SECTION 6

CONSTRUCTION STAKING GUIDELINES

6.01. *Purpose.*

The purpose of this section is to provide the Contractor, and other interested parties, with the County's staking policies and standards for public works construction projects.

6.02. *Policies.*

These standards are not intended to be inflexible rules, nor are they intended to cover every situation where stakes are required. The Engineer will discuss the general staking policy with the Contractor at the preconstruction meeting. Generally, all staking should be offset from the work it is intended to control, and staking should remain undisturbed during construction so that continual control of the work can be maintained. The Contractor shall be responsible for keeping stakes exposed throughout their use. Should it become necessary to destroy stakes, the Contractor shall notify the Engineer with sufficient lead time to allow referencing the stakes for later use. The County will establish sufficient survey marks and/or stakes for the Contractor to lay out the necessary work and for the Engineer to check the Contractor's work. Special circumstances that are not covered in this section must be discussed with the Engineer and the survey party chief for approved method of staking. All cuts, fills and offsets will refer to plan lines and grades. Changes from this policy must be approved by the Engineer and survey party chief.

6.03. *Procedures.*

The information later in this section describes the County's procedures for the various types of Public Works construction surveying.

6.04. *Staking Policy.*

These standards are intended to be guidelines. They are not designed to cover every situation where stakes are required. The Engineer and the survey party chief will discuss the general staking policy with the Contractor at the pre-construction meeting. Generally, all staking should be offset from the work it is intended to control and in such a manner that the construction work can be completed using. Staking should remain undisturbed during construction so that continual control of the work can be maintained. The Contractor shall be responsible for protecting stakes throughout the time they are needed. Should it become necessary to destroy stakes, the Contractor shall notify the Engineer and provide adequate lead time to allow referencing the stakes for later use.

The Contractor shall notify the Engineer in writing at least 3 working days before survey services will be required in connection with the laying out of any portion of the Work. The Contractor shall dig all holes necessary for line and grade stakes. Unless otherwise specified, stakes will be set and stationed by the Engineer for curbs, sewers, storm drains, structures, and rough grade. Corresponding cut/ fill to finish grade (or flow line) will be indicated on a grade sheet.

All work shall conform to the lines, elevations, and grades shown on the Plans. Three consecutive points set on the same slope shall be used together so that any variation from a straight grade can be detected. Any such variation shall be reported to the Engineer. In

the absence of such report, the Contractor shall be responsible for any error in the grade of the finished work. Grades for underground facilities will be set at the surface of the ground. The Contractor shall transfer them to the bottom of the trench.

6.05. *Staking Requests.*

All staking requests are to be submitted to the Engineer by the Contractor using a form provided by the Engineer. The survey party chief will set stakes as soon as practicable, and in the order requested, noting the time of completion of each request and the date and time the grade sheets were delivered to the Contractor. Reasonable notice is required so that the survey work can be intelligently planned and coordinated in accordance with the schedules established by the Contractor. The expression "reasonable notice" is not the same for all requests. The Contractor shall notify the Engineer in writing at least 5 days before survey services will be required in connection with the laying out of any portion of the Work. Staking requests should indicate when stakes are required and when the area is ready for staking. Calendar dates are necessary so that the survey party chief can properly plan and expedite the work. On large projects the requests will be numbered sequentially. General staking requests, e.g. "Stake the Job" are not acceptable. The Engineer is responsible for settling disputes regarding staking priority, and shall have the authority to change the priority of staking when, in his/her opinion the Contractor has requested more staking than necessary or reasonable in a given period of time. The survey crew will provide the necessary line and grade as needed by the Contractor to do basic layout work. Stakes will be set so that the work being referenced can be completed by the Contractor using the ordinary tools of construction. Offsets will usually be in whole feet unless another offset is agreed upon by the Engineer, the survey party chief and the Contractor.

Unless indicated otherwise by the Engineer, Grade Sheets are available to the Contractor 3 days after the field work is completed.

6.06. *Restaking Charges.*

Construction stakes that are susceptible to being disturbed and/or destroyed by tractors, diggers or vandals should be requested in a timely manner to reduce exposure to these and other hazards. The Contractor shall preserve construction survey stakes and marks for the duration of their usefulness. If any construction survey stakes are lost or disturbed and need to be replaced, such replacement shall be by the Engineer at the expense of the Contractor.

The Contractor is responsible for protecting the stakes requested. The Contractor is also responsible for the replacement of stakes when they are lost or disturbed and need to be replaced. The Contractor will be charged for restakes. Restaking charges will be based on the current costs for survey personnel plus overhead.

6.07. *Stakes and Marks.*

Stakes and marks will be set as follows:

NOTE: As stated above all staking will be to plan lines and grades. Stakes will be set at grade changes, B.C.'s and E.C.'s., angle points and vertical curve B.V.C.'s, E.V.C.'s and the standard staking intervals shall be as shown in the table at the end of this section.

A. *ROAD PROJECTS.*

1. *Clearing and Grubbing Stakes/Limits of Grading.*

    a. Stakes are generally set at sufficient intervals to provide line of sight between points, but not greater than 100 ft.
    b. Stakes are set for horizontal control only.
    c. On open ground without encroachment problems, a staking tolerance of 1 ft. will be employed.
    d. In urban areas where possible encroachments exist, staking tolerance will be +/- 0.1'

2. *Rough Grade Stakes*

    a. Rough grade stakes will be set after clearing and grubbing activities are completed by the Contractor.
    b. Two lines of rough grade will usually be set, one on each side of the road with the location to be determined in the field after discussion between the Engineer, survey party chief and the Contractor.
    c. See tables at the end of this section for staking intervals and tolerances
    d. It should not be considered standard practice to use rough grade stakes for other construction purposes where a closer staking tolerance is necessary.

3. *Slope Stakes*

    a. Slope stakes are set at the daylight point with reference stakes typically at 10' offsets with cut or fill to the slope stake.
    b. See tables at the end of this section for staking intervals and tolerances.

4. *Pavement Stakes*

    Note: Paving stake cuts and fills are always referenced to or set to the plan finished grade unless otherwise agreed upon by the Engineer, survey party chief, and Contractor.

    a. For roadways 44 feet wide or less, only plan elevations shall be staked. If the crown section varies between the plan centerline grade changes, then additional stakes will be referenced to, or set to, plan grade on the center line of roadway at intervals noted on page 8 of this document.
    b. Roadways more than 44 feet wide, shall have paving stakes set on all plan elevations. In addition the roadway crown shall be defined by lines of stakes set at prescribed intervals between plan grade changes.
    c. In intersections stakes are usually set-to-grade per plan elevations.
    d. See tables at the end of this section for staking intervals and tolerances.

5. *Curb Stakes*

    a. Cuts and/or Fills will typically be given to top of curb at street face. If it is a variable curb face cuts and fills will be given to both top of curb and flowline.

b. Stakes will be set after clearing and grubbing activities are completed by the Contractor.
c. See tables at the end of this section for staking intervals and tolerances
d. The offset will be determined by discussion with the Party chief and Contractor.

6. *Sidewalks*

Generally sidewalks are not staked.

B. *WALL STAKES AND RETAINING WALL STAKES*

1. Stakes will be referenced to the plan lines and grades.
2. At vertical breaks cuts or fills will be given to both grades.
3. See tables at the end of this section for staking intervals and tolerances

C. *STORM DRAINS AND SEWERS*

1. One line of stakes will be set prior to excavation after staking areas are ready for stakes, i.e. cleared and necessary grubbing completed.
2. The offset and side will be determined by discussion with the Engineer, survey party chief and Contractor.
3. Cuts and fills will be to pipe flowline at plan grades
4. See tables at the end of this section for staking intervals and tolerances

D. *JUNCTION STRUCTURES, CHAMBERS AND MAINTENANCE HOLES*

1. One stake will be provided to control the location of the beginning of pipe and one will be set to control the end of pipe.
2. Stub outs will have one stake for direction.
3. These stakes may be set at the same time as stakes for the main line of the storm drain or sewer.
4. Cuts and fills will be shown to flow line of referenced points.
5. The offset line for staking will be determined in the field by discussion between the Engineer, survey party chief and the Contractor.

E. *CATCH BASINS*

1. Two stakes will be set to control the location of catch basins (3 if the CB is fourteen feet or longer).
2. Catch Basin stakes will typically be set at the same time as lateral stakes.
3. Cuts and fills will be given to the flow line and top of curb and offsets will be to curb face.
4. The offset line will be determined in field by discussions between the Engineer, survey party chief and the Contractor.

F. *DROP INLETS FOR SEWERS*

1. One stake will be set to control the location of drop inlets.

2. Inlets and outlets will typically be staked at the same time as stakes for the main line of the storm drain.

G. *DRY UTILITIES/NON GRAVITY FLOW UTILITIES*

Unless otherwise agreed to by the Engineer, the survey crew will not normally stake utilities unless specified in the bid documents. Utilities can usually be built from rough grade stakes or curb stakes.

H. *PARKING LOTS*

1. Set or recover boundary corner points and set a benchmark for future reference.
2. The Survey Division will set stakes necessary for construction for:
   a. Planter and island curbs.
   b. Longitudinal concrete gutters.
   c. Paving stakes where there is more than 40 feet between curbs, gutters, alleys, driveways and walks.
   d. Paving stakes will be set no closer than a 25' grid.
   e. Stakes will not be set for items that have to be scaled off the plan for location.

ATTACHMENT A

STANDARD INTERVALS FOR CONSTRUCTION STAKING

Curves will be divided into equal parts between BC and EC. Intervals refer to arc distance on the long side of concentric curves and are maximum limits

TYPE OF STAKES	TANGENT	CURVES (RADIUS IN FEET)							
		<50	51 - 75	76 - 100	101 - 150	151 - 200	201 - 250	251 - 500	>500
	INTERVALS IN FEET								
SLOPE AT ALL RATES	50	20	20	20	20	25	25	40	50
PAVING (ROUGH, SUB AND FINISHED GRADE) ALL RATES	50	20	20	20	20	25	25	40	50
PCC CURBS @ RATE <0.5%	12.5	10	10	10	10	12.5	12.5	12.5	12.5
PC C CURBs @ RATE = >0.5%	25	10	10	10	10	15	15	20	25
TYPE A OR B CURB (ALL RATES)	25	10	10	10	10	15	15	20	25
SEWER (ALL RATES)	25	10	10	10	10	15	15	20	20
STORM DRAIN (ALL RATES)	25	10	10	10	10	15	15	20	20
RETAINING WALL AND BULKHEAD ALL RATES	25	6	8	10	15	15	20	20	25

ATTACHMENT B

CONSTRUCTION ACCURACY SPECIFICATIONS

TYPE OF STAKES	HORIZONTAL ACCURACY (FEET)		VERTICAL ACCURACY (FEET)
	STATIONING	ALIGNMENT	ELEVATIONS
CLEARING AND GRUBBING	1.0	1.0	N/A
REMOVALS	0.5	0.5	N/A
SLOPE STAKES	0.5	0.1	0.1
ROUGH GRADE	0.5	0.5	0.1
SUBGRADE	0.5	0.5	0.05
FINISHED GRADE	0.2	0.2	0.01
CURB STAKES	0.2	0.01	0.01
FLOW LINE STAKES	0.2	0.01	0.01
SEWER STAKES	0.2	0.1	0.01
STORM DRAIN STAKES	0.2	0.1	0.01
BIKEWAY STAKES	0.3	0.1	0.02
WALL STAKES	0.2	0.02	0.1
PILE STAKES	0.02	0.02	0.1
BUILDING STAKES	0.01	0.01	0.01
BRIDGE STAKES	0.01	0.01	0.01

APPENDIX B

WAGE DETERMINATIONS

General Decision Number: CA120019 01/06/2012 CA19

Superseded General Decision Number: CA20100019

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

County: San Luis Obispo County in California.

BUILDING, DREDGING (does not include hopper dredge work), HEAVY (does not include water well drilling, AND HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	01/06/2012

ASBE0005-002 06/28/2010

	Rates	Fringes
Asbestos Workers/Insulator (Includes the application of all insulating materials, protective coverings, coatings, and finishes to all types of mechanical systems)	$ 32.79	16.31
Fire Stop Technician (Application of Firestopping Materials for wall openings and penetrations in walls, floors, ceilings and curtain walls)	$ 24.21	13.76

ASBE0005-004 06/28/2010

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)	$ 18.70	8.65

BOIL0092-004 05/01/2011

Area within a 25 mile radius of City of Santa Maria

	Rates	Fringes

BOILERMAKER.....$ 41.26 25.27

BOIL0549-007 01/01/2009

Remainder of County outside a 25 mile radius of City of Santa Maria

	Rates	Fringes
BOILERMAKER.....	$ 37.01	22.25

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* BRCA0004-006 05/01/2011

	Rates	Fringes
BRICKLAYER; MARBLE SETTER.....	$ 35.85	11.45

*The wage scale for prevailing wage projects performed in Blythe, China lake, Death Valley, Fort Irwin, Twenty-Nine Palms, Needles and 1-15 corridor (Barstow to the Nevada State Line) will be Three Dollars ($3.00) above the standard San Bernardino/Riverside County hourly wage rate

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* BRCA0018-008 06/01/2011

	Rates	Fringes
MARBLE FINISHER.....	$ 28.02	12.22
TILE FINISHER.....	$ 27.80	12.54

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* BRCA0018-011 06/01/2011

	Rates	Fringes
TILE LAYER.....	$ 38.61	13.83

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* CARP0409-001 07/01/2010

	Rates	Fringes
CARPENTER		
(1) Carpenter, Cabinet Installer, Insulation Installer, Hardwood Floor Worker and acoustical installer, and solar panels.	$ 37.35	11.08
(2) Millwright.....	$ 37.85	11.08
(3) Piledriver/Derrick Bargeman, Bridge or Dock Carpenter, Heavy Framer, Rock Bargeman or Scowman, Rockslinger, Shingler (Commercial).....	$ 37.48	10.58
(3) Piledrivermen/Derrick Bargeman, Bridge or Dock Carpenter, Heavy Framer, Rock Bargeman or Scowman,		

Rockslinger, Shingler (Commercial)	$ 37.48	11.08
(4) Pneumatic Nailer, Power Stapler	$ 37.60	11.08
(5) Sawfiler	$ 37.44	11.08
(6) Scaffold Builder	$ 28.55	11.08
(7) Table Power Saw Operator	$ 37.45	11.08

FOOTNOTE: Work of forming in the construction of open cut sewers or storm drains, on operations in which horizontal lagging is used in conjunction with steel H-Beams driven or placed in pre- drilled holes, for that portion of a lagged trench against which concrete is poured, namely, as a substitute for back forms (which work is performed by piledrivers): $0.13 per hour additional. Certified Welder - $1.00 per hour premium.

CARP0409-005 07/01/2010

	Rates	Fringes
Drywall		
DRYWALL INSTALLER/LATHER	$ 37.35	11.08
STOCKER/SCRAPPER	$ 10.00	6.67

CARP0409-008 08/01/2010

	Rates	Fringes
Modular Furniture Installer	$ 17.00	7.41

ELEC0011-002 07/25/2011

COMMUNICATIONS AND SYSTEMS WORK

	Rates	Fringes
Communications System		
Installer	$ 27.25	11.35
Technician	$ 29.05	10.53+3%

SCOPE OF WORK:
Installation, testing, service and maintenance of systems utilizing the transmission and/or transference of voice, sound, vision and digital for commercial, educational, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call systems, radio page, school intercom and sound, burglar alarms, fire alarm (see last paragraph below) and low voltage master clock systems in commercial buildings. Communication Systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding all other data systems or multiple systems which include control function or power supply; excluding installation of raceway systems, conduit systems, line

voltage work, and energy management systems. Does not cover work performed at China Lake Naval Ordnance Test Station. Fire alarm work shall be performed at the current inside wireman total cost package.

ELEC0639-001 06/01/2011

	Rates	Fringes
Electricians		
Wireman/Technician	$ 33.70	3%+16.50

FOOTNOTES:

CABLE SPLICER: 10% additional per hour above Wireman/Technician basic hourly rate.

Work from trusses, swinging scaffolds, open ladders, scaffolds, bosun chairs, stacks or towers, where subject to a direct fall from the ground floor or support structure from a distance of fifty (50) feet to ninety (90) feet: to be paid time and one-half. Work from trusses, swinging scaffolds, open ladders, scaffolds, bosun chairs, stacks or towers, where subject to a direct fall from the ground floor or support structure from a distance over ninety (90) feet: to be paid double the regular straight time rate of pay. Where workers are required to work under compressed air or in areas where injurious gases, dust or fumes are present in amounts necessitating the use of gas masks or self-contained breathing apparatus (particle masks are not considered self-contained breathing apparatus) or where workers work on poles at a distance of seventy-five (75) feet or more from the ground: to be paid a bonus of straight time pay. This shall be at a minimum of one hour, and thereafter, each succeeding hour or fraction thereof shall constitute an hour at the bonus rate. Tunnel work: to be paid at the time and one-quarter hourly rate.

All employers may request workmen to report direct to a job within a free zone to include everything west of ten (10) miles east of Highway 101, as the crow flies, and then (10) miles north and south of Highway 46, as the crow flies, to the junction of Highway 41 and Highway 46. Everything outside of this area shall be paid at full subsistence provide said job is of five (5) days duration or more and provide there is storage on the job for the Employee's tools. The Employer will be responsible for loss of tools under such circumstances. (Road: The most direct route on a surfaced road).

On all jobs or projects outside the free zone, as stated above, Employees may be required to report to the job site in their own transportation at the regular starting time and remain on the job site until the regular quitting time and these shall be paid at thirty-eight dollars ($38.00) per day or thirty-eight cents ($0.38) per mile for each road mile from shop to job and job to shop (round trip). (Day worked shall mean at least four (4) hours on the job unless sent home on account of weather, emergency, sickness, or injury).

ELEC1245-001 06/01/2011

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer	$ 47.87	13.87
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment)	$ 38.23	12.80
(3) Groundman	$ 29.25	12.53
(4) Powderman	$ 42.75	12.97

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and day after Thanksgiving, Christmas Day

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ELEV0008-003 01/01/2011

	Rates	Fringes
ELEVATOR MECHANIC	$ 56.14	21.785

FOOTNOTE:
PAID VACATION: Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

ENGI0012-003 07/01/2011

	Rates	Fringes
OPERATOR: Power Equipment (All Other Work)		
GROUP 1	$ 36.13	20.77
GROUP 2	$ 36.91	20.77
GROUP 3	$ 37.20	20.77
GROUP 4	$ 38.69	20.77
GROUP 5	$ 40.49	20.77
GROUP 6	$ 38.91	20.77
GROUP 8	$ 39.02	20.77
GROUP 9	$ 40.82	20.77
GROUP 10	$ 39.14	20.77
GROUP 11	$ 40.94	20.77
GROUP 12	$ 39.31	20.77
GROUP 13	$ 39.41	20.77
GROUP 14	$ 39.44	20.77
GROUP 15	$ 39.52	20.77
GROUP 16	$ 39.64	20.77
GROUP 17	$ 39.81	20.77
GROUP 18	$ 39.91	20.77
GROUP 19	$ 40.02	20.77

GROUP 20	$ 40.14	20.77
GROUP 21	$ 40.31	20.77
GROUP 22	$ 40.41	20.77
GROUP 23	$ 40.52	20.77
GROUP 24	$ 40.64	20.77
GROUP 25	$ 40.81	20.77
OPERATOR: Power Equipment (Cranes, Piledriving & Hoisting)		
GROUP 1	$ 37.48	20.77
GROUP 2	$ 38.26	20.77
GROUP 3	$ 38.55	20.77
GROUP 4	$ 38.69	20.77
GROUP 5	$ 38.91	20.77
GROUP 6	$ 39.02	20.77
GROUP 7	$ 39.14	20.77
GROUP 8	$ 39.31	20.77
GROUP 9	$ 39.48	20.77
GROUP 10	$ 40.48	20.77
GROUP 11	$ 41.48	20.77
GROUP 12	$ 42.48	20.77
GROUP 13	$ 43.48	20.77
OPERATOR: Power Equipment (Tunnel Work)		
GROUP 1	$ 37.98	20.77
GROUP 2	$ 38.76	20.77
GROUP 3	$ 39.05	20.77
GROUP 4	$ 39.19	20.77
GROUP 5	$ 39.41	20.77
GROUP 6	$ 39.52	20.77
GROUP 7	$ 39.64	20.77

PREMIUM PAY:
$3.75 per hour shall be paid on all Power Equipment Operator work on the followng Military Bases: China Lake Naval Reserve, Vandenberg AFB, Point Arguello, Seely Naval Base, Fort Irwin, Nebo Annex Marine Base, Marine Corp Logistics Base Yermo, Edwards AFB, 29 Palms Marine Base and Camp Pendleton

Workers required to suit up and work in a hazardous material environment: $2.00 per hour additional. Combination mixer and compressor operator on gunite work shall be classified as a concrete mobile mixer operator.

SEE ZONE DEFINITIONS AFTER CLASSIFICATIONS

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Bargeman; Brakeman; Compressor operator; Ditch Witch, with seat or similar type equipment; Elevator operator-inside; Engineer Oiler; Forklift operator (includes loed, lull or similar types under 5 tons; Generator operator; Generator, pump or compressor plant operator; Pump operator; Signalman; Switchman

GROUP 2: Asphalt-rubber plant operator (nurse tank operator); Concrete mixer operator-skip type; Conveyor operator; Fireman; Forklift operator (includes loed, lull or similar types over 5 tons; Hydrostatic pump operator; oiler crusher

(asphalt or concrete plant); Petromat laydown machine; PJU side dum jack; Screening and conveyor machine operator (or similar types); Skiploader (wheel type up to 3/4 yd. without attachment); Tar pot fireman; Temporary heating plant operator; Trenching machine oiler

GROUP 3: Asphalt-rubber blend operator; Bobcat or similar type (Skid steer); Equipment greaser (rack); Ford Ferguson (with dragtype attachments); Helicopter radioman (ground); Stationary pipe wrapping and cleaning machine operator

GROUP 4: Asphalt plant fireman; Backhoe operator (mini-max or similar type); Boring machine operator; Boxman or mixerman (asphalt or concrete); Chip spreading machine operator; Concrete cleaning decontamination machine operator; Concrete Pump Operator (small portable); Drilling machine operator, small auger types (Texoma super economatic or similar types - Hughes 100 or 200 or similar types - drilling depth of 30' maximum); Equipment greaser (grease truck); Guard rail post driver operator; Highline cableway signalman; Horizontal Directional Drilling Machine; Hydra-hammer-aero stomper; Micro Tunneling (above ground tunnel); Power concrete curing machine operator; Power concrete saw operator; Power-driven jumbo form setter operator; Power sweeper operator; Rock Wheel Saw/Trencher; Roller operator (compacting); Screed operator (asphalt or concrete); Trenching machine operator (up to 6 ft.); Vacuum or much truck

GROUP 5: Equipment Greaser (Grease Truck/Multi Shift).

GROUP 6: Articulating material hauler; Asphalt plant engineer; Batch plant operator; Bit sharpener; Concrete joint machine operator (canal and similar type); Concrete planer operator; Dandy digger; Deck engine operator; Derrickman (oilfield type); Drilling machine operator, bucket or auger types (Calweld 100 bucket or similar types - Watson 1000 auger or similar types - Texoma 330, 500 or 600 auger or similar types - drilling depth of 45' maximum); Drilling machine operator; Hydrographic seeder machine operator (straw, pulp or seed), Jackson track maintainer, or similar type; Kalamazoo Switch tamper, or similar type; Machine tool operator; Maginnis internal full slab vibrator, Mechanical berm, curb or gutter(concrete or asphalt); Mechanical finisher operator (concrete, Clary-Johnson-Bidwell or similar); Micro tunnel system (below ground); Pavement breaker operator (truck mounted); Road oil mixing machine operator; Roller operator (asphalt or finish), rubber-tired earth moving equipment (single engine, up to and including 25 yds. struck); Self-propelled tar pipelining machine operator; Skiploader operator (crawler and wheel type, over 3/4 yd. and up to and including 1-1/2 yds.); Slip form pump operator (power driven hydraulic lifting device for concrete forms); Tractor operator-bulldozer, tamper-scraper (single engine, up to 100 h.p. flywheel and similar types, up to and including D-5 and similar types); Tugger hoist operator (1 drum); Ultra high pressure waterjet cutting tool system operator; Vacuum blasting machine operator

GROUP 8: Asphalt or concrete spreading operator (tamping or finishing); Asphalt paving machine operator (Barber Greene or similar type); Asphalt-rubber distribution operator; Backhoe operator (up to and including 3/4 yd.), small ford, Case or similar; Cast-in-place pipe laying machine operator; Combination mixer and compressor operator (gunite work); Compactor operator (self-propelled); Concrete mixer operator (paving); Crushing plant operator; Drill Doctor; Drilling machine operator, Bucket or auger types (Calweld 150 bucket or similar types - Watson 1500, 2000 2500 auger or similar types - Texoma 700, 800 auger or similar types - drilling depth of 60' maximum); Elevating grader operator; Grade checker; Gradall operator; Grouting machine operator; Heavy-duty repairman; Heavy equipment robotics operator; Kalamazoo balliste regulator or similar type; Kolman belt loader and similar type; Le Tourneau blob compactor or similar type; Loader operator (Athey, Euclid, Sierra and similar types); Mobark Chipper or similar; Ozzie padder or similar types; P.C. slot saw; Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pumpcrete gun operator; Rock Drill or similar types; Rotary drill operator (excluding caisson type); Rubber-tired earth-moving equipment operator (single engine, caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator (multiple engine up to and including 25 yds. struck); Rubber-tired scraper operator (self-loading paddle wheel type-John Deere, 1040 and similar single unit); Self-propelled curb and gutter machine operator; Shuttle buggy; Skiploader operator (crawler and wheel type over 1-1/2 yds. up to and including 6-1/2 yds.); Soil remediation plant operator; Surface heaters and planer operator; Tractor compressor drill combination operator; Tractor operator (any type larger than D-5 - 100 flywheel h.p. and over, or similar-bulldozer, tamper, scraper and push tractor single engine); Tractor operator (boom attachments), Traveling pipe wrapping, cleaning and bendng machine operator; Trenching machine operator (over 6 ft. depth capacity, manufacturer's rating); trenching Machine with Road Miner attachment (over 6 ft depth capacity): Ultra high pressure waterjet cutting tool system mechanic; Water pull (compaction) operator

GROUP 9: Heavy Duty Repairman

GROUP 10: Drilling machine operator, Bucket or auger types (Calweld 200 B bucket or similar types-Watson 3000 or 5000 auger or similar types-Texoma 900 auger or similar types-drilling depth of 105' maximum); Dual drum mixer, dynamic compactor LDC350 (or similar types); Monorail locomotive operator (diesel, gas or electric); Motor patrol-blade operator (single engine); Multiple engine tractor operator (Euclid and similar type-except Quad 9 cat.); Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Pneumatic pipe ramming tool and similar types; Prestressed wrapping machine operator; Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Rubber tired earth moving equipment operator (multiple engine, Euclid, caterpillar

and similar over 25 yds. and up to 50 yds. struck), Tower crane repairman; Tractor loader operator (crawler and wheel type over 6-1/2 yds.); Woods mixer operator (and similar Pugmill equipment)

GROUP 11: Heavy Duty Repairman - Welder Combination, Welder - Certified.

GROUP 12: Auto grader operator; Automatic slip form operator; Drilling machine operator, bucket or auger types (Calweld, auger 200 CA or similar types - Watson, auger 6000 or similar types - Hughes Super Duty, auger 200 or similar types - drilling depth of 175' maximum); Hoe ram or similar with compressor; Mass excavator operator less tha 750 cu. yards; Mechanical finishing machine operator; Mobile form traveler operator; Motor patrol operator (multi-engine); Pipe mobile machine operator; Rubber-tired earth- moving equipment operator (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck); Rubber-tired self- loading scraper operator (paddle-wheel-auger type self-loading - two (2) or more units)

GROUP 13: Rubber-tired earth-moving equipment operator operating equipment with push-pull system (single engine, up to and including 25 yds. struck)

GROUP 14: Canal liner operator; Canal trimmer operator; Remote- control earth-moving equipment operator (operating a second piece of equipment: $1.00 per hour additional); Wheel excavator operator (over 750 cu. yds.)

