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 DATE: 2/12/2016
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|  | PROJECT NO. | SHEET NO. |
| | LSPS | INDEX |
| | Date: 2/4/2016 | Drawn: CAW |
| | Horz. Scale: NONE | Checked: |
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THE CITY OF LINCOLN LINCOLN STANDARD PLANS

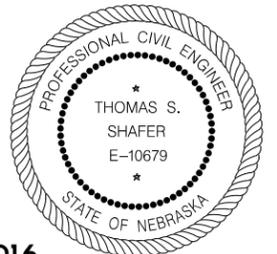
JULY 1, 2011

FROM THE OFFICE OF THE CITY ENGINEER

-  R1 2-11-13 REVISIONS
-  R2 9-3-13 REVISIONS
-  R3 11-1-14 REVISIONS
-  R4 2-4-16 REVISIONS

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| LSP 60 | MAIL BOX INSTALLATIONS | LSP 175 | SEDIMENT FENCE |
| LSP 61 | UTILITY ADJUSTMENTS IN EXISTING PAVING | LSP 176 | CONSTRUCTION ENTRANCE |
| LSP 77 | DEAD END SIGNING AND BARRICADES | LSP 177 | ROCK OUTLET, CULVERT INLET PROTECTION |
|  R4 ¹  R3 ³ LSP 78 | SIGNS (4 SHEETS) |  R4 ² LSP 178 | INLET PROTECTION (2 SHEETS) |
|  R3 ¹ LSP 79 | TRAFFIC PAVEMENT MARKINGS (3 SHEETS) | LSP 179 | TURF REINFORCEMENT ROLLED EROSION CONTROL |
|  R3 LSP 80 | SIGNAL HEAD ARRANGEMENTS AND LEGEND | LSP 180 | SEDIMENT BARRIERS |
|  R3 ^{1,2}  R1 LSP 81 |  R4 ^{1,2} FIBER MARKER AND PULL BOXES (2 SHEETS) | LSP 185 | PIPE BEDDING |
|  R3 LSP 82 | FOUNDATIONS AND BASES | LSP 190 | ENCASEMENT WITH CASING CHOCKS AND ENCASEMENT PLUGS |
|  R3 LSP 83 | POWER SUPPLIES | LSP 200 | WASTEWATER MANHOLES, TYPE 'R' AND 'S' |
|  R4 ¹ LSP 84 | POLE CABLE (2 SHEETS) | LSP 201 | WASTEWATER MANHOLES, TYPE 'G', 'H', 'P' AND 'Q' |
|  R4 ¹  R3 LSP 85 | REMOVED | LSP 210 | WASTEWATER SERVICE |
|  R4 LSP 86 | REMOVED | LSP 220 | STREAM CROSSING PROTECTION |
|  R3 LSP 87 | SPAN WIRE POLES, INSTALLATION DETAILS | LSP 301 | WATER MAIN RECONSTRUCTION |
|  R3 LSP 88 | TRAFFIC SIGNAL WOOD POLE INSTALLATION | LSP 310 | WATER MAIN VALVE MANHOLES, AIR RELIEFS AND BLOW OFFS (2 SHEETS) |
| LSP 89 | OVERHEAD CABLE SUSPENSION DETAILS | LSP 320 | R.C. COLLARS, THRUST BLOCKS, ANCHORAGES, TEE BLOCKS AND PLUG BLOCKS (2 SHEETS) |
|  R4 LSP 90 | PEDESTAL MOUNTED | LSP 330 | HYDRANT INSTALLATIONS (2 SHEETS) |
|  R3 LSP 91 | VEHICLE DETECTORS | LSP 340 | WATER TAPPING EXCAVATION PIT AND BUTTERFLY VALVE |
|  R3 LSP 92 | STREET LIGHTING POLES | LSP 600 | CURB RAMPS (6 SHEETS) |
|  R4 LSP 93 | REMOVED | LSP 610 | REINFORCED CONCRETE RETAINING WALL, TYPE 'A' AND 'B' |
| LSP 99 | WORK ZONE TRAFFIC CONTROL | LSP 611 | REINFORCED CONCRETE RETAINING WALL, TYPE 'C' |
|  R4 LSP 101 | STORM DRAINAGE INLET, TYPE 'A-2' | LSP 615 | REINFORCED CONCRETE STEPS AND HANDRAILS |
| LSP 130 | GRATE INLETS, TYPE 'E' AND 'H' | LSP 620 | TEMPORARY PAVEMENT TURN AROUND |
| LSP 131 | GRATE INLETS, TYPE 'F' |  R2 LSP 630 | CONCRETE ALLEY PAVEMENT |
| LSP 141 | STORM DRAINAGE MANHOLES, TYPE 'M-1' | LSP 640 | PAVEMENT SECTIONS (2 SHEETS) |
| LSP 142 | STORM DRAINAGE MANHOLES, TYPE 'M-2' |  R3 LSP 641 | P. C. CONCRETE INTERSECTION |
| LSP 150 | R.C. COLLARS, ELBOWS AND PLUGS |  R4 LSP 642 | P. C. CONCRETE PAVEMENT REPAIR (2 SHEETS) |
| LSP 160 | HEADWALLS, TYPE 'A', 'B' AND 'C' | LSP 650 | PIPE RAILING FENCE |
| LSP 161 | BAR GRATE FOR FLARED END SECTION |  R4  R3 LSP 651 | CURB DETAILS |
| LSP 162 | CAST IRON MANHOLE RING, COVER AND STEPS |  R2 ¹ LSP 660 | CONCRETE PAVEMENT JOINT DETAILS (2 SHEETS) |
| LSP 163 | SURVEY MONUMENT BOX AND STAKING | LSP 662 | CUL-DE-SAC JOINTS |
| LSP 170 | LOW FLOW LINER | LSP 670 | PAVEMENT REPLACEMENT FOR UTILITY CONSTRUCTION |

EFFECTIVE DATE FEBRUARY 4, 2016

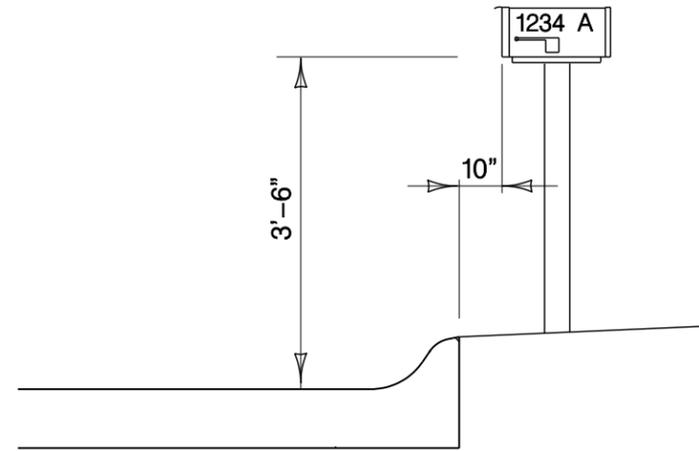
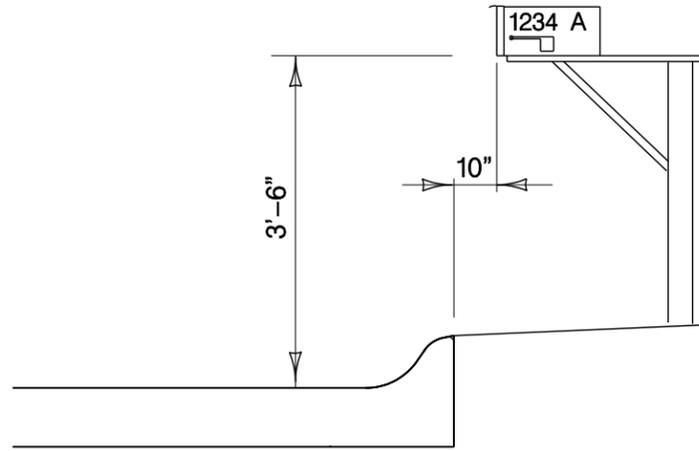


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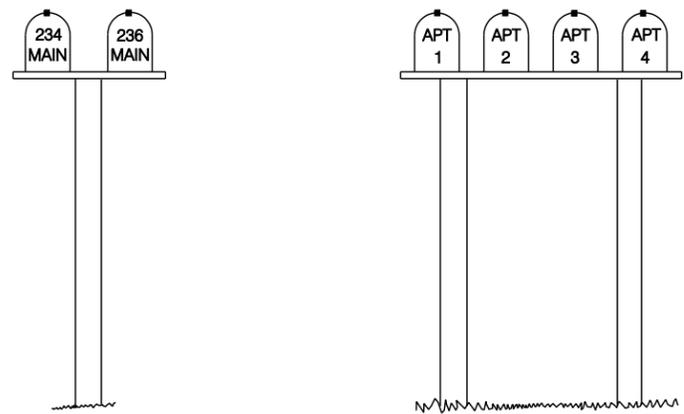


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| PROJECT NO. | SHEET NO. |
| LSP 60 | 1 |
| Date: 01/13/2010 | Drawn: CAW |
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LSP 60



GROUPING OF TWO OR MORE MAIL BOXES TOGETHER IS ENCOURAGED.
 THE ADDRESS SHOULD BE EITHER ON THE MAIL BOX DOOR OR ON THE SIDE OF THE MAILBOX. PLACING A NAME ON THE BOX IS OPTIONAL.



MAILBOX GROUPING



**MAIL BOX INSTALLATIONS
 L.S.P. 60**

LSP

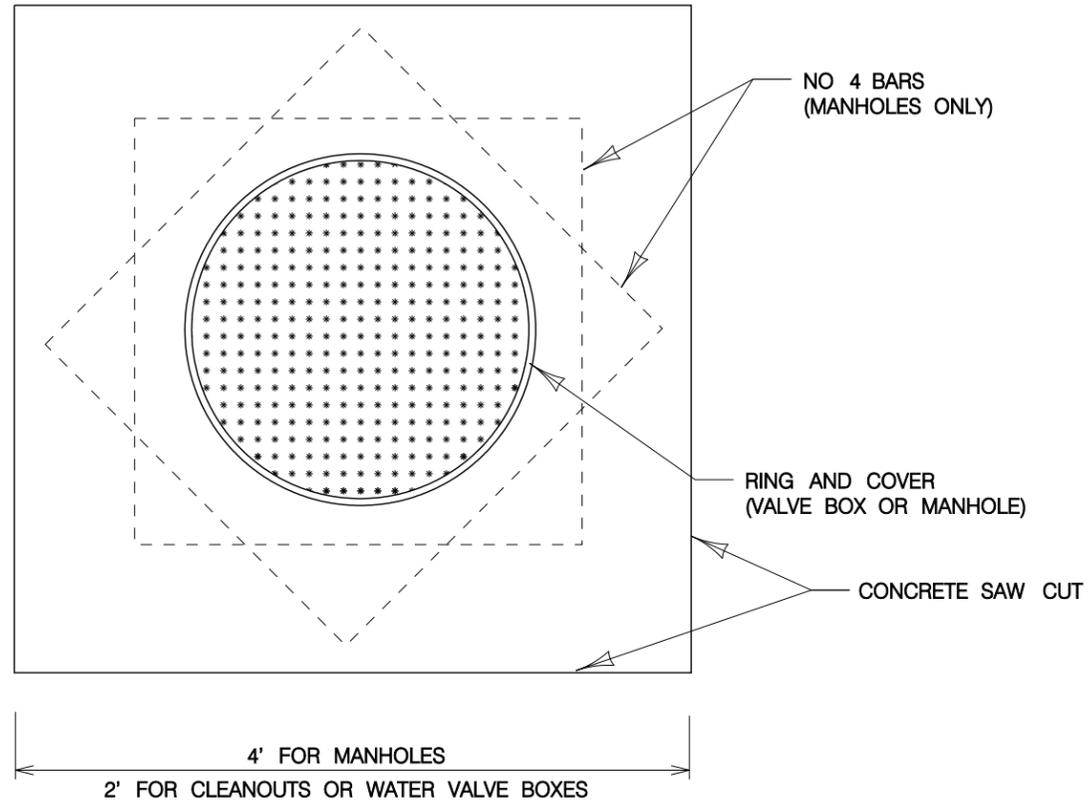
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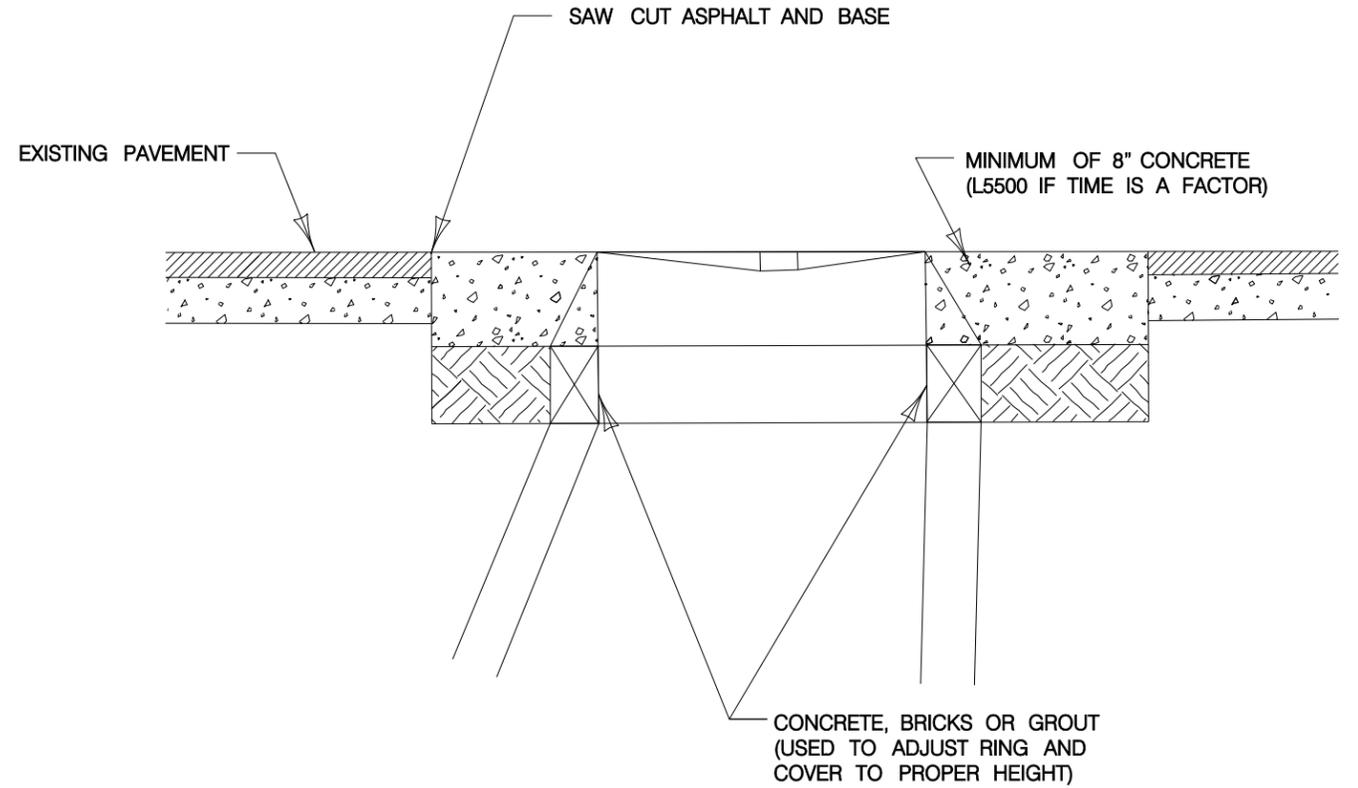


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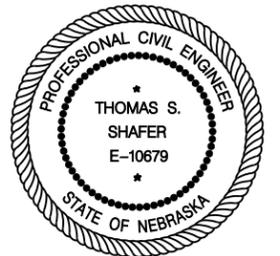
DIRECTION OF TRAVEL



PLAN

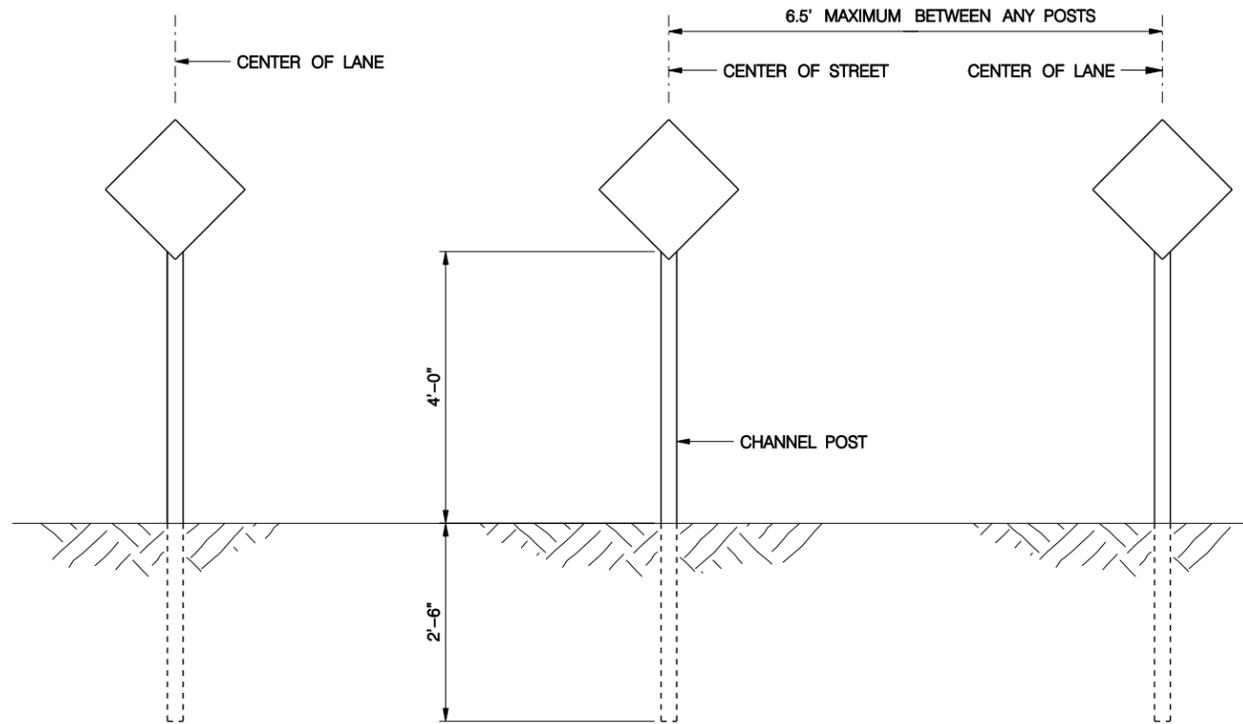


SIDE VIEW



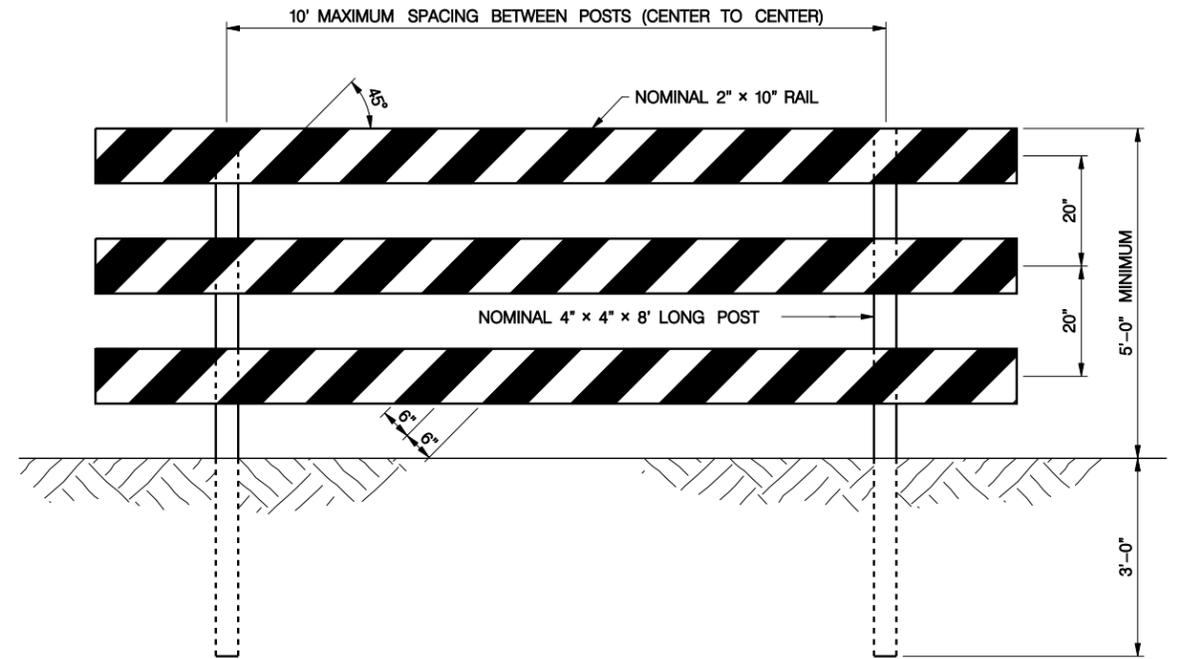
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|  | PROJECT NO. | SHEET NO. |
| | LSP 77 | 1 |
| | Date: 02/22/2010 | Drawn: JWH |
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**DEAD END SIGNING
(PREFERRED)**

SIGNS SHALL BE 18" RED DIAMOND
 PANEL WITH HIGH INTENSITY SHEETING



**DEAD END BARRICADE TYPE III
(OPTIONAL)**

THE TYPE III BARRICADE SHALL CONSIST OF THREE HORIZONTAL
 RAILS OF NOMINAL 2" x 10" PAINTED/TREATED WHITE LUMBER.
 PLASIC IS NOT ALLOWED.

THE HORIZONTAL RAILS SHALL BE BOLTED TO NOMINAL 4" x 4" x 8"
 LONG PAINTED/TREATED WHITE LUMBER POSTS, THE BOLTS SHALL BE
 A MINIMUM OF 5/8" DIAMETER AND SHALL BE OF A SUFFICIENT
 LENGTH TO SECURELY TIE THE HORIZONTAL RAILS TO THE POSTS.

EACH HORIZONTAL RAIL SHALL BE MARKED WITH ALTERNATING HIGH
 INTENSITY GRADE RED AND WHITE STRIPS, 6" WIDE AT AN ANGLE
 OF 45 DEGREES WITH THE VERTICAL SLANTING DOWNWARD OPPOSITE
 THE CENTER OF THE ROADWAY. THE COLOR, BOTH WET AND DRY,
 SHALL CONFORM TO THE CURRENT MANUAL ON UNIFORM TRAFFIC
 CONTROL DEVICES (MUTCD)

THE TOP OF THE TOP RAIL SHALL BE PLACED AT THE TOP OF THE
 POSTS.

BARRICADES SHALL EXTEND THE FULL WIDTH OF THE PAVEMENT



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| Date: 1/29/2016 | Drawn: DLS/CAW | |
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24"

30"

GREEN PAINTED 2 1/2" POUNDS PER FOOT STEEL CHANNEL POST. HOLES SHALL BE 1" APART FULL LENGTH OF POST. POST SHALL BE 9' LONG

THIS HOLE ON GROUND SLEEVE SHALL LINE UP WITH THE SECOND HOLE FROM THE BOTTOM OF CHANNEL POST

STEEL CHANNEL POST

3 1/2" TO 4" BOLTS WITH NYLON LOCKING NUTS AND STEEL WASHERS ON BOTH SIDES

GALVANIZED TAPCO WEDGE SWI OR APPROVED EQUIVALENT SHALL BE INSTALLED WITH REMOVAL HOLE JUST ABOVE THE TOP OF ANCHOR

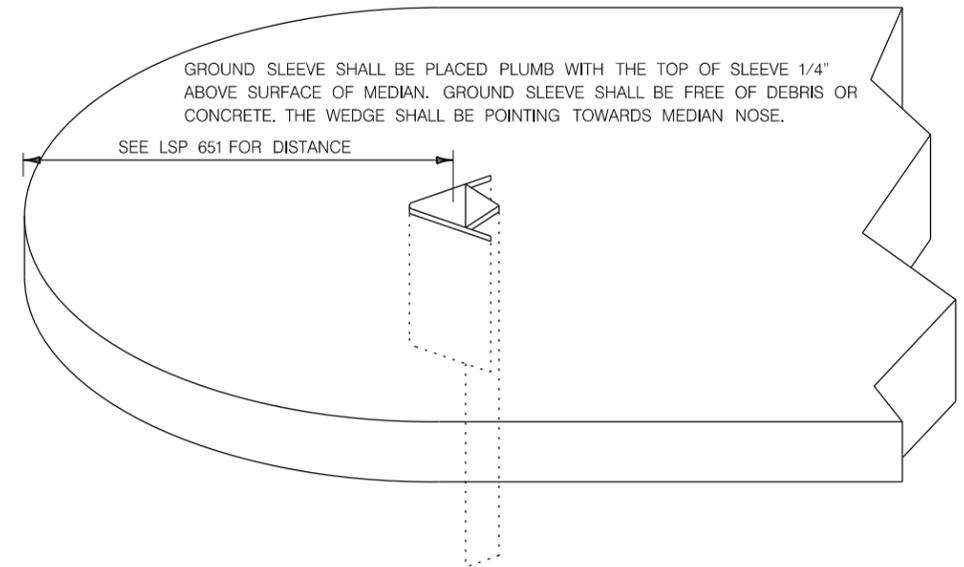
GALVANIZED TAPCO ADAPTER 19-UCA-18-18" IN LENGTH OR APPROVED EQUIVALENT

INSTALL ADAPTER WITH BREAKAWAY HOLES JUST ABOVE GROUND SLEEVE.

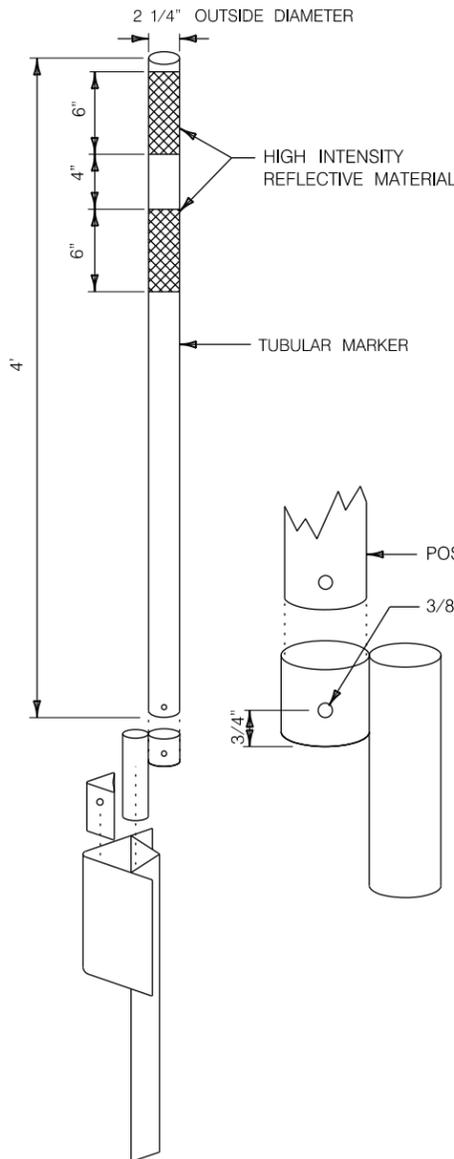
TAPCO ANCHOR 19-VRI 18" IN LENGTH OR APPROVED EQUIVALENT

ANTI TURN BOLT SHALL ALWAYS FACE TO THE BACK OF GROUND SLEEVE.

KEEP RIGHT DETAIL



GROUND SLEEVE MEDIAN PLACEMENT DETAIL



TUBULAR MARKER DETAIL

GALVANIZED TAPCO WEDGE SWI OR APPROVED EQUIVALENT SHALL BE INSTALLED WITH REMOVAL HOLE JUST ABOVE THE TOP OF ANCHOR

POST
ADAPTER

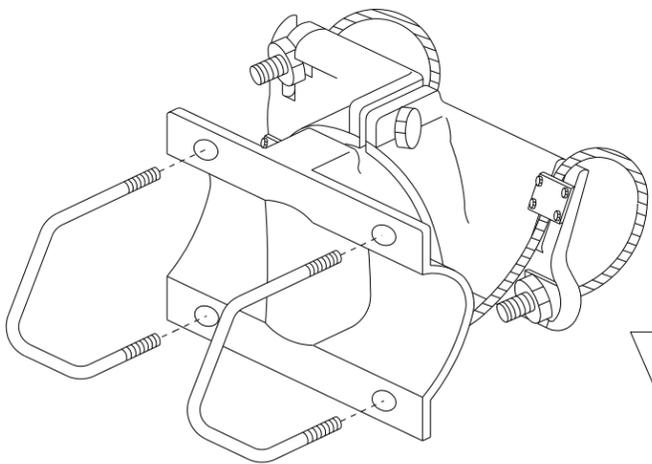
ANCHOR PART 19-VRI 18" IN LENGTH BY TAPCO OR APPROVED EQUIVALENT

ADAPTER WILL CONSIST OF 2 PIECES OF PIPE WELDED TOGETHER, WITH TOPS EVEN AS SHOWN. THE SHORTER PIECE WILL BE 2" IN LENGTH AND 1 7/8" OUTSIDE DIAMETER. BOTH PIECES OF PIPE SHALL BE WELDED TOGETHER ON BOTH SIDES. TUBULAR MARKER SHALL BE SECURED TO ADAPTER USING A 3" X 5/16" HEX HEAD BOLT GRADE 2 AND NYLON LOCKING NUT.



EFFECTIVE DATE FEBRUARY 4, 2016

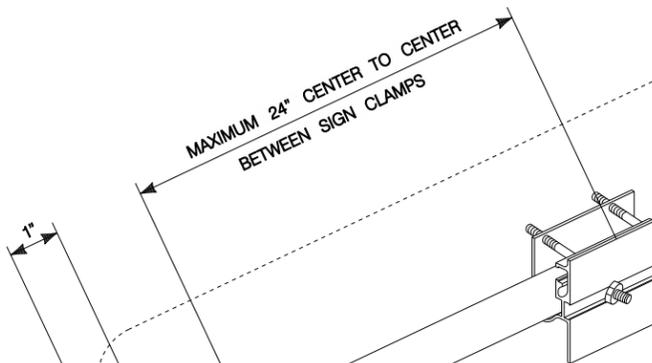
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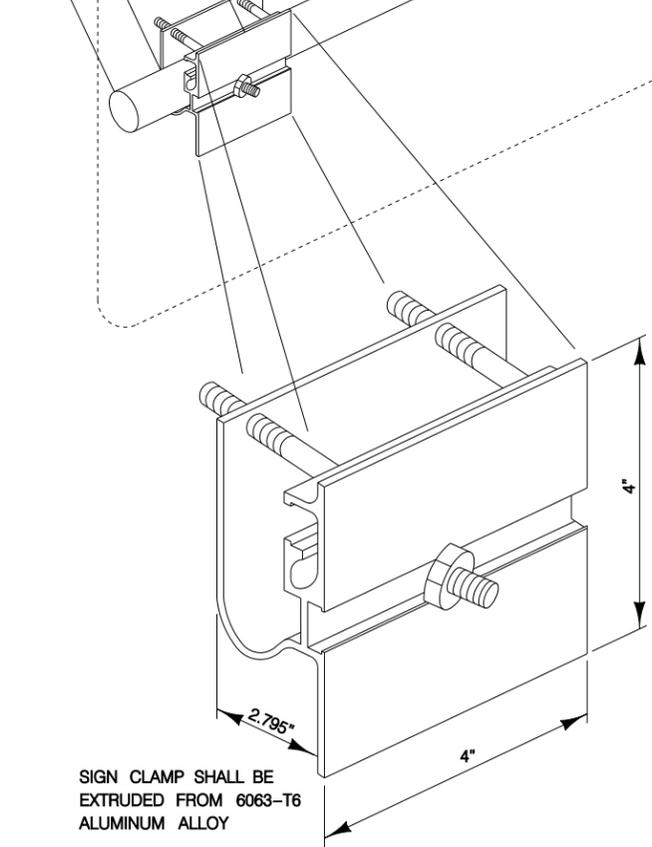
CLAMP KIT

NOTE:
 NYLON WASHERS SHALL BE INSTALLED
 BETWEEN SIGN FACE AND STAINLESS
 STEEL WASHERS.
 ALL SIGN BRACKETS SHALL BE INSTALLED
 PER MANUFACTURES SPECIFICATIONS

CENTER CLAMP KIT ON 1 7/8" OD
 GALVANIZED TUBE FOR 18" TALL SIGN.
 2 CLAMP KITS 1' FROM ENDS ON 1 7/8"
 OD GALVANIZED TUBE FOR 36" TALL SIGN.

