper-naphthenate (oil borne) as provided in 204-2.

206-6 CHAIN LINK FENCE.

206-6.1 General. All materials and fittings shall be new and all ferrous materials shall be coated in accordance with 210-3. Class 1A steel pipe shall additionally be coated in accordance with 210-4. When specified, Class 1 or Class 1A materials shall additionally be clad coated with PVC in accordance with 210-5. The base material for the manufacture of steel pipe used for posts, braces, top rails, and gate frames shall conform to the requirements of ASTM F 1083, Schedule 40, for Class 1 or ASTM A 569 for Class 1A. Class 1A steel shall have a minimum yield strength of 345MPa (50,000 psi). All unit weights shall be subject to the standard mill tolerance of plus or minus 5 percent.

Posts shall be fitted with caps designed to fit securely over the posts and carry a top rail where specified. Posts shall have a total length of not less than the depth of the concrete footing, as specified herein, plus the length required above ground. Where no top rail is required, pipe posts shall be fitted with suitable caps. Caps will not be required for "C" or "H" section posts.

Top rails shall be furnished in random lengths of approximately 6m (20 feet) where required.

Barbed wire shall be installed on the fence only when specifically required by the Plans or Specifications. When required, it shall be installed on extension arms of a type specified under 206-6.6.

206-6.2 Materials for Posts, Rails and Braces. Materials for posts, rails, and braces shall conform to Table 206-6.2 (A).

TABLE 206-6.2 (A)

Use	Nominal ¹ Type And Size	Actual O.D. mm (Inches)	Weight kg/m (lbs/feet)	
			Class 1	Class 1A
End, corner, slope, and gate posts for single gates 1.8m (6 feet) or less in width and double gates 3.6 m (12 feet) or less in width for fences less than 1.8 m (72 inches) in height.	2 NPS	60.3 (2.375)	5.43 (3.65)	4.64 (3.12)
End, corner, slope, and gate posts for single gates 1.8 m (6 feet) or less in width and double gates 3.6 m (12 feet) or less in width for fences 1.8 m (72 inches) or higher.	2-1/2 NPS	73.0 (2.875)	8.62 (5.79)	6.91 (4.64)
Gate posts for single swing gates over 4m (13 ft) but not over 5.5m (18 ft) in width and double swing gates over 8m (26 ft) but not over 11m (36 ft) in width.	3-1/2 NPS	101.6 (4.0)	13.56 (9.11)	—
	3 NPS	88.9 (3.5)	—	8.50 (5.71)
Gate posts for single swing gates over 4 m (13 feet) but not over 5.5 m (18 feet) in width and double swing gates over 8 m (26 feet) but not over 11m (36 feet) in width.	6 NPS	168.3 (6.625)	28.23 (18.97)	—
Gate posts for single swing gates over 5.5 m (18 feet) in width and double swing gates over 11 m (36 feet) in width.	8 NPS	219.1 (8.625)	36.76 (24.70)	—
Line posts for fences 1.8 m (72 inches) higher.	2 NPS	60.3 (2.375)	5.43 (3.65)	4.64 (3.12)
	48 x 41mm (1-7/8 in x 1-5/8 in)C	—	3.20 (2.15)	—
	57 x 48mm (2-1/4 in x 1-7/8 in)H	—	6.10 (4.10)	—
Line posts for fences less than 1.8m (72 inches) in height.	1-1/2 NPS	48.3 (1.90)	4.05 (2.72)	3.39 (2.28)
	48 x 41mm (1-7/8 in x 1-5/8 in)C	—	2.75 (1.85)	—
Top rails and braces.	48 x 41mm (17/8 in x 1 5/8 in)H	—	4.17 (2.80)	—
	1 1/4 NPS	42.2 (1.660)	3.39 (2.27)	2.72 (1.83)
	41 x 32mm (1-5/8 in x 1-1/4 in)C	—	2.01 (1.35)	—
Frames for gates.	38 x 32mm (1-1/2 in x 1-1/4 in)H	—	3.27 (2.20)	—
	1-1/2 NPS	48.3 (1.900)	4.05 (2.72)	3.39 (2.28)
Stiffeners for gates.	1-1/4 NPS	42.2 (1.660)	3.39 (2.27)	2.72 (1.83)

1. Nominal Pipe Size (NPS), a non-dimensional unit as defined in ASTM F 1083.

206-6.3 Chain Link Fabric. Unless otherwise specified, shall conform to 206-3.1 or 206-6.3.2.

