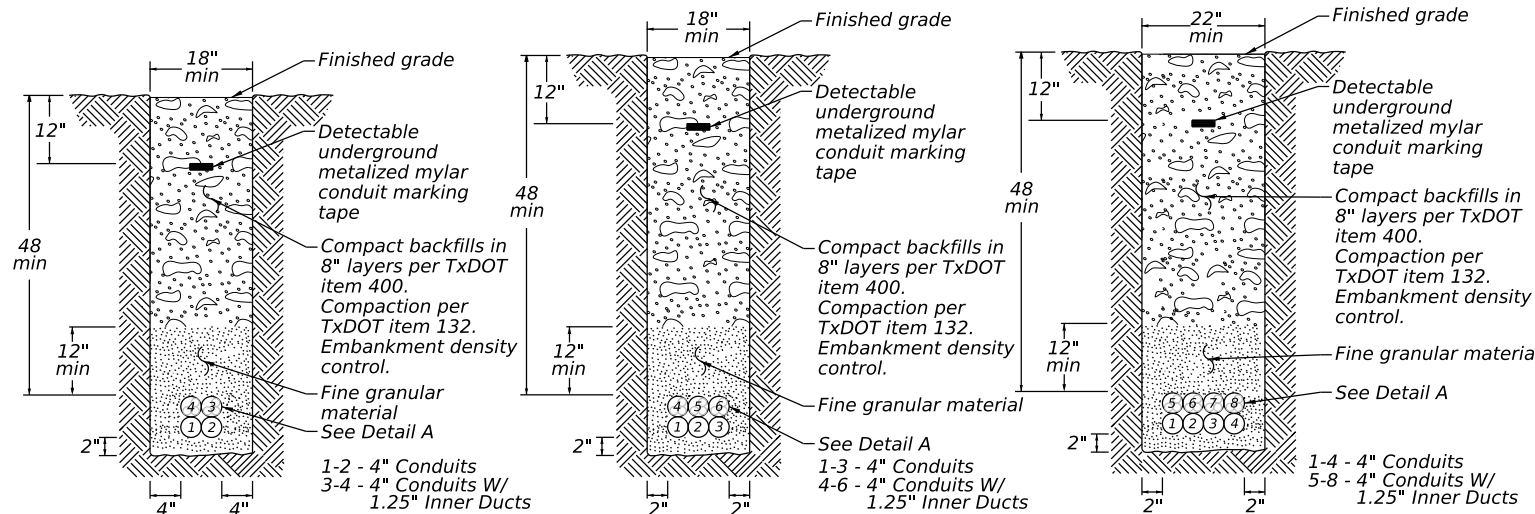


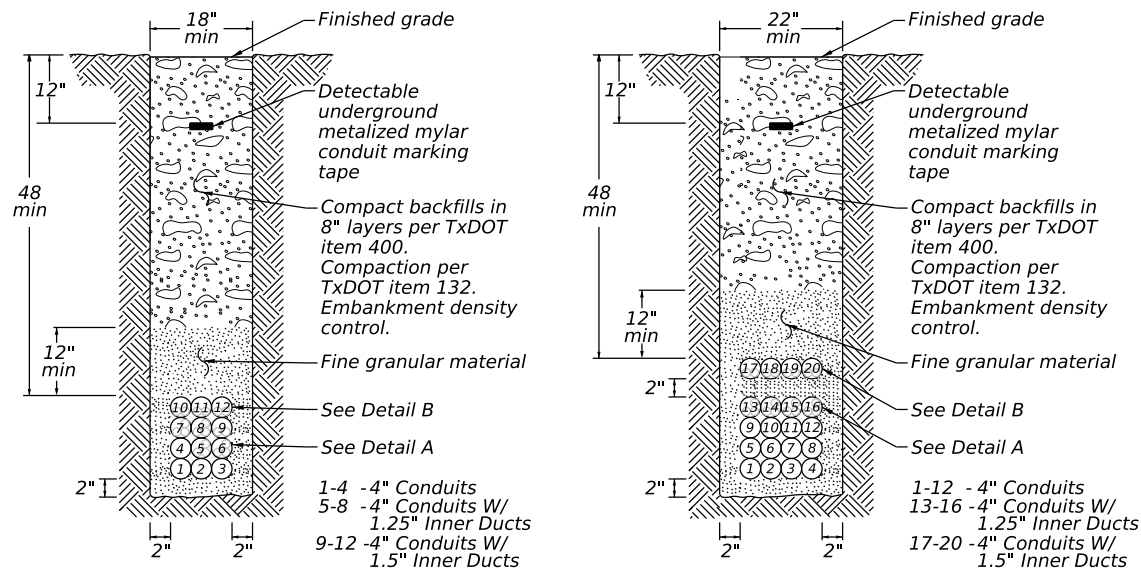
TRENCH DETAILS FOR NON-PAVEMENT AREA



FOUR DUCT TRENCH DETAILS  
JOINT TRENCH (OPEN CUT)

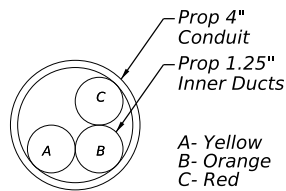
SIX DUCT TRENCH DETAILS  
JOINT TRENCH (OPEN CUT)

EIGHT DUCT TRENCH DETAILS  
JOINT TRENCH (OPEN CUT)

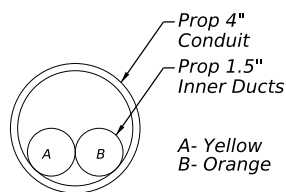


TWELVE DUCT TRENCH DETAILS  
JOINT TRENCH (OPEN CUT)

TWENTY DUCT TRENCH DETAILS  
JOINT TRENCH (OPEN CUT)