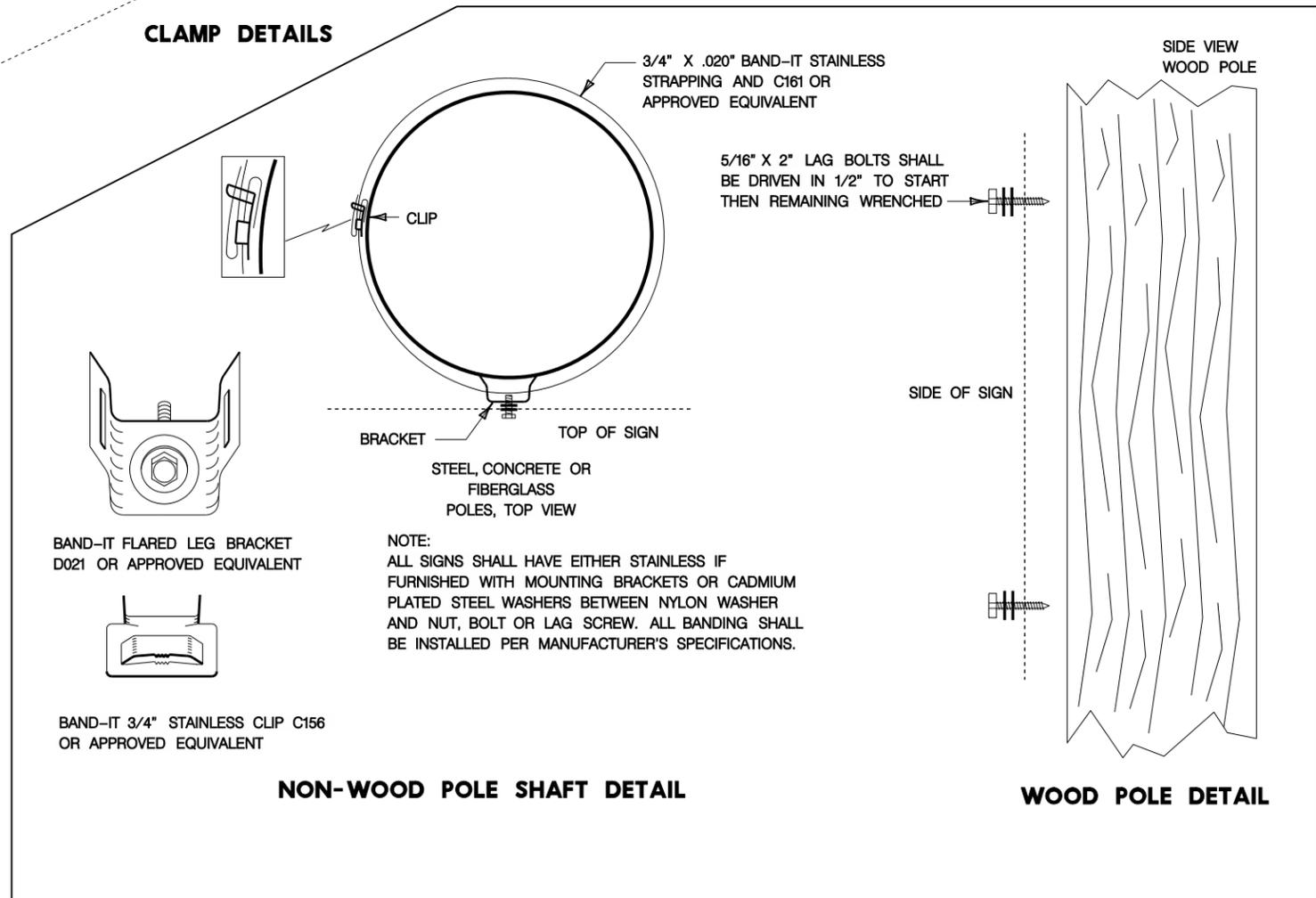


MAXIMUM 24" CENTER TO CENTER
 BETWEEN SIGN CLAMPS



SIGN CLAMP SHALL BE
 EXTRUDED FROM 6063-T6
 ALUMINUM ALLOY

CLAMP DETAILS



3/4" X .020" BAND-IT STAINLESS
 STRAPPING AND C161 OR
 APPROVED EQUIVALENT

5/16" X 2" LAG BOLTS SHALL
 BE DRIVEN IN 1/2" TO START
 THEN REMAINING WRENCHED

BRACKET
 TOP OF SIGN
 STEEL, CONCRETE OR
 FIBERGLASS
 POLES, TOP VIEW

BAND-IT FLARED LEG BRACKET
 D021 OR APPROVED EQUIVALENT

BAND-IT 3/4" STAINLESS CLIP C156
 OR APPROVED EQUIVALENT

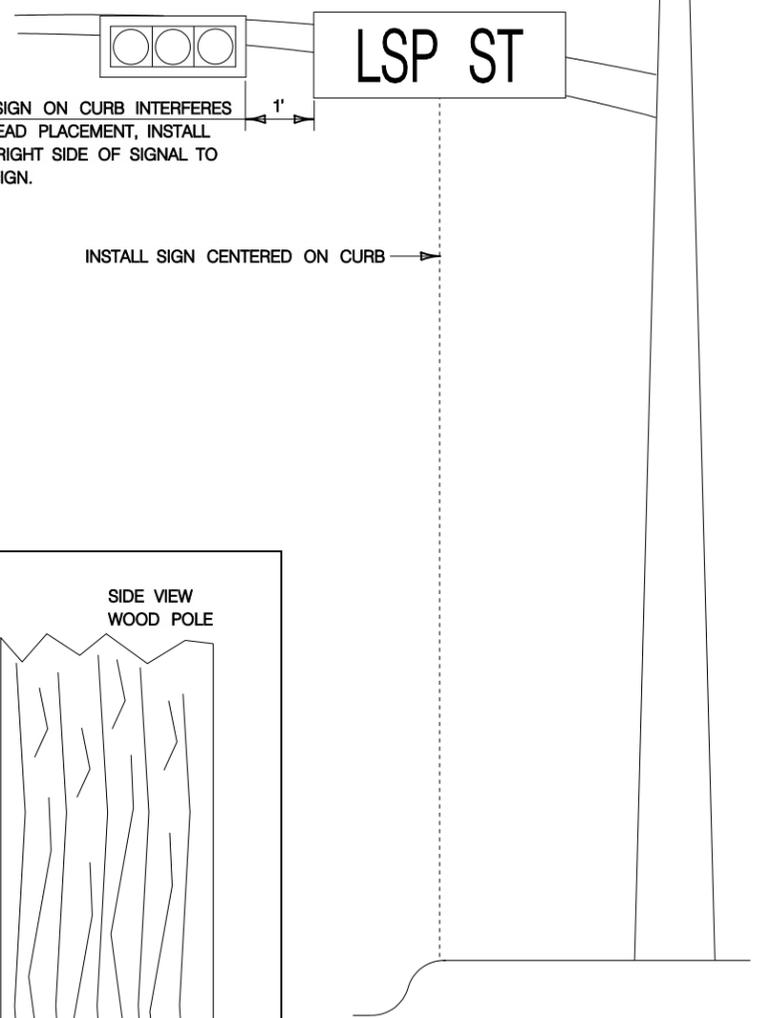
NOTE:
 ALL SIGNS SHALL HAVE EITHER STAINLESS IF
 FURNISHED WITH MOUNTING BRACKETS OR CADMIUM
 PLATED STEEL WASHERS BETWEEN NYLON WASHER
 AND NUT, BOLT OR LAG SCREW. ALL BANDING SHALL
 BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

NON-WOOD POLE SHAFT DETAIL

WOOD POLE DETAIL

IF CENTERING SIGN ON CURB INTERFERES
 WITH SIGNAL HEAD PLACEMENT, INSTALL
 SIGN 1' FROM RIGHT SIDE OF SIGNAL TO
 LEFT SIDE OF SIGN.

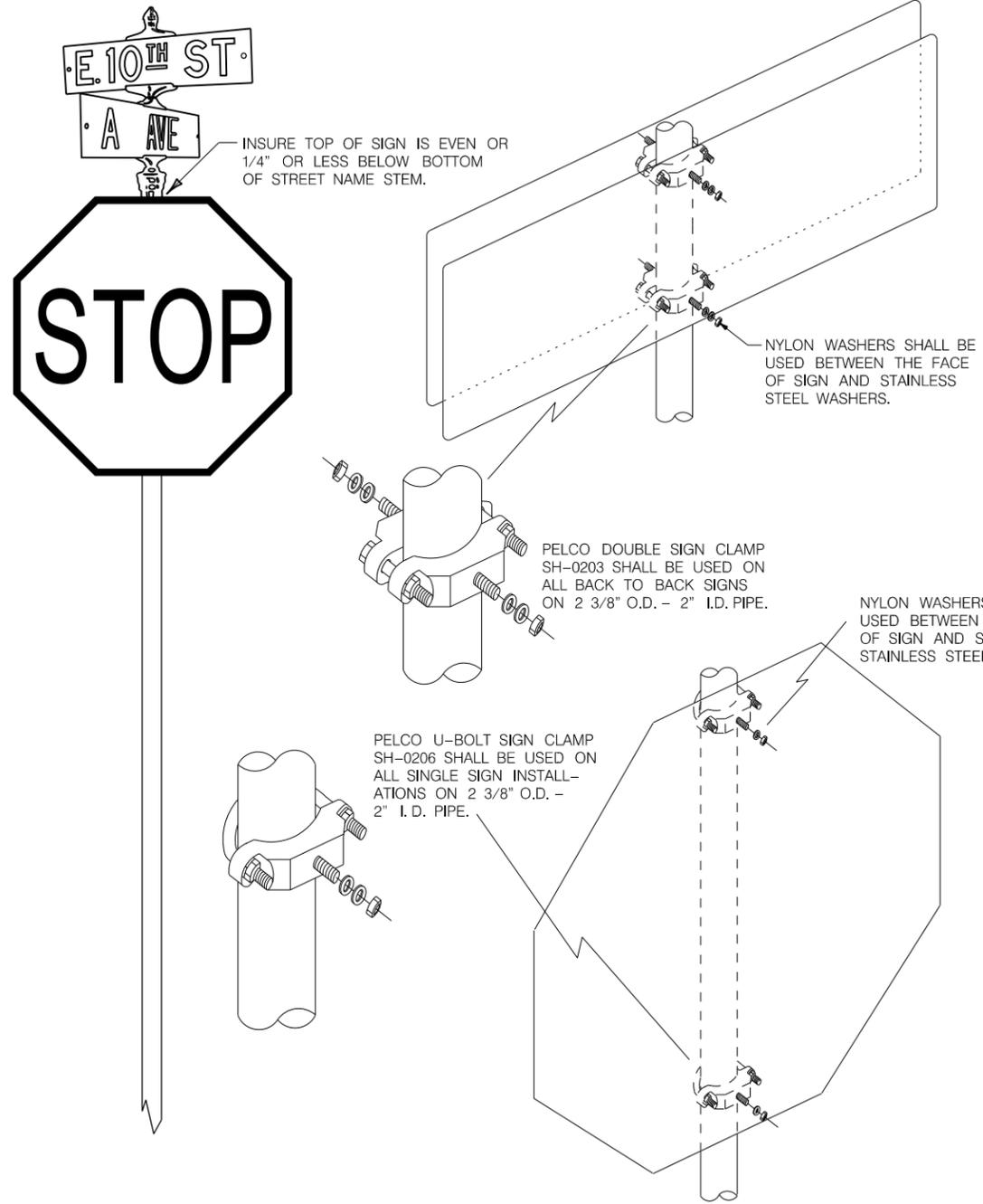
INSTALL SIGN CENTERED ON CURB



MAST ARM POLE DETAIL



EFFECTIVE JULY 1, 2011 - SIGNS
 L.S.P. 78



ROUND POST APPLICATIONS

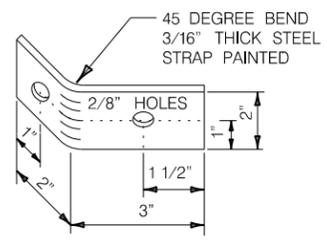
SIGN BRACKETS

9' POSTS
 THESE POSTS SHALL BE USED ON ALL BREAK-AWAY LOCATIONS, WHERE SIGNS SUCH AS KEEP RIGHT, U-TURN PERMITTED AND LANE USAGE SIGNS ARE INSTALLED. (SEE BREAK-AWAY LSP)

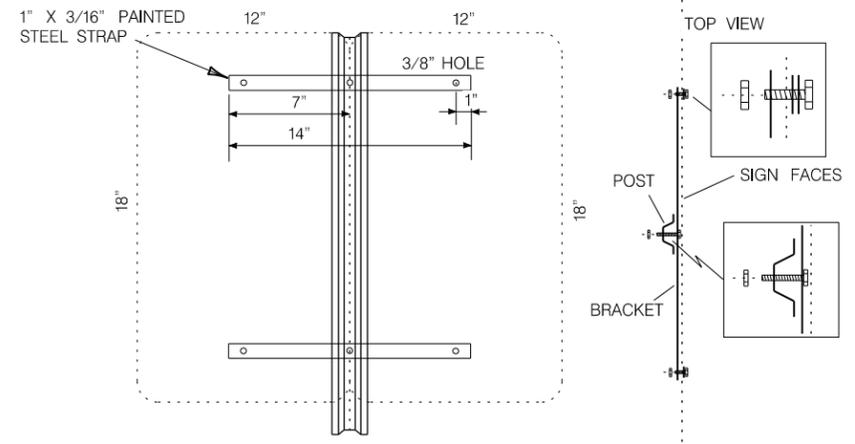
11' POSTS
 SIGNS 18" X 24" OR SMALLER SHALL BE USED ON 11' POSTS. COMBINATIONS OF SIGNS MAY BE USED. EXAMPLE TWO 12' X 18" SIGNS SIDE BY SIDE WITH ADDITIONAL SIGN BELOW SUCH AS A BUS STOP, OR SNOW ROUTE WITH NO PARKING. (SEE BELOW FOR GUIDANCE)

12' THRU 14' POSTS MAY BE ORDERED UP TO BUT NOT EXCEEDING 14' IN LENGTH.

9' TO 12' POSTS SHALL BE INSTALLED 2.5' DEEP.
 12' TO 14' POSTS SHALL BE INSTALLED 3' DEEP.



THIS BRACKET CAN BE USED WHEN ONE SIGN SUCH AS A NO PARKING WITH ARROW NEEDS TO BE INSTALLED AT A 45 DEGREE ANGLE BELOW OTHER SIGN THAT IS FACING TRAFFIC. 5/16" BOLTS SHALL BE USED FOR INSTALLATION. NO PART NUMBER MUST BE PRE APPROVED.



THESE BRACKETS CAN BE USED TO INSTALL NO PARKING SIZE SIGNS THAT HAVE OPPOSING ARROWS. THE BOLTS THAT HOLD THE BRACKETS TO THE POST SHALL BE BEHIND THE SIGNS AND SHALL BE 5/16" X 2 1/2" TO 3" IN LENGTH DEPENDING ON SIZE OF POST. THE SIGNS SHALL BE BOLTED TO BRACKETS USING 5/16" X 1" BOLTS WITH NYLON WASHERS. THERE MAY ALSO BE AN ADDED SIGN BELOW THIS ASSEMBLY BUT NOT LARGER THAN THE ASSEMBLY.

CHANNEL POST APPLICATIONS

NOTE:
 SIGNS 4' OR GREATER IN WIDTH SHALL HAVE TWO CHANNEL POSTS OR A CHANNEL POST AND POLE COMBINATION (IF THE POLE IS IN THE CORRECT SIGN LOCATION) OR A SIGN BRACKET AS SHOWN FOR METRO STREET NAME SIGNS ON LSP 78, SHEET 2.

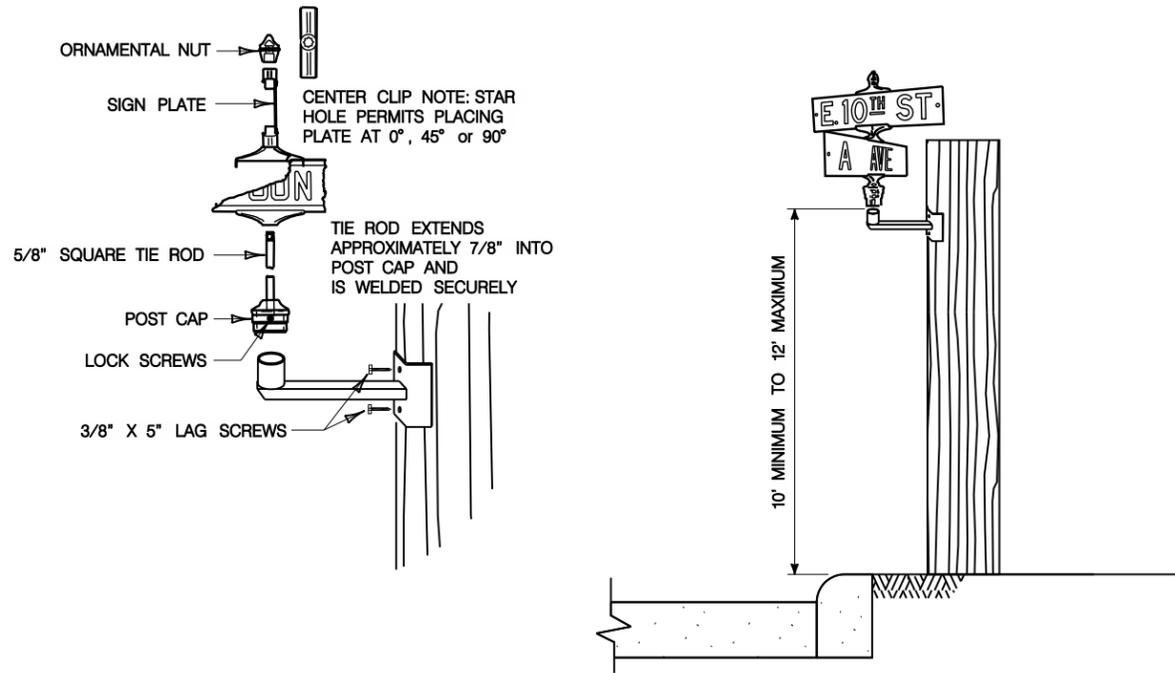


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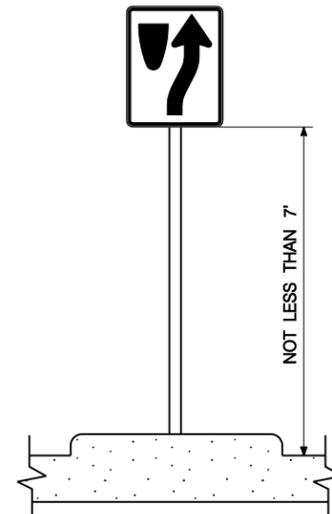


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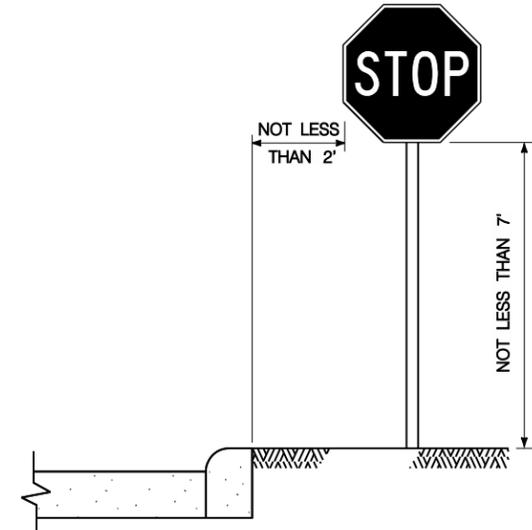
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STREET NAME SIGN ASSEMBLY ON WOOD POLE



MEDIAN SIGN



ROADSIDE SIGN



**EFFECTIVE JULY 1, 2011 - SIGNS
 L.S.P. 78**

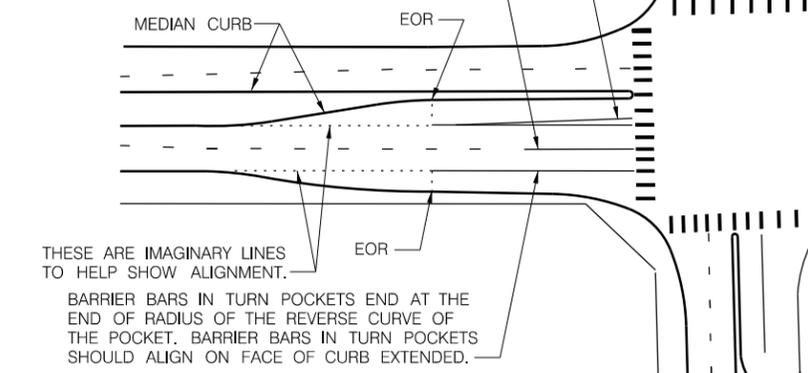
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BARRIER BAR ON OPPOSING LEFT TURN LANES SHALL INCLUDE A SECOND BAR (PINCH LINE) TO REDUCE TURN LANE WIDTH AT INTERSECTION TO 9.5' FROM BACK OF CURB, WHEN THERE IS A RAISED MEDIAN. THE SECOND BAR SHALL BE A 50:1 TAPER FROM END OF LANE TOWARDS BARRIER BAR BEGINNING OR LENGTH OF BARRIER BAR IF SHORTER THAN 50:1.

SIGNALIZED INTERSECTIONS HAVE A 60' SOLID BARRIER BAR. IF GAP IS GREATER THAN 12', SHORTEN BARRIER BAR TO PROVIDE AN 18' GAP. IF GAP BETWEEN BARRIER BAR AND FIRST SKIP IS LESS THAN 12', EXTEND BARRIER BAR.

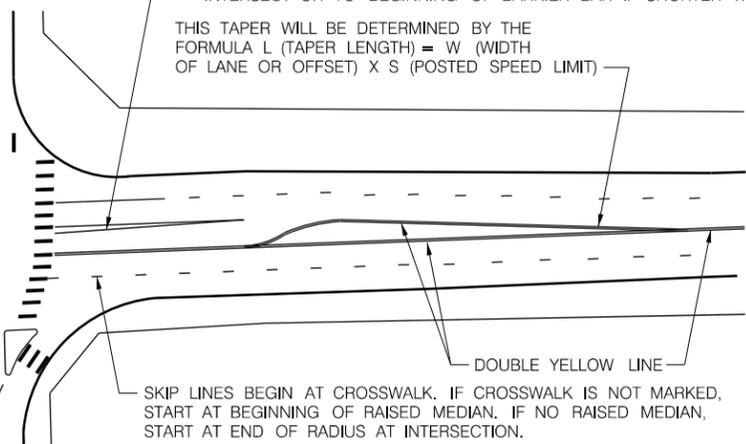


THESE ARE IMAGINARY LINES TO HELP SHOW ALIGNMENT.

BARRIER BARS IN TURN POCKETS END AT THE END OF RADIUS OF THE REVERSE CURVE OF THE POCKET. BARRIER BARS IN TURN POCKETS SHOULD ALIGN ON FACE OF CURB EXTENDED.

BARRIER BAR ON OPPOSING LEFT TURN LANES SHALL INCLUDE A SECOND BAR (PINCH LINE) TO REDUCE TURN LANE WIDTH AT INTERSECTION TO 9', WHEN THERE IS NO RAISED MEDIAN. THE SECOND BAR SHALL BE A 50:1 TAPER FROM END OF LANE TOWARDS BARRIER BAR BEGINNING UNTIL LINES INTERSECT OR TO BEGINNING OF BARRIER BAR IF SHORTER THAN 50:1.

THIS TAPER WILL BE DETERMINED BY THE FORMULA $L (TAPER LENGTH) = W (WIDTH OF LANE OR OFFSET) \times S (POSTED SPEED LIMIT)$



SKIP LINES BEGIN AT CROSSWALK. IF CROSSWALK IS NOT MARKED, START AT BEGINNING OF RAISED MEDIAN. IF NO RAISED MEDIAN, START AT END OF RADIUS AT INTERSECTION.

NOTES:

IF THERE ARE ANY QUESTIONS CONCERNING PLACEMENT OF MARKING, CONTACT ENGINEER FOR APPROVAL BEFORE PROCEEDING WITH WORK.

MAKE SURE INSTALLED MARKINGS LINE UP WITH EXISTING MARKINGS AT ENDS OF PROJECT.

ALL TEMPORARY CROSSWALK LINES AND STOP BARS ARE 12" WIDE WITH THE EXCEPTION OF RAIL ROAD STOP BARS, WHICH ARE 24" WIDE.

ALL LONGITUDINAL LINES ARE 4" WIDE UNLESS OTHERWISE NOTED.

INSTALL MARKINGS AT LEAST 2 INCHES FROM JOINT LINES.

IN MOST INSTANCES WHERE THERE IS A JOINT LINE, IT CAN BE USED AS A GUIDE FOR THE MARKING AS LONG AS IT FOLLOWS THE MARKING PLAN.

ALL LONGITUDINAL LINES AND LANE WIDTHS ARE MEASURED FROM BACK OF CURB TO CENTER OF MARKING LINE, AND BETWEEN CENTERS OF MARKING LINES.

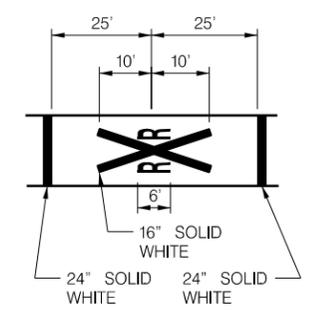
MARKINGS SHOULD NORMALLY BE INSTALLED TO INSIDE (LEFT) OF JOINT LINE, EXCEPT IN RIGHT TURN POCKETS. IN RIGHT TURN POCKETS, MARKING SHOULD NORMALLY BE INSTALLED TO OUTSIDE (RIGHT) OF JOINT LINE.

ALL LOCATIONS OF CROSSWALKS WILL BE PRE-MARKED BY ENGINEER.

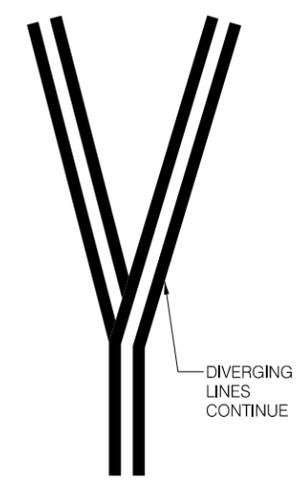
POINT OF 12" CHEVRON SHALL BE CENTERED BETWEEN 8" LINES

DEFINITIONS :

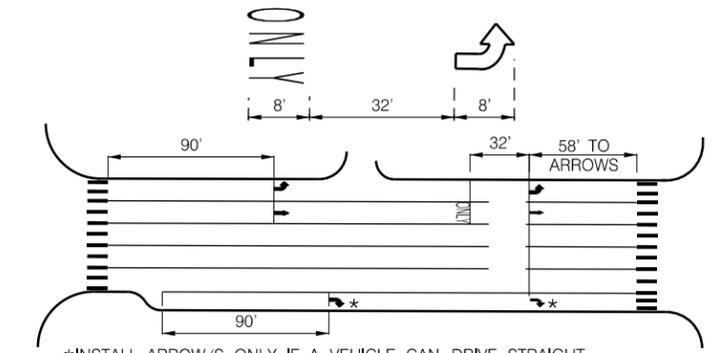
- OUTSIDE - TOWARD THE OUTSIDE EDGE OF THE ROADWAY
- INSIDE - TOWARD THE MIDDLE OF THE ROADWAY
- EOR - END OF RADIUS OF CURVE
- BARRIER BAR - SOLID WHITE LINE
- P.T. - POINT OF TAPER (DRAW A STRING LINE TAUT BETWEEN TWO P.T.'S TO GET ALIGNMENT)
- DROP LANE - WHEN A VEHICLE CAN TRAVEL IN THE LANE NEAREST EITHER CURB MORE THAN ONE BLOCK UNTIL IT IS REQUIRED TO TURN AT AN INTERSECTION



RAILROAD MARKING

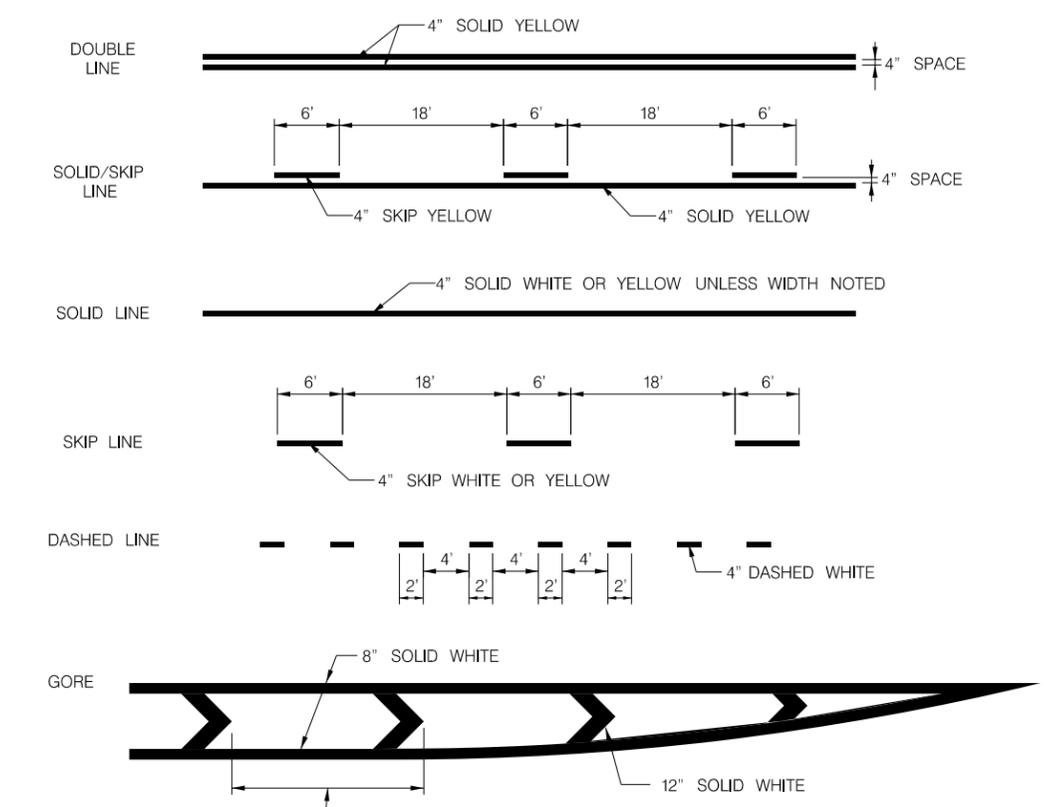


DOUBLE YELLOW MERGE

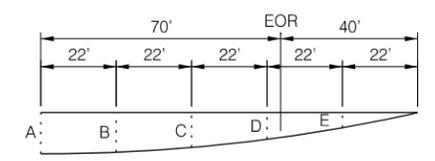


*INSTALL ARROW/S ONLY IF A VEHICLE CAN DRIVE STRAIGHT THROUGH THE INTERSECTION IN THIS LANE - CHECK WITH CITY TRAFFIC OPERATIONS TO DETERMINE IF THIS IS A DROP LANE

ARROW/ONLY



LONGITUDINAL MARKING



| | | | | |
|-----|--------|-------|-------|-------|
| A | B | C | D | E |
| 12' | 11'-3" | 9'-9" | 7'-3" | 4'-2" |

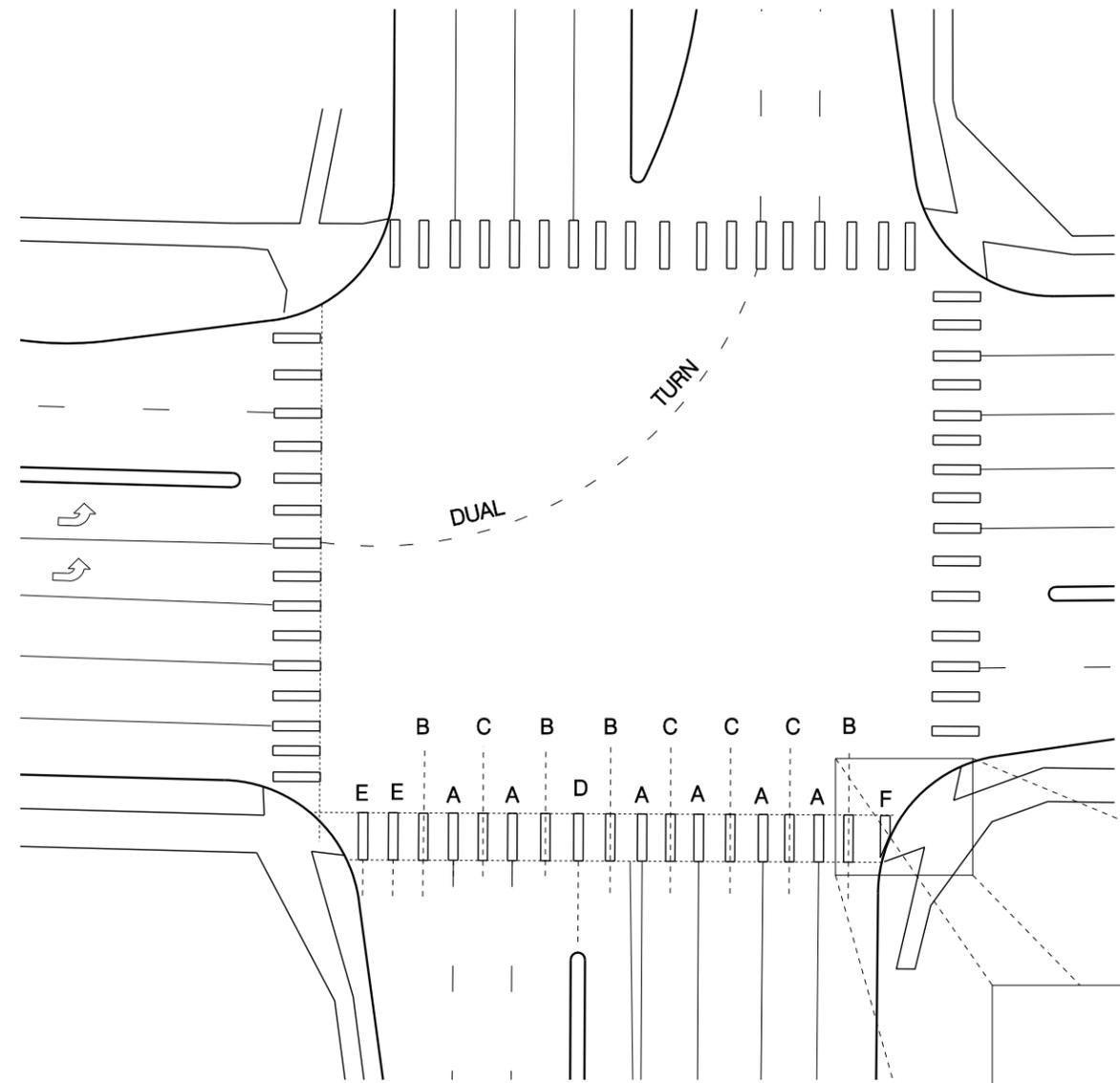
IF -A- IS MORE THAN 12 FEET OR LESS THAN 12 FEET, THEN ADD OR SUBTRACT THE DIFFERENCE. (EXAMPLE) IF -A- IS 9 FEET THEN -C- WOULD BE 6'-9" FEET.