206-6.3.1 Galvanized Fabric. Chain link fabric shall conform to the requirements of ASTM A 392. The fabric shall be 3.1mm (11-gage) for all fence 1500mm (60 inches) or less in height and shall be 3.8mm (9-gage) for all fence over 1500mm (60 inches) in height, unless otherwise specified.

All chain link fabric shall be woven into approximately 50mm (2 inch) mesh and galvanized either prior to or after fabrication, unless otherwise specified by the Contract Documents. Fabric 1500mm (60 inches) or less in width shall have knuckled finish on the top and bottom edges. Fabric greater than 1500mm (60 inches) in width shall have knuckled finish on the top edges and twisted and barbed finish on the bottom edge. Barbing shall be done by cutting the wire on the bias.

206-6.3.2 Polyvinyl Chloride (PVC) Coated Fabric. This specification covers PVC coated chain link fabric coated before weaving. PVC coated fabric shall conform to ASTM F 668. Fabric may be produced in two classes of wire defined as follows: Class 1 shall consist of PVC extruded or extruded and adhered to zinc-coated steel wire. Class 2 shall consist of PVC fusion-bonded to zinc-coated steel wire. PVC coating thickness shall be a minimum 380 μm (15 mils) for Class 1 and 180 μm (7 mils) for Class 2. The core wire for the fabric shall be 3.0mm (0.120 inches) for all fence 1500mm (60 inches) or less in height and shall be 3.76mm (0.148 inches) for all fence over 1500mm (60 inches) in height unless otherwise specified. The specified diameter is the metallic core wire diameter and the PVC coating shall not be considered when determining the diameter.

All chain link fabric shall be woven into approximately 50mm (2 inch) mesh. All fabric widths shall have knuckled finish on the top and bottom edges. At the time of fabrication, cut ends shall be covered with acrylic enamel. Acrylic enamel shall be a PVC resin in solution, consisting of high-level pigments, ultraviolet absorbers and solvent blends applied by brush or dabbing applicator.

206-6.4 Tension Wires and Fabric Ties. Tension wires shall be at least 4.5mm (7-gage) galvanized coil spring steel wire.

Ties used to fasten the fabric to posts, rails, and gate frames shall be not smaller than 3.1mm (11-gage) galvanized steel, 4.9mm (6-gage) aluminum wire, or approved noncorrosive metal bands.

Tension bars used in fastening fabric to end and corner posts and gate frames shall be galvanized high carbon steel bars not smaller than 9.5mm (3/16 in) by 19mm (3/4 in).

206-6.5 Truss or Tension Rods. Truss or tension rods used in trussing gate frames and line posts adjacent to end, corner, slope or gate posts shall be adjustable 9.5mm (3/8 inch) diameter galvanized steel rod. When used in trussing line posts, adjustment shall be provided by means of galvanized turnbuckles or other suitable tightening devices.

206-6.6 Fittings. All required fittings and hardware shall be galvanized.

Couplings to connect the individual lengths of top rail shall be of the outside sleeve type and at least 175mm (7 inches) long. The bore of the sleeves shall be sufficiently true to maintain adjacent lengths of rail in alignment.

Extension arms for barbed wire shall be of a type that can be attached to the tops of the posts and carry three wires at approximately 140mm (5-1/2 inch) centers in a plane approximately 45 degrees from the vertical, inclined as shown on the Plans or as directed by the Engineer.

206-6.7 Barbed Wire. Barbed wire shall be four-point pattern, composed of two strands of 2.5mm (12-1/2-gage) galvanized steel wire with barbs spaced 125mm (5 inches) apart and shall conform to ASTM A 121.