GROUP 15: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine-up to and including 25 yds. struck)

GROUP 16: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 17: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 50 cu. yds. struck); Tandem tractor operator (operating crawler type tractors in tandem - Quad 9 and similar type)

GROUP 18: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, up to and including 25 yds. struck)

GROUP 19: Rotex concrete belt operator (or similar types); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any

combination, excluding compaction units - single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds.and up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, up to and including 25 yds. struck)

GROUP 20: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 21: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

GROUP 22: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, up to and including 25 yds. struck)

GROUP 23: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating with the tandem push-pull system (multiple engine, up to and including 25 yds. struck)

GROUP 24: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 25: Concrete pump operator-truck mounted; Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

CRANES, PILEDRIVING AND HOISTING EQUIPMENT CLASSIFICATIONS

GROUP 1: Engineer oiler; Fork lift operator (includes loed, lull or similar types)

GROUP 2: Truck crane oiler

GROUP 3: A-frame or winch truck operator; Ross carrier operator (jobsite)

GROUP 4: Bridge-type unloader and turntable operator; Helicopter hoist operator

GROUP 5: Hydraulic boom truck; Stinger crane (Austin-Western or similar type); Tugger hoist operator (1 drum)

GROUP 6: Bridge crane operator; Cretor crane operator; Hoist operator (Chicago boom and similar type); Lift mobile operator; Lift slab machine operator (Vagtborg and similar types); Material hoist and/or manlift operator; Polar gantry crane operator; Self Climbing scaffold (or similar type); Shovel, backhoe, dragline, clamshell operator (over 3/4 yd. and up to 5 cu. yds. mrc); Tugger hoist operator

GROUP 7: Pedestal crane operator; Shovel, backhoe, dragline, clamshell operator (over 5 cu. yds. mrc); Tower crane repair; Tugger hoist operator (3 drum)

GROUP 8: Crane operator (up to and including 25 ton capacity); Crawler transporter operator; Derrick barge operator (up to and including 25 ton capacity); Hoist operator, stiff legs, Guy derrick or similar type (up to and including 25 ton capacity); Shovel, backhoe, dragline, clamshell operator (over 7 cu. yds., M.R.C.)

GROUP 9: Crane operator (over 25 tons and up to and including 50 tons mrc); Derrick barge operator (over 25 tons up to and including 50 tons mrc); Highline cableway operator; Hoist operator, stiff legs, Guy derrick or similar type (over 25 tons up to and including 50 tons mrc); K-crane operator; Polar crane operator; Self erecting tower crane operator maximum lifting capacity ten tons

GROUP 10: Crane operator (over 50 tons and up to and including 100 tons mrc); Derrick barge operator (over 50 tons up to and including 100 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 50 tons up to and including 100 tons mrc), Mobile tower crane operator (over 50 tons, up to and including 100 tons M.R.C.); Tower crane operator and tower gantry

GROUP 11: Crane operator (over 100 tons and up to and including 200 tons mrc); Derrick barge operator (over 100 tons up to and including 200 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 100 tons up to and including 200 tons mrc); Mobile tower crane operator (over 100 tons up to and including 200 tons mrc)

GROUP 12: Crane operator (over 200 tons up to and including 300 tons mrc); Derrick barge operator (over 200 tons up to and including 300 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 200 tons, up to and including 300 tons mrc); Mobile tower crane operator (over 200 tons, up to and including 300 tons mrc)

GROUP 13: Crane operator (over 300 tons); Derrick barge operator (over 300 tons); Helicopter pilot; Hoist operator, stiff legs, Guy derrick or similar type (over 300 tons); Mobile tower crane operator (over 300 tons)

TUNNEL CLASSIFICATIONS

GROUP 1: Skiploader (wheel type up to 3/4 yd. without attachment)

GROUP 2: Power-driven jumbo form setter operator

GROUP 3: Dinkey locomotive or motorperson (up to and including 10 tons)

GROUP 4: Bit sharpener; Equipment greaser (grease truck); Slip form pump operator (power-driven hydraulic lifting device for concrete forms); Tugger hoist operator (1 drum); Tunnel locomotive operator (over 10 and up to and including 30 tons)

GROUP 5: Backhoe operator (up to and including 3/4 yd.); Small Ford, Case or similar; Drill doctor; Grouting machine operator; Heading shield operator; Heavy-duty repairperson; Loader operator (Athey, Euclid, Sierra and similar types); Mucking machine operator (1/4 yd., rubber-tired, rail or track type); Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pneumatic heading shield (tunnel); Pumpcrete gun operator; Tractor compressor drill combination operator; Tugger hoist operator (2 drum); Tunnel locomotive operator (over 30 tons)

GROUP 6: Heavy Duty Repairman

GROUP 7: Tunnel mole boring machine operator

ENGINEERS ZONES

$1.00 additional per hour for all of IMPERIAL County and the portions of KERN, RIVERSIDE & SAN BERNARDINO Counties as defined below:

That area within the following Boundary: Begin in San Bernardino County, approximately 3 miles NE of the intersection of I-15 and the California State line at that point which is the NW corner of Section 1, T17N,m R14E, San Bernardino Meridian. Continue W in a straight line to that point which is the SW corner of the northwest quarter of Section 6, T27S, R42E, Mt. Diablo Meridian. Continue North to the intersection with the Inyo County Boundary at that point which is the NE corner of the western half of the northern quarter of Section 6, T25S, R42E, MDM. Continue W along the Inyo and San Bernardino County boundary until the intersection with Kern County, as that point which is the SE corner of Section 34, T24S, R40E, MDM. Continue W along the Inyo and Kern County boundary until the intersection with Tulare County, at that point which is the SW corner of the SE quarter of Section 32, T24S, R37E, MDM. Continue W along the Kern and Tulare County boundary, until that point which is the NW corner of T25S, R32E, MDM. Continue S following R32E lines to the NW corner of T31S, R32E, MDM. Continue W to the NW corner of T31S, R31E, MDM. Continue S to the SW corner of T32S, R31E, MDM. Continue W to SW corner of SE quarter of Section 34, T32S, R30E, MDM. Continue S to SW corner of T11N, R17W, SBM. Continue E along south boundary of T11N, SBM to SW corner of T11N, R7W, SBM.

Continue S to SW corner of T9N, R7W, SBM. Continue E along south boundary of T9N, SBM to SW corner of T9N, R1E, SBM. Continue S along west boundary of R1E, SMB to Riverside County line at the SW corner of T1S, R1E, SBM. Continue E along south boundary of T1s, SBM (Riverside County Line) to SW corner of T1S, R10E, SBM. Continue S along west boundary of R10E, SBM to Imperial County line at the SW corner of T8S, R10E, SBM. Continue W along Imperial and Riverside county line to NW corner of T9S, R9E, SBM. Continue S along the boundary between Imperial and San Diego Counties, along the west edge of R9E, SBM to the south boundary of Imperial County/California state line. Follow the California state line west to Arizona state line, then north to Nevada state line, then continuing NW back to start at the point which is the NW corner of Section 1, T17N, R14E, SBM

$1.00 additional per hour for portions of SAN LUIS OBISPO, KERN, SANTA BARBARA & VENTURA as defined below:

That area within the following Boundary: Begin approximately 5 miles north of the community of Cholame, on the Monterey County and San Luis Obispo County boundary at the NW corner of T25S, R16E, Mt. Diablo Meridian. Continue south along the west side of R16E to the SW corner of T30S, R16E, MDM. Continue E to SW corner of T30S, R17E, MDM. Continue S to SW corner of T31S, R17E, MDM. Continue E to SW corner of T31S, R18E, MDM. Continue S along West side of R18E, MDM as it crosses into San Bernardino Meridian numbering area and becomes R30W. Follow the west side of R30W, SBM to the SW corner of T9N, R30W, SBM. Continue E along the south edge of T9N, SBM to the Santa Barbara County and Ventura County boundary at that point whch is the SW corner of Section 34.T9N, R24W, SBM, continue S along the Ventura County line to that point which is the SW corner of the SE quarter of Section 32, T7N, R24W, SBM. Continue E along the south edge of T7N, SBM to the SE corner to T7N, R21W, SBM. Continue N along East side of R21W, SBM to Ventura County and Kern County boundary at the NE corner of T8N, R21W. Continue W along the Ventura County and Kern County boundary to the SE corner of T9N, R21W. Continue North along the East edge of R21W, SBM to the NE corner of T12N, R21W, SBM. Continue West along the north edge of T12N, SBM to the SE corner of T32S, R21E, MDM. [T12N SBM is a think strip between T11N SBM and T32S MDM]. Continue North along the East side of R21E, MDM to the Kings County and Kern County border at the NE corner of T25S, R21E, MDM, continue West along the Kings County and Kern County Boundary until the intersection of San Luis Obispo County. Continue west along the Kings County and San Luis Obispo County boundary until the intersection with Monterey County. Continue West along the Monterey County and San Luis Obispo County boundary to the beginning point at the NW corner of T25S, R16E, MDM.

$2.00 additional per hour for INYO and MONO Counties and the Northern portion of SAN BERNARDINO County as defined below:

That area within the following Boundary: Begin at the intersection of the northern boundary of Mono County and the California state line at the point which is the center of Section 17, T10N, R22E, Mt. Diablo Meridian. Continue S then

SE along the entire western boundary of Mono County, until it reaches Inyo County at the point which is the NE corner of the Western half of the NW quarter of Section 2, T8S, R29E, MDM. Continue SSE along the entire western boundary of Inyo County, until the intersection with Kern County at the point which is the SW corner of the SE 1/4 of Section 32, T24S, R37E, MDM. Continue E along the Inyo and Kern County boundary until the intersection with San Bernardino County at that point which is the SE corner of section 34, T24S, R40E, MDM. Continue E along the Inyo and San Bernardino County boundary until the point which is the NE corner of the Western half of the NW quarter of Section 6, T25S, R42E, MDM. Continue S to that point which is the SW corner of the NW quarter of Section 6, T27S, R42E, MDM. Continue E in a straight line to the California and Nevada state border at the point which is the NW corner of Section 1, T17N, R14E, San Bernardino Meridian. Then continue NW along the state line to the starting point, which is the center of Section 18, T10N, R22E, MDM.

REMAINING AREA NOT DEFINED ABOVE RECIEVES BASE RATE

ENGI0012-004 08/01/2009

	Rates	Fringes
OPERATOR: Power Equipment (DREDGING)		
(1) Leverman	$ 44.83	17.22
(2) Dredge dozer	$ 40.36	17.22
(3) Deckmate	$ 40.25	17.22
(4) Winch operator (stern winch on dredge)	$ 39.70	17.22
(5) Fireman-Oiler, Deckhand, Bargeman, Leveehand	$ 39.16	17.22
(6) Barge Mate	$ 39.77	17.22

IRON0002-004 07/01/2010

	Rates	Fringes
Ironworkers:		
Fence Erector	$ 26.58	15.26
Ornamental, Reinforcing and Structural	$ 33.00	23.73

PREMIUM PAY:

$6.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval Reserve-Niland,
Edwards AFB, Fort Irwin Military Station, Fort Irwin Training Center-Goldstone, San Clemente Island, San Nicholas Island, Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine Base - Barstow, U.S. Naval Air Facility - Sealey, Vandenberg AFB

$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base, Naval Post Graduate School - Monterey, Yermo Marine Corps Logistics Center

$2.00 additional per hour at the following locations:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

LABO0300-001 07/01/2011

	Rates	Fringes
Brick Tender	$ 27.17	16.71

LABO0300-003 07/01/2011

	Rates	Fringes
LABORER (GUNITE)		
GROUP 1	$ 30.04	14.20
GROUP 2	$ 29.09	14.20
GROUP 3	$ 25.55	14.20
LABORER (TUNNEL)		
GROUP 1	$ 32.20	15.98
GROUP 2	$ 32.52	15.98
GROUP 3	$ 32.98	15.98
GROUP 4	$ 33.67	15.98
LABORER		
GROUP 1	$ 26.33	16.00
GROUP 2	$ 26.88	16.00
GROUP 3	$ 27.43	16.00
GROUP 4	$ 28.98	16.00
GROUP 5	$ 29.33	16.00

FOOTNOTE: GUNITE PREMIUM PAY: Workers working from a Bosn'n's Chair or suspended from a rope or cable shall receive 40 cents per hour above the foregoing applicable classification rates. Workers doing gunite and/or shotcrete work in a tunnel shall receive 35 cents per hour above the foregoing applicable classification rates, paid on a portal-to-portal basis. Any work performed on, in or above any smoke stack, silo, storage elevator or similar type of structure, when such structure is in excess of 75'-0" above base level and which work must be performed in whole or in part more than 75'-0" above base level, that work performed above the 75'-0" level shall be compensated for at 35 cents per hour above the applicable classification wage rate.

LABORER CLASSIFICATIONS

GROUP 1: Cleaning and handling of panel forms; Concrete screeding for rough strike-off; Concrete, water curing; Demolition laborer, the cleaning of brick if performed by a worker performing any other phase of demolition work, and the cleaning of lumber; Fire watcher, limber, brush loader, piler and debris handler; Flag person; Gas, oil and/or water pipeline laborer; Laborer, asphalt-rubber material loader; Laborer, general or construction; Laborer, general

clean-up; Laborer, landscaping; Laborer, jetting; Laborer, temporary water and air lines; Material hose operator (walls, slabs, floors and decks); Plugging, filling of shee bolt holes; Dry packing of concrete; Railroad maintenance, repair track person and road beds; Streetcar and railroad construction track laborers; Rigging and signaling; Scaler; Slip form raiser; Tar and mortar; Tool crib or tool house laborer; Traffic control by any method; Window cleaner; Wire mesh pulling - all concrete pouring operations

GROUP 2: Asphalt shoveler; Cement dumper (on 1 yd. or larger mixer and handling bulk cement); Cesspool digger and installer; Chucktender; Chute handler, pouring concrete, the handling of the chute from readymix trucks, such as walls, slabs, decks, floors, foundation, footings, curbs, gutters and sidewalks; Concrete curer, impervious membrane and form oiler; Cutting torch operator (demolition); Fine grader, highways and street paving, airport, runways and similar type heavy construction; Gas, oil and/or water pipeline wrapper - pot tender and form person; Guinea chaser; Headerboard person - asphalt; Laborer, packing rod steel and pans; Membrane vapor barrier installer; Power broom sweeper (small); Riprap stonepaver, placing stone or wet sacked concrete; Roto scraper and tiller; Sandblaster (pot tender); Septic tank digger and installer(lead); Tank scaler and cleaner; Tree climber, faller, chain saw operator, Pittsburgh chipper and similar type brush shredder; Underground laborer, including caisson bellower

GROUP 3: Buggymobile person; Concrete cutting torch; Concrete pile cutter; Driller, jackhammer, 2-1/2 ft. drill steel or longer; Dri-pak-it machine; Gas, oil and/or water pipeline wrapper, 6-in. pipe and over, by any method, inside and out; High scaler (including drilling of same); Hydro seeder and similar type; Impact wrench multi-plate; Kettle person, pot person and workers applying asphalt, lay-kold, creosote, lime caustic and similar type materials ("applying" means applying, dipping, brushing or handling of such materials for pipe wrapping and waterproofing); Operator of pneumatic, gas, electric tools, vibrating machine, pavement breaker, air blasting, come-alongs, and similar mechanical tools not separately classified herein; Pipelayer's backup person, coating, grouting, making of joints, sealing, caulking, diapering and including rubber gasket joints, pointing and any and all other services; Rock slinger; Rotary scarifier or multiple head concrete chipping scarifier; Steel headerboard and guideline setter; Tamper, Barko, Wacker and similar type; Trenching machine, hand-propelled

GROUP 4: Asphalt raker, lute person, ironer, asphalt dump person, and asphalt spreader boxes (all types); Concrete core cutter (walls, floors or ceilings), grinder or sander; Concrete saw person, cutting walls or flat work, scoring old or new concrete; Cribber, shorer, lagging, sheeting and trench bracing, hand-guided lagging hammer; Head rock slinger; Laborer, asphalt- rubber distributor boot person; Laser beam in connection with laborers' work; Oversize concrete vibrator operator, 70 lbs. and over; Pipelayer performing all services in the laying and installation of

pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, metallic or non-metallic, conduit and any other stationary type of tubular device used for the conveying of any substance or element, whether water, sewage, solid gas, air, or other product whatsoever and without regard to the nature of material from which the tubular material is fabricated; No-joint pipe and stripping of same; Prefabricated manhole installer; Sandblaster (nozzle person), water blasting, Porta Shot-Blast

GROUP 5: Blaster powder, all work of loading holes, placing and blasting of all powder and explosives of whatever type, regardless of method used for such loading and placing; Driller: All power drills, excluding jackhammer, whether core, diamond, wagon, track, multiple unit, and any and all other types of mechanical drills without regard to the form of motive power; Toxic waste removal

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Batch plant laborer; Bull gang mucker, track person; Changehouse person; Concrete crew, including rodder and spreader; Dump person; Dump person (outside); Swamper (brake person and switch person on tunnel work); Tunnel materials handling person

GROUP 2: Chucktender, cabletender; Loading and unloading agitator cars; Nipper; Pot tender, using mastic or other materials (for example, but not by way of limitation, shotcrete, etc.); Vibrator person, jack hammer, pneumatic tools (except driller)

GROUP 3: Blaster, driller, powder person; Chemical grout jet person; Cherry picker person; Grout gun person; Grout mixer person; Grout pump person; Jackleg miner; Jumbo person; Kemper and other pneumatic concrete placer operator; Miner, tunnel (hand or machine); Nozzle person; Operating of troweling and/or grouting machines; Powder person (primer house); Primer person; Sandblaster; Shotcrete person; Steel form raiser and setter; Timber person, retimber person, wood or steel; Tunnel Concrete finisher

GROUP 4: Diamond driller; Sandblaster; Shaft and raise work

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Rodmen, Nozzlemen

GROUP 2: Gunmen

GROUP 3: Reboundmen

LABO0300-005 08/05/2009

	Rates	Fringes
LABORER		
PLASTER CLEAN-UP LABORER	$ 26.65	15.95

PLASTER TENDER.....$ 29.20 15.95

LABO0882-002 01/01/2010

	Rates	Fringes
Asbestos Removal Laborer.....	$ 26.15	11.65

SCOPE OF WORK: Includes site mobilization, initial site cleanup, site preparation, removal of asbestos-containing material and toxic waste, encapsulation, enclosure and disposal of asbestos- containing materials and toxic waste by hand or with equipment or machinery; scaffolding, fabrication of temporary wooden barriers and assembly of decontamination stations.

LABO1184-001 07/01/2011

	Rates	Fringes
Laborers: (HORIZONTAL DIRECTIONAL DRILLING)		
(1) Drilling Crew Laborer...	$ 28.01	11.48
(2) Vehicle Operator/Hauler.	$ 28.18	11.48
(3) Horizontal Directional Drill Operator.....	$ 30.03	11.48
(4) Electronic Tracking Locator.....	$ 32.03	11.48
Laborers: (STRIPING/SLURRY SEAL)		
GROUP 1.....	$ 28.50	14.56
GROUP 2.....	$ 29.80	14.56
GROUP 3.....	$ 31.81	14.56
GROUP 4.....	$ 33.55	14.56

LABORERS - STRIPING CLASSIFICATIONS

GROUP 1: Protective coating, pavement sealing, including repair and filling of cracks by any method on any surface in parking lots, game courts and playgrounds; carstops; operation of all related machinery and equipment; equipment repair technician

GROUP 2: Traffic surface abrasive blaster; pot tender - removal of all traffic lines and markings by any method (sandblasting, waterblasting, grinding, etc.) and preparation of surface for coatings. Traffic control person: controlling and directing traffic through both conventional and moving lane closures; operation of all related machinery and equipment

GROUP 3: Traffic delineating device applicator: Layout and application of pavement markers, delineating signs, rumble and traffic bars, adhesives, guide markers, other traffic delineating devices including traffic control. This category includes all traffic related surface preparation (sandblasting, waterblasting, grinding) as part of the application process. Traffic protective delineating system installer: removes, relocates, installs, permanently affixed roadside and parking delineation barricades,

fencing, cable anchor, guard rail, reference signs, monument markers; operation of all related machinery and equipment; power broom sweeper

GROUP 4: Striper: layout and application of traffic stripes and markings; hot thermo plastic; tape traffic stripes and markings, including traffic control; operation of all related machinery and equipment

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* PAIN0036-007 07/01/2011

	Rates	Fringes
Painters:		
(1) Repaint Including Lead Abatement	$ 23.10	10.35
(2) High Iron & Steel	$ 29.39	10.35
(3) Journeyman Painter including Lead Abatement	$ 27.39	10.35
(4) Industrial	$ 29.32	10.35
(5) All other work	$ 27.39	10.35

REPAINT of any previously painted structure. Exceptions: work involving the aerospace industry, breweries, commercial recreational facilities, hotels which operate commercial establishments as part of hotel service, and sports facilities.

HIGH IRON & STEEL:
Aerial towers, towers, radio towers, smoke stacks, flag poles (any flag poles that can be finished from the ground with a ladder excluded), elevated water towers, steeples and domes in their entirety and any other extremely high and hazardous work, cooning steel, bos'n chair, or other similar devices, painting in other high hazardous work shall be classified as high iron & steel

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* PAIN0036-008 10/05/2011

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 33.22	13.81

PAIN0169-002 07/01/2011

	Rates	Fringes
GLAZIER	$ 27.07	9.98

PAIN1247-002 01/01/2010

	Rates	Fringes
SOFT FLOOR LAYER	$ 30.85	10.54

PLAS0200-001 08/01/2011

	Rates	Fringes
PLASTERER	$ 35.29	12.05

PLAS0500-002 10/01/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 35.38	14.72

PLUM0016-001 07/01/2011

	Rates	Fringes
PLUMBER/PIPEFITTER		
(1) Work on strip malls, light commercial, tenant improvement and remodel work	$ 30.79	16.70
(2) Work on new additions and remodeling of bars, restaurant, stores and commercial buildings not to exceed 5,000 sq. ft. of floor space	$ 38.30	18.37
(3) All other work	$ 39.50	19.35

PLUM0345-001 07/01/2011

	Rates	Fringes
PLUMBER		
Landscape/Irrigation Fitter	$ 27.35	16.34
Sewer & Storm Drain Work	$ 26.82	18.18

ROOF0036-002 08/01/2011

	Rates	Fringes
ROOFER	$ 34.65	10.71

FOOTNOTE: Pitch premium: Work on which employees are exposed to pitch fumes or required to handle pitch, pitch base or pitch impregnated products, or any material containing coal tar pitch, the entire roofing crew shall receive $1.75 per hour "pitch premium" pay.

SFCA0669-007 04/01/2011

	Rates	Fringes
SPRINKLER FITTER	$ 33.35	17.75

SHEE0273-002 08/01/2011

	Rates	Fringes
SHEET METAL WORKER	$ 40.00	18.19

HOLIDAYS: New Year's Day, Martin Luther King Day, President's Day, Good Friday, Memorial Day, Indepdendence Day, Labor Day, Veterans Day,Thankisgiving Day & Friday after, Christmas Day

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TEAM0011-002 07/01/2008

	Rates	Fringes
TRUCK DRIVER		
GROUP 1	$ 26.44	18.24
GROUP 2	$ 26.59	18.24
GROUP 3	$ 26.72	18.24
GROUP 4	$ 26.91	18.24
GROUP 5	$ 26.94	18.24
GROUP 6	$ 26.97	18.24
GROUP 7	$ 27.22	18.24
GROUP 8	$ 27.47	18.24
GROUP 9	$ 27.67	18.24
GROUP 10	$ 27.97	18.24
GROUP 11	$ 28.47	18.24
GROUP 12	$ 28.90	18.24

WORK ON ALL MILITARY BASES:
PREMIUM PAY: $3.00 per hour additional.
[29 palms Marine Base, Camp Roberts, China Lake, Edwards AFB, El Centro Naval Facility, Fort Irwin, Marine Corps Logistics Base at Nebo & Yermo, Mountain Warfare Training Center, Bridgeport, Point Arguello, Point Conception, Vandenberg AFB]

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Truck driver

GROUP 2: Driver of vehicle or combination of vehicles - 2 axles; Traffic control pilot car excluding moving heavy equipment permit load; Truck mounted broom

GROUP 3: Driver of vehicle or combination of vehicles - 3 axles; Boot person; Cement mason distribution truck; Fuel truck driver; Water truck - 2 axle; Dump truck, less than 16 yds. water level; Erosion control driver

GROUP 4: Driver of transit mix truck, under 3 yds.; Dumpcrete truck, less than 6-1/2 yds. water level

GROUP 5: Water truck, 3 or more axles; Truck greaser and tire person ($0.50 additional for tire person); Pipeline and utility working truck driver, including winch truck and plastic fusion, limited to pipeline and utility work; Slurry truck driver

GROUP 6: Transit mix truck, 3 yds. or more; Dumpcrete truck, 6-1/2 yds. water level and over; Vehicle or combination of vehicles - 4 or more axles; Oil spreader truck; Dump truck, 16 yds. to 25 yds. water level

GROUP 7: A Frame, Swedish crane or similar; Forklift driver; Ross carrier driver

GROUP 8: Dump truck, 25 yds. to 49 yds. water level; Truck

repair person; Water pull - single engine; Welder

GROUP 9: Truck repair person/welder; Low bed driver, 9 axles or over

GROUP 10: Dump truck - 50 yds. or more water level; Water pull - single engine with attachment

GROUP 11: Water pull - twin engine; Water pull - twin engine with attachments; Winch truck driver - $1.25 additional when operating winch or similar special attachments

GROUP 12: Boom Truck 17K and above

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived

from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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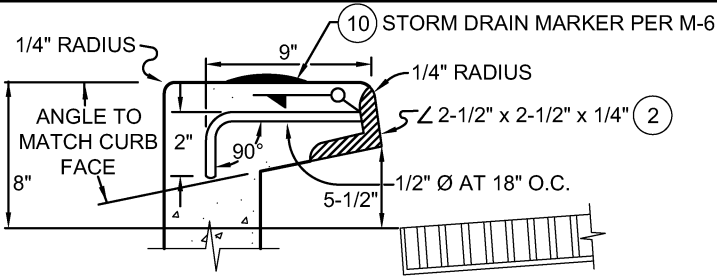
END OF GENERAL DECISION

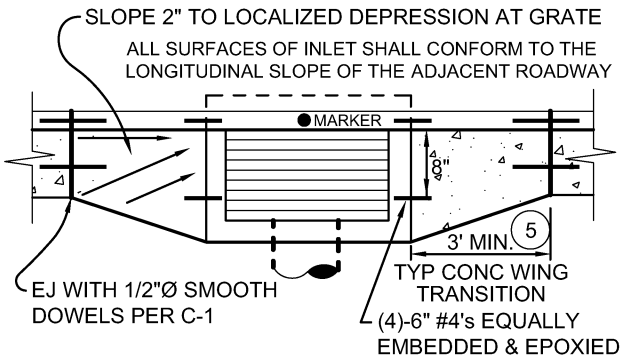
APPENDIX C

DRAWINGS

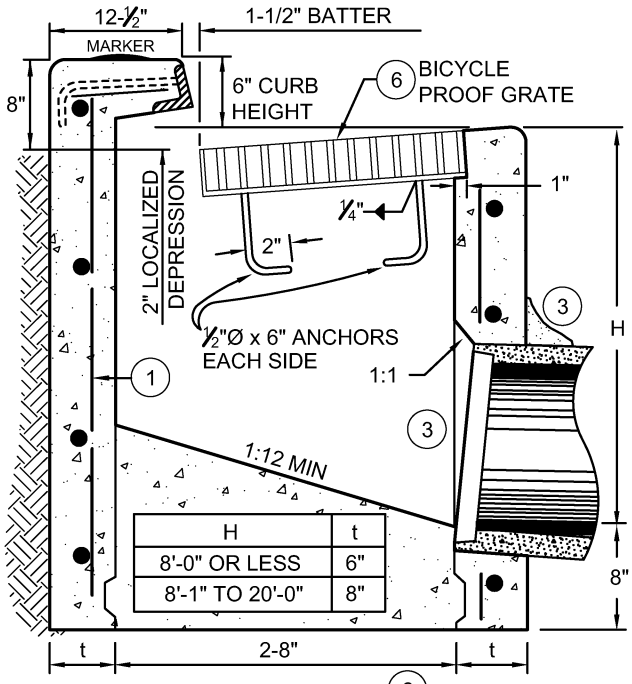
Revisions					
Description	Approved	Date	Description	Approved	Date
NOTE 1	REM	NOV 07			
NOTES 9 & 10	GDM	NOV 08			