500 FOOT GORE RADIUS LAYOUT



EFFECTIVE OCTOBER 1, 2014
TRAFFIC PAVEMENT MARKINGS

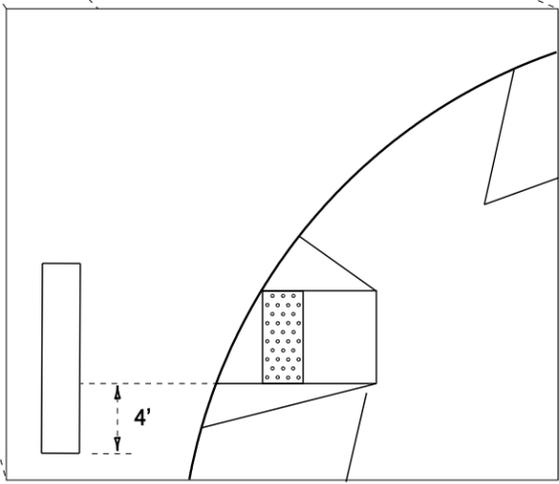
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- ### LAYOUT OF DUAL TURNS
1. OBSERVE TRACKING OF VEHICLES MAKING THE DUAL TURN.
 2. USE HEAVY ROPE OR CHAIN TO LAY-OUT PROPOSED DASH LINE BASED ON THIS OBSERVATION
 3. HAND PAINT A SOLID LINE ALONG ROPE OR CHAIN
 4. REMOVE ROPE OR CHAIN
 5. OBSERVE TRACKING OF VEHICLES ON BOTH SIDES OF PAINTED LINE TO SEE IF VEHICLES ARE TRACKING ACROSS THE LINE AND TRAFFIC FLOWS SMOOTHLY
 6. IF THEY ARE CROSSING LINE OR MOVEMENT IS AWKWARD, REDO STEPS 1-5 UNTIL THERE IS NO TRACKING ACROSS LINE AND TRAFFIC FLOWS SMOOTHLY
 7. WHEN 6 IS ACHIEVED, NOTIFY THE ENGINEER FOR VERIFICATION BEFORE MARKING
 8. PERMANENT DASH LINES SHALL BE GROOVED

CROSSWALK LAY-OUT AT INTERSECTION

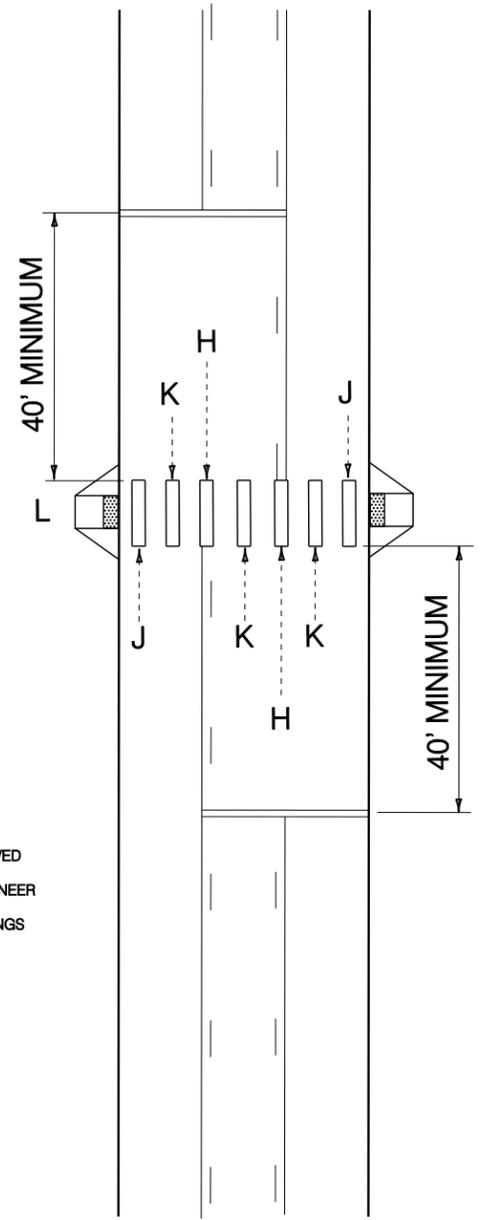
- A. CENTERLINE OF CONTINENTAL STRIPE (2' X 10') LINES UP WITH CENTERLINE OF LANE MARKING
- B. CENTERLINE OF CONTINENTAL STRIPE IS CENTERED ON THE TRAVEL LANE NEAREST THE CURB
- C. CENTERLINE OF CONTINENTAL STRIPE IS 1/2 OF DISTANCE BETWEEN THE TWO ADJACENT CONTINENTAL STRIPES
- D. CENTERLINE OF CONTINENTAL STRIPE IS 1/2 OF DISTANCE BETWEEN THE ADJACENT CONTINENTAL STRIPES IF THE DISTANCE BETWEEN THE EDGES OF THE ADJACENT STRIPES IS LESS THAN 12 FEET
 IF DISTANCE BETWEEN ADJACENT CONTINENTAL STRIPES IS GREATER THAN 12 FEET, ADD CONTINENTAL STRIPES AT EQUAL INTERVALS SO THAT DISTANCE BETWEEN THE EDGES OF CONTINENTAL STRIPES IS LESS THAN 5 FEET
- E. CENTERLINE OF CONTINENTAL STRIPE IS 1/2 OF DISTANCE BETWEEN EDGE OF THE ADJACENT CONTINENTAL STRIPE AND BACK OF CURB IF THAT DISTANCE IS GREATER THAN 7 FEET AND LESS THAN 13 FEET
 IF THE DISTANCE BETWEEN ADJACENT CONTINENTAL STRIPE AND BACK OF CURB IS GREATER THAN 13 FEET, ADD CONTINENTAL STRIPES AT EQUAL INTERVALS SO THAT DISTANCE BETWEEN THE EDGES OF CONTINENTAL STRIPES IS LESS THAN 5 FEET
- F. DO NOT INSTALL ANY PARTIAL CONTINENTAL STRIPE



CROSSWALK LAY-OUT AT MID-BLOCK

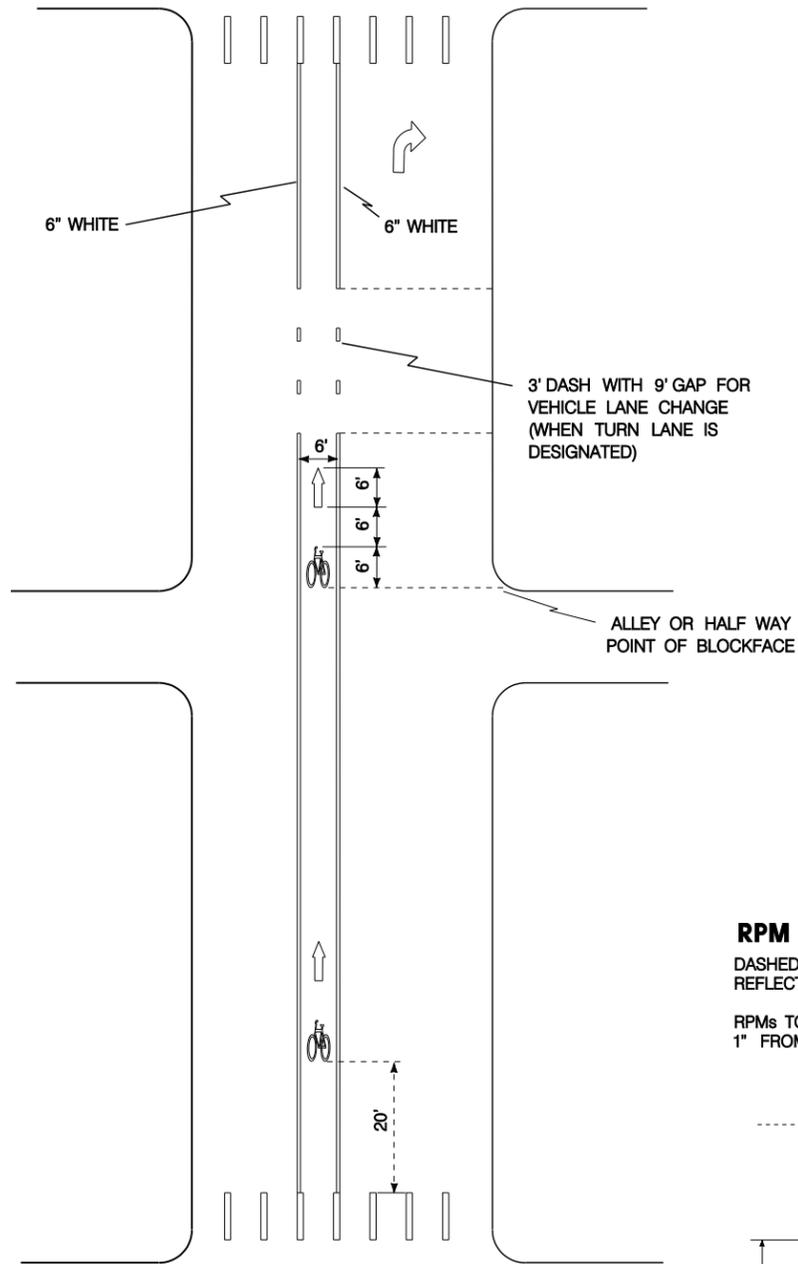
- H. CENTERLINE OF CONTINENTAL STRIPE (2' X 10') LINES UP WITH CENTERLINE OF LANE MARKING
- J. CENTERLINE OF CONTINENTAL STRIPE IS 3' FROM BACK OF CURB
- K. CENTERLINE OF CONTINENTAL STRIPE IS 1/2 OF DISTANCE BETWEEN THE TWO ADJACENT CONTINENTAL STRIPES
- L. CROSSWALK IS CENTERED LENGTHWISE ON CURB RAMP

GENERAL NOTES:
 CONTINENTAL STRIPES SHALL RUN PARALLEL TO THE GENERAL FLOW OF TRAFFIC
 ALL PERMANENT CROSSWALKS THAT ARE INSTALLED ON CONCRETE WILL BE GROOVED
 IF GAP BETWEEN CONTINENTAL STRIPES ARE MORE THAN 5 FEET, NOTIFY THE ENGINEER
 CALL FOR INSPECTION OF PREMARKED LAYOUT PRIOR TO INSTALLATION OF MARKINGS



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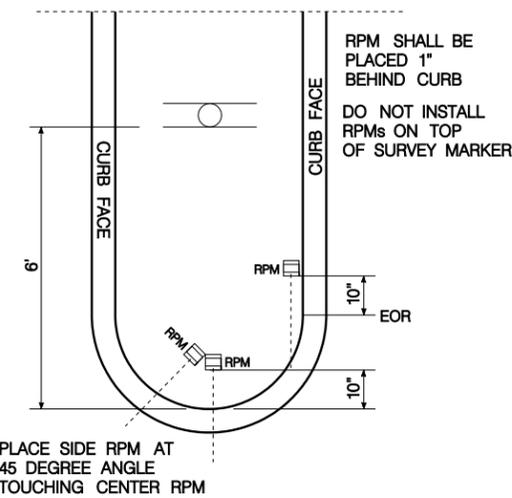


TYPICAL BIKE LANE MARKINGS ON ONE-WAY STREETS

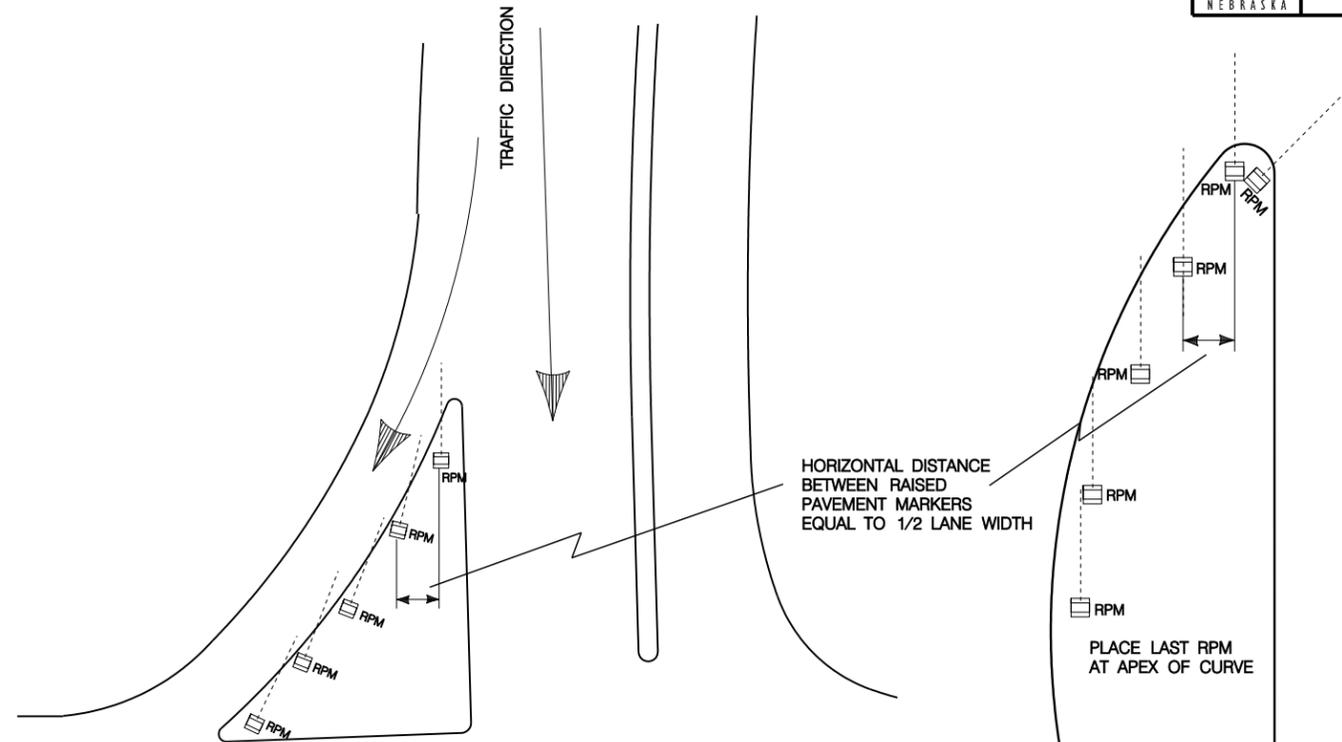
RPM GENERAL NOTES

DASHED LINES INDICATE LINE OF SIGHT FOR PRISMATIC REFLECTIVE FACE

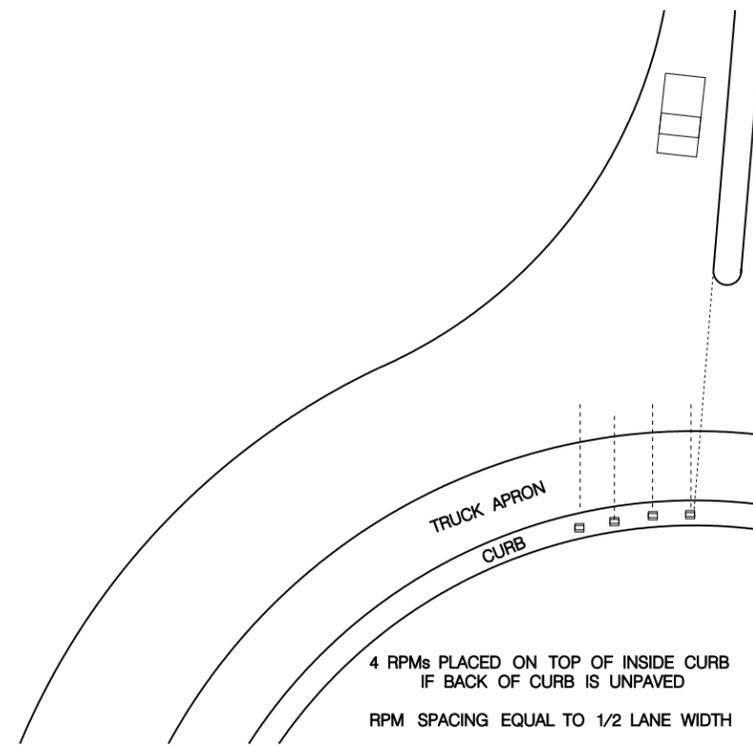
RPMs TO BE PLACED 1" BEHIND CURB FACE AND AT LEAST 1" FROM PAVING SEAMS



RPM LAY-OUT ON 4 FT MEDIAN



RPM LAY-OUT ON RAISED ISLAND



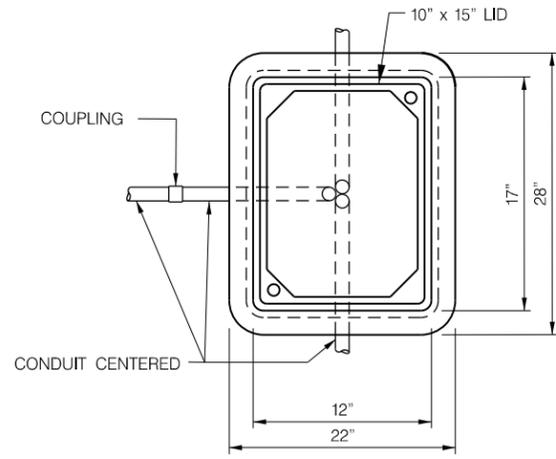
RPM LAY-OUT ON ROUNDABOUT MEDIAN

RPM LAY-OUT ON WIDE MEDIAN

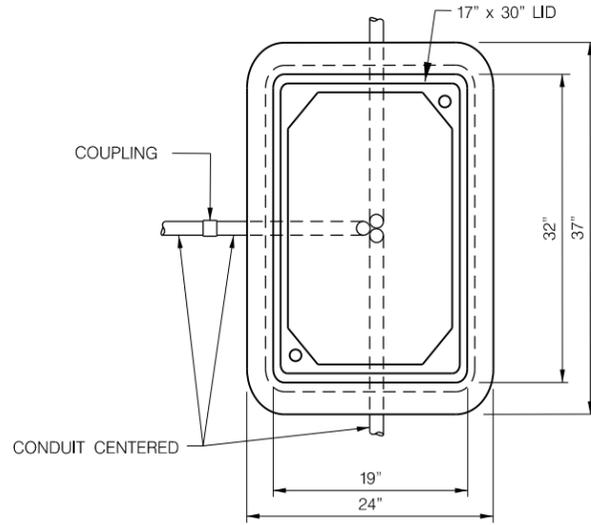


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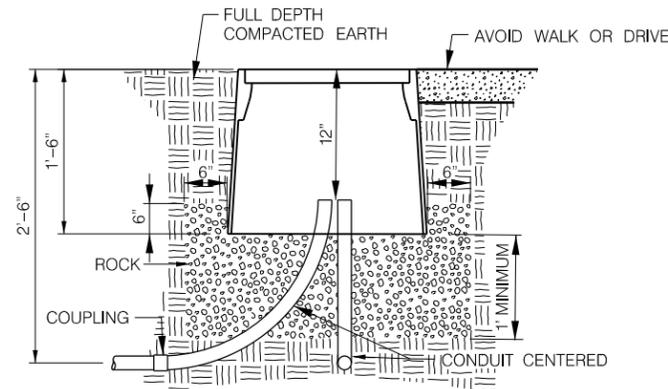
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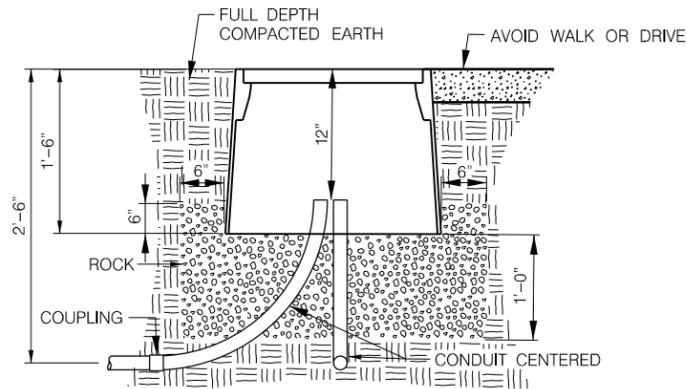
**PULL BOX T6
 PLAN VIEW**



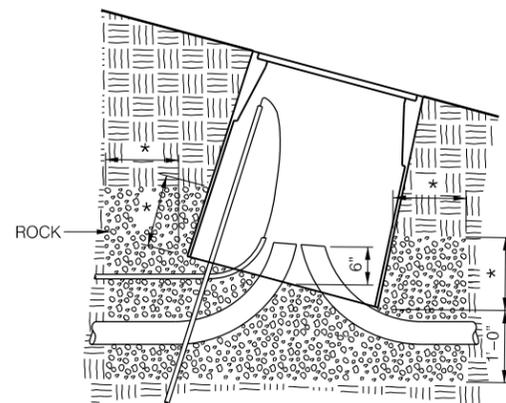
**PULL BOX T9
 PLAN VIEW**



**PULL BOX T6
 END VIEW**

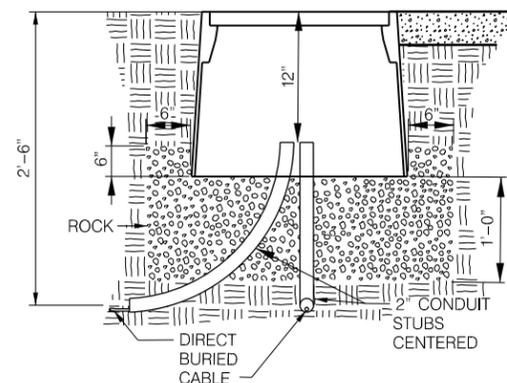


**PULL BOX T9
 END VIEW**



* IS 6" FOR T6 & T9 AND 12" FOR TR27 & T48

**PULL BOX ON SLOPE
 SIDE VIEW**



**TYPICAL PULL BOX STUBS
 FOR DIRECT BURIED CABLE
 END VIEW**

PULL BOX NOTES

PULL BOX T6 IS FOR STREET LIGHTS ONLY WITH A LID EMBOSSED ON THE TOP SURFACE WITH TIER 15 AND "ELECTRIC".
 PULL BOX T9 IS FOR GENERAL USE WITH A LID EMBOSSED ON THE TOP SURFACE WITH TIER 15 AND "TRAFFIC".
 PULL BOX T27 IS THE TRAFFIC POLE PULL BOX WITH A LID EMBOSSED ON THE TOP SURFACE WITH TIER 15 AND "TRAFFIC".
 PULL BOX T48 IS THE FIBER OR CONTROLLER PULL BOX WITH A 2 PIECE LID EMBOSSED ON THE TOP SURFACE WITH TIER 15 AND "TRAFFIC" OR "FIBER".

ALL PULL BOXES AND THEIR LIDS ARE REQUIRED TO CONFORM TO ALL TEST PROVISIONS OF ANSI/SCTE 77 "SPECIFICATIONS FOR UNDERGROUND ENCLOSURE INTEGRITY" TIER 15 AND LABELED AS SUCH INSIDE THE PULL BOX AND ON TOP OF THE LID.

ALL PULL BOXES SHALL CONFORM TO LINCOLN SPECIFICATIONS.

ALL PULL BOX LIDS SURFACES SHALL HAVE A MINIMUM COEFFICIENT OF FRICTION OF 0.5 IN ACCORDANCE WITH ASTM C1028.

AVOID PLACING PULL BOXES IN CONCRETE. THE PULL BOX EDGES, LID AND LIFTING EYE SHALL BE KEPT CLEAR OF CONCRETE AND FOREIGN MATERIAL.

DO NOT INSTALL LID BOLTS.

PULL BOX SHALL REST FIRMLY ON A AGGREGATE BASE MEETING ALL THE REQUIREMENTS OF COURSE AGGREGATE FOR CONCRETE AS DESCRIBED IN CHAPTER 3 OF THE CITY OF LINCOLN STANDARD SPECIFICATIONS. THE AGGREGATE BASE SHALL BE PLACED IN 6" LIFTS AND COMPACTED WITH MECHANICAL OR HAND METHODS TO THE SATISFACTION OF THE ENGINEER.

THE AGGREGATE BASE SHALL BE PLACED TO THE DIMENSIONS SHOWN.

THE REMAINING EXCAVATION SHALL BE BACKFILLED WITH SOIL AND SHALL MEET THE REQUIREMENTS FOR BACKFILL IN CHAPTER 20 OF THE CITY OF LINCOLN STANDARD SPECIFICATIONS.

ALL DIMENSIONS ARE NOMINAL

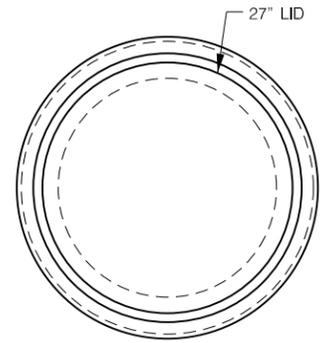


EFFECTIVE DATE FEBRUARY 4, 2016

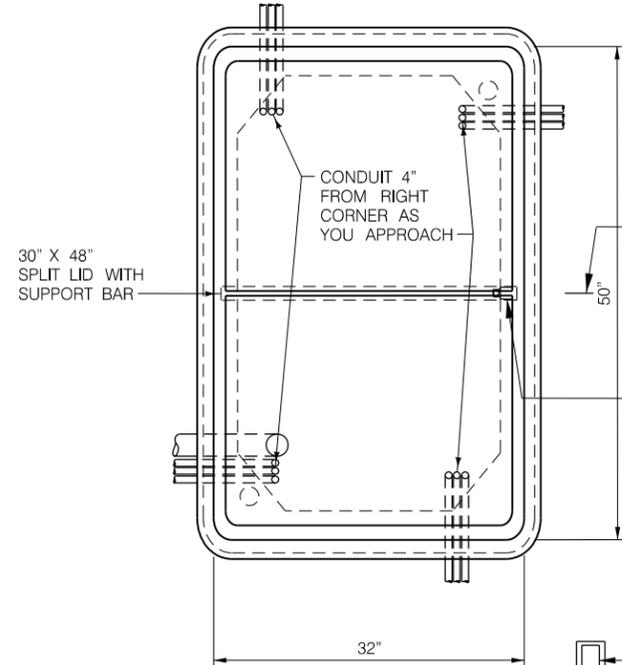
LOCATE MARKER AND PULL BOXES

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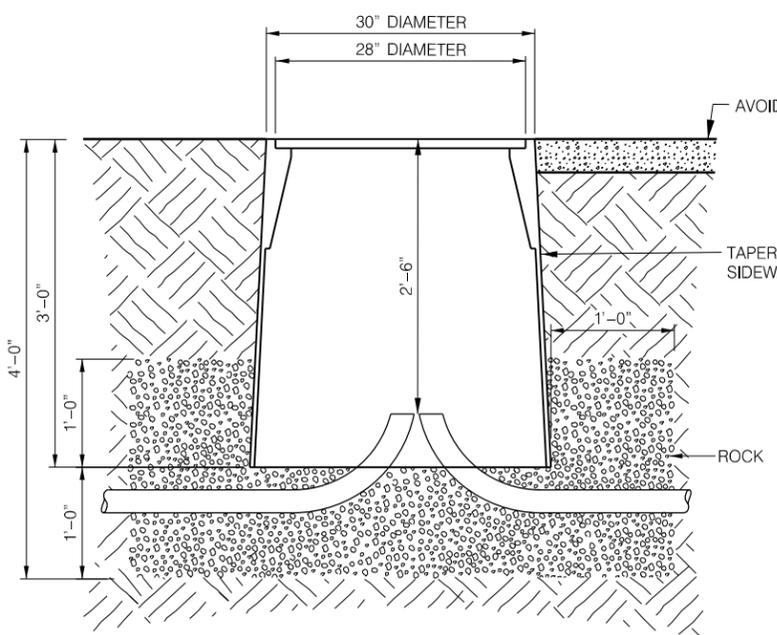
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| Horz. Scale: NONE | Checked: | |
| | Approved: | |



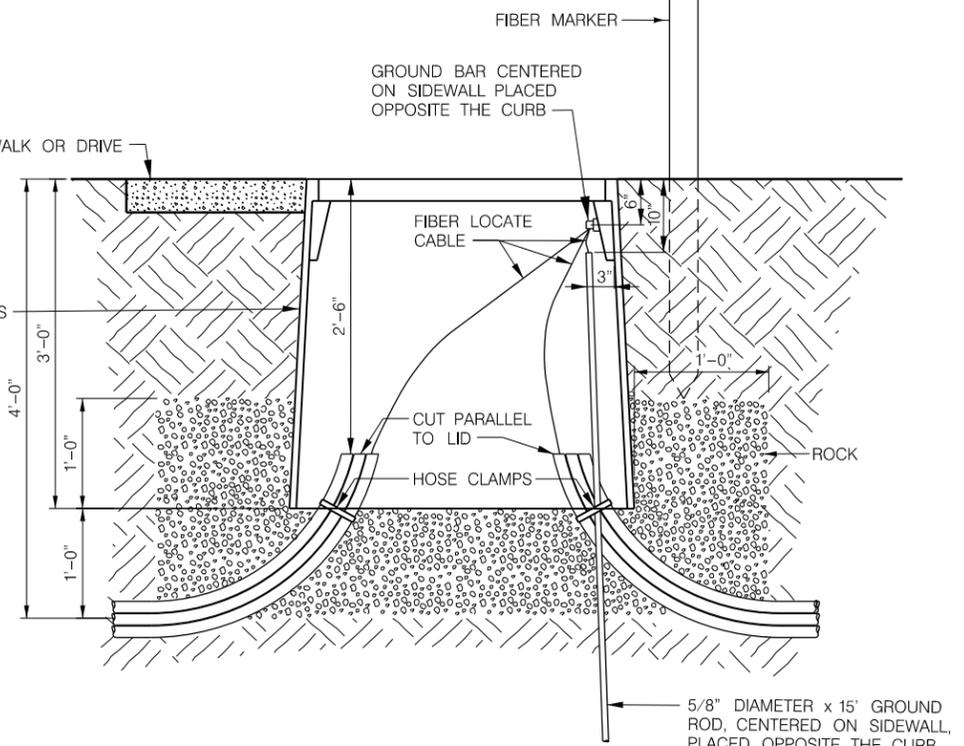
**PULL BOX TR27
PLAN VIEW**



**PULL BOX T48
PLAN VIEW**

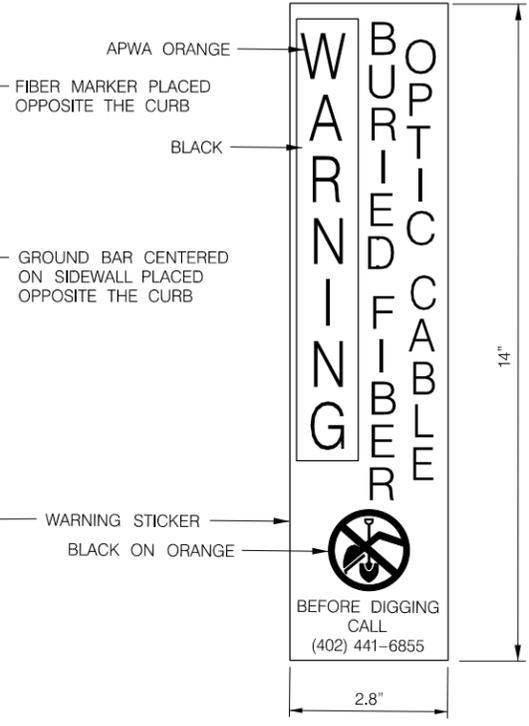


**PULL BOX TR27
SIDE VIEW**



**PULL BOX T48
END VIEW**

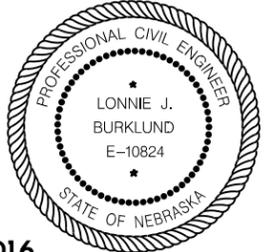
DIMENSIONS ARE NOMINAL



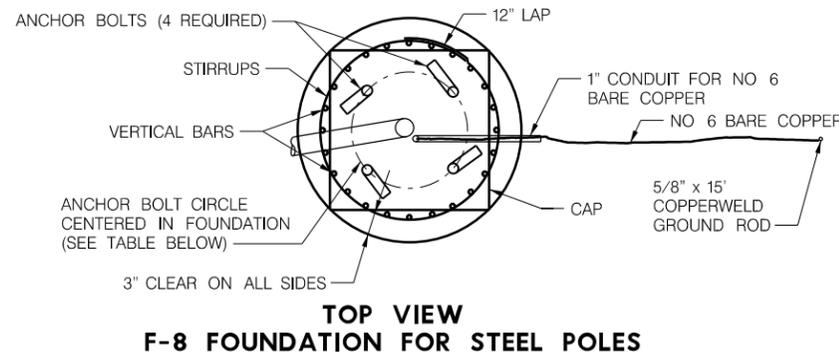
FIBER MARKER

EFFECTIVE DATE FEBRUARY 4, 2016

FIBER MARKER AND PULL BOXES



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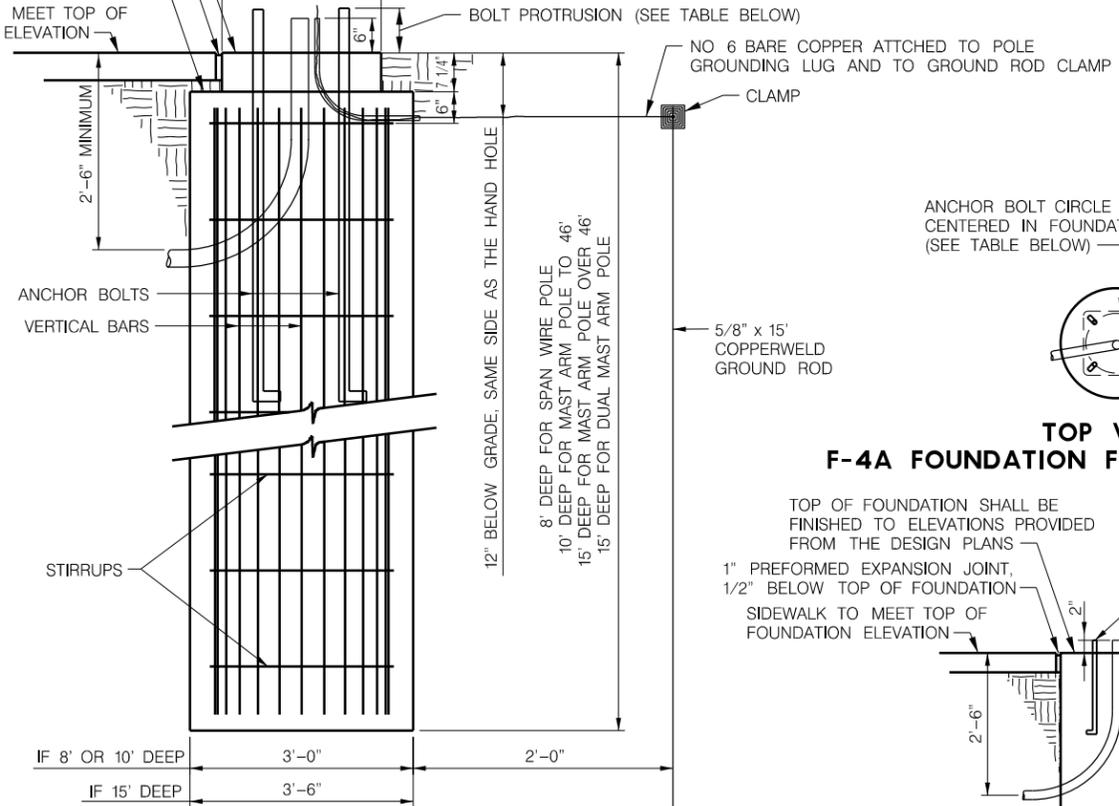