206-6.8 Repair of Damaged Coatings. All welds made after galvanizing shall be ground smooth and wire brushed to remove loose or burned zinc coating, after which the cleaned areas shall be prepared and neatly coated with 50-50 solder or as prescribed in 210-3.5. Repairs to abraded or otherwise damaged zinc coating shall be made in a similar manner.

SECTION 207 - PIPE

207-1 NONREINFORCED CONCRETE PIPE.

207-1.1 General. The nonreinforced concrete pipe to be furnished shall be as shown on the Plans, or as specified under the item of work for the project.

Concrete pipe shall be extra-strength unless otherwise specified, shall be manufactured from portland cement concrete, and shall be so constructed that it will conform to the requirements described herein.

207-1.2 Materials. Materials used in manufacturing the pipe shall be as specified in ASTM C 14M (ASTM C 14), with the following exceptions:

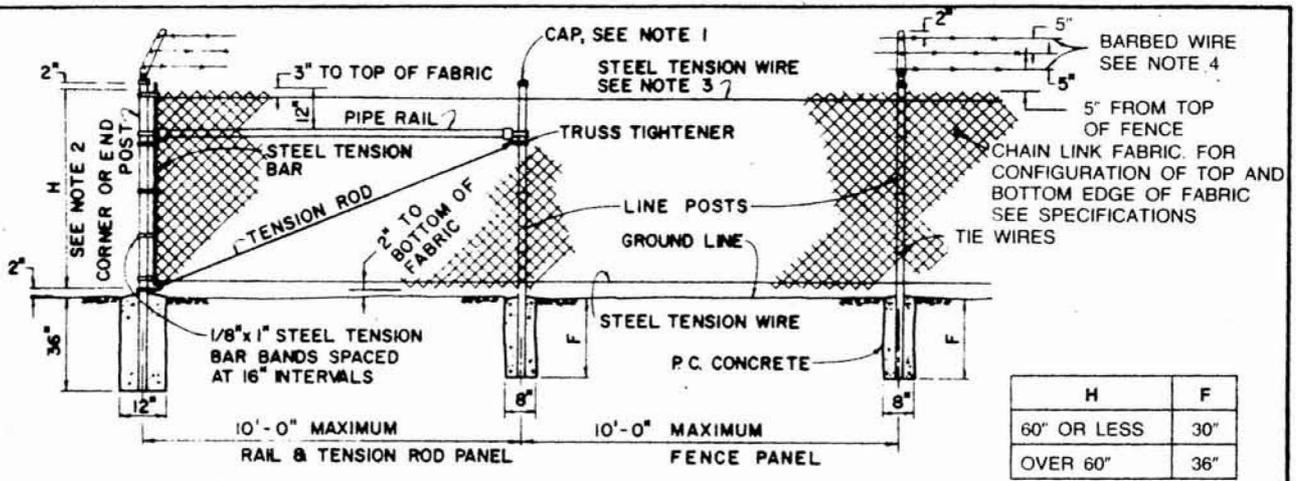
- 1) The portland cement shall be as specified in 201-1.2.1.
- 2) At least 28 percent of the aggregate by weight shall be larger than 25mm (9/10 inch) for pipes 300mm (12 inches) and larger in diameter.
- 3) All aggregates shall conform to 201-1.2.2.

207-1.3 General Requirements. The plane of the ends of the pipe, except for special shapes, shall be perpendicular to the longitudinal axis of the pipe. The interior surface shall be smooth and well-finished. Joints shall either be of the socket and spigot type or the tongue and groove type, as approved by the Engineer, and so constructed that, when laid, the pipe will form a continuous conduit with a smooth and uniform interior surface.

