

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS

1. DESCRIPTION

This work shall consist of constructing a CON/SPAN® bridge in accordance with these specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the plans or as established by the Engineer. In situations where two or more specifications apply to this work, the most stringent requirements shall govern.

2. TYPES

Precast reinforced concrete CON/SPAN® bridge units manufactured in accordance with this specification shall be designated by span and rise. Precast reinforced concrete CON/SPAN® wingwalls and headwalls manufactured in accordance with this specification shall be designated by length, height, and deflection angle.

3. MATERIALS - CONCRETE

The concrete for the culverts shall be air-entrained when installed in areas subject to freeze-thaw conditions, composed of portland cement, fine and coarse aggregates, admixtures and water. Air-entrained concrete shall contain 6 ± 2 percent air. The air entraining admixture shall conform to AASHTO M154.

- 3.1 Portland Cement - Shall conform to the requirements of ASTM Specifications C150-Type I, Type II, or Type III cement.
- 3.2 Coarse Aggregate - Shall consist of stone having a maximum size of 1 inch. Aggregate shall meet requirements for ASTM C33.
- 3.3 Water Reducing Admixture - The manufacturer may submit for approval by the Engineer, a water-reducing admixture for the purpose of increasing workability and reducing the water requirement for the concrete.
- 3.4 Calcium Chloride - The addition to the mix of calcium chloride or admixtures containing calcium chloride will not be permitted.

4. MATERIALS - STEEL REINFORCEMENT AND HARDWARE

All reinforcing steel for the culverts shall be fabricated and placed in accordance with the detailed shop drawings submitted by the manufacturer.

- 4.1 Steel Reinforcement - Reinforcement shall consist of welded wire fabric conforming to ASTM Specification A 185 or A 497, or deformed billet steel bars conforming to ASTM Specification A 615, Grade 60. Longitudinal distribution reinforcement may consist of welded wire fabric or deformed billet-steel bars.
- 4.2 Hardware:
 - Bolts and threaded rods for wingwall connections shall conform to ASTM A 307. Nuts shall conform to AASHTO M 292 (ASTM A 194) Grade 2H. All bolts, threaded rods and nuts used in wingwall connections shall be mechanically zinc coated in accordance with ASTM B 695 Class 50.

Structural Steel for wingwall connection plates and plate washers shall conform to AASHTO M 270 (ASTM A 709) Grade 36 and shall be hot dip galvanized as per AASHTO M 111 (ASTM A 123).

Inserts for wingwalls shall be 1" diameter Two-Bolt Preset Wingwall Anchors as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (900) 745-3700.

Ferrule Loop Inserts shall be F-64 Ferrule Loop Inserts as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700.

Hook Bolts used in attached headwall connections shall be ASTM A 307.

Inserts for detached headwall connections shall be AISI Type 304 stainless steel, F-58 Expanded Coil inserts as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700. Coil rods and nuts used in headwall connections shall be AISI Type 304 stainless steel. Washers used in headwall connections shall be either AISI Type 304 stainless steel plate washers or AASHTO M 270 (ASTM A 709) Grade 36 plate washers hot dip galvanized as per AASHTO M 111 (ASTM A 153).

Reinforcing bar splices shall be made using the Dowel Bar Splicer System as manufactured by Dayton/Richmond Concrete Accessories, Miamisburg, Ohio, (800) 745-3700, and shall consist of the Dowel Bar Splicer (DB-SAE) and Dowel-In (DI).

5. MANUFACTURE

- 5.1 Mixture - The aggregates, cement and water shall be proportioned and mixed in a batch mixer to produce a homogeneous concrete meeting the strength requirements of this specification. The proportion of portland cement in the mixture shall not be less than 564 pounds (6 sacks) per cubic yard of concrete.
- 5.2 Curing - The precast concrete culvert units shall be cured for a sufficient length of time so that the concrete will develop the specified compressive strength in 28 days or less. Any one of the following methods of curing or combinations thereof shall be used:
 - 5.2.1 Steam Curing - The culverts may be low pressure, steam cured by a system that will maintain a moist atmosphere.
 - 5.2.2 Water Curing - The culverts may be water cured by any method that will keep the sections moist.
 - 5.2.3 Membrane Curing - A sealing membrane conforming to the requirements of ASTM Specification C 309 may be applied and shall be left intact until the required concrete compressive strength is attained. The concrete temperature at the time of application shall be within ± 10 degrees F of the atmospheric temperature. All surfaces shall be kept moist prior to the application of the compounds and shall be damp when the compound is applied.
- 5.3 Forms - The forms used in manufacture shall be sufficiently rigid and accurate to maintain the culvert dimensions within the permissible variations given in Section 7 of these specifications. All casting surfaces shall be of a smooth material.
- 5.4 Handling - Handling devices or hoists shall be permitted in each culvert for the purpose of handling and setting.
- 5.5 Storage - The precast elements shall be stored in such a manner to prevent cracking or damage. The units shall not be moved until the concrete compressive strength has reached a minimum of 2500 psi, and they shall not be stored in an upright position until the concrete compressive strength is a minimum of 4,000 psi.

6. DESIGN

- 6.1 The precast element dimension and reinforcement details shall be as prescribed in the plan and the shop drawings provided by the manufacturer, subject to the provisions of Section 7, below. The minimum concrete compressive strength shall be as shown on the shop drawings. The minimum steel yield strength shall be 60,000 psi, unless otherwise noted on the shop drawings.
- 6.2 The precast elements are designed in accordance with the "Standard Specifications for Highway Bridges" 17th Edition, adopted by the American Association of State Highway and Transportation Officials, 2002. A minimum of one foot of cover above the crown of the bridge units is required in the installed condition. (Unless noted otherwise on the shop drawings and designed accordingly.)
- 6.3 Placement of Reinforcement in Precast Bridge Units - The cover of concrete over the outside circumferential reinforcement shall be 2 inches minimum. The cover of concrete over the inside circumferential reinforcement shall be 1 1/2 inches minimum, unless otherwise noted on the shop drawings. The clear distance of the end circumferential wires shall not be less than one inch nor more than two inches from the ends of each section. Reinforcement shall be assembled utilizing single or multiple layers of welded wire fabric (not to exceed 3 layers), supplemented with a single layer of deformed billet-steel bars, when necessary. Welded wire fabric shall be composed of circumferential and longitudinal wires meeting the spacing requirements of 6.6, below, and shall contain sufficient longitudinal wires extending through the bridge unit to maintain the shape and position of the reinforcement. Longitudinal distribution reinforcement may be welded wire fabric or deformed billet-steel bars and shall meet the spacing requirements of 6.6, below. The ends of the longitudinal distribution reinforcement shall be not more than 3 inches and not less than 1 1/2 inches from the ends of the bridge unit.
- 6.4 Placement of Reinforcement for Precast Wingwalls and Headwalls - The cover of concrete over the longitudinal and transverse reinforcement shall be 2 inches minimum. The clear distance from the end of each precast element to the end transverse reinforcing steel shall not be less than one inch nor more than two inches. Reinforcement shall be assembled utilizing a single layer of welded wire fabric, or a single layer of deformed billet-steel bars. Welded wire fabric shall be composed of transverse and longitudinal wires meeting the spacing requirements of 6.7, below, and shall contain sufficient longitudinal wires extending through the element to maintain the shape and position of the reinforcement. Longitudinal reinforcement may be welded wire fabric or deformed billet-steel bars and shall meet the spacing requirements of 6.7, below. The ends of the longitudinal reinforcement shall be not more than 3 inches and not less than 1 1/2 inches from the ends of the walls.
- 6.5 Bending of Reinforcement for Precast Bridge Units - The outside and inside circumferential reinforcing steel for the corners of the bridge shall be bent to such an angle that is approximately equal to the configuration of the bridge's outside corner.
- 6.6 Laps, Welds, and Spacing for Precast Bridge Units - Tension splices in the circumferential reinforcement shall be made by lapping. Laps may be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.2 and 8.32.6. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.1 and 8.32.5. The overlap of welded wire fabric shall be measured between the outer most longitudinal wires of each fabric sheet. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 8.25. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be not less than 2 inches nor more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.
- 6.7 Laps, Welds, and Spacing for Precast Wingwalls and Headwalls - Splices in the reinforcement shall be made by lapping. Laps may be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.2 and 8.32.6. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 8.30.1 and 8.32.5. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 8.25. The spacing center-to-center of the wires in a wire fabric sheet shall be not less than 2 inches nor more than 8 inches.

7. PERMISSIBLE VARIATIONS

- 7.1 Bridge Units
 - 7.1.1 Internal Dimensions - The internal dimension shall vary not more than 1% from the design dimensions nor more than 1-1/2 inches whichever is less. The haunch dimensions shall vary not more than 3/4 inch from the design dimension.
 - 7.1.2 Slab and Wall Thickness - The slab and wall thickness shall not be less than that shown in the design by more than 1/4 inch. A thickness more than that required in the design shall not be cause for rejection.
 - 7.1.3 Length of Opposite Surfaces - Variations in laying lengths of two opposite surfaces of the bridge unit shall not be more than 1/2 inch in any section, except where beveled ends for laying of curves are specified by the purchaser.
 - 7.1.4 Length of Section - The under-run in length of a section shall not be more than 1/2 inch in any bridge unit.
 - 7.1.5 Position of Reinforcement - The maximum variation in position of the reinforcement shall be ± 1/2 inch. In no case shall the cover over the reinforcement be less than 1 1/2 inches for the outside circumferential steel or be less than 1 inch for the inside circumferential steel as measured to the external or internal surface of the bridge. These tolerances or cover requirements do not apply to mating surfaces of the joints.
 - 7.1.6 Area of Reinforcement - The areas of steel reinforcement shall be the design steel areas as shown in the manufacturer's shop drawings. Steel areas greater than those required shall not be cause for rejection. The permissible variation in diameter of any reinforcement shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcement.

7.2 Wingwalls and Headwalls

- 7.2.1 Wall Thickness - The wall thickness shall not vary from that shown in the design by more than 1/2 inch.
- 7.2.2 Length/Height of Wall sections - The length and height of the wall shall not vary from that shown in the design by more than 1/2 inch.
- 7.2.3 Position of Reinforcement - The maximum variation in the position of the reinforcement shall be ± 1/2 inch. In no case shall the cover over the reinforcement be less than 1 1/2 inches.
- 7.2.4 Size of Reinforcement - The permissible variation in diameter of any reinforcement shall conform to the tolerances prescribed in the ASTM Specification for that type of reinforcing. Steel area greater than that required shall not be cause for rejection.

8. TESTING AND INSPECTION

- 8.1 Type of Test Specimen - Concrete compressive strength shall be determined from compression tests made on cylinders or cores. For cylinder testing, a minimum of 4 cylinders shall be taken during each production run. For core testing, one core shall be cut from each of 3 precast elements selected at random from each production group. A production group shall be defined as 15 or fewer bridge units (of a particular size), wingwalls or headwalls in a continuous production run. For each continuous production run, each production group or fraction thereof shall be considered separately for the purpose of testing and acceptance. A production run shall be considered continuous if not interrupted for more than 3 consecutive days.
- 8.2 Compression Testing - Cylinders shall be made and tested as prescribed by the ASTM C 39 Specification. Cores shall be obtained and tested for compressive strength in accordance with the provisions of the ASTM C497 Specification.
- 8.3 Acceptability of Cylinder Tests - When the average compressive strength of all cylinders tested is equal to or greater than the design compressive strength, and not more than 10% of the cylinders tested have a compressive strength less than the design concrete strength, and no cylinder tested has a compressive strength less than 80% of the design compressive strength, then the lot shall be accepted. When the compressive strength of the cylinders tested does not conform to this acceptance criteria, the acceptability of the lot may be determined as described in section 8.4, below.
- 8.4 Acceptability of Core Tests - The compressive strength of the concrete in each production group as defined in 8.1 is acceptable when the average core test strength is equal to or greater than the design concrete strength. When the compressive strength of the core tested is less than the design concrete strength, the precast element from which that core was taken may be re-cored. When the compressive strength of the re-core is equal to or greater than the design concrete strength, the compressive strength of the concrete in that production group is acceptable.
 - 8.4.1 When the compressive strength of any recore is less than the design concrete strength, the precast element from which that core was taken shall be rejected. Two precast elements from the remainder of the group shall be selected at random and one core shall be taken from each. If the compressive strength of both cores is equal to or greater than the design concrete strength, the compressive strength of the remainder of that group is acceptable. If the compressive strength of either of the two cores tested is less than the design concrete strength, the remainder of the group shall be rejected or, at the option of the manufacturer, each precast element of the remainder of the group shall be cored and accepted individually, and any of these elements that have cores with less than the design concrete strength shall be rejected.
 - 8.4.2 Plugging Core Holes - The core holes shall be plugged and sealed by the manufacturer in a manner such that the elements will meet all of the test requirements of this specification. Precast elements so sealed shall be considered satisfactory for use.
 - 8.4.3 Test Equipment - Every manufacturer furnishing culverts under this specification shall furnish all facilities and personnel necessary to carryout the test required.

9. JOINTS

The bridge units shall be produced with flat butt ends. The ends of the bridge units shall be such that when the sections are laid together they will make a continuous line of with a smooth interior free of appreciable irregularities, all compatible with the permissible variations in Section 7, above. The joint width shall not exceed 3/4 inches.

10. WORKMANSHIP AND FINISH

The bridge units, wingwalls, and headwalls shall be substantially free of fractures. The ends of the bridge units shall be normal to the walls and centerline of the bridge section, within the limits of the variations given in section 7, above, except where beveled ends are specified. The faces of the wingwalls and headwalls shall be parallel to each other, within the limits of variations given in section 7, above. The surface of the precast elements shall be a smooth steel form or troweled surface. Trapped air pockets causing surface defects shall be considered as part of a smooth, steel form finish.

11. REPAIRS

Precast elements may be repaired, if necessary, because of imperfections in manufacture or handling damage and will be acceptable if, in the opinion of the purchaser, the repairs are sound, properly finished and cured, and the repaired section conforms to the requirements of this specification.

12. INSPECTION

The quality of materials, the process of manufacture, and the finished culverts shall be subject to inspection by the purchaser.

13. REJECTION

- The precast elements shall be subject to rejection on account of any of the specification requirements. Individual precast elements may be rejected because of any of the following:
- 13.1 Fractures or cracks passing through the wall, except for a single end crack that does not exceed one half the thickness of the wall.
 - 13.2 Defects that indicate proportioning, mixing, and molding not in compliance with Section 5 of these specifications.
 - 13.3 Honeycombed or open texture.
 - 13.4 Damaged ends, where such damage would prevent making a satisfactory joint.

14. MARKING

Each bridge unit shall be clearly marked by waterproof paint. The following shall be shown on the inside of the vertical leg of the bridge section: Bridge Span X Bridge Rise Date of Manufacture Name or trademark of the manufacturer

15. CONSTRUCTION REQUIREMENTS

- 15.1 Footings - The bridge units and wingwalls shall be installed on either precast or cast-in-place concrete footings. The design size and elevation of the footings shall be as determined by the Engineer. A three inch deep keyway shall be formed in the top surface of the bridge footing three inches clear of the inside and outside faces of the bridge units, unless specified otherwise on the plans. No keyway is required in the wingwall footings, unless otherwise specified on the plans. The footings shall be given a smooth floor finish and shall reach a compressive strength of 2,000 psi before placement of the bridge and wingwall elements. The completed footing surface shall be constructed in accordance with grades shown on the plans. When tested with a 10 foot straight edge, the surface shall not vary more than 1/4 inch in 10 feet. If a precast concrete footing is used, the contractor shall prepare a 4 inch thick base layer of compacted granular material the full width of the footing prior to placing the precast footing.
- 15.2 Placement of the Bridge Units, Wingwalls and Headwalls - The bridge units, wingwalls and headwalls shall be placed as shown on the Engineer's plan drawings. Special care shall be taken in setting the elements to the true line and grade. The bridge units and wingwalls shall be set on 6" x 6" masonite or steel shims. A minimum gap of 1/2 inch shall be provided between the footing and the bottom of the bridge's vertical legs or the wingwall. The gap shall be filled with cement grout (Portland cement and water or cement mortar composed of Portland cement, sand and water) with a minimum 28-day compressive strength of 3000 psi. If units have been set with temporary ties (cables, bars, etc.) grout must attain a minimum compressive strength of 1500 psi before ties may be removed.
- 15.3 External Protection of Joints - The butt joint made by two adjoining bridge units shall be covered with a 7/8" x 1 3/8" preformed bituminous joint sealant and a minimum of a 9 inch wide joint wrap. The surface shall be free of dirt before applying the joint material. A primer compatible with the joint wrap to be used shall be applied for a minimum width of nine inches on each side of the joint. The external wrap shall be either EZ-WRAP RUBBER BY PRESS-SEAL GASKET CORPORATION, SEAL WRAP BY MAR MAC MANUFACTURING CO. INC. or approved equal. The joint shall be covered continuously from the bottom of one bridge section leg, across the top of the arch and to the opposite bridge section leg. Any laps that result in the joint wrap shall be a minimum of six inches long with the overlap running downhill.

In addition to the joints between bridge units, the joint between the end bridge unit and the headwall shall also be sealed as described above. If precast wingwalls are used, the joint between the end bridge unit and the wingwall shall be sealed with a 2'-0" strip of filter fabric. Also, if lift holes are formed in the arch units, they shall be primed and covered with a 9" x 9" square of joint wrap.
- 15.4 Backfill - Backfill shall be considered as all replaced excavation and new embankment adjacent to the CON/SPAN® bridge units, wingwalls, and headwalls. The project construction and material specifications which include the specifications for excavation for structures and roadway excavation and embankment construction, shall apply except as modified in this section.

No backfill shall be placed against any structural elements until they have been approved by the Engineer.

Backfill against a waterproofed surface shall be placed carefully to avoid damage to the waterproofing material.

Mechanical tampers or approved compacting equipment shall be used to compact all backfill and embankment immediately adjacent to each side and over the top of each bridge unit until it is covered to a minimum depth of one foot, unless the design fill height is less than 1'-0". The backfill within the Critical Backfill Zone (shown in the diagrams below) shall be placed in lifts of eight inches or less (loose depth). Heavy compaction equipment shall not be operated in this area or over the bridge until it is covered to a depth of one foot, unless the design fill height is less than 1'-0".

Lightweight dozers and graders may be operated over bridge units having one foot of compacted cover, but heavy earth moving equipment (larger than a D-4 Dozer weighing in excess of 12 tons and having track pressures of eight psi or greater) shall require two feet of cover unless the design cover is less than two feet. In no case shall equipment operating in excess of the design load (HS20 or HS25) be permitted over the bridge units unless approved by CON/SPAN®.

Any additional fill and subsequent excavation required to provide this minimum cover shall be made at no additional cost to the project.

As a precaution against introducing unbalanced stresses in the bridge, when placing backfill at no time shall the difference between the heights of fill on opposite sides of the bridge exceed 24".

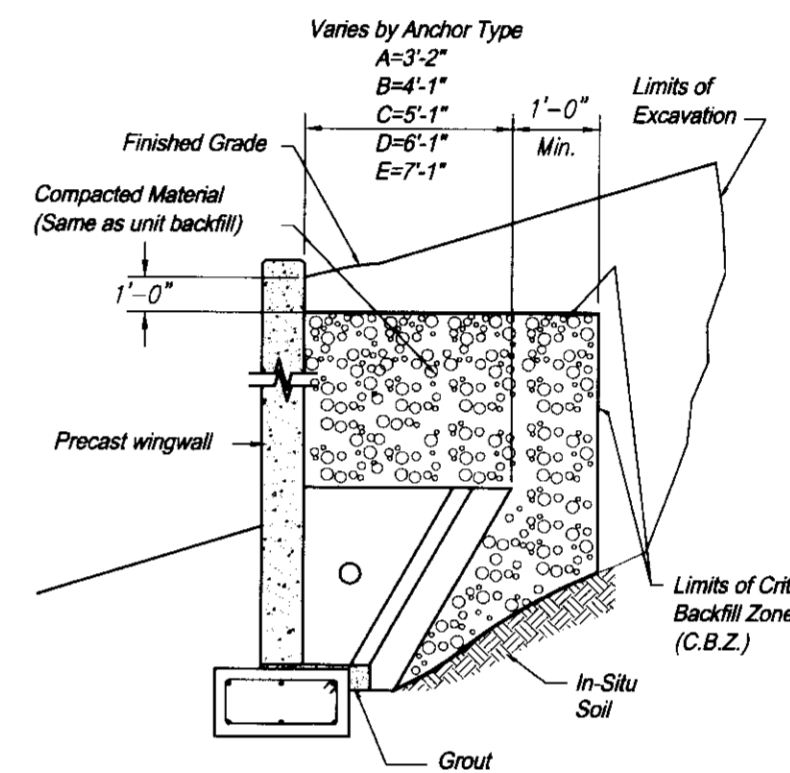
Backfill in front of wingwalls shall be carried to ground lines shown in the plans.

For fill heights over 12 feet, no backfilling may begin until a backfill compaction testing plan has been coordinated with and approved by CON/SPAN® Bridge Systems. Cost of the backfill compaction testing shall be included in the cost of the precast units. This included cost applies only to projects with fill heights over 12 feet (as measured from top crown of arch to finished grade).

16. QUALITY ASSURANCE

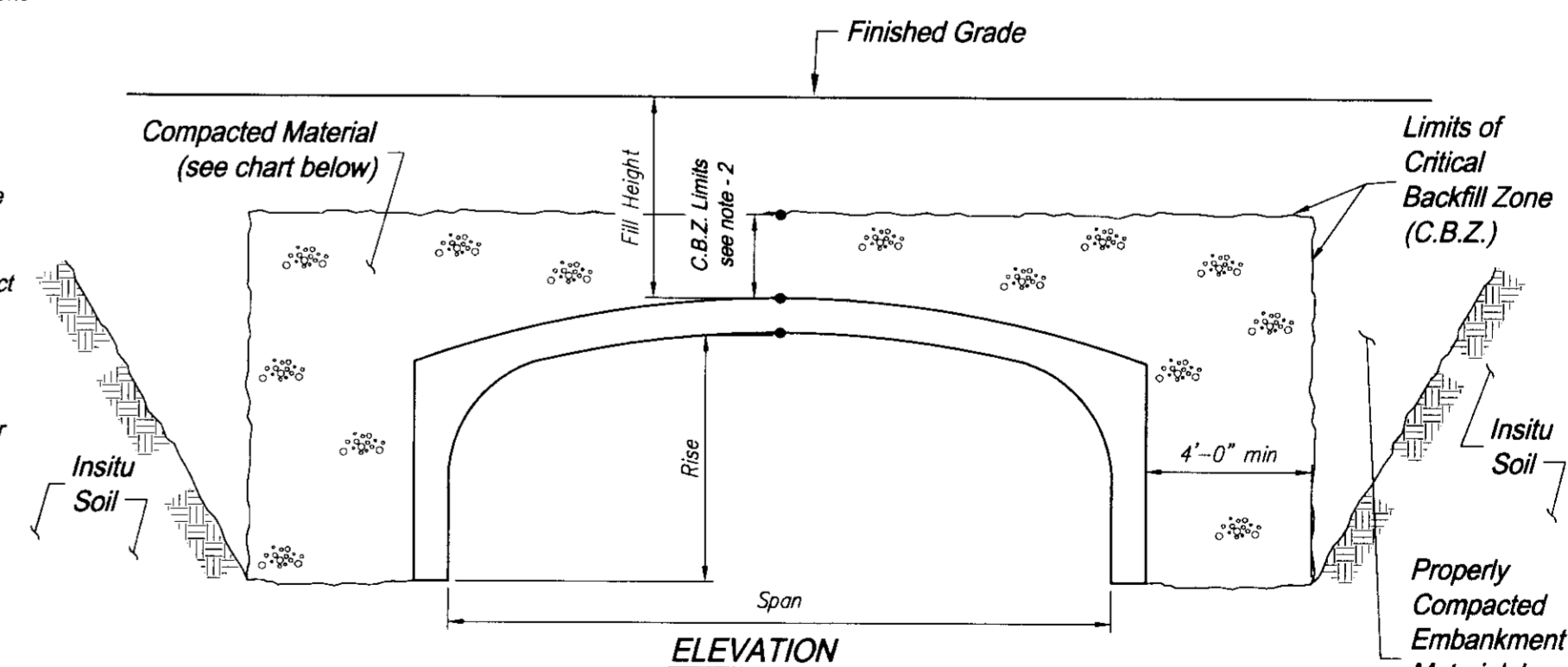
The Precaster shall demonstrate adherence to the standards set forth in the NPCA Quality Control Manual. The Precaster shall meet either Section 16.1 or 16.2.

- 16.1 Certification - The Precaster shall be certified by the Precast/Prestressed Concrete Institute Plant Certification Program or the National Precast Concrete Association's Plant Certification Program prior to and during production of the products covered by this specification.
- 16.2 Qualifications, Testing and Inspection
 - 16.2.1 The Precaster shall have been in the business of producing precast concrete products similar to those specified for a minimum of three years. He shall maintain a permanent quality control department or retain an independent testing agency on a continuing basis. The agency shall issue a report, certified by a licensed engineer, detailing the ability of the Precaster to produce quality products consistent with industry standards.
 - 16.2.2 The Precaster shall show that the following tests are performed in accordance with the ASTM standards indicated. Tests shall be performed for each 150 cubic yards of concrete placed, but not less frequently than once per production run, as defined in §8 of these specifications.
 - 16.2.2.1 Air Content: C231 or C173
 - 16.2.2.2 Compressive Strength: C39, C497
 - 16.2.3 The Precaster shall provide documentation demonstrating compliance with this section to CON/SPAN® Bridge Systems at regular intervals or upon request.
 - 16.2.4 The Owner shall place an inspector in the plant when the products covered by this specification are being manufactured.



WINGWALL BACKFILL REQUIREMENTS

Group Classification	BACKFILL DESCRIPTION (AASHTO M 145-91)							A-4
	A-1-a	A-1-b	A-3	A-2-4	A-2-5	A-2-6	A-2-7	
Sieve Analysis, Percent Passing (100% Passing 3" Sieve)								
No. 10	50 max.							
No. 40	30 max.	50 max.	51 min.					
No. 200	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	35 max.	36 min.
Characteristics of Fraction Passing								
No. 40								
Liquid Limit				40 max.	41 min.	40 max.	41 min.	40 max.
Plasticity Index	6 max.		N.P.	10 max.	10 max.	11 min.	11 min.	10 max.
Usual Types of Significant Constituent Materials	Stone Fragments, Gravel & Sand		Fine	Silty or Clayey Gravel and Sand				Silty Soils
General Rating as Subgrade				Excellent to Good				Fair to Poor



- NOTES
1. SEE CON/SPAN® SPECIFICATIONS SECTION 15.4 FOR BACKFILL SPECIFICATIONS.
 2. FOR FILL HEIGHTS GREATER THAN 2'-0", C.B.Z. LIMIT SHALL BE 2'-0" ABOVE ARCH CROWN. FOR FILL HEIGHTS LESS THAN 2'-0", THE FINISHED GRADE SHALL BE THE BOUNDARY LINE FOR THE C.B.Z.
 3. BACKFILLING OPERATIONS WITHIN THE C.B.Z. SHALL BE PERFORMED IN LIFTS OF 8" OR LESS (LOOSE DEPTH).
 4. MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
 5. BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY.

SPAN	FILL HEIGHT	ACCEPTABLE MATERIAL INSIDE C.B.Z.	ACCEPTABLE MATERIAL OUTSIDE C.B.Z.
≤ 24'-0"	≥ 12'-0"	A1, A3	..
≤ 24'-0"	< 12'-0"	A1, A2, A3, A4	..
> 24'-0"	ALL	A1, A3	..