**TOP VIEW
 F-8 FOUNDATION FOR STEEL POLES**

TOP OF FOUNDATION SHALL BE NEATLY FINISHED TO ELEVATIONS PROVIDED FROM THE DESIGN PLANS

| | |
|-------------------|-------------------|
| 2'-0" x 2'-0" CAP | IF 8' OR 10' DEEP |
| 2'-3" x 2'-3" CAP | IF 48' TO 70' ARM |
| 2'-6" x 2'-6" CAP | IF 75' ARM |

1" PREFORMED EXPANSION JOINT, 1/2" BELOW TOP OF FOUNDATION
 TOP OF FOUNDATION CYLINDER SHALL BE NEATLY FINISHED LEVEL
 SIDEWALK TO MEET TOP OF FOUNDATION ELEVATION



**SIDE VIEW
 F-8 FOUNDATION FOR STEEL POLES**

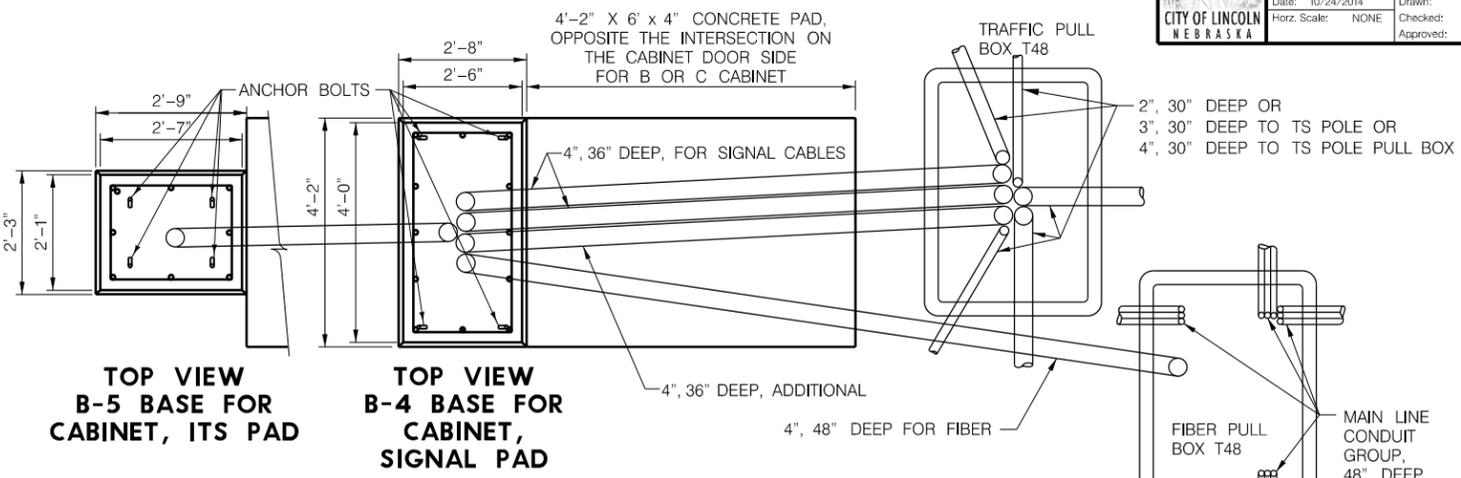
F-8 REINFORCING STEEL

ALL STEEL TO BE A MINIMUM OF 3" FROM EDGE OF FOUNDATION

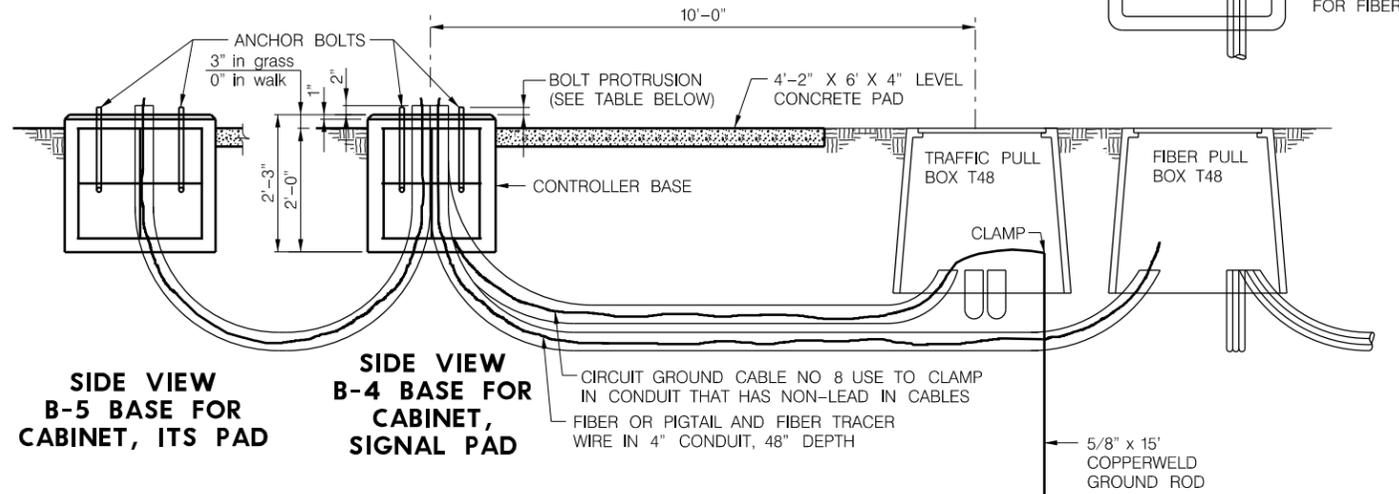
- F-502 (8) 6'-10" OF NO 5 VERTICAL BARS FOR 8'-0" DEEP
 (8) 8'-10" OF NO 5 VERTICAL BARS FOR 10'-0" DEEP
 (24) 13'-10" OF NO 7 VERTICAL BARS FOR 15'-0" DEEP

- F-503 (8) NO 5 STIRRUPS AT 1'-0" CENTERS FOR 8'-0" DEEP
 (10) NO 5 STIRRUPS AT 1'-0" CENTERS FOR 10'-0" DEEP
 (10) NO 4 STIRRUPS AT 1'-6" CENTERS FOR 15'-0" DEEP

- (ALTERNATE)
 F-501 (8) NO 5 STIRRUPS AT 1'-0" CENTERS FOR 8'-0" DEEP
 (10) NO 5 STIRRUPS AT 1'-0" CENTERS FOR 10'-0" DEEP
 (10) NO 4 STIRRUPS AT 1'-6" CENTERS FOR 15'-0" DEEP



**TOP VIEW
 B-5 BASE FOR CABINET, ITS PAD**
**TOP VIEW
 B-4 BASE FOR CABINET, SIGNAL PAD**



**SIDE VIEW
 B-5 BASE FOR CABINET, ITS PAD**
**SIDE VIEW
 B-4 BASE FOR CABINET, SIGNAL PAD**

B-4 OR B-5 CONTROLLER BASE, PAD AND GROUND ROD INSTALLATION

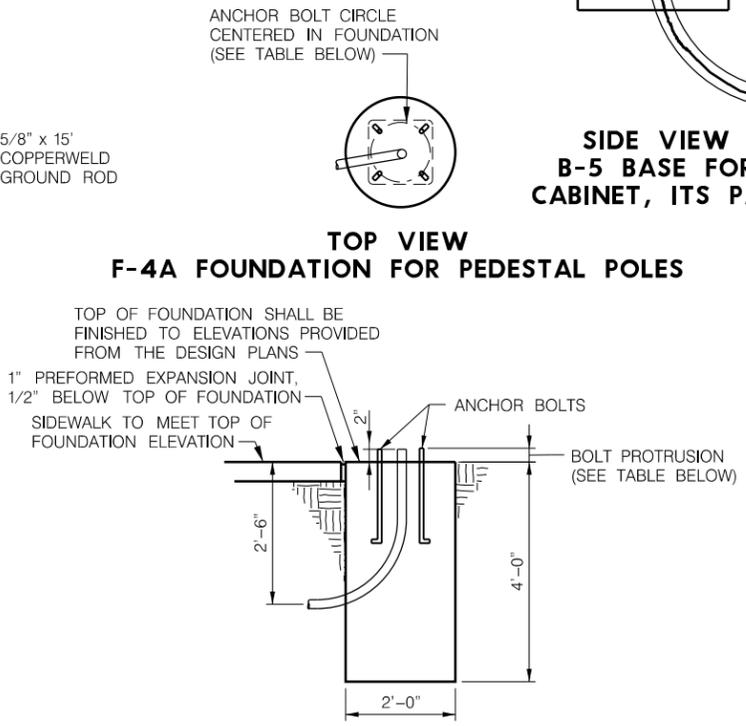
ALL STEEL IS NO 4 WITH A MINIMUM 3" CLEARANCE TO ANY EDGE OF CONCRETE

CABINET PAD
 THE 4'-2" X 6" X 4" CONCRETE PAD SHALL BE LEVEL IN BOTH DIRECTIONS.

GROUNDING
 THE GROUND ROD FOR THE B-4 AND F-4A CONTROLLER BASE SHALL BE INSTALLED IN A PULL BOX NOT LESS THAN 10' FROM THE CONTROLLER. (1) NO 8 USE CABLE SHALL BE INSTALLED BETWEEN THE CONTROLLER AND THE GROUND ROD. THE CONTRACTOR SHALL BOND THE CABLES AT THE GROUND ROD AND IN THE CABINET. THE GROUND ROD FOR THE F-8 AND F-4A FOUNDATION SHALL BE LOCATED 2' FROM THE EDGE OF THE FOUNDATION AND THE TOP OF THE GROUND ROD SHALL BE 1' BELOW THE FINISHED GRADE. UNDER NO CIRCUMSTANCES SHALL THE GROUND ROD BE INSTALLED WITHIN THE CABINET BASE OR POLE FOUNDATION.

CONDUIT BENDS
 90 DEGREE FACTORY SWEEPS, WITH A 48" RADIUS, SHALL BE USED IN CONTROLLER BASES, THE HOME RUN PULL BOX (FIRST ELECTRICAL PULL BOX TO THE CABINET) AND IN FIBER PULL BOXES; IN ALL OTHER CASES, 90 DEGREE BENDS, WITH A MINIMUM 16" RADIUS SHALL BE USED.

ANCHOR BOLT PROTRUSION
 THE BOLT PROTRUSION SHOWN IN THE TABLE BELOW SHALL BE FROM THE HIGHEST CORNER BOLT AND THE OTHER BOLTS SHALL BE LEVEL TO THE BOLT TOPS FROM THAT BOLT.



**TOP VIEW
 F-4A FOUNDATION FOR PEDESTAL POLES**

**SIDE VIEW
 F-4A FOUNDATION FOR PEDESTAL POLES**

TOP OF FOUNDATION SHALL BE FINISHED TO ELEVATIONS PROVIDED FROM THE DESIGN PLANS

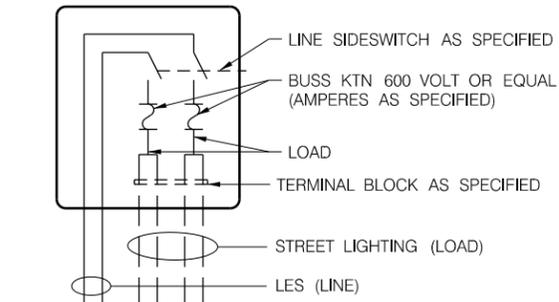
1" PREFORMED EXPANSION JOINT, 1/2" BELOW TOP OF FOUNDATION
 SIDEWALK TO MEET TOP OF FOUNDATION ELEVATION

| | ANCHOR BOLT INFORMATION | | | | | |
|------------------|-------------------------|-----------------|-------------------|-------------------|---------------|---------------|
| | CABINET | PEDESTAL | 18'-32' ARM | 34'-46' ARM | 48'-70' ARM | 75' ARM |
| ANCHOR BOLT SIZE | 3/4" x 18" x 3" | 3/4" x 18" x 3" | 1 1/2" x 54" x 6" | 1 3/4" x 84" x 6" | 2" x 84" x 6" | 2" x 84" x 6" |
| BOLT CIRCLE | - | 13" | 17" | 17 1/2" | 20 1/2" | 22 1/2" |
| BOLT PROTRUSION | 1 1/2" | 3" | 5"-6" | 6 1/4"-6 3/4" | 6 3/4"-7 1/4" | 6 3/4"-7 1/4" |
| THREAD LENGTH | 3 5/8" | 3 5/8" | 8" | 8" | 10" | 10" |

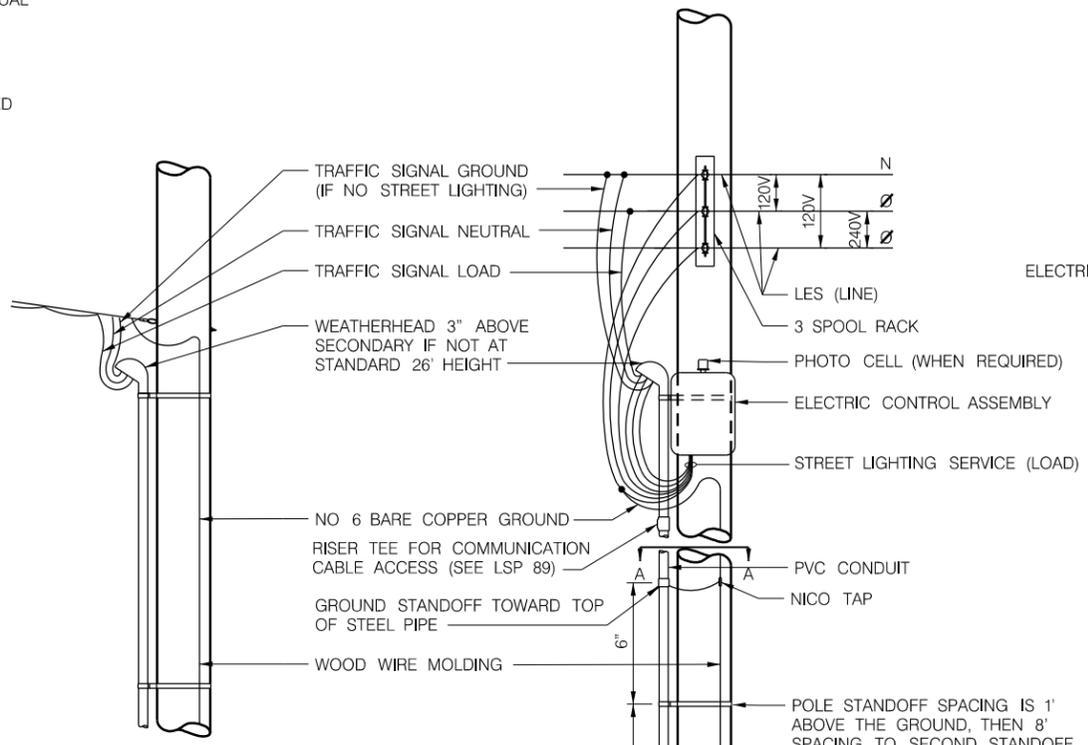
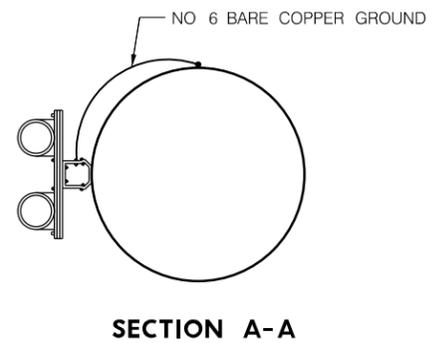
SEE F-8 FOR GROUND ROD INSTALLATION



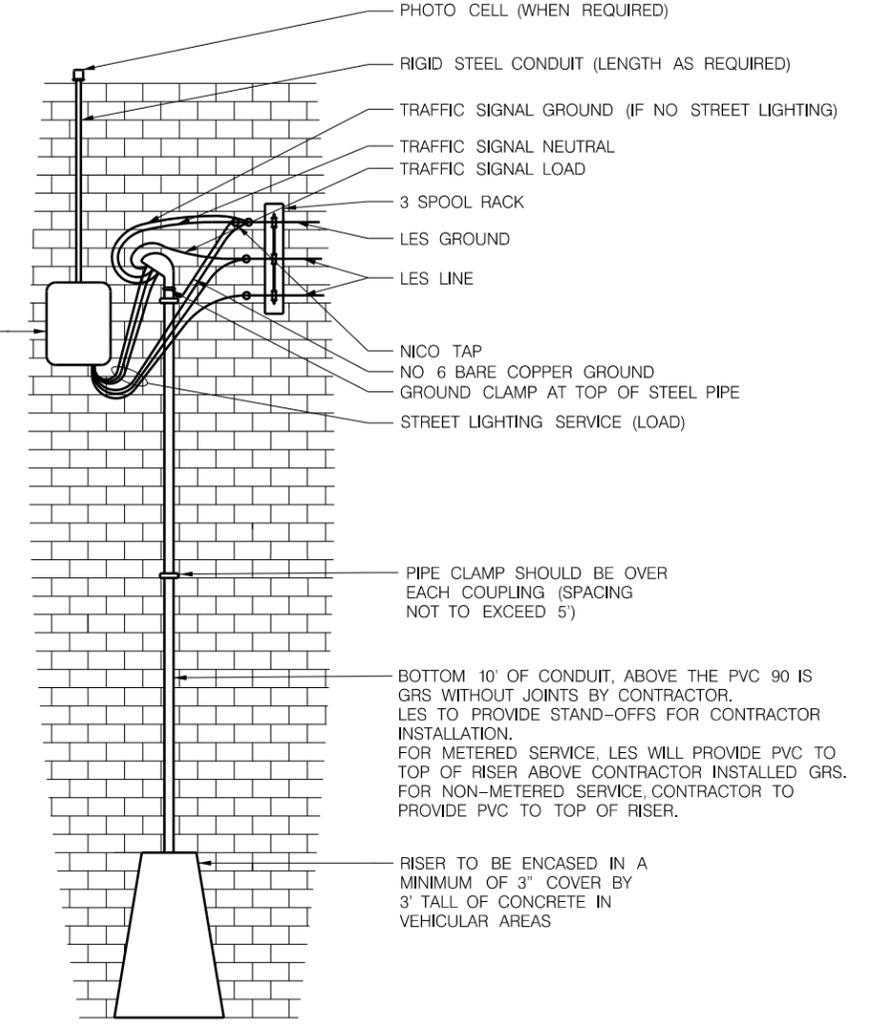
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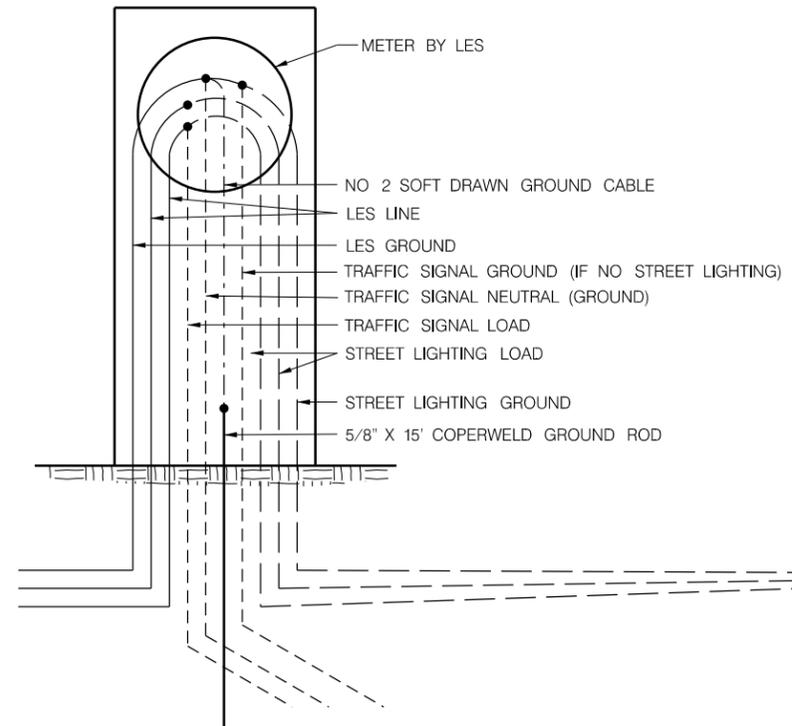
ELECTRIC CONTROL ASSEMBLY



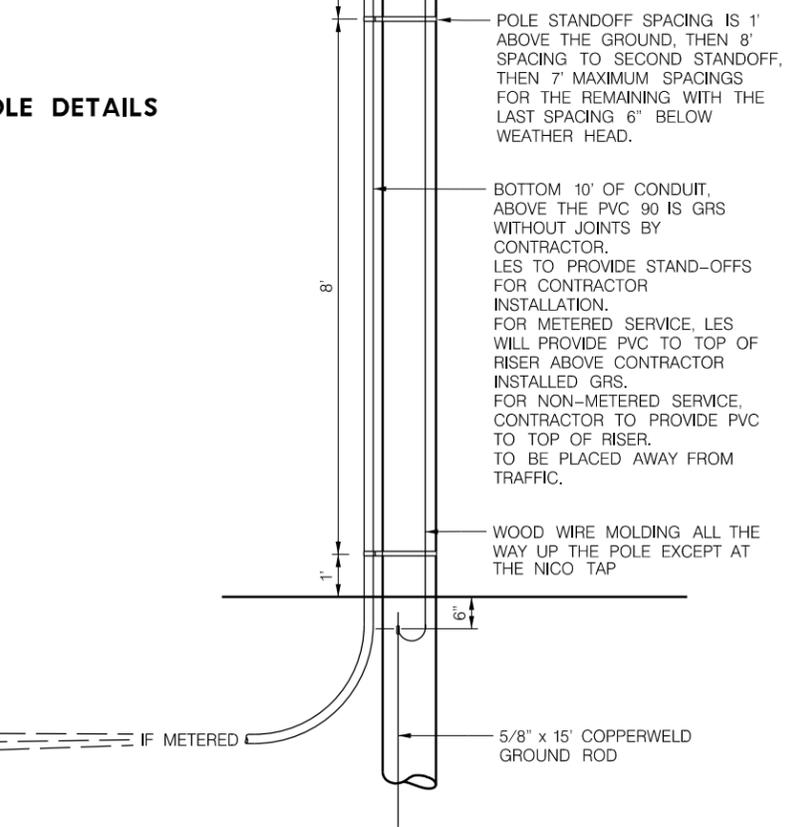
POWER TO WOOD POLE DETAILS



SIDE OF BUILDING DETAILS



METER PEDESTAL DETAIL



CONTROL RELAY AND WOOD POWER POLE DETAILS

ELECTRICAL SERVICE NOTE:

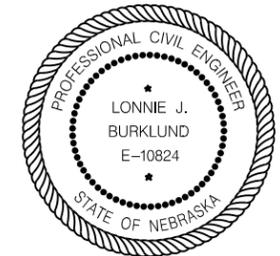
EACH RIGED STEEL RISER, EITHER WOOD POLE, OR SIDE OF BUILDING, SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, LOCAL ORDANCES, APPLICABLE CODES AND THE REQUIREMENTS OF THE LINCOLN ELECTRIC SYSTEM.

THE SIDE OF BUILDING INSTALLATION SHALL REQUIRE A RISER GROUNDING CLAMP, NICO TAP AND NO 6 BARE COPPER. THE NO 6 BARE COPPER WIRE SHALL BE CLAMPED TO THE SERVICE CABLE MESSENGER.

THE SIDE OF POLE INSTALLATION SHALL REQUIRE A RISER GROUNDING CLAMP, NO 6 BARE COPPER, 5/8" x 15' GROUND ROD AND WOOD MOLDING.

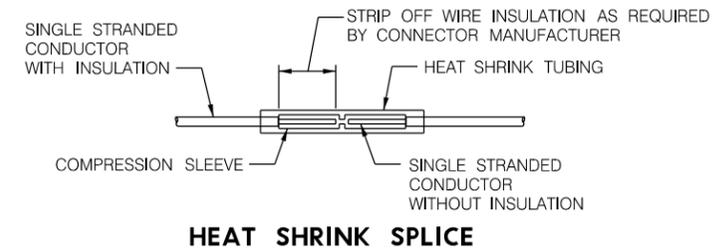
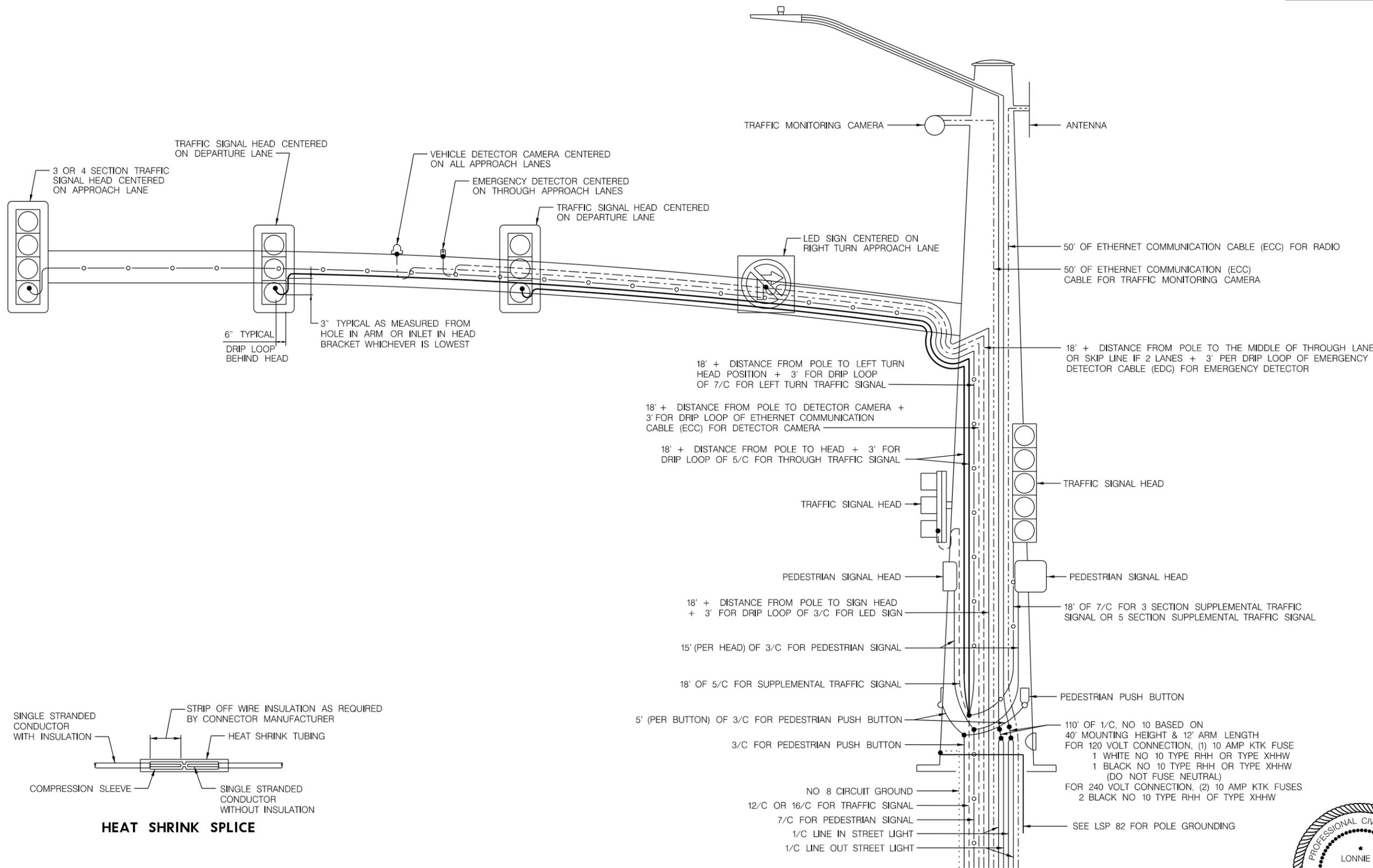
PROVIDE SUFFICIENT LEAD LENGTH FOR L. E. S. TO MAKE FINAL ELECTRICAL CONNECTIONS TO SECONDARY.

PHOTO ELECTRICAL CONTROL ASSEMBLY TO BE LOCATED ON NORTH, EAST OR WEST FACE OF POLE WITH PHOTO ELECTRIC CELL WINDOW FACING NORTH.



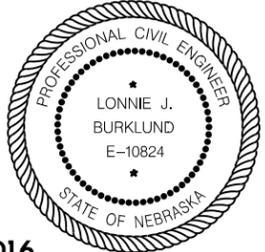
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|  CITY OF LINCOLN NEBRASKA | PROJECT NO. LSP 84 | SHEET NO. 1 |
| | Date: 12/23/2015 Horz. Scale: | Drawn: CAW Checked: Approved: |



TYPICAL MAST ARM TRAFFIC SIGNAL AND STREET LIGHTING POLE WIRING DETAIL

EFFECTIVE DATE FEBRUARY 4, 2016

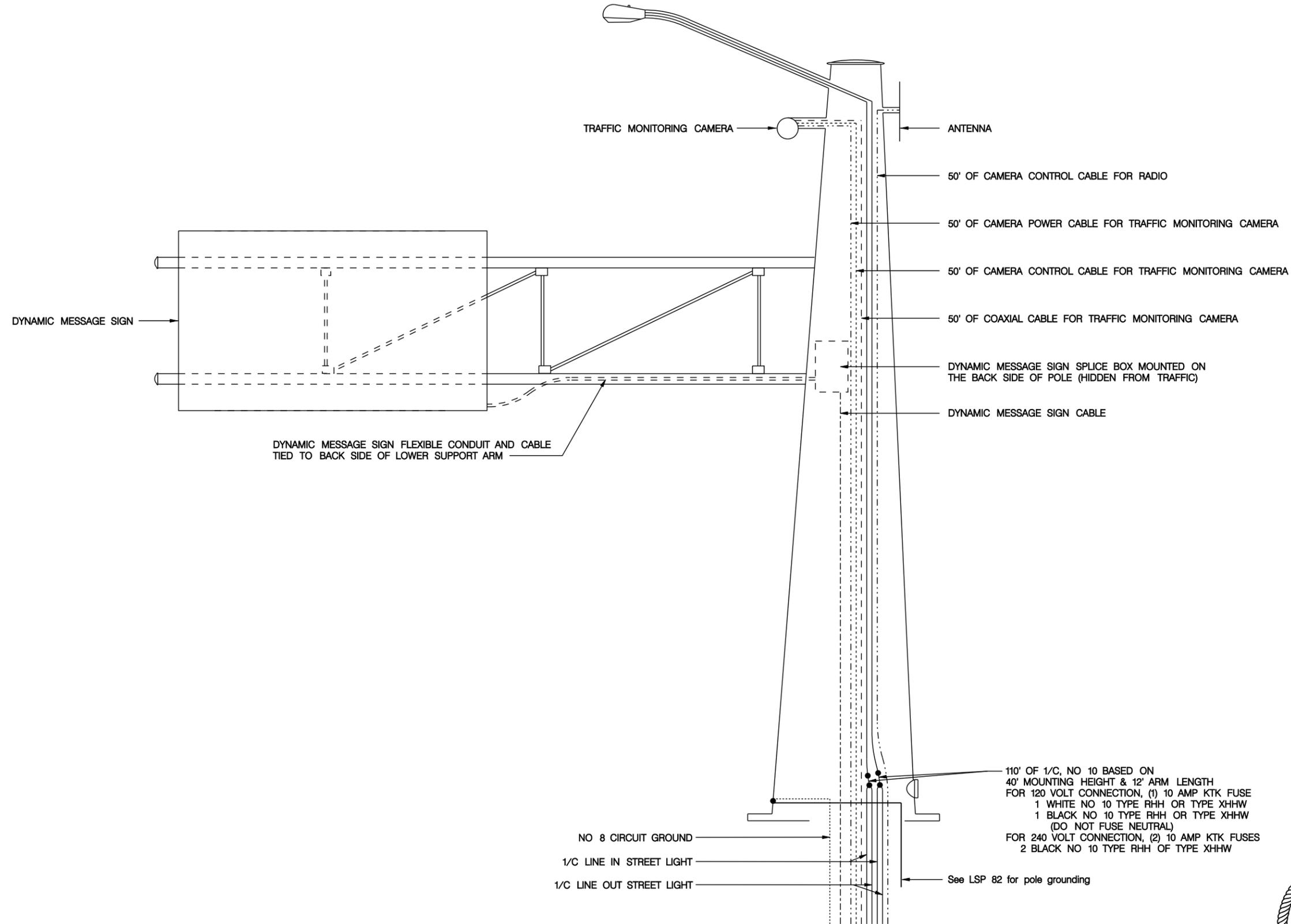


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| LSP 84 | 2 |
| Date: 02/22/2010 | Drawn: CAW |
| | Checked: |
| | Approved: |



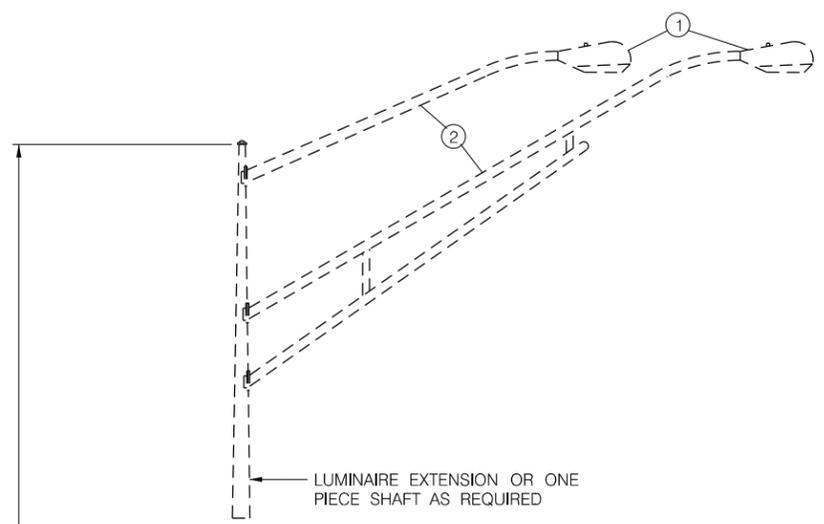
TYPICAL DYNAMIC MESSAGE SIGN AND STREET LIGHTING POLE WIRING DETAIL



**POLE CABLE
L.S.P. 84**

LSP 84

This document was originally issued and sealed by Erin E. Sokolik, E-12777, on 2-22-10. This media should not be considered a certified document.



