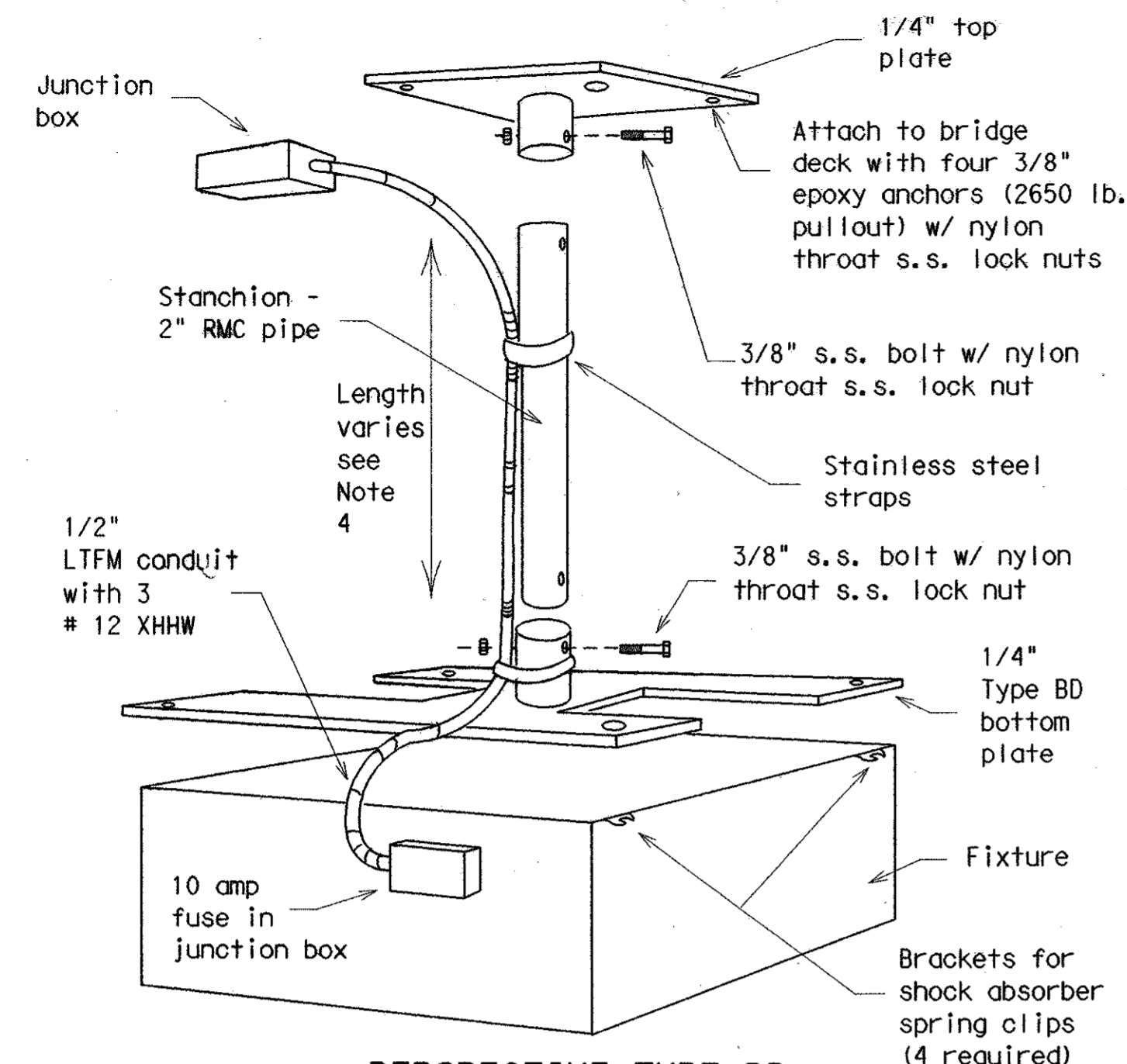
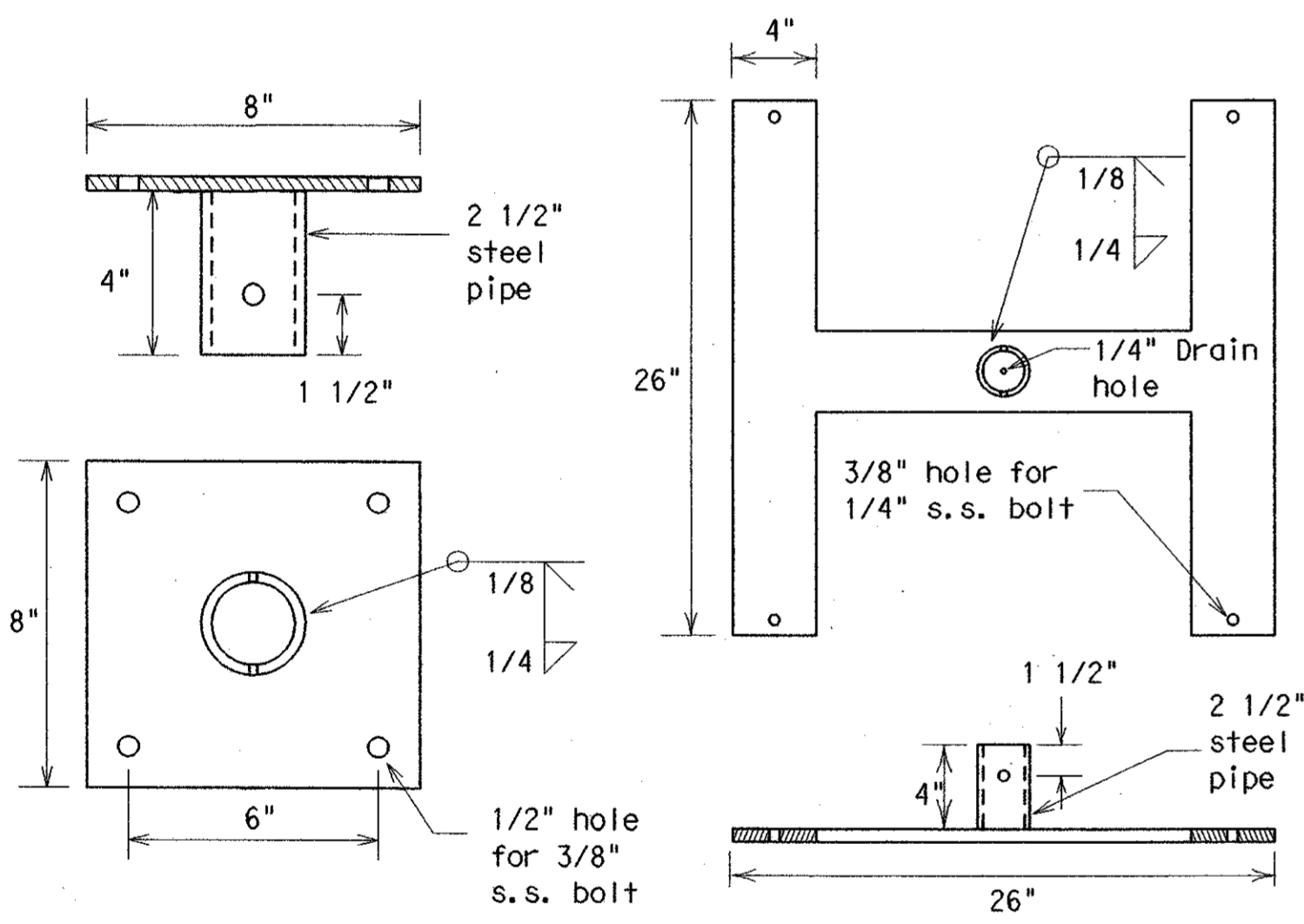