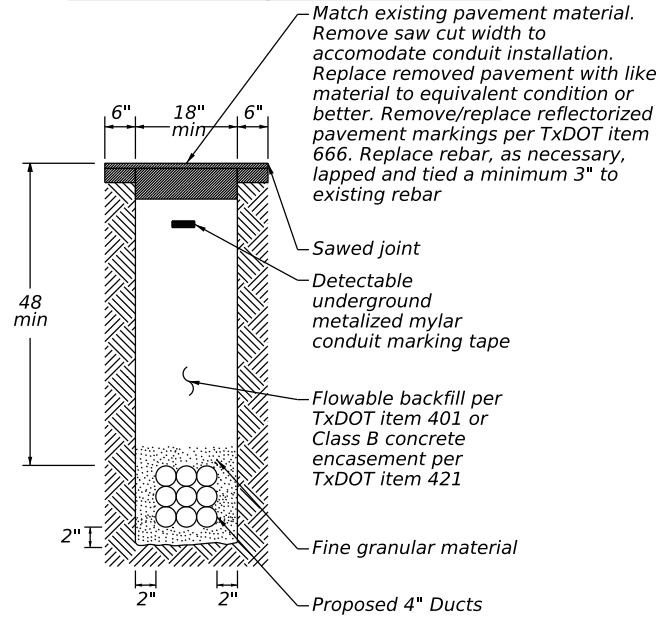


DETAIL A

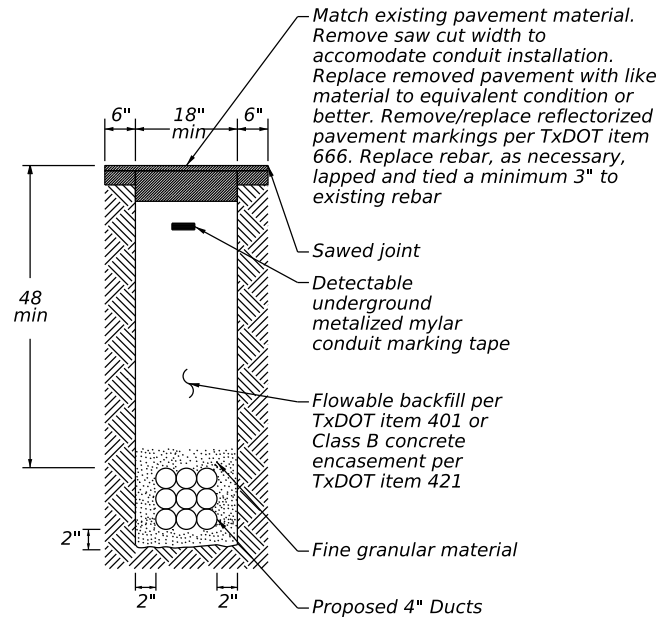


DETAIL B

TRENCH DETAILS FOR  
PAVEMENT/DRIVEWAYS

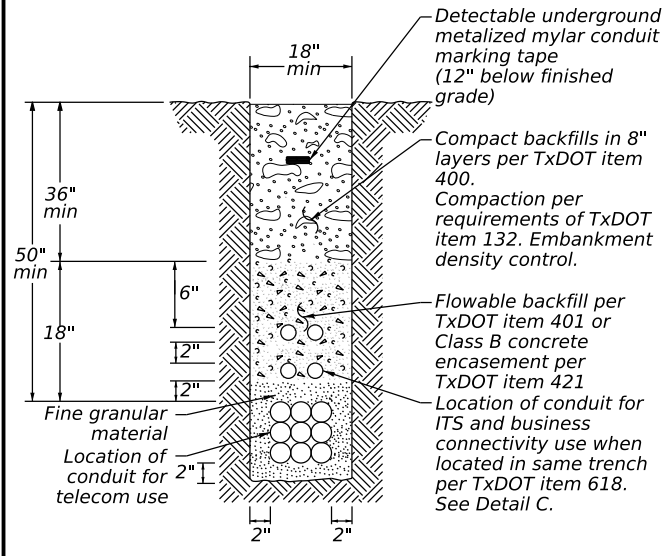


TYPICAL TRENCH DETAIL WITH  
DRIVEWAY RESTORATION

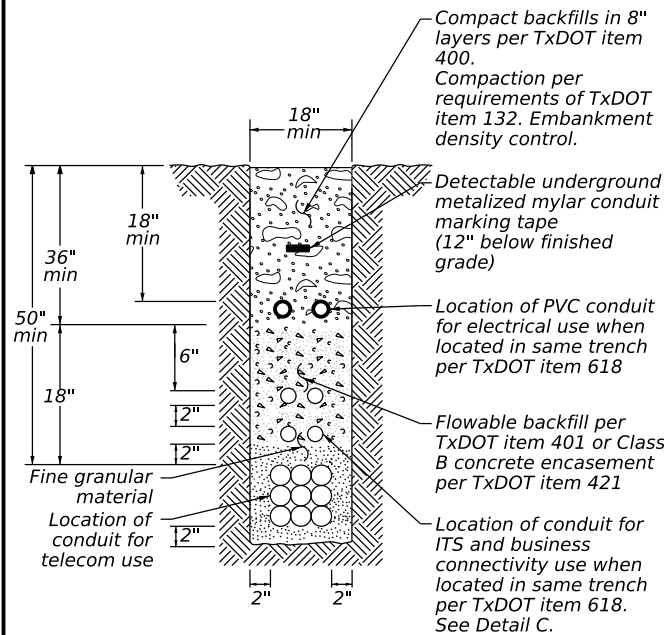


TYPICAL TRENCH DETAIL FOR  
INSTALLATIONS BELOW  
EXISTING/PROPOSED  
PAVEMENT OR RIP RAP

TRENCH DETAILS INCLUDING ITS  
AND ELECTRIC CONDUITS



TYPICAL TRENCH DETAIL JOINT  
TRENCH (OPEN CUT) W/ ITS

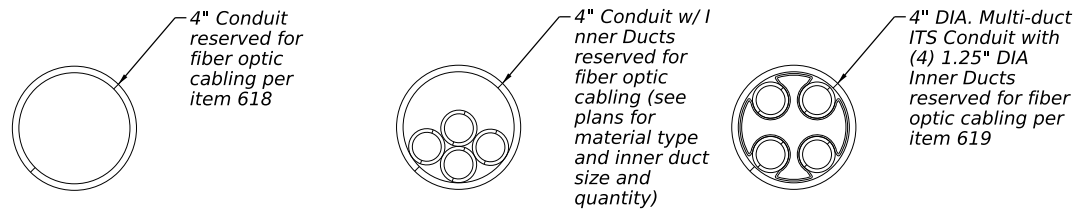


TYPICAL TRENCH DETAIL JOINT  
TRENCH (OPEN CUT) W/ ITS  
AND ELECTRIC

SHEET 1 of 7

NOTES:

- Contractor shall provide buried detectable underground metalized mylar conduit marking tape, i.e. utility tape, at 12" min below finished grade
- Contractor shall pull mule tape in each installed ducts/inner duct
- Furnishing and installation of pressure grouting will not be paid for directly but considered incidental to item 619 "Intelligent Transportation Systems (ITS) Multi-duct Conduit" or item 618, "Conduit."



DETAIL C



JOINT DUCT BANK  
TRENCH DETAILS  
JDB(1)-24

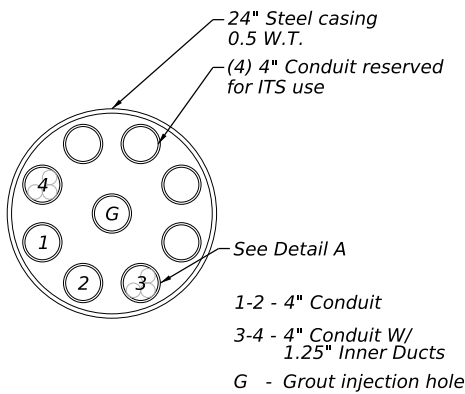
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© TxDOT	July 2024	CONT	SECT	JOB
REVISIONS				HIGHWAY
		DIST	COUNTY	SHEET NO.

Sheet Details  
Not to Scale

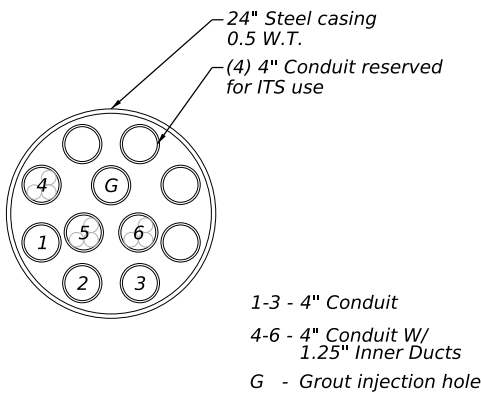
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DATE:  
FILE:

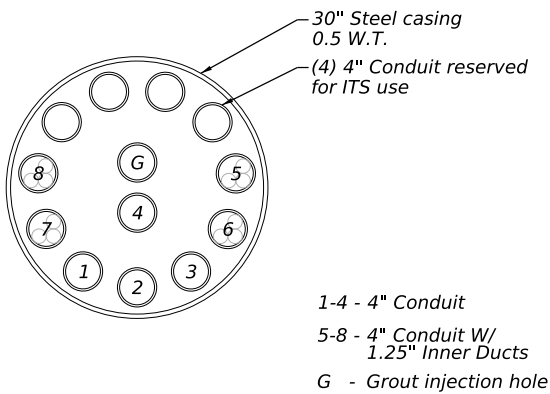
CONVENTIONAL CASING DETAIL (WITH ITS)



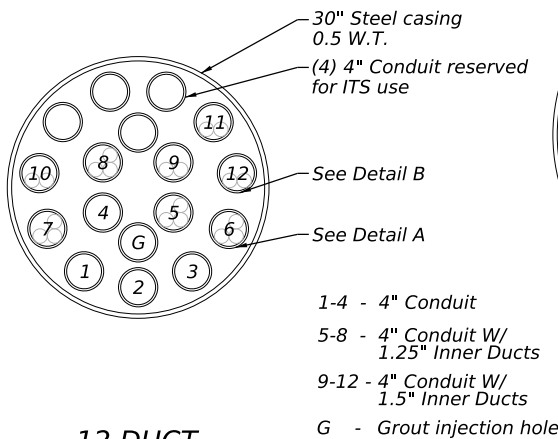
4 DUCT



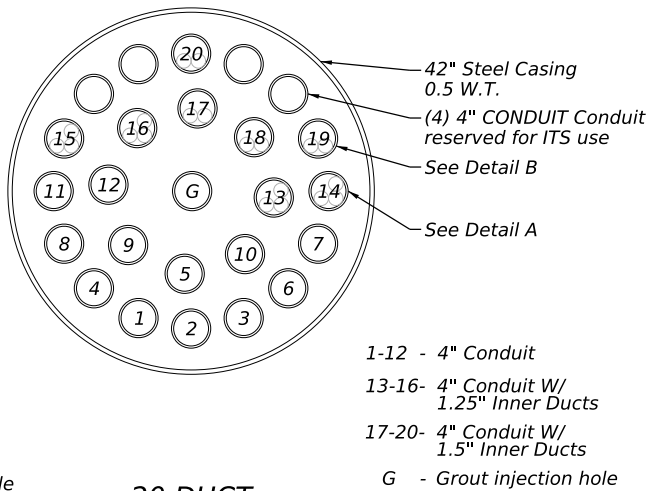
6 DUCT



8 DUCT

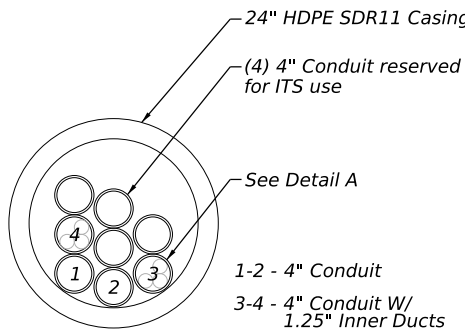


12 DUCT

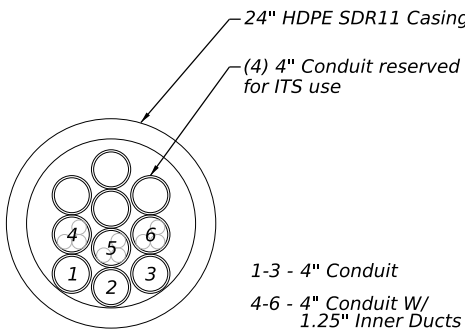


20 DUCT

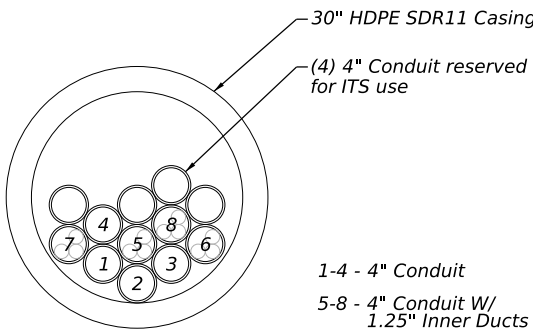
DIRECTIONAL CASING DETAIL (WITH ITS)