SPAN WIRE LOADING NOTES:

SPAN WIRE SHALL BE INSTALLED WITH 5% SAG, UNDER DEAD LOAD AND SHALL BE ADJUSTED ON THE POLES TO PROVIDE THE PROPER MOUNTING HEIGHT INDICATED. FOR INSTALLATION OF A SINGLE SPAN (INLINE) OR WHERE POLE CLAMP POSITIONS VARY BY MORE THAN SIX INCHES (6") A TWO PIECE 180 DEGREE SEPARATION CLAMP SHALL BE USED. WHERE THE POLE CLAMP POSITIONS ARE WITHIN SIX INCH (6") VALUE A FOUR-PIECE 90 DEGREE SEPARATION CLAMP SHALL BE USED.

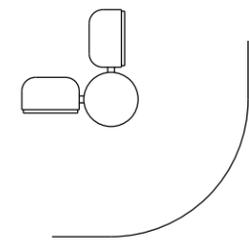
TO CALCULATE THE POLE CLAMP POSITION FOR ANY SPAN:

$$PCP = M + H + S$$

WHERE "M" IS THE MINIMUM ROAD CLEARANCE OF 16'-6"; "H" IS THE MEASURED LENGTH FROM THE BOTTOM OF THE BACKPLATE TO THE SUSPENSION CLAMP OF THE INBOARD 3 SECTION SIGNAL HEAD AND "S" IS 5% OF THE TOTAL SPAN

COMPARE WITH OTHER SPAN USING THIS POLE

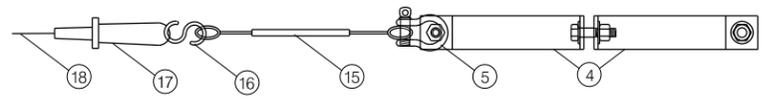
IF PCP1 & PCP2 ≤ 6" THEN SEPARATE POLE CLAMPS NOT NEEDED



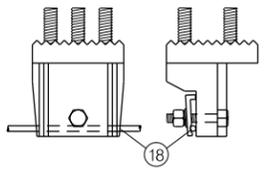
STANDARD PEDESTRIAN HEAD PLACEMENT

EXAMPLE: R-SW2-40-12T-6.5-0.25-PC

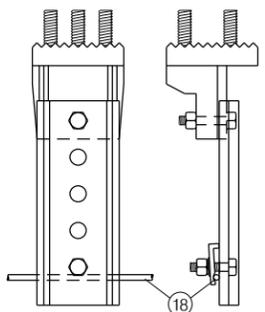
R-ROUND
 O-OCTAGONAL
 SPAN WIRE POLE }
 TYPE 1, 2 OR 3 }
 SL MOUNTING HEIGHT
 SL ARM LENGTH & TYPE
 6', 8' or 10' S-SINGLE
 10, 12' or 15' T-TRUSS
 (T* IF TWIN ARM)
 UPSWEEP
 LAMP SIZE IN KILOWATTS
 PC-PHOTO CELL
 SC-SHORTING CAP }



TIE WIRE SAFETY RELEASE



TETHER ASSEMBLY

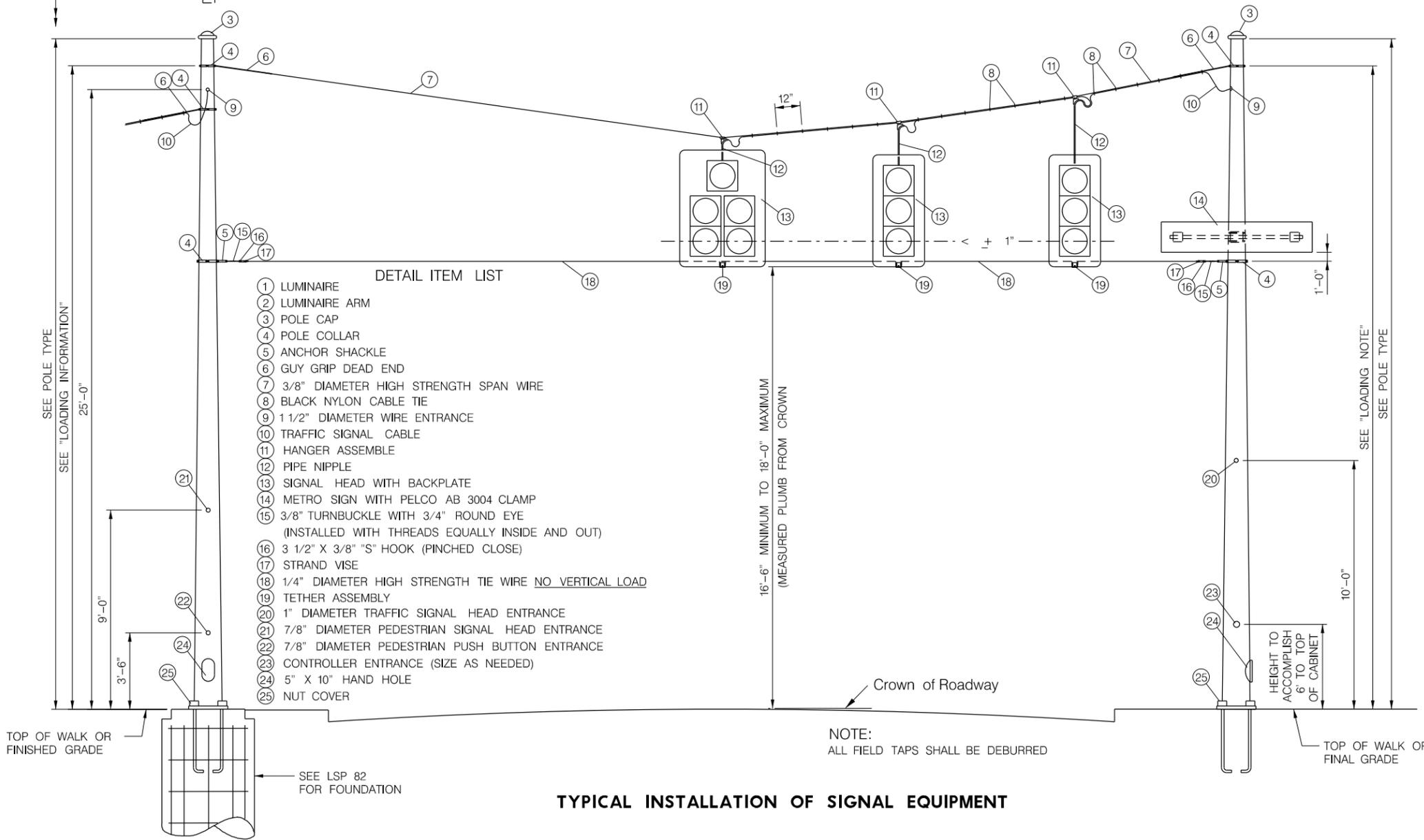


TETHER ASSEMBLY WITH EXTENTION

NOTE:
 POLE MANUFACTURER TO STAMP ALL MAJOR COMPONENTS WITH POLE NUMBER

POLE TYPE AND SIZE LEGEND

- DETAIL ITEM LIST**
- 1 LUMINAIRE
 - 2 LUMINAIRE ARM
 - 3 POLE CAP
 - 4 POLE COLLAR
 - 5 ANCHOR SHACKLE
 - 6 GUY GRIP DEAD END
 - 7 3/8" DIAMETER HIGH STRENGTH SPAN WIRE
 - 8 BLACK NYLON CABLE TIE
 - 9 1 1/2" DIAMETER WIRE ENTRANCE
 - 10 TRAFFIC SIGNAL CABLE
 - 11 HANGER ASSEMBLY
 - 12 PIPE NIPPLE
 - 13 SIGNAL HEAD WITH BACKPLATE
 - 14 METRO SIGN WITH PELCO AB 3004 CLAMP
 - 15 3/8" TURNBUCKLE WITH 3/4" ROUND EYE (INSTALLED WITH THREADS EQUALLY INSIDE AND OUT)
 - 16 3 1/2" X 3/8" "S" HOOK (PINCHED CLOSE)
 - 17 STRAND VISE
 - 18 1/4" DIAMETER HIGH STRENGTH TIE WIRE NO VERTICAL LOAD
 - 19 TETHER ASSEMBLY
 - 20 1" DIAMETER TRAFFIC SIGNAL HEAD ENTRANCE
 - 21 7/8" DIAMETER PEDESTRIAN SIGNAL HEAD ENTRANCE
 - 22 7/8" DIAMETER PEDESTRIAN PUSH BUTTON ENTRANCE
 - 23 CONTROLLER ENTRANCE (SIZE AS NEEDED)
 - 24 5" X 10" HAND HOLE
 - 25 NUT COVER

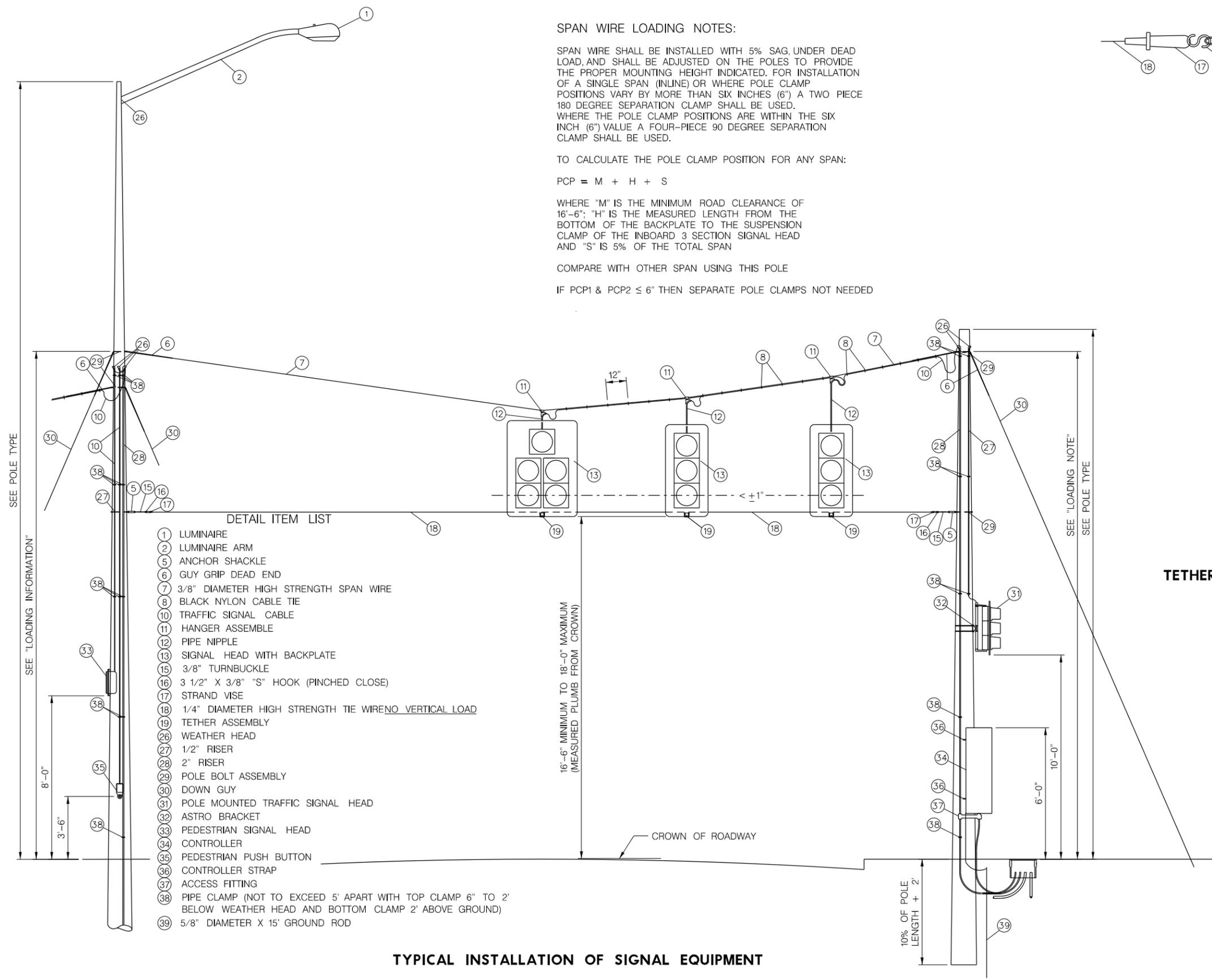


TYPICAL INSTALLATION OF SIGNAL EQUIPMENT

NOTE:
 ALL FIELD TAPS SHALL BE DEBURRED



EFFECTIVE NOVEMBER 1, 2014
 SPAN WIRE POLES, INSTALLATION DETAILS



SPAN WIRE LOADING NOTES:

SPAN WIRE SHALL BE INSTALLED WITH 5% SAG UNDER DEAD LOAD, AND SHALL BE ADJUSTED ON THE POLES TO PROVIDE THE PROPER MOUNTING HEIGHT INDICATED. FOR INSTALLATION OF A SINGLE SPAN (INLINE) OR WHERE POLE CLAMP POSITIONS VARY BY MORE THAN SIX INCHES (6") A TWO PIECE 180 DEGREE SEPARATION CLAMP SHALL BE USED. WHERE THE POLE CLAMP POSITIONS ARE WITHIN THE SIX INCH (6") VALUE A FOUR-PIECE 90 DEGREE SEPARATION CLAMP SHALL BE USED.

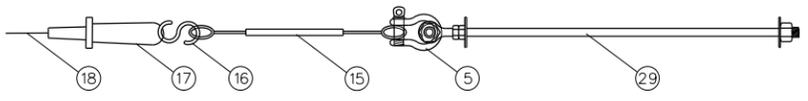
TO CALCULATE THE POLE CLAMP POSITION FOR ANY SPAN:

$$PCP = M + H + S$$

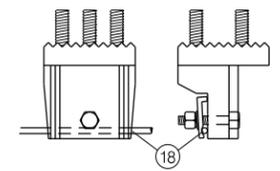
WHERE "M" IS THE MINIMUM ROAD CLEARANCE OF 16'-6"; "H" IS THE MEASURED LENGTH FROM THE BOTTOM OF THE BACKPLATE TO THE SUSPENSION CLAMP OF THE INBOARD 3 SECTION SIGNAL HEAD AND "S" IS 5% OF THE TOTAL SPAN

COMPARE WITH OTHER SPAN USING THIS POLE

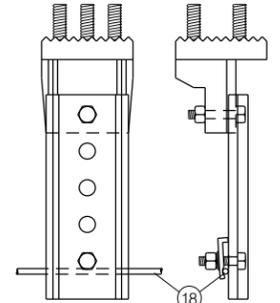
IF $PCP1 \& PCP2 \leq 6"$ THEN SEPARATE POLE CLAMPS NOT NEEDED



TIE WIRE SAFETY RELEASE



TETHER ASSEMBLY



TETHER ASSEMBLY WITH EXTENTION

- DETAIL ITEM LIST**
- 1 LUMINAIRE
 - 2 LUMINAIRE ARM
 - 5 ANCHOR SHACKLE
 - 6 GUY GRIP DEAD END
 - 7 3/8" DIAMETER HIGH STRENGTH SPAN WIRE
 - 8 BLACK NYLON CABLE TIE
 - 10 TRAFFIC SIGNAL CABLE
 - 11 HANGER ASSEMBLY
 - 12 PIPE NIPPLE
 - 13 SIGNAL HEAD WITH BACKPLATE
 - 15 3/8" TURNBUCKLE
 - 16 3 1/2" X 3/8" "S" HOOK (PINCHED CLOSE)
 - 17 STRAND VISE
 - 18 1/4" DIAMETER HIGH STRENGTH TIE WIRE NO VERTICAL LOAD
 - 19 TETHER ASSEMBLY
 - 26 WEATHER HEAD
 - 27 1/2" RISER
 - 28 2" RISER
 - 29 POLE BOLT ASSEMBLY
 - 30 DOWN GUY
 - 31 POLE MOUNTED TRAFFIC SIGNAL HEAD
 - 32 ASTRO BRACKET
 - 33 PEDESTRIAN SIGNAL HEAD
 - 34 CONTROLLER
 - 35 PEDESTRIAN PUSH BUTTON
 - 36 CONTROLLER STRAP
 - 37 ACCESS FITTING
 - 38 PIPE CLAMP (NOT TO EXCEED 5' APART WITH TOP CLAMP 6" TO 2' BELOW WEATHER HEAD AND BOTTOM CLAMP 2' ABOVE GROUND)
 - 39 5/8" DIAMETER X 15' GROUND ROD

TYPICAL INSTALLATION OF SIGNAL EQUIPMENT

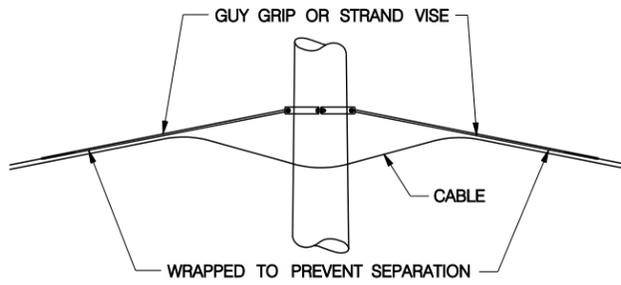
**EFFECTIVE NOVEMBER 1, 2014
 TRAFFIC SIGNAL WOOD POLE INSTALLATION**



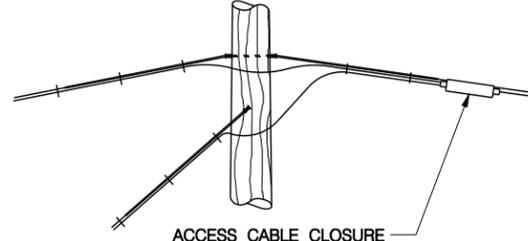
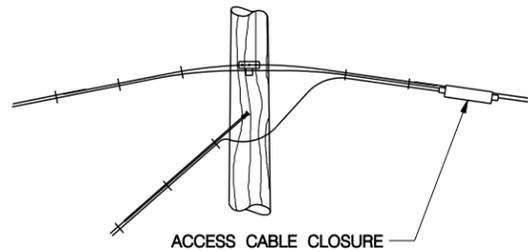
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| | | |
|-----------------------------|------------------|--------------------|
| CITY OF LINCOLN NEBRASKA | PROJECT NO. | SHEET NO. |
| | LSP 89 | 1 |
| | Date: 01/13/2010 | Drawn: CAW |
| | | Checked: Approved: |

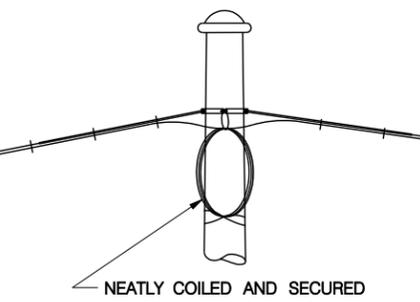
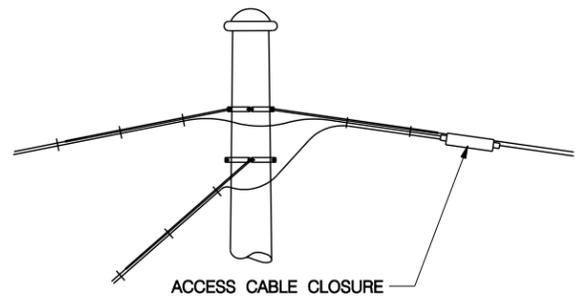
CABLE SUSPENSION CLAMP
 CLAMP SIZED PER MANUFACTURERS SPECIFICATION



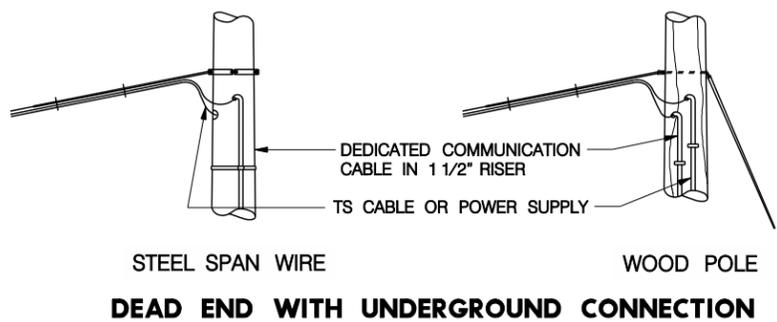
TYPICAL DOUBLE DEADEND FOR STEEL POLE



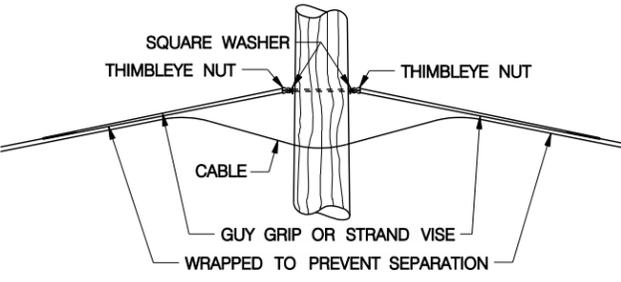
TYPICAL DOUBLE DEADEND WITH OVERHEAD SPLICE AT WOOD POLE



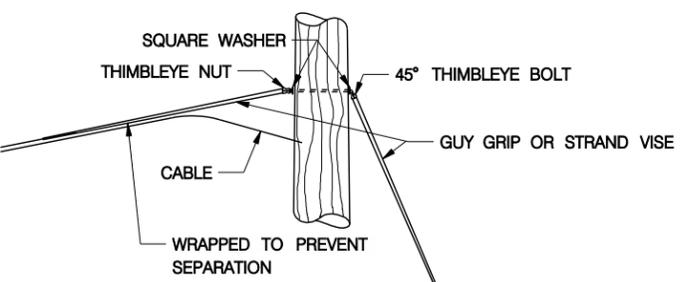
TYPICAL DOUBLE DEADEND WITH COIL FOR FUTURE CONNECTION AT STEEL POLE



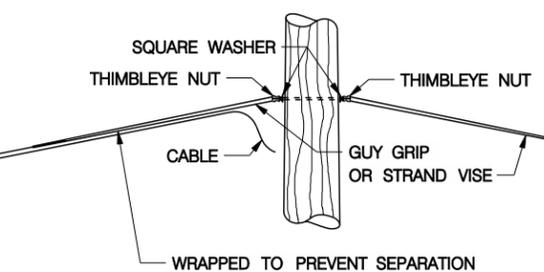
DEAD END WITH UNDERGROUND CONNECTION



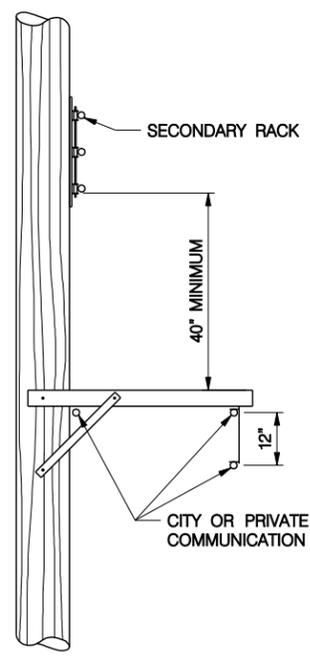
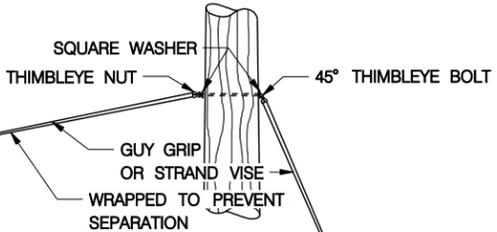
TYPICAL DOUBLE DEADEND FOR WOOD POLE



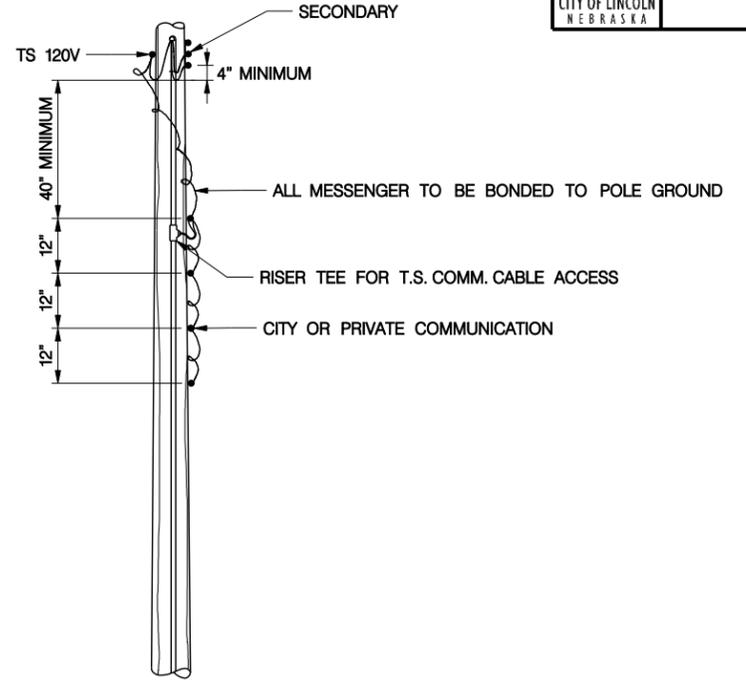
TYPICAL DEADEND TO UNDERGROUND FOR WOOD POLE



TYPICAL DEADEND WITH OVERHEAD GUY FOR WOOD POLE



ALLEY ARM TO CLEAR TREES



OVERHEAD LINE SPACING

LINE CLEARANCE

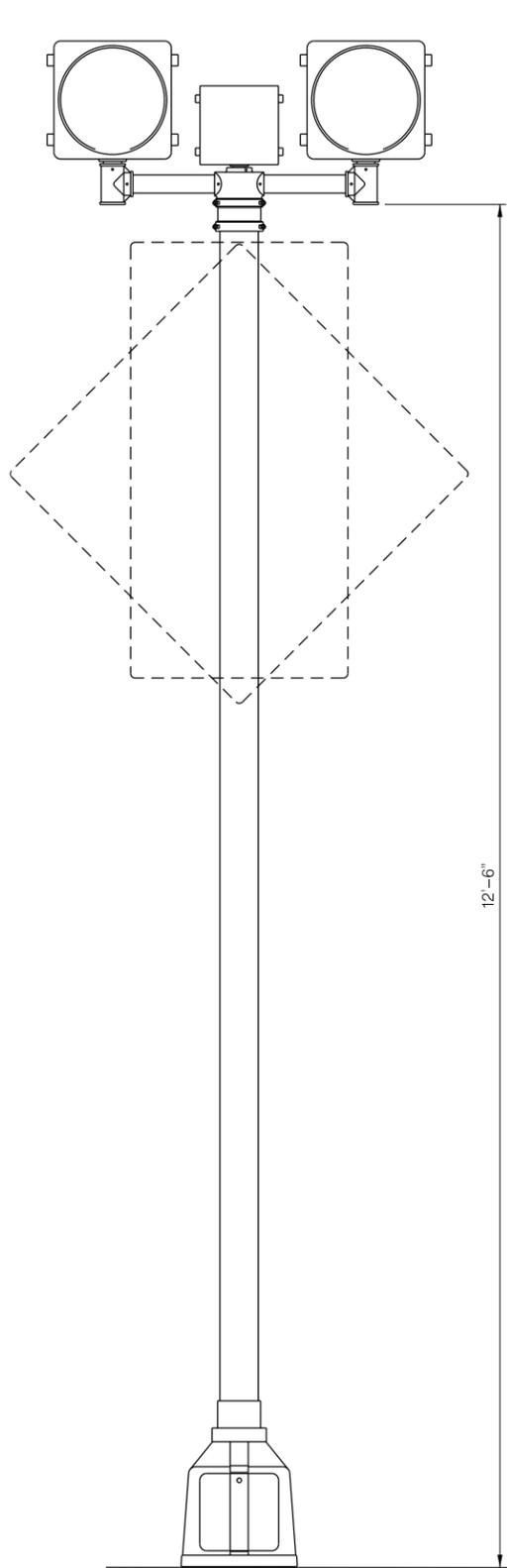
COMMUNICATION CABLE AND 120 VOLT T.S. CABLE MAY SHARE THE SAME RISER WITH "TEE ACCESS" WITH A "CORD GRIP".



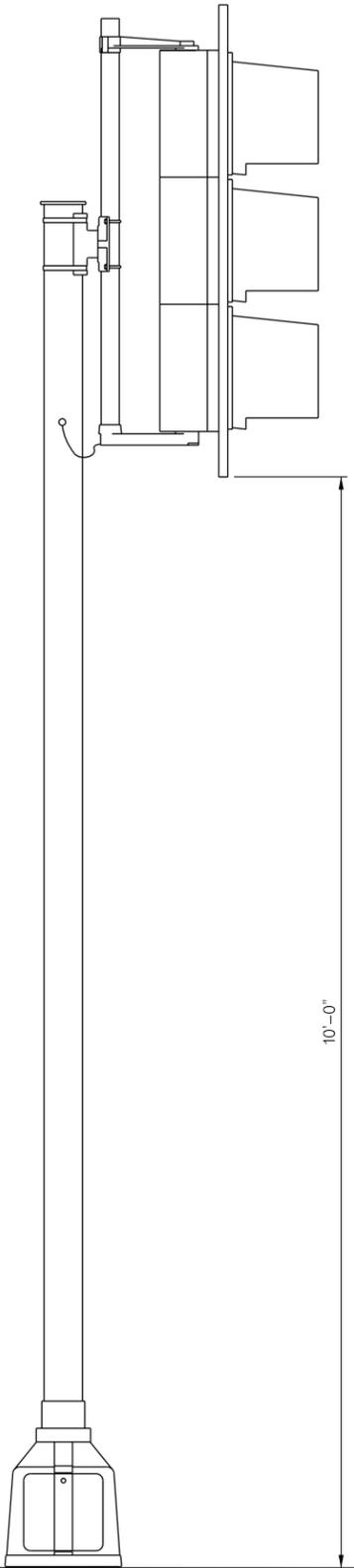
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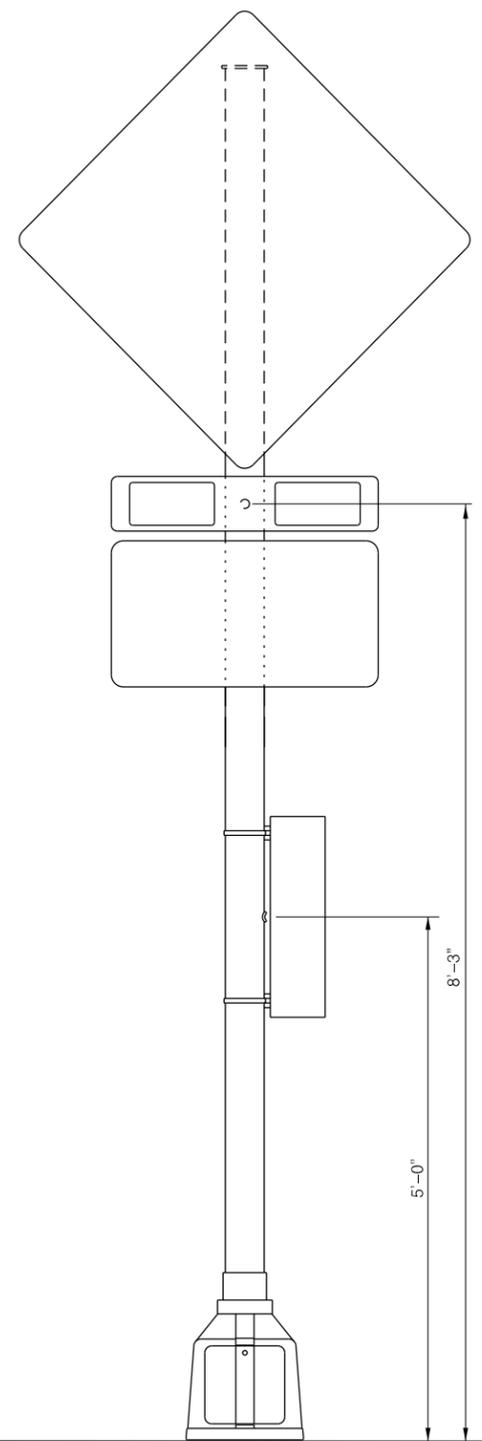
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|---|----------------------------------|-------------------------------------|
|  CITY OF LINCOLN NEBRASKA | PROJECT NO. LSP 90 | SHEET NO. 1 |
| | Date: 12/23/2015 Horz. Scale: | Drawn: CAW Checked: Approved: |



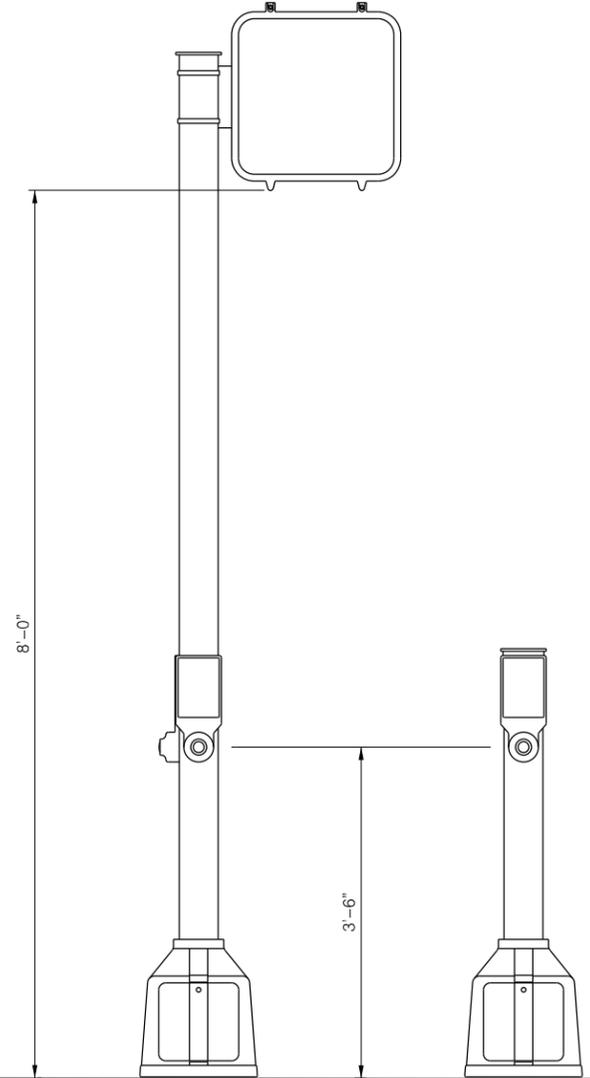
PEDESTAL POLE, 3



PEDESTAL POLE, 3



PEDESTAL POLE, 3



PEDESTAL POLE, 1

PEDESTAL POLE, PPB

NOTES:

CONTRACTOR TO TIGHTEN POLE SHAFT FORCEFULLY INTO THE BASE, SO THAT ONLY TOOLS CAN LOOSEN.