**EMBANKMENT MATERIAL PER PROJECT SPECIFICATIONS

BACKFILL REQUIREMENTS

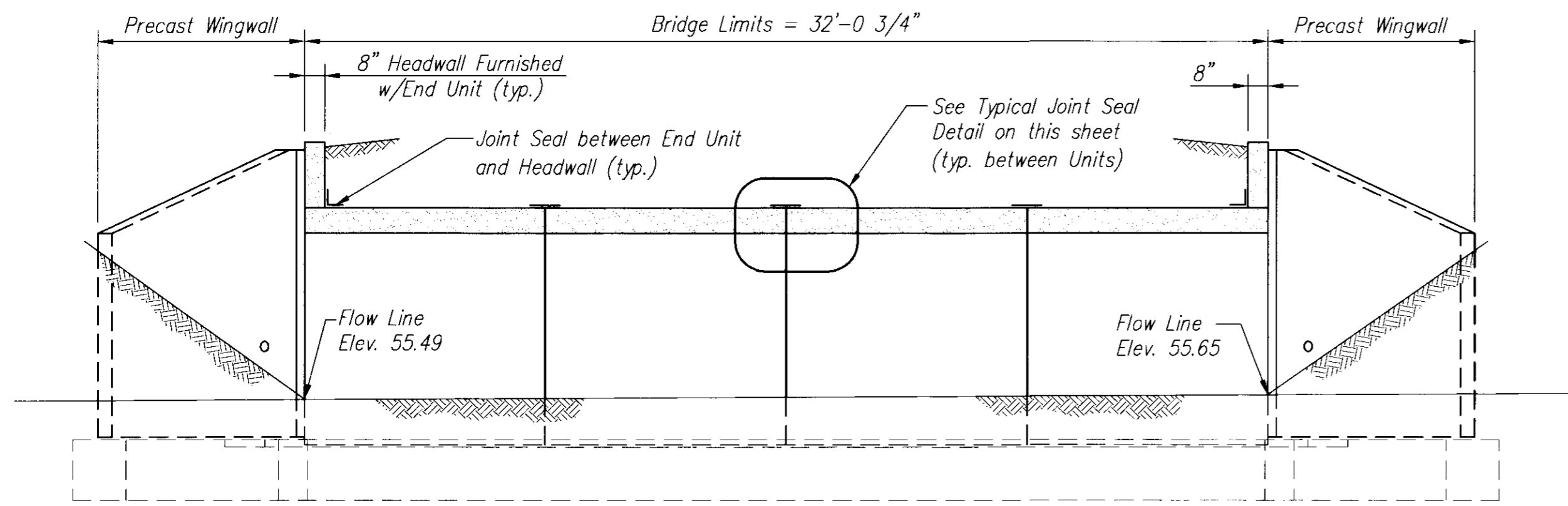
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No.	Date	REVISIONS
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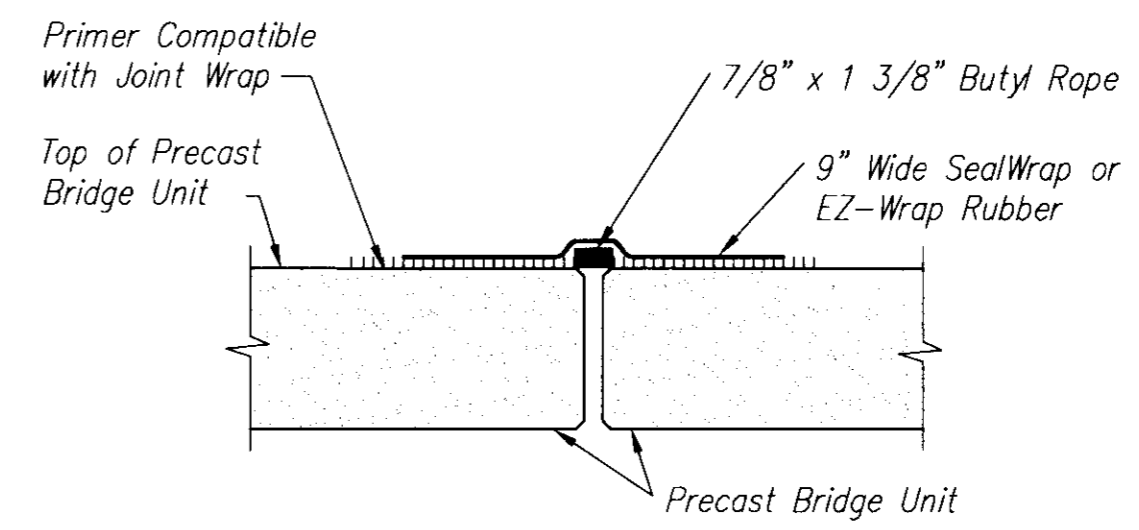
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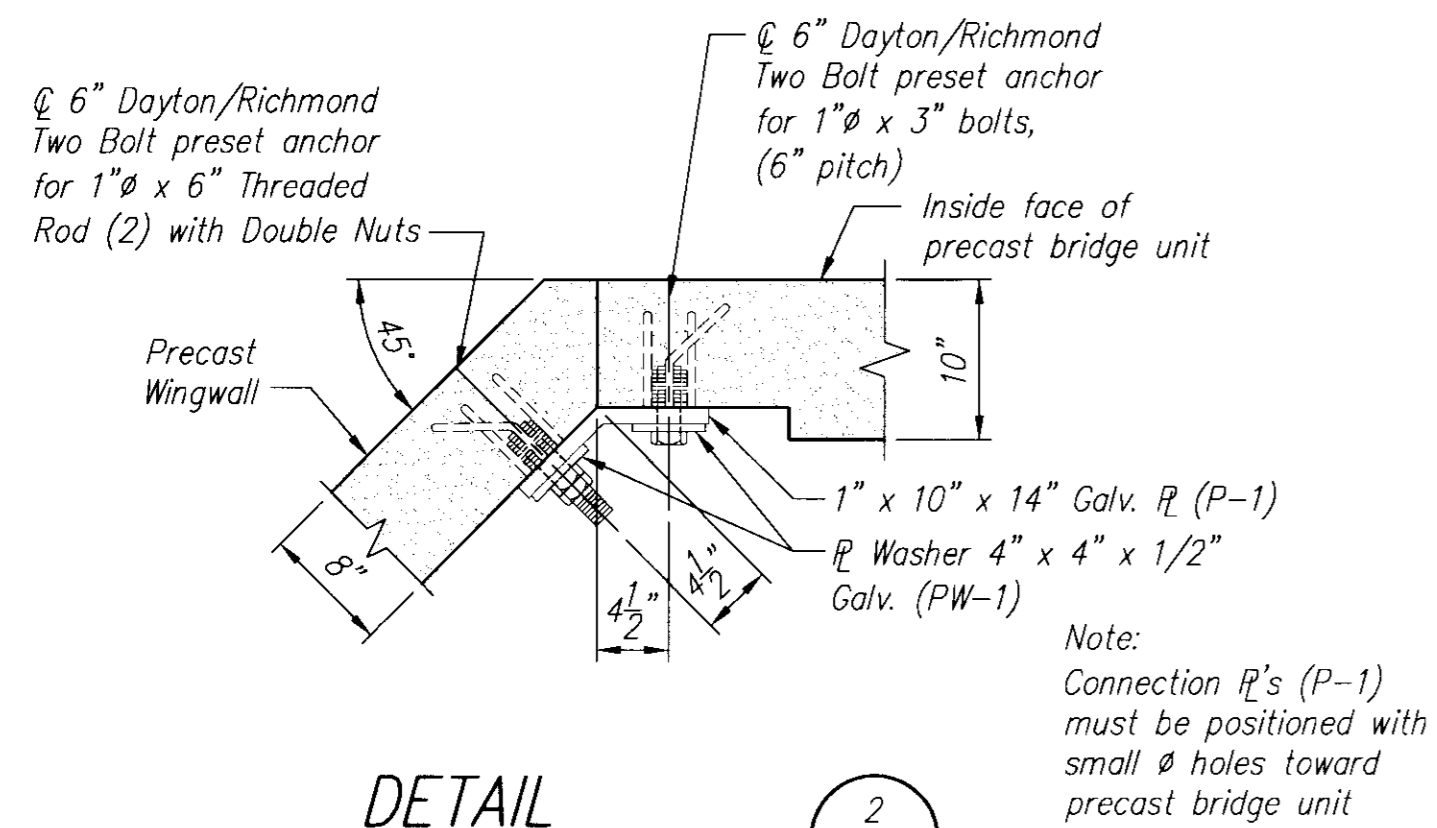
SAN JOAQUIN COUNTY
CALIFORNIA
TEMPLE CREEK CULVERTS
WILDWOOD RANCH
Designed KLD
Checked WJA
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Date 1/11/06
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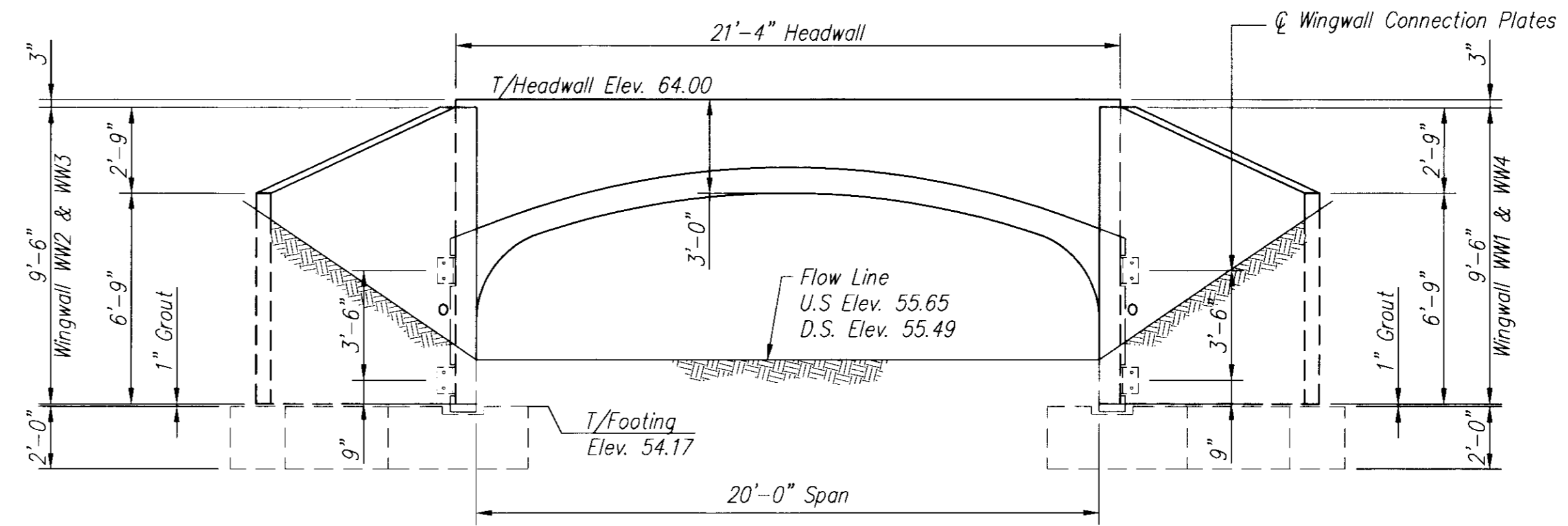
SECTION
0 2' 4' 8'
C/S4



TYPICAL JOINT SEAL DETAIL
not to scale



DETAIL
0 1' 2'
C/S4



TYPICAL END ELEVATION

Note:
U.S. - denotes Upstream
D.S. - denotes Downstream

APPROVED:
FOR CONSTRUCTION

7/18/06
1/30/06

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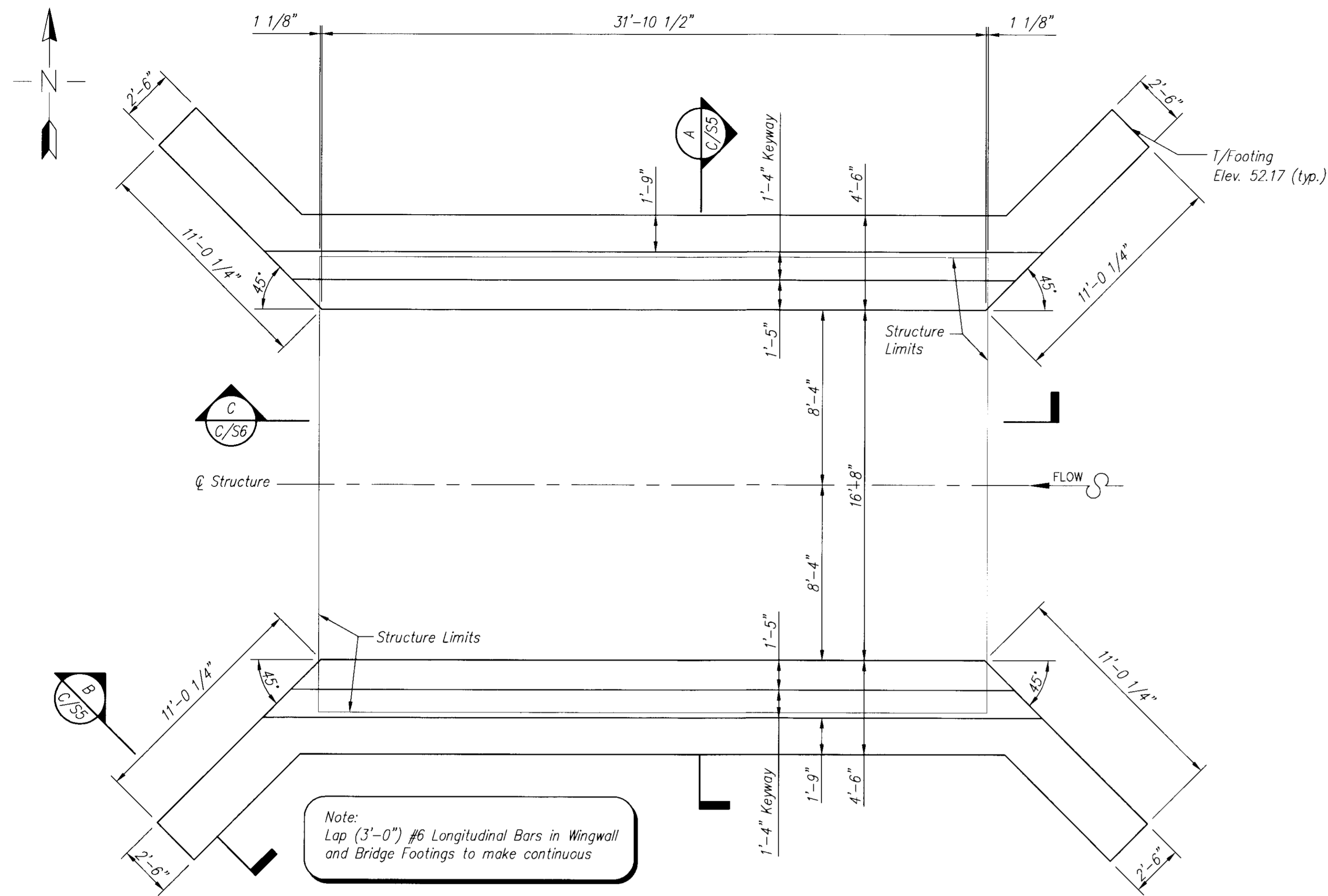
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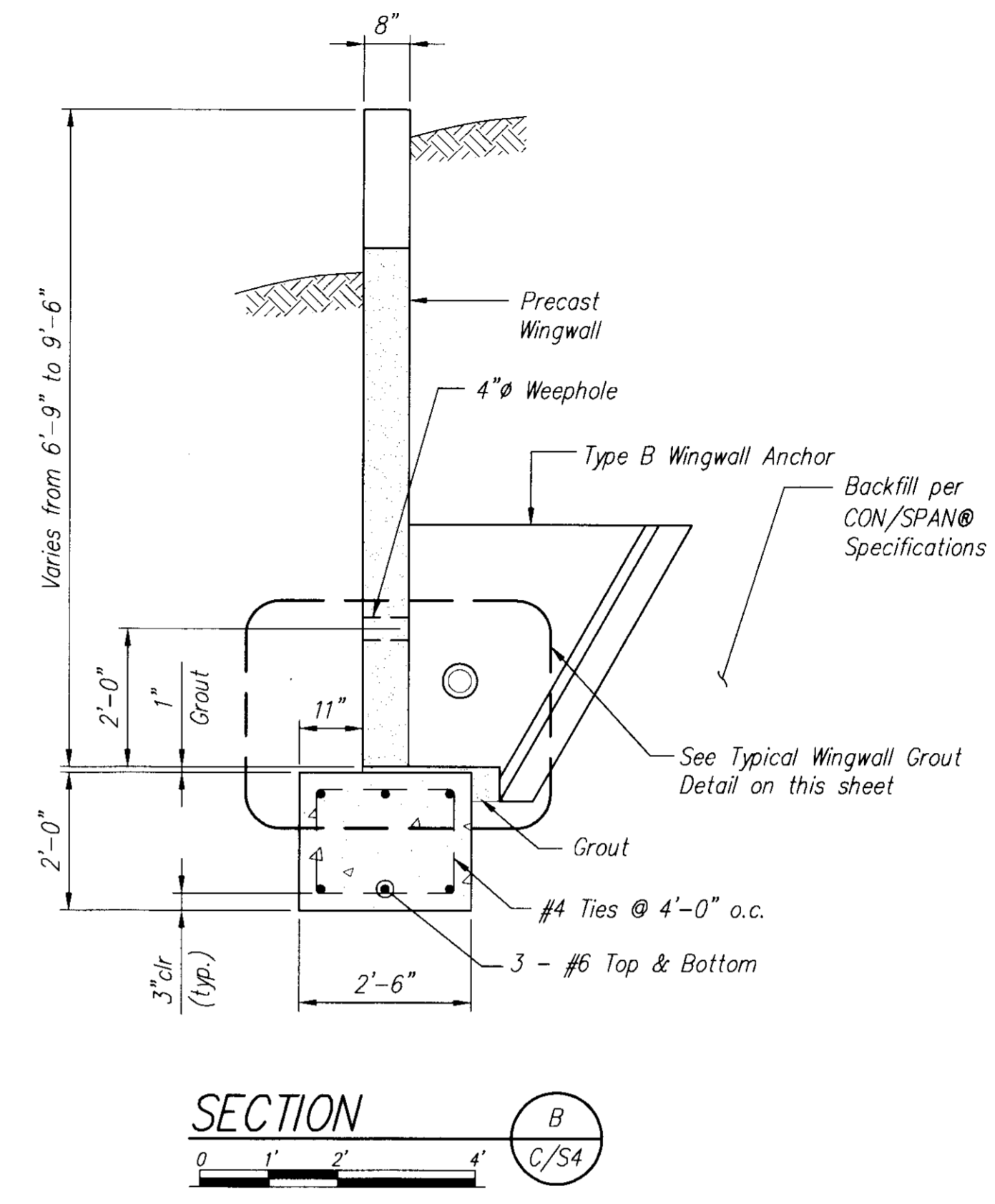
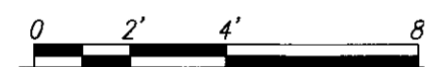
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CALIFORNIA
TEMPLE CREEK CULVERT
AT EVA
WILDWOOD RANCH

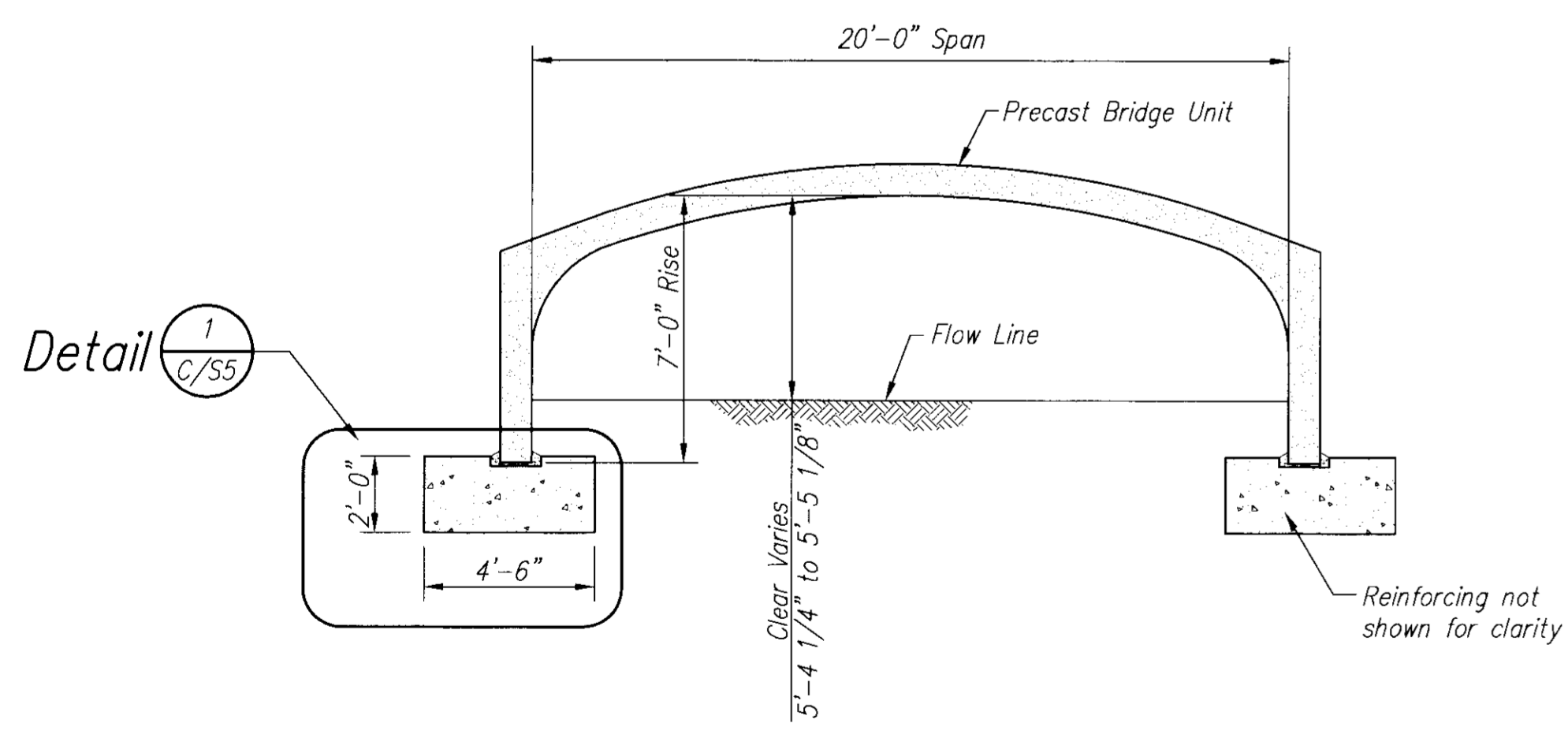
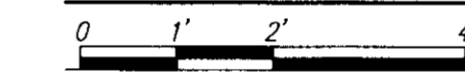
Designed	KLD	CS Project No.
Drawn	WJA	13938
Checked	PAC	Sheet No.
Date	1/11/06	C/S6



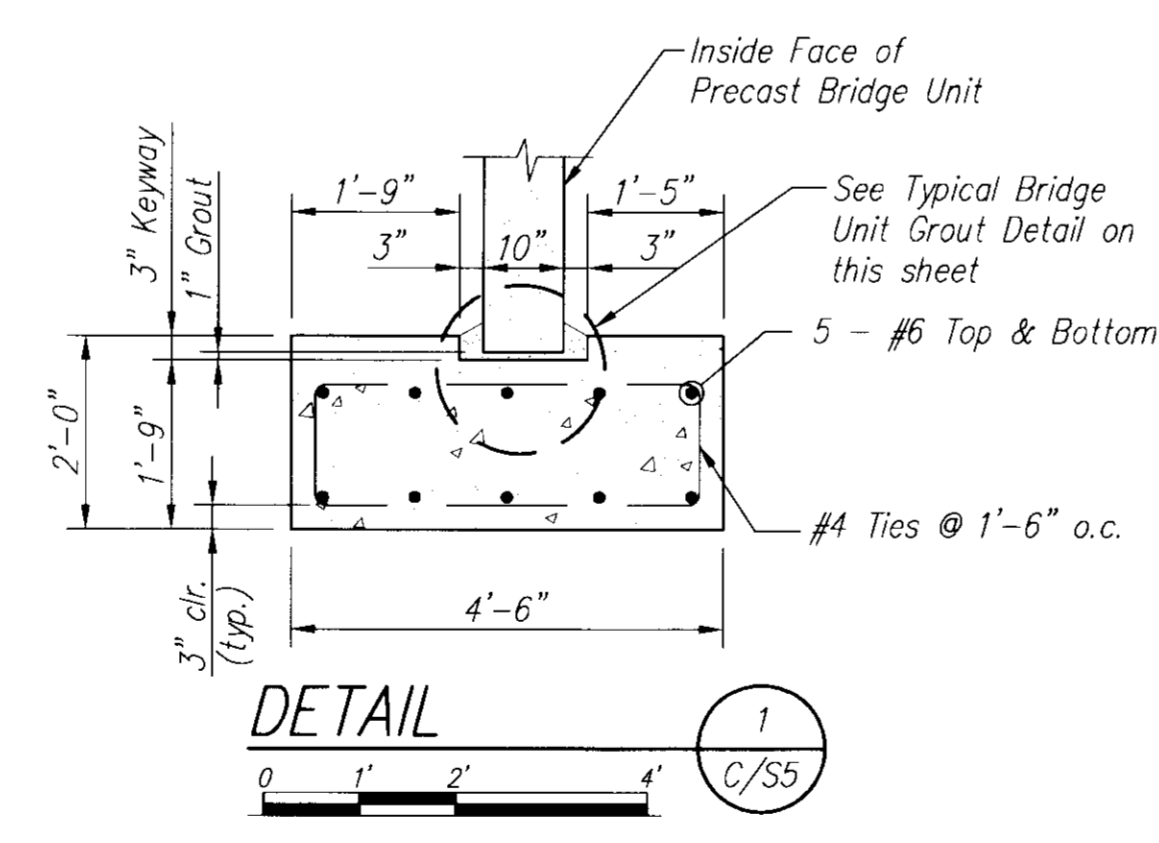
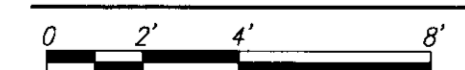
FOUNDATION PLAN



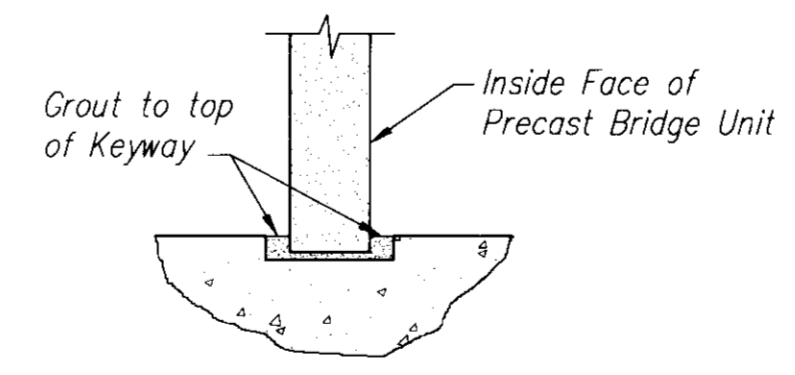
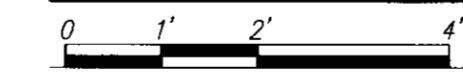
SECTION B
C/S/4



SECTION A
C/S/4

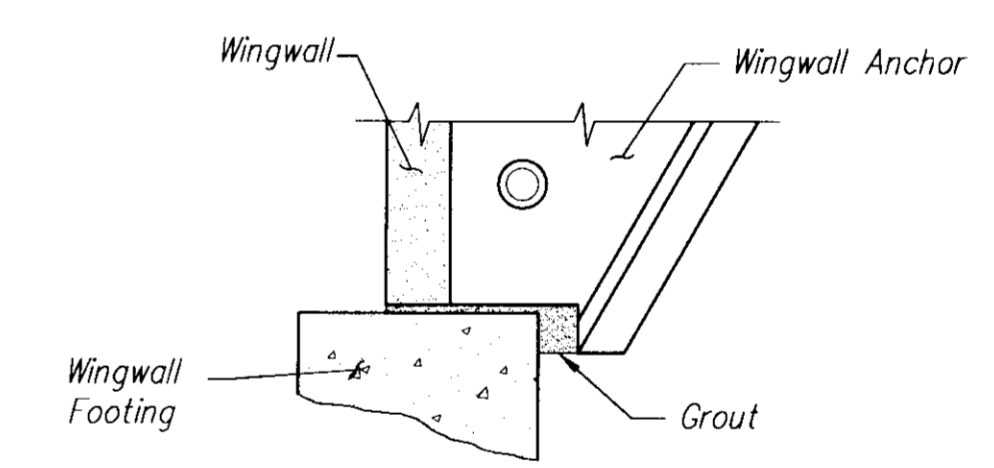


DETAIL 1
C/S/5



TYPICAL BRIDGE UNIT GROUT DETAIL
not to scale

Note:
Fill entire keyway including nominal 1" void between bottom of keyway and bottom of precast bridge unit leg with grout.