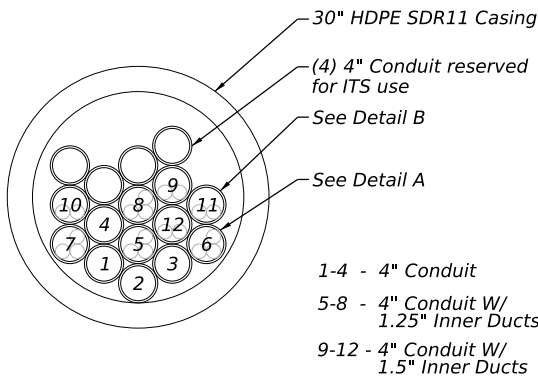
4 DUCT



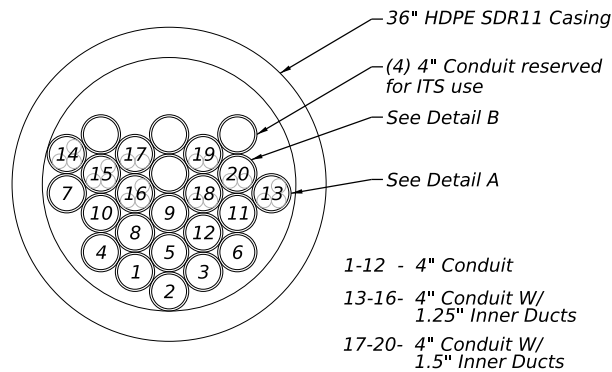
6 DUCT



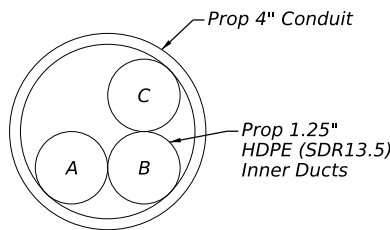
8 DUCT



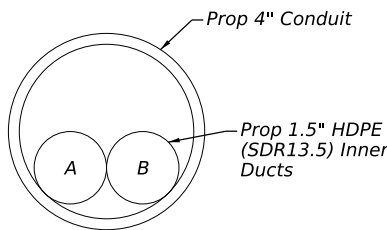
12 DUCT



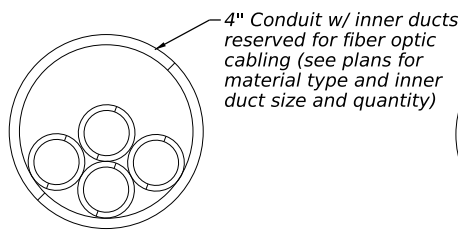
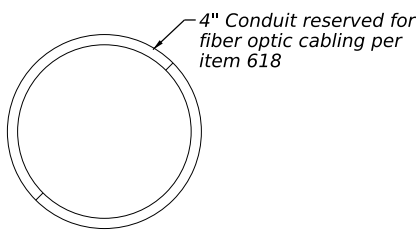
20 DUCT



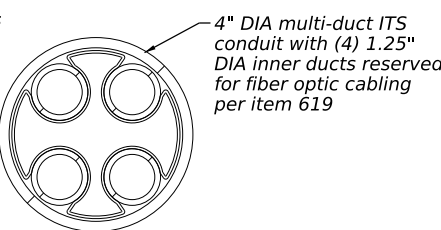
DETAIL A



DETAIL B



DETAIL C



Sheet Details  
Not to Scale

JOINT DUCT BANK  
CASING DETAILS

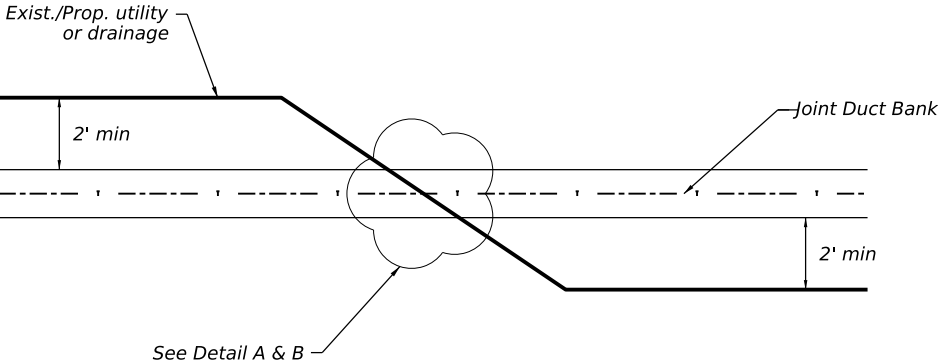
JDB(2)-24

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REVISIONS	DIST	COUNTY	SHEET NO.	

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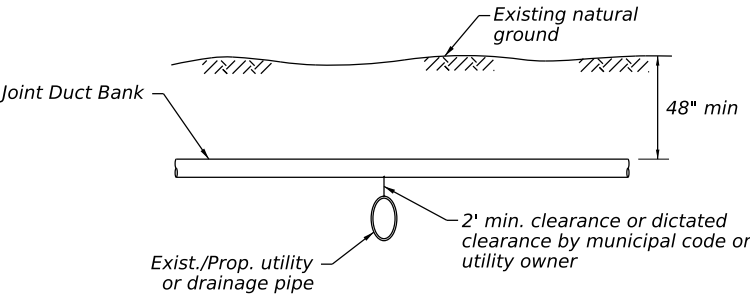
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UTILITY OR DRAINAGE PIPE CLEARANCE DETAILS  
FOR JOINT DUCT BANK INSTALLATION

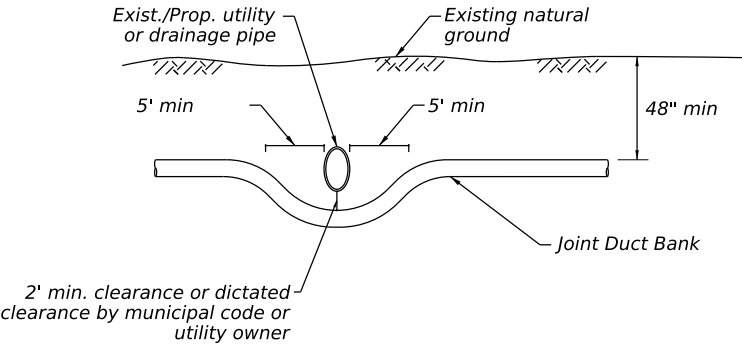


STANDARD REQUIREMENTS FOR UTILITY  
OR DRAINAGE CROSSINGS

DETAIL A:  
CROSSING CLEARANCE ABOVE

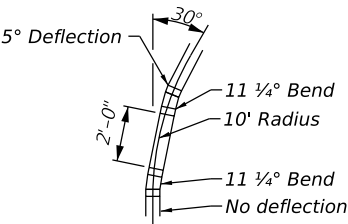


DETAIL B:  
CROSSING CLEARANCE BELOW



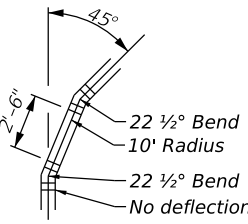
**NOTES:**  
1. Contractor must field verify existing utility locations and depths prior to performing any excavation.

CONDUIT TURNOUT DETAILS

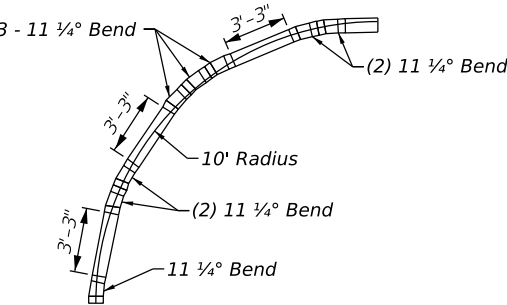


30° TURNOUT DETAIL

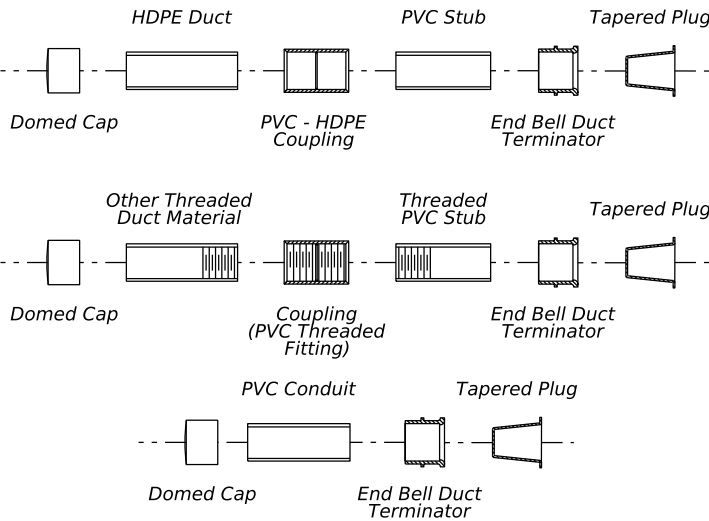
Provide this arrangement of conduit and fittings or approved equal at all 30°, 45°, and 90° bends, horizontal and vertical, to achieve a nominal 10' conduit radius.



45° TURNOUT DETAIL



90° TURNOUT DETAIL

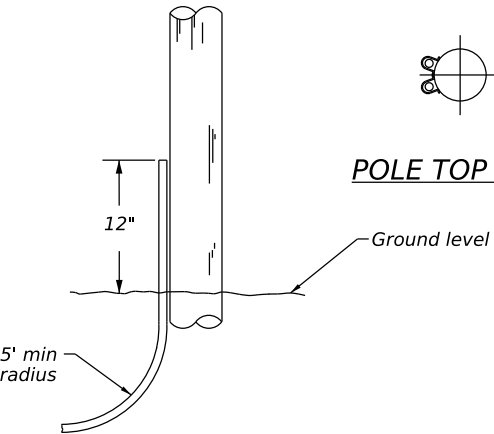


TYPICAL COINDUIT FITTING COMBINATIONS

TYPICAL RISER DETAIL

- RISER GENERAL NOTES**
1. Risers to be grouped in quadrant that do not interfere with climbing space.
  2. Risers shall not obscure any numbering on the pole.
  3. Risers to follow NESC code.
  4. Cap proposed duct 12" above existing ground level