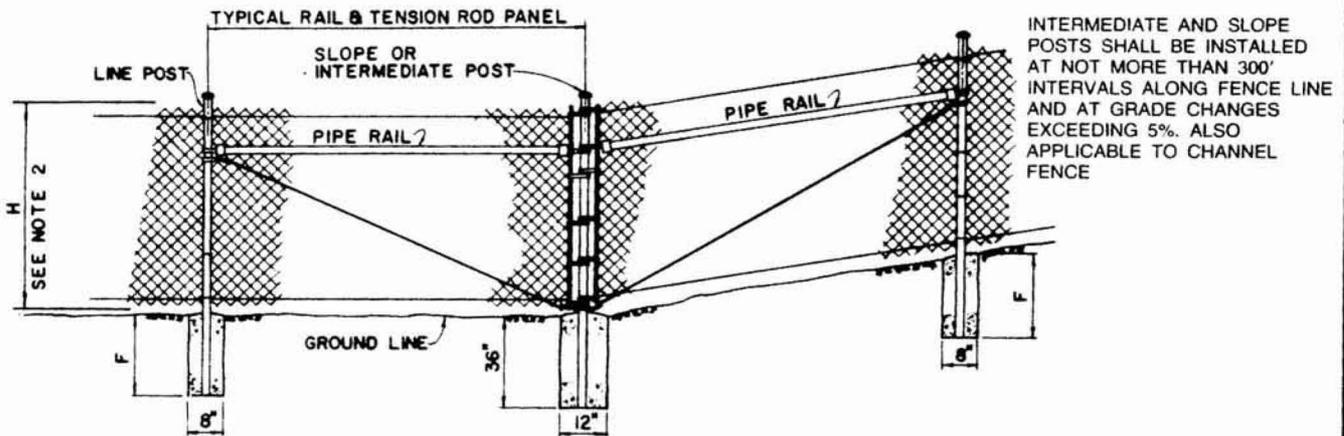
When shown on the Plans, the pipe shall have a gasketed joint. The gasket shall be seated in an accurately shaped groove on the spigot end of the pipe section and the gasket shall be of suitable cross section and size. Alternate joint details may be used with Engineer approval. The gasket shall be considered as the principal element in making the joint watertight. The gasket shall be manufactured from a synthetic rubber of neoprene base and shall conform to the requirements of 208-1.2 and 208-2.2.

The completed pipe shall be free from fractures, large or deep cracks, laminations, and surface roughness. Specimens which, when placed in a vertical position, do not give a metallic ring when struck with a hammer, or which exhibit any of the following defects, will be subject to rejection:

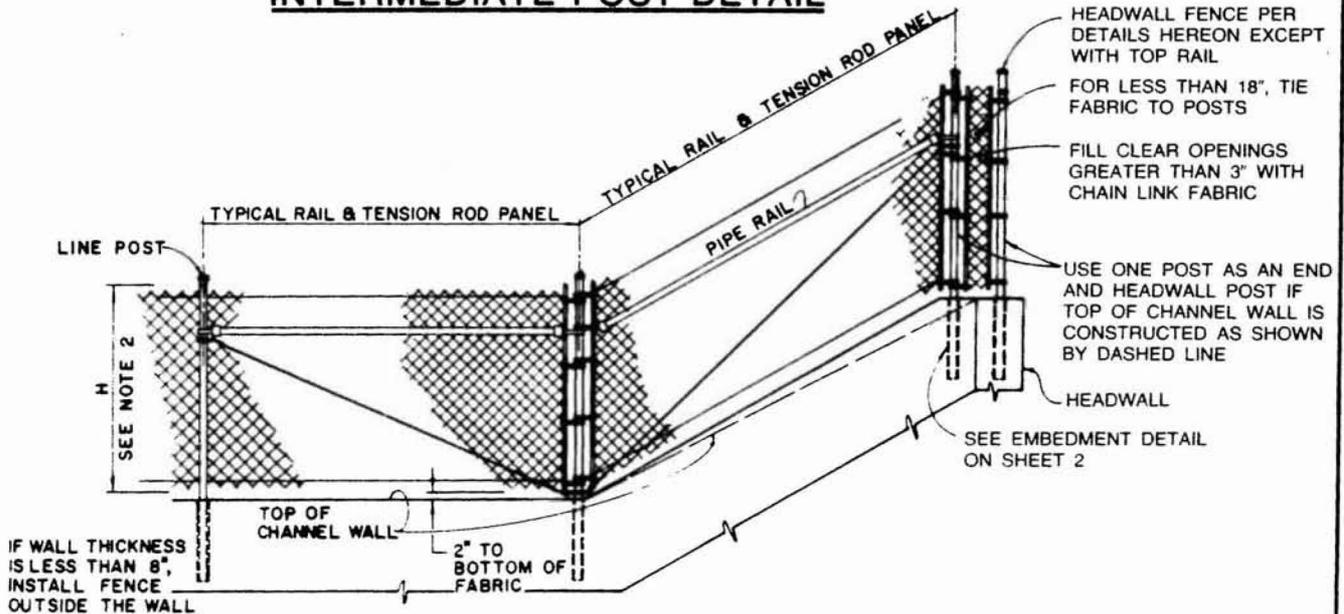
- 1) Indications of honeycomb or open texture or of imperfect mixing or molding.
- 2) Fractures or cracks passing through the wall or socket, except a single end crack less than 75mm (3 inches) measured transversely or 50mm (2 inches) measured longitudinally will not be deemed cause for rejection unless such defects appear in more than 5 percent of the number of sections inspected; in which event, the defective sections will be rejected.
- 3) Cracks sufficient to impair the strength, durability or serviceability of the pipe; a single crack in the body of the pipe, extending through one-half of the thickness of the wall and over 75mm (3 inches) in length; or two or more such cracks regardless of length.