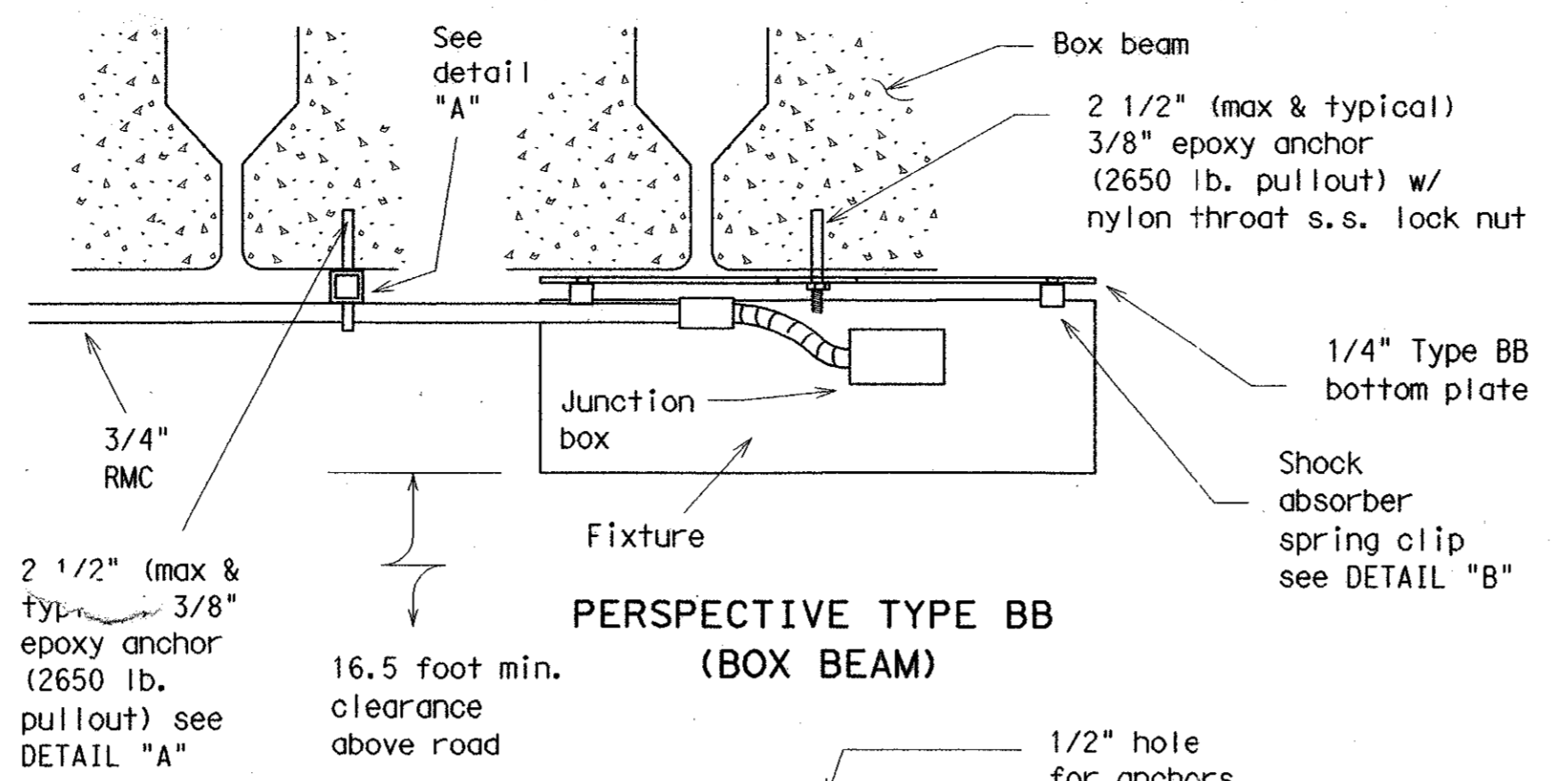
DISCLAIMER
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