PEDESTAL POLES ARE SHOWN WITH TYPICAL DISPLAY CONFIGURATIONS ONLY. REFER TO THE PROJECT PLAN SHEETS AND MEASUREMENT AND PAYMENT SECTION OF THE SPECIFICATIONS FOR CORRECT INSTALLATION CONFIGURATION.

PEDESTAL POLES REQUIRE F-4A FOUNDATION.

THE CONTRACTOR SHALL ATTACH GROUND WIRE TO BASE USING TERMINAL LUGS. TO ATTACH THE GROUND TO THE PEDESTAL POLE BASE, DRILL A HOLE IN THE PEDESTAL BASE TO ACCEPT THE TERMINAL LUG.

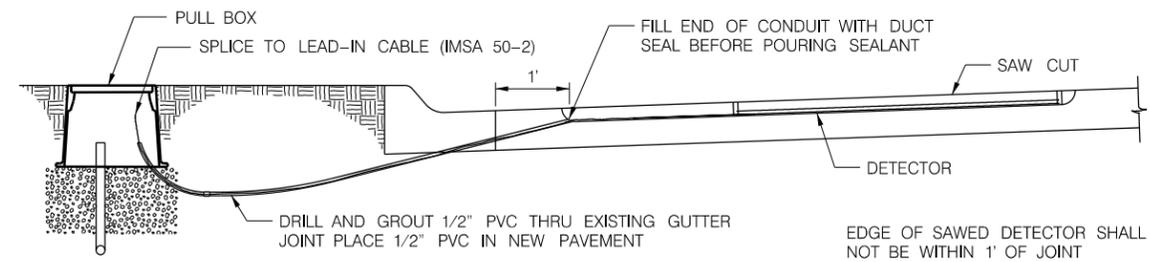


EFFECTIVE DATE FEBRUARY 4, 2016

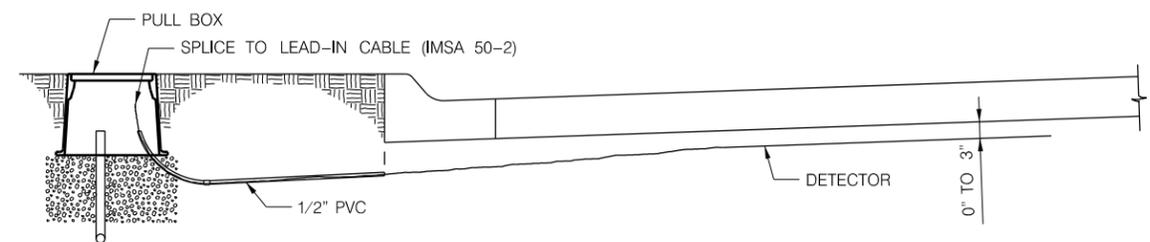
PEDESTAL MOUNTED

LSP 90

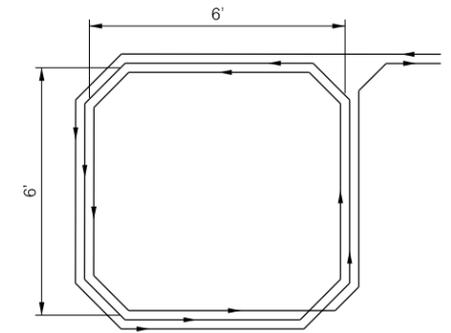
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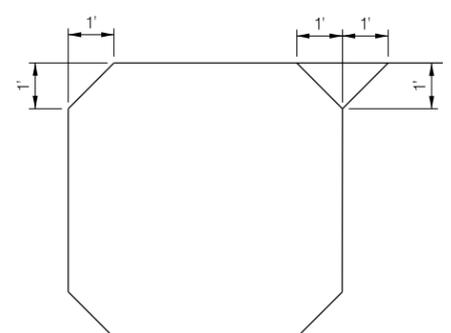
SAW CUT LOOP DETECTOR DETAIL



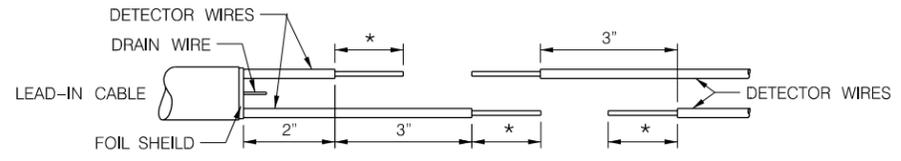
UNDER COVER (UC) LOOP DETECTOR DETAIL



LOOP DETECTOR WIRE ARRANGEMENT

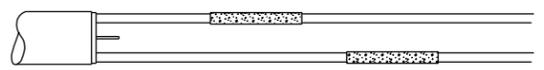


LOOP DETECTOR SAW CUT CORNER DETAIL

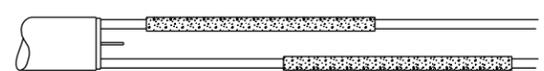


* STRIP OFF WIRE INSULATION AS REQUIRED BY CONNECTOR MANUFACTURER

STRIP DETECTOR AND LEAD-IN CABLE CONDUCTORS. BEFORE SPLICING SLIP HEAT-SHRINKABLE SILICONE-LINED CROSS-LINKED POLYETHYLENE INSULATING TUBING OVER LEAD-IN CABLE AND INDIVIDUAL CONDUCTORS.

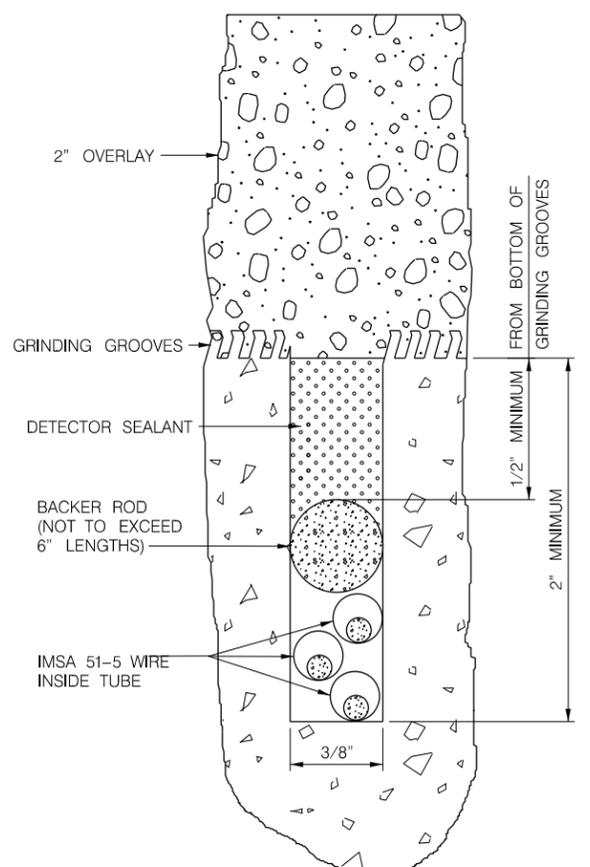


CRIMP THE BARE CONDUCTORS TOGETHER WITH AN APPROVED UNINSULATED BUTT CONNECTOR

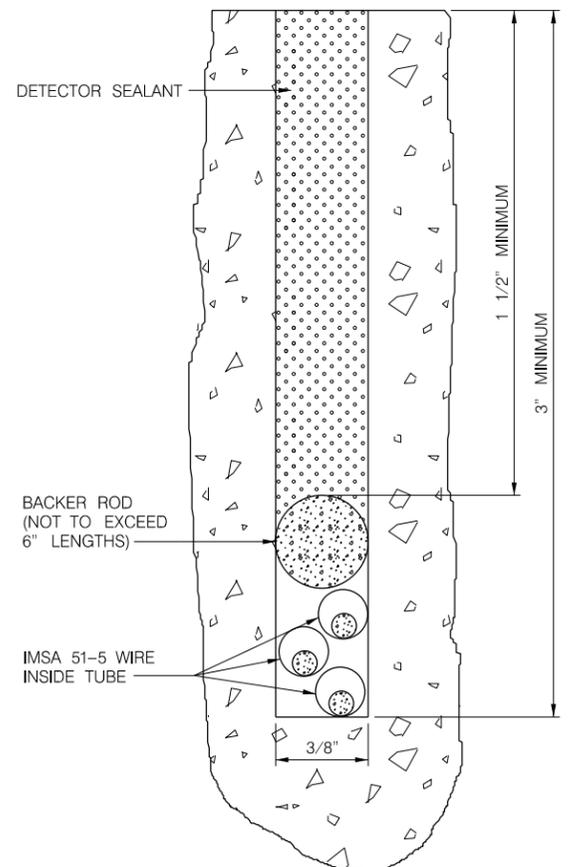


SLIDE HEAT-SHRINK TUBING OVER SPLICES. THE TUBING SHALL COVER APPROXIMATELY 1\"/>

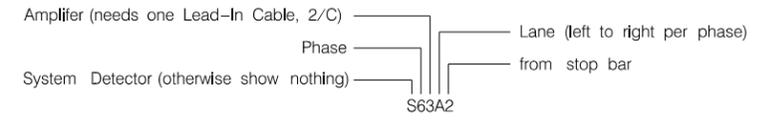
LEAD-IN CABLE SPLICE DETAIL



SAW CUT LOOP DETECTOR SECTION WITH MILL AND OVERLAY



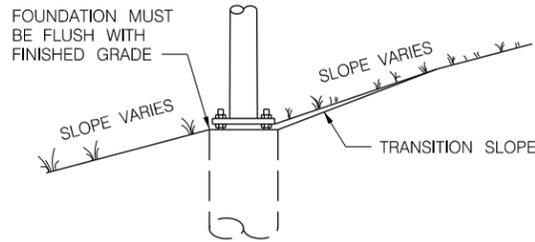
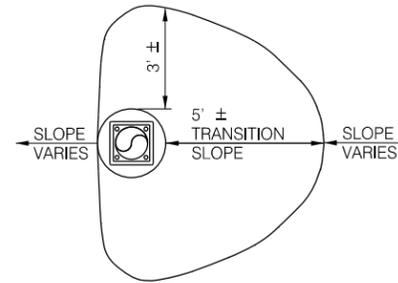
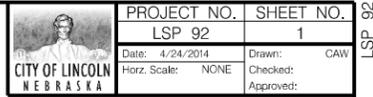
SAW CUT LOOP DETECTOR SECTION



LOOP DETECTOR NUMBERING



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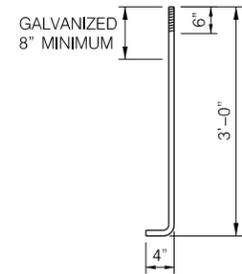
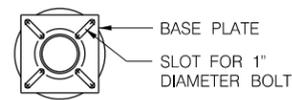
LIGHT POLES LOCATED ON SLOPE

EXAMPLE: SL-A-C-40-T6/12T-3-0.25-PC

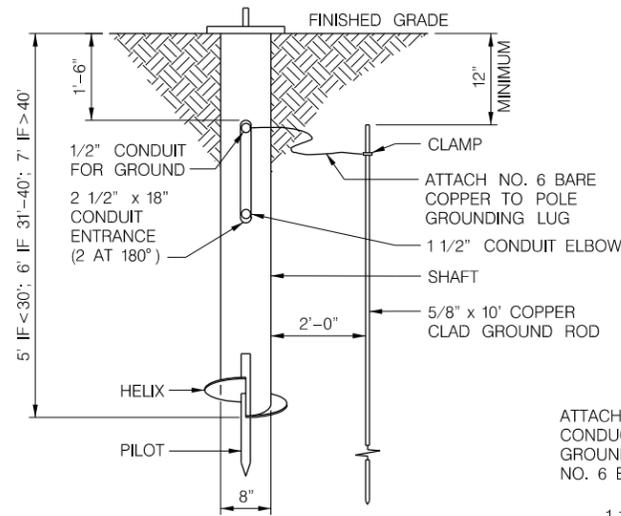
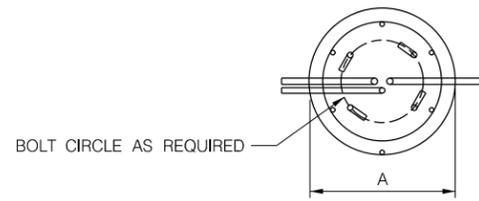
STREET LIGHT POLE
 A - ANCHOR BASE
 T - TRANSFORMER BASE
 B - BREAKAWAY
 C - CONCRETE FOUNDATION
 EM - EMBEDDED
 PI - POWER INSTALLED
 S - ON STRUCTURE
 SP - SPECIAL
 W - WOOD

MOUNTING HEIGHT
 ONLY IF TWIN STREET LIGHT ARM
 ARM LENGTH
 SECOND ARM LENGTH, IF DIFFERENT
 ARM TYPE
 SINGLE IS NO DESIGNATION
 T - TRUSS
 UPSWEEP OF LUMINAIRE ARM
 LAMP SIZE IN KILOWATTS
 PC - PHOTO CELL
 SC - SHORTING CAP

POLE TYPE AND SIZE LEGEND



ANCHOR BOLT DETAIL



NOTES:
 FOUNDATION MUST BE INSTALLED PRIOR TO TRENCHING AND WITHOUT PILOT HOLE.

FOUNDATION MUST BE INSTALLED WITH BASEPLATE LEVEL AND FLUSH WITH FINISHED GRADE.

FOUNDATION

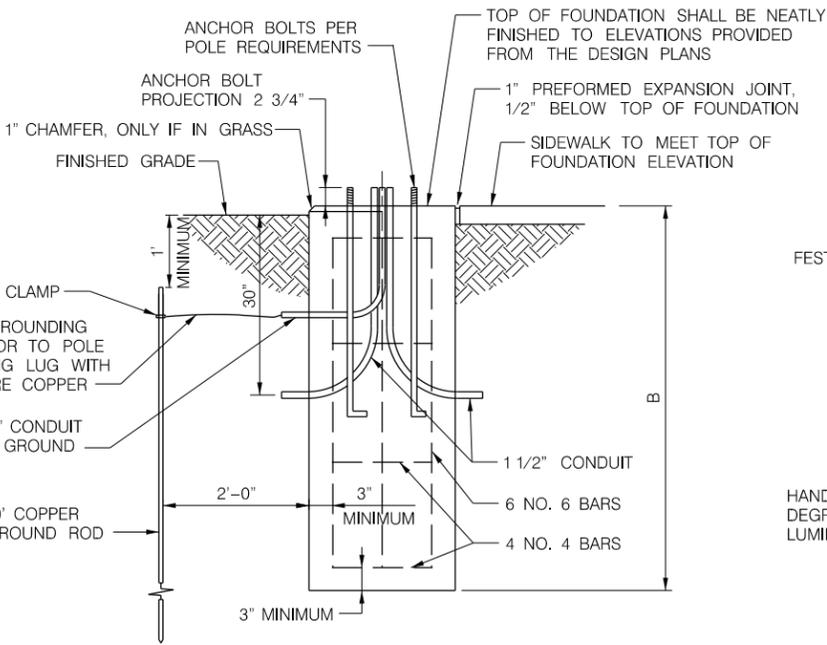
SHAFT: ASTM A53 SCHEDULE 4 ϕ , GRADE B.
 ASTM A501 OR ASTM A252, GRADE 2.
 BASE PLATE: ASTM A36
 HELIX: ASTM A29
 PILOT: ASTM 575

GALVANIZE FOUNDATION PER ASTM A153 AFTER FABRICATION.

HARDWARE

CARRIAGE BOLTS: SAE J429 GRADE 5 GALVANIZED A153 CLASS C
 HEAVY HEX NUTS: ASTM A563 GRADE D OR DH GALVANIZED A153
 WASHERS: ASTM F436 GALVANIZED A153

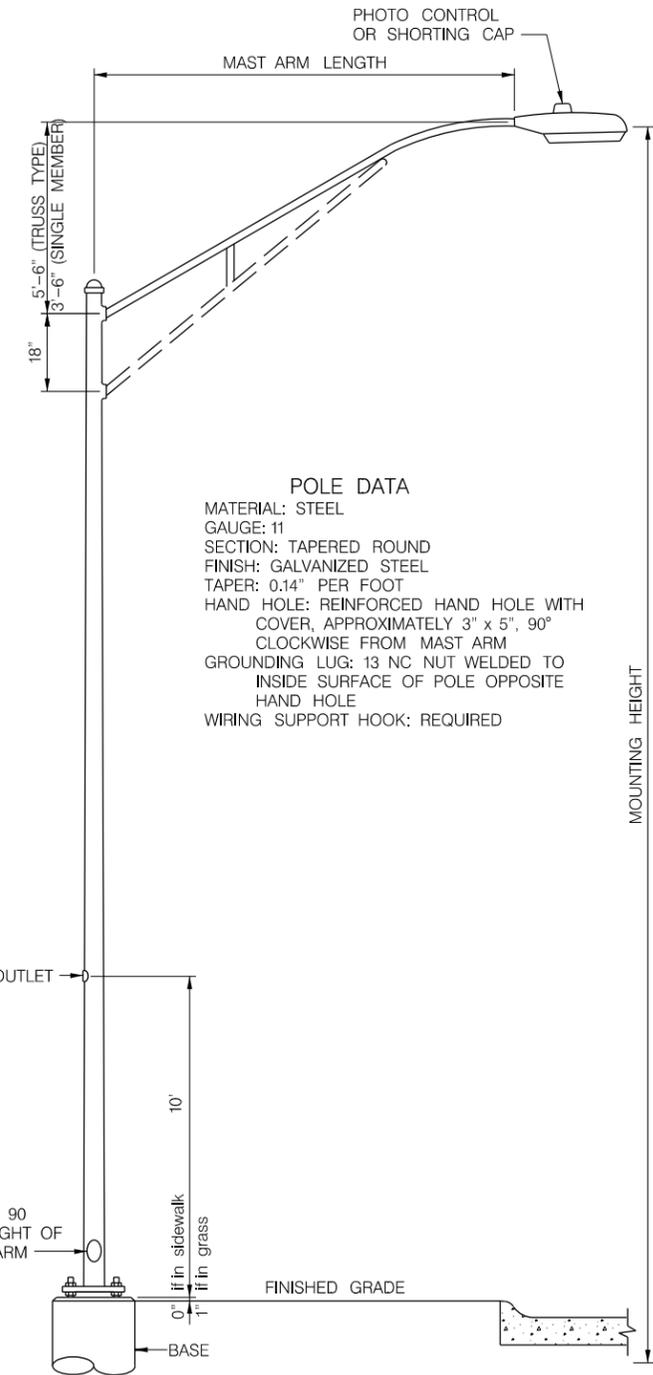
POWER INSTALLED FOUNDATION



REINFORCING STEEL: GRADE 60
 ANCHOR BOLTS: 1" DIAMETER (AASHTO M314, GR.55)
 HEAVY HEX GALVANIZED NUTS: (AASHTO M291, GR A)
 FLAT WASHERS GALVANIZED: (AASHTO M293)

| STREET LIGHT FOUNDATION DATA | | | | | |
|------------------------------|-----------------|-------|-------|--------|---------------|
| FOUNDATION | MOUNTING HEIGHT | A | B | STEEL | CONCRETE |
| F2530 | UP TO 30' | 2'-0" | 5'-0" | 50 lb. | 0.58 CU. YDS. |
| F3540 | 31' TO 40' | 2'-0" | 5'-6" | 55 lb. | 0.64 CU. YDS. |
| F4550 | 41' TO 50' | 2'-6" | 6'-0" | 63 lb. | 1.10 CU. YDS. |

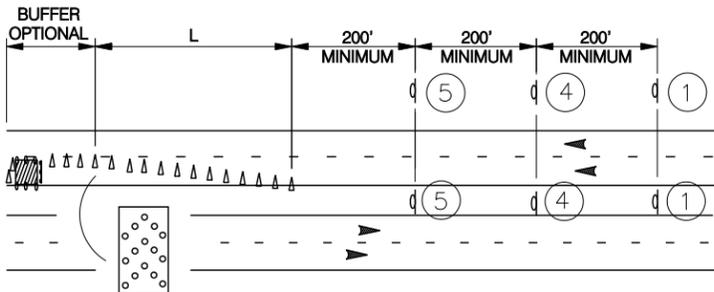
CONCRETE FOUNDATION



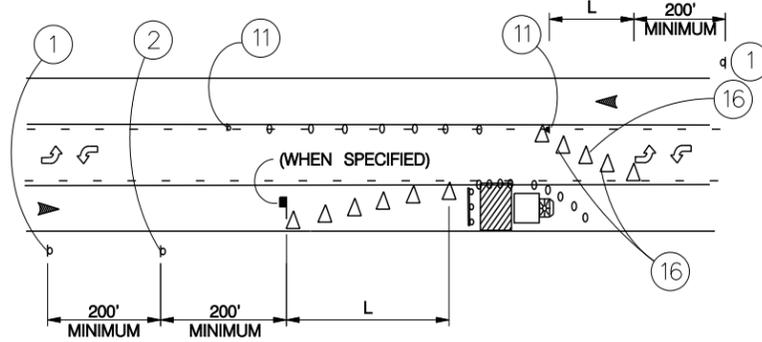
STREET LIGHTING POLE ELEVATION

POLE DATA
 MATERIAL: STEEL
 GAUGE: 11
 SECTION: TAPERED ROUND
 FINISH: GALVANIZED STEEL
 TAPER: 0.14" PER FOOT
 HAND HOLE: REINFORCED HAND HOLE WITH COVER, APPROXIMATELY 3" x 5", 90° CLOCKWISE FROM MAST ARM
 GROUNDING LUG: 13 NC NUT WELDED TO INSIDE SURFACE OF POLE OPPOSITE HAND HOLE
 WIRING SUPPORT HOOK: REQUIRED

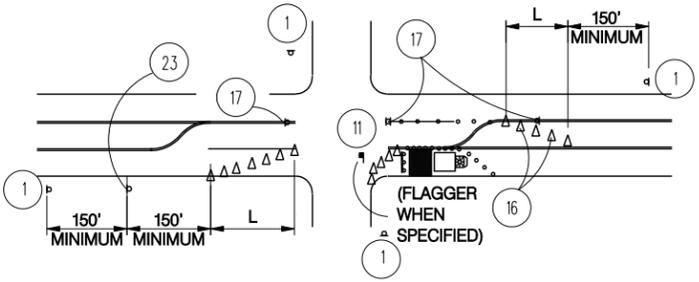




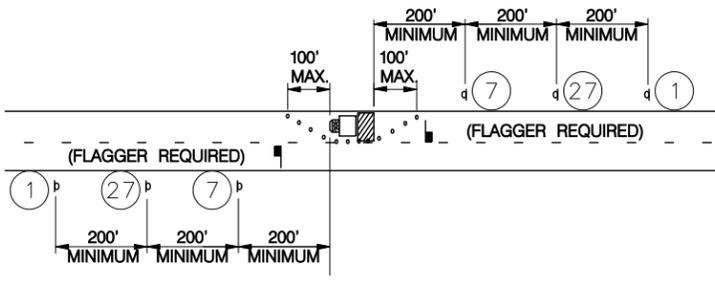
TYPICAL LANE CLOSURE FOR FOUR LANE DIVIDED ROADWAY



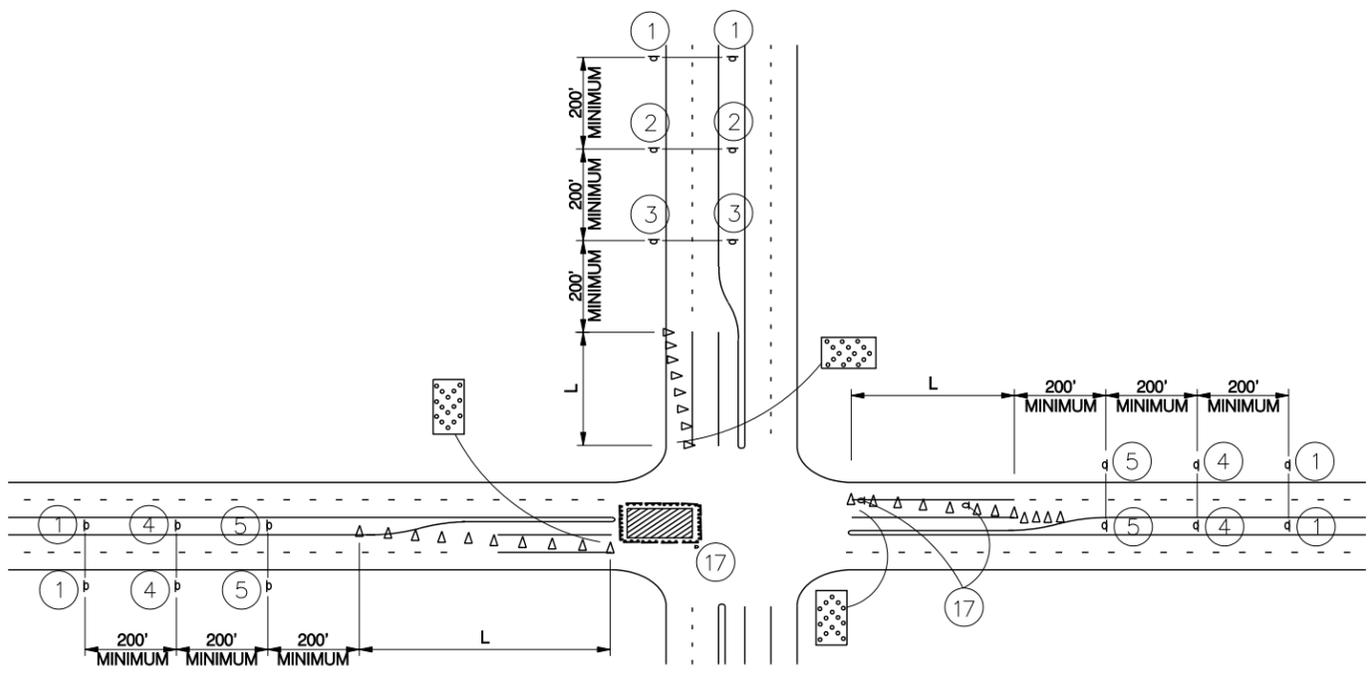
CONSTRUCTION IN CURB LANE OF A TWO-WAY TWO LANE ROADWAY WITH A COMMON LEFT TURN LANE



CONSTRUCTION IN CURB LANE ADJACENT TO LEFT TURN LANE, OPPOSING DIRECTION



TWO-WAY TWO LANE NON-RESIDENTIAL FLAGGER OPERATION, NO LONGER THAN ONE (1) NORMAL WORKING DAY OR EMERGENCY WORK



LANES BLOCKED IN INTERSECTION

NOTES:

1. PARKING TO BE PROHIBITED ON DETOUR ROUTE AS REQUIRED.
2. ADDITIONAL SIGNING MAY BE REQUIRED ON LONGER DETOUR ROUTES.
3. AS DIRECTED BY THE DIRECTOR OF PUBLIC WORKS AND UTILITIES, PERMANENT STRIPING TO BE REMOVED AND TEMPORARY STRIPING INSTALLED.
4. WHEN CONSTRUCTION IS COMPLETED, TEMPORARY STRIPING IS TO BE REMOVED AND PERMANENT STRIPING INSTALLED BY OTHERS.

THE CONTRACTOR SHALL MAINTAIN TRAFFIC DURING CONSTRUCTION AND PROVIDE, INSTALL, MAINTAIN AND REMOVE ALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE CITY OF LINCOLN STANDARD SPECIFICATIONS, THE PROJECT SPECIAL PROVISIONS, THE CITY OF LINCOLN TRAFFIC CONTROL GUIDELINES FOR STREET CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS, THE ORDINANCES AND REGULATIONS OF THE CITY OF LINCOLN AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. FAILURE OF THE CONTRACTOR TO ERECT AND MAINTAIN APPROVED TRAFFIC CONTROL DEVICES SHALL BE REASON TO SUSPEND THE WORK.