POLE ARRANGEMENT FOR  
BURIED TO AERIAL



POLE TOP VIEW

SHEET 3 OF 7



JOINT DUCT BANK  
CONSTRUCTION DETAILS

JDB(3)-24

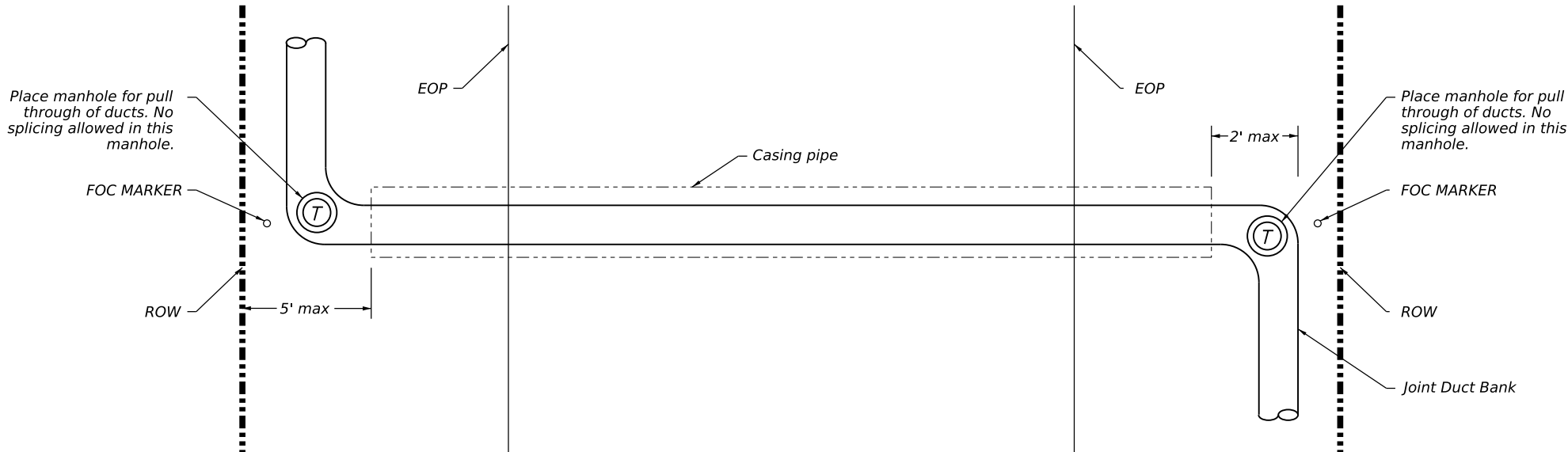
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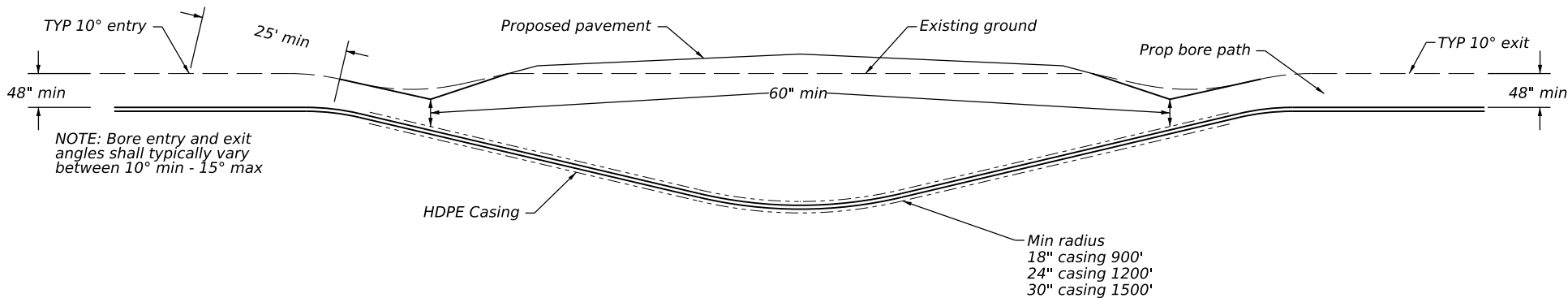
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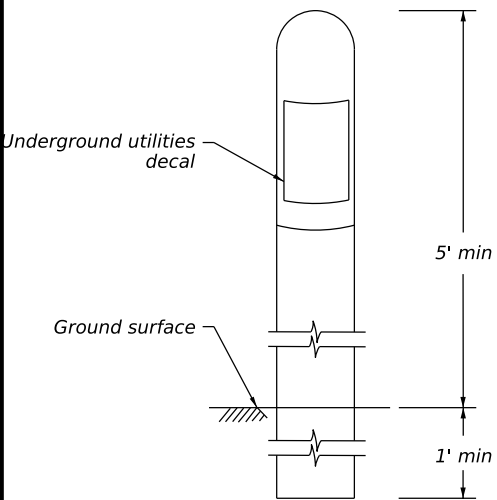
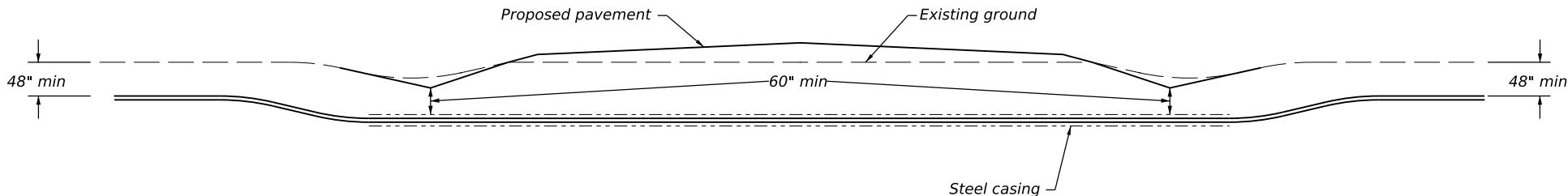
TYPICAL BORE PLAN



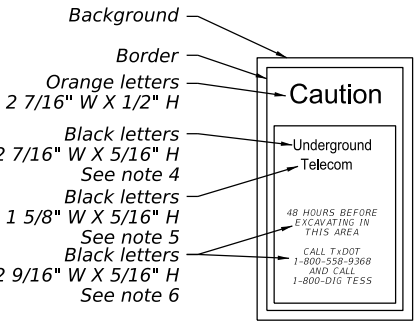
TYPICAL DIRECTIONAL BORE PLAN



TYPICAL CONVENTIONAL BORE PLAN



FOC MARKER



UNDERGROUND UTILITIES DECAL DETAILS

BORE GENERAL NOTES

- Contractor to band/bundle inner conduits in 10' increments in casing when bore spacers are not utilized.
- Contractor shall record, maintain, and provide the engineer with all bore log trajectory, tension and pressure readings upon completion of pilot hole for verification of alignment prior to back ream process.
- Contractor to provide grouting system with sufficient gauges and monitoring devices to confirm effectiveness of grouting operation and to ensure compliance with pipe specifications and design parameters to avoid crushing or damaging the ducts/casing.
- Text for this line on the decal needs to read "Underground Telecom"
- Text for this line on the decal needs to read "48 Hours before excavating in this area"
- Text for this line on the decal needs to read "Cal TxDOT 1-800-558-9368 and call 1-800-DIG-TESS"



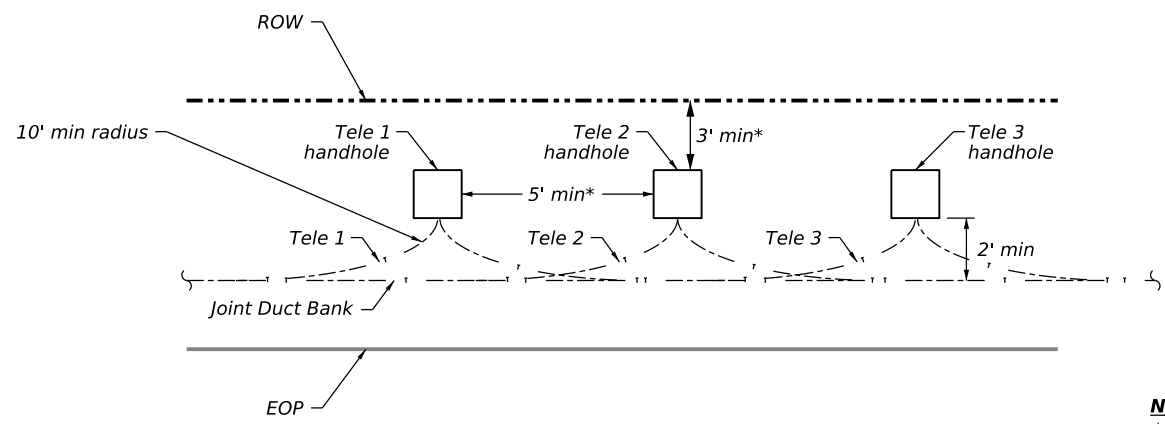
Traffic  
Safety  
Division  
Standard

JOINT DUCT BANK  
BORE CROSSING DETAILS  
JDB(4)-24

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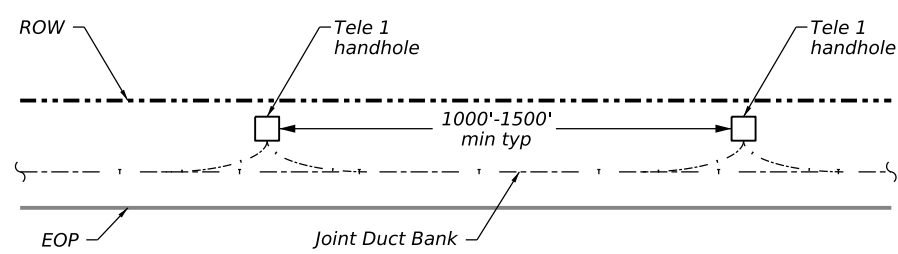
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ACCESS POINTS OFFSET FROM JOINT DUCT BANK



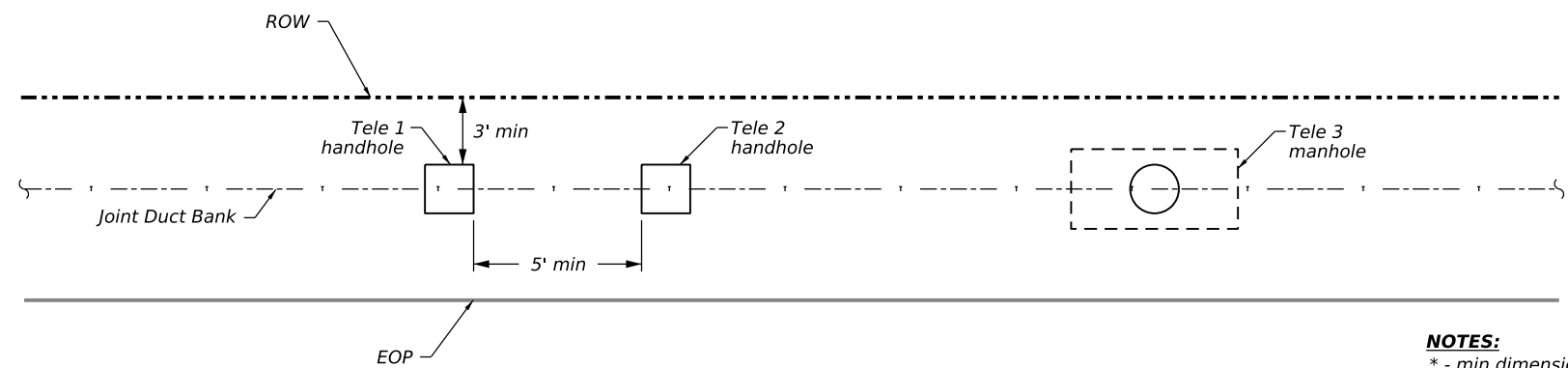
NOTES:  
\* - min dimension are meant to be to the edge of handhole/manhole