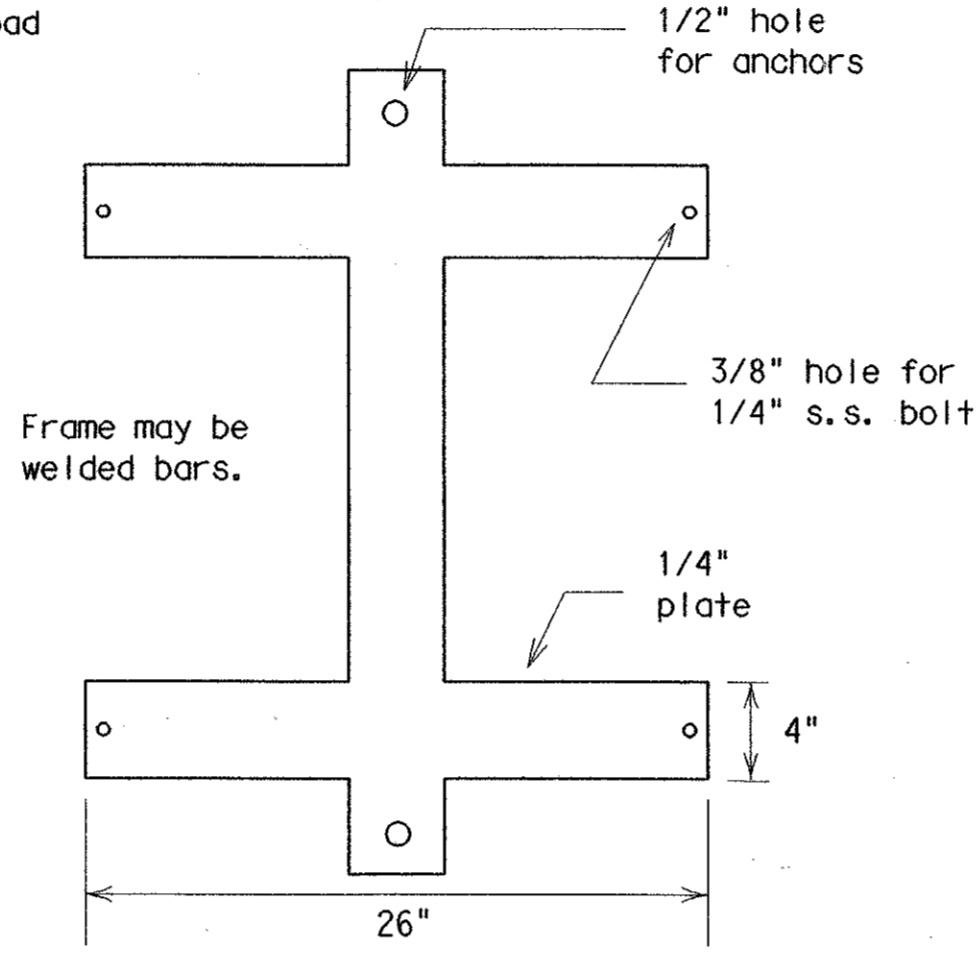
PERSPECTIVE TYPE BD
(BRIDGE DECK)