TYPICAL WINGWALL GROUT DETAIL
not to scale

Notes:
• Minimum 1" Grout under wingwall leg & anchor stem.
• Area between wingwall footing and wingwall anchor shall be grouted solid before backfill.

APPROVED:
FOR CONSTRUCTION

P. J. A. L.
7/30/04
1/18/06

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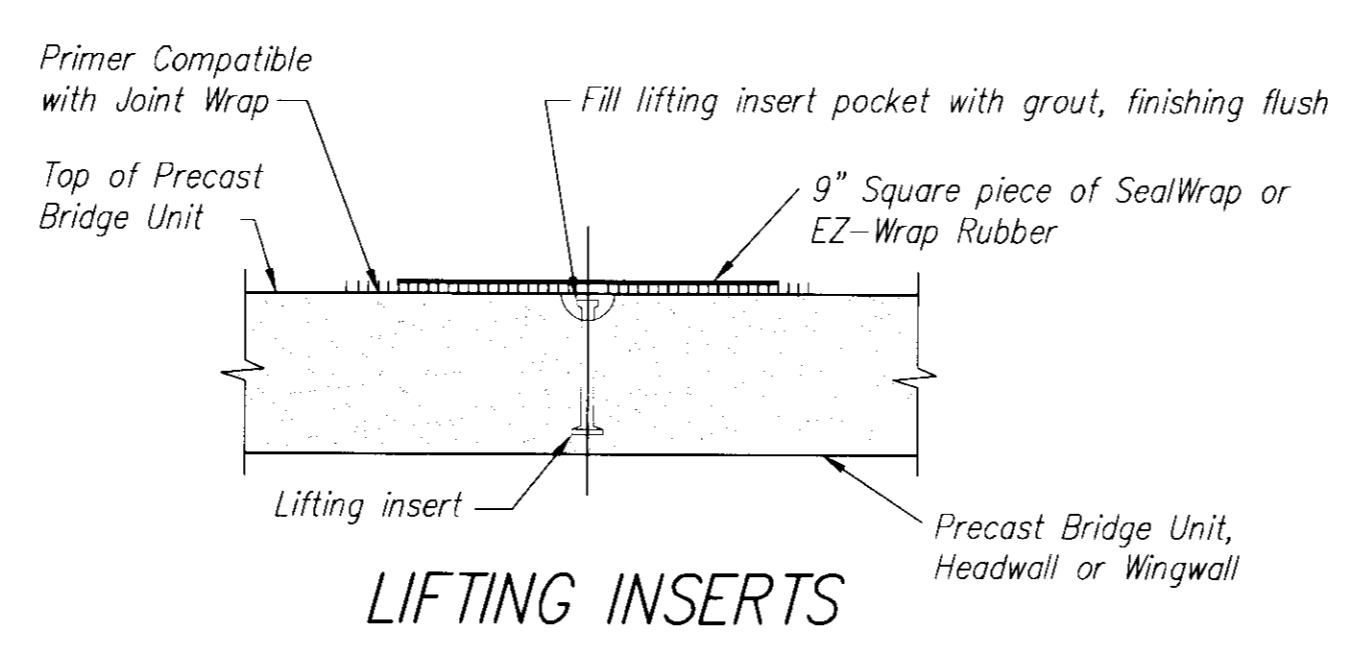
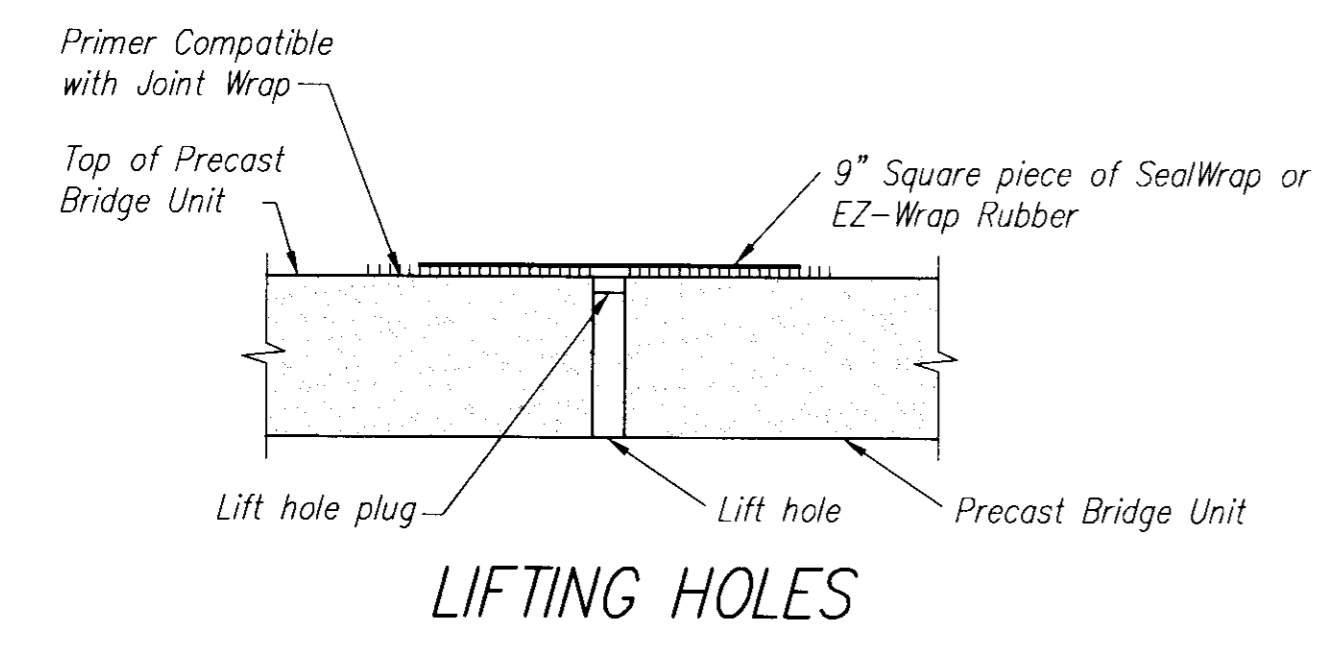
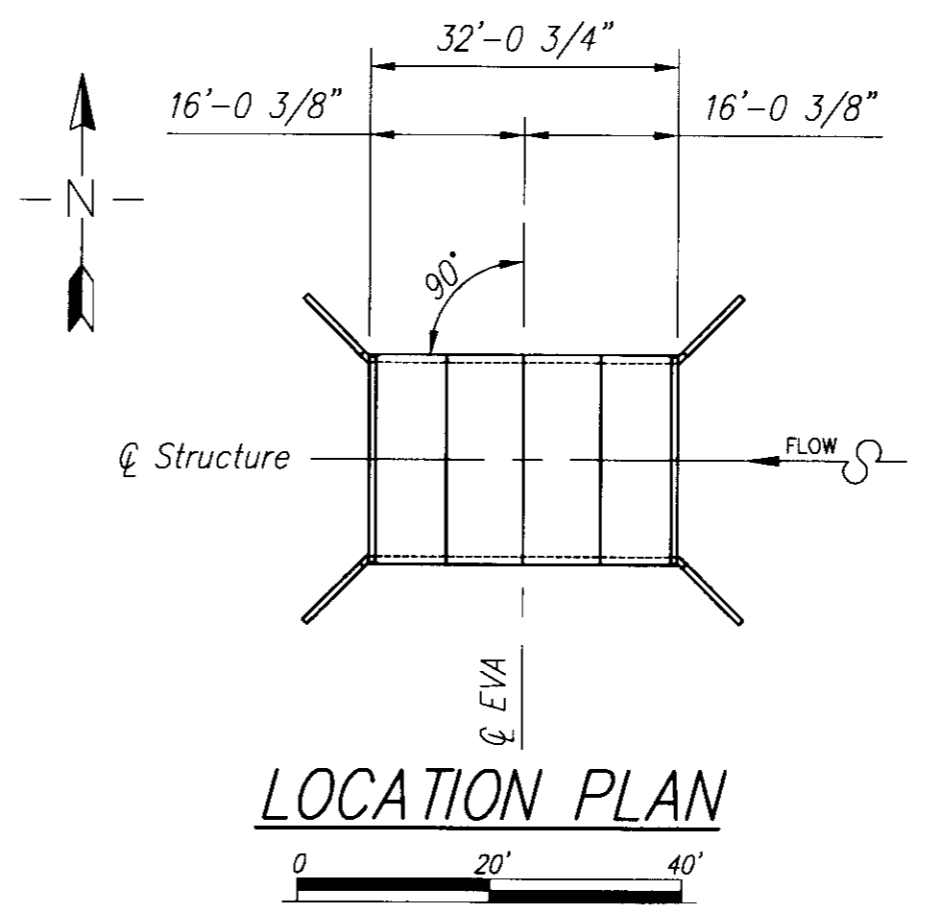
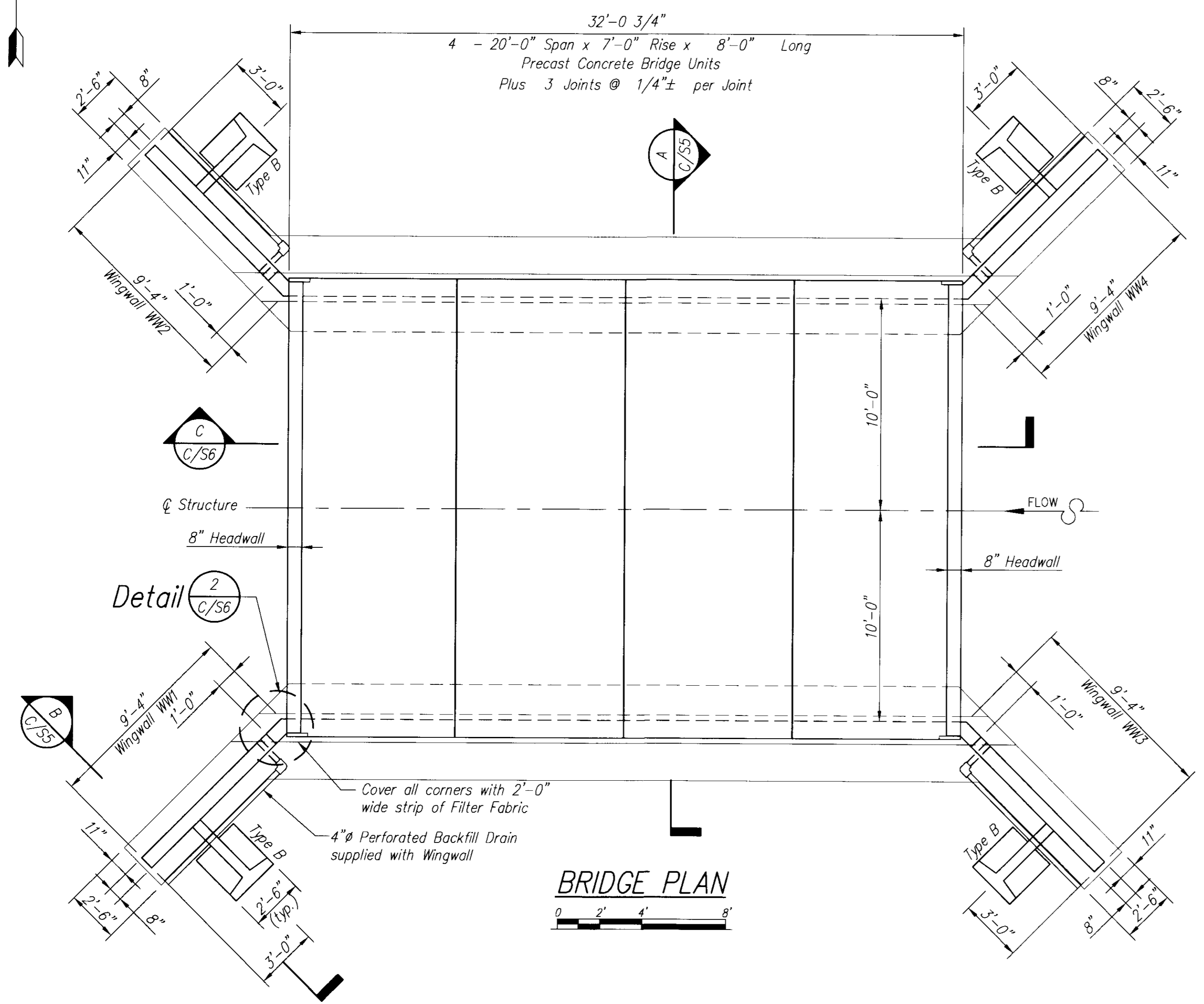
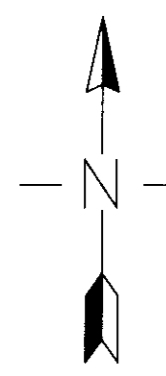
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SAN JOAQUIN COUNTY CALIFORNIA
TEMPLE CREEK CULVERT AT EVA WILDWOOD RANCH

Designed	KLD	C/S Project No.
Drawn	WJA	13938
Checked	PAC	Sheet No.
Date	1/11/06	C/S/5



TYPICAL LIFT POINT SEALING DETAIL
not to scale

NOTES

GENERAL NOTES:

- This bridge has been designed for general site conditions. The project engineer shall be responsible for the structure's suitability to the existing site conditions and for the hydraulic evaluation -- including scour and confirmation of soil conditions.
- Prior to construction, contractor must verify all elevations shown through the engineer.
- Only BridgeTek, A Division of CONTECH Arch Technologies, Inc. the CON/SPAN® approved precaster in California may provide the structure designed in accordance with these plans.
- The use of another precast structure with the design assumptions used for the CON/SPAN® structure may lead to serious design errors. Use of any other precast structure with this design and drawings voids any certification of this design and warranty. CON/SPAN® Bridge Systems assumes no liability for design of any alternate or similar type structures.
- Alternate structures may be considered, provided that signed and sealed design drawings (and calculations) are submitted to the engineer 2 weeks prior to the bid date for review and approval.
- Proposed alternates to a CON/SPAN® Bridge System must submit at least two (2) independently verified full scale load tests that confirm the proposed design methodology of the three sided/arch structure(s). The proposed alternate, upon satisfactory confirmation of design methodology, may be considered an acceptable alternate.

DESIGN DATA

Design Loading:
 Bridge Units: HS20-44
 Headwalls: Earth Pressure only
 Wingwalls: Earth Pressure only
 Design Fill Height: 2'-0" min. to 3'-0" max. from top of crown to top of pavement.
 Design Method: Load factor per AASHTO Specification
 Net allowable soil bearing pressure: 2500 PSF *
 Gross allowable soil bearing pressure: 2500 PSF *

*Foundation excavation and subgrade preparation shall be in accordance with the geotechnical report for this project prepared by Neil O. Anderson & Associates, dated 6/28/05.

MATERIALS

Precast units shall be constructed and installed in accordance with CON/SPAN® Specifications. Concrete for Footings shall have a minimum compressive strength of 4000 psi. Reinforcing steel for footings shall conform to ASTM A615 or A996-Grade 60.

APPROVED:
FOR CONSTRUCTION

pp a.l. 1/12/02
7/30/06

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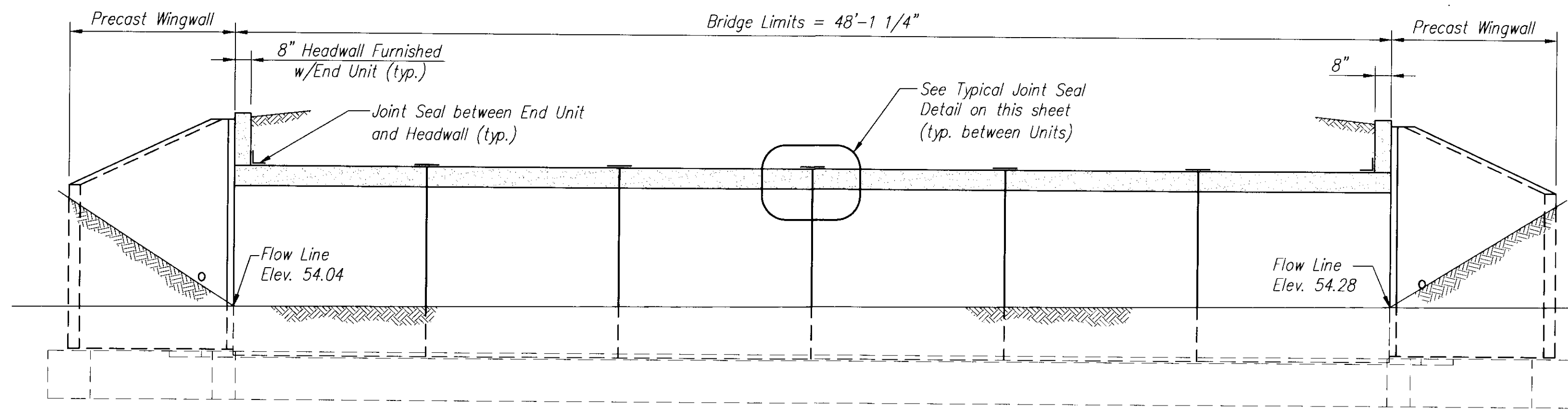
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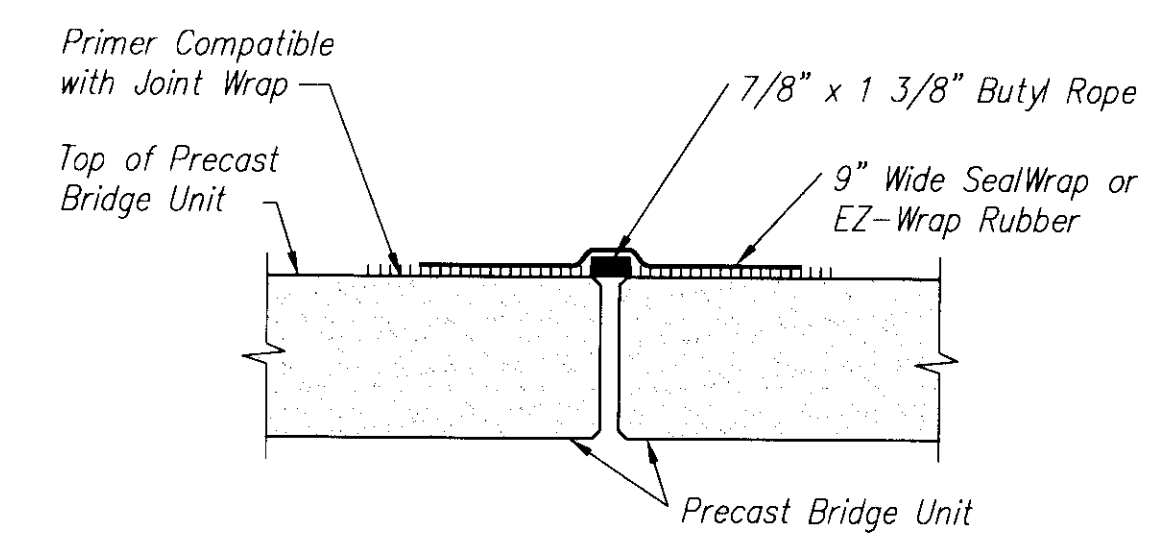
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CALIFORNIA
TEMPLE CREEK CULVERT AT EVA WILDWOOD RANCH
 SAN JOAQUIN COUNTY

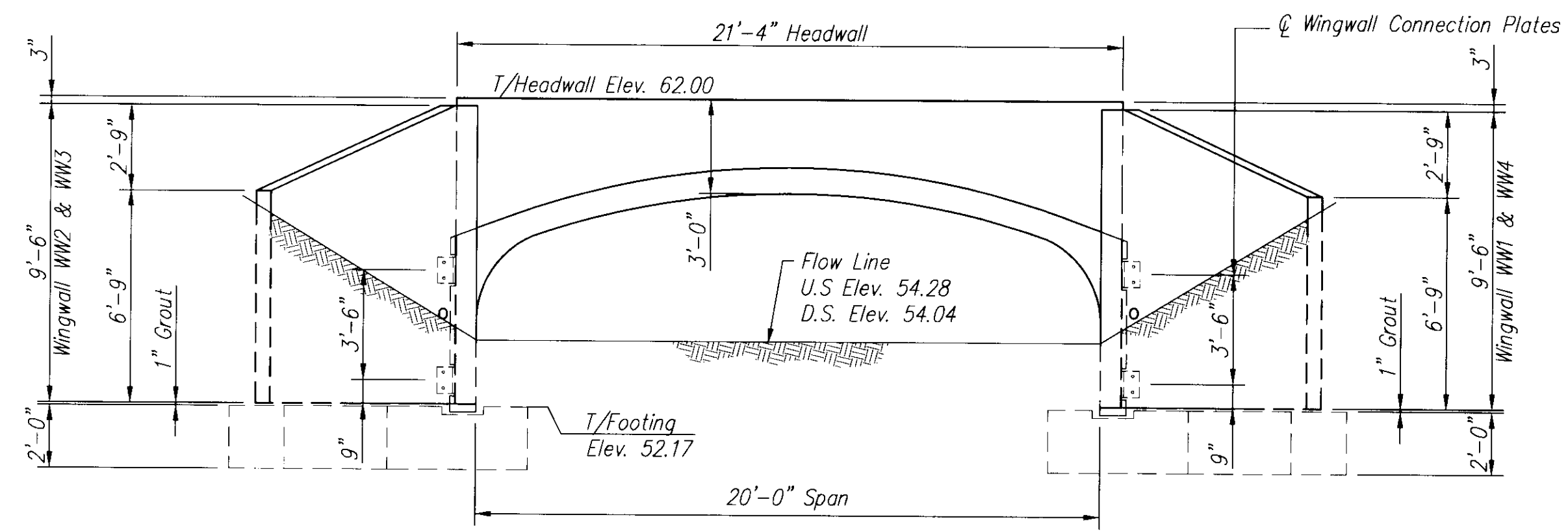
Designed	KLD	CS Project No.	13938
Drawn	WJA		
Checked	PAC	Sheet No.	C/S4
Date	1/11/06		



SECTION
0 2' 4' 8'
C/S1

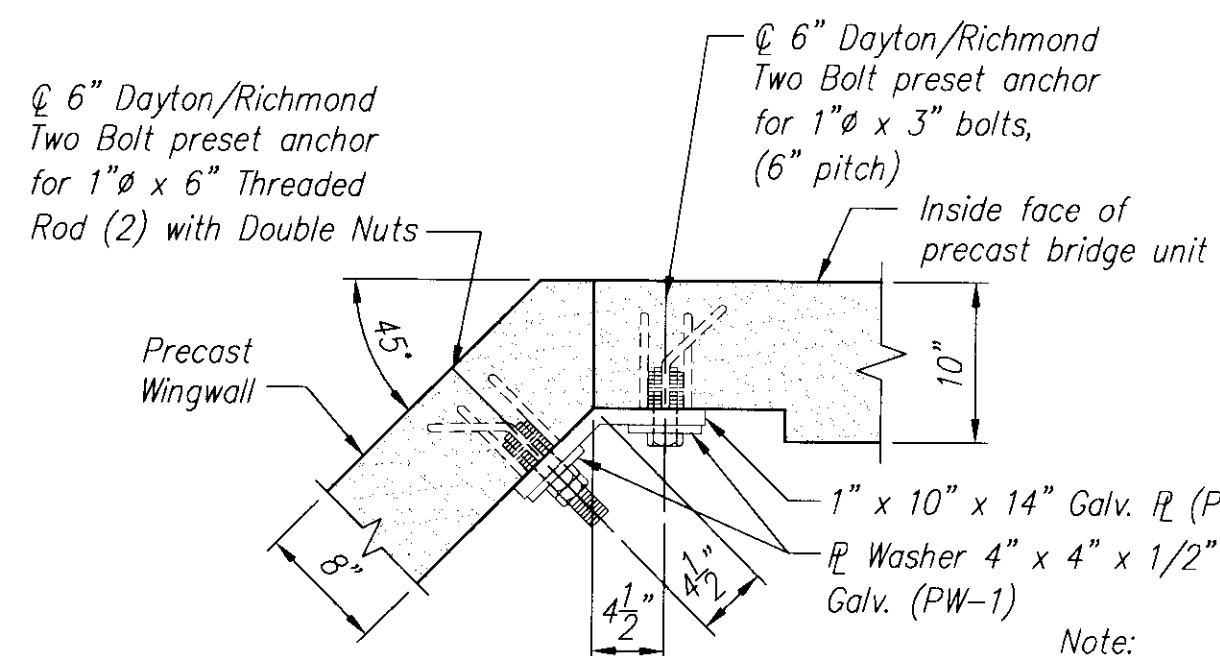


TYPICAL JOINT SEAL DETAIL
not to scale



TYPICAL END ELEVATION

Note:
U.S. - denotes Upstream
D.S. - denotes Downstream



DETAIL
0 1' 2'
C/S1

Note:
Connection P's (P-1)
must be positioned with
small ϕ holes toward
precast bridge unit