ACCESS POINTS FOR FIBER FROM JOINT DUCT BANK FOR SAME TELECOM



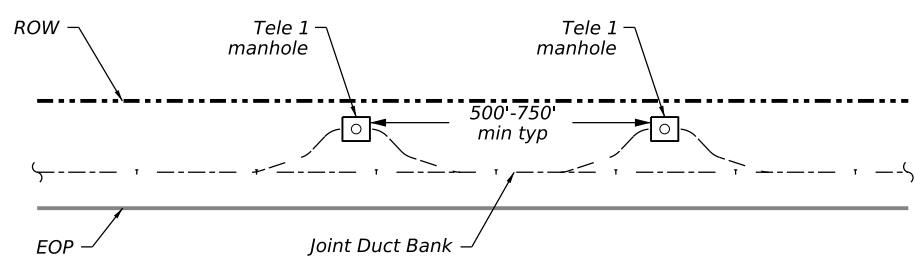
ACCESS POINTS PLACED ON TOP OF JOINT DUCT BANK

PLAN VIEW

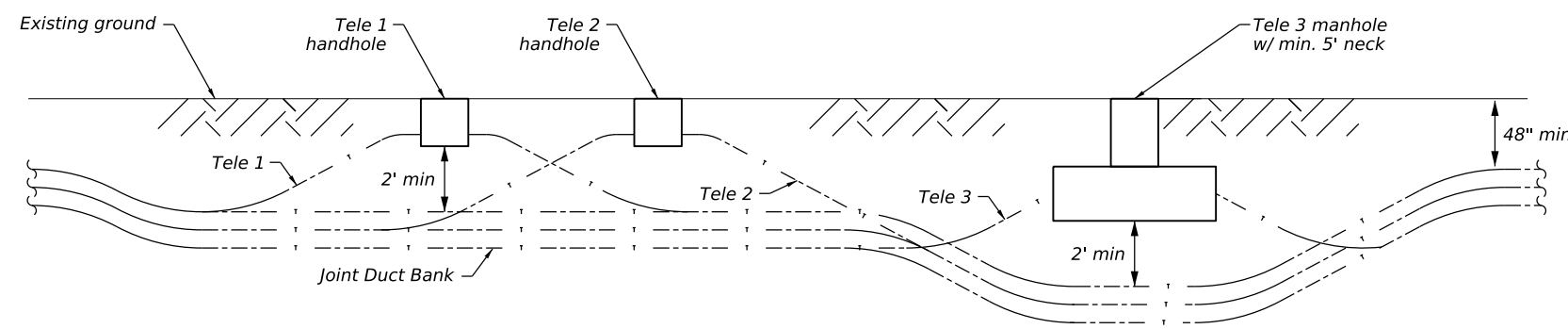


NOTES:  
\* - min dimension are meant to be to the edge of handhole/manhole


ACCESS POINTS FOR COPPER FROM JOINT DUCT BANK FOR SAME TELECOM



ELEVATION VIEW



SHEET 5 OF 7



Texas Department of Transportation

Traffic Safety Division Standard

JOINT DUCT BANK

ACCESS POINT DETAILS

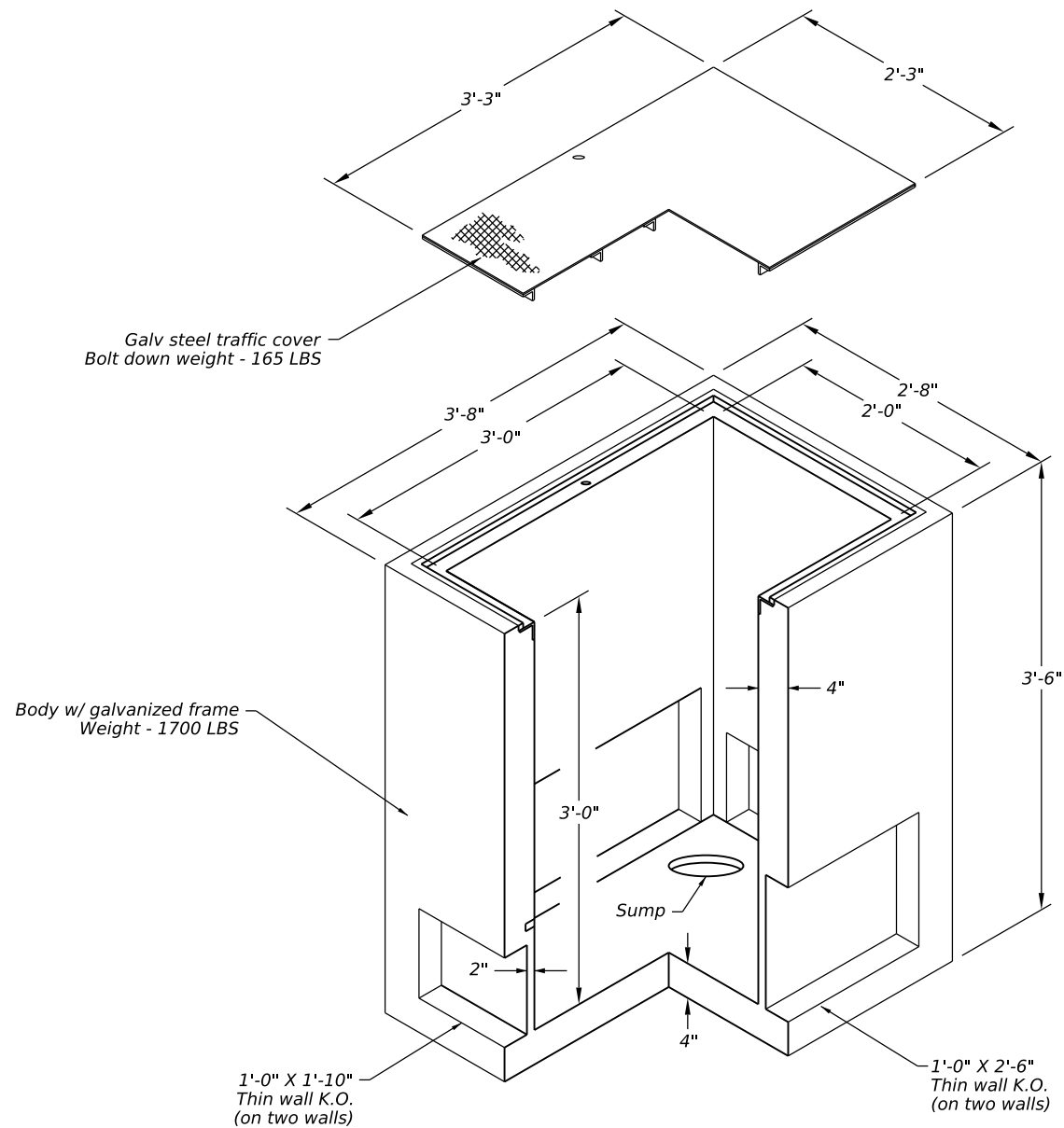
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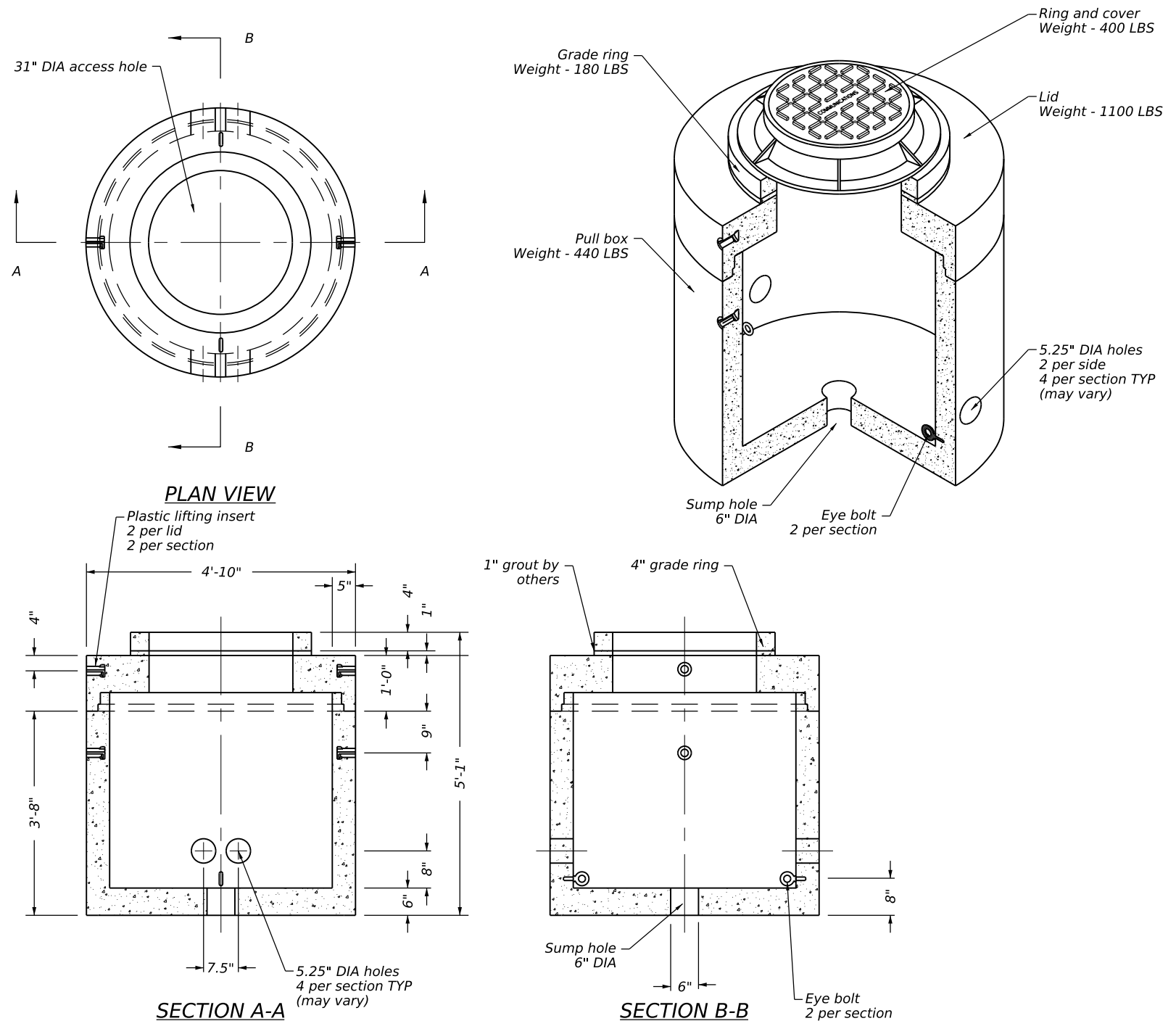
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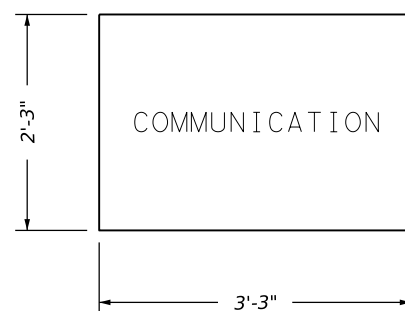
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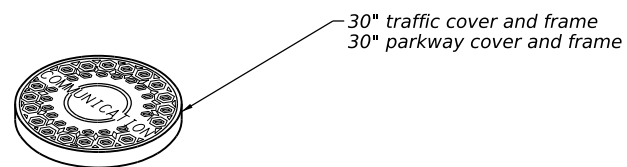
**HANDHOLE TYPE 1**  
**2'X3'X3'**