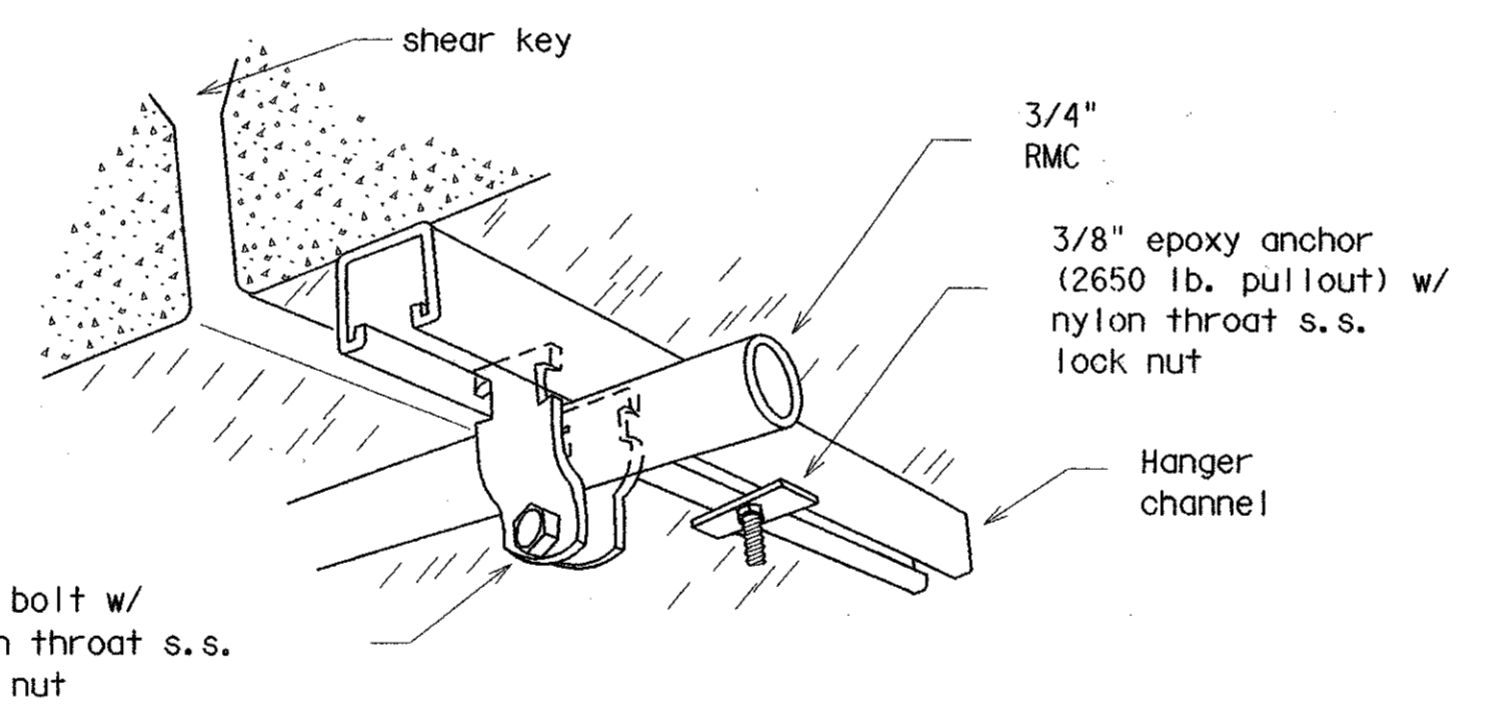
TOP PLATE - TYPE BD BOTTOM PLATE - TYPE BD