APPROVED:
FOR CONSTRUCTION

PPAL
9/30/06
7/18/06

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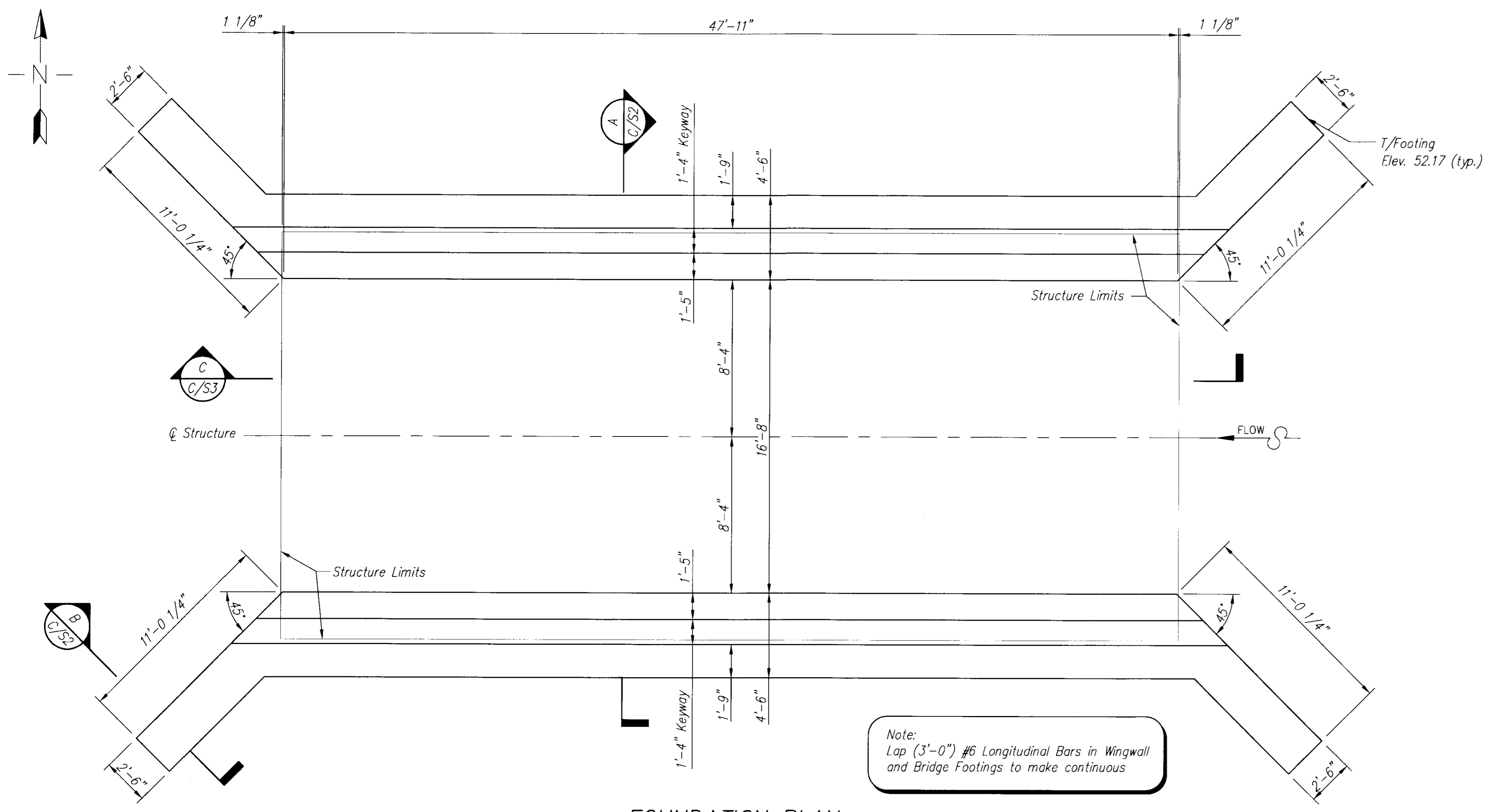
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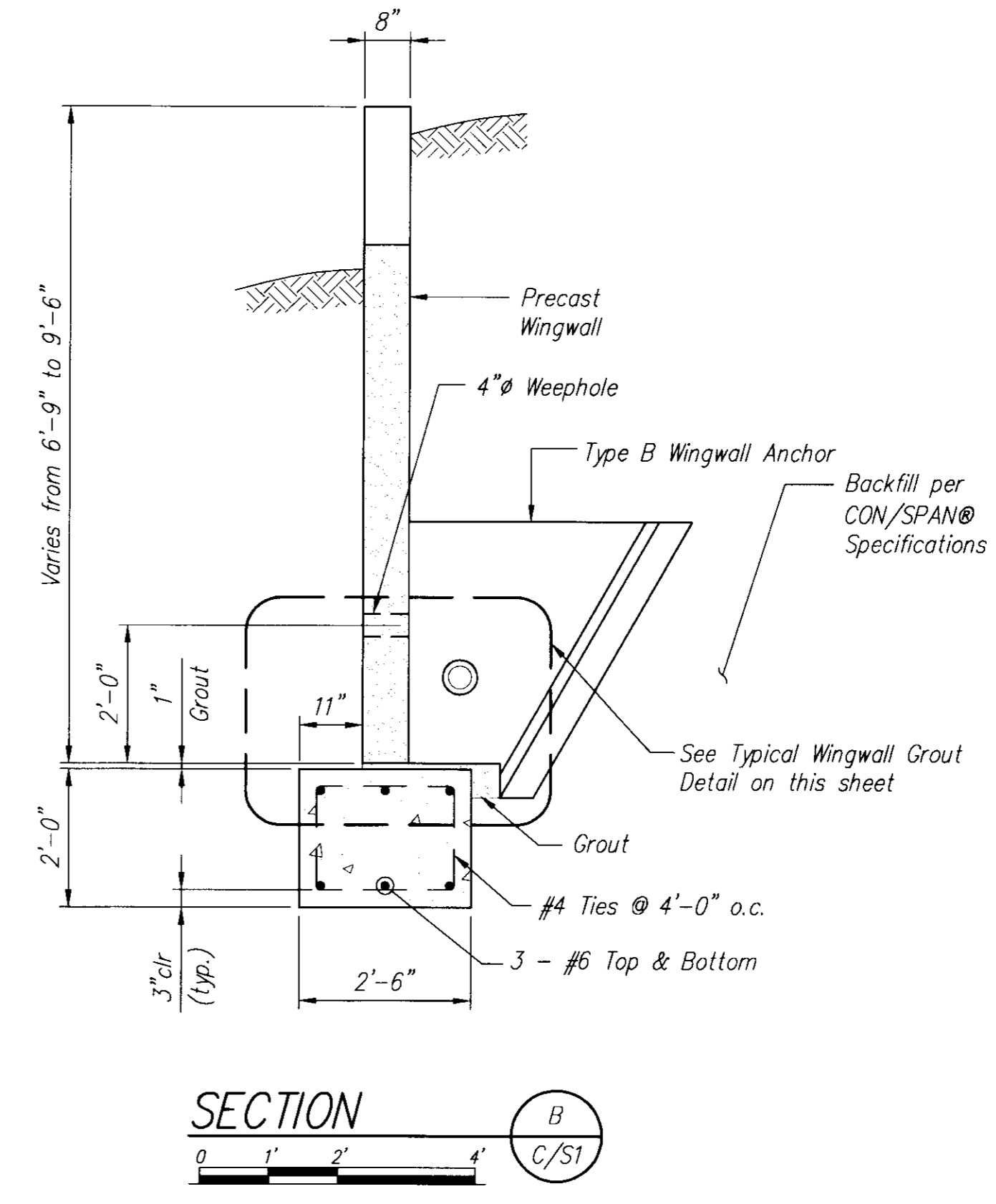
CALIFORNIA
SAM JOAQUIN COUNTY
**TEMPLE CREEK CULVERT
AT CONCORD AVENUE
WILDWOOD RANCH**

Designed	KLD	C/S Project No.
Drawn	WJA	13937
Checked	PAC	Sheet No.
Date	5/02/06	C/S3

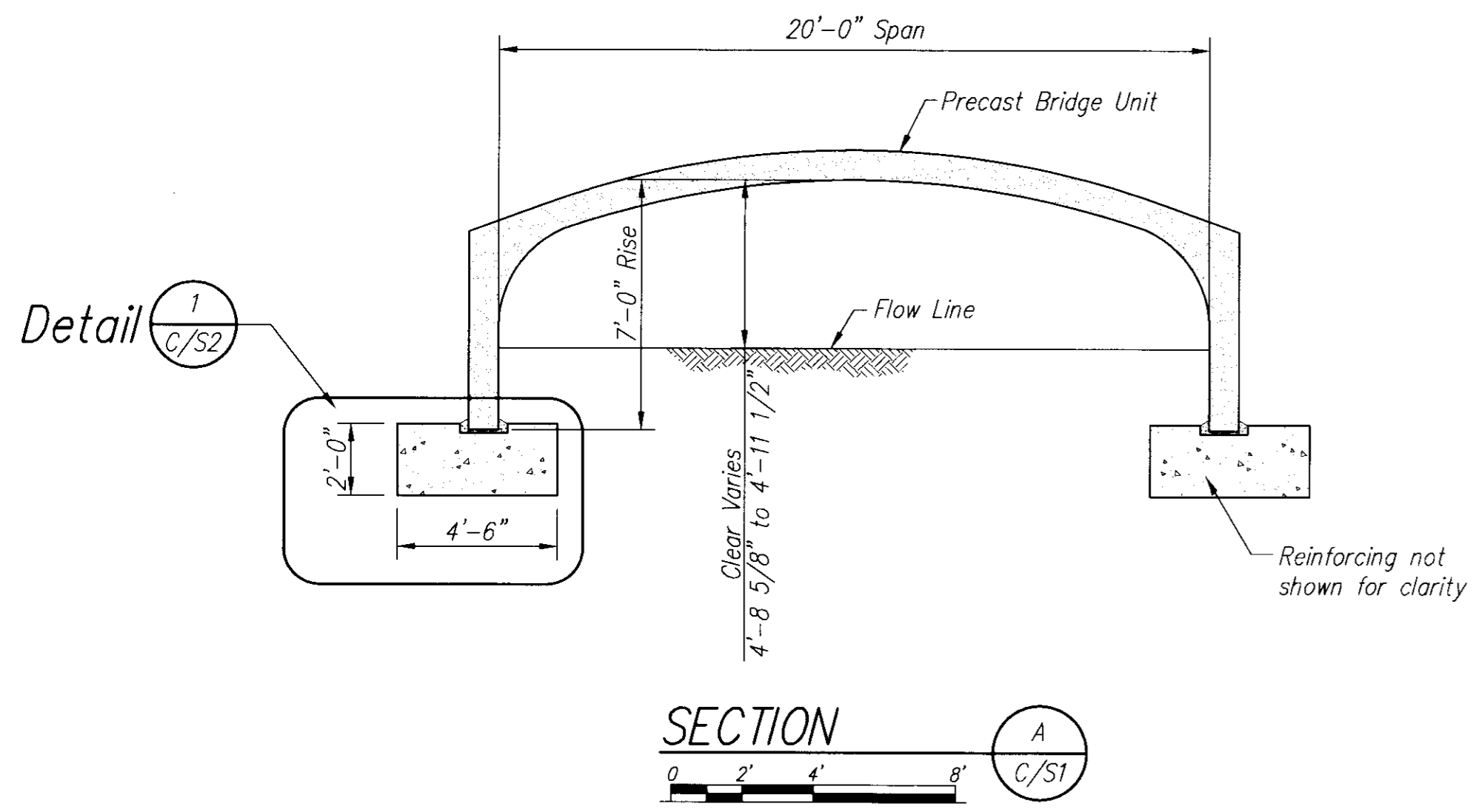


FOUNDATION PLAN

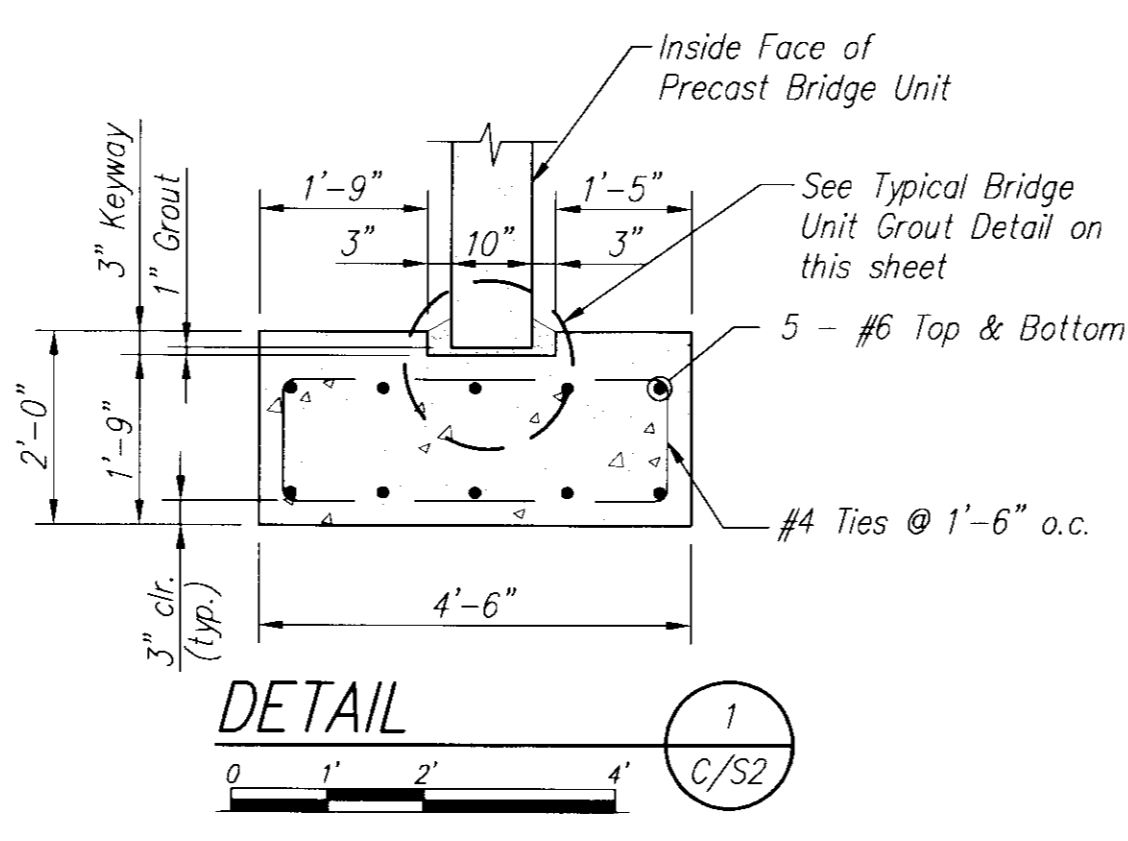
Note:
Lap (3'-0") #6 Longitudinal Bars in Wingwall and Bridge Footings to make continuous



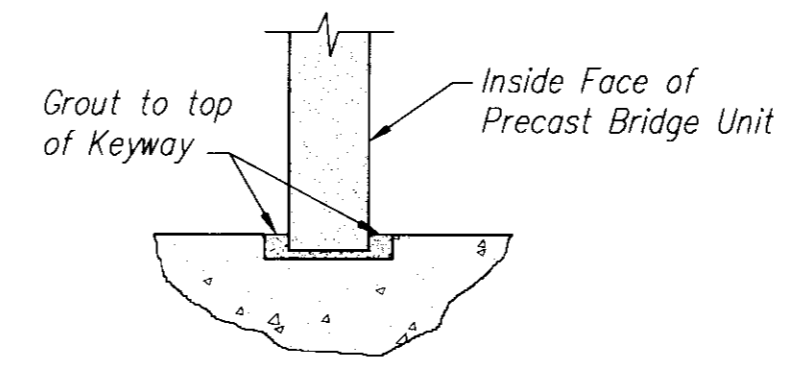
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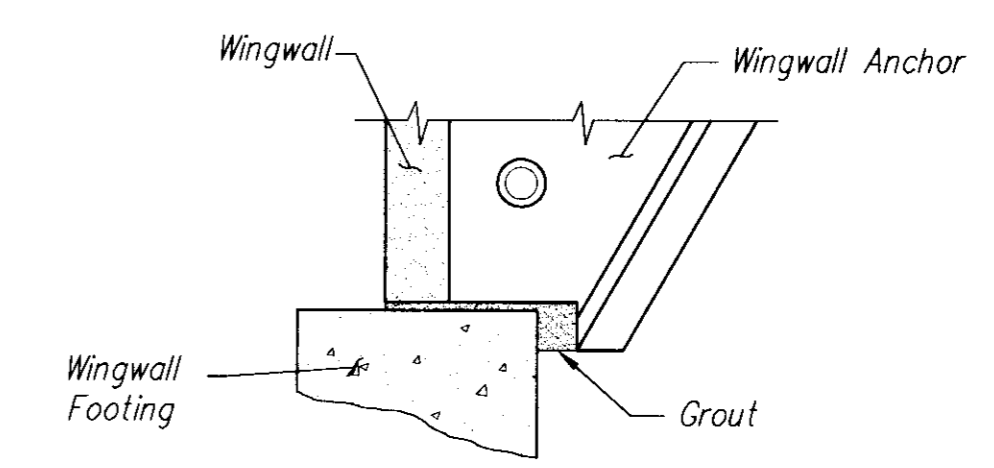
SECTION A C/S1



DETAIL 1 C/S2



TYPICAL BRIDGE UNIT GROUT DETAIL
not to scale



TYPICAL WINGWALL GROUT DETAIL
not to scale

APPROVED:
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ppac
9/30/06
1/18/06

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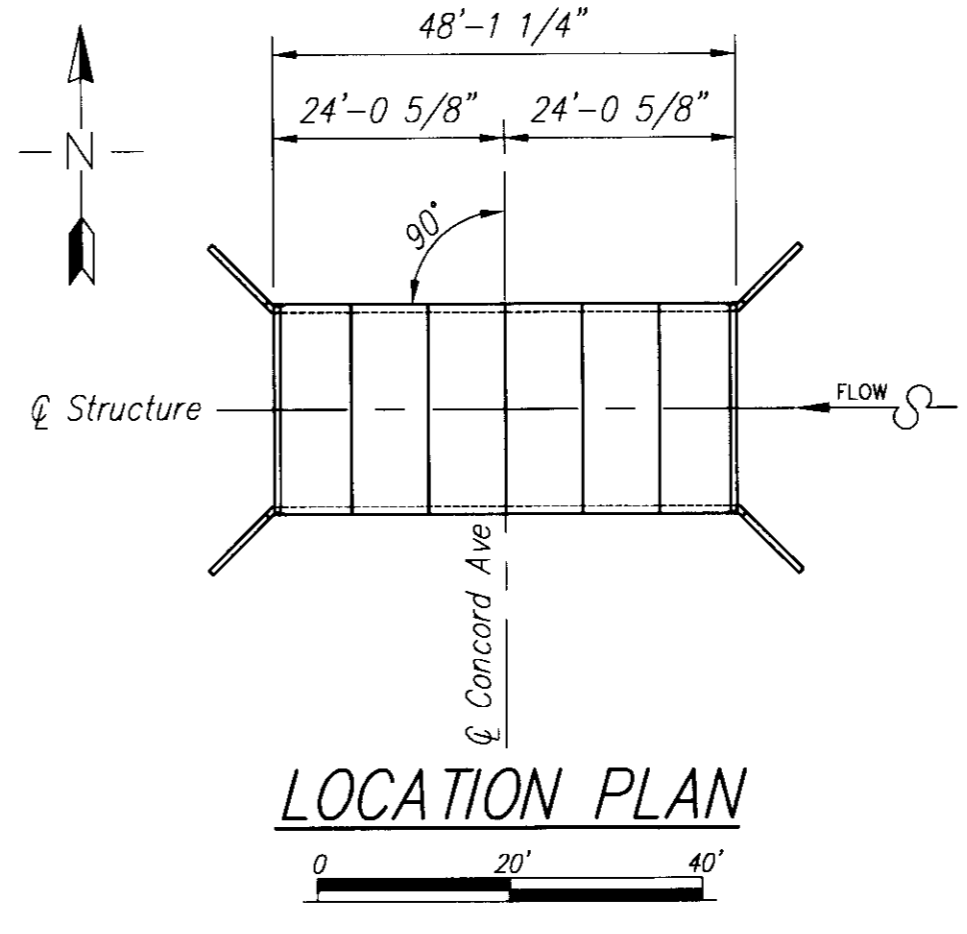
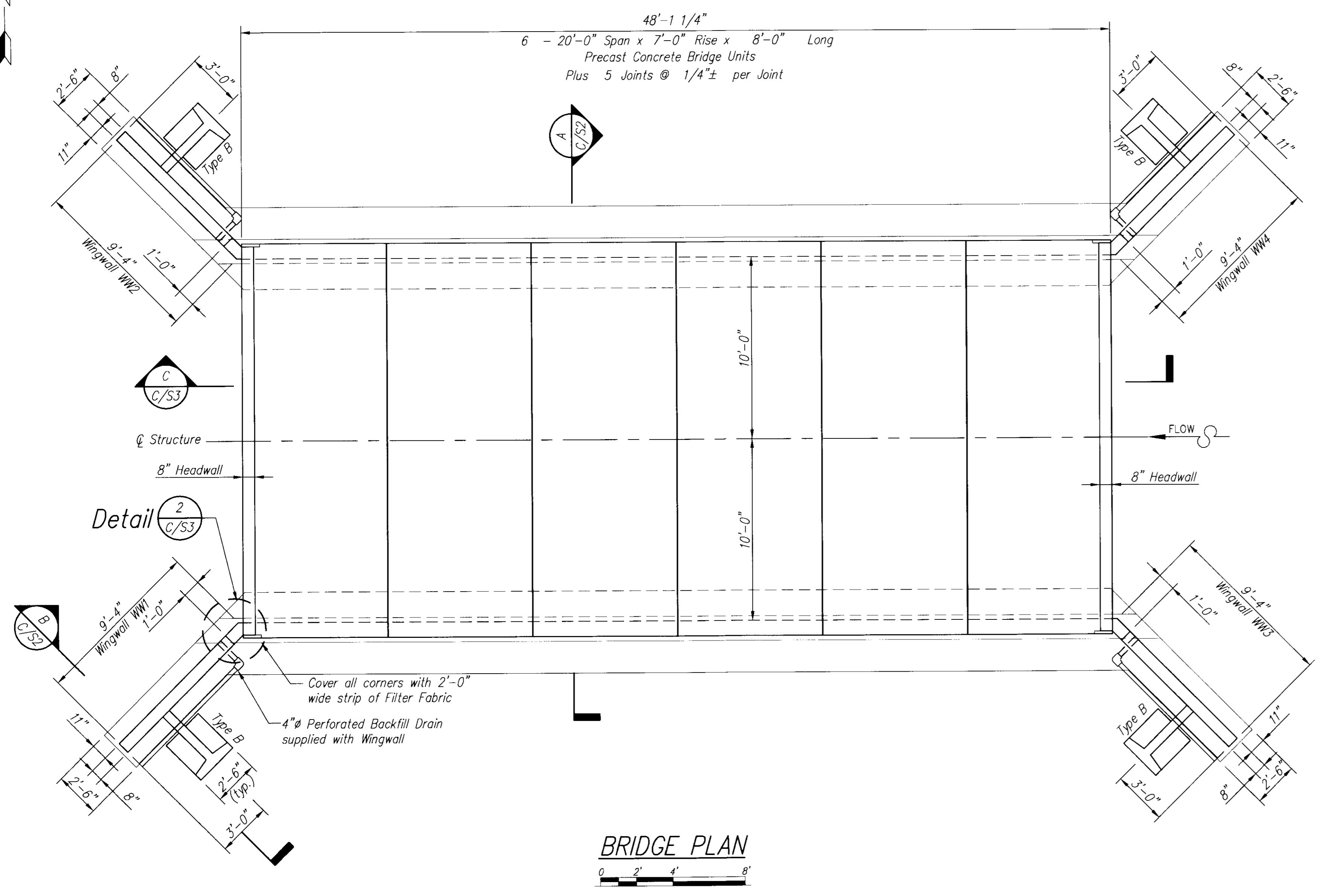
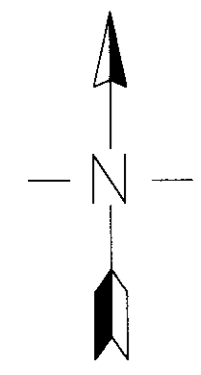
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SAN JOAQUIN COUNTY
TEMPLE CREEK CULVERT AT CONCORD AVENUE WILDWOOD RANCH

Designed	KLD	C/S Project No.
Drawn	WJA	13937
Checked	PAC	Sheet No.
Date	5/02/06	C/S2



NOTES

GENERAL NOTES:

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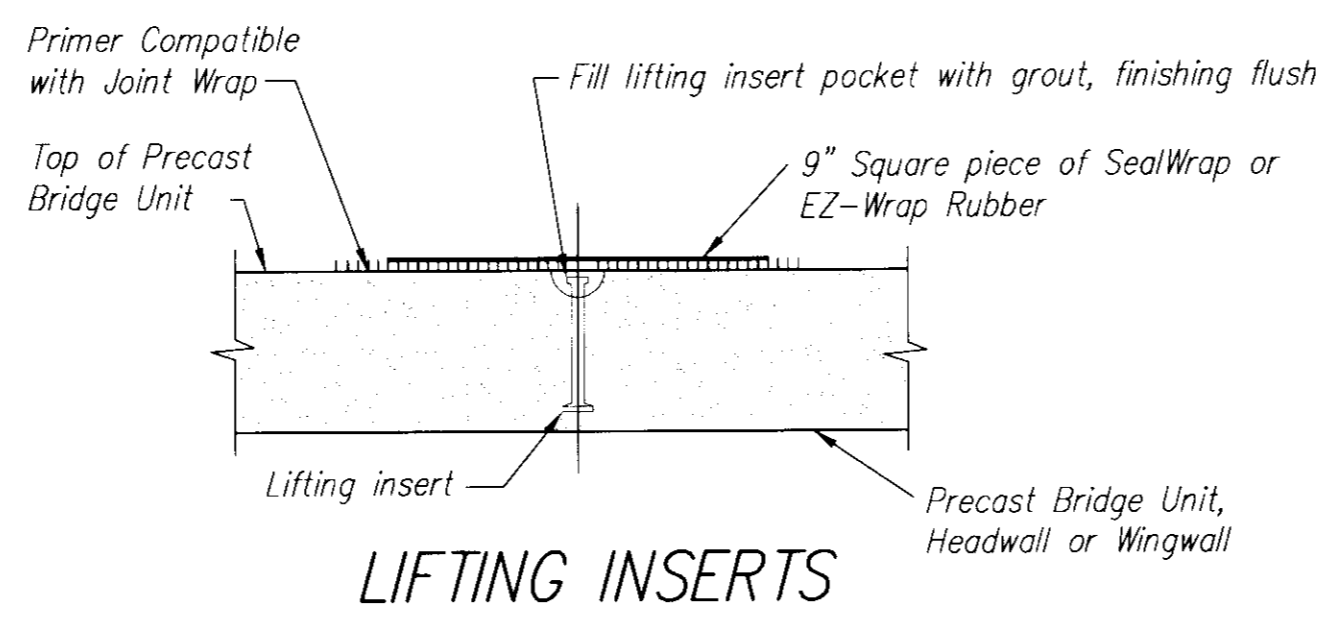
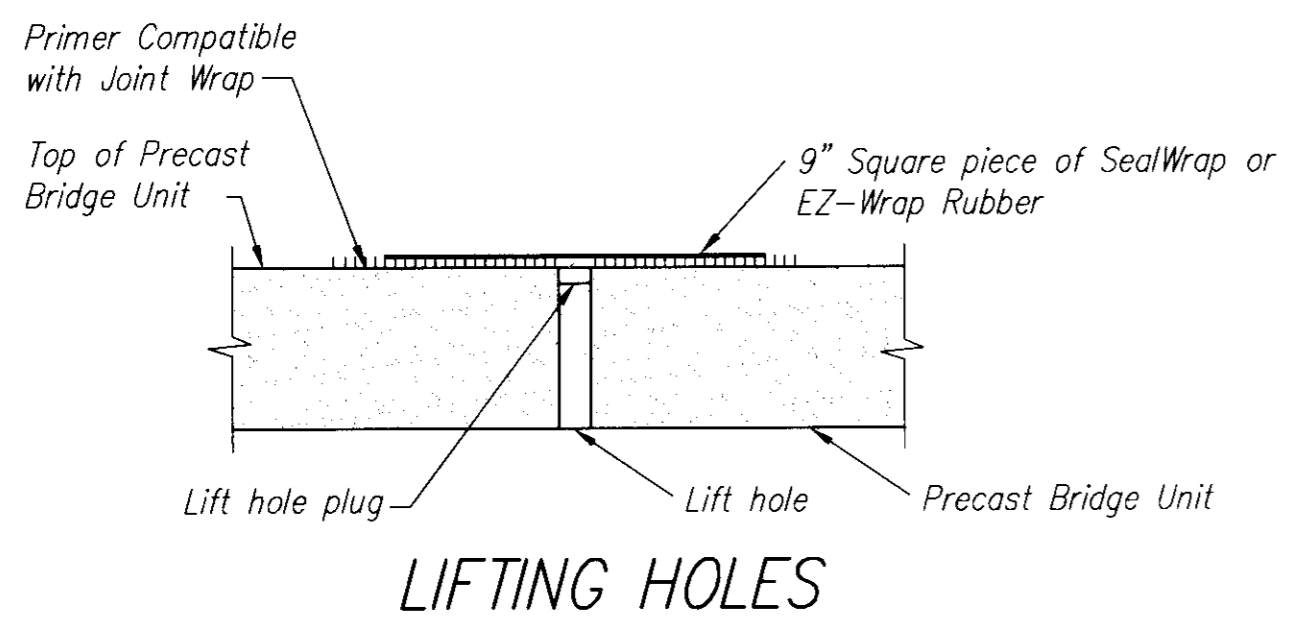
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**APPROVED:
FOR CONSTRUCTION**