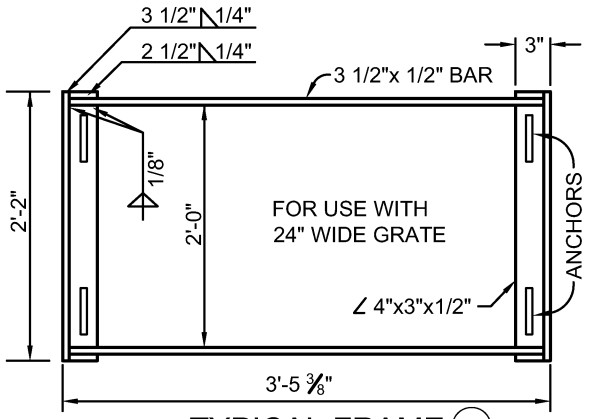
FACE ANGLE ANCHOR



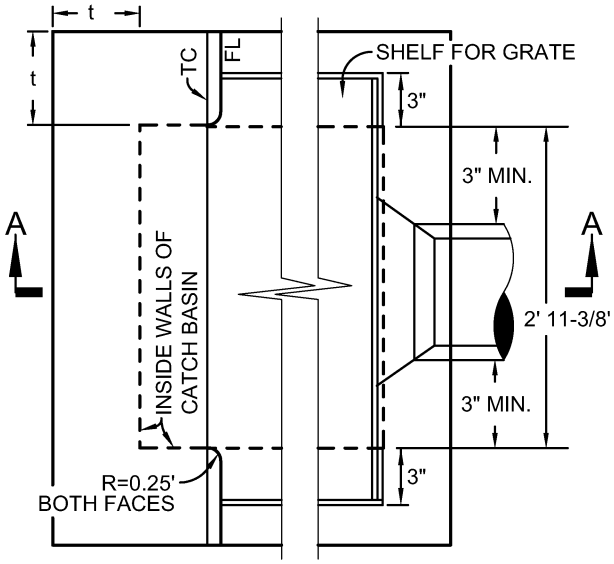
WING TRANSITION PLAN



SECTION A-A 8



TYPICAL FRAME 4



PLAN

NOTES:

1. REINFORCING STEEL SHALL BE #4 BARS AT 18" O.C. PLACED 1-1/2" CLEAR TO INSIDE OF BOX UNLESS OTHERWISE NOTED. BASIN FLOORS SHALL HAVE WOOD FLOAT FINISH AND A MINIMUM SLOPE OF 12h:1v FROM ALL DIRECTIONS TOWARDS OUTLET PIPE. CONCRETE SHALL BE 565 LBS/CY CEMENTITIOUS MATERIAL [6 SACK].
2. FACE ANGLE SHALL EXTEND FULL WIDTH OF BOX.
3. SMOOTH GROUT INSIDE AND OUTSIDE OF PIPE JUNCTION TO FORM A WATERTIGHT SEAL.
4. FRAME SHALL BE DIPPED IN COMMERCIAL QUALITY ASPHALTUM PAINT OR GALVANIZED.
5. IN ALL CASES 3' LONG CONCRETE WINGS SHALL BE CONSTRUCTED EITHER SIDE OF THE INLET. WHERE CATCH BASIN IS PLACED AGAINST AC DIKE A SEPARATE DETAIL SHALL BE PROVIDED ON THE PLANS SHOWING THIS TRANSITION.
6. GRATE SHALL CONFORM TO STATE STANDARD PLAN D77B AND BE BICYCLE PROOF.
7. PROJECT CONDITIONS MAY REQUIRE OIL AND/OR SEDIMENTATION CONTROL AT THE DIRECTION OF THE DEPARTMENT.
8. PRECAST INLETS MAY BE SUBSTITUTED AT THE APPROVAL OF THE DEPARTMENT. PRECAST INLETS SHALL HAVE 2" LOCALIZED DEPRESSION AT THE GRATE, 3' CONCRETE WINGS, EXPANSION JOINTS AS SHOWN, AND NO STEPS.
9. THE CATCH BASIN SHALL BE CONSTRUCTED TO MATCH THE LONGITUDINAL SLOPE OF THE ADJACENT ROADWAY.
10. INSTALL STORM DRAIN MARKER PER M-6.

ALL CATCH BASINS SHALL BE EQUIP WITH A STAINLESS STEEL FRAME DESIGNED TO ACCEPT A "DrainPac™" STORM DRAIN FILTER INSERT, OR EQUAL.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

CATCH BASIN

Scale:	Adopted:
NTS	2011

Drawing No: D-2

Sheet No: 1 OF 1

Revisions

Description	Approved	Date	Description	Approved	Date
COMBINED H-5 & H-5a, ADDED FES & RSP KEY	GDM	JAN 11			

W50 STANDARD ROCK WEIGHT. SELECT A W50 GREATER THAN DETERMINED STABLE ROCK WEIGHT (W)	D50 FEET OF STANDARD W50	TRENCH DEPTH (Z) IN FEET, 1.5 TIMES D50 OF STANDARD W50	RSP-CLASS METHOD B PLACEMENT	RSP-FABRIC TYPE NONWOVEN OR WOVEN
25 LBS	0.66	1.0	BACKING No 2	A or B
75 LBS	0.95	1.5	BACKING No 1	A or B
200 LBS	1.32	2.0	LIGHT	B
1/4 TON	1.79	2.7	1/4 TON	B
1/2 TON	2.26	3.4	1/2 TON	B
1 TON	2.85	4.3	1 TON	B

ROCK SIZE RSP CLASS	TRENCH DEPTH RANGE (Z)	TYPE OF RSP FABRIC
BACKING No 2	10"-16"	A or B
BACKING No 1	12"-18"	A or B
LIGHT	18"-24"	B
1/4 TON	30"-36"	B
1/2 TON	36"-42"	B
1 TON	48"-60"	B

CONSTRUCTION NOTES:

A. EXCAVATE AND/OR FILL DISSIPATER TRENCH TO DIMENSIONS (X, Y AND Z, SHOW ON PLAN SET (SQUARED EDGES NOT REQUIRED).
B. INSTALL FLARED END SECTION APPROPRIATELY SIZED FOR CULVERT.
C. PLACE RSP-FABRIC LOOSELY AND PIN IT TO ALL SIDES AND BOTTOM OF TRENCH.
D. PLACE RSP-CLASS OF DISSIPATER ROCK IN TRENCH. ROCK SHALL NOT PROTRUDE ABOVE CULVERT FLOWLINE OR ADJACENT GROUND. MATCH DISSIPATER GRADE WITH DOWNSTREAM FLOWLINE AND ADJACENT GROUND.
E. TRIM RSP FABRIC SO THAT NONE PROTRUDES ABOVE GROUND.

DESIGN METHOD:

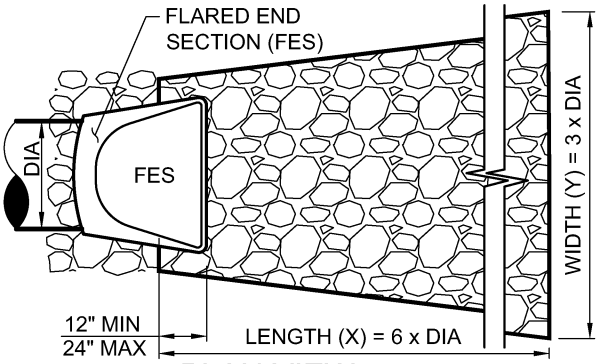
1. DETERMINE ROCK SIZE BASED ON CULVERT OUTLET VELOCITY:
   a. FIRST TRIAL ROCK SIZE BY N.K. BERRY'S EQUATION (1948), SEE USBR EM-25:

      $d = 0.0126V^2$

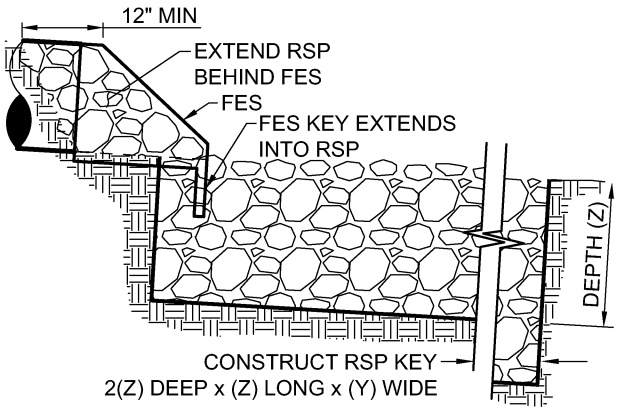
      WHERE DIAMETER (d) FEET, VELOCITY (V) FPS, AND SG = 2.65.
   b. COMPARE TO CALTRANS BANK & SHORE EQUATION 1 WITH 1V:1.5H (IF H>1.5 SIZE WILL BE SMALL) AND SG = 2.65

      STABLE ROCK WEIGHT $W = 0.0000568V^6$

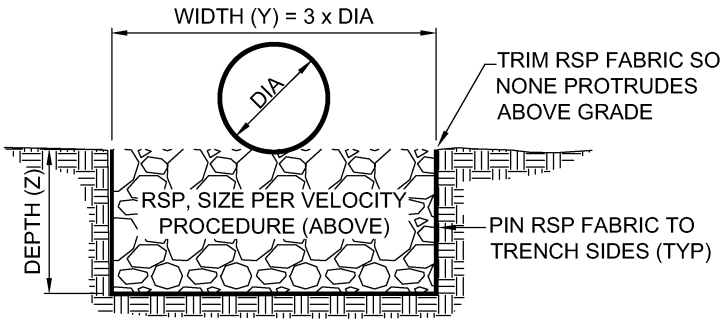
      EQUATION GIVES ROCK SIZE ON BANK USUALLY SMALLER THAN BERRY FOR BEDLOAD MOVEMENT ALONG CHANNEL BOTTOM
   c. ALSO COMPARE ABOVE ROCK SIZE TO HEC-14 CHART, FIGURE II-C-1, ON PAGE II-9 (1975), ORIGINALLY FROM SEARCY (1967).
   d. SELECT FINAL ROCK SIZE BASED ON ENGINEERING JUDGMENT AND FIELD EXPERIENCE. ADJUST (X) BASED ON SITE SPECIFIC CONSTRAINTS.
2. DETERMINING STABLE ROCK WEIGHT (W), STEP 1 ABOVE.
3. EXTEND FES 12" TO 24" INTO RSP TO PREVENT HEADCUT.
4. TABLE (STANDARD ROCK SIZES, D50, Z, RSP CLASS, RSP FABRIC TYPE).
5. RSP FABRIC DETAILS.



PLAN VIEW



PROFILE VIEW



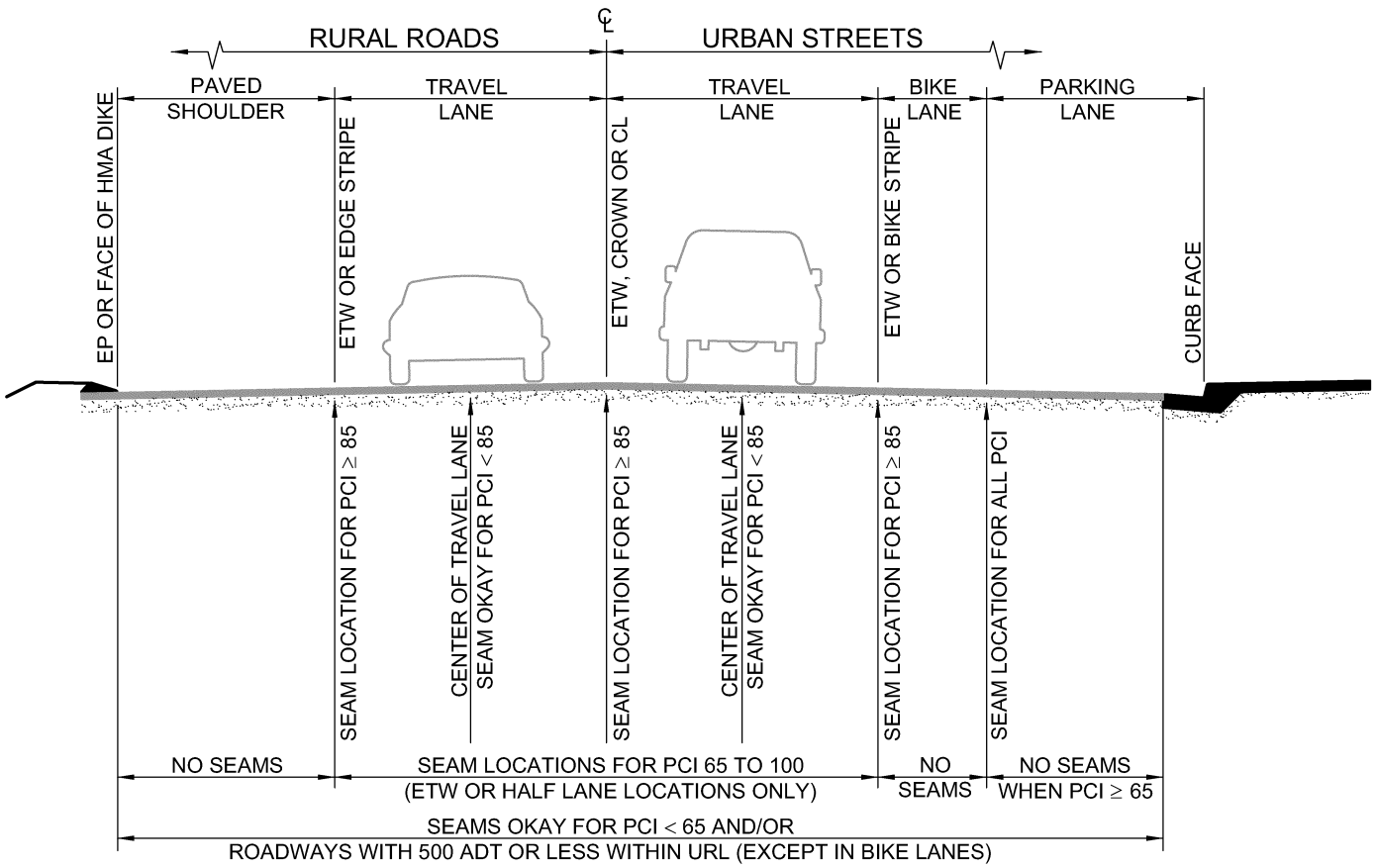
END VIEW

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

ROCK SLOPE PROTECTION SIZING METHOD AT CULVERT OUTLETS

Scale:	Adopted: 2011
Drawing No:	H-5
Sheet No:	1 OF 1

Revisions					
Description	Approved	Date	Description	Approved	Date



SECTION VIEW: ALLOWABLE PAVEMENT SEAM LOCATIONS

BASED ON ROAD PCI & ADT AS PROVIDED BY THE DEPARTMENT

PCI	Roadways with 500 ADT or less and within the URL	All Other Roadways
85-100	Full Lane Width Overlay	Full Lane Width Overlay
65-84	12" min. T-Section	Half Lane Width Overlay
<65	12" min. T-Section	12" min. T-Section

MINIMUM PAVEMENT REPAIR LIMITS

ADT = AVERAGE DAILY TRAFFIC, AS PROVIDED BY THE DEPARTMENT
PCI = PAVEMENT CONDITION INDEX, AS PROVIDED BY THE DEPARTMENT
ETW - EDGE OF TRAVELED WAY; OL - OVERLAY; URL - URBAN RESERVE LINE

NOTES:
1. SEAM LOCATIONS MAY BE ADJUSTED BY THE DEPARTMENT BASED ON FIELD CONDITIONS.
2. IN ALL CASES THE EXISTING PAVEMENT SHALL BE SAWCUT ALONG A CLEAN LINE AND SHALL BE EITHER LONGITUDINAL OR TRANSVERSE TO THE TRAVEL LANE. NO LONGITUDINAL SEAMS SHALL BE ALLOWED WITHIN ANY BIKE LANE.
3. ALL SAWCUT EDGES SHALL BE VERTICAL, WITH SQUARE CORNERS, AND SHALL BE STRAIGHT AND NEAT IN APPEARANCE.
4. ROTOMILLING OR GRINDING MAY BE UTILIZED IN PLACE OF SAWCUT WHEN APPROVED IN ADVANCE OF THE WORK BY THE DEPARTMENT.
5. SEE R-2 SERIES DRAWING FOR RURAL ROAD AND URBAN STREET WIDENING SAWCUT REQUIREMENTS. SEE R-3 SERIES DRAWINGS FOR UTILITY TRENCHING SAWCUT REQUIREMENTS.
6. A TACK COAT SHALL BE APPLIED TO ALL HORIZONTAL AND VERTICAL SAWCUT CONFORM SURFACES PRIOR TO PAVING.
7. AFTER PAVING, SS1H OIL (OR APPROVED EQUAL) SHALL BE APPLIED TO ALL HMA SURFACE SEAMS PER MANUFACTURER'S RECOMMENDATIONS.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

ALLOWABLE PAVEMENT SEAM LOCATIONS

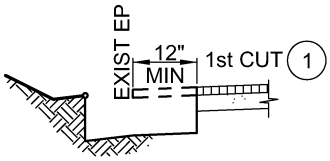
Scale:	Adopted:
NTS	2011

Drawing No: R-1

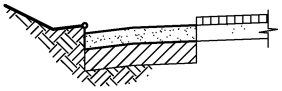
Sheet No: 1 OF 1

Revisions

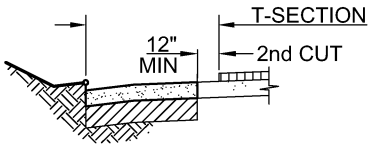
Description	Approved	Date	Description	Approved	Date
NOTE 1	REM	NOV 07	REPLACE AC WITH HMA, NOTES 1, 3 & RENUM	GDM	JAN 11
NOTE 5	GDM	NOV 08			



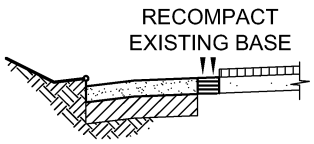
STEP 1: SAWCUT PER NOTE 1 AND REMOVE MATERIAL TO REQUIRED DEPTH.



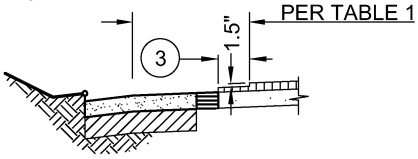
STEP 2: CONSTRUCT NEW SUBGRADE & BASE PER DEPARTMENT APPROVED SECTION.



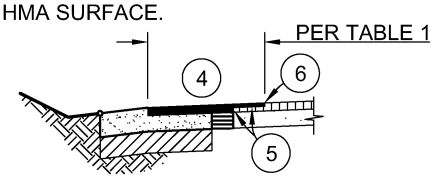
STEP 3: SAWCUT PER NOTE 1 TO REMOVE AN ADDITIONAL 12" MIN OF HMA SURFACE.



STEP 4: RECOMPACT EXISTING BASE SECTION TO 95% RELATIVE COMPACTION.



STEP 5: GRIND 1.5" (MIN) EXISTING ASPHALT SURFACE SO FINAL SEAMS ARE LOCATED PER DRAWING No R-1.

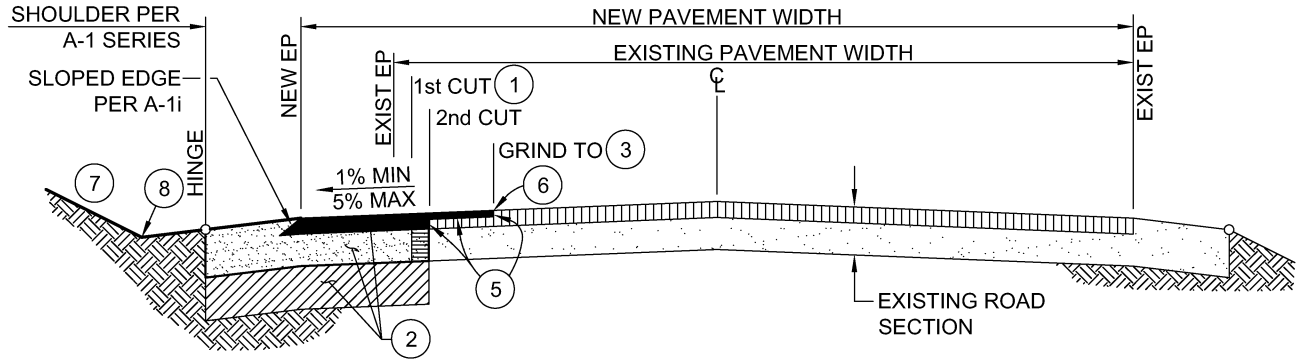


STEP 6: PAVE ROADWAY PER DEPARTMENT APPROVED SECTION.

WIDENING PROCEDURE

Table 1: Minimum Pavement Width Repair Limits (see R-1)

PCI	Roadways with 500 ADT or less and within the URL	All Other Roadways
85-100	Full Lane Width Overlay	Full Lane Width Overlay
65-84	12" min. T-Section	Half Lane Width Overlay
<65	12" min. T-Section	12" min. T-Section



TYPICAL RURAL ROAD WIDENING SECTION

NOTES:

1. SAWCUT TO REMOVE DAMAGED OR FAILED PAVEMENT SECTION ADJACENT TO THE EDGE OF PAVEMENT AS NECESSARY TO PROVIDE A CLEAN JOIN LINE. ALL SAWCUTS SHALL BE PERPENDICULAR OR TRANSVERSE TO THE TRAVEL LANE. CUT EDGES SHALL BE VERTICAL WITH SQUARE CORNERS AND SHALL BE STRAIGHT AND NEAT IN APPEARANCE.
2. THE STRUCTURAL ROAD WIDENING SECTION SHALL BE DETERMINED AT THE TIME OF CONSTRUCTION BASED ON THE SUBGRADE R-VALUE AND THE TRAFFIC INDEX (TI) AS PROVIDED BY THE DEPARTMENT. IF THE EXISTING ROAD STRUCTURAL SECTION IS GREATER THAN THE DETERMINED ROAD STRUCTURAL SECTION, THEN THE EXISTING STRUCTURAL SECTION THICKNESS SHALL BE MATCHED. TYPICAL ROAD WIDENING SECTION SHALL BE:
   - 2" MINIMUM HOT MIX ASPHALT (HMA) PER THE DESIGN STANDARDS TO 95% RELATIVE COMPACTION, OVER
   - 6" MINIMUM CLASS II AGGREGATE BASE TO 95% RELATIVE COMPACTION, OVER
   - 12" MINIMUM SUBGRADE TO 95% RELATIVE COMPACTION
3. GRIND 1.5-INCHES (MINIMUM) FROM THE EXISTING ADJACENT HMA PAVEMENT SO THAT FINAL HMA SEAMS ARE LOCATED IN ACCORDANCE WITH TABLE 1 & DRAWING R-1, OR AS DIRECTED BY THE DEPARTMENT.
4. NEW PAVEMENT SHALL BE PLACED IN LIFTS NOT EXCEEDING 3-INCHES (COMPACTED), WITH A MINIMUM LIFT NOT LESS THAN 1.5-INCHES.
5. A TACK COAT SHALL BE APPLIED TO ALL HORIZONTAL AND VERTICAL CONFORM SURFACES PRIOR TO PAVING.
6. AFTER PAVING, APPLY SS1H OIL (OR APPROVED EQUAL) TO ALL HMA SURFACE SEAMS PER MANUFACTURER'S RECOMMENDATIONS.
7. CUT AND FILL SLOPES BEYOND ROADWAY HINGE POINTS SHALL NOT EXCEED 2 HORIZONTAL:1 VERTICAL (OR 3h:1v IN NATIVE SAND) WITHOUT PRIOR APPROVAL BY THE DEPARTMENT.
8. THE PROJECT ENGINEER SHALL ACCOMMODATE FOR ROADSIDE DRAINAGE SUCH THAT IT DOES NOT ERODE THE AGGREGATE SHOULDER. DESIGN AND CONSTRUCTION SHALL BE TO THE SATISFACTION OF THE DEPARTMENT.
9. ROAD SECTIONS WITH HMA DIKE (REFER TO DRAWING No C-3) SHALL BE REQUIRED BY THE DEPARTMENT WHERE NEEDED TO CONTROL DRAINAGE OR EROSION AND ON LONGITUDINAL GRADES OF 3% OR GREATER.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

RURAL ROAD WIDENING

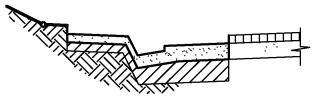
Scale:	Adopted:
NTS	2011

Drawing No: R-2

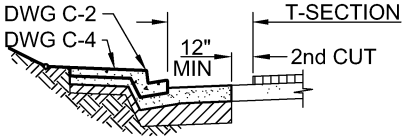
Sheet No: 1 OF 1

Revisions					
Description	Approved	Date	Description	Approved	Date
NOTE 1	REM	NOV 07	REPLACE AC WITH HMA, NOTES 1,3 & RENUM	GDM	JAN 11
NOTE 5	GDM	NOV 08			

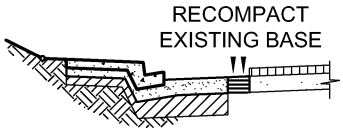
STEP 1: SAWCUT PER NOTE 1 AND REMOVE MATERIAL TO REQUIRED DEPTH.



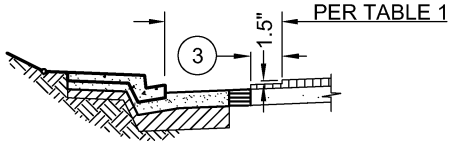
STEP 2: CONSTRUCT NEW SUBGRADE & BASE PER DEPARTMENT APPROVED SECTION.



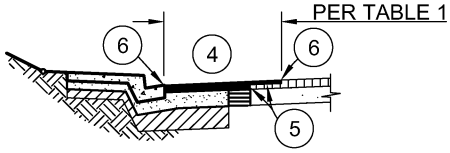
STEP 3: SAWCUT PER NOTE 1 TO REMOVE AN ADDITIONAL 12" MIN OF HMA SURFACE.



STEP 4: RECOMPACT EXISTING BASE SECTION TO 95% RELATIVE COMPACTION.



STEP 5: GRIND 1.5" (MIN) EXISTING ASPHALT SURFACE SO FINAL SEAMS ARE LOCATED PER TABLE 1.