PERSPECTIVE TYPE BB
(BOX BEAM)



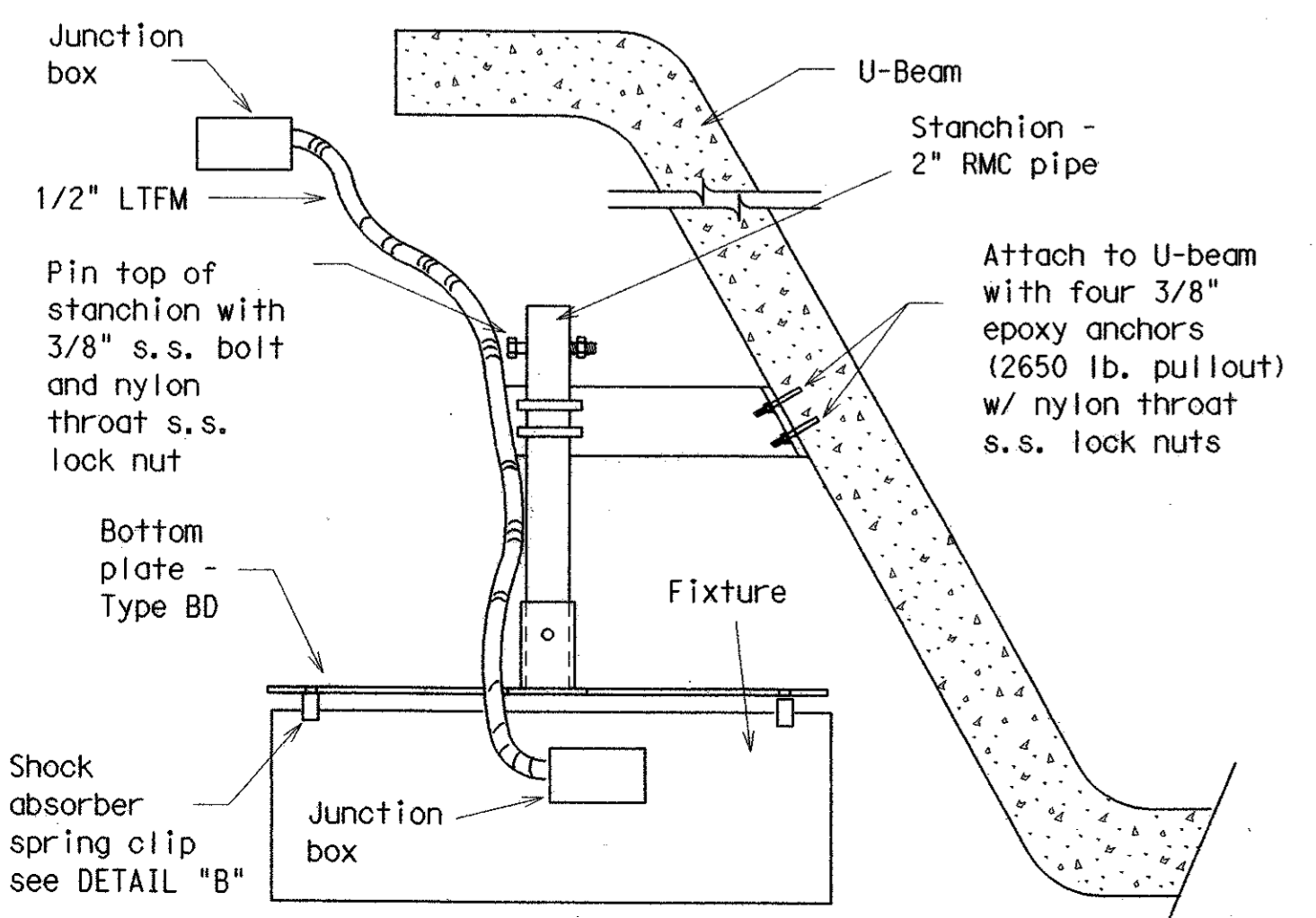
BOTTOM PLATE - TYPE BB