TYPICAL LIFT POINT SEALING DETAIL
not to scale

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7/18/06
9/17/06

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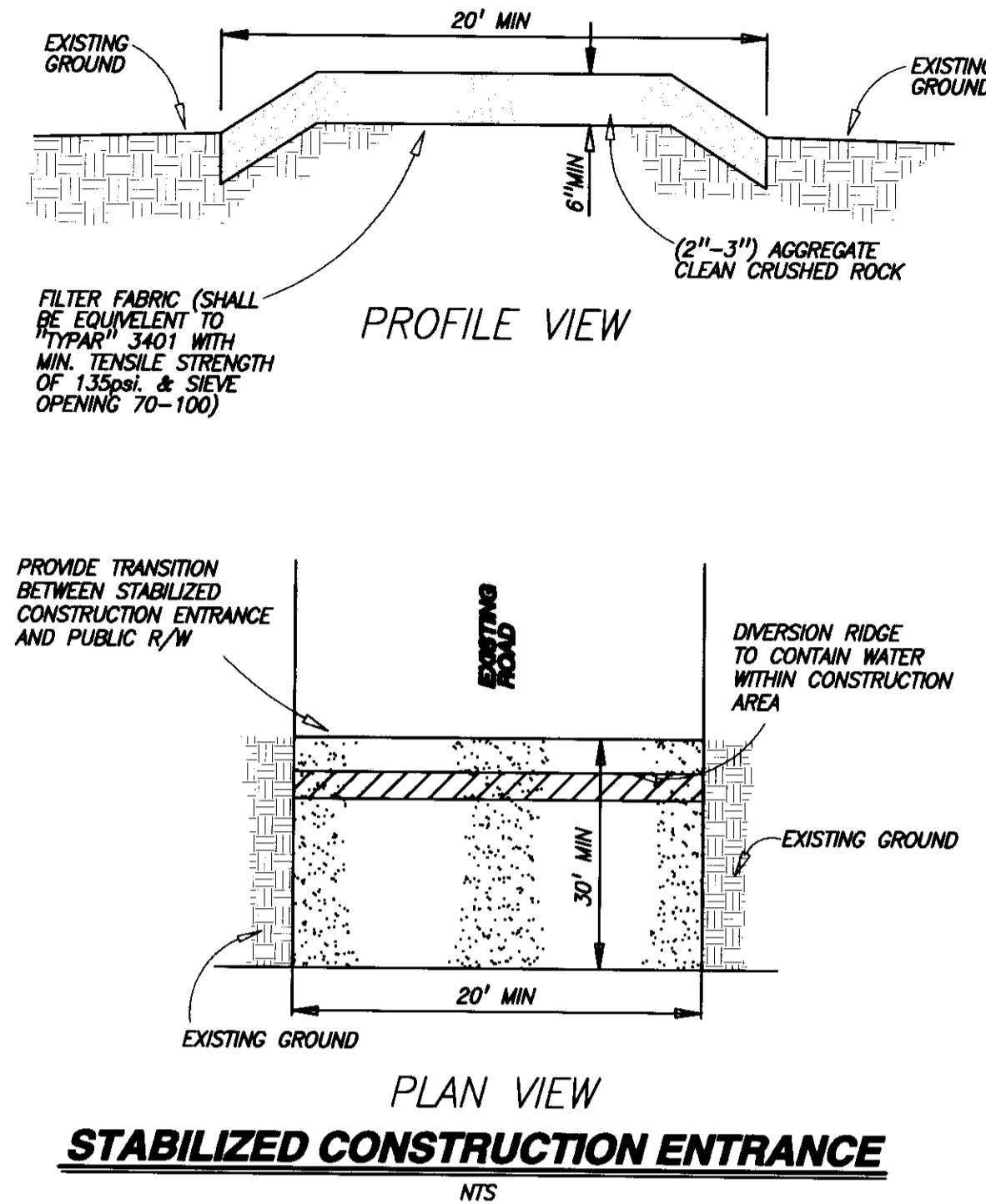
CALIFORNIA
 SAN JOAQUIN COUNTY
**TEMPLE CREEK CULVERT
 AT CONCORD AVENUE
 WILDWOOD RANCH**

Designed	KLD	CS Project No.	13937
Drawn	WJA		
Checked	PAC	Sheet No.	C/S1
Date	5/02/06		

1807 NS

GENERAL NOTES:

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE EFFECTIVE FOR THE DURATION OF THE CONSTRUCTION ACTIVITY.
2. NO STORM RUNOFF WATER SHALL BE ALLOWED TO DRAIN DIRECTLY INTO THE EXISTING UNDERGROUND STORM SYSTEM BEFORE THE ON-SITE STORM DRAIN SYSTEM IS INSTALLED.
3. AS SOON AS IS PRACTICAL AFTER THE NEW ON-SITE STORM DRAIN SYSTEM IS INSTALLED, THE CATCH BASINS SHALL BE INSTALLED AND GRAVEL BAGS AND SCREENS SHALL BE PLACED AROUND THE CATCH BASINS, AS SHOWN. THE CONTRACTOR SHALL HAVE AN OPTION TO INSTALL PREFABRICATED STEEL FRAMES WITH FILTER SCREEN OF FILTER FABRIC ATTACHED TO THE FRONT OF THE DRAIN INLET AND EXTEND 12 INCHES (12") ON EACH SIDE OF THE DRAIN INLET OPENING. FRAME SHALL BE APPROVED BY THE CITY ENGINEER AND SHALL FIT THE OPENING WITH LESS THAN ONE-QUARTER INCH (1/4") GAP AT ANY ONE POINT.
4. THE NAME, ADDRESS AND 24-HOUR TELEPHONE NUMBER OF THE PERSON RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE PROVIDED.
5. A MINIMUM OF 50' OF DRAIN ROCK, 1-1/2" DIAMETER OR LARGER, AT A MINIMUM DEPTH OF 6" SHALL BE INSTALLED AT EACH DRIVEWAY ENTRANCE TO THE SITE. THIS DOES NOT NEED TO BE DONE AT DRIVEWAYS, WHICH WILL BE CLOSED BY IMMOVABLE BARRICADES DURING CONSTRUCTION.
6. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED. CHANGES TO THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS, BUT ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF THE CITY ENGINEER.
7. DURING THE RAINY SEASON ALL SIDEWALK AND PAVED AREAS SHALL BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE SHALL BE MAINTAINED SO AS TO MINIMIZE SEDIMENT LADEN RUNOFF FROM ENTERING ANY STORM DRAINAGE SYSTEM.
8. THE EROSION AND SEDIMENTATION CONTROL PLAN COVERS ONLY THE FIRST WINTER DURING WHICH CONSTRUCTION IS TO TAKE PLACE. PLANS ARE TO BE RESUBMITTED PRIOR TO SEPTEMBER 1 OF EACH SUBSEQUENT YEAR UNTIL THE CITY ACCEPTS THE SITE IMPROVEMENTS.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSPECT AND REPAIR ALL EROSION CONTROL FACILITIES AT THE END OF EACH WORK DAY DURING THE RAINY SEASON.
10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAN OUT SEDIMENT BASINS WHENEVER THE LEVEL OF SEDIMENT REACHES THE SEDIMENT CLEAN OUT LEVEL INDICATED ON THE PLANS.
11. IT IS THE RESPONSIBILITIES OF THE CONTRACTOR TO PROTECT TEMPORARY BORROW AREAS AND/OR STOCKPILES WITH APPROPRIATE EROSION CONTROL MEASURES SATISFACTORY TO THE CITY ENGINEER.
12. THE CLEANING OF PAVED STREETS, DURING AND AT THE COMPLETION OF CONSTRUCTION, SHALL BE PERFORMED WITH MECHANICAL SWEEPERS. THE USE OF WATER TRUCKS TO "WASH DOWN" THE STREET IS PROHIBITED.
13. SEAL OR SKIRT BETWEEN TRAILER & GRADING TO PREVENT EXPOSURE TO DRAIN.
14. THE FOLLOWING PLANS ARE ACCURATE FOR EROSION CONTROL PURPOSES ONLY.
15. THE INFORMATION ON THIS PLAN IS INTENDED TO BE USED AS A GUIDELINE FOR THE CONTRACTOR AND SUBCONTRACTORS TO COMPLY WITH THE REQUIREMENTS OF THE STATE WATER RESOURCES CONTROL BOARD. FIELD CONDITIONS MAY NECESSITATE MODIFICATIONS TO THIS PLAN.
16. NO ON-SITE FUELING SHALL TAKE PLACE.

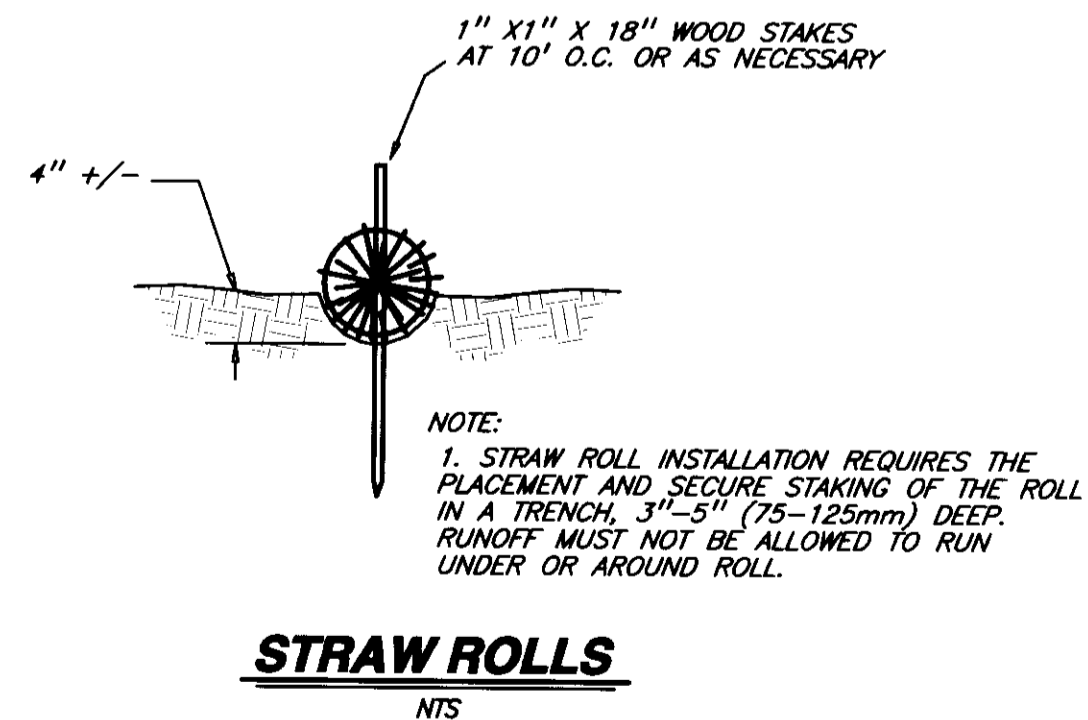


TEMPORARY STABILIZED CONSTRUCTION ENTRANCE NOTES

1. THE MATERIAL FOR CONSTRUCTION OF THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE 2 TO 3 INCH STONE.
2. THE THICKNESS OF THE PAD SHALL NOT BE LESS THAN 6 INCHES.
3. THE WIDTH OF THE PAD SHALL NOT BE LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS, OR 30' MIN.
4. THE LENGTH OF THE PAD SHALL BE AS REQUIRED, BUT NOT LESS THAN 50 FEET.
5. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEAN OUT ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY SHALL BE REMOVED IMMEDIATELY.
6. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP, OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE THROUGH USE OF SANDBAGS, GRAVEL, BOARDS, OR OTHER APPROVED METHODS.
7. CONTRACTOR TO REMOVE AND DISPOSE OF STABILIZED CONSTRUCTION ENTRANCE UPON COMPLETION OF CONSTRUCTION.

STRAW ROLL OR FIBER ROLL NOTES

1. INSPECT AND REPAIR ROLL AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.



CONCRETE WASTE MANAGEMENT NOTES

CONCRETE SLURRY WASTES

1. PCC AND AC WASTE SHALL NOT BE ALLOWED TO ENTER STORM DRAINS OR WATERCOURSES.
2. PCC AND AC WASTE SHALL BE COLLECTED AND DISPOSED OF OUTSIDE THE HIGHWAY RIGHT-OF-WAY IN CONFORMANCE WITH SECTION 7-1.13 OF STANDARD SPECIFICATIONS OR PLACED IN A TEMPORARY CONCRETE WASHOUT FACILITY.
3. DISPOSAL OF HARDENED PCC AND AC WASTE SHALL BE IN CONFORMANCE WITH SECTION 15-3.02 OF THE STANDARD SPECIFICATIONS.
4. A SIGN SHALL BE INSTALLED ADJACENT TO EACH TEMPORARY CONCRETE WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.
5. DO NOT ALLOW SLURRY RESIDUE FROM WET CORING OR SAW-CUTTING AC OR PCC TO ENTER STORM DRAINS OR RECEIVING WATERS.
6. VACUUM SLURRY RESIDUE AND DISPOSE IN A TEMPORARY PIT (AS DESCRIBED IN ON-SITE TEMPORARY CONCRETE WASHOUT FACILITY, CONCRETE TRANSIT TRUCK WASHOUT PROCEDURES, BELOW) AND ALLOW SLURRY TO DRY. DISPOSE OF DRY SLURRY RESIDUE IN ACCORDANCE WITH BMP WM-5, "SOLID WASTE MANAGEMENT", OR FOR ON-SITE DISPOSAL, IN ACCORDANCE WITH STANDARD SPECIFICATION 15-3.02, "REMOVAL METHODS".
7. COLLECT RESIDUE FROM GROOVING AND GRINDING OPERATIONS IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 42-1.02 AND 42-2.02, "CONSTRUCTION."

ON-SITE TEMPORARY CONCRETE WASHOUT FACILITY, TRANSIT TRUCK WASHOUT PROCEDURES

1. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 15 M (50 FT.) FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, AND WATERCOURSES, UNLESS DETERMINED UNFEASIBLE BY THE ENGINEER. EACH FACILITY SHALL BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OR ACCESS AREAS TO PREVENT DISTURBANCE OR TRACKING.
2. A SIGN SHALL BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES. THE SIGN SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN CONFORMANCE WITH THE PROVISIONS IN SECTION 56-2, "ROADSIDE SIGNS", OF THE STANDARD SPECIFICATIONS.
3. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED ABOVE GRADE. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
4. TEMPORARY WASHOUT FACILITIES SHALL HAVE A TEMPORARY PIT OR BERMED AREAS OF SUFFICIENT VOLUME TO COMPLETELY CONTAIN ALL LIQUID AND WASTE CONCRETE MATERIALS GENERATED DURING WASHOUT PROCEDURES.
5. PERFORM WASHOUT OF CONCRETE TRUCKS IN DESIGNATED AREAS ONLY.
6. ONCE CONCRETE WASTES ARE WASHED INTO THE DESIGNATED AREA AND ALLOWED TO HARDEN, THE CONCRETE SHALL BE BROKEN UP, REMOVED, AND DISPOSED OF PER BMP WM-5, "SOLID WASTE MANAGEMENT", AND IN CONFORMANCE WITH THE PROVISIONS IN SECTION 15-3.02, "REMOVAL METHODS", OF THE STANDARD SPECIFICATIONS. DISPOSE OF HARDENED CONCRETE ON A REGULAR BASIS.

TEMPORARY CONCRETE WASHOUT FACILITY (TYPE ABOVE GRADE)

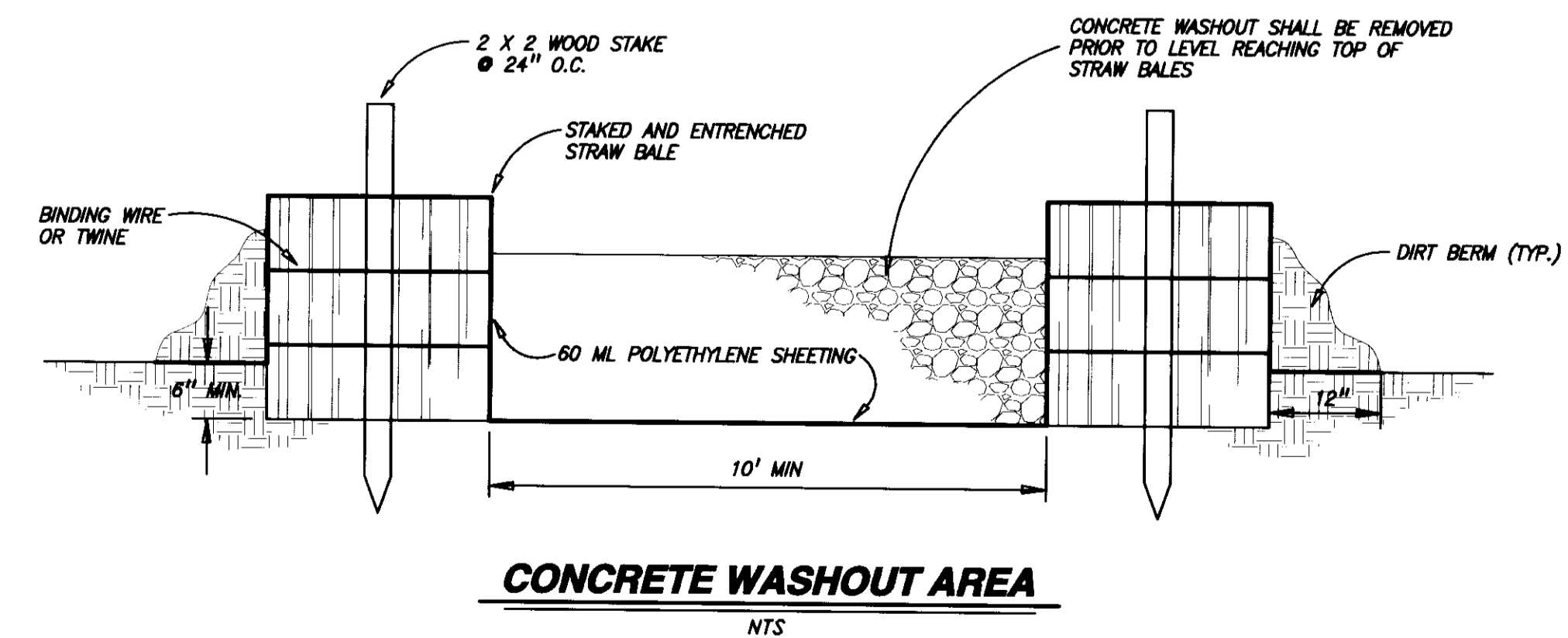
TEMPORARY CONCRETE WASHOUT FACILITY (TYPE ABOVE GRADE) SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS, WITH A RECOMMENDED MINIMUM LENGTH AND MINIMUM WIDTH OF 3 M (10 FEET), BUT WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. THE LENGTH AND WIDTH OF A FACILITY MAY BE INCREASED, AT THE CONTRACTOR'S EXPENSE, UPON APPROVAL OF THE ENGINEER.

PLASTIC LINING MATERIAL SHALL BE A MINIMUM OF 60 MIL POLYETHYLENE SHEETING AND SHALL BE FREE OF HOLES, TEARS OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

PORTABLE DELINEATORS SHALL CONFORM TO THE PROVISIONS IN SECTION 12-3.04, "PORTABLE DELINEATORS", OF THE STANDARD SPECIFICATIONS. THE DELINEATOR BASES SHALL BE CEMENTED TO THE PAVEMENT IN THE SAME MANNER AS PROVIDED FOR CEMENTING PAVEMENT MARKERS TO PAVEMENT IN SECTION 85-1.06, "PLACEMENT", OF THE STANDARD SPECIFICATIONS. PORTABLE DELINEATORS SHALL BE APPLIED ONLY TO A CLEAN, DRY SURFACE.

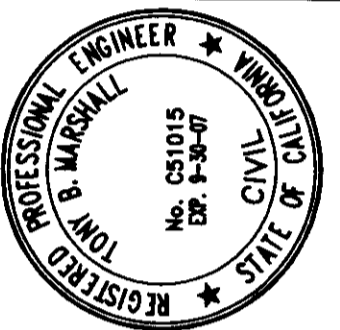
REMOVAL OF TEMPORARY CONCRETE WASHOUT FACILITIES

1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, AS DETERMINED BY THE ENGINEER, THE HARDENED CONCRETE SHALL BE REMOVED AND DISPOSED OF IN CONFORMANCE WITH THE PROVISIONS IN SECTION 15-3.02 OF THE STANDARD SPECIFICATIONS. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BECOME THE PROPERTY OF THE CONTRACTOR, SHALL BE REMOVED FROM THE SITE OF THE WORK, AND SHALL BE DISPOSED OF OUTSIDE THE HIGHWAY RIGHT-OF-WAY IN CONFORMANCE WITH THE PROVISIONS IN SECTION 7-1.13 OF THE STANDARD SPECIFICATIONS.
2. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED AND REPAIRED IN CONFORMANCE WITH THE PROVISIONS IN SECTION 15-1.02 "PRESERVATION OF PROPERTY", OF THE STANDARD SPECIFICATIONS.
3. THE CONTRACTOR'S WASTE POLLUTION CONTROL MANAGER (WPCM) SHALL MONITOR ON SITE CONCRETE WASTE STORAGE AND DISPOSAL PROCEDURES AT LEAST WEEKLY.
4. THE WPCM SHALL MONITOR CONCRETE WORKING TASKS, SUCH AS SAW CUTTING, CORING, GRINDING AND GROOVING AT LEAST WEEKLY TO ENSURE PROPER METHODS ARE EMPLOYED.
5. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREEBOARD OF 4" FOR ABOVE GRADE FACILITIES AND 12" FOR BELOW GRADE FACILITIES. MAINTAINING TEMPORARY CONCRETE WASHOUT FACILITIES SHALL INCLUDE REMOVING AND DISPOSING OF HARDENED CONCRETE AND RETURNING THE FACILITIES TO A FUNCTIONAL CONDITION. HARDENED CONCRETE MATERIALS SHALL BE REMOVED AND DISPOSED OF IN CONFORMANCE WITH THE PROVISIONS IN SECTION 15-3.02, "REMOVAL METHODS", OF THE STANDARD SPECIFICATIONS.
6. EXISTING FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.



REVISIONS	DATE	DESCRIPTION

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DATE	08/15/2008 16:43
SCALE	AS SHOWN
DR. BY	RM
CHK. BY	JM
FILE	A:\2008\05-044.dwg 14-0505.dwg



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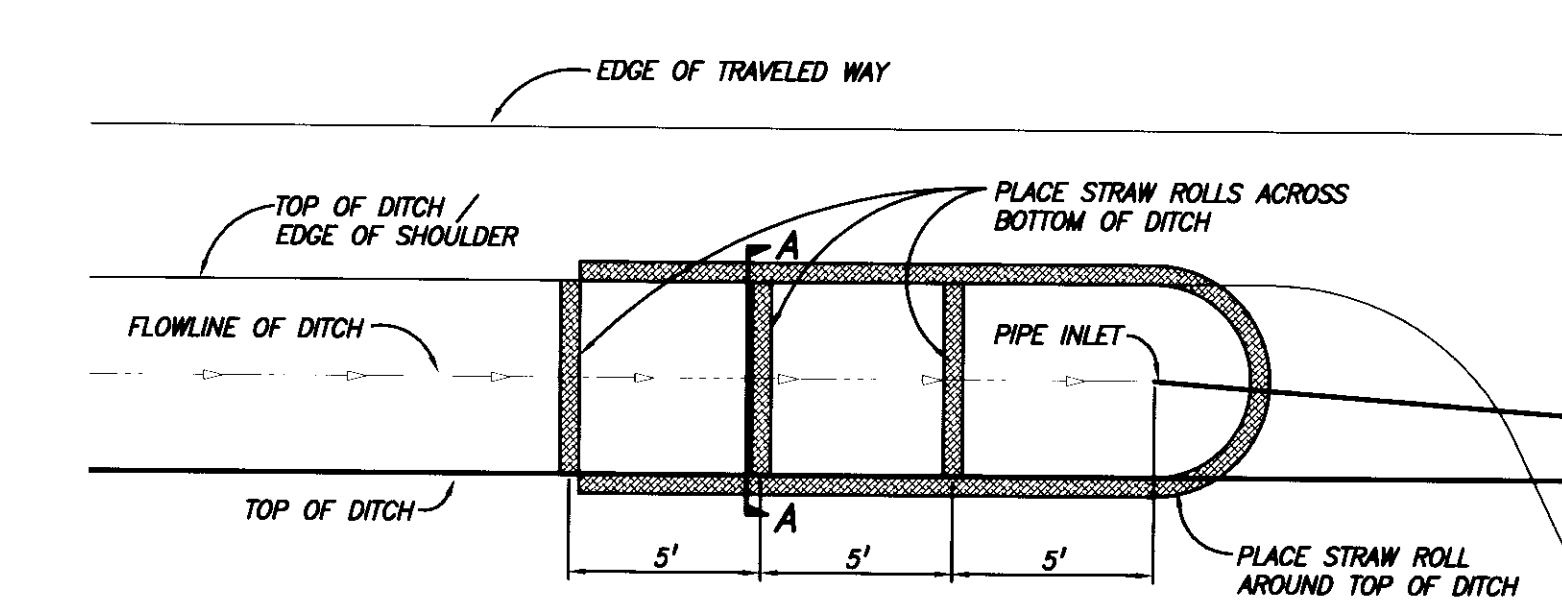
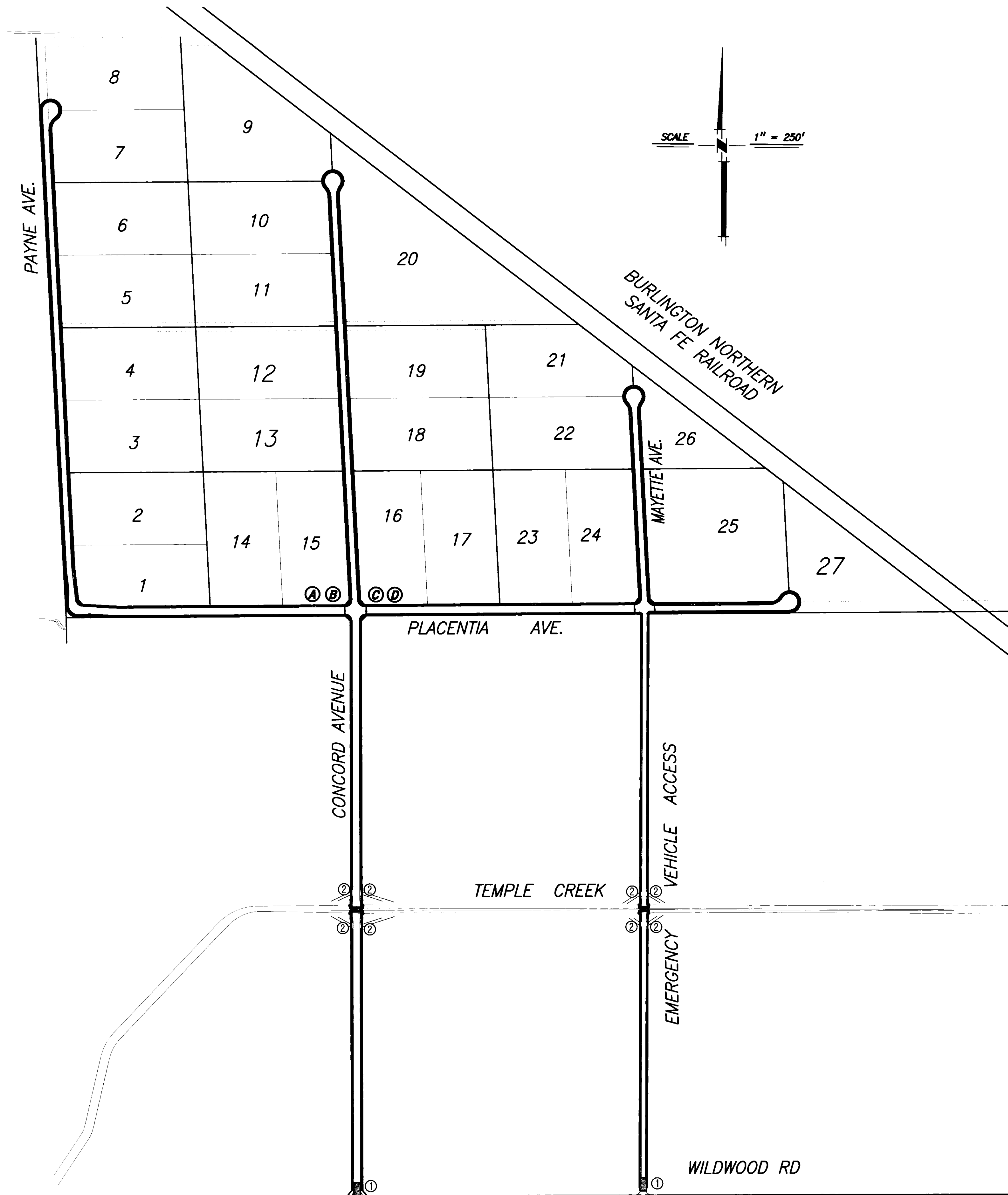
PREPARED UNDER THE DIRECTION OF:
Tom R. Marshall
 P.E. License No. 651015
 CIVIL ENGINEER