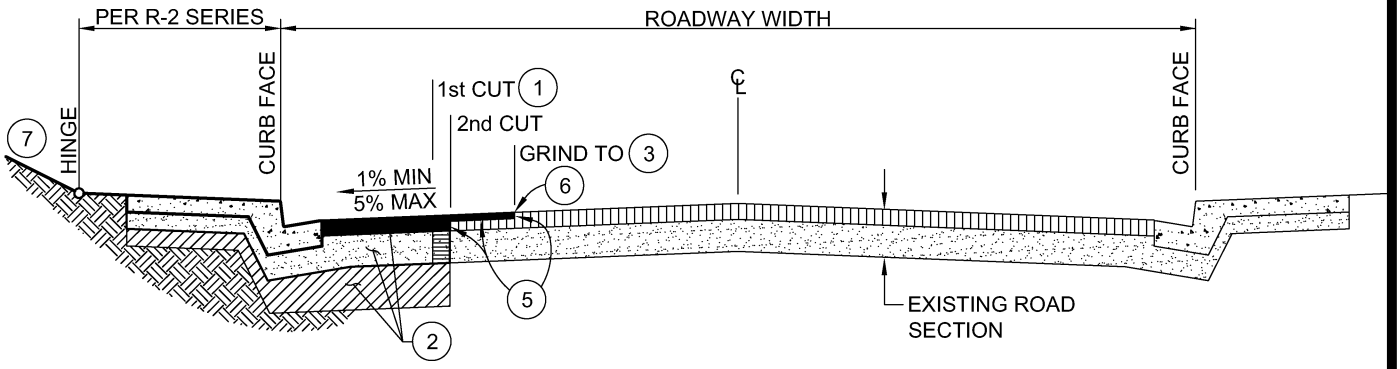


STEP 6: PAVE ROADWAY PER DEPARTMENT APPROVED SECTION.

WIDENING PROCEDURE

Table 1: Minimum Pavement Width Repair Limits (see R-1)

PCI	Roadways with 500 ADT or less and within the URL	All Other Roadways
85-100	Full Lane Width Overlay	Full Lane Width Overlay
65-84	12" min. T-Section	Half Lane Width Overlay
<65	12" min. T-Section	12" min. T-Section



TYPICAL URBAN STREET WIDENING SECTION

NOTES:

1. SAWCUT TO REMOVE DAMAGED OR FAILED PAVEMENT SECTION ADJACENT TO THE EDGE OF PAVEMENT AS NECESSARY TO PROVIDE A CLEAN JOIN LINE. ALL SAWCUTS SHALL BE PERPENDICULAR OR TRANSVERSE TO THE TRAVEL LANE. CUT EDGES SHALL BE VERTICAL WITH SQUARE CORNERS AND SHALL BE STRAIGHT AND NEAT IN APPEARANCE.
2. THE STRUCTURAL ROAD WIDENING SECTION SHALL BE DETERMINED AT THE TIME OF CONSTRUCTION BASED ON THE SUBGRADE R-VALUE AND THE TRAFFIC INDEX (TI) AS PROVIDED BY THE DEPARTMENT. IF THE EXISTING ROAD STRUCTURAL SECTION IS GREATER THAN THE DETERMINED ROAD STRUCTURAL SECTION, THEN THE EXISTING STRUCTURAL SECTION THICKNESS SHALL BE MATCHED. TYPICAL ROAD WIDENING SECTION SHALL BE:
   - 2" MINIMUM HOT MIX ASPHALT (HMA) PER THE DESIGN STANDARDS TO 95% RELATIVE COMPACTION, OVER
   - 6" MINIMUM CLASS II AGGREGATE BASE TO 95% RELATIVE COMPACTION, OVER
   - 12" MINIMUM SUBGRADE TO 95% RELATIVE COMPACTION
3. GRIND 1.5-INCHES (MINIMUM) FROM THE EXISTING ADJACENT HMA PAVEMENT SO THAT FINAL HMA SEAMS ARE LOCATED IN ACCORDANCE WITH TABLE 1 & DRAWING R-1, OR AS DIRECTED BY THE DEPARTMENT.
4. NEW PAVEMENT SHALL BE PLACED IN LIFTS NOT EXCEEDING 3-INCHES (COMPACTED), WITH A MINIMUM LIFT NOT LESS THAN 1.5-INCHES.
5. A TACK COAT SHALL BE APPLIED TO ALL HORIZONTAL AND VERTICAL CONFORM SURFACES PRIOR TO PAVING.
6. AFTER PAVING, APPLY SS1H OIL (OR APPROVED EQUAL) TO ALL HMA SURFACE SEAMS PER MANUFACTURER'S RECOMMENDATIONS.
7. CUT AND FILL SLOPES BEYOND ROADWAY HINGE POINTS SHALL NOT EXCEED 2 HORIZONTAL:1 VERTICAL (OR 3h:1v IN NATIVE SAND) WITHOUT PRIOR APPROVAL BY THE DEPARTMENT.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

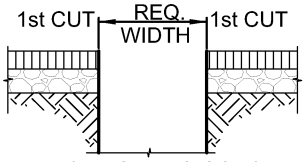
URBAN STREET WIDENING

Scale:	Adopted:
NTS	2011

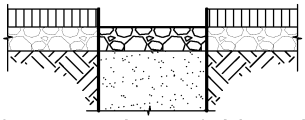
Drawing No: R-2a

Sheet No: 1 OF 1

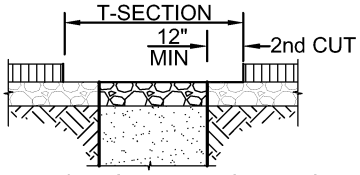
Revisions					
Description	Approved	Date	Description	Approved	Date



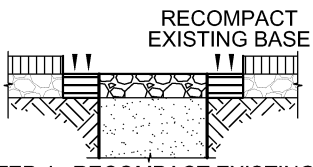
STEP 1: SAWCUT TO CONSTRUCT TRENCH PER U-4.



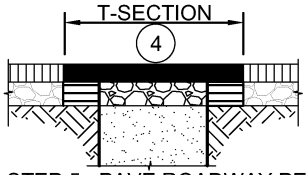
STEP 2: BACKFILL & COMPACT NEW TRENCH TO TOP OF EXISTING BASE SECTION PER U-4.



STEP 3: SAWCUT PER NOTE 1 TO REMOVE AN ADDITIONAL 12" MIN OF ASPHALT SURFACE.



STEP 4: RECOMPACT EXISTING BASE SECTION TO 95% RELATIVE COMPACTION.

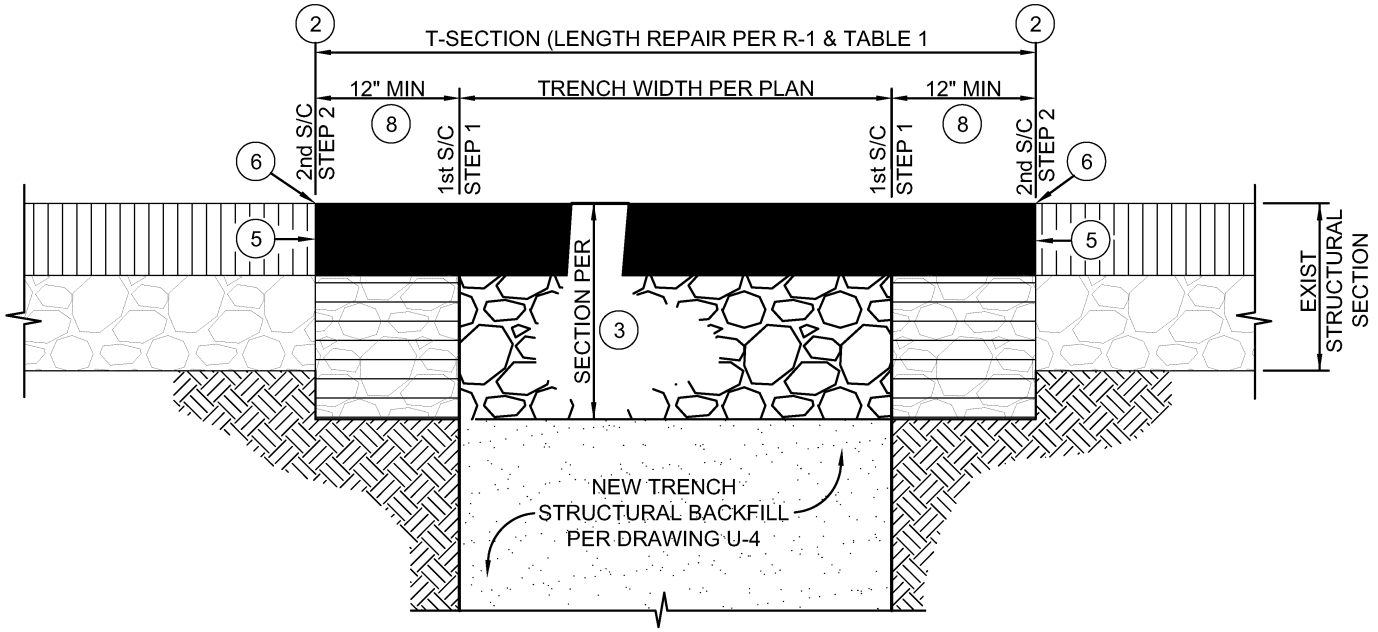


STEP 5: PAVE ROADWAY PER NOTE 3.

Table 1: Min. Trench Length Pavement Repair Limits (see R-1)

PCI	Roadways with 500 ADT or less and within the URL	All Other Roadways
85-100	Overlay To Lane Edge	Overlay To Lane Edge
65-84	12" min. T-Section	Overlay To Lane Center
<65	12" min. T-Section	12" min. T-Section

PAVEMENT REPAIR PROCEDURE



SECTION VIEW

NOTES:

1. TRENCHING IN A ROADWAY IS ONLY ALLOWED WHEN BORING IS SHOWN TO THE DEPARTMENT AS BEING INFEASIBLE.
2. SAWCUT TO REMOVE DAMAGED OR FAILED PAVEMENT SECTION ADJACENT TO THE EDGE OF TRENCH AS NECESSARY TO PROVIDE A CLEAN JOIN LINE. ALL SAWCUTS SHALL BE PERPENDICULAR OR TRANSVERSE TO THE TRAVEL LANE. SEAMS SHALL NOT BE ALLOWED WITHIN DESIGNATED BICYCLE LANES. ALL CUT EDGES SHALL BE VERTICAL WITH SQUARE CORNERS AND SHALL BE STRAIGHT AND NEAT IN APPEARANCE. ALL SAWCUTS SHALL BE TO MINIMUM SHOWN OR TO COMPETENT PAVEMENT SECTION.
3. THE STRUCTURAL ROAD REPAIR SECTION SHALL MATCH THE EXISTING STRUCTURAL SECTION THICKNESS OR AS REQUIRED BY THE DEPARTMENT. TYPICAL ROAD WIDENING SECTION SHALL BE:
   - 2" MINIMUM HOT MIX ASPHALT CONCRETE PER THE DESIGN STANDARDS TO 95% RELATIVE COMPACTION, OVER
   - 6" MINIMUM CLASS II AGGREGATE BASE TO 95% RELATIVE COMPACTION, OVER
   - TRENCH SECTION PER DRAWING U-4 (STRUCTURAL BACKFILL TO 95% MIN RELATIVE COMPACTION)
4. NEW PAVEMENT SHALL BE PLACED IN LIFTS NOT EXCEEDING 3-INCHES (COMPACTED).
5. A TACK COAT SHALL BE APPLIED TO ALL HORIZONTAL AND VERTICAL CONFORM SURFACES PRIOR TO PAVING.
6. AFTER PAVING, APPLY SS1H OIL (OR APPROVED EQUAL) TO ALL HMA SURFACE SEAMS PER MANUFACTURER'S RECOMMENDATIONS.
7. THE DEPARTMENT SHALL PROVIDE ADDITIONAL REQUIREMENTS WHEN TRENCHING IN EXISTING ROADS HAVING CONCRETE STRUCTURAL SECTIONS.
8. T-SECTION WIDTHS SHALL BE INCREASED AS DIRECTED BY THE DEPARTMENT FOR UTILITY PIPES EXCEEDING 36" IN DIAMETER.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

TRENCH REPAIR

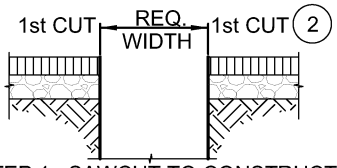
TRANSVERSE TRENCHES AND BORE PITS

Scale:	Adopted:
NTS	2011

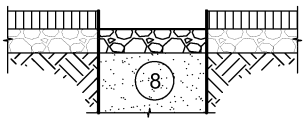
Drawing No: R-3

Sheet No: 1 OF 1

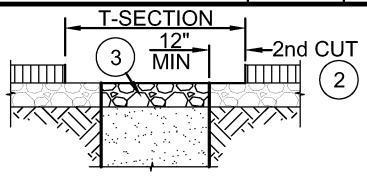
Revisions					
Description	Approved	Date	Description	Approved	Date
NOTES 1, 3 & 5, STEP 6-ALT, GRIND & OVERLAY TRAVEL LANE	GDM	JAN 11			



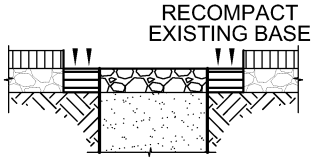
STEP 1: SAWCUT TO CONSTRUCT TRENCH PER U-4. SAWCUT SHALL BE PARALLEL TO ROAD CENTERLINE



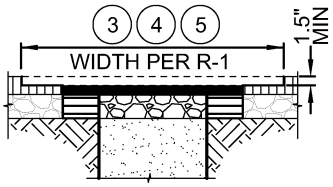
STEP 2: BACKFILL & COMPACT NEW TRENCH SECTION PER U-4.



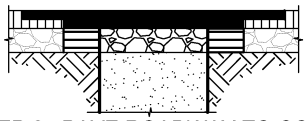
STEP 3: SAWCUT PER NOTE 2 TO REMOVE AN ADDITIONAL 12" MIN OF HMA SURFACE.



STEP 4: RECOMPACT EXISTING BASE SECTION TO 95% RELATIVE COMPACTION.



STEP 5: PAVE T-SECTION THEN GRIND 1.5" EXISTING SURFACE PER TABLE 1

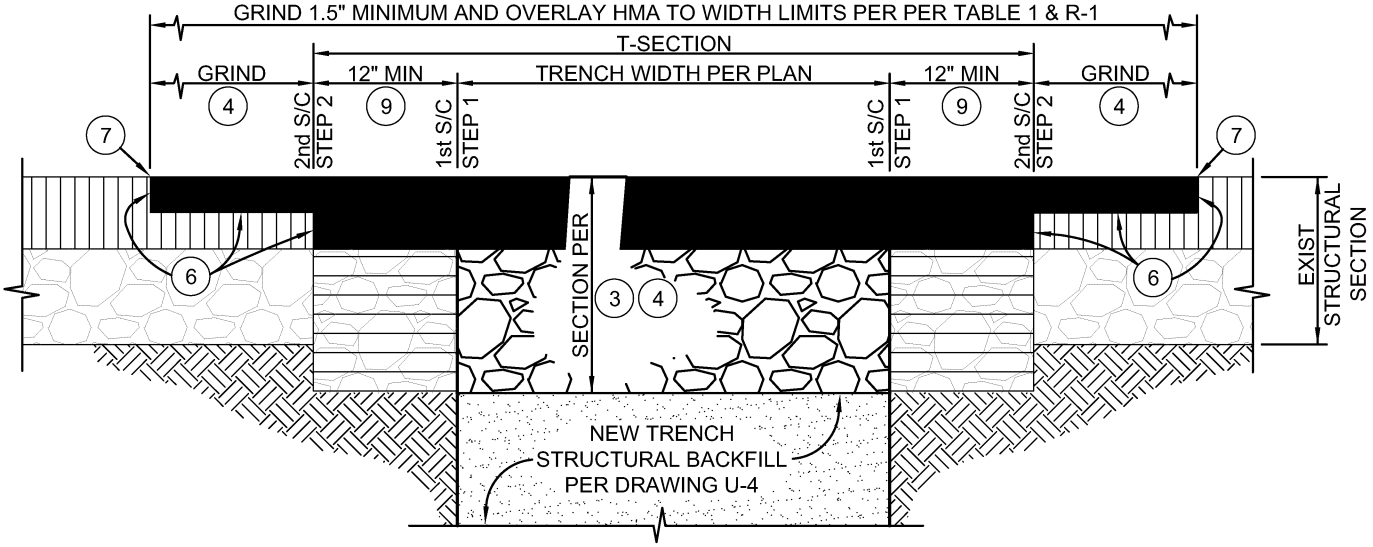


STEP 6: PAVE ROADWAY TO CONFORM TO FINAL GRADE.

PAVEMENT REPAIR PROCEDURE

Table 1: Minimum Lane Width Repair Limits (see R-1)

PCI	Roadways with 500 ADT or less and within the URL	All Other Roadways
85-100	Full Lane Width Overlay	Full Lane Width Overlay
65-84	12" min. T-Section	Half Lane Width Overlay
<65	12" min. T-Section	12" min. T-Section



SECTION VIEW

NOTES:

1. TRENCHING IN A ROADWAY IS ONLY ALLOWED WHEN BORING IS SHOWN TO THE DEPARTMENT AS BEING INFEASIBLE.
2. SAWCUT TO REMOVE DAMAGED OR FAILED PAVEMENT SECTION ADJACENT TO THE EDGE OF TRENCH AS NECESSARY TO PROVIDE A CLEAN JOIN LINE. ALL SAWCUTS SHALL BE PERPENDICULAR OR TRANSVERSE TO THE TRAVEL LANE. CUT EDGES SHALL BE VERTICAL WITH SQUARE CORNERS AND SHALL BE STRAIGHT AND NEAT IN APPEARANCE. ALL SAWCUTS SHALL BE TO MINIMUM SHOWN OR TO COMPETENT PAVEMENT SECTION.
3. THE STRUCTURAL ROAD REPAIR SECTION SHALL MATCH THE EXISTING STRUCTURAL SECTION THICKNESS OR AS REQUIRED BY THE DEPARTMENT. THE MINIMUM STRUCTURAL SECTION SHALL BE:
   - 2-INCH MINIMUM HOT MIX ASPHALT (HMA) PER THE DESIGN STANDARDS TO 95% RELATIVE COMPACTION, OVER
   - 6-INCH MINIMUM CLASS II AGGREGATE BASE TO 95% RELATIVE COMPACTION, OVER
   - TRENCH SECTION PER DRAWING U-4 (STRUCTURAL BACKFILL TO 95% MIN RELATIVE COMPACTION)
4. LONGITUDINAL: GRIND 1.5-INCHES (MINIMUM) FROM THE EXISTING ADJACENT HMA PAVEMENT SO THAT FINAL HMA SEAMS ARE LOCATED IN ACCORDANCE WITH TABLE 1 & DRAWING R-1, OR AS DIRECTED BY THE DEPARTMENT.
5. NEW HMA PAVEMENT SHALL BE PLACED IN LIFTS NOT EXCEEDING 3-INCHES (COMPACTED) AND SHALL BE ALLOWED TO COOL PER STATE SPECIFICATIONS PRIOR TO APPLICATION OF SUBSEQUENT LIFTS.
6. A TACK COAT SHALL BE APPLIED TO ALL HORIZONTAL AND VERTICAL CONFORM SURFACES PRIOR TO PAVING.
7. AFTER PAVING APPLY SS1H OIL (OR APPROVED EQUAL) TO ALL HMA SURFACE SEAMS PER MANUFACTURER'S RECOMMENDATIONS.
8. THE DEPARTMENT SHALL PROVIDE ADDITIONAL REQUIREMENTS WHEN TRENCHING IN EXISTING ROADS HAVING CONCRETE STRUCTURAL SECTIONS.
9. T-SECTION WIDTHS SHALL BE INCREASED AS DIRECTED BY THE DEPARTMENT FOR UTILITY PIPES EXCEEDING 36" IN DIAMETER.

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

TRENCH REPAIR

LONGITUDINAL TRENCHES

Scale:	Adopted:
NTS	2011

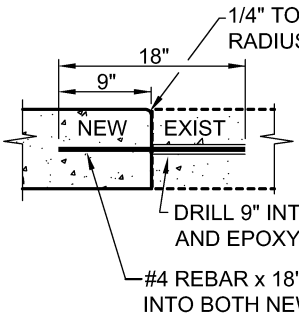
Drawing No: R-3a

Sheet No: 1 OF 1

Revisions					
Description	Approved	Date	Description	Approved	Date
ADDED NOTE 7	REM	NOV 07	NOTE 1	GDM	JAN 11
MODIFY COLD JOINT DETAIL	GDM	NOV 08			

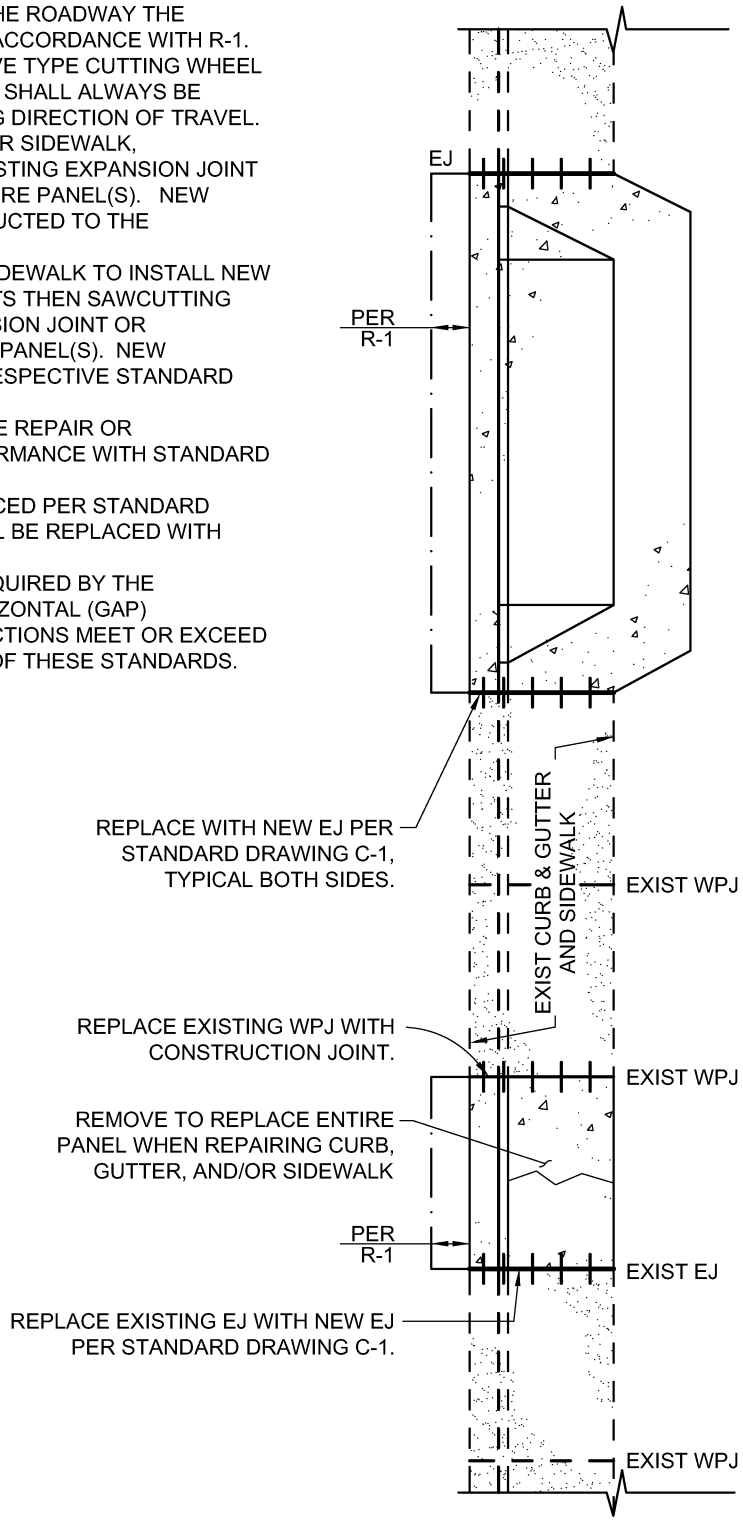
NOTES:

1. WHEN REMOVING AND REPLACING EXISTING CURB & GUTTER, DRIVEWAY, CURB RAMP OR OTHER IMPROVEMENT ABUTTING THE ROADWAY THE PAVEMENT SHALL BE REMOVED AND REPLACED IN ACCORDANCE WITH R-1.
2. ALL SAWCUTTING SHALL BE DONE WITH AN ABRASIVE TYPE CUTTING WHEEL THAT PROVIDES A CLEAN JOIN EDGE. SAWCUTTING SHALL ALWAYS BE PERPENDICULAR OR TRANSVERSE TO THE EXISTING DIRECTION OF TRAVEL.
3. WHEN REPLACING EXISTING CURB & GUTTER AND/OR SIDEWALK, SAWCUTTING SHALL BE DONE AT THE NEAREST EXISTING EXPANSION JOINT OR WEAKENED PLANE JOINT FOR REMOVAL OF ENTIRE PANEL(S). NEW CURB & GUTTER AND SIDEWALK SHALL BE CONSTRUCTED TO THE RESPECTIVE COUNTY STANDARD.
4. WHEN REMOVING EXISTING CURB & GUTTER AND SIDEWALK TO INSTALL NEW DRIVEWAYS, CURB RAMP, OR OTHER IMPROVEMENTS THEN SAWCUTTING SHALL BE DONE AT THE NEAREST EXISTING EXPANSION JOINT OR WEAKENED PLANE JOINT FOR REMOVAL OF ENTIRE PANEL(S). NEW IMPROVEMENTS SHALL BE INSTALLED PER THEIR RESPECTIVE STANDARD DRAWING.
5. THE ROAD STRUCTURAL SECTION ADJACENT TO THE REPAIR OR REPLACEMENT SHALL BE CONSTRUCTED IN CONFORMANCE WITH STANDARD DRAWING R-3.
6. IN ALL CASES, EXPANSION JOINTS SHALL BE REPLACED PER STANDARD DRAWING C-1, AND WEAKENED PLANE JOINTS SHALL BE REPLACED WITH CONSTRUCTION JOINTS.
7. REPAIR OF EXISTING IMPROVEMENTS SHALL BE REQUIRED BY THE DEPARTMENT WHEN THE VERTICAL (LIFT) AND HORIZONTAL (GAP) DIFFERENTIALS BETWEEN EXISTING CONCRETE SECTIONS MEET OR EXCEED THOSE REQUIREMENTS LISTED IN SECTION 4.1.2.D OF THESE STANDARDS.