**HANDHOLE TYPE 2**  
**48" ROUND**



**HANDHOLE COVER**  
**TYPE 1**



**HANDHOLE COVER**  
**TYPE 2**

SHEET 6 OF 7

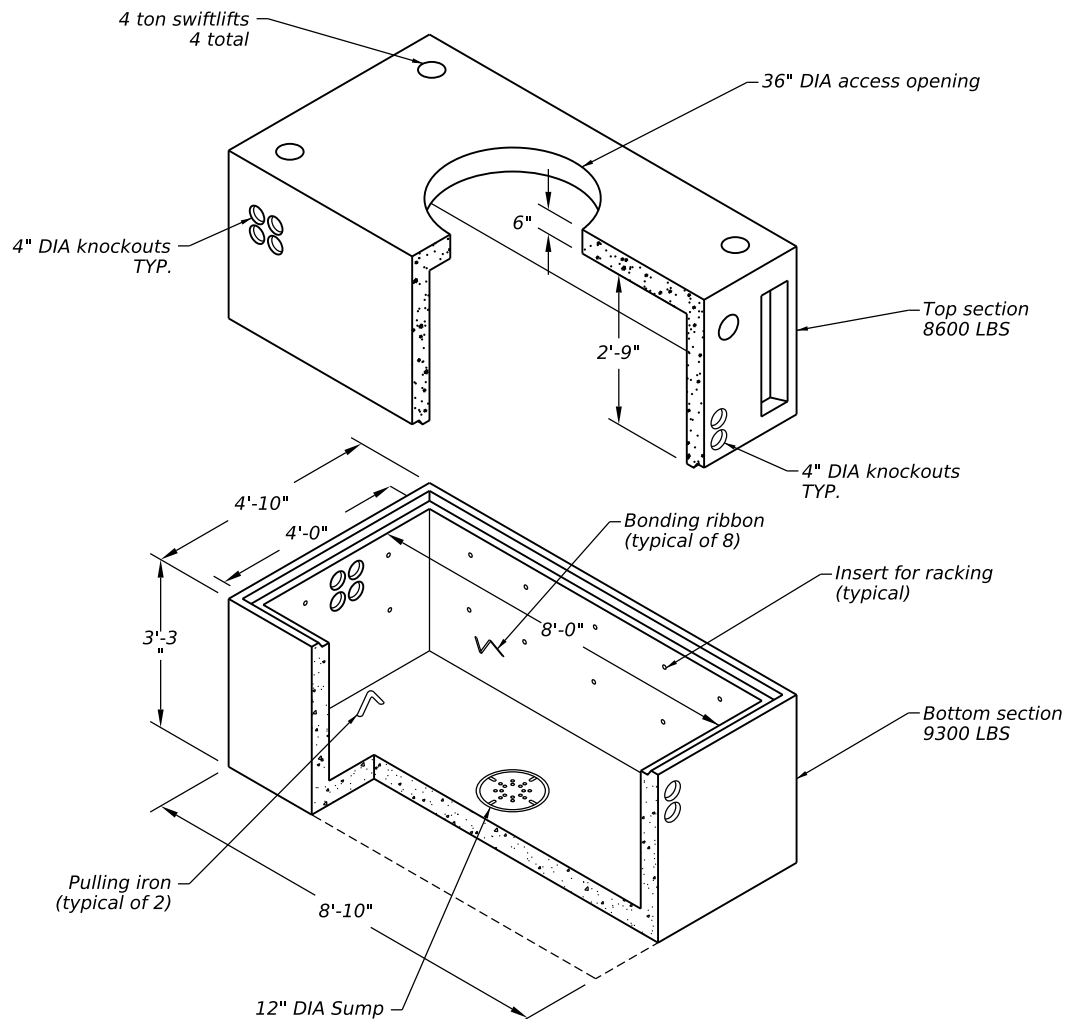


**JOINT DUCT BANK**  
**HANDHOLE DETAIL**  
**JDB(6)-24**

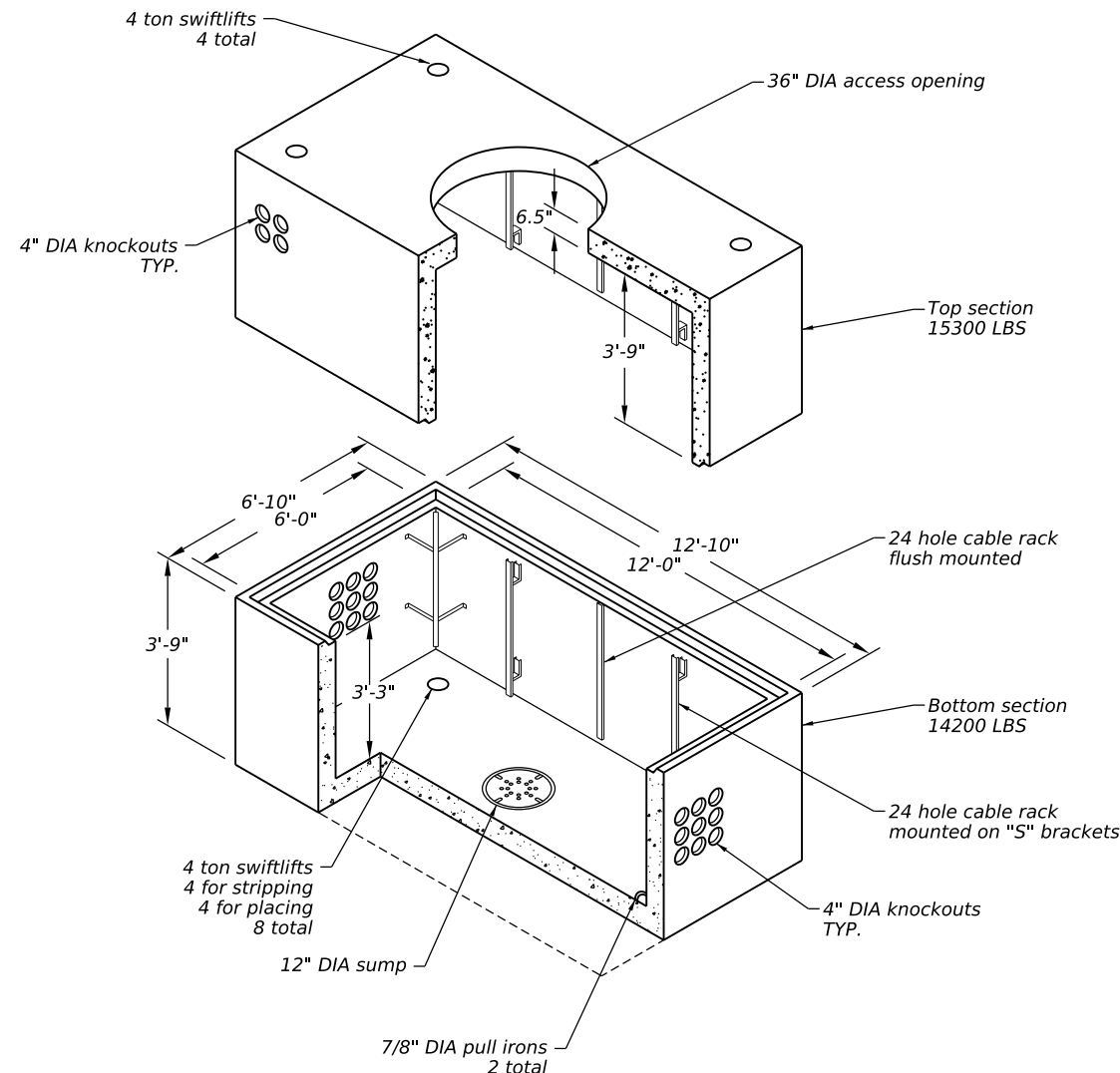
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REVISIONS		DIST	COUNTY	SHEET NO.