DATE: 8-15-08
 DR: 8-30-07

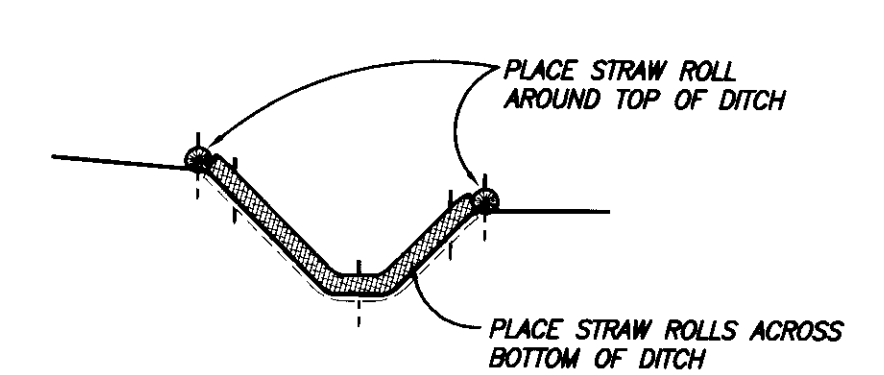
EROSION CONTROL NOTES & DETAILS

WILDWOOD RANCH

SAN JOAQUIN COUNTY, CALIFORNIA



OUTFALL PIPE SEDIMENT PROTECTION
SCALE: 1"=5'



SECTION A-A
SCALE: 1"=5'

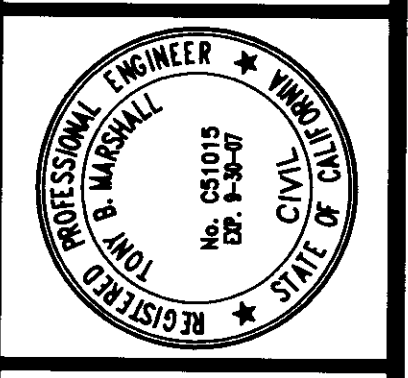
LEGEND

- (A) DESIGNATED CONSTRUCTION DEBRIS AREA
UTILIZE WATER-TIGHT DUMPSTERS FOR SOLID
- (B) DESIGNATED MAINTENANCE AREA
- (C) DESIGNATED AGGREGATE AND CONCRETE
RINSE AREA
- (D) DESIGNATED WASH DOWN AREA
- (1) STABILIZED CONSTRUCTION ENTRANCE
(SEE SHEET 14 FOR DETAILS)
- (2) OUTFALL PIPE SEDIMENT PROTECTION
(SEE DETAILS, THIS SHEET)



REVISIONS	
SYMBOL	DATE

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DATE 08/15/2006 16:42
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DPL BY RW
CHK BY TM
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PROPOSED UNDER THE SUPERVISION OF:
Tony B. Marshall
TONY B. MARSHALL R.G.E. CS1015 EXP. 8-30-07

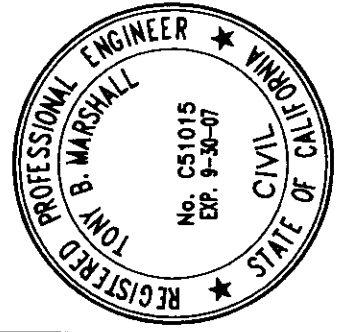
EROSION CONTROL PLAN
WILDWOOD RANCH
SAN JOAQUIN COUNTY, CALIFORNIA

SHEET
13
OF 21 SHEETS



SYMBOL	DATE	DESCRIPTION

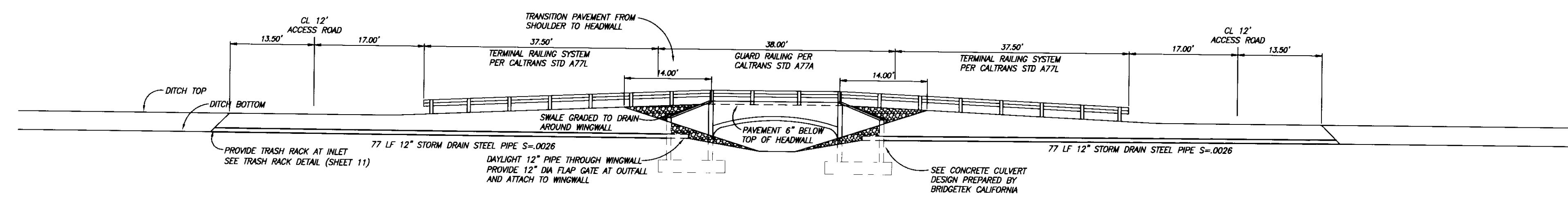
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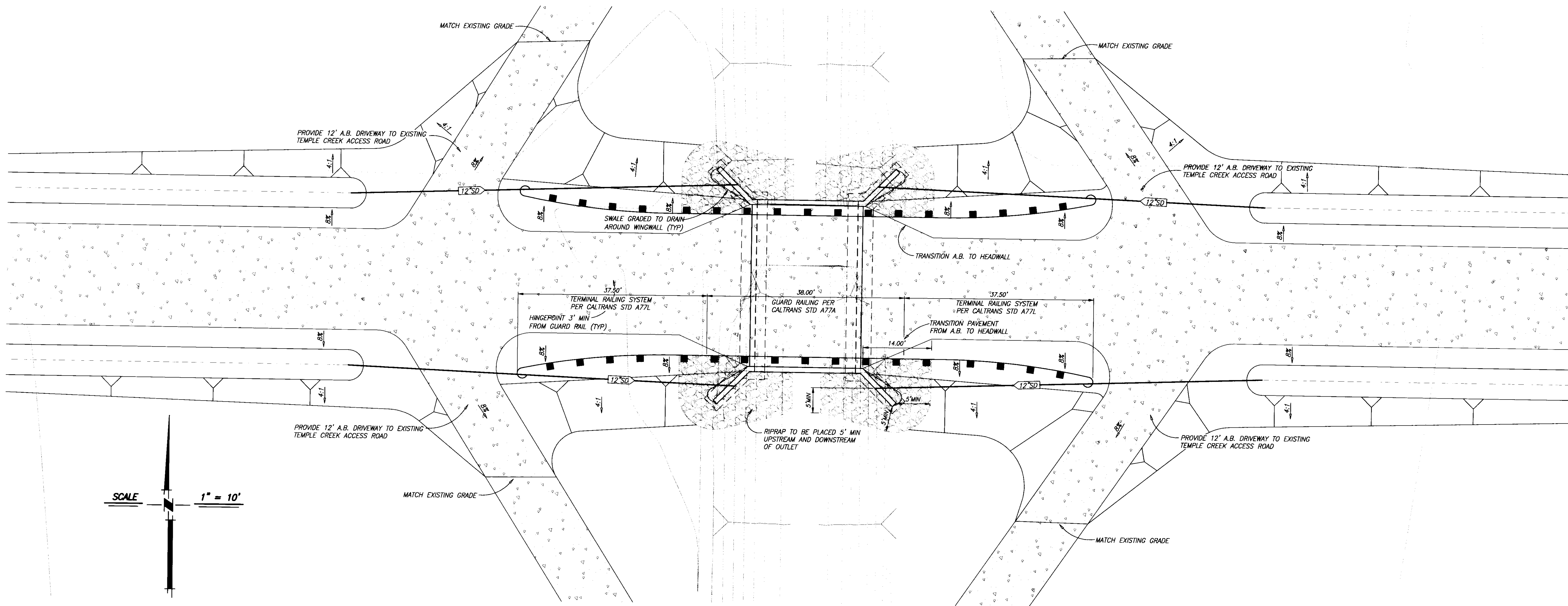
MCR MCR Engineering, Inc.
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 1242 Depot Court • Merced, California 95377
 (209) 259-4229 • FAX (209) 259-4339
 PREPARED UNDER THE DIRECTION OF:
 Tony B. Marshall
 TONY B. MARSHALL R.C.E. C31015 EXP. 1-30-07
 8-15-06 DATE

EVA BRIDGE PROFILE
WILDWOOD RANCH
 SAN JOAQUIN COUNTY, CALIFORNIA

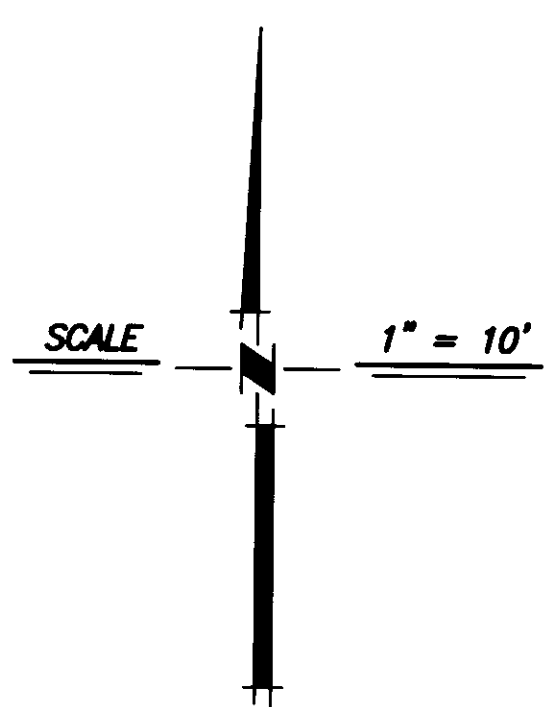
SHEET
12
 OF 27 SHEETS



EVA BRIDGE PROFILE
 SCALE: 1"=10'



EVA BRIDGE PLAN VIEW

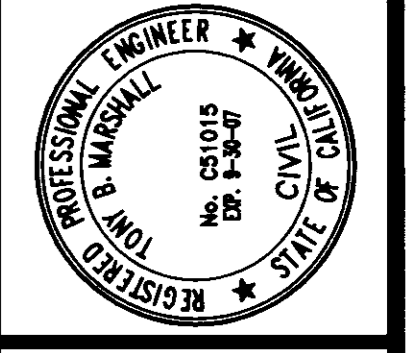


SU 4084 NS



REVISIONS	DATE	DESCRIPTION	APPROVED

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 DATE 08/15/2006 16:58
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 943 Depot Court
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 (209) 238-8228
 FAX (209) 238-8339

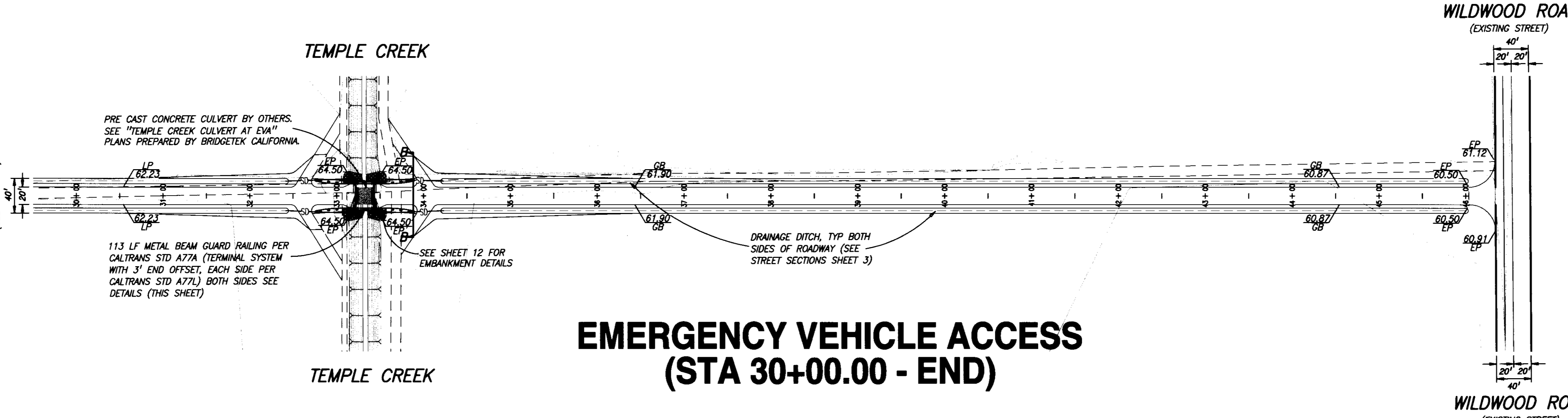
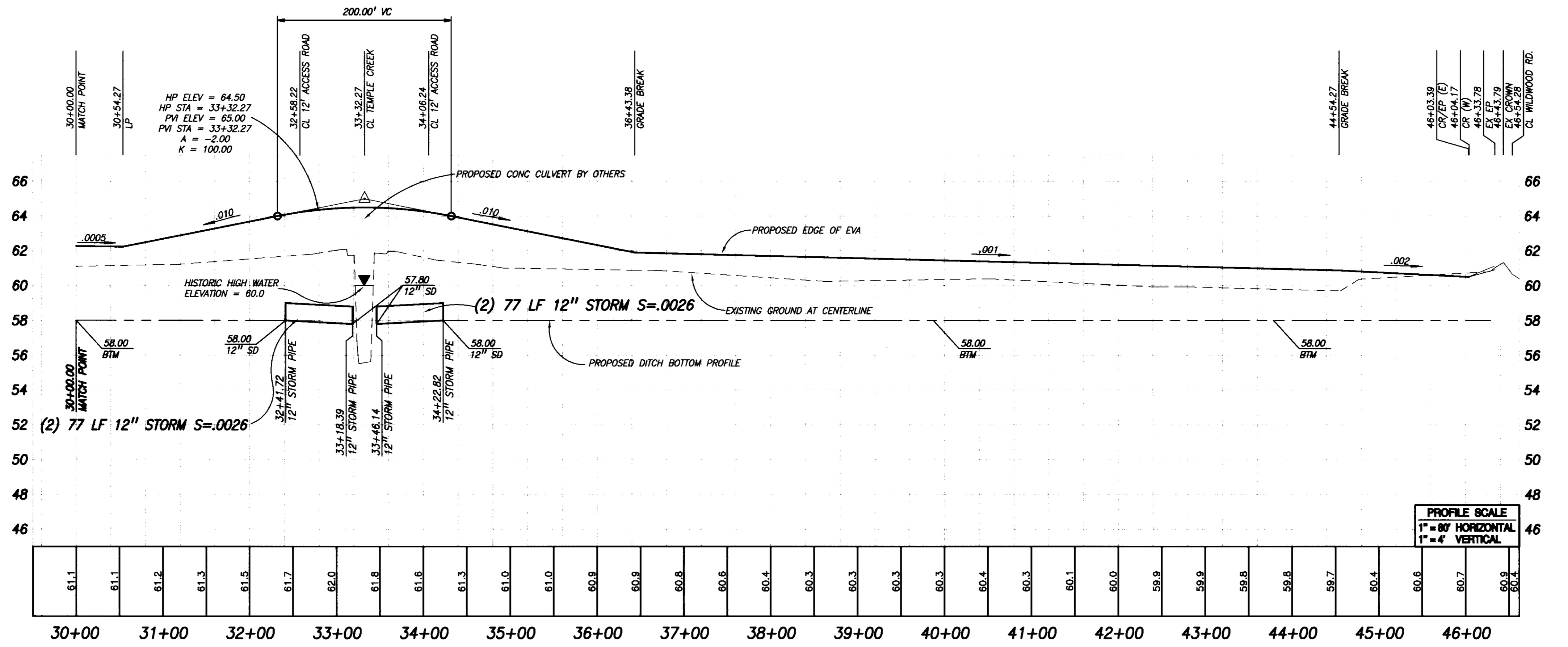
PREPARED UNDER THE DIRECTION OF:

 TONY B. MARSHALL
 P.E. License No. 031015
 DATE 9-15-06

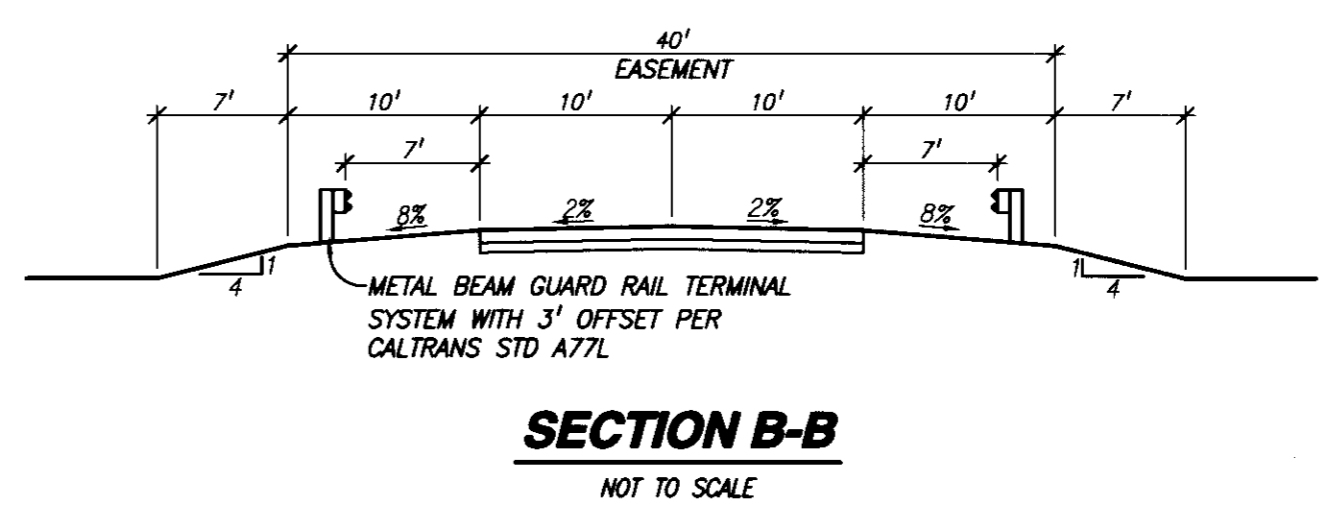
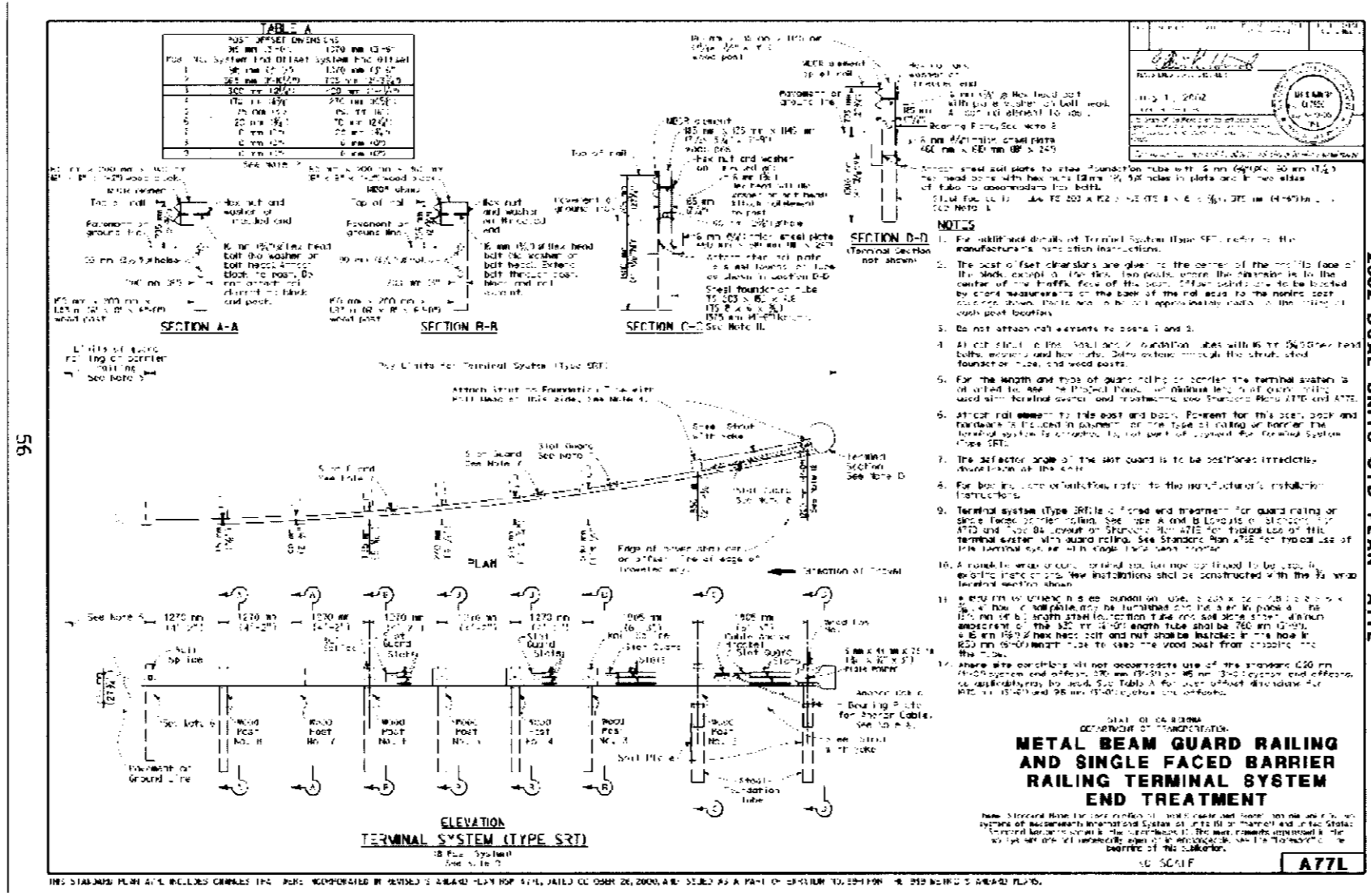
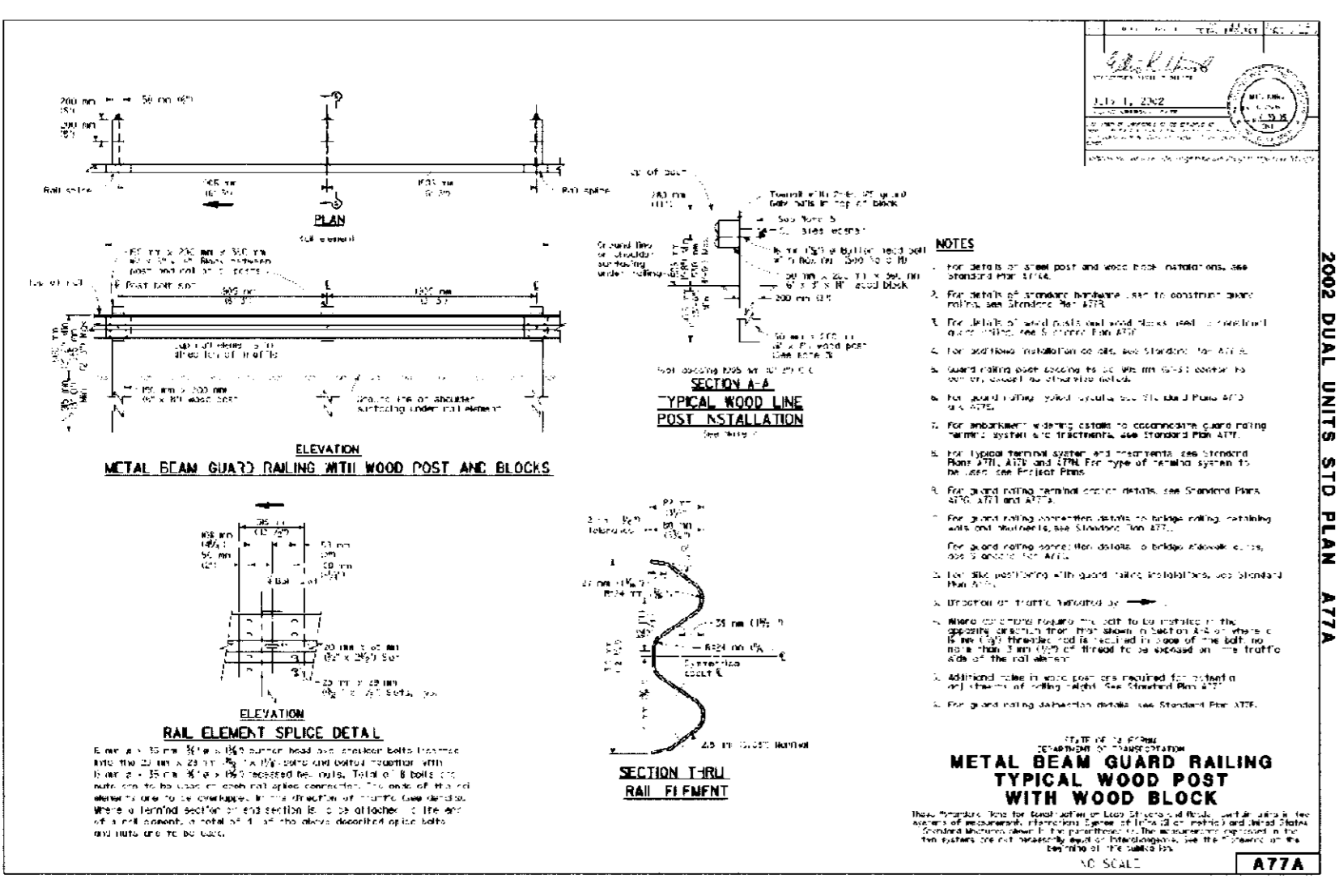
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WILDWOOD RANCH
 SAN JOAQUIN COUNTY, CALIFORNIA

SHEET
10
 OF 21 SHEETS



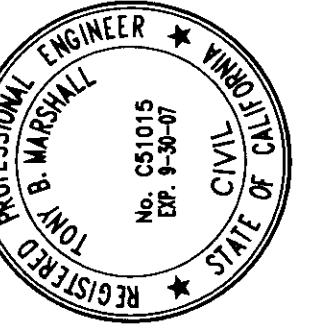
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NO.	DATE	DESCRIPTION	APPROVED

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 DATE 09/16/2006 06:19
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 DR. BY TM
 CK. BY TM
 FILE J:\2005\05-044\05-044.DWG



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 1243 Depot Court • Manteca, California 95337
 (510) 238-0229 • FAX (510) 238-0838

PREPARED UNDER THE DIRECTION OF

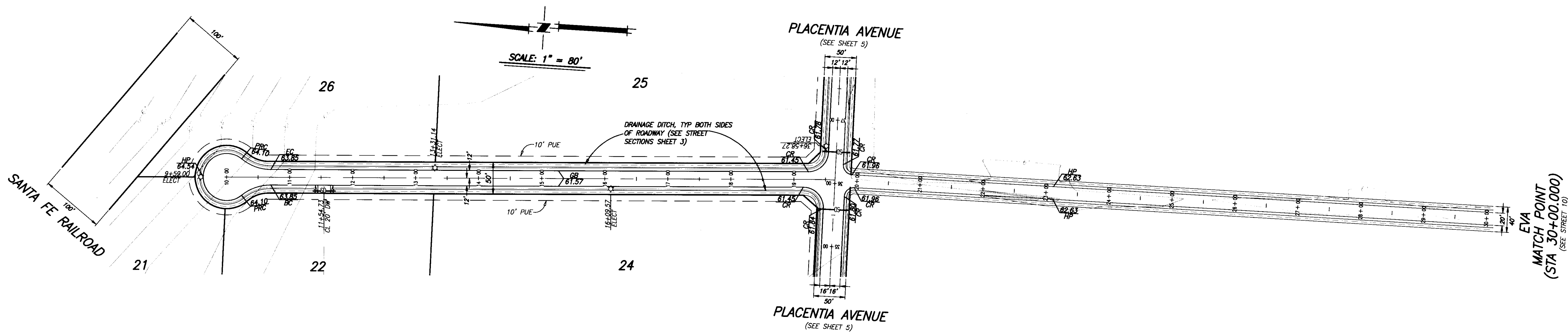
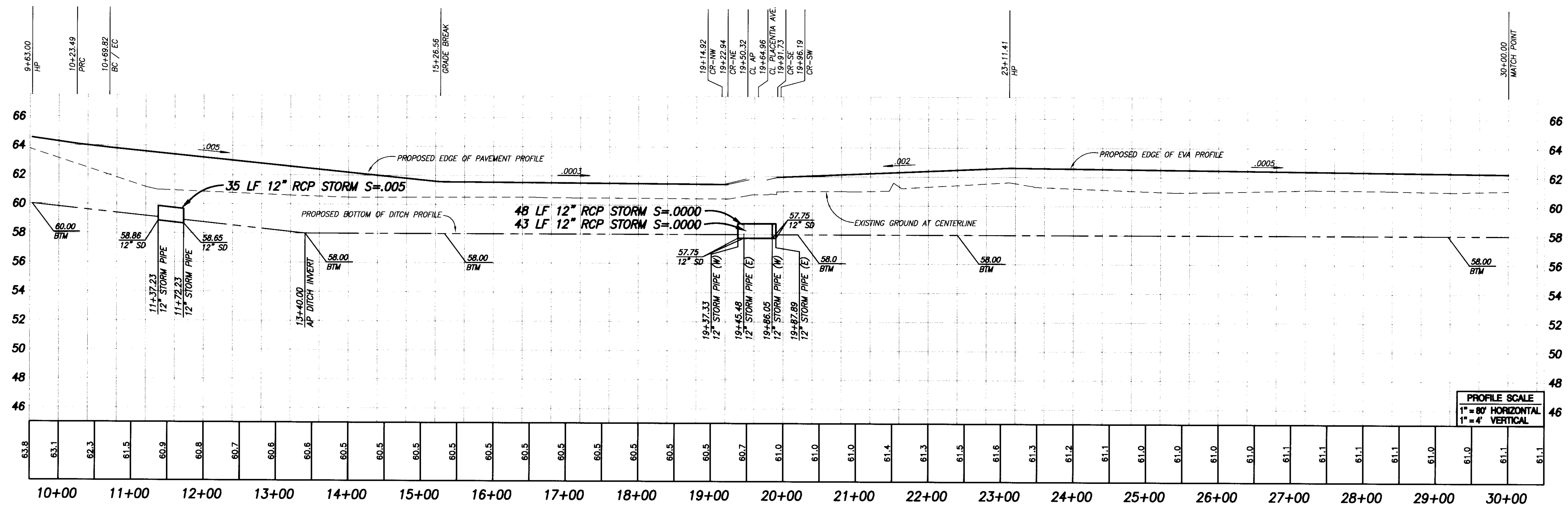
 TONY B. MARSHALL
 REGISTERED PROFESSIONAL ENGINEER
 No. C51015
 Exp. 10-31-07
 STATE OF CALIFORNIA

DATE: 8-15-06
 EXP: 9-30-07

MAYETTE AVENUE / EVA
 STA 10+00.00 - 30+00.00

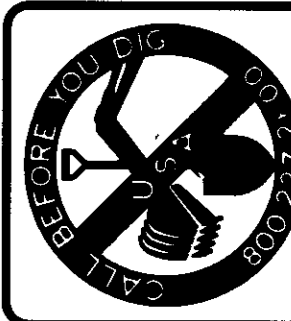
WILDWOOD RANCH
 SAN JOAQUIN COUNTY, CALIFORNIA

SHEET
9
 OF 21 SHEETS



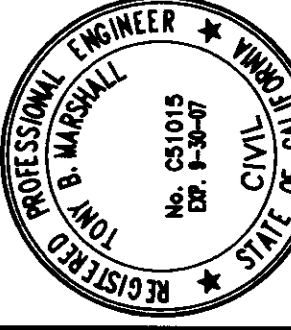
MAYETTE AVENUE / EVA

NOTE:
 ALL GRADES SHOWN ARE TO BASED ON EDGE OF PAVEMENT.