#4 REBAR, 1 EACH IN GUTTER, 1 EACH IN CURB FACE, AND 1 EVERY 18" ON-CENTER IN SIDEWALK AND OTHER FLATWORK

CONSTRUCTION (COLD) JOINT AT SAWCUT



DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

CURB, GUTTER & SIDEWALK REPAIR

Scale:	Adopted:
1"=10'	2011

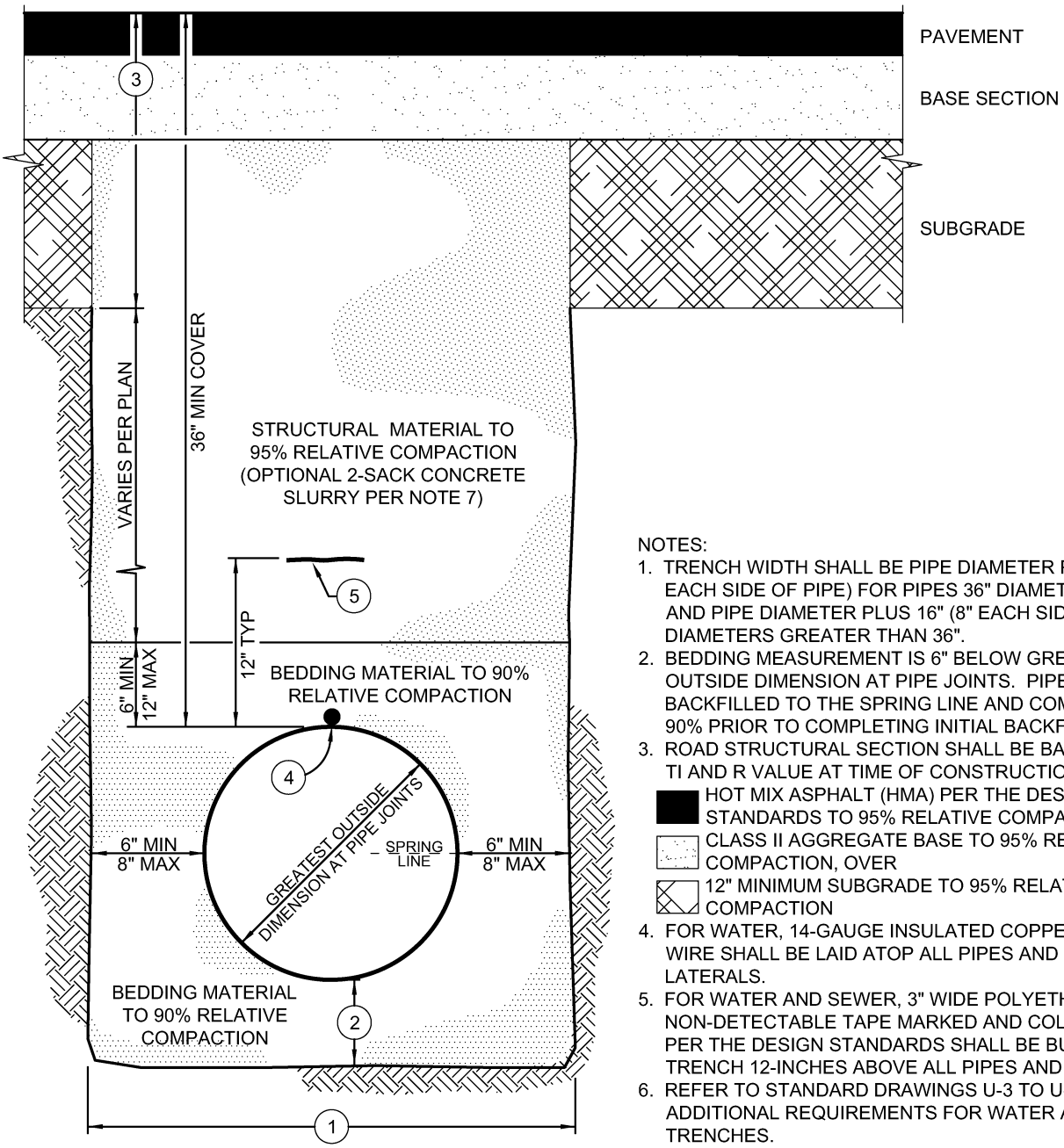
Drawing No: R-4

Sheet No: 1 OF 1

Revisions

Description	Approved	Date	Description	Approved	Date
LOCATION OF DETECTOR WIRE & TAPE, NOTES 4 & 5	REM	NOV 07	NOTE 7 & REPLACE AC W/ HMA	GDM	JAN 11
MISC CLARIFICATION	GDM	NOV 08			

WHEN TRENCHING INTO EXISTING ROADS ALL WORK SHALL BE DONE IN ACCORDANCE WITH STANDARD DRAWINGS R-1 AND R-4.



NOTES:

1. TRENCH WIDTH SHALL BE PIPE DIAMETER PLUS 12" (6" EACH SIDE OF PIPE) FOR PIPES 36" DIAMETER OR LESS, AND PIPE DIAMETER PLUS 16" (8" EACH SIDE) FOR PIPE DIAMETERS GREATER THAN 36".
2. BEDDING MEASUREMENT IS 6" BELOW GREATEST OUTSIDE DIMENSION AT PIPE JOINTS. PIPE SHALL BE BACKFILLED TO THE SPRING LINE AND COMPACTED TO 90% PRIOR TO COMPLETING INITIAL BACKFILL.
3. ROAD STRUCTURAL SECTION SHALL BE BASED ON THE TI AND R VALUE AT TIME OF CONSTRUCTION:
   - HOT MIX ASPHALT (HMA) PER THE DESIGN STANDARDS TO 95% RELATIVE COMPACTION, OVER
   - CLASS II AGGREGATE BASE TO 95% RELATIVE COMPACTION, OVER
   - 12" MINIMUM SUBGRADE TO 95% RELATIVE COMPACTION
4. FOR WATER, 14-GAUGE INSULATED COPPER TRACER WIRE SHALL BE LAID ATOP ALL PIPES AND SERVICE LATERALS.
5. FOR WATER AND SEWER, 3" WIDE POLYETHYLENE NON-DETECTABLE TAPE MARKED AND COLOR CODED PER THE DESIGN STANDARDS SHALL BE BURIED IN THE TRENCH 12-INCHES ABOVE ALL PIPES AND LATERALS.
6. REFER TO STANDARD DRAWINGS U-3 TO U-3b FOR ADDITIONAL REQUIREMENTS FOR WATER AND SEWER TRENCHES.
7. CONCRETE SLURRY TRENCH BACKFILL SHALL CONFORM TO STATE STANDARD 90-1.01, 188 LBS/CY CEMENTITIOUS MATERIAL [2 SACK], TO SURFACE OF BASE COURSE SECTION. DO NOT PLACE AGGREGATE BASE ABOVE SLURRY BACKFILL.

BEDDING MATERIAL

SIEVE SIZES	PERCENT PASSING
1"	100%
No. 4	80% - 100%
No. 200	0% - 15%

STRUCTURAL MATERIAL

SIEVE SIZES	PERCENT PASSING
3"	100%
No. 4	35% - 100%
No. 30	20% - 100%

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

TRENCH DETAIL

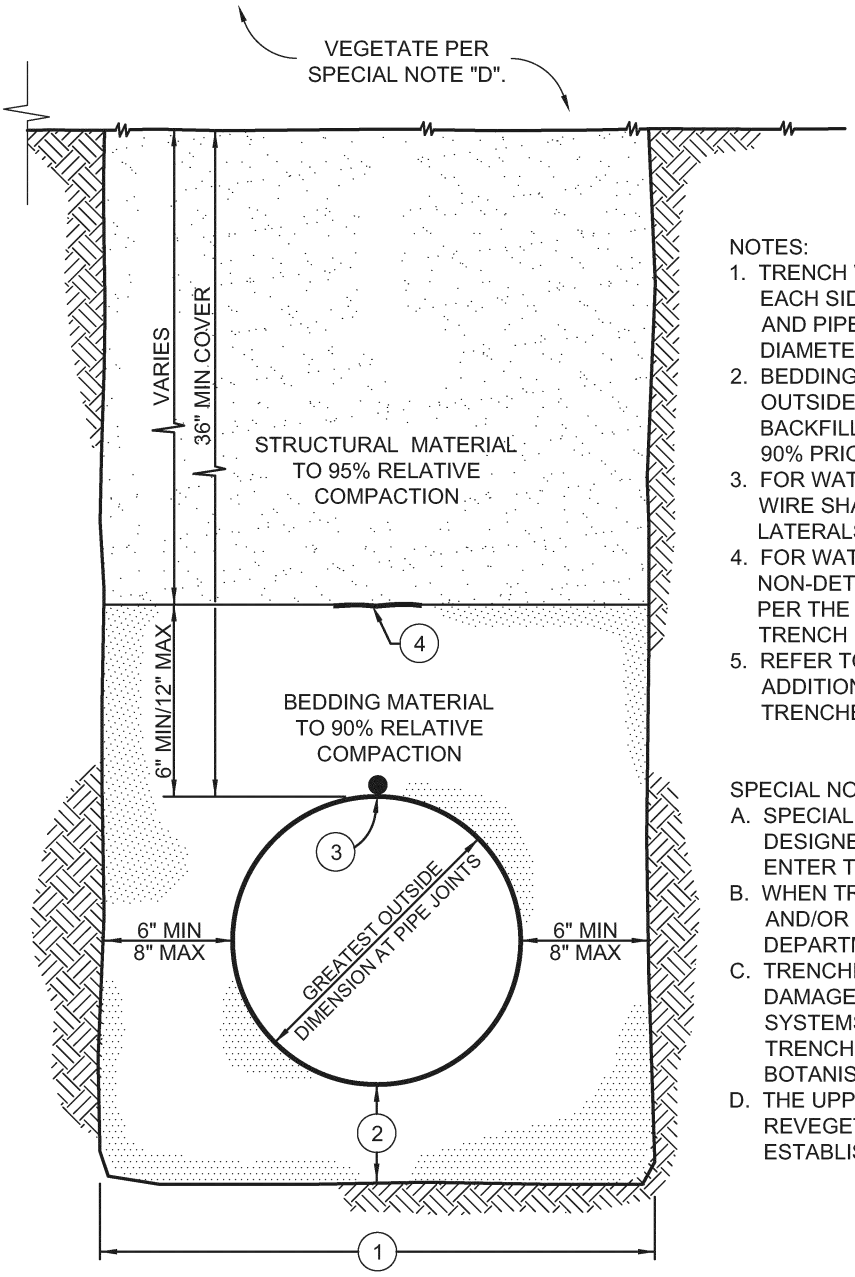
PAVED SURFACES

Scale:	Adopted:
NTS	2011

Drawing No: U-4

Sheet No: 1 OF 1

Revisions					
Description	Approved	Date	Description	Approved	Date
LOCATION OF DETECTOR WIRE & TAPE, NOTES 3 & 4	REM	NOV 07	PIPE COVER	GDM	JAN 11
REMOVE "SEWER" FROM NOTE 3	GDM	NOV 08			



NOTES:
1. TRENCH WIDTH SHALL BE PIPE DIAMETER PLUS 12" (6" EACH SIDE OF PIPE) FOR PIPES 36" DIAMETER OR LESS, AND PIPE DIAMETER PLUS 16" (8" EACH SIDE) FOR PIPE DIAMETERS GREATER THAN 36".
2. BEDDING MEASUREMENT IS 6" BELOW GREATEST OUTSIDE DIMENSION AT PIPE JOINTS. PIPE SHALL BE BACKFILLED TO THE SPRING LINE AND COMPACTED TO 90% PRIOR TO COMPLETING INITIAL BACKFILL.
3. FOR WATER, 14-GAUGE INSULATED COPPER TRACER WIRE SHALL BE LAID ATOP ALL PIPES AND SERVICE LATERALS.
4. FOR WATER AND SEWER, 3" WIDE POLYETHYLENE NON-DETECTABLE TAPE MARKED AND COLOR CODED PER THE DESIGN STANDARDS SHALL BE BURIED IN THE TRENCH 12-INCHES ABOVE ALL PIPES AND LATERALS.
5. REFER TO STANDARD DRAWINGS U-3 TO U-3b FOR ADDITIONAL REQUIREMENTS FOR WATER AND SEWER TRENCHES.

SPECIAL NOTES:
A. SPECIAL CONSIDERATION SHALL BE TAKEN BY THE DESIGNER TO ENSURE SURFACE DRAINAGE WILL NOT ENTER THE TRENCH.
B. WHEN TRENCHING ON STEEP SLOPES, CUT-OFF WALLS AND/OR PIPE ANCHORS MAY BE REQUIRED BY THE DEPARTMENT AND SHALL BE DETAILED ON THE PLANS.
C. TRENCHING ALIGNMENT SHALL BE DESIGNED TO AVOID DAMAGE TO EXISTING TREES AND THEIR ROOT SYSTEMS. WHEN ADJACENT TO TREES THEN THE TRENCHING RECOMMENDATIONS OF THE PROJECT BOTANIST SHALL BE FOLLOWED.
D. THE UPPER SURFACE SHALL BE SCARIFIED AND REVEGETATED. VEGETATIVE COVER SHALL BE ESTABLISHED PRIOR TO ACCEPTANCE OF WORK.

BEDDING MATERIAL	
SIEVE SIZES	PERCENT PASSING
1"	100%
No. 4	80% - 100%
No. 200	0% - 15%

STRUCTURAL MATERIAL	
SIEVE SIZES	PERCENT PASSING
3"	100%
No. 4	35% - 100%
No. 30	20% - 100%

DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION

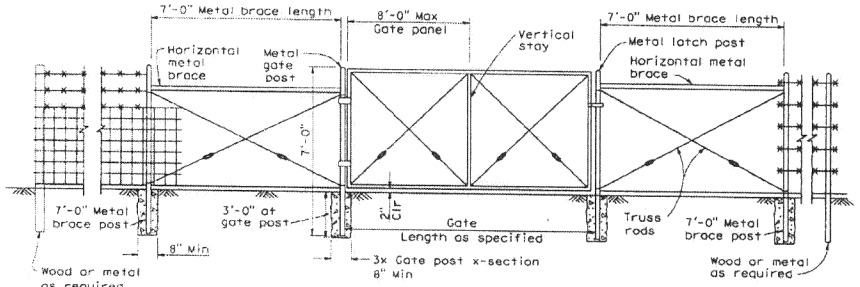
TRENCH DETAIL

OUTSIDE ROADWAY PRISM

Scale:	Adopted:
NTS	2011

Drawing No: U-4a

Sheet No: 1 OF 1



WIRE MESH GATE INSTALLATION FOR EITHER WOOD OR METAL POST FENCES

WIRE MESH GATE POST (See Note 4)		
GATE WIDTHS	NOMINAL ID	WEIGHT PER FOOT
Up thru 6'-0"	2½"	4.95 LB
Over 6'-0" thru 12'-0"	3½"	9.11 LB
Over 12'-0" thru 18'-0"	5"	14.62 LB
Over 18'-0" to 24'-0" Max	6"	18.97 LB

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

REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

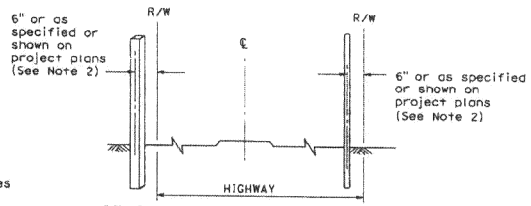
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

Registered Professional Engineer — Glenn DeCou — C34547 — Rev. 9-30-07 — CIVIL — State of California

To get to the Caltrans web site, go to: http://www.dot.ca.gov

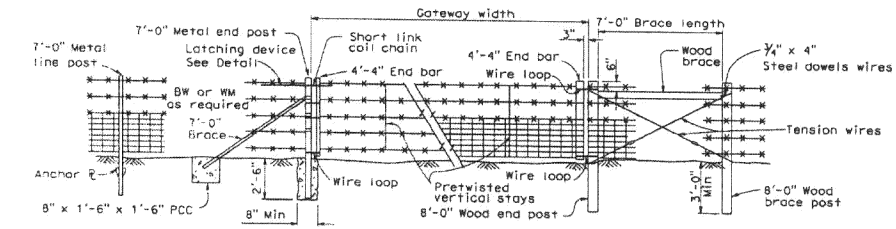
NOTES:

1. Metal end post and end bar shown. Use wood end post and end bar for wood post installation.
2. Offset to be 2'-0" at monument locations, measured at right angles to R/W lines. Taper to achieve offset to be at least 20'-0" long.
3. Gateway to be used when specified in the special provisions.
4. Post dimensions and weights are minimums. Larger sizes may be used on approval of the Engineer.
5. Line post spacing for wood post equals 12'-0" maximum. Line post spacing for metal post equals 10'-0" maximum.



OTHER HIGHWAYS — FREEWAYS

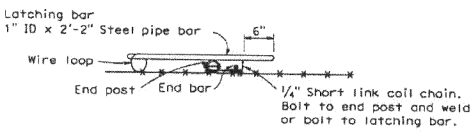
FENCE LOCATION



METAL POST INSTALLATION — WOOD POST INSTALLATION

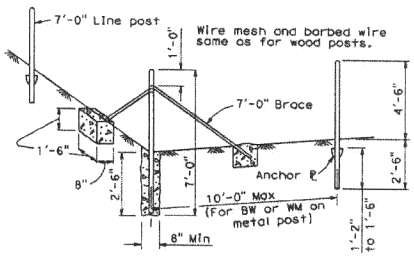
GATEWAY

See Note 3

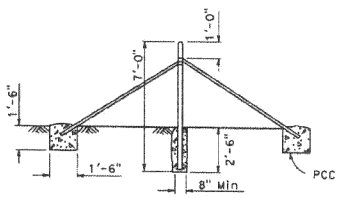


LATCHING DEVICE FOR GATEWAYS

See Note 1

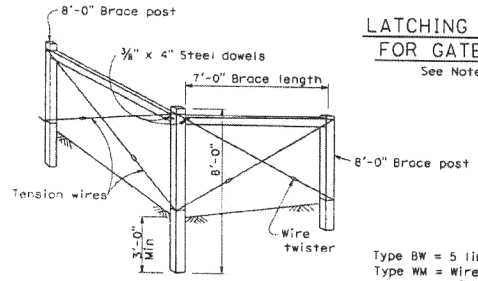


END AND CORNER POST ASSEMBLY



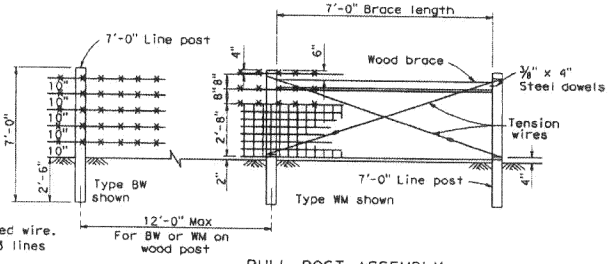
PULL POST ASSEMBLY

At 660'-0" maximum intervals for WM fence.
At 1320'-0" maximum intervals for BW fence.



END AND CORNER POST ASSEMBLY

Type BW = 5 lines of barbed wire.
Type WM = Wire mesh and 3 lines of barbed wire.



WOOD POST INSTALLATION

PULL POST ASSEMBLY

At 660'-0" maximum intervals for WM fence.
At 1320'-0" maximum intervals for BW fence.

METAL POST INSTALLATION

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

BARBED WIRE AND WIRE MESH FENCES

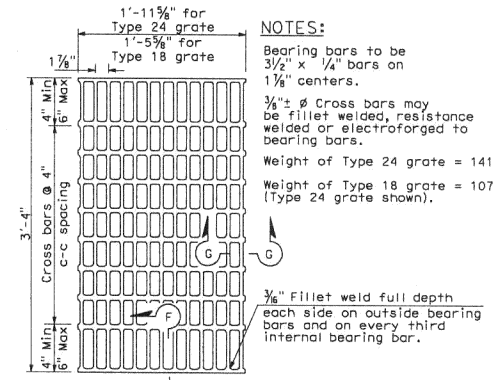
NO SCALE

A86

2006 STANDARD PLAN A86

112

1-17-06



NOTES:

Bearing bars to be 3½" x ¼" bars on 1⅞" centers.

⅜"± ø Cross bars may be fillet welded, resistance welded or electroforged to bearing bars.

Weight of Type 24 grate = 141 LBS.

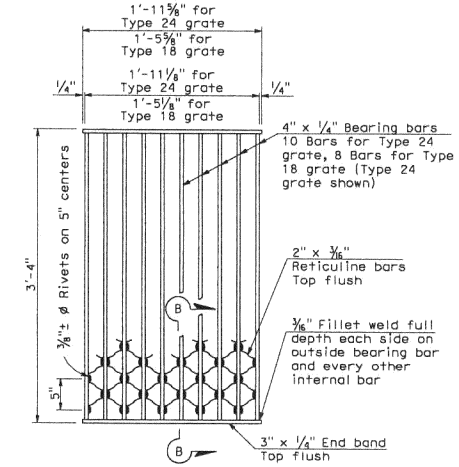
Weight of Type 18 grate = 107 LBS. (Type 24 grate shown).

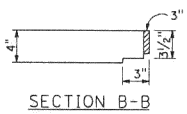
3/16" Fillet weld full depth each side on outside bearing bars and on every third internal bearing bar.

SECTION F-F SECTION G-G

TYPE 18-10 AND 24-13 GRATE

(Welded Steel)





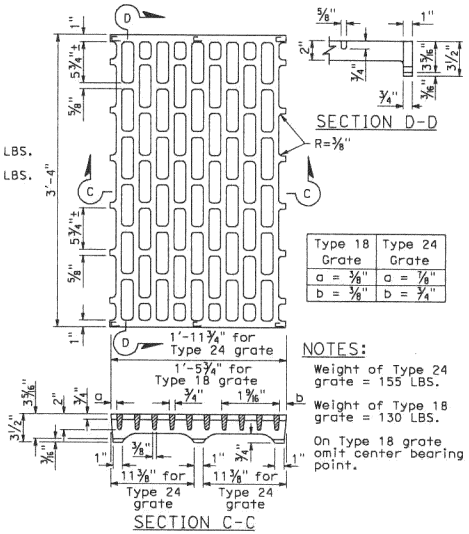
NOTES:

Weight of Type 24 grate = 182 LBS.
Weight of Type 18 grate = 145 LBS.

SECTION B-B

TYPE 18-8S AND 24-10S GRATE

(Welded Steel) Reticuline type



NOTES:

Weight of Type 24 grate = 155 LBS.

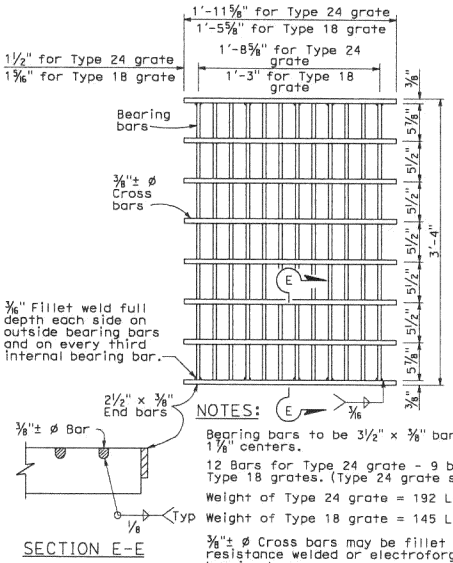
Weight of Type 18 grate = 130 LBS.

On Type 18 grate omit center bearing point.

SECTION C-C

TYPE 18-8C AND 24-10C GRATE

(Cast nodular iron)



NOTES:

Bearing bars to be 3½" x ⅜" bars on 1⅞" centers.

12 Bars for Type 24 grate - 9 bars for Type 18 grates. (Type 24 grate shown).

Weight of Type 24 grate = 192 LBS.

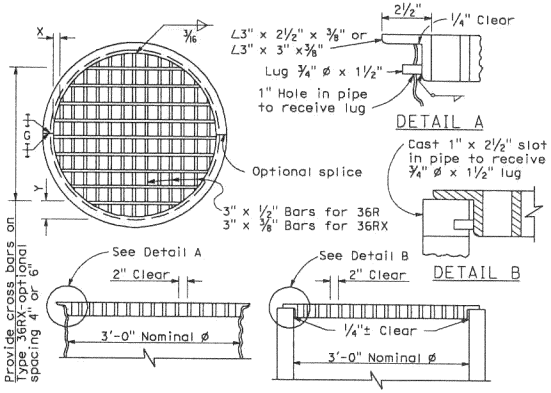
Weight of Type 18 grate = 145 LBS.

⅜"± ø Cross bars may be fillet welded, resistance welded or electroforged to bearing bars.

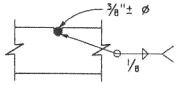
SECTION E-E

TYPE 18-9X AND 24-12X GRATE

(Welded Steel)

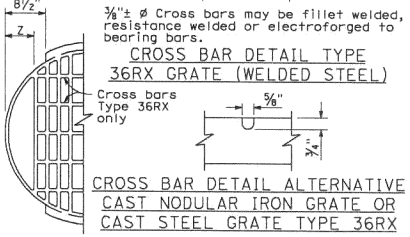


TYPE 36R AND 36RX GRATE DETAILS



⅜"± ø Cross bars may be fillet welded, resistance welded or electroforged to bearing bars.

CROSS BAR DETAIL TYPE 36RX GRATE (WELDED STEEL)



CROSS BAR DETAIL ALTERNATIVE CAST NODULAR IRON GRATE OR CAST STEEL GRATE TYPE 36RX

MODIFIED TYPE 36R AND 36RX GRATE FOR ODI INLET

NOTES:

1. When alternative grates are allowed - Final pay based on alternative with the lesser weight.
2. Seal welding at all surfaces not required when grates are galvanized.
3. Use frame shown on Standard Plan D74A, D74B or D77A as appropriate.
4. When Type 24-10S, 24-12X or 24-13 grates are used with GDO Inlets, a ¼" x 3½" x 3'-4⅞" steel bar shall be welded across the center of inlet frame to separate the individual grates.

GRATE BAR SPACING TABLE

TYPE	No. OF BARS	CLEAR BAR SPACING	X	Y		Z
				4" SPACING	6" SPACING	
36R	13	2"	2⅛"	-	-	-
36RX (Steel)	15	2"	9/16"	3¾"	5¾"	-
36RX (Cast)	13	2"	2⅛"	3¾"	5¾"	-
36R Mod	12	2"	2⅛"	-	-	5"
36RX Mod (Steel)	13	2"	9/16"	3¾"	5¾"	5⅛"
36RX Mod (Cast)	12	2"	2⅛"	3¾"	5¾"	5"

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

REGISTERED CIVIL ENGINEER

Glenn DeCou

May 1, 2006
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Glenn DeCou — No. C34547 — Exp. 9-30-07 CIVIL — STATE OF CALIFORNIA

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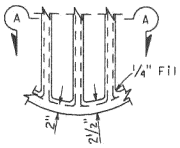
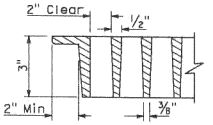




SECTION A-A

ALTERNATIVE CAST NODULAR IRON GRATE OR CAST STEEL GRATE TYPE 36R AND 36RX

BASIS FOR MISC IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS

INLET TYPE	GRATE TYPE	No. OF GRATES	WEIGHT LB
GDO (SEE NOTE 4)	24-10C	2	391
	24-10S	2	456
	24-12X	2	473
	24-13	2	374
GO,GOL,G1,G2, G3,G4 (TYPE 24)	24-10C	1	202
	24-10S	1	229
	24-12X	1	239
	24-13	1	188
G4 (TYPE 18) G5,G6	18-8S	1	187
	18-9X	1	187
	18-10	1	149
GT1, GT2	18-8S	2	374
	18-9X	2	374
	18-10	2	298
GT3,GT4	24-10C	2	404
	24-10S	2	458
	24-12X	2	478
	24-13	2	376
ODI	36RX (Mod)	1	196
GMP,GCP,GCP1	36RX	1	215
ODI	36R (Mod)	1	220
GMP,GCP,GCP1	36R	1	236

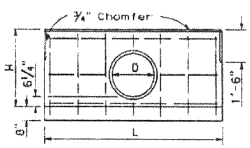
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

BICYCLE PROOF GRATE DETAILS

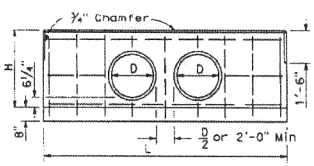
NO SCALE

D77B

1-17-06



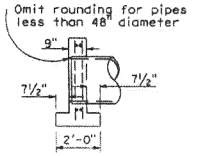
FRONT ELEVATION
SINGLE HEADWALL



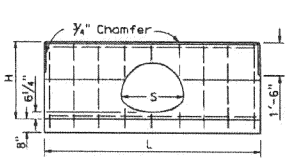
FRONT ELEVATION
DOUBLE HEADWALL

D	H	SINGLE			DOUBLE		
		L	Steel LB	Conc CY	L	Steel LB	Conc CY
12"	2'-8"	6'-0"	35	0.60	8'-0"	50	0.94
15"	2'-11"	6'-0"	40	0.75	9'-6"	60	1.17
18"	3'-2"	7'-0"	50	0.91	10'-6"	75	1.35
21"	3'-5"	7'-6"	60	1.02	11'-6"	90	1.52
24"	3'-8"	8'-6"	75	1.20	12'-6"	100	1.72
27"	3'-11"	9'-6"	85	1.39	14'-0"	115	2.00
30"	4'-2"	10'-0"	90	1.52	15'-0"	126	2.21
33"	4'-5"	11'-0"	100	1.73	16'-0"	130	2.42
36"	4'-8"	12'-0"	105	1.95	17'-0"	145	2.65
39"	4'-11"	12'-6"	130	2.09	18'-0"	170	2.88
42"	5'-2"	13'-6"	140	2.34	19'-0"	185	3.13
45"	5'-5"	14'-6"	150	2.60	20'-0"	195	3.38
48"	5'-8"	15'-0"	160	2.75	21'-0"	200	3.64
51"	5'-11"	16'-0"	180	3.03	22'-6"	225	4.02
54"	6'-2"	17'-0"	190	3.31	23'-6"	240	4.30

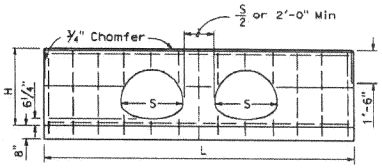
STRAIGHT HEADWALLS



SECTION, SINGLE &
DOUBLE HEADWALLS



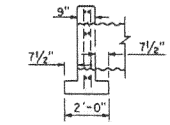
FRONT ELEVATION
SINGLE HEADWALL



FRONT ELEVATION
DOUBLE HEADWALL

CMP ARCH SIZE	SINGLE				DOUBLE		
	H	L	Steel LB	Conc CY	L	Steel LB	Conc CY
21" x 15"	2'-11"	6'-6"	45	0.80	10'-0"	60	1.22
24" x 18"	3'-2"	7'-6"	50	0.96	11'-6"	70	1.45
28" x 20"	3'-4"	8'-6"	60	1.12	13'-6"	90	1.76
35" x 24"	3'-8"	10'-6"	85	1.47	15'-6"	120	2.16
42" x 29"	4'-1"	12'-6"	110	1.76	18'-0"	145	2.57
49" x 33"	4'-5"	14'-6"	130	2.26	21'-0"	170	3.13
57" x 38"	4'-10"	17'-0"	155	2.81	24'-6"	210	3.86
64" x 43"	5'-3"	19'-0"	175	3.31	27'-0"	230	4.42
71" x 47"	5'-7"	21'-0"	195	3.81	30'-0"	255	5.09

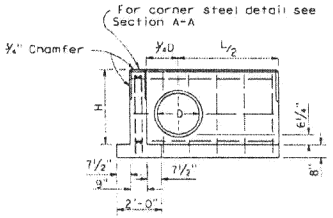
STRAIGHT HEADWALLS



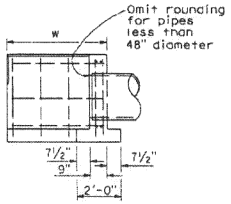
SECTION, SINGLE &
DOUBLE HEADWALLS

NOTES:

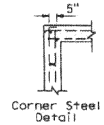
1. No deduction made in quantities for thickness of pipe walls.
2. All reinforcing steel #4 bars. All vertical and horizontal tie bars 1'-6" maximum spacing.
3. Length of wall "W" may be varied to suit conditions encountered in the field, and straight line interpolation may be used to calculate quantities.
4. Quantities are for design purposes only.
5. Cable railing to be installed on top of headwall when shown on Project Plans. See Standard Plan B11-47 for cable railing details.