TYPICAL FENCE ELEVATION



INTERMEDIATE POST DETAIL



CHANNEL WALL AND WINGWALL DETAIL AT HEADWALL

AMERICAN PUBLIC WORKS ASSOCIATION - SOUTHERN CALIFORNIA CHAPTER

PROMULGATED BY THE APWA-AGC
JOINT COOPERATIVE COMMITTEE
1984

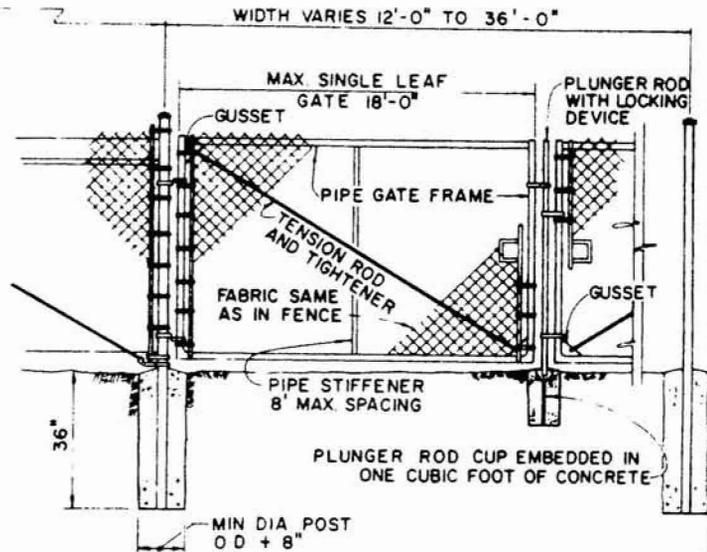
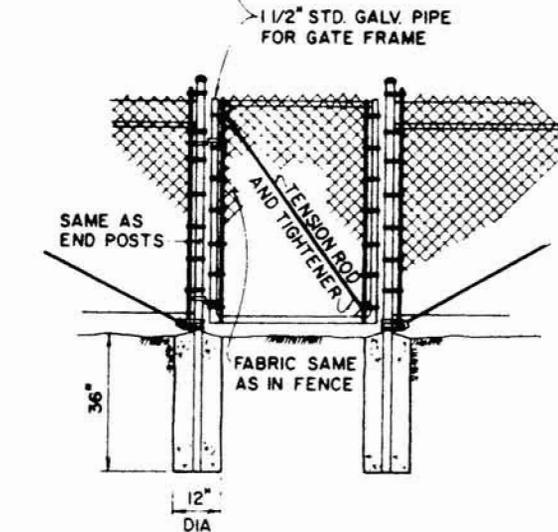
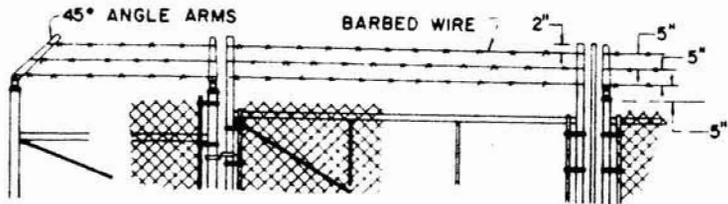
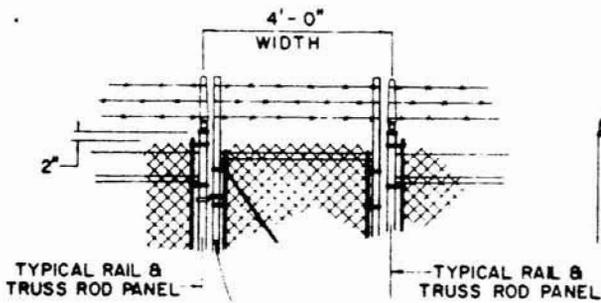
CHAIN LINK FENCE AND GATES