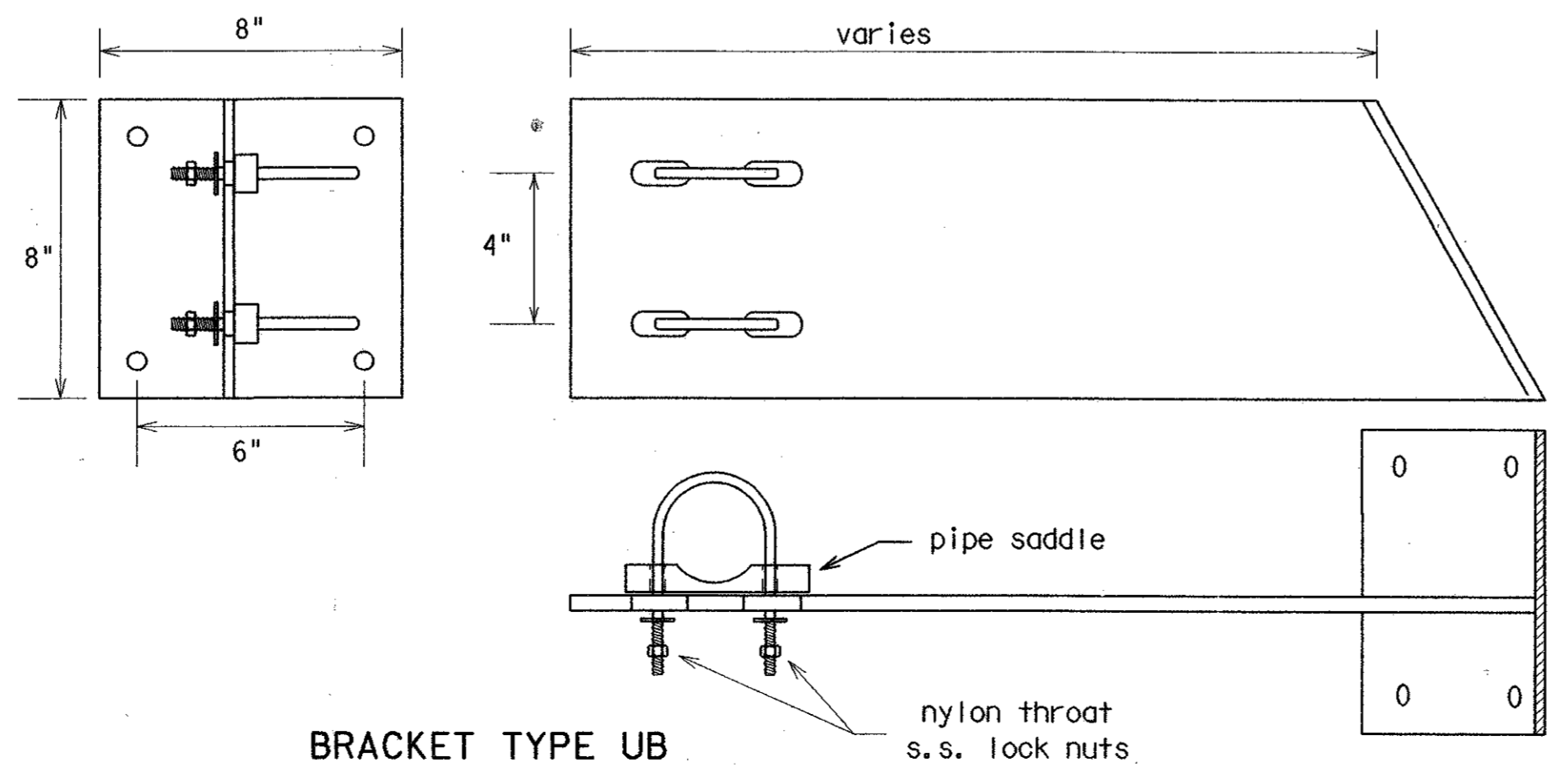
DETAIL "A"
Conduit attachment to box beam
(shown longer than necessary for clarity)