LEGEND

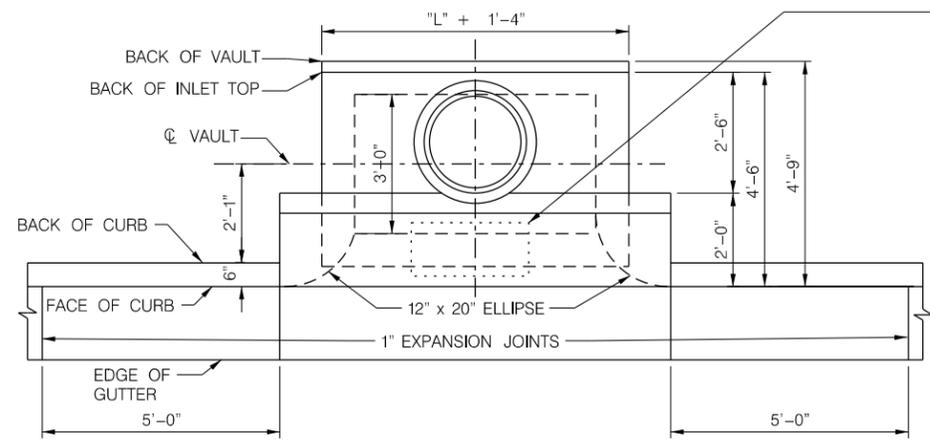
- CONES
- △ PLASTIC BARREL
- ▧ TYPE III BARRICADE
- ▧ ARROW BOARD
- ▧ FLAGGER
- ▧ CONSTRUCTION AREA

FORMULA FOR TAPER LENGTH

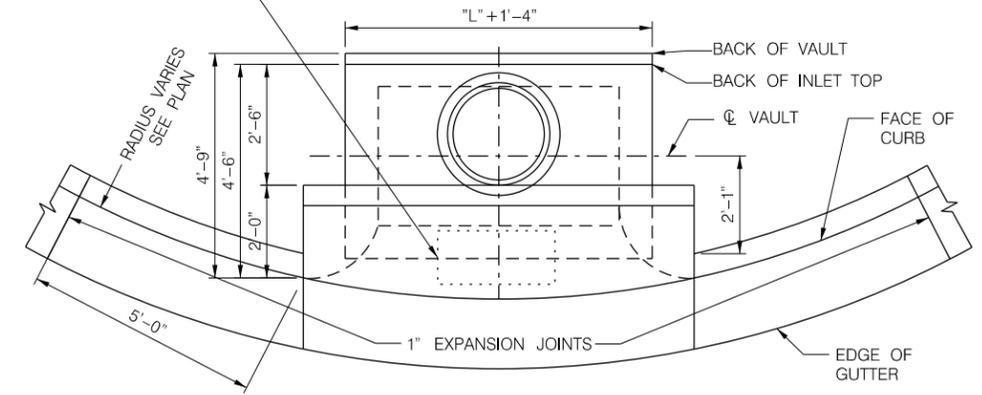
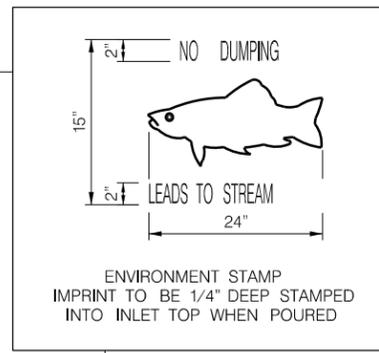
$L = S \times W$ FOR SPEEDS OF 45 MPH OR OVER
 $L = \frac{W \times S^2}{60}$ FOR SPEEDS OF 40 MPH OR UNDER
 L = LENGTH OF TAPER
 W = WIDTH OF LANE



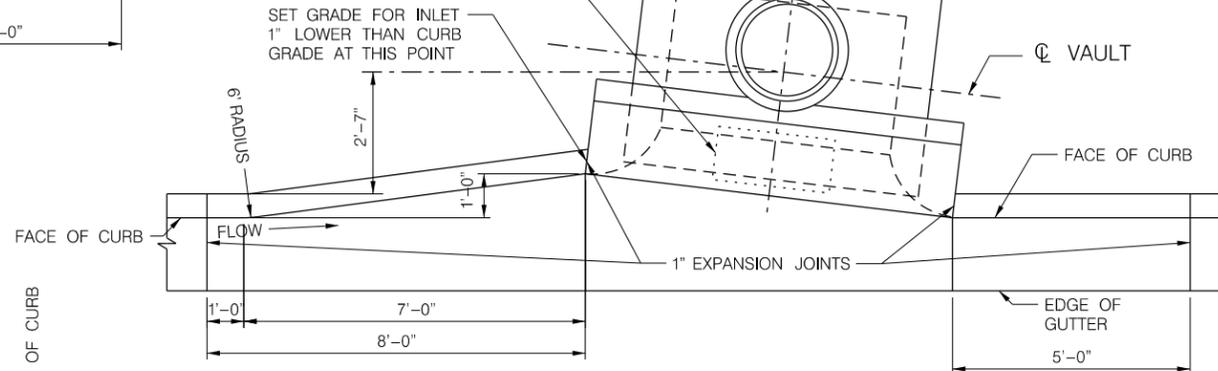
PROJ: LPS_Standards.dwg
 PEN: \\nables\pen\BW_PENTABLE.tbl
 USER: slocaw
 DATE: 2/11/2016
 DGN: ...STANDARD_2016_lsp101.dgn



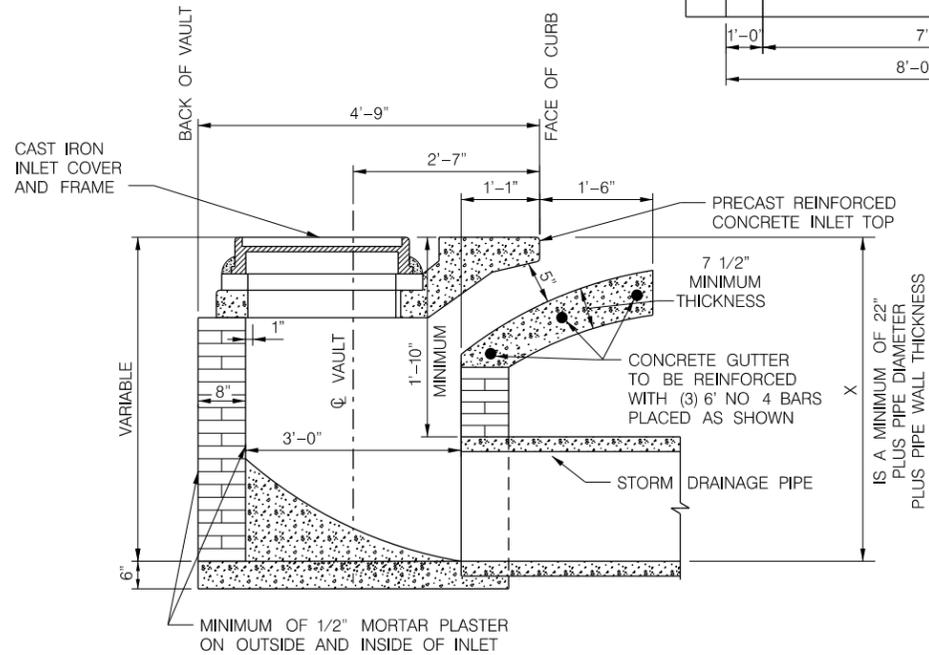
PLAN OF TYPE "A-2" STORM DRAINAGE INLET



PLAN OF TYPE "A-2" RADIUS STORM DRAINAGE INLET



PLAN OF TYPE "A-2" CANTED STORM DRAINAGE INLET



SECTION OF STORM DRAINAGE INLET

GENERAL NOTES:

ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO A.S.T.M. SERIAL DESIGNATION A-305-507 AND SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL GRADE STEEL IN ACCORDANCE WITH THE REQUIREMENTS.

MINIMUM DEPTH OF EMBEDMENT FOR REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE INDICATED.

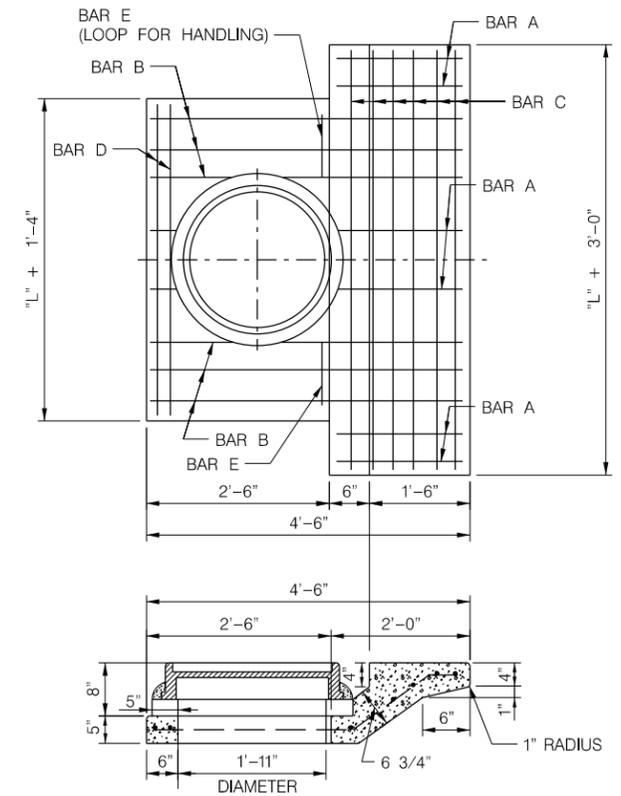
ALL CONCRETE SHALL BE L3500.

EACH INLET SHALL INCLUDE A CAST IRON COVER AND FRAME. (SEE L.S.P. 162)

EACH INLET SHALL INCLUDE LENGTH OF CURB AS PER SPECIFICATIONS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

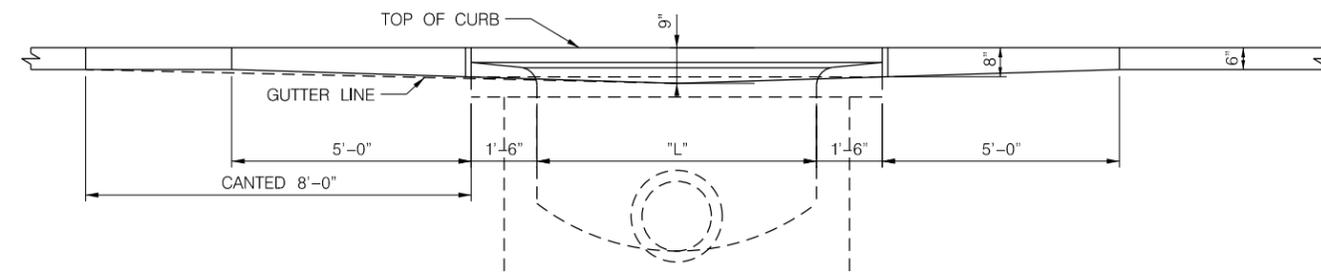
THE CAST IRON MANHOLE RING AND COVER SHALL BE SET IN A BED OF MORTAR, AND CAREFULLY ADJUSTED TO PROPOSED GRADE.



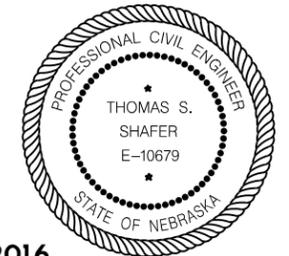
PLAN & SECTIONS OF PRECAST REINFORCED CONCRETE INLET TOP

SCHEDULE OF REINFORCEMENT FOR PRECAST CONCRETE INLET TOP

| BAR | SHAPE | INLET OPENING = "L" | | |
|-----|---|---------------------|------|-----------|
| | | No. | Size | Length |
| A |  | 6 | #4 | 1'-9 1/2" |
| B |  | 10 | #4 | 4'-6" |
| C |  | 8 | #4 | 8'-9" |
| D |  | 2 | #4 | 7'-0" |
| E |  | 2 | #4 | 3'-0" |



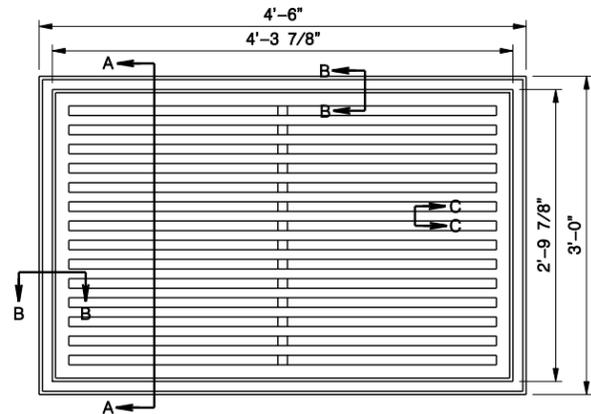
ELEVATION OF GUTTER DEPRESSION AT FACE OF CURB



EFFECTIVE DATE FEBRUARY 4, 2016

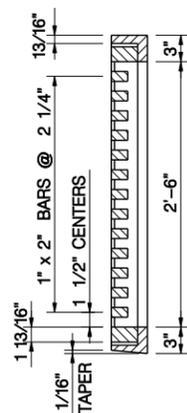
STORM DRAINAGE INLET, TYPE 'A-2'

This document was originally issued and sealed by Thomas S. Shafer, E-10679, on 2-4-2016. This media should not be considered a certified document.

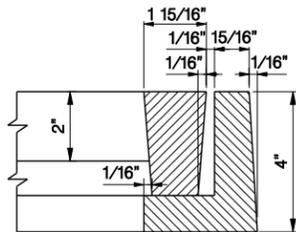


NOTE: CLEAR OPENING = 5.5 SQUARE FEET

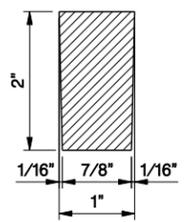
TYPE 'H' GRATE AND FRAME



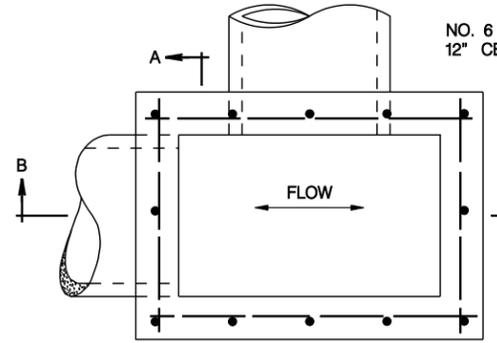
SECTION A-A



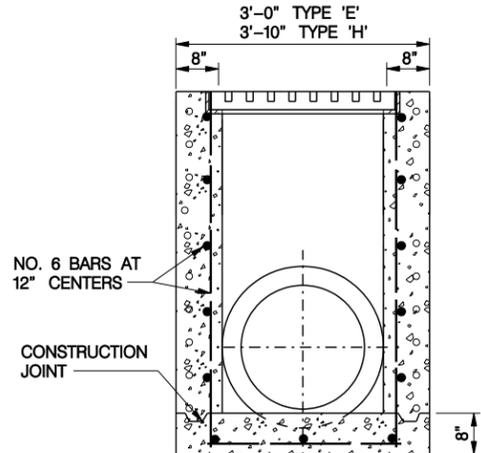
SECTION B-B



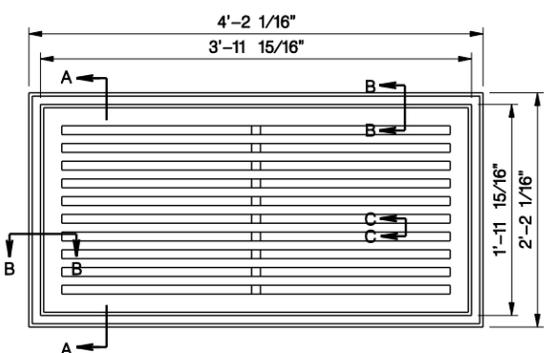
SECTION C-C



PLAN

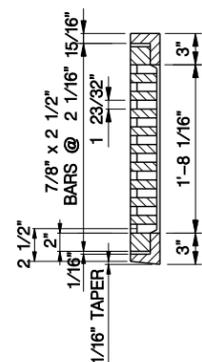


SECTION A-A

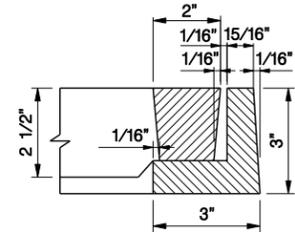


NOTE: CLEAR OPENING = 3.6 SQUARE FEET

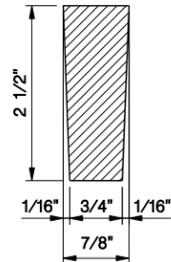
TYPE 'E' GRATE AND FRAME



SECTION A-A



SECTION B-B

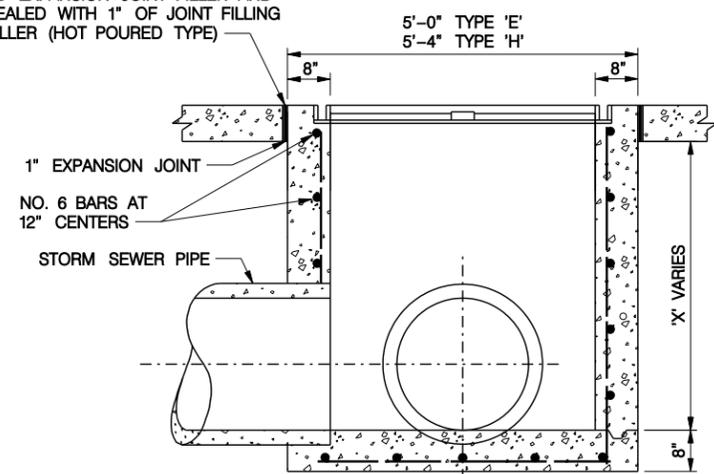


SECTION C-C

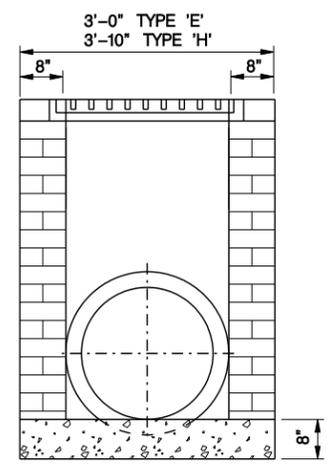
| 'X' DEPTH In Ft. | TYPE 'E' | | TYPE 'H' | |
|---------------------|-------------------------|-----------------|-------------------------|-----------------|
| | CONCRETE CUBIC YARDS | STEEL POUNDS | CONCRETE CUBIC YARDS | STEEL POUNDS |
| 3.0 | 1.4 | 135 | 1.7 | 169 |
| 4.0 | 1.7 | 171 | 2.1 | 212 |
| 5.0 | 2.0 | 207 | 2.5 | 256 |
| 6.0 | 2.4 | 243 | 2.9 | 299 |
| 7.0 | 2.7 | 279 | 3.3 | 342 |
| 8.0 | 3.0 | 315 | 3.7 | 385 |
| 9.0 | 3.4 | 351 | 4.1 | 428 |
| Add 0.1 | 0.033 | 3.6 | 0.040 | 4.3 |

EACH INLET SHALL INCLUDE A CAST IRON GRATE AND FRAME.
 TABLE DOES NOT INCLUDE DEDUCTIONS FOR PIPE OPENING.

IN CONCRETE PAVEMENT, EXPANSION JOINT TO BE FILLED WITH PREFORMED EXPANSION JOINT FILLER AND SEALED WITH 1" OF JOINT FILLING FILLER (HOT POURED TYPE)

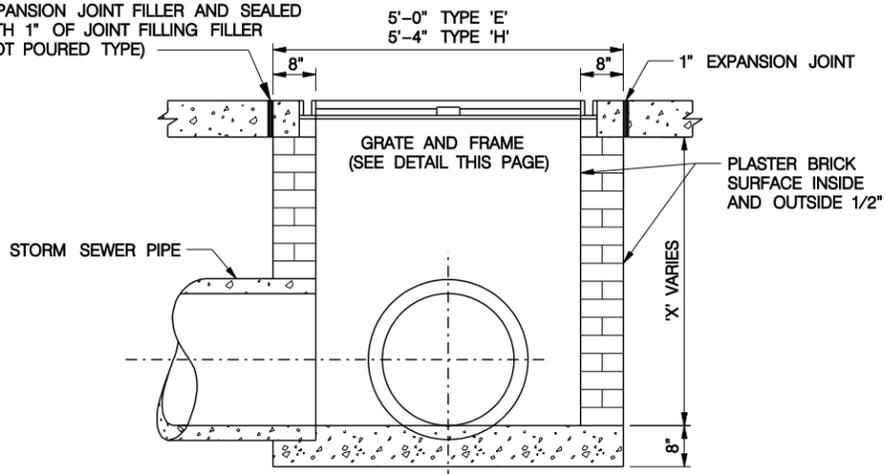


**SECTION B-B
 TYPE 'E₁' AND 'H₁' GRATE INLET**



**SECTION A-A
 TYPE 'E₂' AND 'H₂' GRATE INLET**

IN CONCRETE PAVEMENT, EXPANSION JOINT TO BE FILLED WITH PREFORMED EXPANSION JOINT FILLER AND SEALED WITH 1" OF JOINT FILLING FILLER (HOT POURED TYPE)



**SECTION B-B
 TYPE 'E₂' AND 'H₂' GRATE INLET**

GENERAL NOTES:

ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO A.S.T.M. SERIAL DESIGNATION A-305-507 AND SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL GRADE STEEL IN ACCORDANCE WITH THE REQUIREMENTS.

ALL CONCRETE SHALL BE L3500.

MINIMUM DEPTH OF EMBEDMENT FOR REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE INDICATED.

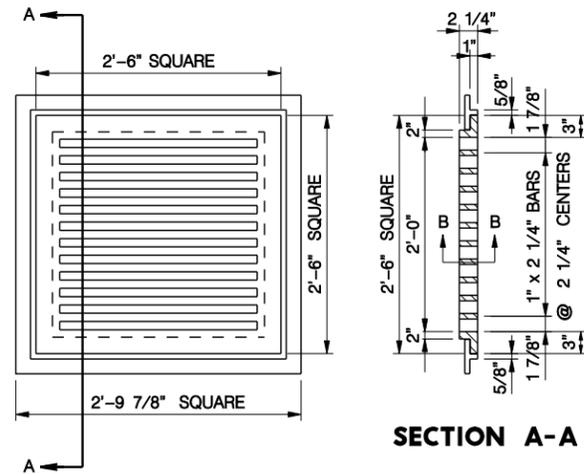
ALL CASTINGS TO BE COATED WITH BITUMINOUS PAINT.

BRICK GRATE INLET SHALL NOT EXCEED 72"

ALL REINFORCING STEEL TO BE EPOXY COATED.



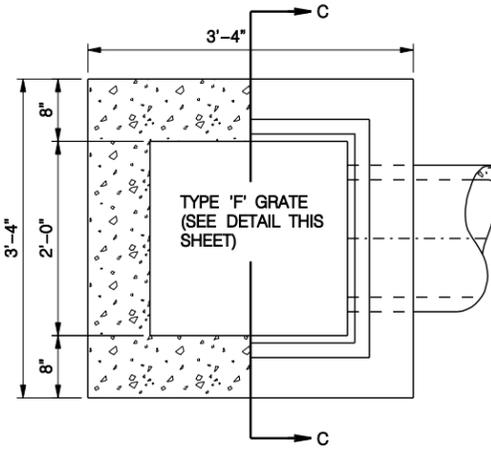
PROJ: 70028 OLD AS OF 070610.dwg
 PEN: \\Nables\Pen\SW_PENTABLE.TBL
 USER: elicaw
 DATE: 9/27/2011
 DGN: ...STANDARD\Curent\Nsp131.dgn



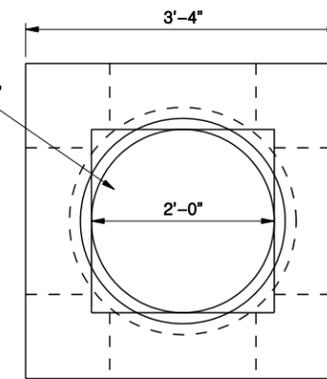
SECTION B-B

SECTION A-A

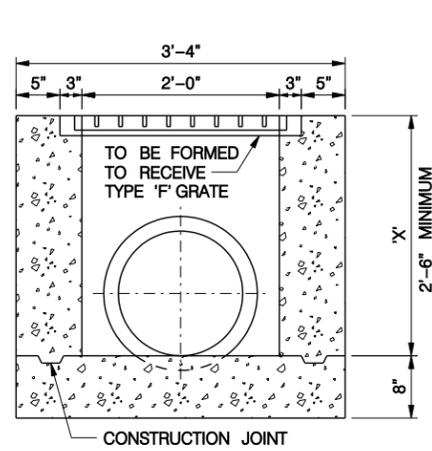
TYPE 'F' GRATE INLET



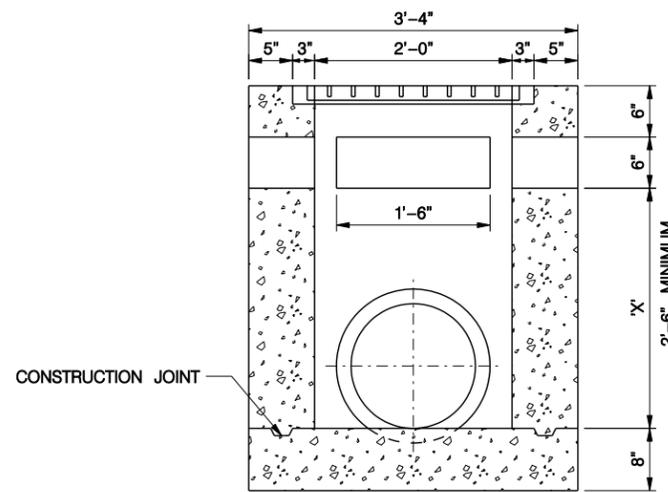
NOTE:
FOR DETAIL OF
COVER AND FRAME,
SEE L.S.P. 162



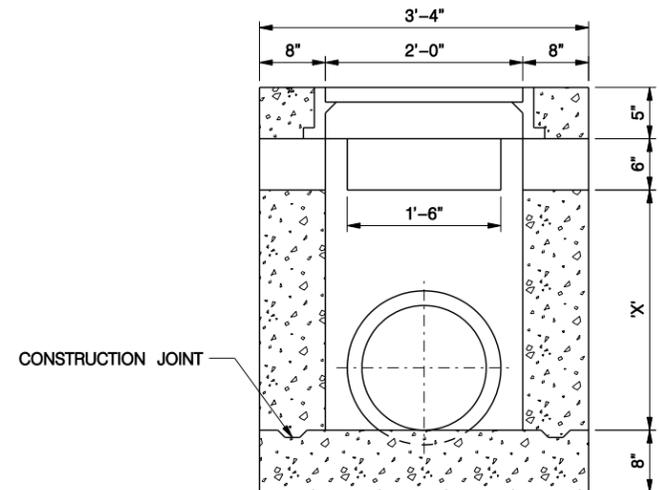
DETAIL OF
TYPE 'F-3' INLET TOP



SECTION C-C
TYPE 'F-1A'



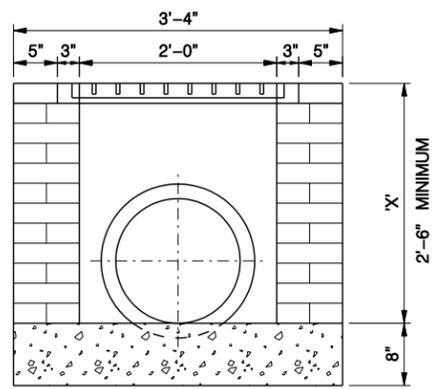
SECTION C-C
TYPE 'F-2A'



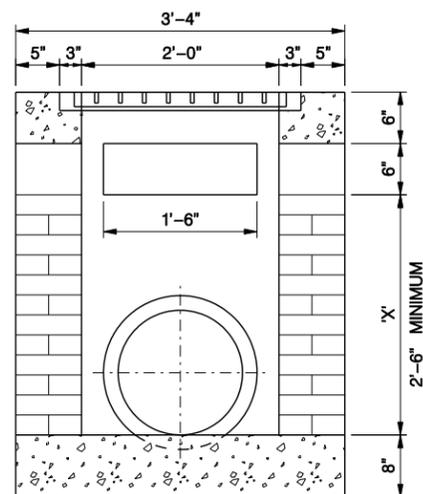
SECTION C-C
TYPE 'F-3A'

| APPROXIMATE QUANTITIES FOR DRAINAGE INLETS | | | |
|--|----------------|----------------|----------------|
| 'X' DEPTH | TYPE 'F-1A' | TYPE 'F-2A' | TYPE 'F-3A' |
| FEET | CONC. CU. YDS. | CONC. CU. YDS. | CONC. CU. YDS. |
| 3.0 | 1.1 | 1.3 | 1.3 |
| 4.0 | 1.3 | 1.5 | 1.5 |
| 5.0 | 1.6 | 1.8 | 1.8 |
| 6.0 | 1.8 | 2.1 | 2.1 |
| 7.0 | 2.1 | 2.3 | 2.3 |
| 8.0 | 2.4 | 2.6 | 2.6 |
| 9.0 | 2.6 | 2.8 | 2.8 |
| ADD 0.1 | 0.03 | 0.026 | 0.026 |

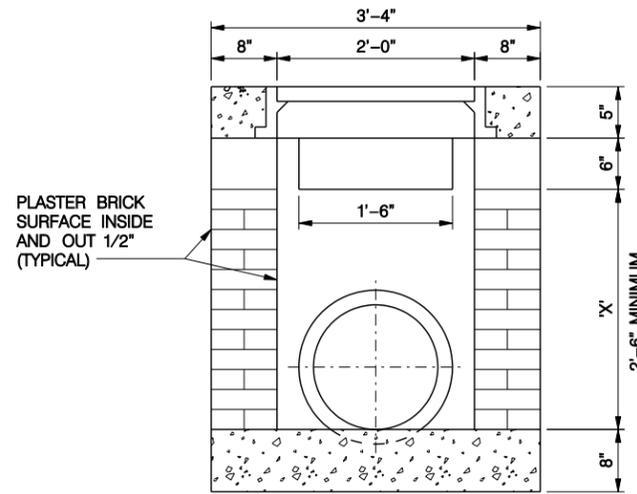
EACH INLET SHALL INCLUDE A CAST IRON GRATE AND FRAME.
 TABLE DOES NOT INCLUDE DEDUCTION FOR PIPE OPENING.



TYPE 'F-1B'



TYPE 'F-2B'



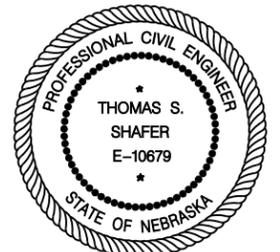
TYPE 'F-3B'

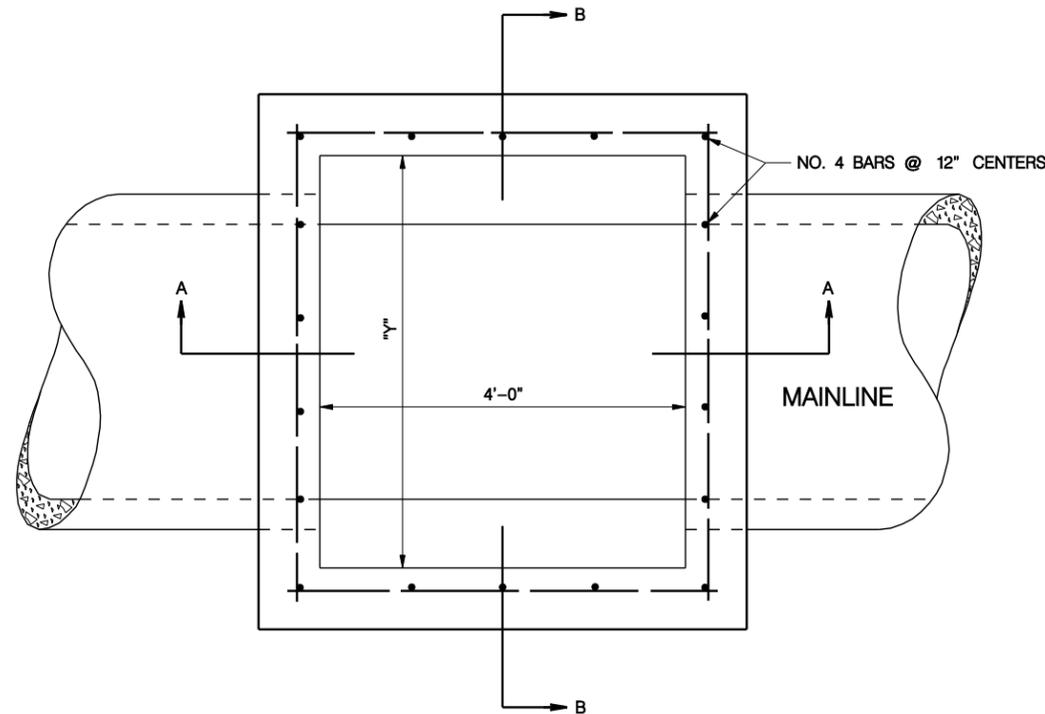
NOTE:
PROVIDE OPENINGS IN WALLS OF TYPE "F-2"
AND "F-3" INLETS AS NOTED ON THE PLANS.

DETAILS AND QUANTITIES REFLECT OPENINGS
IN 3 WALLS AS TYPICAL FOR TYPE "F-2" AND
TYPE "F-3" GRATE INLETS.

ALL CONCRETE SHALL BE L3500.

ALL CASTINGS ARE TO BE COATED WITH
BITUMINOUS PAINT.
BRICK GRATE INLET SHALL NOT EXCEED 6'.





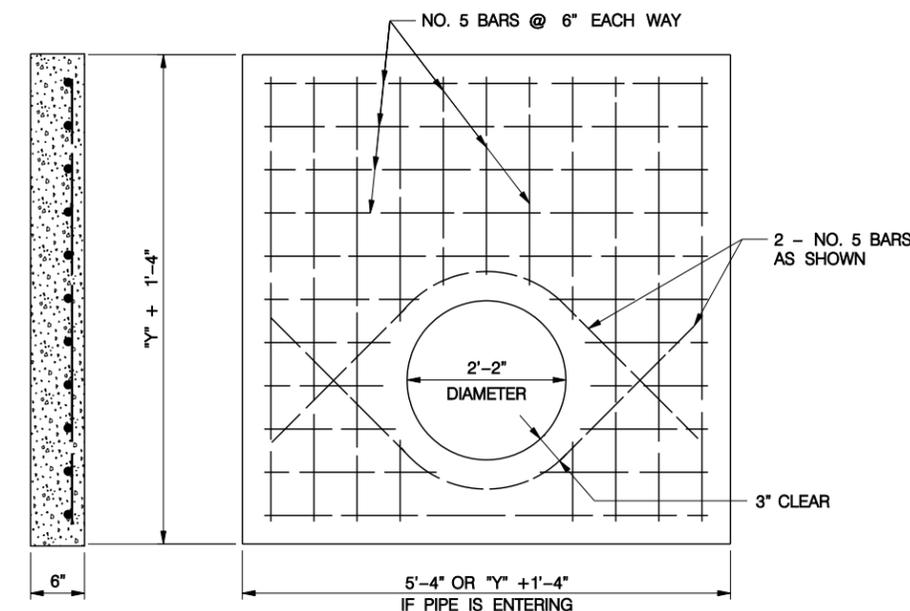
STORM DRAINAGE MANHOLE TYPE M-1

| PIPE DIAMETER | PIPE WALL THICKNESS-"T" | "X" (MINIMUM) | "Y" |
|---------------|-------------------------|---------------|-------|
| 15"-30" INC. | 3 1/2" | VARIES | 4'-6" |
| 36" | 4" | 3'-9" | 5'-0" |
| 42" | 4 1/2" | 4'-0" | 5'-6" |
| 48" | 5" | 4'-5" | 6'-0" |
| 54" | 5 1/2" | 5'-0" | 6'-6" |
| 60" | 6" | 5'-6" | 7'-0" |
| 66" | 6 1/2" | 6'-1" | 7'-8" |
| 72" | 7" | 6'-7" | 8'-3" |
| 78" | 7 1/2" | 7'-2" | 8'-9" |

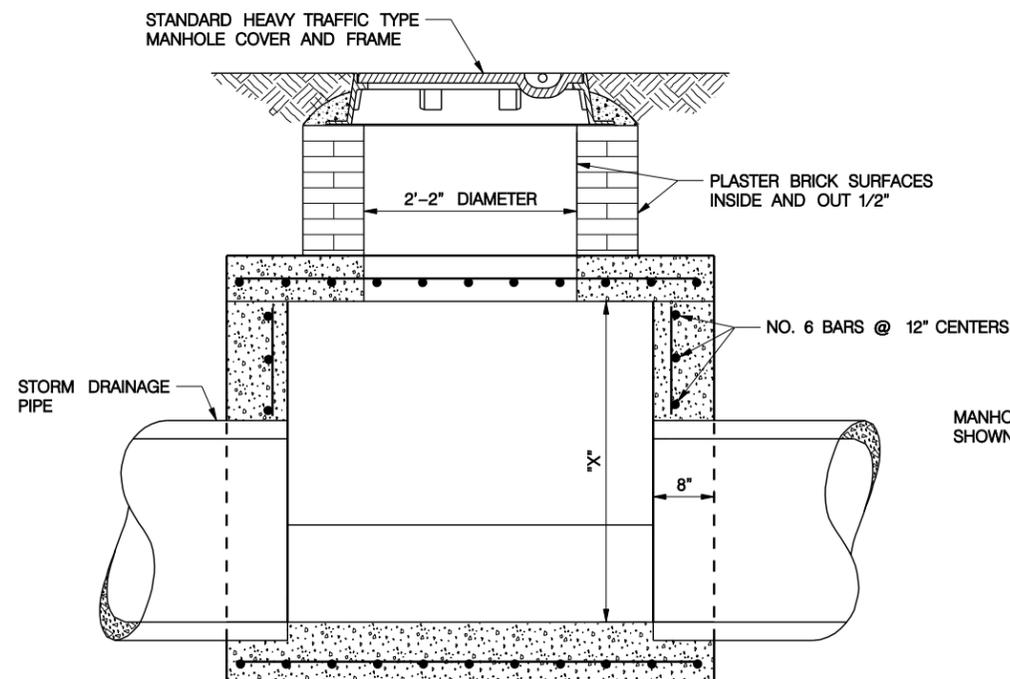
STANDARD PROCEDURES:

FOR MANHOLES IN PAVEMENT, PLACE STEPS IN WALL FARTHEST FROM GUTTER. FOR MANHOLES BEHIND CURBS, PLACE STEPS FARTHEST FROM BACK OF CURB.