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

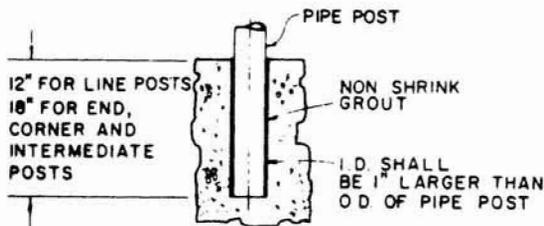
600-0

SHEET 1 OF 2

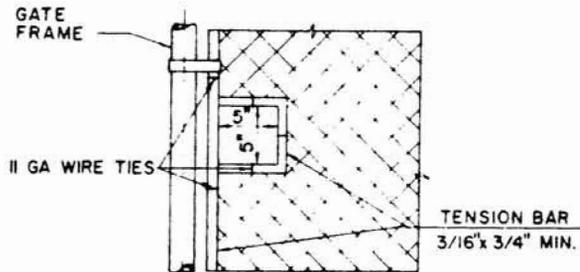


TYPICAL WALK GATE

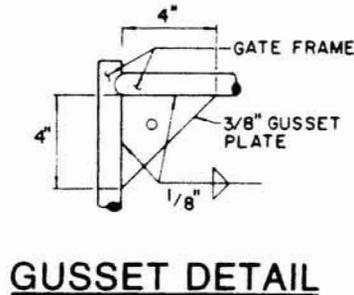
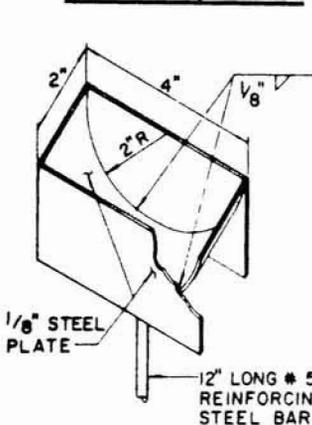
TYPICAL DRIVE GATE



POST EMBEDMENT DETAIL IN CONCRETE HEADWALLS, RETAINING WALLS, CHANNEL WALLS, ETC.