GENERAL NOTES:

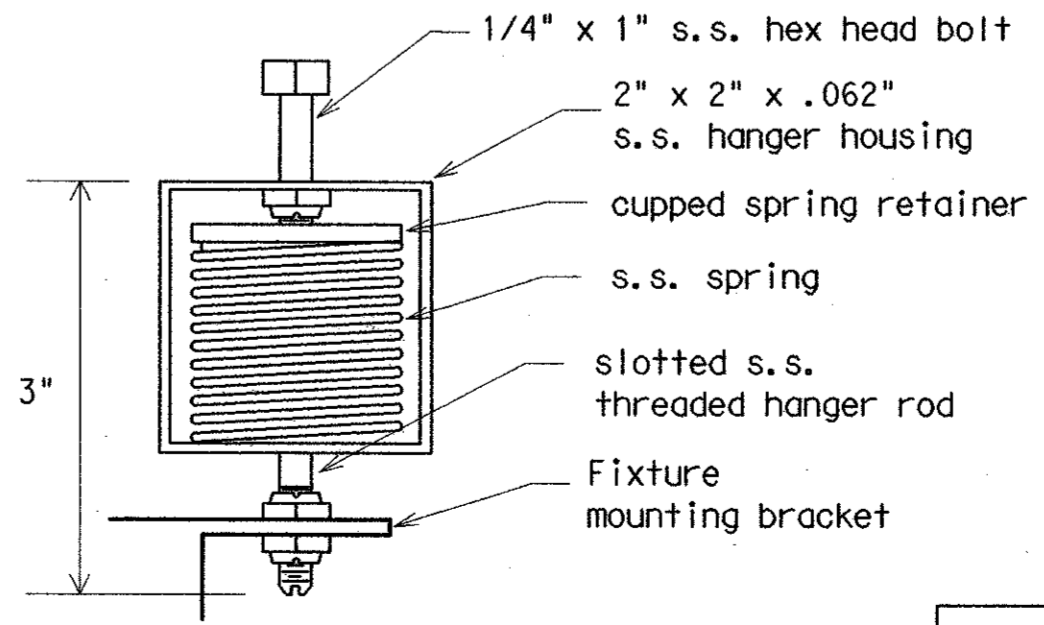
- These details apply to Roadway Illumination Assemblies bid under Item 610, "Roadway Illumination Assemblies," under the descriptive code, "Rdwy Ill Assem U/P Type IF." All associated hardware, mounting assemblies, parts, junction boxes, lamps, lenses, brackets, tools and labor required to install the underpass lighting assembly will not be paid for directly but shall be subsidiary to the various items of the contract, except that conduit, and conductors supplying the fixtures will be paid for separately. Mounting channel for conduit supports will not be paid for directly but shall be subsidiary to the various bid items of the contract.
- See RID (4) for general routing of conduits under bridge structures. New bent caps and columns shall have conduit embedded in concrete. One disconnect switch shall be installed for each group of underpass luminaires at each underpass or as shown on the lighting layout sheets. Disconnect switches shall be mounted on bent cap or header walls as shown on the plans or as directed by the Engineer. Disconnect switches shall be 30 amps, of the voltage rating of the circuit, fused for 20 amps unless shown otherwise on the plans. Disconnect switches shall not be paid for directly but shall be subsidiary to the various items of the contract.
- Indiscriminate drilling into pre-cast concrete beams will not be allowed. Drill only as shown or as specifically approved by the engineer.
- Cut stanchion to position fixture even with bottom of beams. Adjust stanchion to seat all the way into the 2 1/2 inch pipe to reduce rattling, then field drill and pin with bolt as shown. Do not oversize hole for pin. Repair cut ends and drilled hole galvanizing with three coats zinc rich paint (dry completely between coats).
- Hot dip galvanize all steel parts in accordance with Item 445, "Galvanizing."
- Adjust stanchion for bracket Type WB for vertical stanchion with fixture even with bottom of beam.
- Fixture shall meet the following requirements.
 - Fixture shall be a maximum of 28 inches square and 10 inches deep (mounting feet and junction box may extend outside the 28 inch square).
 - Fixture lamp(s) shall be one 150-watt Osram Sylvania Icetron induction fluorescent or one Philips QL 165 watt induction fluorescent. (240 volt or 120 volt only). External transformers will not be allowed.
 - Fixture shall be a full cutoff flat glass luminaire emitting a symmetric or asymmetric light pattern. Reflector shall be polished aluminum and shall be at least 95% efficient in reflecting light. Fixture lens retainer shall be positioned so as to not block light emitted from the fixture, i.e. shall not protrude over the reflecting surface.
 - When operating at 12,000 lumens and when mounted at 15 feet above the midpoint of a circular area, the radius of which is defined below, the fixture shall provide minimum light levels as shown below;
 - 0.2 foot-candles in a 35 ft radius
 - 1.0 one foot-candle in a 22 ft radius
 - 2.0 foot-candles in a 19 ft radius
 - Maximum of 27.0 foot-candles at any point in a 35ft radius.
 - Fixture photometrics shall match photometrics of published data.
 - Housing shall be made from aluminum sheeting (0.10 inch min), stainless steel (14 ga. Min) or cast aluminum. All seams shall be continuously welded. Fixture housing shall be sturdy and of good workmanship. Fixture housing shall have external mounting feet. Housing shall not have any penetrations except that wiring from the external junction box may penetrate to the ballast compartment. Such penetration shall be factory sealed with potting compound or CGB connector. All openings or construction joints in housing shall be effectively sealed.