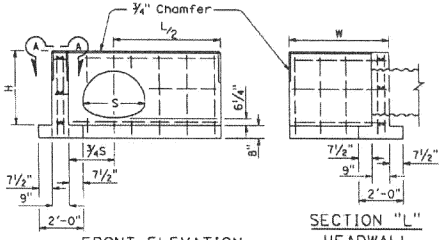
FRONT ELEVATION "L" HEADWALL



SECTION "L" HEADWALL



SECTION A-A



FRONT ELEVATION
"L" HEADWALL

SECTION "L"
HEADWALL

D	H	L/2	LENGTH OF W 3'-4" Steel LB	3'-4" Conc CY	4'-10" Steel LB	4'-10" Conc CY	6'-4" Steel LB	6'-4" Conc CY	7'-10" Steel LB	7'-10" Conc CY	9'-4" Steel LB	9'-4" Conc CY
12"	2'-8"	2'-6"	50	0.79	60	0.98	—	—	—	—	—	—
15"	2'-11"	3'-0"	55	0.91	65	1.11	—	—	—	—	—	—
18"	3'-2"	3'-6"	65	1.04	75	1.25	—	—	—	—	—	—
21"	3'-5"	3'-9"	75	1.15	90	1.36	—	—	—	—	—	—
24"	3'-8"	4'-3"	85	1.29	100	1.51	110	1.74	—	—	—	—
27"	3'-11"	4'-9"	90	1.44	105	1.67	115	1.91	—	—	—	—
30"	4'-2"	5'-0"	95	1.55	110	1.80	120	2.05	135	2.29	—	—
33"	4'-5"	5'-6"	105	1.71	120	1.97	135	2.23	150	2.48	—	—
36"	4'-8"	6'-0"	110	1.88	125	2.15	140	2.41	155	2.68	170	2.95
39"	4'-11"	6'-3"	—	—	150	2.28	170	2.56	185	2.84	200	3.12
42"	5'-2"	6'-9"	—	—	155	2.42	175	2.76	190	3.05	210	3.34
45"	5'-5"	7'-3"	—	—	—	—	180	2.97	200	3.27	215	3.57
48"	5'-8"	7'-6"	—	—	—	—	190	3.13	215	3.44	230	3.75
51"	5'-11"	8'-0"	—	—	—	—	—	—	220	3.67	235	3.99
54"	6'-2"	8'-6"	—	—	—	—	—	—	235	3.91	250	4.24

"L" HEADWALLS
CIRCULAR PIPE CULVERT HEADWALLS

CMP ARCH SIZE	H	L/2	LENGTH OF W 3'-4" Steel LB	3'-4" Conc CY	4'-10" Steel LB	4'-10" Conc CY	6'-4" Steel LB	6'-4" Conc CY	7'-10" Steel LB	7'-10" Conc CY	9'-4" Steel LB	9'-4" Conc CY
21" x 15"	2'-11"	3'-3"	60	1.00	65	1.18	75	1.38	90	1.58	100	1.77
24" x 18"	3'-2"	3'-9"	60	1.07	70	1.32	80	1.53	95	1.74	110	1.94
28" x 20"	3'-4"	4'-3"	70	1.26	80	1.47	90	1.68	100	1.90	115	2.11
35" x 24"	3'-8"	5'-3"	100	1.51	110	1.74	120	1.97	140	2.20	155	2.42
42" x 29"	4'-1"	6'-3"	115	1.82	130	2.06	140	2.31	155	2.55	170	2.83
49" x 33"	4'-5"	7'-3"	130	2.12	145	2.37	155	2.64	170	2.90	185	3.15
57" x 38"	4'-10"	8'-6"	145	2.52	160	2.79	175	3.07	190	3.35	205	3.61
64" x 43"	5'-3"	9'-6"	185	2.89	200	3.11	215	3.48	235	3.77	250	4.06
71" x 47"	5'-7"	10'-6"	200	3.25	215	3.56	235	3.86	250	4.17	270	4.48

"L" HEADWALLS
CORRUGATED METAL PIPE ARCH CULVERT HEADWALLS

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

REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEERS
Glenn DeCou
No. C34547
exp. 9-30-07
CIVIL
STATE OF CALIFORNIA

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STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

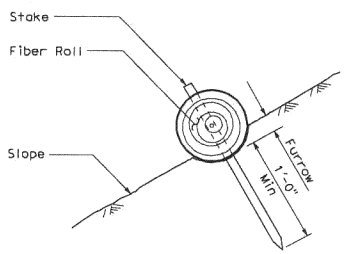
PIPE CULVERT HEADWALLS STRAIGHT AND "L"

NO SCALE

D89

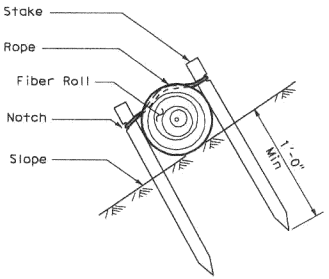
2-6-06

2006 STANDARD PLAN D89

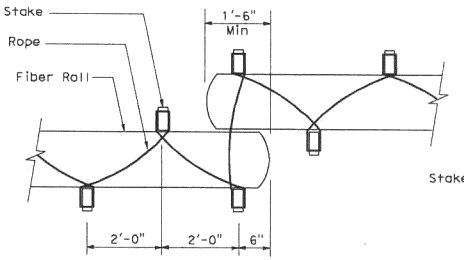


SECTION

FIBER ROLL (TYPE 1)

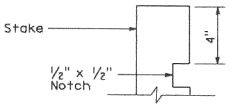


SECTION



PLAN

FIBER ROLL (TYPE 2)



ELEVATION

STAKE NOTCH DETAIL

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

LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

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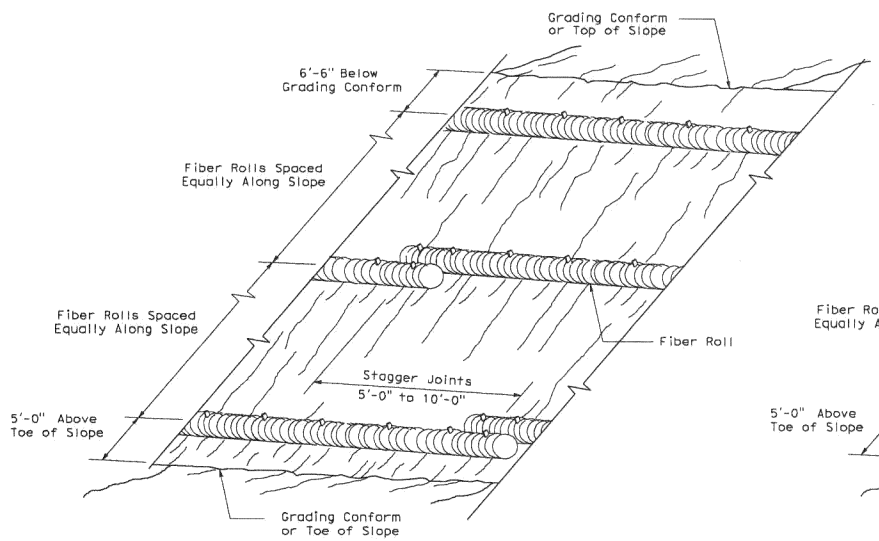
LICENSED LANDSCAPE ARCHITECT — Gregory A. Bolger — 02-28-11 — 03-04-09 — STATE OF CALIFORNIA

To accompany plans dated _____

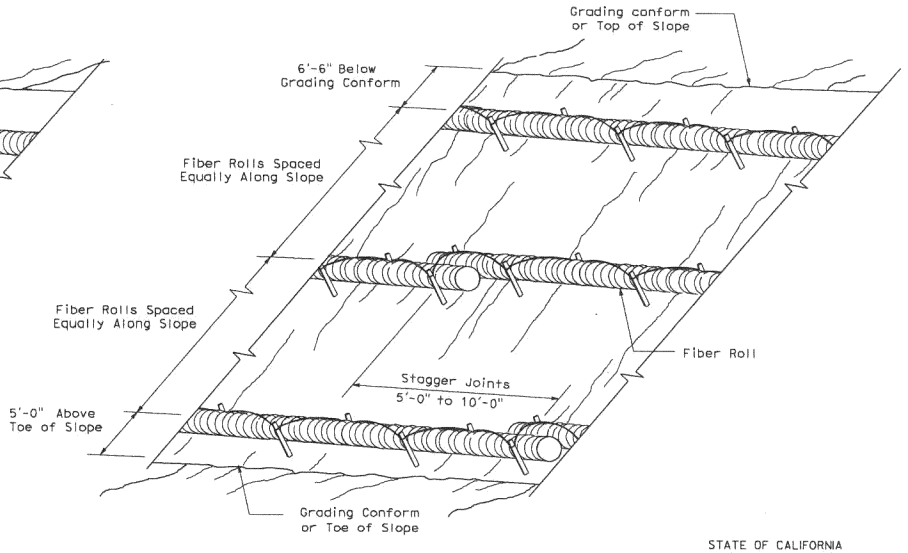
NOTES:

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



PERSPECTIVE

FIBER ROLL (TYPE 1)



PERSPECTIVE

FIBER ROLL (TYPE 2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

EROSION CONTROL DETAILS (FIBER ROLL)

NO SCALE

RNSP H51 DATED APRIL 3, 2009 SUPERSEDES NSP H51 DATED DECEMBER 1, 2006 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED NEW STANDARD PLAN RNSP H51

2006 REVISED NEW STANDARD PLAN RNSP H51

3-4-09

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

LICENSED LANDSCAPE ARCHITECT

June 5, 2009
PLANS APPROVAL DATE

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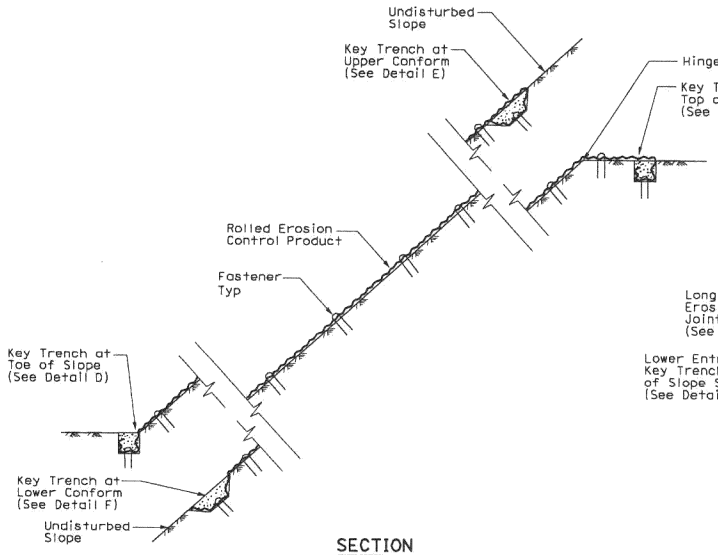
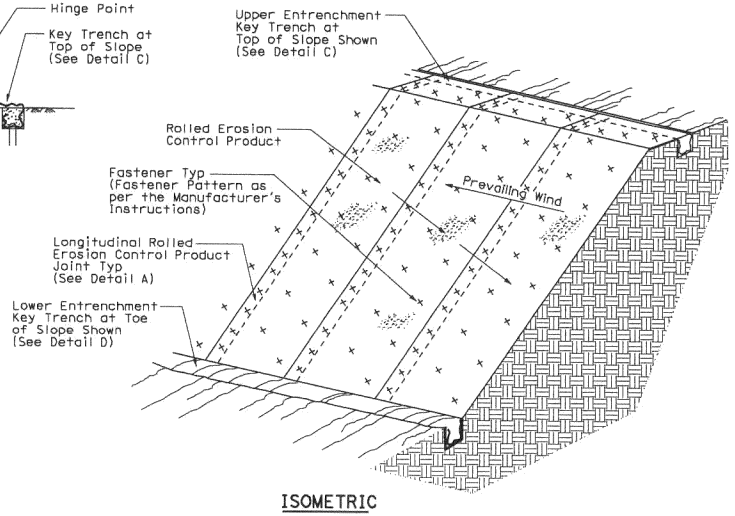
LICENSED LANDSCAPE ARCHITECT — 2-28-11 — 5-14-09 — STATE OF CALIFORNIA

To accompany plans dated _____



SECTION

ROLLED EROSION CONTROL PRODUCT ON SLOPE WITH VARIOUS KEY ENTRENCHMENTS

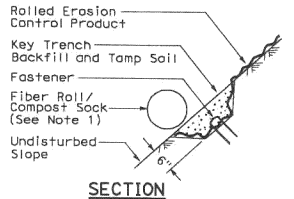


ISOMETRIC

ROLLED EROSION CONTROL PRODUCT ON SLOPE

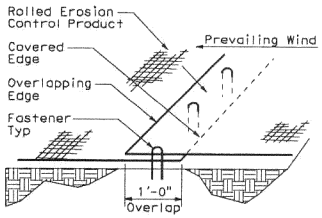
NOTE:

1. Fiber Roll/Compost Sock shown for reference purposes only.
2. If transverse rolled erosion control product joints are required on slopes, see Detail B.



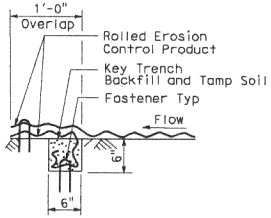
SECTION

DETAIL F KEY TRENCH AT LOWER CONFORM



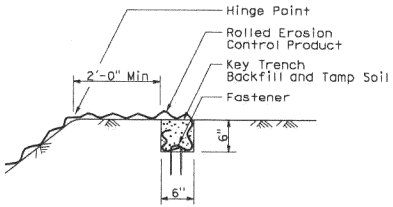
PERSPECTIVE

DETAIL A LONGITUDINAL ROLLED EROSION CONTROL PRODUCT JOINT



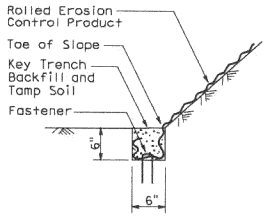
SECTION

DETAIL B TRANSVERSE ROLLED EROSION CONTROL PRODUCT JOINT



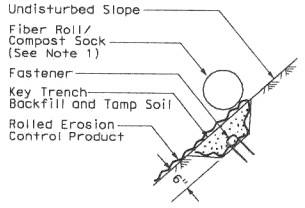
SECTION

DETAIL C KEY TRENCH AT TOP OF SLOPE



SECTION

DETAIL D KEY TRENCH AT TOE OF SLOPE



SECTION

DETAIL E KEY TRENCH AT UPPER CONFORM

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ROLLED EROSION CONTROL PRODUCT

NO SCALE

NSP H53 DATED JUNE 5, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP H53

2006 NEW STANDARD PLAN NSP H53

3-4-09

CHANNEL SIZES

SIGN LENGTH	SIGN DEPTH	PANEL THICKNESS	No. OF HORIZONTAL MEMBERS	No. OF VERTICAL MEMBERS	Horz MEMBER TYPE	Vert MEMBER TYPE
Up to 3'-11"		0.063"	No frame required			
4'-0" to 4'-7"		0.080"	No frame required			
4'-8" to 5'-10"	1'-0" to 2'-0"	0.063"	2	--	A	--
	2'-1" to 3'-0"	0.063"	2	2	A	A
	3'-1" to 4'-0"	0.063"	2	3	A	A
	4'-1" to 8'-0"	0.063"	3	3	B	A
6'-0" to 6'-6"	1'-0" to 2'-0"	0.063"	2	--	A	--
	2'-1" to 3'-0"	0.063"	2	2	A	A
	3'-1" to 4'-0"	0.063"	2	3	A	A
	4'-1" to 6'-0"	0.063"	3	3	B	B
	6'-1" to 8'-0"	0.063"	3	3	C	C
6'-8" to 7'-6"	1'-6" to 4'-0"	0.080"	2	3	B	B
	4'-1" to 6'-0"	0.080"	3	3	B	B
	6'-1" to 8'-0"	0.080"	3	3	C	C
7'-8" to 8'-6"	1'-6" to 4'-0"	0.080"	2	3	B	B
	4'-1" to 8'-0"	0.080"	3	3	C	C
8'-8" to 9'-6"	1'-6" to 4'-0"	0.080"	2	3	B	B
	4'-1" to 8'-0"	0.080"	3	3	C	C
9'-8" to 11'-0"	1'-6" to 4'-0"	0.080"	2	3	C	C
	4'-1" to 8'-0"	0.080"	3	3	C	C
	8'-1" to 11'-0"	0.080"	4	3	C	C

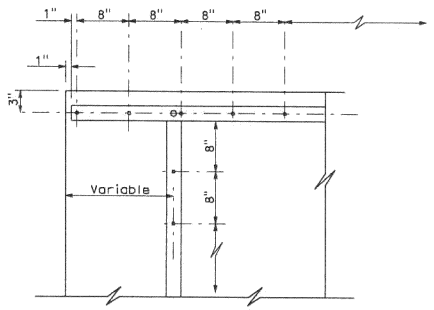
NOTE:

Type A - 1¼" x 1¼" x ⅛" Channel to be aluminum alloy 6063-T5.
* Type B - 2⅜" x 1¼" x 3/16" Channel to be aluminum alloy 6063-T6.
* Type C - 2" x 2"x ¼" Channel to be aluminum alloy 6063-T6.

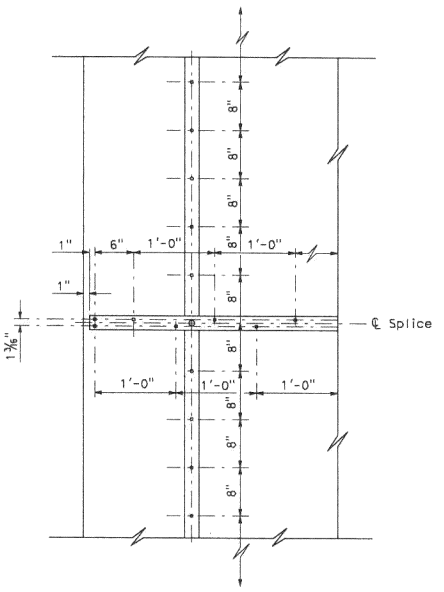
* 1¾" x 1½" x ⅛" Rectangular tubing aluminum alloy 6063-T6 may be substituted for Types B and C, but more than one type of framing material used on one sign is unacceptable.

POST SPACING

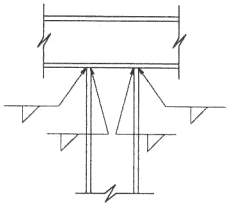
SIGN LENGTH	CENTERLINE SPACING
4'-8" to 5'-8"	3'-6"
5'-10" to 6'-8"	4'-0"
6'-10" to 7'-8"	4'-6"
7'-10" to 8'-2"	5'-0"
8'-4" to 8'-8"	5'-2"
8'-10" to 9'-2"	5'-4"
9'-4" to 9'-8"	5'-8"
9'-10" to 10'-2"	6'-0"
10'-4" to 10'-10"	6'-6"
10'-11" to 11'-0"	7'-0"



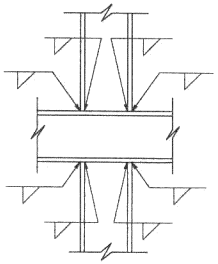
TYPICAL RIVET DETAIL



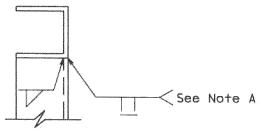
RIVET DETAIL AT SPLICE



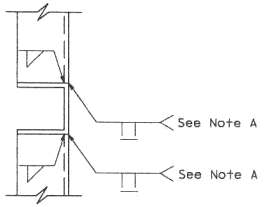
TOP VIEW



TOP VIEW



SIDE VIEW
WELD DETAIL No. 1



SIDE VIEW
WELD DETAIL No. 2

TYPICAL WELD DETAILS

NOTE A: For rectangular tubing, weld all around and grind beads flush where weld contacts sign panel.

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

REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Jeffrey B. Woody
No. C41260
Exp. 3-31-07
CIVIL
STATE OF CALIFORNIA

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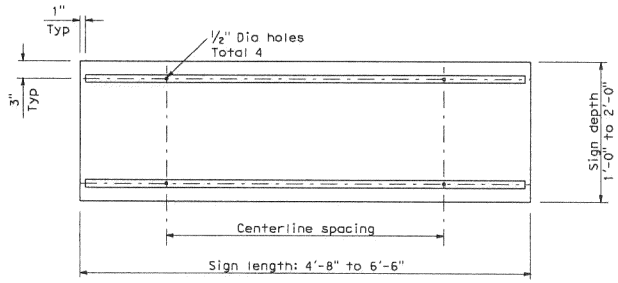
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

FRAMING DETAILS FOR FRAMED SINGLE SHEET ALUMINUM SIGNS RECTANGULAR SHAPE

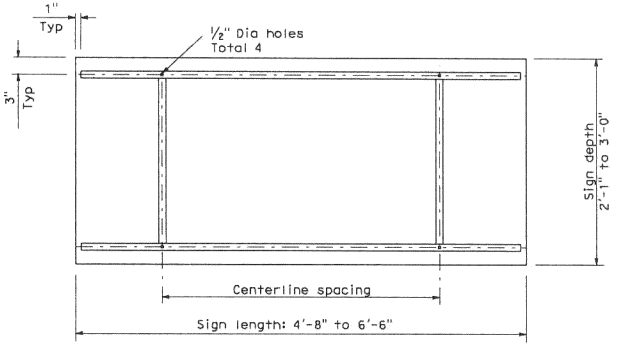
NO SCALE

S93

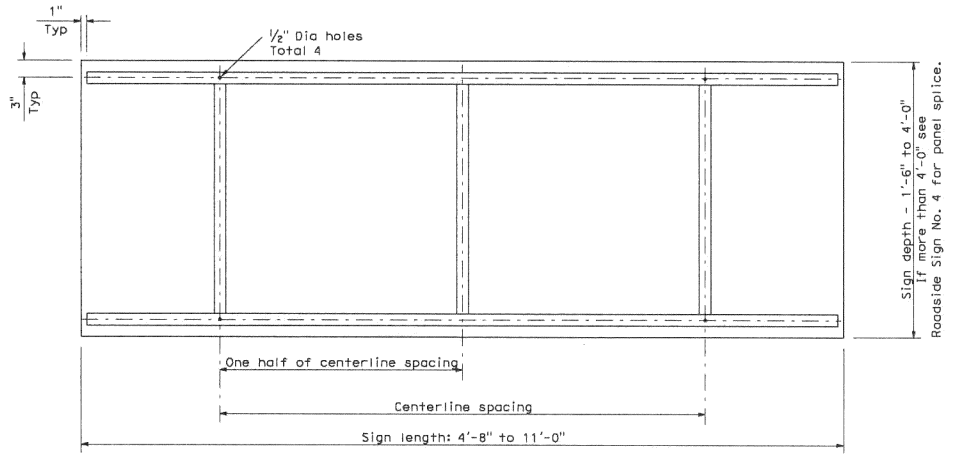
1-4-06



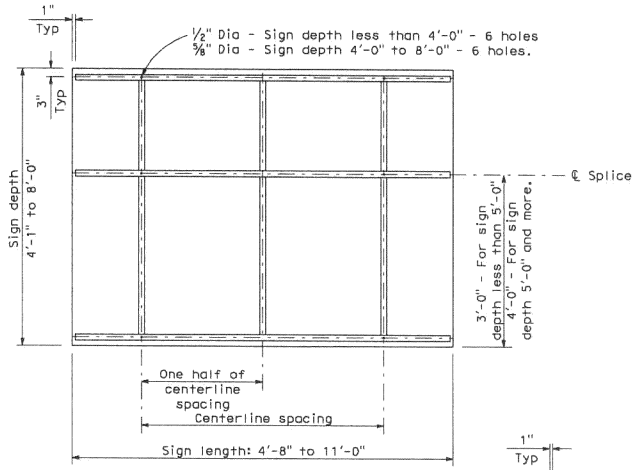
ROADSIDE SIGN No. 1



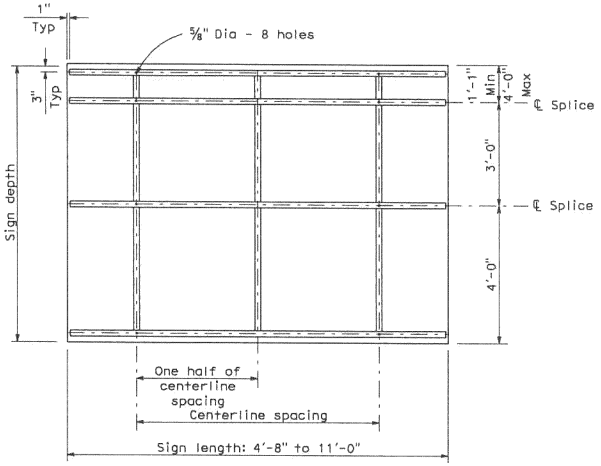
ROADSIDE SIGN No. 2



ROADSIDE SIGN No. 3



ROADSIDE SIGN No. 4



ROADSIDE SIGN No. 5

NOTES:

1. See Standard Plan S93 for framing details.
2. All members welded at joints as shown on Standard Plan S93.

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

REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

Jeffrey B. Moody No. C41260 Exp. 3-31-07 CIVIL STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEER

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STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ROADSIDE FRAMED SINGLE SHEET ALUMINUM SIGNS RECTANGULAR SHAPE

NO SCALE

S94

3-6-06

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

Jeffrey B. Woody
REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER — Jeffrey B. Woody — No. C41250 — Exp. 3-31-07 — CIVIL — STATE OF CALIFORNIA

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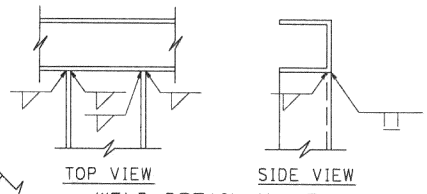
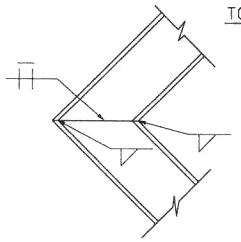
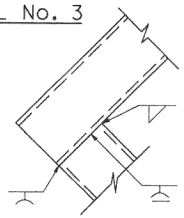


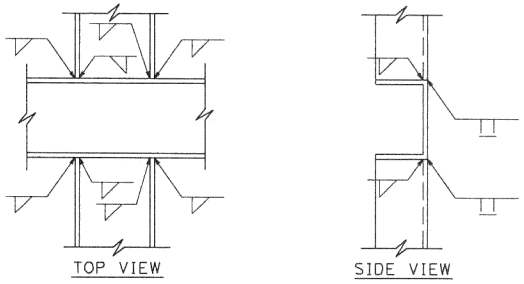
WELD DETAIL No. 3



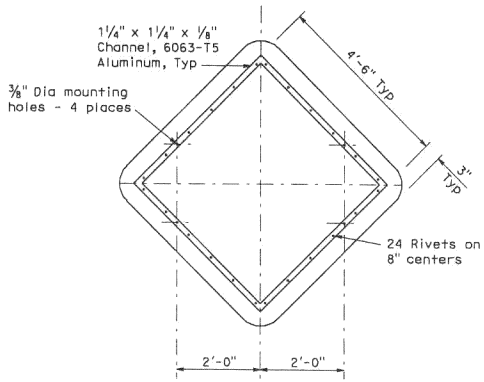
WELD DETAIL No. 4



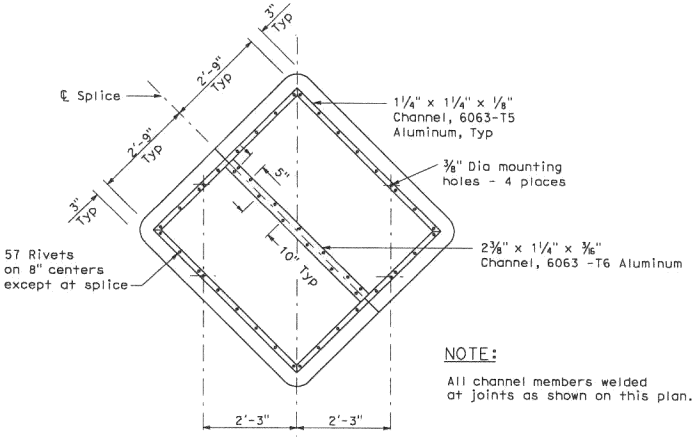
ALTERNATE WELD DETAIL No. 4A
Weld all around outside



WELD DETAIL No. 5
TYPICAL WELD DETAILS

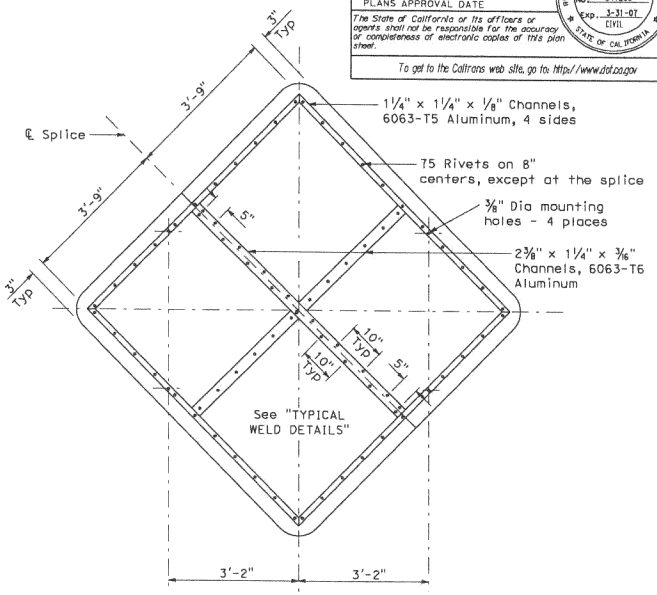


ROADSIDE SIGN No. 6
Framing detail for 5'-0" x 5'-0" diamond



ROADSIDE SIGN No. 7
Framing detail for 6'-0" x 6'-0" diamond.
Made from 2 - 3'-0" x 6'-0" panels, spliced and braced by channels as shown.

NOTE:
All channel members welded at joints as shown on this plan.



ROADSIDE SIGN No. 8
Framing detail for 8'-0" x 8'-0" diamond.
Made from 2 - 4'-0" x 8'-0" panels, spliced and braced by channels as shown.

CHANNEL SIZES

Sign Size	Panel Thickness (Inches)	Frame Type
4'-0" x 4'-0"	0.063"	No frame required
4'-0" x 4'-0"	0.080"	No frame required
5'-0" x 5'-0"	0.080"	See Roadside Sign No. 6
6'-0" x 6'-0"	0.080"	See Roadside Sign No. 7
8'-0" x 8'-0"	0.080"	See Roadside Sign No. 8

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ROADSIDE SINGLE SHEET ALUMINUM SIGNS DIAMOND SHAPE

NO SCALE

S95

1-4-06

NOTES:

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on orange background.

California code are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

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

REGISTERED CIVIL ENGINEER

May 1, 2006
PLANS APPROVAL DATE

Registered Professional Engineer — Greg W. Edwards — C56586 — 6-30-06 — CIVIL — State of California

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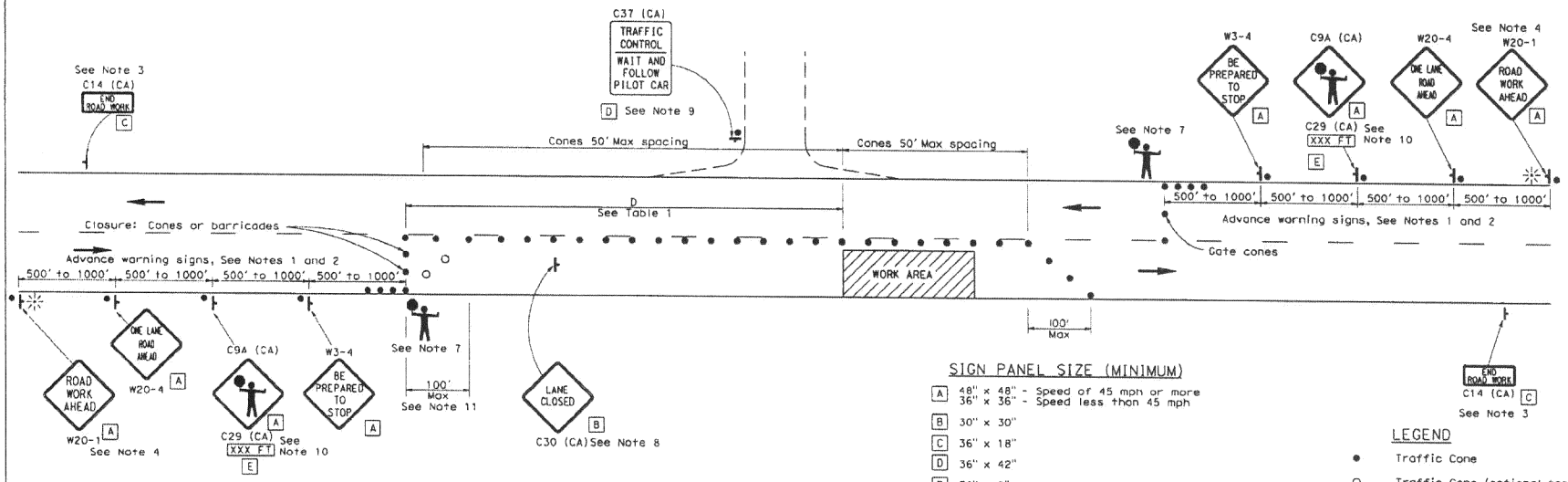
TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL



SIGN PANEL SIZE (MINIMUM)

- A 48" x 48" - Speed of 45 mph or more
  36" x 36" - Speed less than 45 mph
- B 30" x 30"
- C 36" x 18"
- D 36" x 42"
- E 36" x 9"

LEGEND

- Traffic Cone
- Traffic Cone (optional taper)
- Temporary Sign
- Direction of Travel
- Portable Flashing Beacon
- Flagger

NOTES:

1. Where approach speeds are low, advance warning signs may be placed at 300' spacing, and closer in urban areas.
2. Each advance warning sign in each direction of travel shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
3. A C14 (CA) "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a larger project's limits.
4. If the W20-1 sign would follow within 2000' of a stationary W20-1 or C11 (CA) "ROAD WORK NEXT _____MILES", use a W20-4 sign for the first advance warning sign.
5. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
6. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
7. Additional advance flaggers may be required. Flagger should stand in a conspicuous place, be visible to approaching traffic as well as approaching vehicles after the first vehicle has stopped. During the hours of darkness, the flagging-station and flagger shall be illuminated and clearly visible to approaching traffic. The illumination footprint of the lighting on the ground shall be at least 20' in diameter. Place a minimum of four cones at 50' intervals in advance of flagger station as shown.
8. Place C30 (CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work areas. They are optional if the work area is visible from the flagger station.
9. When a pilot car is used, place a C37 (CA) "TRAFFIC CONTROL-WAIT AND FOLLOW PILOT CAR" sign at all intersections within traffic control area. Signs shall be clean and visible at all times.
10. An optional C29 (CA) sign may be placed below the C9A (CA) sign.
11. Traffic cones or barricades may be placed on the optional taper as shown, barricades shall be Type I, II, or III.

TABLE 1

Approach Speed	Minimum D	Downgrade Minimum D *		
		-3%	-6%	-9%
mph	ft	ft	ft	ft
25 and below	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785

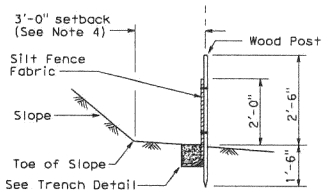
* Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

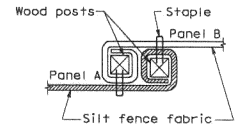
TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS

NO SCALE

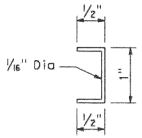
T13



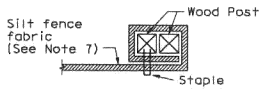
SECTION A-A
TEMPORARY SILT FENCE



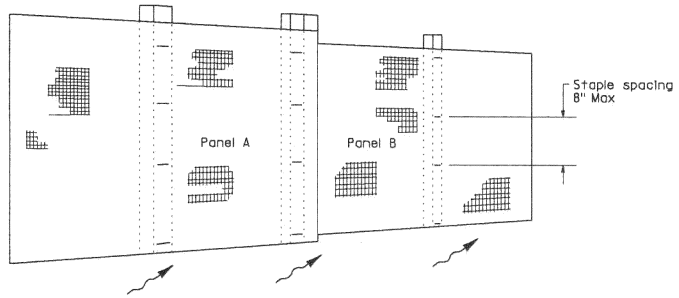
PLAN
POST AT JOINTS



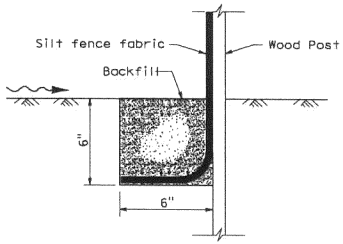
STAPLE DETAIL
(See Note 8)



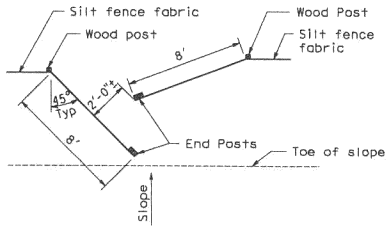
PLAN
END POST DETAIL



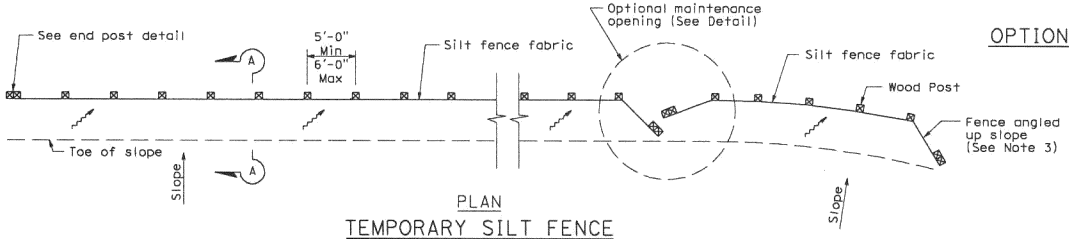
PERSPECTIVE
SILT FENCE PANELS AT JOINTS



SECTION
TRENCH DETAIL



PLAN
OPTIONAL MAINTENANCE OPENING DETAIL



PLAN
TEMPORARY SILT FENCE

NOTES:

1. Install Temporary Silt Fence by first digging trench, driving posts, placing and securing fabric. Then backfill and tamp.
2. Reach length not to exceed 500 feet.
3. The down stream end of the Temporary Silt Fence shall have the last 8' angled up slope.
4. Setback dimensions may vary to fit field conditions.
5. Posts to overlap and fence fabric to fold around each post one full turn. Secure fabric with 4 staples for each post.
6. Posts shall be driven tightly together to prevent potential flow-through of sediment at the joint. The tops of the posts shall be secured to each other with wire.
7. For each end post, fence fabric shall be folded around two posts one full turn and secured with 4 staples.
8. Minimum of 4 staples shall be installed per post. Dimensions shown are typical.
9. Maintenance openings shall be constructed in a manner to ensure that sediment is retained by the temporary silt fence.
10. Joint sections shall not be placed at sump locations.

LEGEND

- Tamped backfill
- Slope direction
- Direction of flow

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

LICENSED LANDSCAPE ARCHITECT

May 1, 2006
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT — Robert B. Schmitt — Signature — 11-30-06 Renewal date — 10-31-06 Date — STATE OF CALIFORNIA

To get to the Caltrans web site, go to: http://www.dot.ca.gov

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY SILT FENCE)

NO SCALE

T51

10-27-05

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

Robert B. Schatt
LICENSED LANDSCAPE ARCHITECT

May 1, 2006
PLANS APPROVAL DATE

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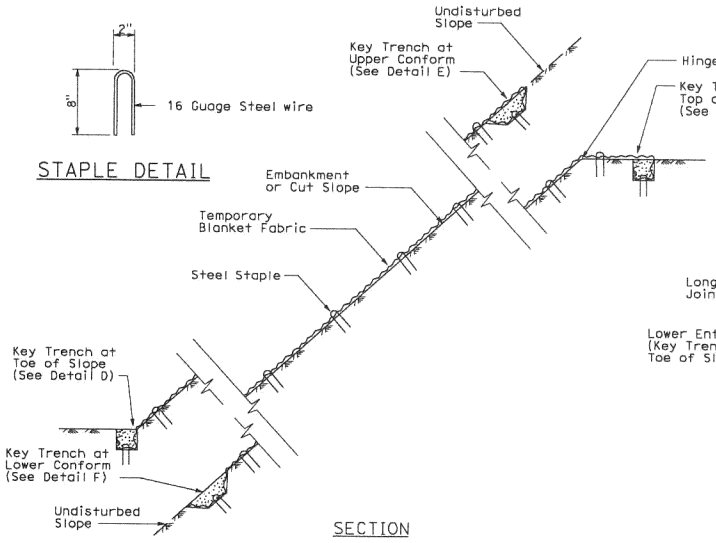
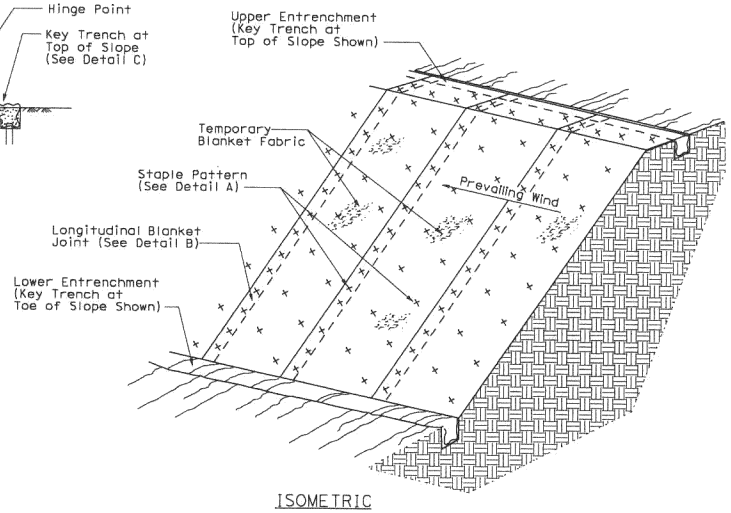


STAPLE DETAIL

SECTION

TEMPORARY EROSION CONTROL BLANKET
ON SLOPE WITH VARIOUS KEY ENTRENCHMENTS

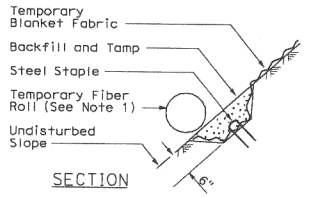


ISOMETRIC

TEMPORARY EROSION CONTROL BLANKET
ON SLOPE

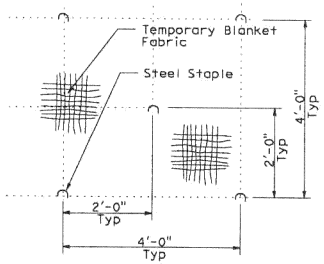
NOTE:

1. Temporary fiber roll shown for reference purposes only.

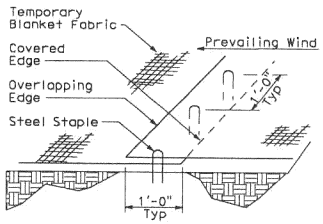


SECTION

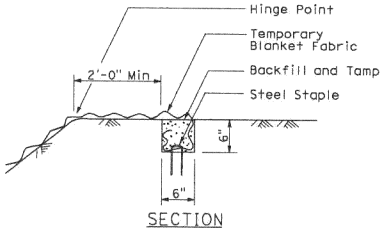
DETAIL F
KEY TRENCH AT
LOWER CONFORM



DETAIL A
STAPLE PATTERN

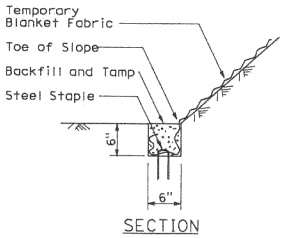


DETAIL B
LONGITUDINAL BLANKET JOINT



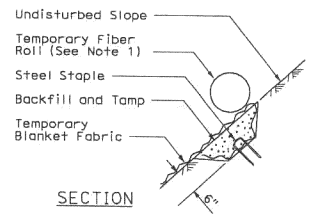
SECTION

DETAIL C
KEY TRENCH AT
TOP OF SLOPE



SECTION

DETAIL D
KEY TRENCH AT
TOE OF SLOPE



SECTION

DETAIL E
KEY TRENCH AT
UPPER CONFORM

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY EROSION CONTROL BLANKET)

NO SCALE

T54

10-20-05

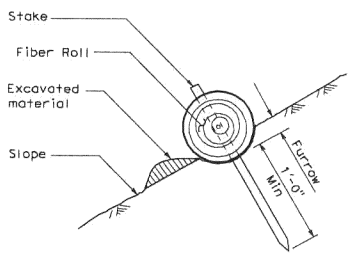
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

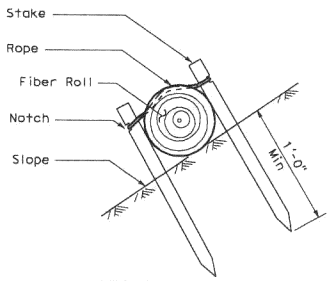
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated _____

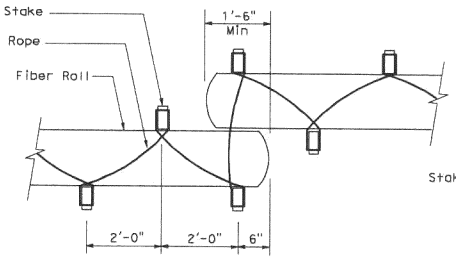


SECTION

TEMPORARY FIBER ROLL (TYPE 1)

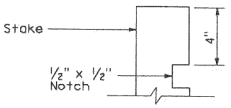


SECTION



PLAN

TEMPORARY FIBER ROLL (TYPE 2)

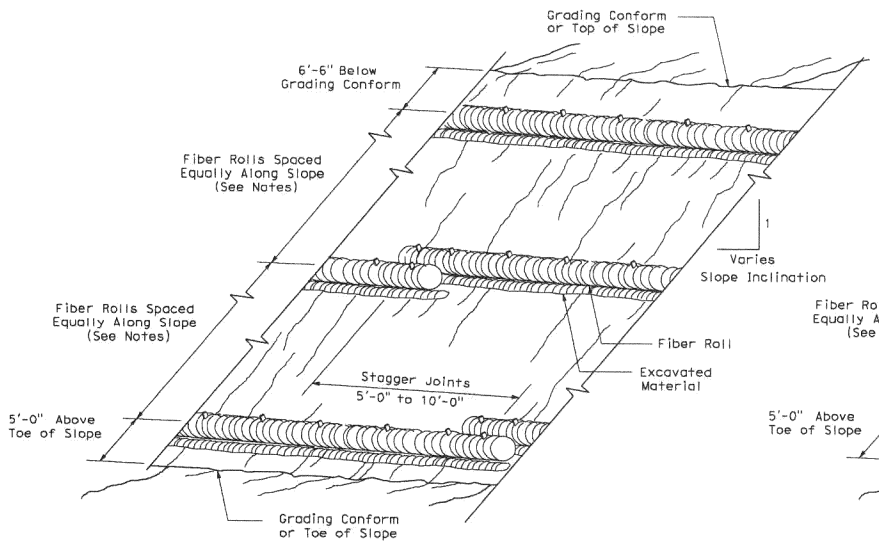


ELEVATION

STAKE NOTCH DETAIL

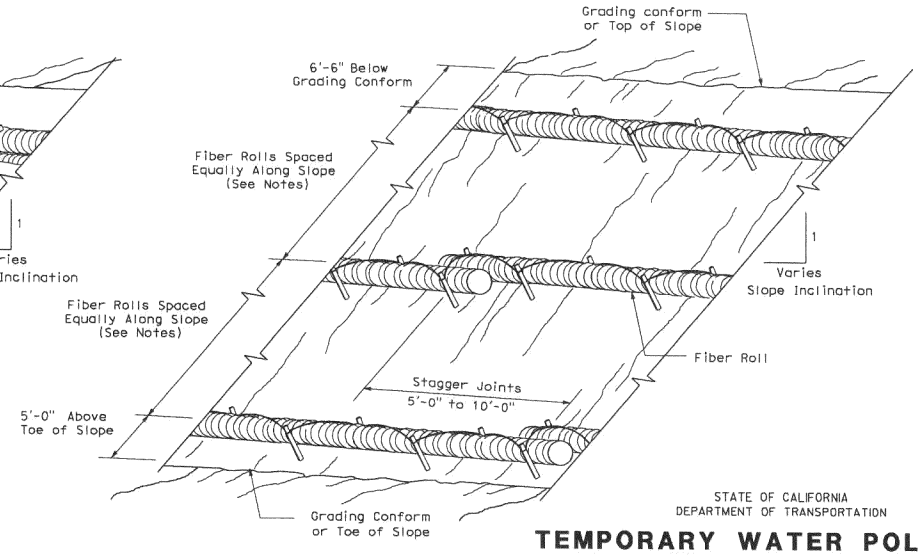
NOTES:

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



PERSPECTIVE

TEMPORARY FIBER ROLL (TYPE 1)



PERSPECTIVE

TEMPORARY FIBER ROLL (TYPE 2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY FIBER ROLL)

NO SCALE

RSP T56 DATED APRIL 3, 2009 SUPERSEDES STANDARD PLAN T56 DATED MAY 1, 2006 - PAGE 232 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T56

2-23-09

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

LICENSED LANDSCAPE ARCHITECT

May 1, 2006
PLANS APPROVAL DATE

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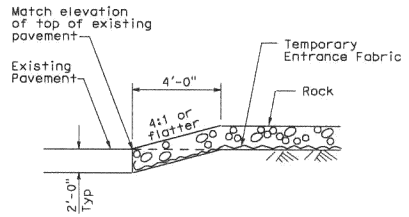
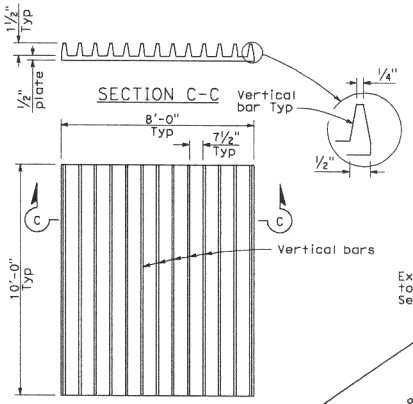
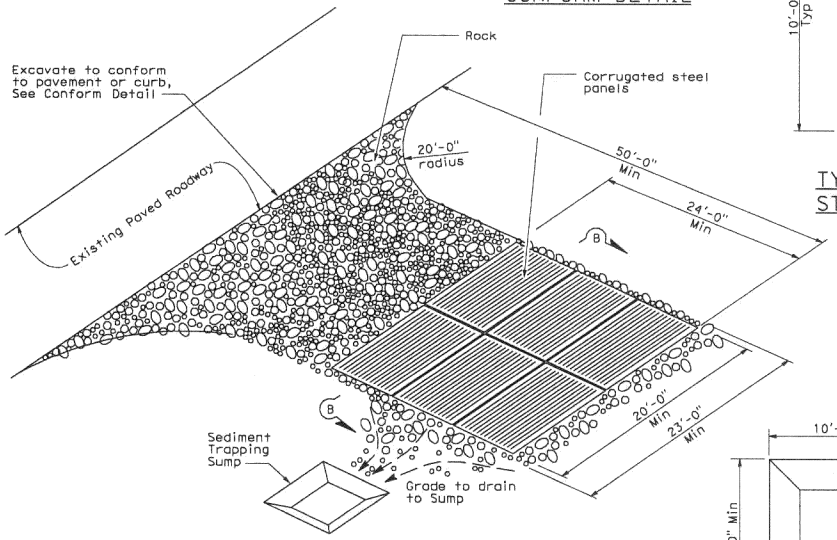


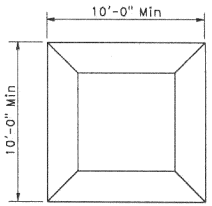
SECTION
CONFORM DETAIL



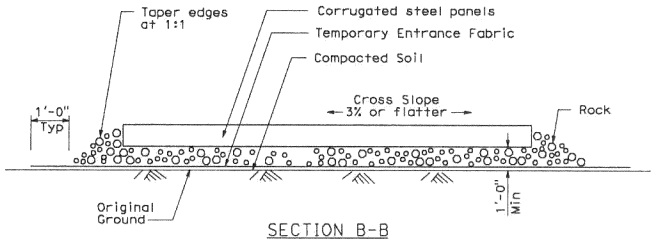
PLAN
TYPICAL CORRUGATED
STEEL PANEL DETAIL