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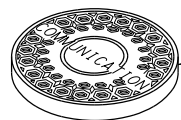
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**MANHOLE TYPE 1**  
**4'X8'X6'**



**MANHOLE TYPE 2**  
**12'X6'X7'**



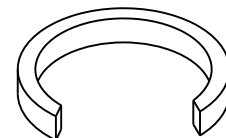
**MANHOLE COVER**

30" traffic cover and frame  
30" parkway cover and frame



**MANHOLE REDUCER RING**

36" to 30" reducer ring  
available in 6" and 9" heights




**MANHOLE RISER**

3" riser  
6" riser  
12" riser

**NOTES:**

1. Conduit entry points shown represent the typical configuration. Plans will specify the conduit entry points.
2. Provide terminators for the conduit cast in the walls and placed symmetrically.
3. Provide terminators appropriately sized for the conduits indicated on the plans. Provide terminators with an air tight and water tight connection.
4. Cap and seal terminators that do not have conduits attached.
5. When additional conduit entry points are needed to accommodate existing conduit, core drill conduit knockouts in the field of the appropriate number and size of conduit at each location, as directed by the engineer.
6. Provide a bell fitting on the end of each conduit to ensure a flush fit inside the ground box

7. Concrete grout around the knockout (inside and out) and around the conduit and bell fitting to ensure a neat watertight fit after the conduit and bell fitting have been placed in a knockout. Ensure all openings in the handhole/manhole are sealed prior to grouting operations.
8. Install mule tape and plug all unused conduits with tug-plugs sized for the particular conduits.
9. Provide steel (ASTM A-153), glass reinforced nylon, or equivalent cable rack assemblies designed to support the amount of cable storage slack identified in the plans. Locate cable rack system on one side only (longer length side) to allow access to the inside of the manhole. Cable racks may be installed at the factory or in the field. When mounting cable racks in the field, seal all penetrations to the concrete side wall to prevent moisture penetration. Ground metallic cable rack systems to grounding system inside manhole in accordance with the national electrical code.
10. Ground steel covers in accordance with the national electrical code

**Texas Department of Transportation**

**Traffic Safety Division Standard**

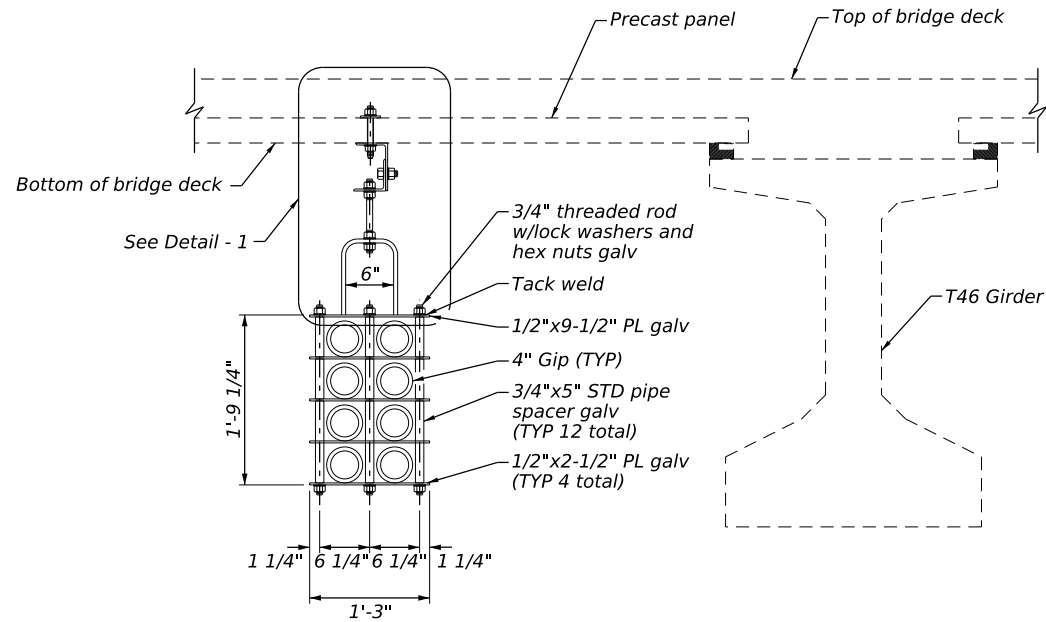
**JOINT DUCT BANK**  
**MANHOLE DETAIL**  
**JDB(7)-24**

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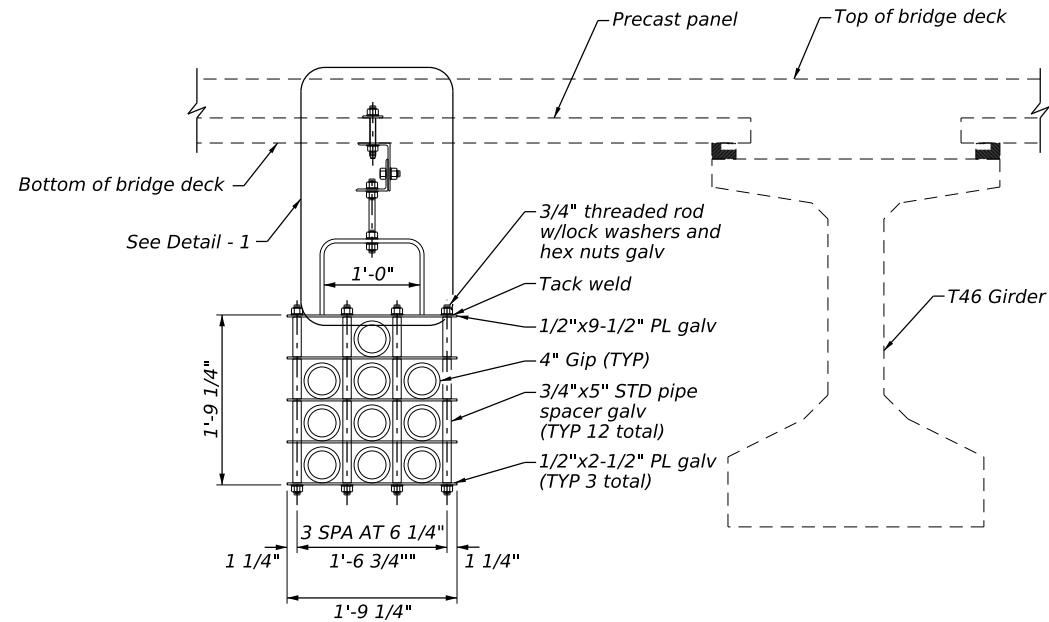
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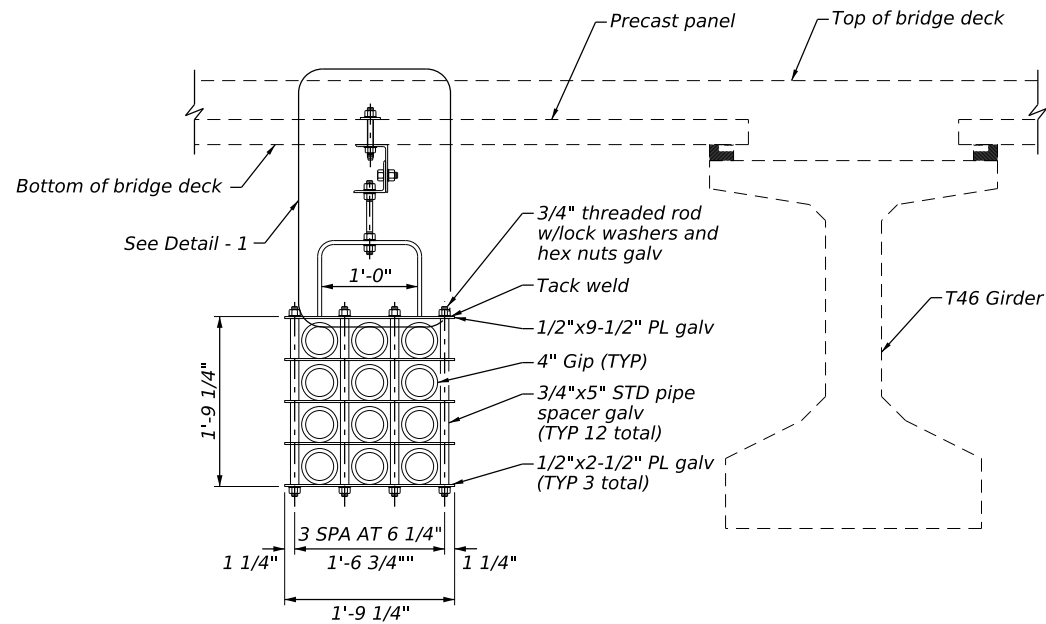
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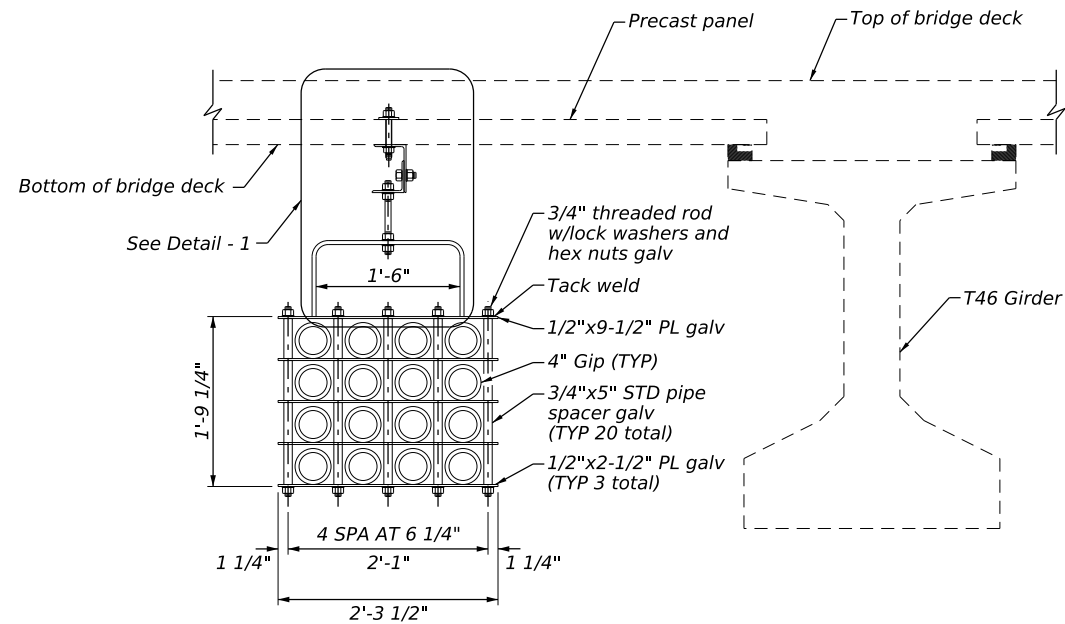
4 DUCT (W/ITS) CONDUIT HANGER DETAIL