DETAIL OF CUT-OUT FOR CHAIN AND LOCK

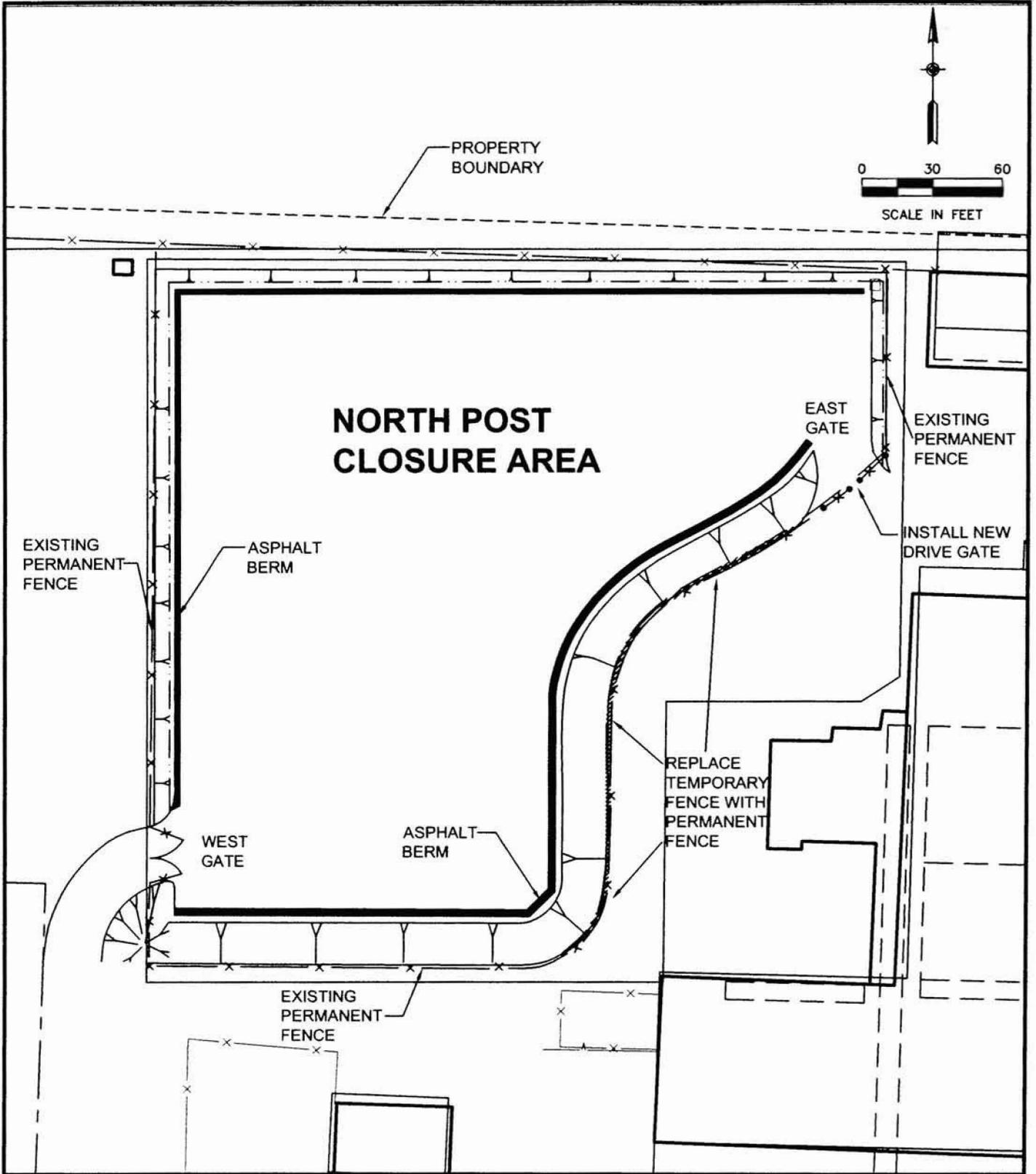


GUSSET DETAIL

PLUNGER ROD CUP DETAIL

NOTES:

1. SECURE DRIVE FIT GALVANIZED CAP TO POST WITH 1/4" ROUND HEAD RIVET.
2. H DENOTES FABRIC WIDTH AND NOMINAL FENCE HEIGHT. H SHALL BE 5'-0" UNLESS OTHERWISE SPECIFIED.
3. IF CHAIN LINK FENCE WITH TOP RAIL IS SPECIFIED, DELETE STEEL TENSION WIRE AT THE TOP AND THE PIPE RAILS AT INTERMEDIATE, END AND CORNER POSTS. EXTEND TENSION ROD TO THE TOP RAIL.
4. BARBED WIRE SHALL BE USED ONLY WHEN SPECIFIED.
5. ALL DATA SHOWN ON TYPICAL DETAILS SHALL BE APPLIED TO OTHER PERTINENT DETAILS.



FENCING INSTALLATION

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Project No.: <p style="text-align: center;">29864170</p>	Date: <p style="text-align: center;">FEBRUARY 2008</p>	Project: <p style="text-align: center;"> NORTH POST-CLOSURE AREA SQUARE D COMPANY 1060 EAST 3RD STREET BEAUMONT, CALIFORNIA </p>	Figure <p style="text-align: center;">A</p>
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