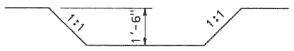
PERSPECTIVE
TEMPORARY CONSTRUCTION ENTRANCE (TYPE 2)



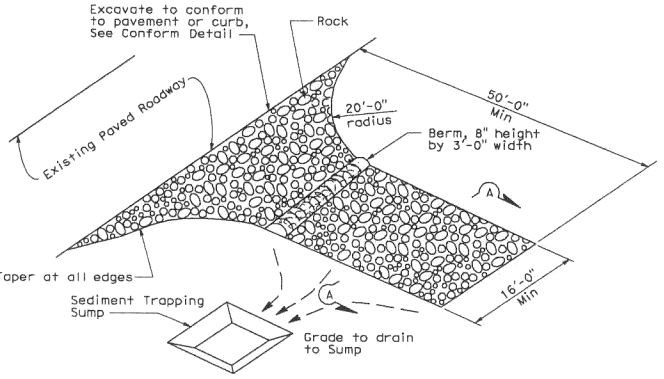
PLAN



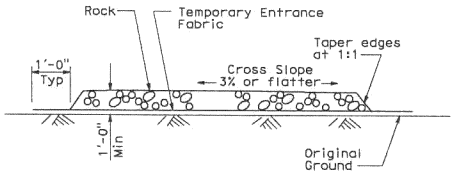
SECTION B-B



ELEVATION
SEDIMENT TRAPPING SUMP



PERSPECTIVE
TEMPORARY CONSTRUCTION ENTRANCE (TYPE 1)



SECTION A-A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY CONSTRUCTION ENTRANCE)

NO SCALE

T58

10-20-05

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

LICENSED LANDSCAPE ARCHITECT

May 1, 2006
PLANS APPROVAL DATE

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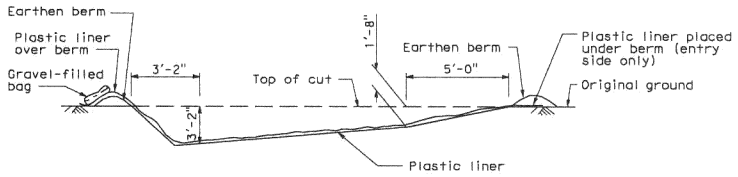
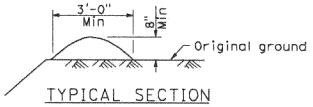
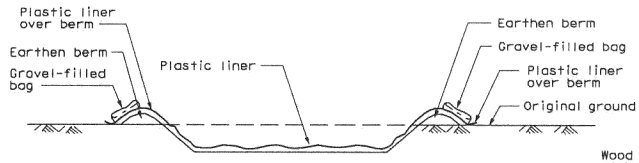


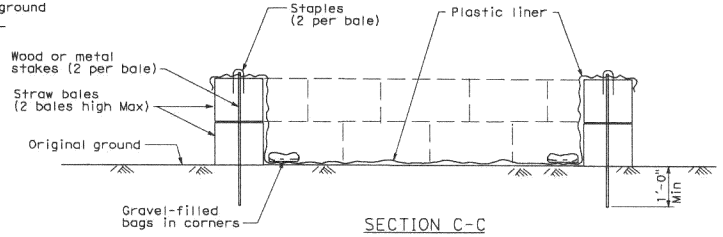
SECTION B-B



TYPICAL SECTION
EARTHEN BERM



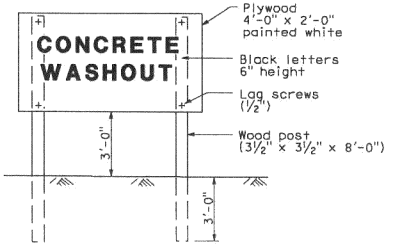
SECTION A-A



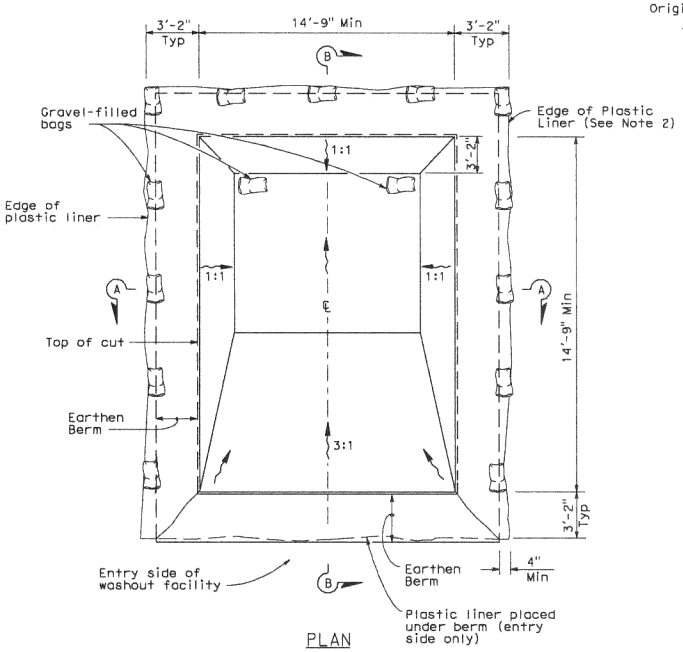
SECTION C-C

NOTES:

1. The concrete washout sign shall be installed within 32'-10" of the temporary concrete washout facility.
2. Plastic liner shall be anchored with gravel-filled bags for below grade concrete washout facility.

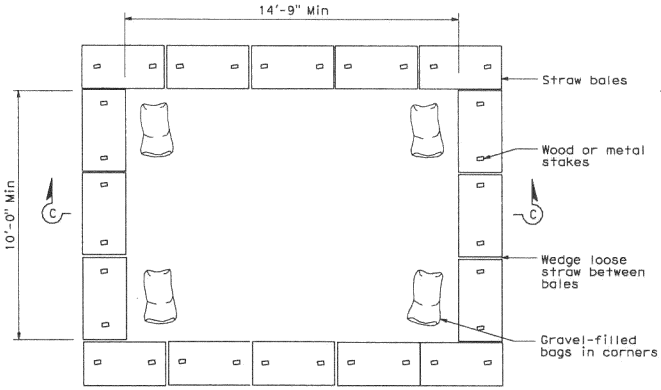


CONCRETE WASHOUT SIGN DETAIL



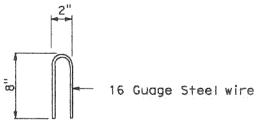
PLAN

TEMPORARY CONCRETE WASHOUT FACILITY
(Below Grade)



PLAN

TEMPORARY CONCRETE WASHOUT FACILITY
(On Grade)



STAPLE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY CONCRETE WASHOUT FACILITY)

NO SCALE

T59

10-20-05

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

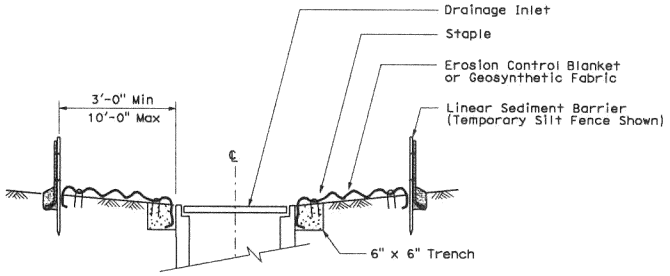
Robert B Schutt
LICENSED LANDSCAPE ARCHITECT

August 15, 2008
PLANS Approval DATE

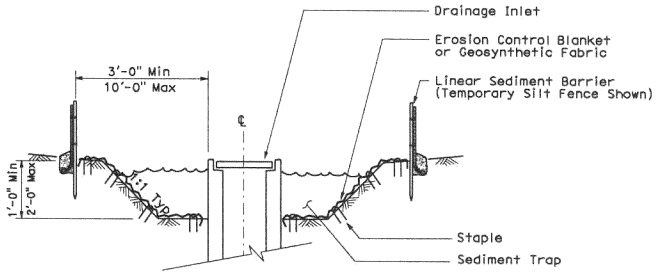
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT — Robert B. Schutt — Signature — 11-04-08 Renewal Date — 08-11-08 Date — STATE OF CALIFORNIA

To accompany plans dated _____



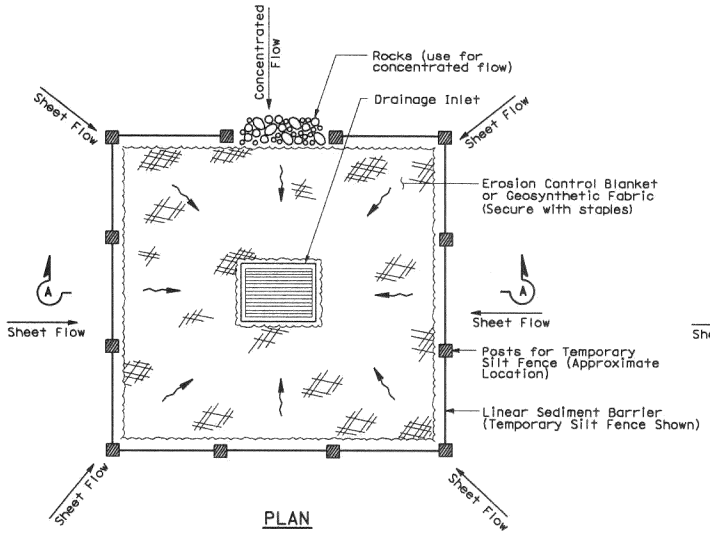
SECTION A-A



SECTION B-B

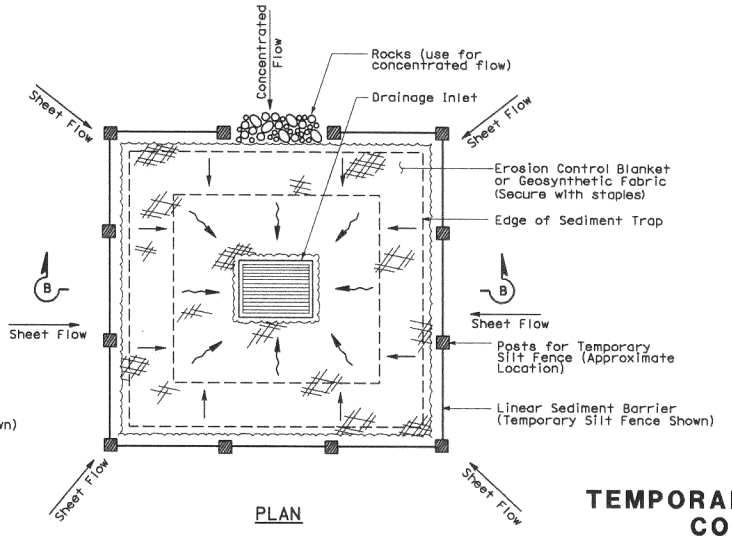
NOTES:

1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.



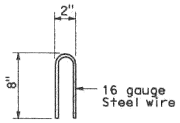
PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)



PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 2) (EXCAVATED SEDIMENT TRAP)



STAPLE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE

Nsp t61 dated august 15, 2008 supplements the standard plans book dated may 2006.

NEW STANDARD PLAN NSP T61

7-11-08

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

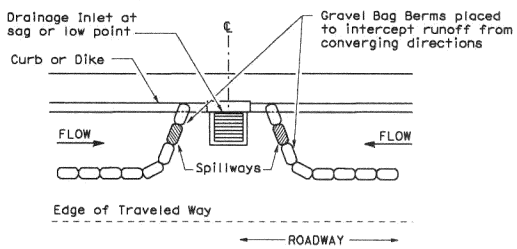
LICENSED LANDSCAPE ARCHITECT

August 15, 2008
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT
Signature
11-04-08
Renewal Date
08-11-08
Date
STATE OF CALIFORNIA

To accompany plans dated _____



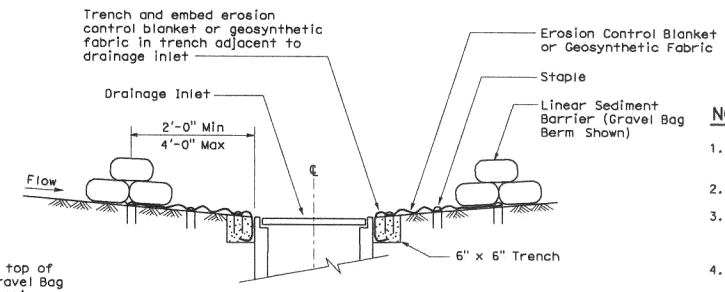
PLAN

CONFIGURATION FOR SAG POINT INLET (GRAVEL BAG BERM)

GRAVEL BAG BERM (TYPE 3A) SPACING TABLE

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

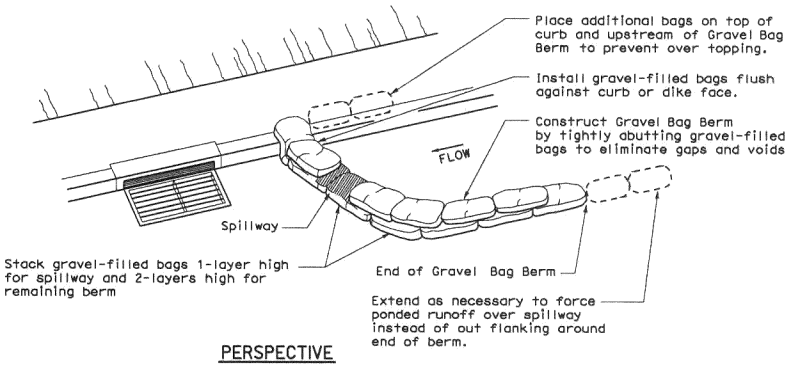
For slope of less than 1%, install barriers only if erosion/sediment is prevalent



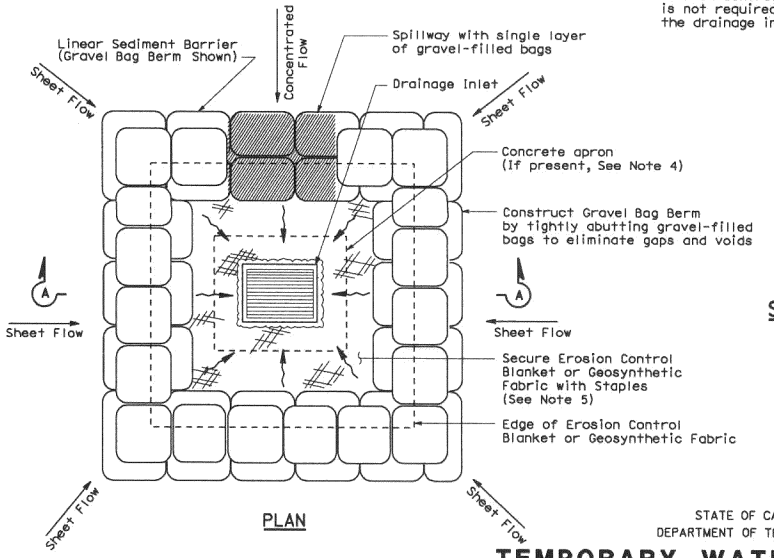
SECTION A-A

NOTES:

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

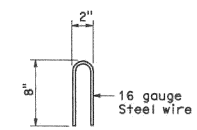


PERSPECTIVE

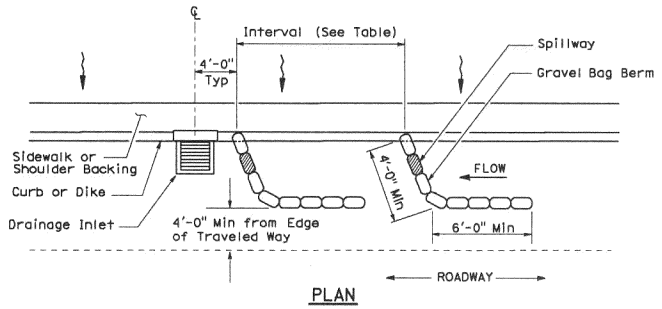


PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3B)



STAPLE DETAIL



PLAN

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE

NSP T62 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T62

7-11-08

FLEXIBLE SEDIMENT BARRIER SPACING TABLE

SLOPE OF ROADWAY (PERCENT)	0 to 0.9	1 to 1.9	2 to 2.9	3 to 4	5+
INTERVAL BETWEEN BARRIERS	50'	35'	30'	25'	20'
ANGLE FROM FACE OF CURB	70°	70°	70°	45°	45°
SUGGESTED BARRIER LENGTH	6'	6'	6'	6'	6'

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

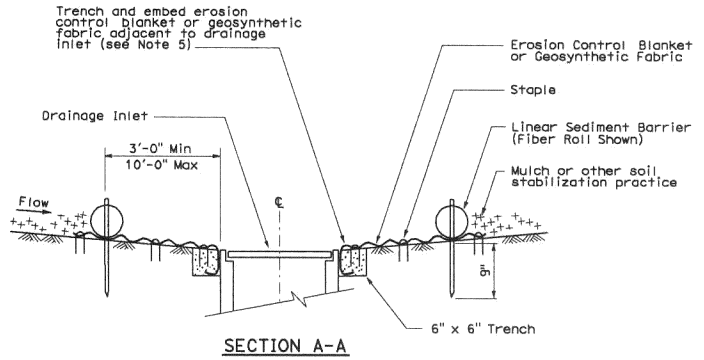
Robert B Schott
LICENSED LANDSCAPE ARCHITECT

August 15, 2008
PLANS APPROVAL DATE

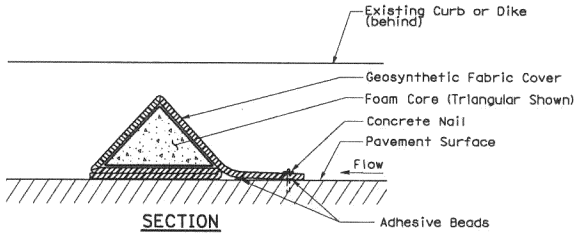
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott — Signature 11-24-08 — Expiration date — 08-11-08 — Date — STATE OF CALIFORNIA

To accompany plans dated _____

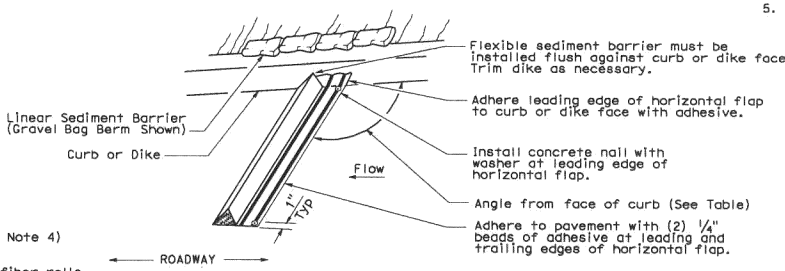


SECTION A-A



SECTION

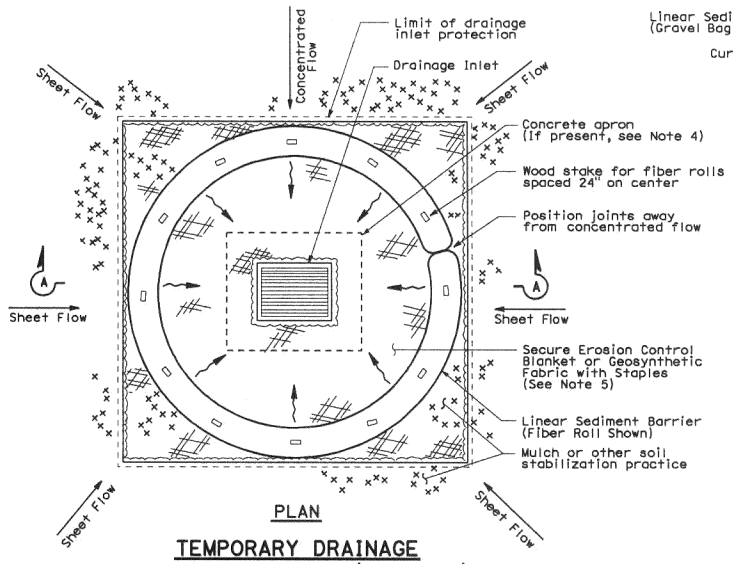
FLEXIBLE SEDIMENT BARRIER DETAIL (FOAM BARRIER SHOWN)



PERSPECTIVE

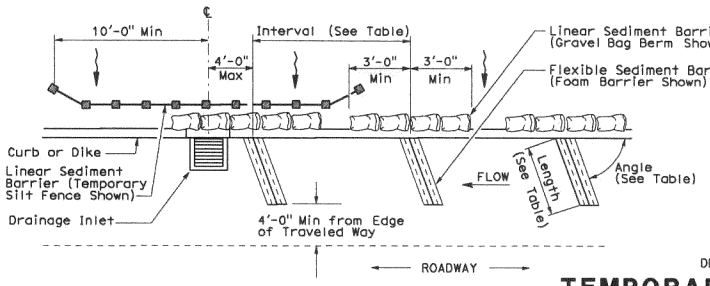
NOTES:

1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 flexible sediment barriers upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated.



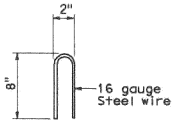
PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4A)



PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4B) FLEXIBLE SEDIMENT BARRIER



STAPLE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

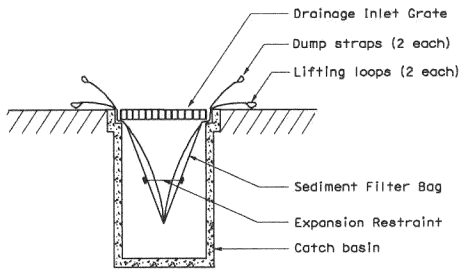
TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE

NSP T63 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

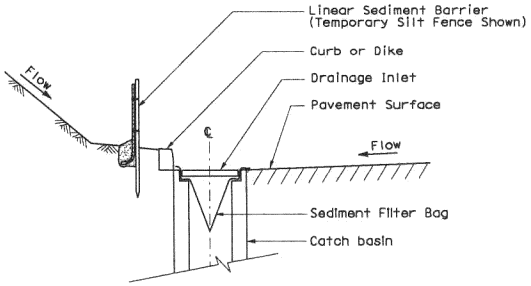
NEW STANDARD PLAN NSP T63

7-11-08

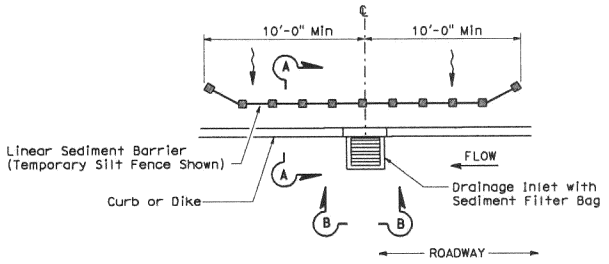


SECTION B-B

SEDIMENT FILTER BAG DETAIL

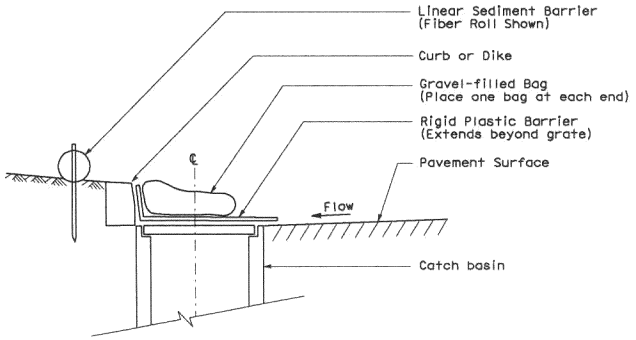


SECTION A-A



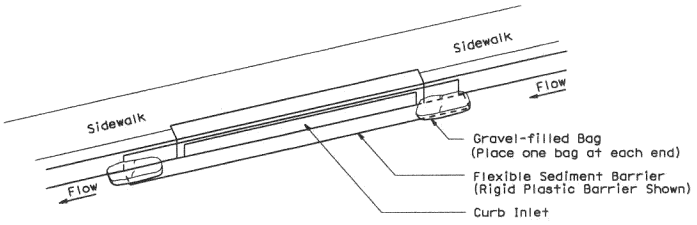
PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 5) (SEDIMENT FILTER BAG)



SECTION

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 6A) (CATCH BASIN WITH GRATE)



PERSPECTIVE

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 6B) (CURB INLET WITHOUT GRATE)

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

LICENSED LANDSCAPE ARCHITECT

August 15, 2008
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT — Robert B. Schultz — 2520 — 11-04-08 — 04-11-08 — STATE OF CALIFORNIA

To accompany plans dated _____

NOTES:

1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE

NSP T64 DATED AUGUST 15, 2008 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T64

7-11-08

2006 NEW STANDARD PLAN NSP T64

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

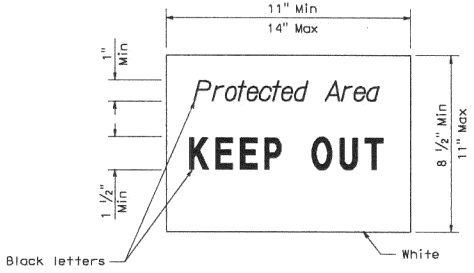
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT — Robert B. Schmitt — Signature — 11-30-10 Renewal date — 2-25-09 Date — STATE OF CALIFORNIA

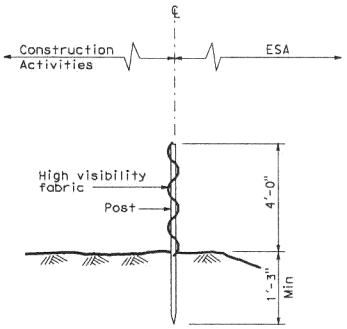
To accompany plans dated _____



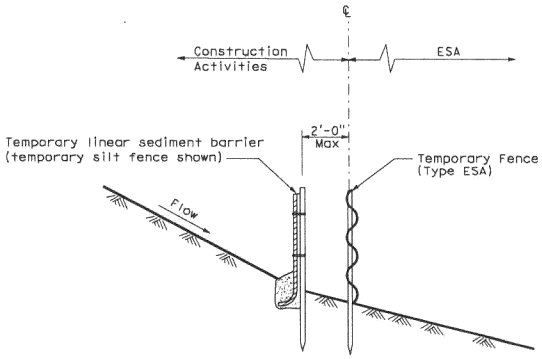
SIGN DETAIL

NOTE:

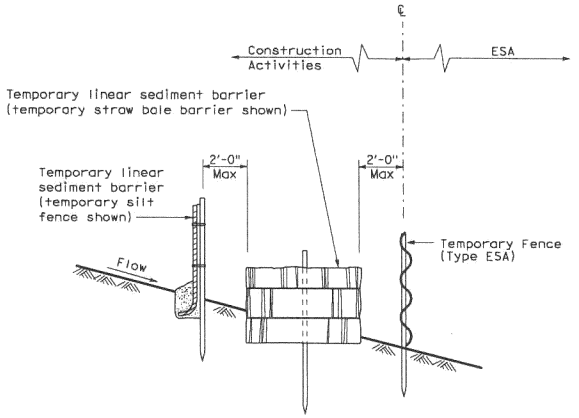
1. Temporary silt fence and temporary straw bale barrier shown for reference purposes only.



SECTION
TEMPORARY FENCE (TYPE ESA)



SECTION
PLACEMENT DETAIL
FOR TEMPORARY LINEAR SEDIMENT BARRIER
USED WITH TEMPORARY
FENCE (TYPE ESA)
(See Note 1)



SECTION
PLACEMENT DETAIL
FOR TEMPORARY SILT FENCE
AND TEMPORARY STRAW BALE BARRIER
USED WITH TEMPORARY FENCE (TYPE ESA)
(See Note 1)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS [TEMPORARY FENCE (TYPE ESA)]

NO SCALE

NSP T65 DATED APRIL 3, 2009 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T65

2006 NEW STANDARD PLAN NSP T65

1-7-09