REVISIONS	SYMBOL	DATE	DESCRIPTION	APPROVED

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DR. BY	RM
CK. BY	JM
FILE	4/2005 05-044 (06) 08-CONCORD.AVG



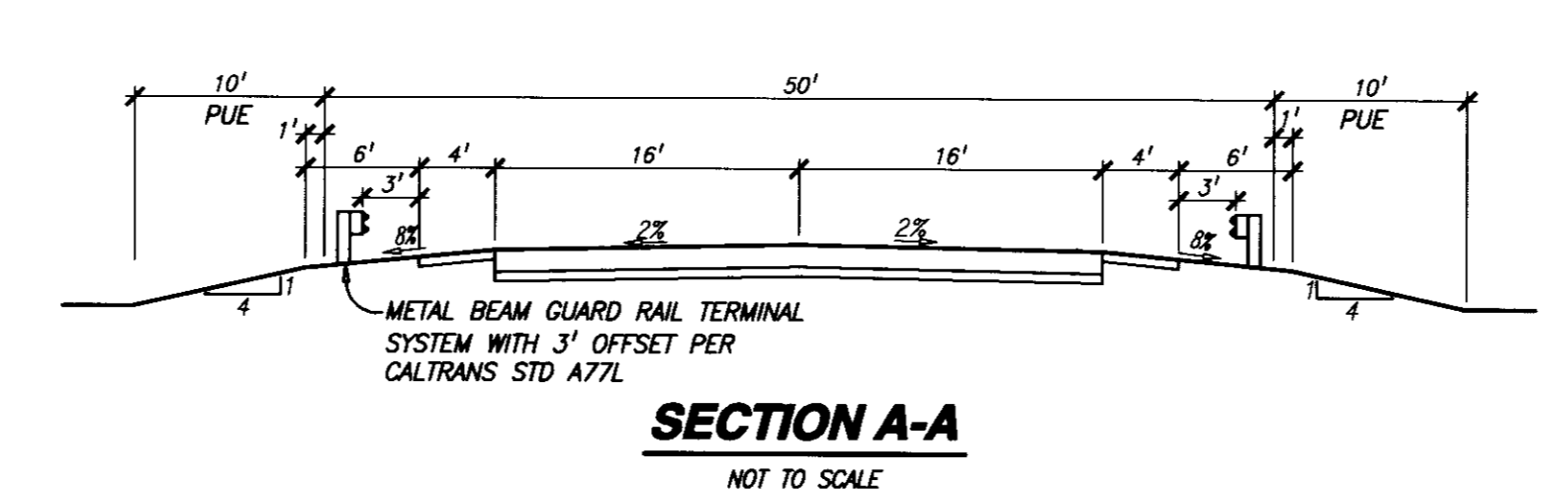
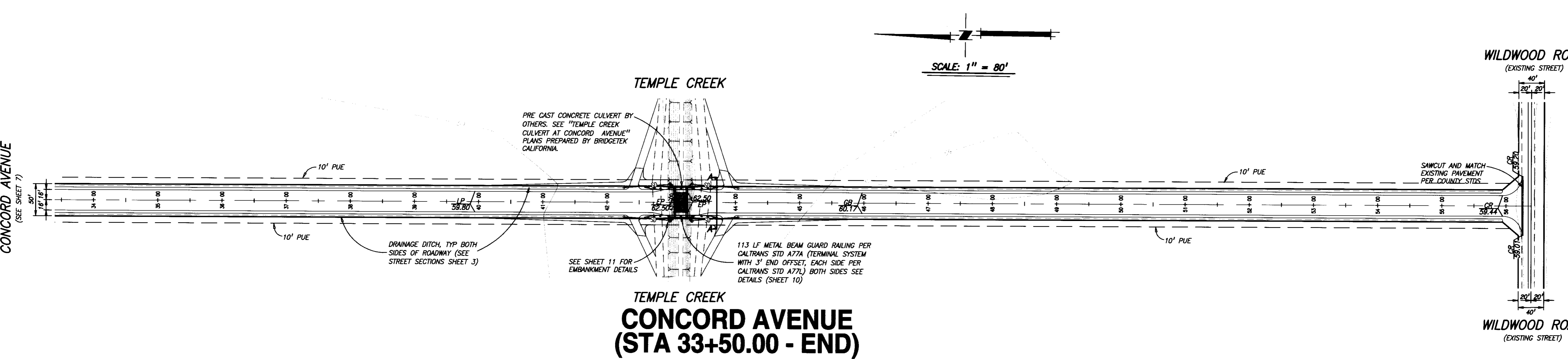
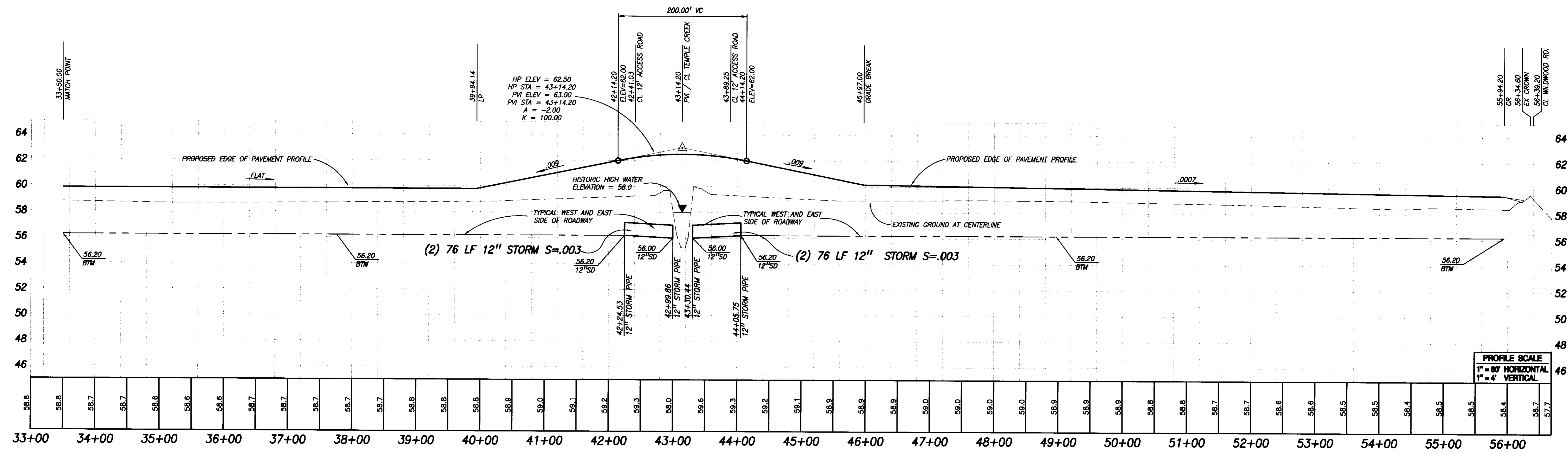
MCR Engineering, Inc.
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 1542 Depot Court • Manteca, California 95237
 (209) 228-0228

PREPARED UNDER THE DIRECTION OF
Tom B. Marshall
 REGISTERED PROFESSIONAL ENGINEER
 No. 42105
 Exp. 12-31-07
 DATE: 8-15-06
 DRP: 1-30-07

**CONCORD AVENUE
 (STA 33+50.00 - END)**

WILDWOOD RANCH
 SAM JOAQUIN COUNTY, CALIFORNIA

SHEET
08
 OF 21 SHEETS



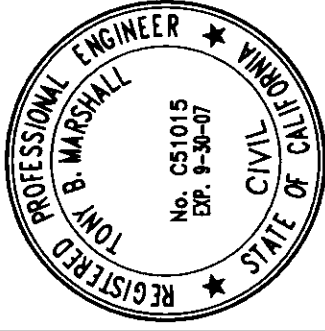
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SU 4088



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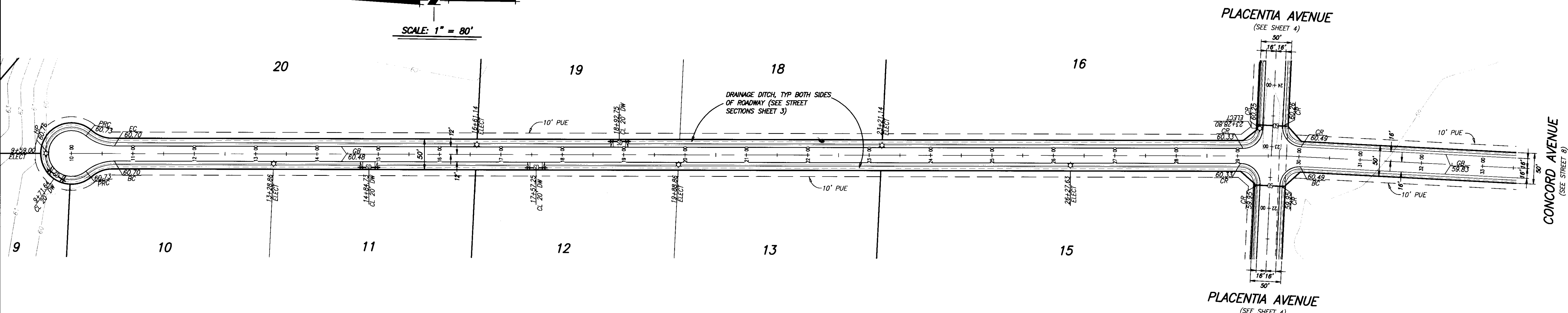
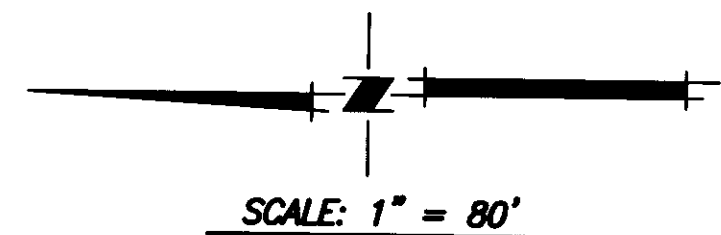
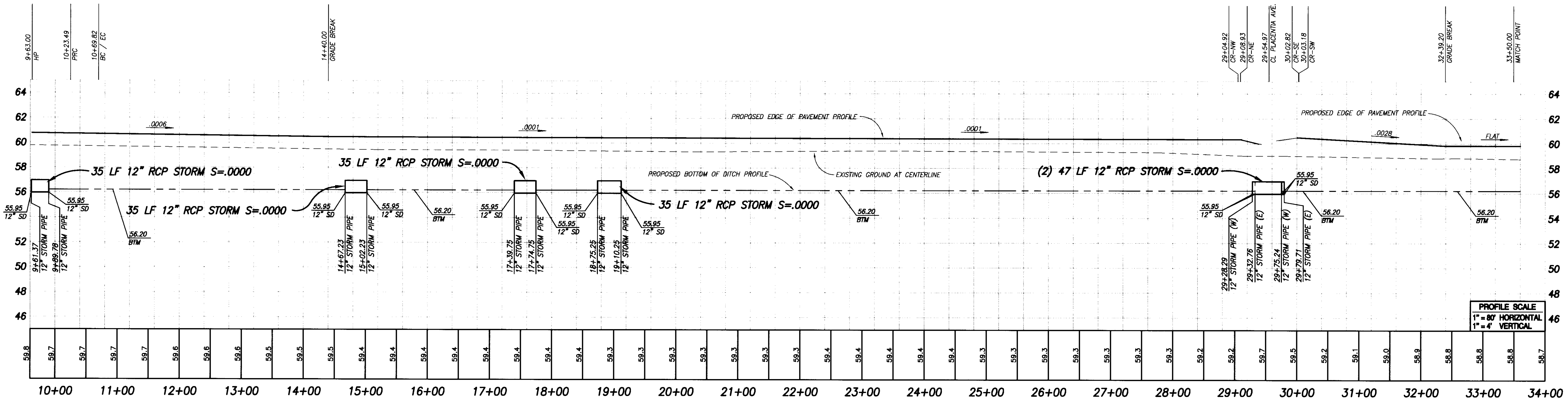


MCR Engineering, Inc.
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 650 328-0229 • FAX 650 328-0559

PREPARED UNDER THE DIRECTION OF:
Tony B. Masbala
 TONY B. MASBALA
 P.E. 60145
 DATE

CONCORD AVENUE
 (STA 10+00.00 - 33+50.00)
WILDWOOD RANCH
 SAN JOAQUIN COUNTY, CALIFORNIA

SHEET
7
 OF 21 SHEETS



NOTE:
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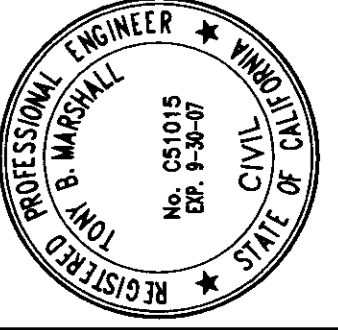
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SU 4089



SYMBOL	DATE	DESCRIPTION	APPROVED

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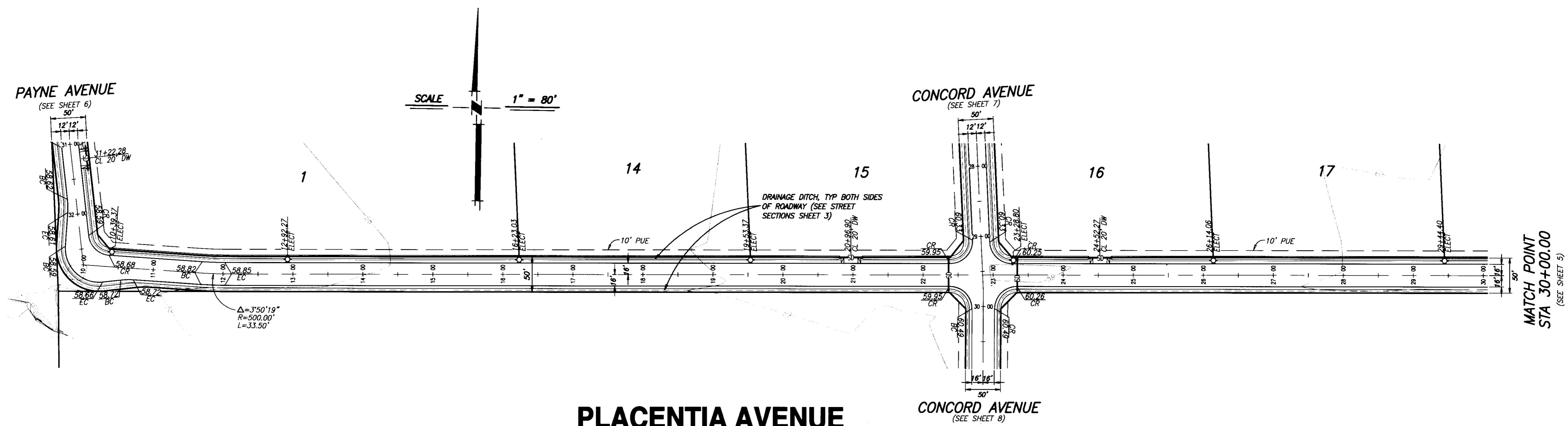
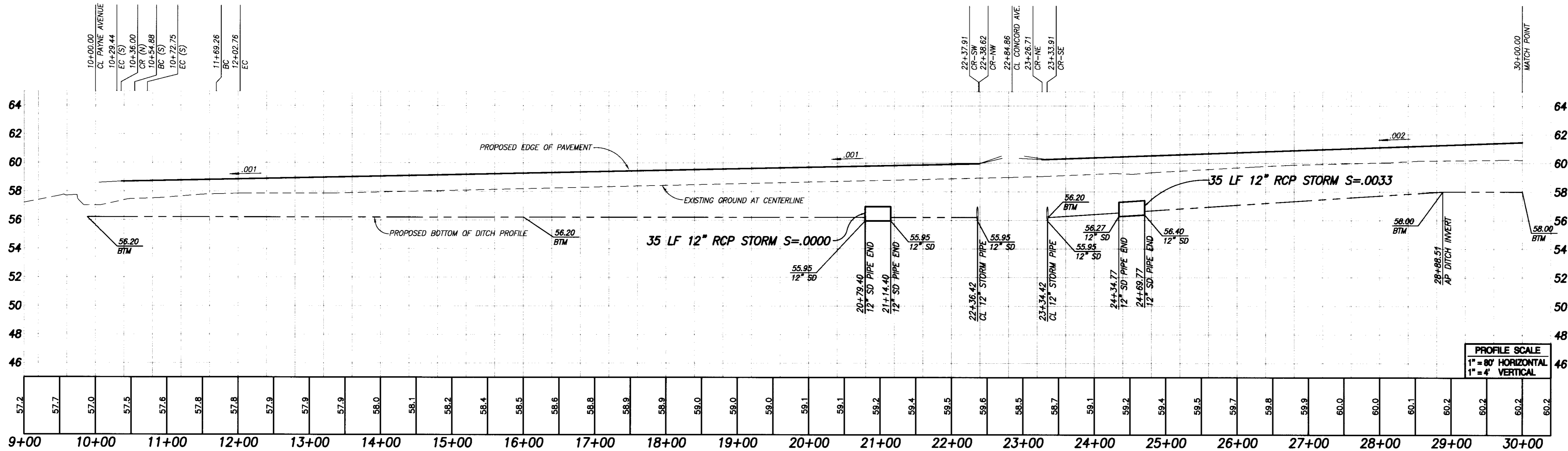
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 209 238-0226 • FAX 209 238-0859

PREPARED UNDER THE DIRECTION OF:
 TONY B. MARSHALL
 REG. CIVIL ENGINEER
 STATE OF CALIFORNIA
 LICENSE NO. 55115
 EXP. 8-30-15

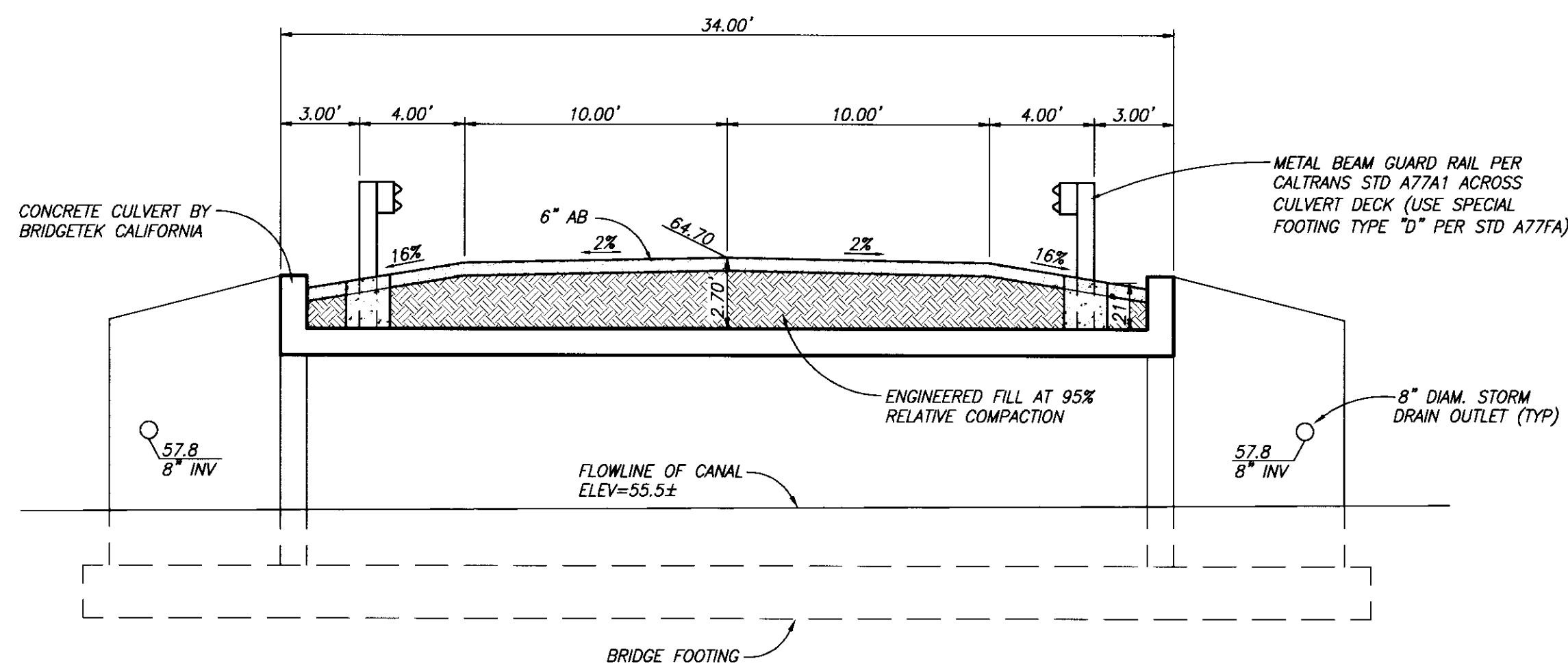
PLACENTIA AVENUE
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WILDWOOD RANCH
 SAN JOAQUIN COUNTY, CALIFORNIA

SHEET
4
 OF 21 SHEETS

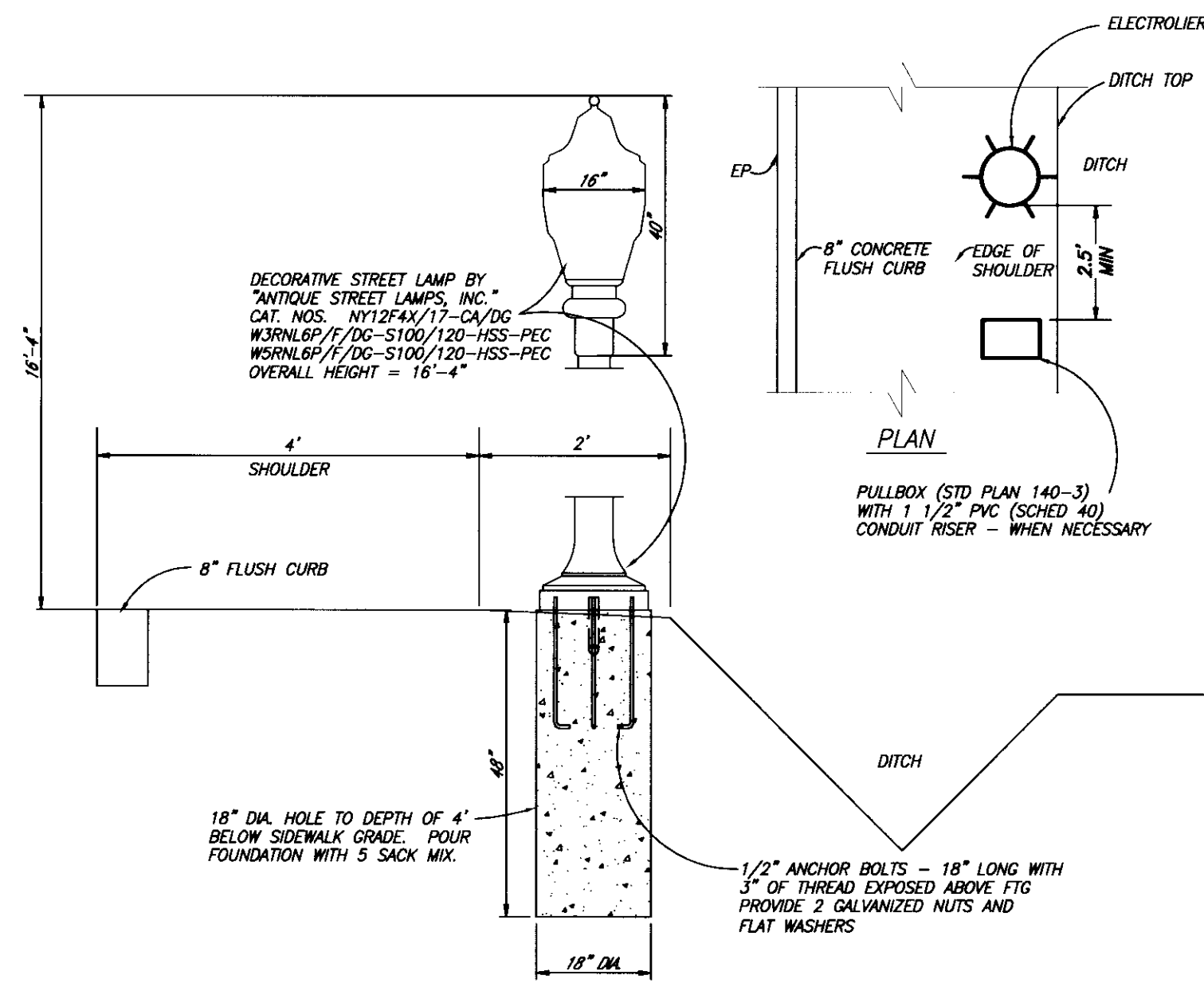


NOTE:
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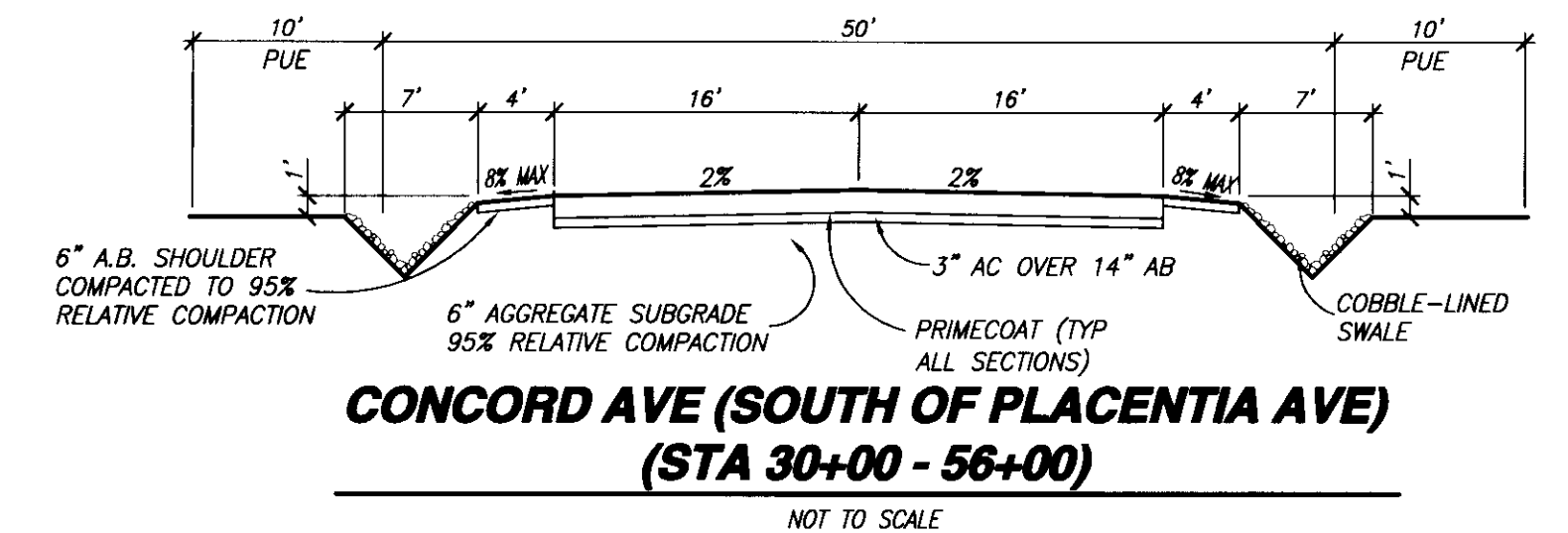
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NOT TO SCALE