 - Lens shall be heat tempered C73 flat glass, minimum 5/32 inch thick. Lens frame shall be sealed with continuous closed cell neoprene (EDPM) or silicon gasket material as approved by the engineer. Gasket shall be a minimum of 9/16 inch wide and 1/8 inch thick. Lens frame shall contact gasket with a minimum 9/16 inch return flange footing. Frame and housing shall have welded seams ground flush to provide flat surface for gasket contact. Lens shall be securely screwed to the housing with a minimum of 8 number 10 stainless steel screws. Screws shall have Teflon, neoprene, or silicon washers. In addition, the lens frame shall be sealed shut at the factory with RTV 501 sealant.
 - Wire attachment shall be through a junction box rigidly secured to the side of the fixture housing. Junction box shall be a minimum of 3/16 inch thick aluminum (Adelet) or hot dipped galvanized cast iron walls (FD type) and shall have a threaded knockout for 3/4 inch conduit. Wiring entry into fixture shall be sealed with sealing compound in a minimum 1 inch length nipple or by use of a CGB connector when cord is used. Box back wall shall be sealed to the fixture housing with sealant.
 - Fixtures shall be painted completely inside and outside with gray paint similar in color to "cobra head" luminaires. When other colors are shown on the plans, color shall be as approved by the engineer.
 - Fixtures shall be certified, in writing, by the lamp manufacturer to be capable of sufficient heat dissipation. Certification shall be submitted for approval with fixture submittal. Icetron lamps shall be supported at each end of the lamp. Lamp manufacturer and fixture manufacturer shall provide a written 60,000-hour life replacement warranty for the fixture/lamp combination for the underpass installation conditions of this project. Lamps/fixture shall be considered failed if light output drops below 60% of rated lumens. Warranty shall be submitted for approval with the fixture submittal.
 - Only materials, with approved product codes or designations, from prequalified producers are accepted on bids. The Construction Division (CST) of the Texas Department of Transportation (TxDOT) maintains the material producers list of approved producer product codes or designations. Use the following website to view this list:
<http://www.dot.state.tx.us/business/materialproducerlist.htm>
Use of prequalified material does not relieve the contractor of the responsibility to ensure that the material meets specifications. All materials, including those shown on the prequalified material list, may be inspected and tested at any time and may be rejected if not in compliance with the specifications.
 - All anchors into concrete shall be stainless steel and may be either expansion or epoxy, minimum 1000 lb. pull out, unless otherwise shown.
 - For box beam construction, if 16.5 foot clearance cannot be obtained, see Engineer for alternative underpass lighting.
 - Dimensions of brackets shall be adjusted as necessary to accommodate fixtures being supplied. Use Type BD for double T-beam mounting. Other mounting arrangements may be as approved by the Engineer.



PERSPECTIVE TYPE UB - (U-BEAM)



BRACKET TYPE UB
Make from 1/4" plate



DETAIL "B"
SHOCK ABSORBER SPRING CLIP
(HascalI-Denke SLH002 or equal)

1/04 Revision
Modify fixture specifications

LEVEL 10
1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

ROADWAY ILLUMINATION DETAILS
RID (5) - 04

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REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
1-04	6			BLS-10
COUNTY	CONTROL	SECTION	JOB	HIGHWAY