6 DUCT (W/ITS) CONDUIT HANGER DETAIL



8 DUCT (W/ITS) CONDUIT HANGER DETAIL



12 DUCT (W/ITS) CONDUIT HANGER DETAIL

**GENERAL NOTES:**

1. Conduit hanger support mounting details for concrete bridge deck with precast panels as shown are a suggested method for pre-stressed concrete beam structures.
2. Do not extend conduit hangers below the bottom of the bridge girders (any exceptions at end spans are subject to approval).
3. Galvanize all hardware and structural steel that is not stainless steel. Ensure all bolt hardware used to secure hangers to steel structures conforms to A325 for high strength.
4. Select conduit lengths so that couplings do no coincide with conduit hanger locations.

SHEET 1 OF 2



**JOINT DUCT BANK  
BRIDGE ATTACHMENT  
DETAIL 1  
JDB(8A)-24**

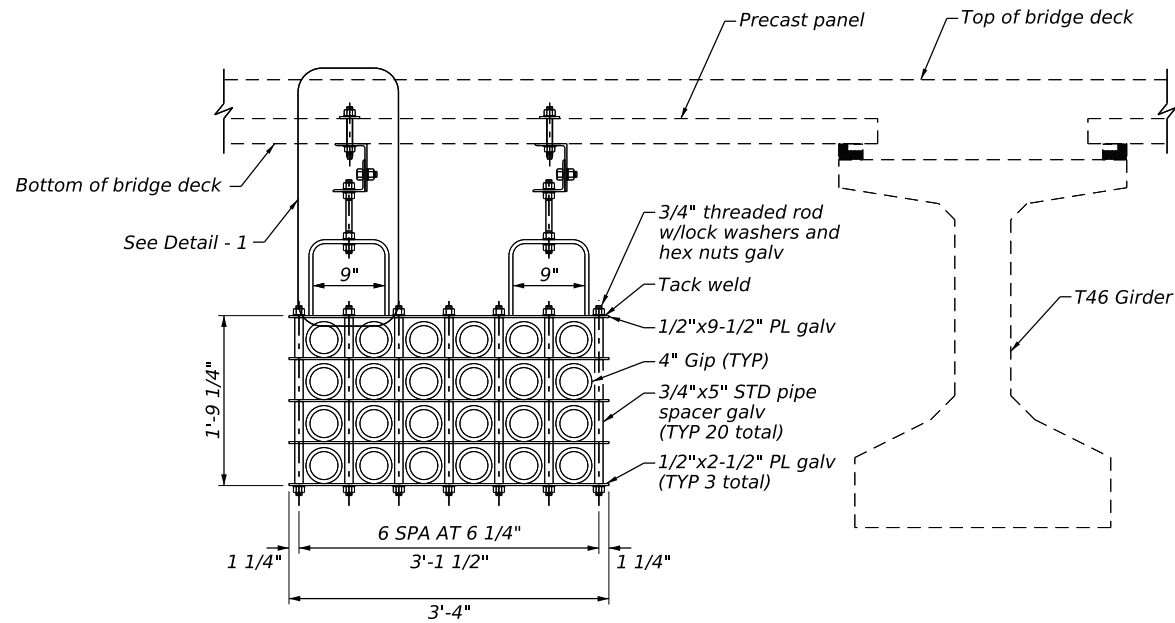
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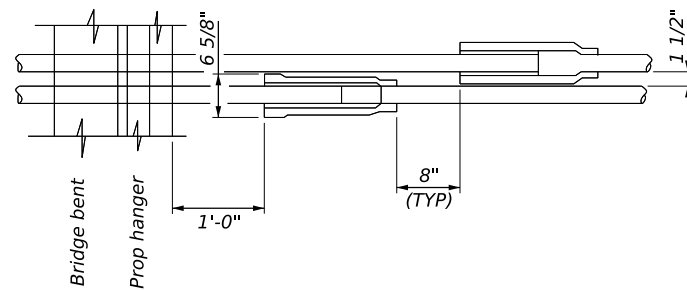


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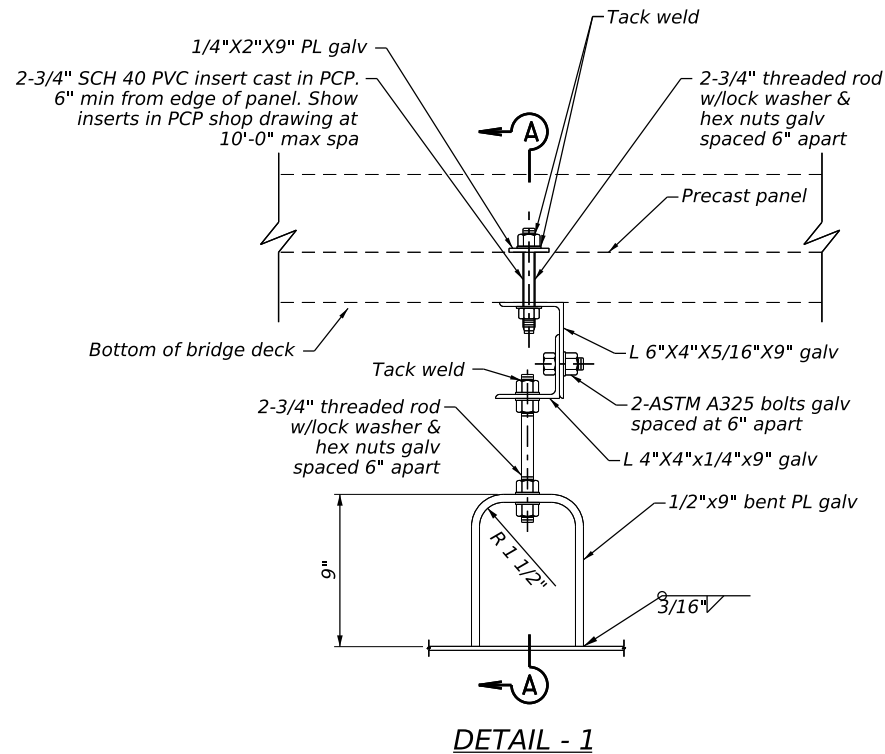
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FILE:



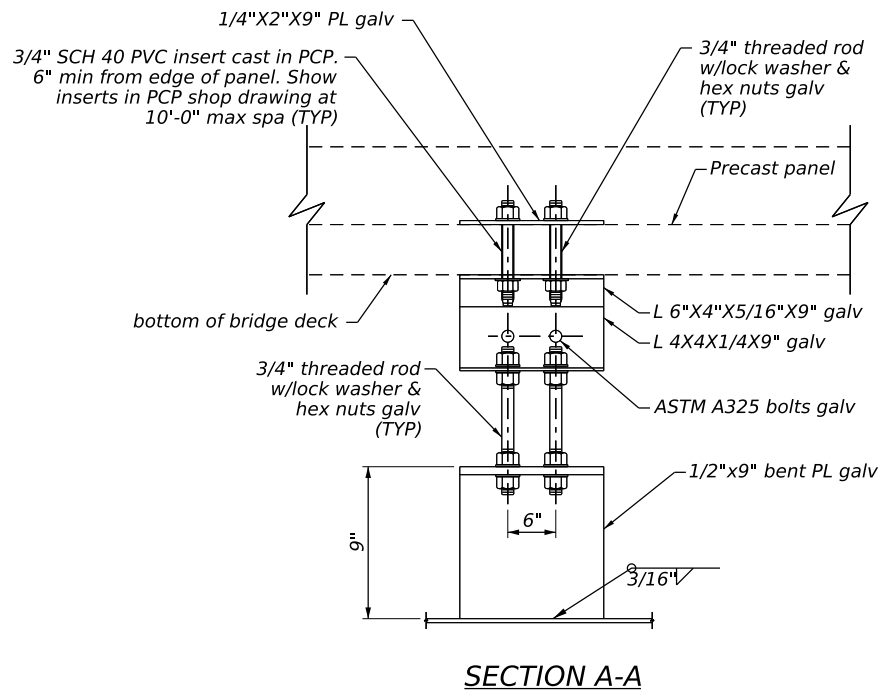
**20 DUCT (W/ITS) CONDUIT HANGER DETAIL**



**EXPANSION COUPLING DETAIL**



**DETAIL - 1**



**SECTION A-A**

**GENERAL NOTES:**

1. Conduit hanger support mounting details for concrete bridge deck with precast panels as shown are a suggested method for pre-stressed concrete beam structures.
2. Do not extend conduit hangers below the bottom of the bridge girders (any exceptions at end spans are subject to approval).
3. Galvanize all hardware and structural steel that is not stainless steel. Ensure all bolt hardware used to secure hangers to steel structures conforms to A325 for high strength.
4. Select conduit lengths so that couplings do no coincide with conduit hanger locations.

SHEET 2 OF 2

		Traffic Safety Division Standard	
<b>JOINT DUCT BANK BRIDGE ATTACHMENT DETAIL 2 JDB(8B)-24</b>			
FILE: jdb8B-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT	XXX 2022	CONT	SECT
REVISIONS		JOB	HIGHWAY
		DIST	COUNTY
		SHEET NO.	

Sheet Details  
Not to Scale