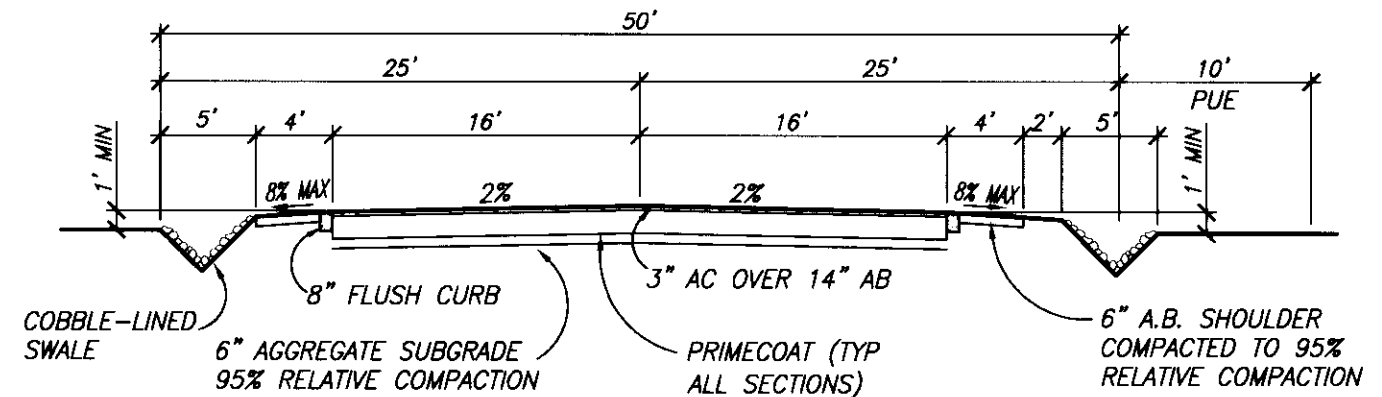
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NTS



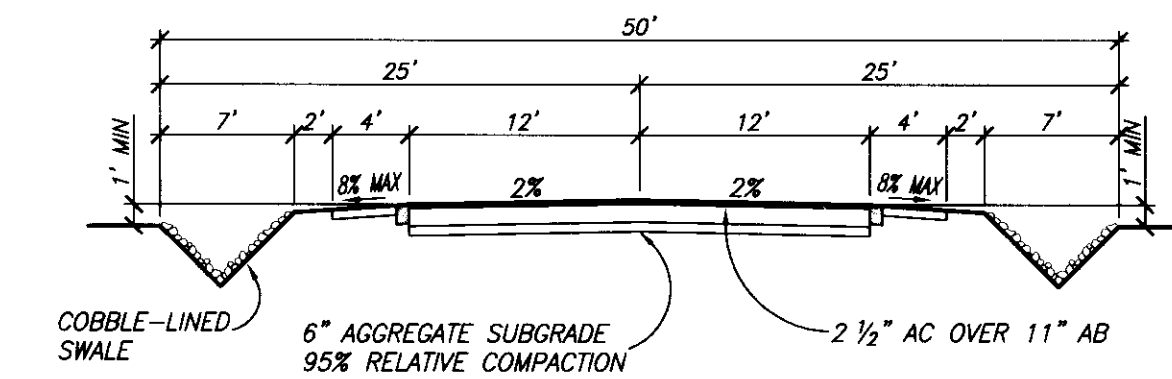
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(STA 30+00 - 56+00)**

NOT TO SCALE



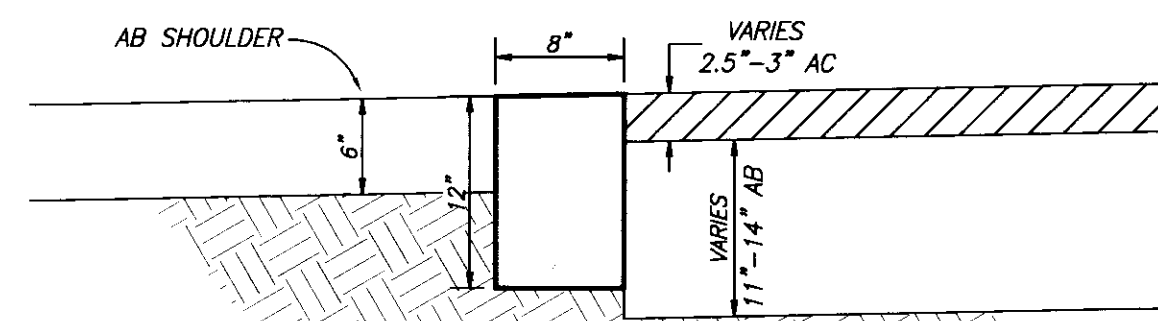
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NOT TO SCALE



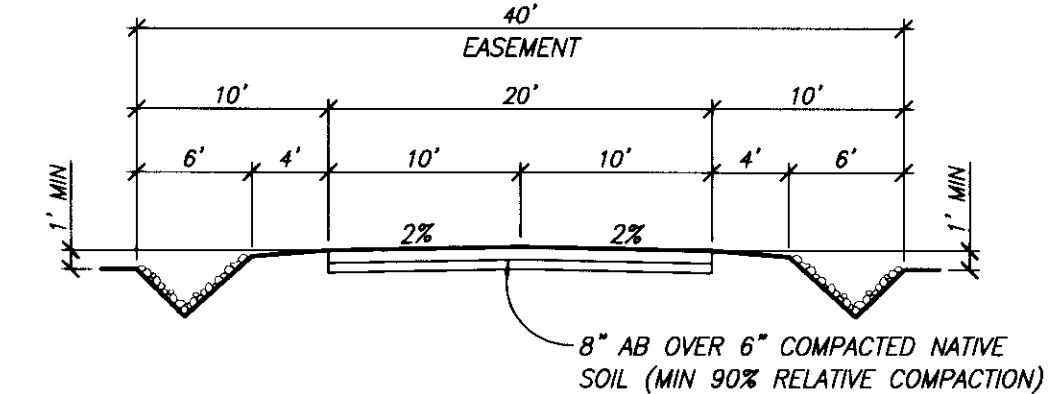
**RURAL RESIDENTIAL
PAYNE AVENUE
MAYETTE AVENUE
PLACENTIA AVENUE (STA 36+30 - 42+70)
CONCORD AVENUE (STA 10+00 - 29+00)**

NOT TO SCALE



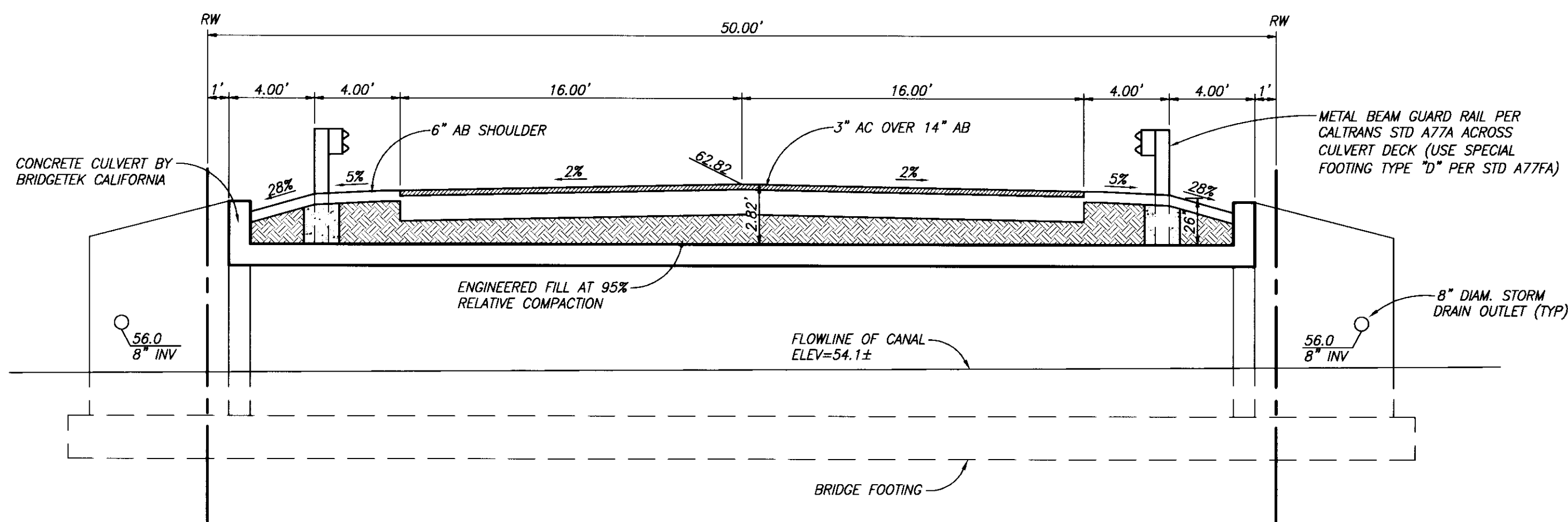
8" CONCRETE FLUSH CURB

NOT TO SCALE



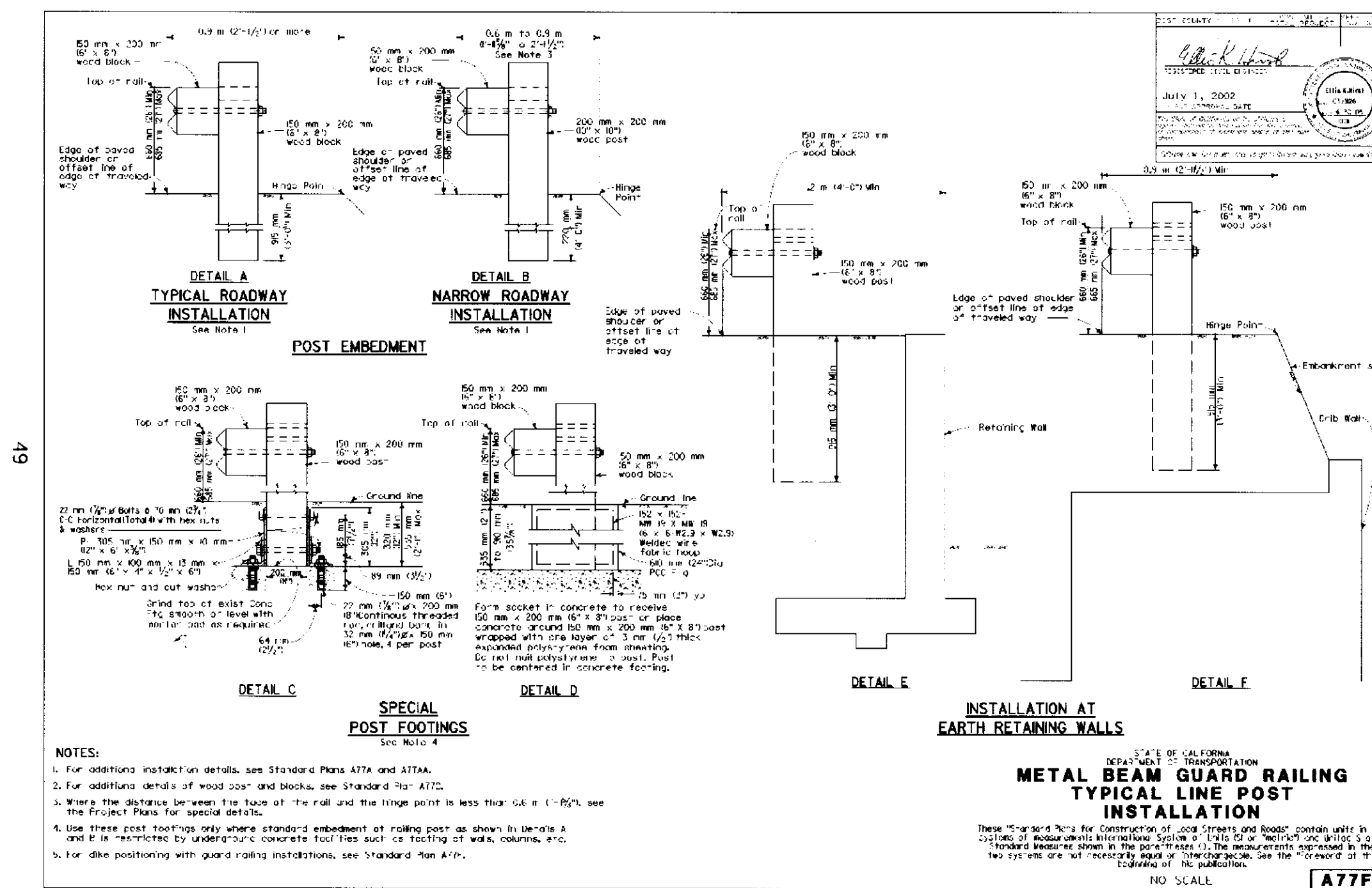
EMERGENCY VEHICLE ACCESS

NOT TO SCALE

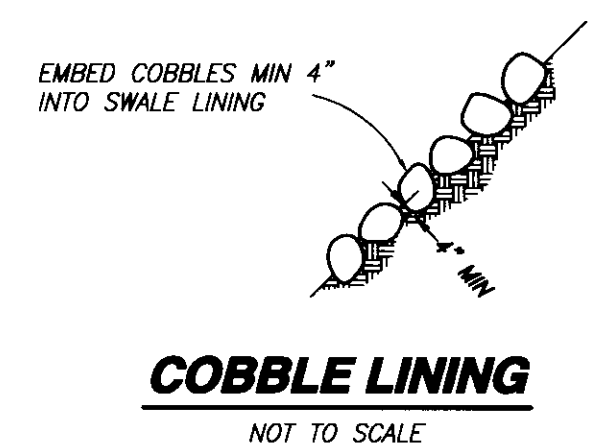


CONCORD AVENUE AT TEMPLE CREEK

NOT TO SCALE



49



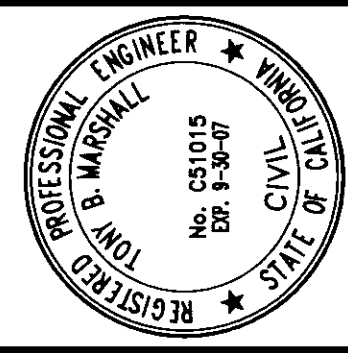
COBBLE LINING

NOT TO SCALE



REVISIONS	DATE	DESCRIPTION

JOB NO. 05-044
DATE 08/15/2006 16:05
SCALE AS SHOWN
DR. BY RM
CK. BY TM
FILE: 05-044.dwg (05-DETAILS.dwg)



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PREPARED UNDER THE DIRECTION OF:
Tom B. Marshall
DATE: 8-15-06
DR: 8-30-07
SCALE: 05/15/06

DETAILS
WILDWOOD RANCH
SAN JOAQUIN COUNTY, CALIFORNIA

SHEET
3
OF 21 SHEETS

6904 NS

IMPROVEMENT PLANS FOR WILDWOOD RANCH

SAN JOAQUIN COUNTY, CALIFORNIA

ABBREVIATIONS

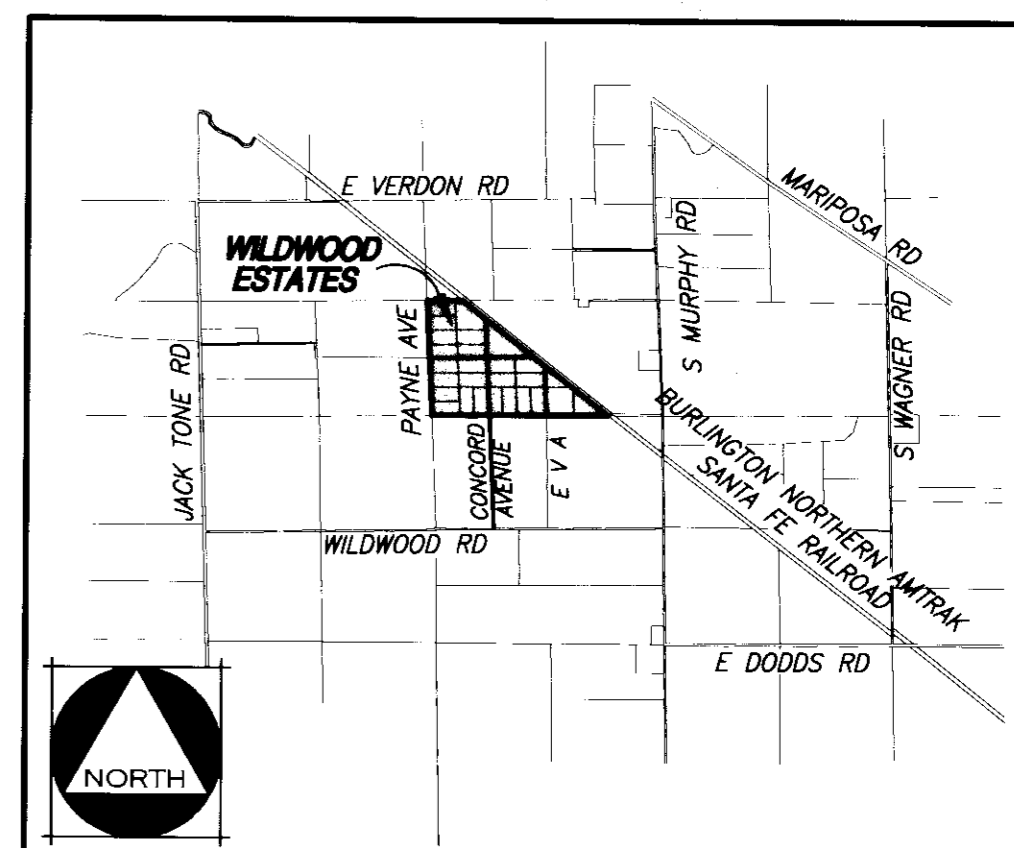
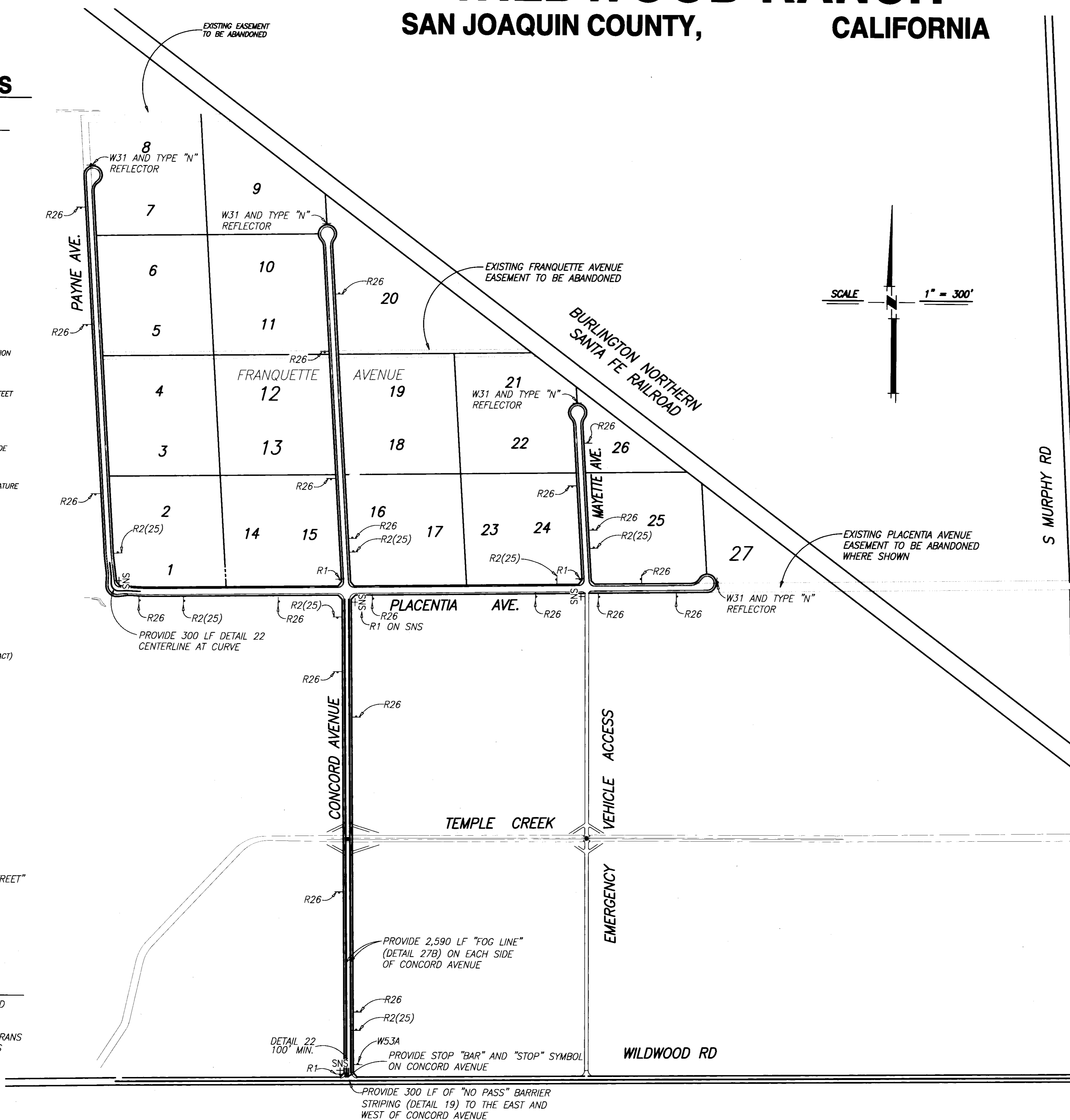
ABRV.	DESC.
AT	AGGREGATE BASE
AC	ASPHALT CONCRETE
AP	ANGLE POINT
BC	BEGIN CURVE
BDRY	BOUNDARY
BVC	BEGIN VERTICAL CURVE
CI	CURB INLET
CL	CENTER LINE
CO	CLEAN OUT
CONC	CONCRETE
CR	CURB RETURN
DIA	DIAMETER
DW	DRIVEWAY
EC	END OF CURVE
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
ESMT	EASEMENT
EVC	END OF VERTICAL CURVE
EX OR EXIST	EXISTING
FH	FIRE HYDRANT
FL	FLOW LINE
G	ORIGINAL GROUND ELEVATION
GB	GRADE BREAK
HP	HIGH POINT
INV	INVERT
LF	LINEAL FEET OR LINEAR FEET
LP	LOW POINT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
NTS	NOT TO SCALE
OG	ORIGINAL GROUND / GRADE
PAV	PAVEMENT
PP	POWER POLE
PL	PROPERTY LINE
PRC	POINT OF REVERSE CURVATURE
PT	POINT
PUE	PUBLIC UTILITY EASEMENT
RET	RETURN
R	RADIUS
SD	STORM DRAIN
SHT	SHEET
SNS	STREET NAME SIGN
STA	STATION
STD	STANDARD
S	SEWER
TC	TOP OF CURB
TEMP	TEMPORARY
THRU	THROUGH
TI	TRAFFIC INDEX
TYP	TYPICAL
WS	WATER SERVICE
W	WATER
±	PLUS OR MINUS (NOT EXACT)

SIGNS DESC

R1	"STOP SIGN"
R2	"SPEED LIMIT"
R26	"NO PARKING"
W53	"NOT A THROUGH STREET"
W53A	"NO OUTLET"
SNS	"STREET NAME SIGN"

NOTE:

- ALL STREETS NORTH OF WILDWOOD ROAD ARE PRIVATE ROADWAYS.
- SIGN CODES USED ARE PER CALTRANS UNIFORM SIGN CHART SIGN CODES



VICINITY MAP
(NOT TO SCALE)

INDEX

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| 3 | DETAILS |
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| 5 | PLACENTIA AVENUE (STA 30+00.00 - END) |
| 6 | PAYNE AVENUE |
| 7 | CONCORD AVENUE (STA 10+00.00 - 33+50.00) |
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| 9 | MAYETTE AVENUE / EVA (STA 10+00.00 - 30+00.00) |
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| C/S2 | TEMPLE CREEK CULVERT AT CONCORD AVENUE |
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| C/S5 | TEMPLE CREEK CULVERT AT EVA |
| C/S6 | TEMPLE CREEK CULVERT AT EVA |
| C/S7 | CULVERT DETAILS |

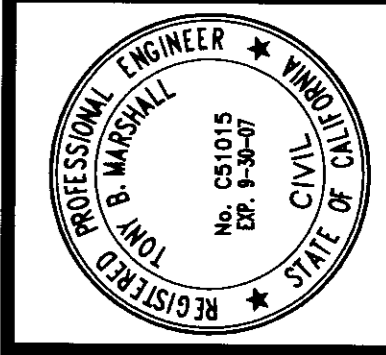
COUNTY OF SAN JOAQUIN FIRE DEPARTMENT	
APPROVED: <i>Steve Dalton</i>	8-16-06 DATE

COUNTY OF SAN JOAQUIN DEPARTMENT OF PUBLIC WORKS	
APPROVED: <i>Sean Schuman</i>	8/17/06 DATE
SENIOR CIVIL ENGINEER	
RCE NO. 46533	6/30/07 DATE
33033	6/30/08 EXP DATE:
<i>Thomas M. Gian</i>	
for DIRECTOR OF PUBLIC WORKS COUNTY OF SAN JOAQUIN	
	8/17/06 DATE



REV. NO.	DATE	DESCRIPTION

JOB NO. 05-044	DATE 08/15/2006 15:45
SCALE AS SHOWN	DR. BY DM
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	FILE 2:000\05-044\DWG\01-COVER.DWG



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PREPARED UNDER THE DIRECTION OF
Tony B. Marshall
TONY B. MARSHALL P.E. C.E.B. 1010

**COVER SHEET,
STRIPING AND SIGNAGE**

WILDWOOD RANCH

SAN JOAQUIN COUNTY, CALIFORNIA

SU 4095