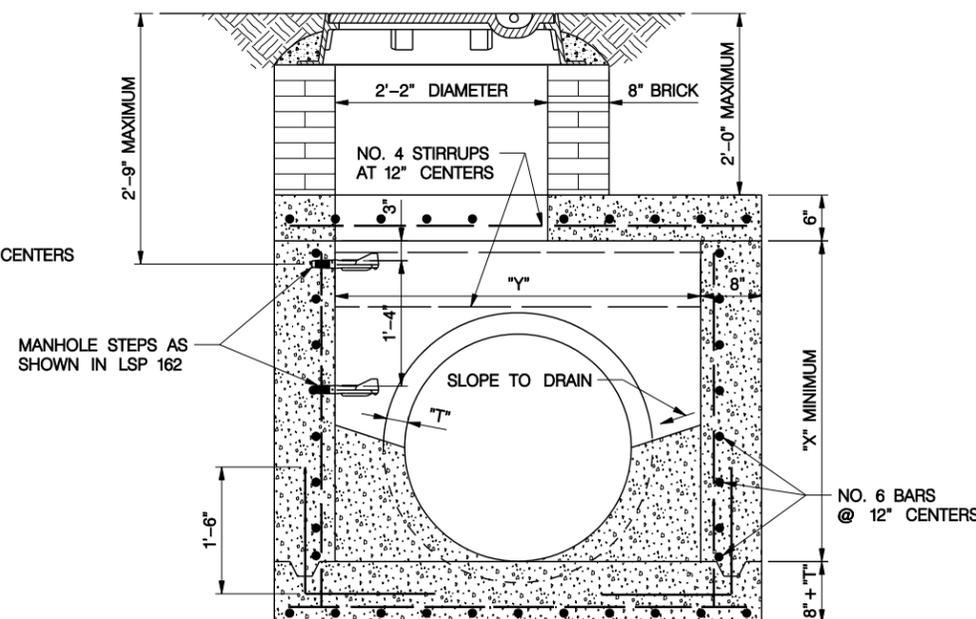
"Y" IS BASED ON THE LARGEST PIPE IN OR OUT



PRECAST MANHOLE TOP



SECTION A-A



SECTION B-B

STORM DRAINAGE MANHOLE TYPE M-1

GENERAL NOTES:

ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM SERIAL DESIGNATION A-305-507 AND SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL GRADE STEEL IN ACCORDANCE WITH THE REQUIREMENTS.

ALL CONCRETE SHALL BE L3500.

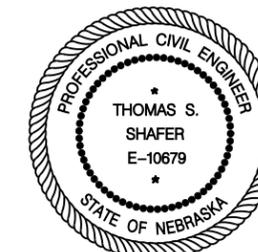
MINIMUM DEPTH OF EMBEDMENT FOR REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE INDICATED.

THE CAST IRON MANHOLE RING AND COVER SHALL BE SET IN A BED OF MORTAR, AND CAREFULLY ADJUSTED TO PROPOSED GRADE.

MANHOLE RING AND COVER SHALL BE CITY OF LINCOLN HEAVY TRAFFIC TYPE. (SEE L.S.P. 162)

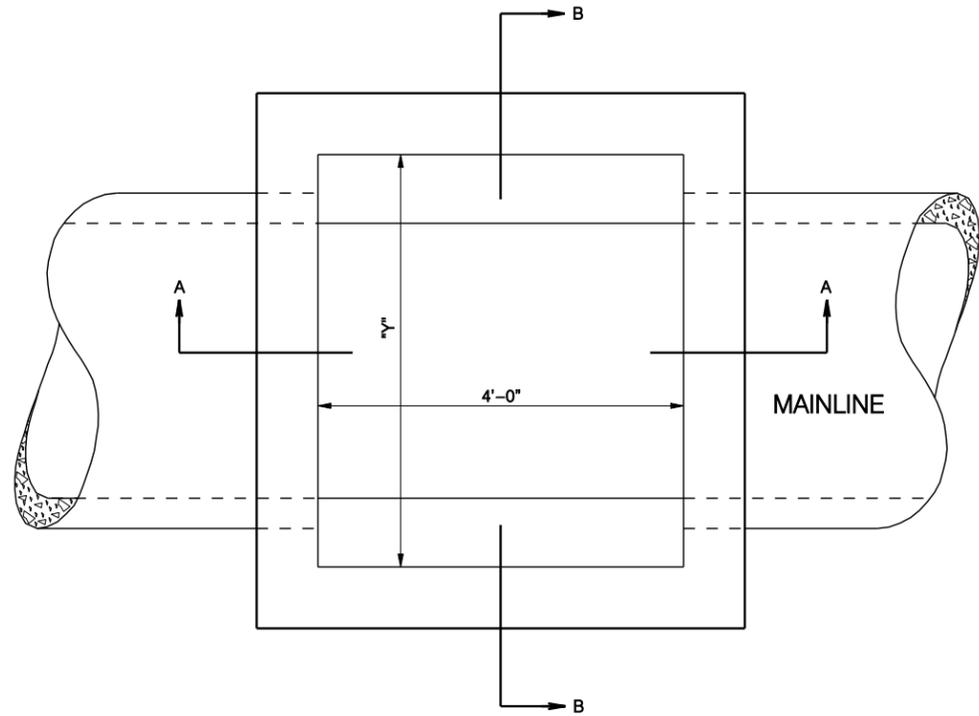
MANHOLE STEPS SHALL BE CITY OF LINCOLN STANDARD MANHOLE STEPS. (SEE L.S.P. 162)

ALL REINFORCING STEEL SHALL BE EPOXY COATED.



**EFFECTIVE JULY 1, 2011
 STORM DRAINAGE MANHOLES, TYPE 'M-1'
 L.S.P. 141**

PROJ: 70028 OLD AS OF 070610.dwg
 PEN: ..\\ables\\Pen\\SW_PENTABLE.TBL
 USER: elocaw
 DATE: 9/27/2011
 DGN: ..\\STANDARD\\Current\\Nsp142.dgn

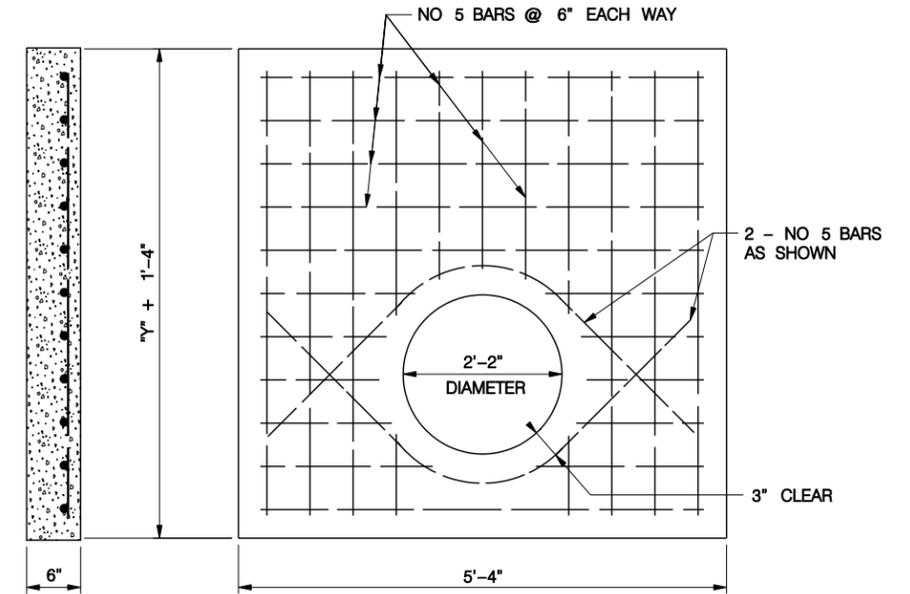


| PIPE DIAMETER | PIPE WALL THICKNESS-"T" | "X" (MINIMUM) | "Y" |
|---------------|-------------------------|---------------|-------|
| 15"-30" INC. | 3 1/2" | VARIES | 4'-6" |
| 36" | 4" | 3'-9" | 5'-0" |
| 42" | 4 1/2" | 4'-0" | 5'-6" |
| 48" | 5" | 4'-5" | 6'-0" |
| 54" | 5 1/2" | 5'-0" | 6'-6" |
| 60" | 6" | 5'-6" | 7'-0" |
| 66" | 6 1/2" | 6'-1" | 7'-8" |
| 72" | 7" | 6'-7" | 8'-3" |
| 78" | 7 1/2" | 7'-2" | 8'-9" |

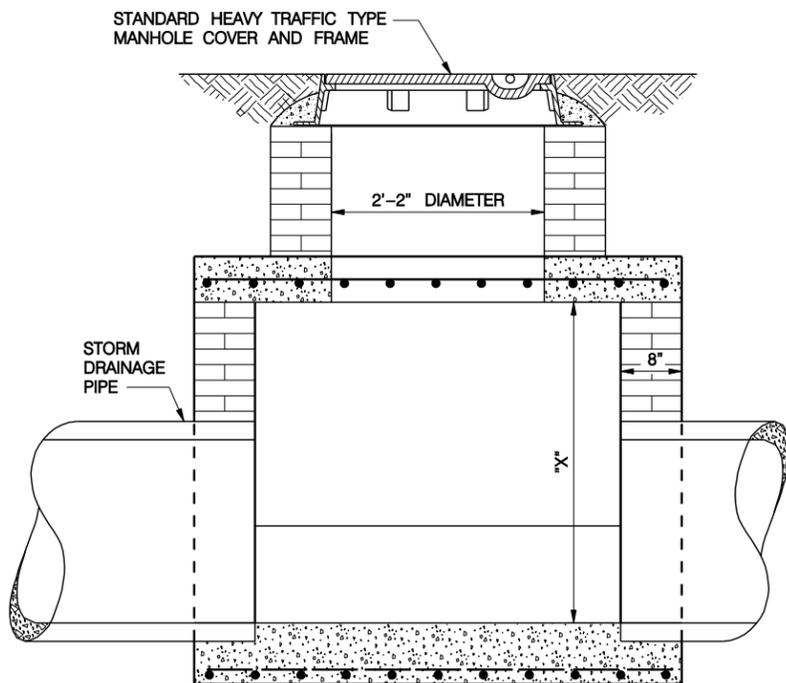
STANDARD PROCEDURES:

FOR MANHOLES IN PAVEMENT, PLACE STEPS IN WALL FARTHEST FROM GUTTER. FOR MANHOLES BEHIND CURBS, PLACE STEPS FARTHEST FROM BACK OF CURB.

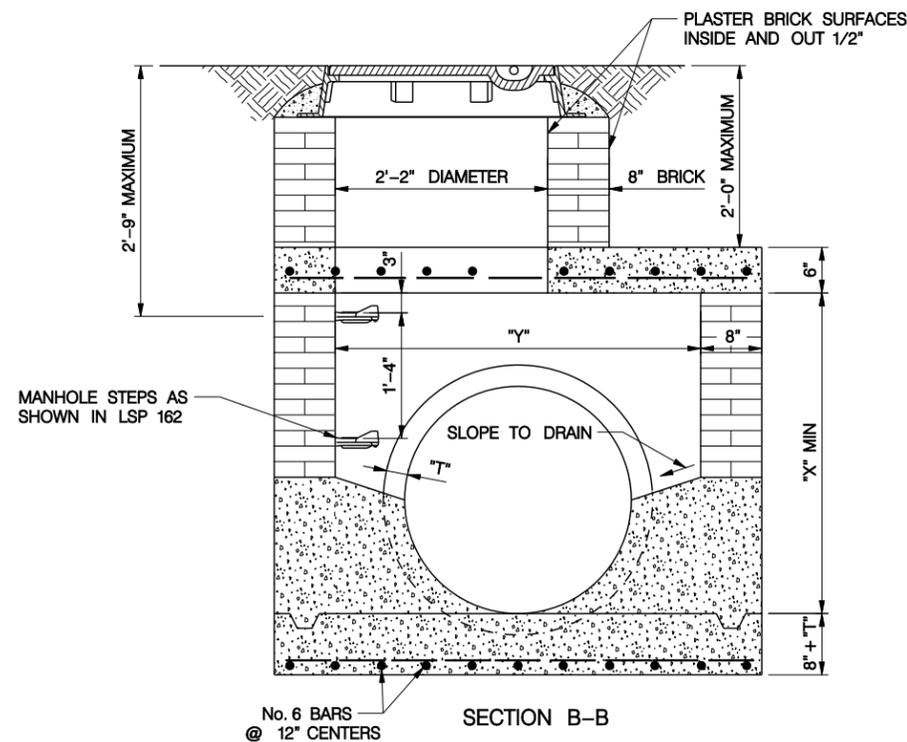
"Y" IS BASED ON THE LARGEST PIPE IN OR OUT



PRECAST MANHOLE TOP



SECTION A-A



SECTION B-B

STORM DRAINAGE MANHOLE TYPE M-1

GENERAL NOTES:

ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM SERIAL DESIGNATION A-305-507 AND SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL GRADE STEEL IN ACCORDANCE WITH THE REQUIREMENTS.

ALL CONCRETE SHALL BE L3500.

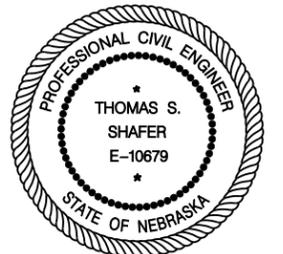
MINIMUM DEPTH OF EMBEDMENT FOR REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE INDICATED.

THE CAST IRON MANHOLE RING AND COVER SHALL SET IN A BED OF MORTAR, AND CAREFULLY ADJUSTED TO PROPOSED GRADE.

MANHOLE RING AND COVER SHALL BE CITY OF LINCOLN HEAVY TRAFFIC TYPE. (SEE L.S.P. 162)

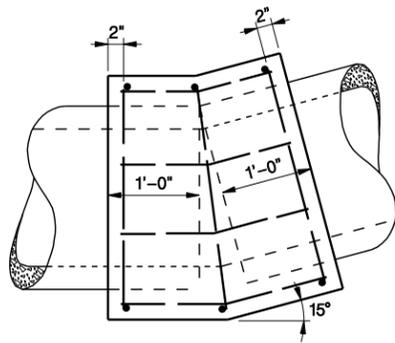
MANHOLE STEPS SHALL BE CITY OF LINCOLN STANDARD MANHOLE STEPS. (SEE L.S.P. 162)

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

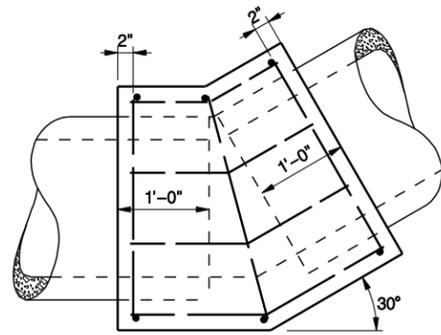


EFFECTIVE JULY 1, 2011
 STORM DRAINAGE MANHOLES, TYPE 'M-2'
 L.S.P. 142

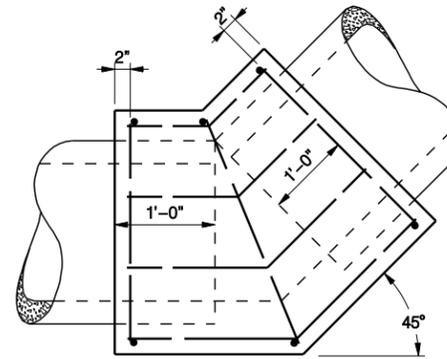
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 PEN: \\nabes\pen\sw_PENTABLE.TBL
 USER: elocaw
 DATE: 9/27/2011
 DGN: ..\STANDARD\Curent\Nsp150.dgn



SIDE ELEVATION

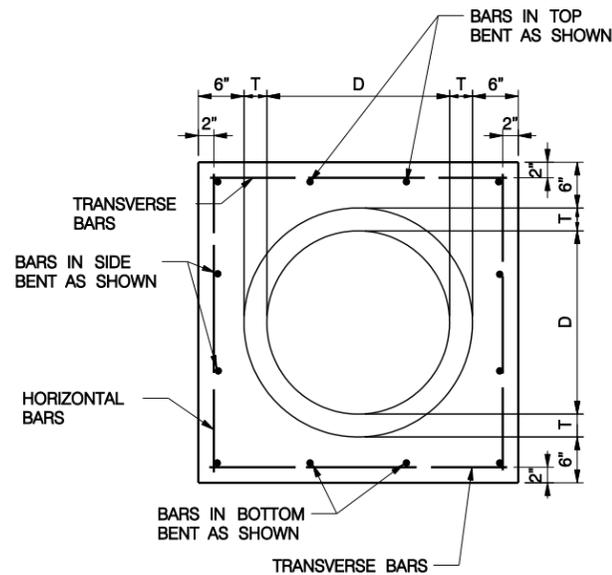


SIDE ELEVATION



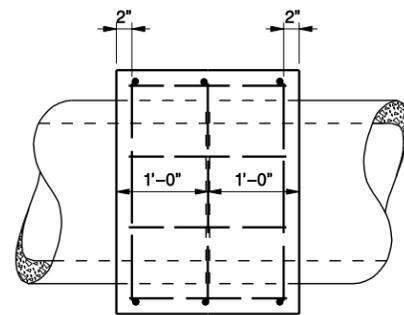
SIDE ELEVATION

R.C. ELBOWS FOR VERTICAL DEFLECTION ONLY

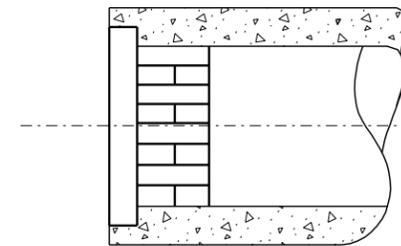


END ELEVATION

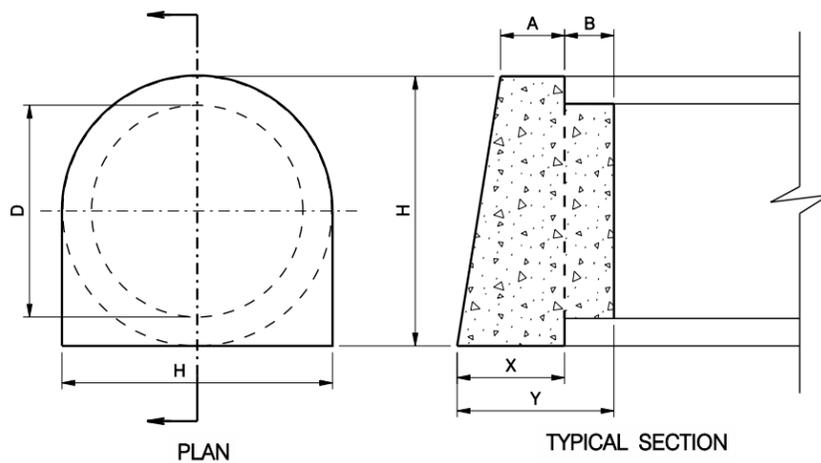
R.C. COLLARS



SIDE ELEVATION



TEMPORARY BRICK PLUG



PLAN

TYPICAL SECTION

CONCRETE PLUGS

| CONCRETE PLUGS | | | | | | |
|----------------|-----------|----|-----|-------|--------|-------------------|
| D | H | A | B | X | Y | CONCRETE CU. YDS. |
| 15" | 1'-7 1/2" | 4" | 4" | 6" | 10" | 0.05 |
| 18" | 1'-11" | 4" | 4" | 6" | 10" | 0.07 |
| 21" | 2'-4" | 4" | 4" | 6" | 10" | 0.12 |
| 24" | 2'-6" | 5" | 4" | 8" | 1'-0" | 0.15 |
| 30" | 3'-1" | 5" | 4" | 8" | 1'-0" | 0.23 |
| 36" | 3'-8" | 6" | 4" | 10" | 1'-2" | 0.39 |
| 42" | 4'-3" | 6" | 6" | 11" | 1'-5" | 0.61 |
| 48" | 4'-10" | 7" | 8" | 1'-0" | 1'-8" | 0.94 |
| 54" | 5'-5" | 7" | 9" | 1'-1" | 1'-10" | 1.27 |
| 60" | 6'-0" | 8" | 10" | 1'-2" | 2'-0" | 1.72 |

REINF. CONCRETE ELBOWS AND COLLARS

| PIPE SIZE "D" | KIND | "T" | NUMBER OF BARS | | | | CONC. CU. YDS. | STEEL LBS. |
|---------------|--------|--------|----------------|-----|--------|------|----------------|------------|
| | | | TRANS.-VERT. | TOP | I-SIDE | BOT. | | |
| 15" | COLLAR | 2 1/4" | 12 | 4 | 2 | 4 | 0.36 | 50 |
| | 15° | | | | | | 0.40 | 54 |
| | 30° | | | | | | 0.43 | 57 |
| | 45° | | | | | | 0.50 | 59 |
| 18" | COLLAR | 2 1/2" | 12 | 4 | 2 | 4 | 0.42 | 55 |
| | 15° | | | | | | 0.49 | 59 |
| | 30° | | | | | | 0.56 | 63 |
| | 45° | | | | | | 0.64 | 66 |
| 21" | COLLAR | 2 3/4" | 12 | 4 | 2 | 4 | 0.48 | 57 |
| | 15° | | | | | | 0.54 | 61 |
| | 30° | | | | | | 0.63 | 66 |
| | 45° | | | | | | 0.72 | 69 |
| 24" | COLLAR | 3" | 12 | 4 | 2 | 4 | 0.53 | 61 |
| | 15° | | | | | | 0.63 | 65 |
| | 30° | | | | | | 0.74 | 70 |
| | 45° | | | | | | 0.86 | 74 |
| 30" | COLLAR | 3 1/2" | 12 | 4 | 2 | 5 | 0.63 | 71 |
| | 15° | | | | | | 0.79 | 76 |
| | 30° | | | | | | 0.96 | 82 |
| | 45° | | | | | | 1.14 | 88 |
| 36" | COLLAR | 4" | 12 | 4 | 2 | 5 | 0.77 | 76 |
| | 15° | | | | | | 1.01 | 83 |
| | 30° | | | | | | 1.26 | 91 |
| | 45° | | | | | | 1.53 | 98 |
| 42" | COLLAR | 4 1/2" | 12 | 5 | 3 | 6 | 0.96 | 93 |
| | 15° | | | | | | 1.32 | 104 |
| | 30° | | | | | | 1.69 | 115 |
| | 45° | | | | | | 2.09 | 130 |
| 48" | COLLAR | 5" | 12 | 5 | 3 | 6 | 1.16 | 98 |
| | 15° | | | | | | 1.66 | 110 |
| | 30° | | | | | | 2.19 | 123 |
| | 45° | | | | | | 2.75 | 137 |
| 54" | COLLAR | 5 1/2" | 12 | 5 | 3 | 6 | 1.34 | 108 |
| | 15° | | | | | | 2.01 | 121 |
| | 30° | | | | | | 2.70 | 136 |
| | 45° | | | | | | 3.28 | 144 |
| 60" | COLLAR | 6" | 12 | 5 | 3 | 6 | 1.54 | 110 |
| | 15° | | | | | | 2.29 | 128 |
| | 30° | | | | | | 3.28 | 144 |
| | 45° | | | | | | 4.27 | 160 |

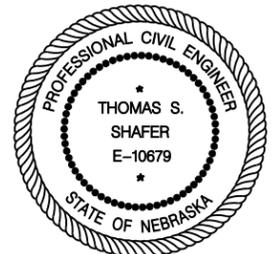
NOTE: ALL REINFORCING STEEL SHALL BE NO 5 BARS, PLACED AS SHOWN.

GENERAL NOTES:

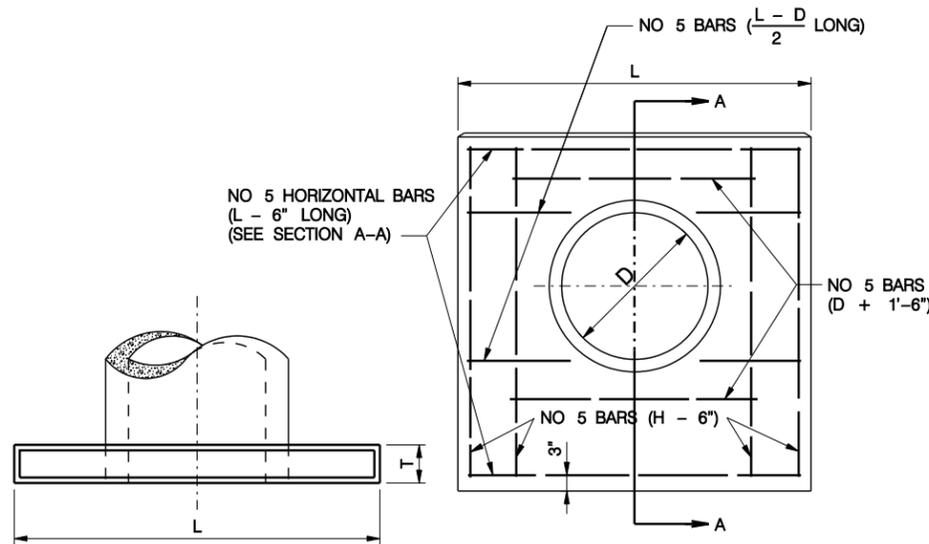
ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO A.S.T.M. SERIAL DESIGNATION A-305-50T AND SHALL SATISFY THE BEND TEST REQUIREMENTS. FOR STRUCTURAL GRADE STEEL IN ACCORDANCE WITH THE REQUIREMENTS.

ALL CONCRETE SHALL BE L3500.

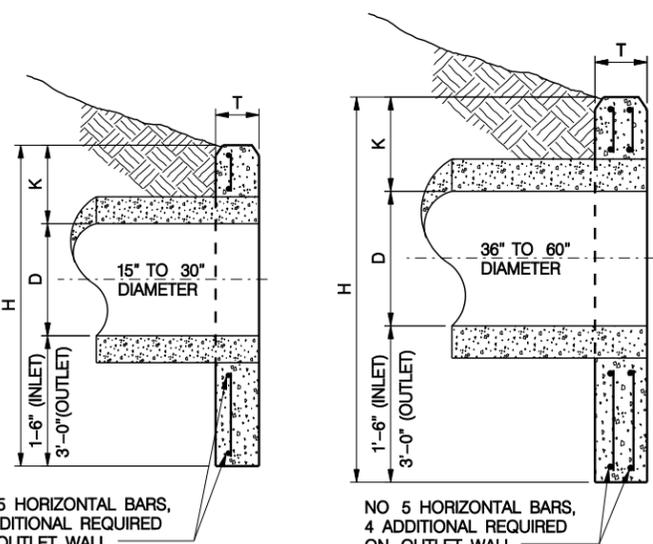
MINIMUM DEPTH OF EMBEDMENT FOR REINFORCING STEEL TO BE AS NOTED. ALL REINFORCING STEEL SHALL BE EPOXY COATED.



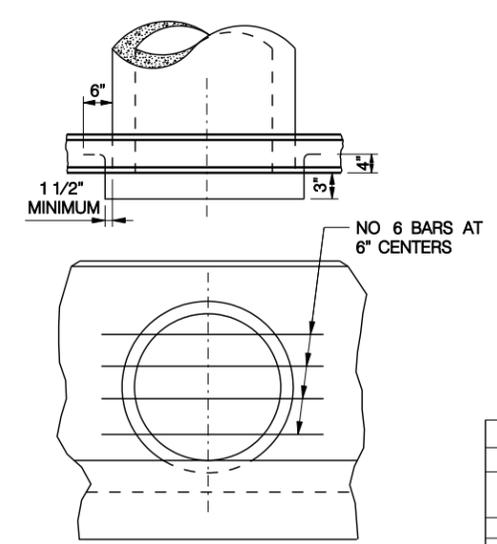
R.C. COLLARS, ELBOWS AND PLUGS
 L.S.P. 150



TYPE "A" HEADWALL



SECTION A-A

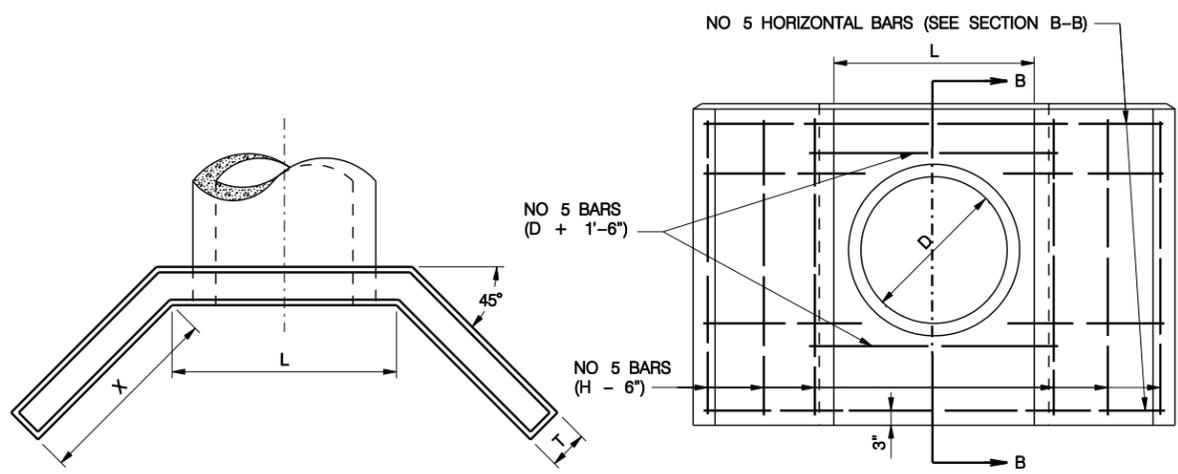


R.C. PIPE END GUARD

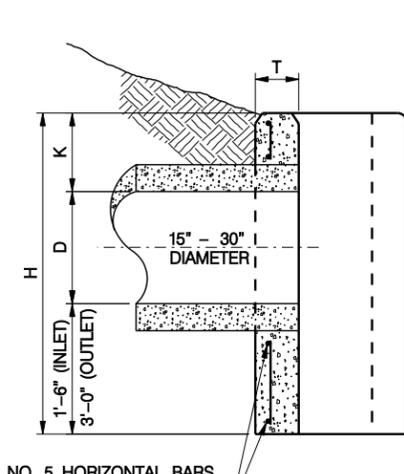
| END GUARD | | | |
|-------------|-------------------------|---------------------------|-------------------------------|
| PIPE SIZE D | NUMBER OF VERTICAL BARS | NUMBER OF HORIZONTAL BARS | POUNDS OF STEEL EACH HEADWALL |
| 15" | 0 | 2 | 14 |
| 18" | 0 | 2 | 15 |
| 21" | 1 | 2 | 24 |
| 24" | 1 | 3 | 34 |
| 30" | 1 | 4 | 46 |
| 36" | 1 | 5 | 61 |
| 42" | 2 | 6 | 88 |
| 48" | 2 | 7 | 107 |
| 54" | 2 | 8 | 127 |
| 60" | 3 | 9 | 163 |

| TYPE "A" HEADWALL | | | | | | | |
|-------------------|------------|----------|--------|-------|----|----------------------|--------------|
| D | DIMENSIONS | | | INLET | | OUTLET | |
| | H INLET | H OUTLET | L | K | T | CONCRETE CUBIC YARDS | STEEL POUNDS |
| 15" | 3'-9" | 5'-3" | 3'-3" | 1'-0" | 6" | 0.19 | 31 |
| 18" | 4'-0" | 5'-6" | 3'-6" | 1'-0" | 6" | 0.21 | 33 |
| 21" | 4'-3" | 5'-9" | 4'-6" | 1'-0" | 6" | 0.28 | 38 |
| 24" | 4'-6" | 6'-0" | 4'-10" | 1'-0" | 6" | 0.31 | 41 |
| 30" | 5'-1" | 6'-7" | 5'-10" | 1'-1" | 6" | 0.34 | 47 |
| 36" | 5'-7" | 7'-1" | 6'-8" | 1'-1" | 8" | 0.66 | 105 |
| 42" | 6'-2" | 7'-8" | 7'-10" | 1'-2" | 8" | 0.85 | 120 |
| 48" | 6'-8" | 8'-2" | 9'-10" | 1'-2" | 8" | 1.03 | 134 |
| 54" | 7'-3" | 8'-9" | 10'-2" | 1'-3" | 8" | 1.25 | 149 |
| 60" | 7'-9" | 9'-3" | 11'-2" | 1'-3" | 8" | 1.44 | 161 |

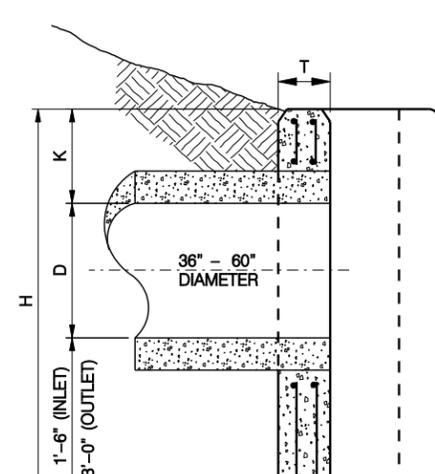
NOTE: ALL REINFORCING STEEL SHALL BE NO 5 BARS, PLACED AS SHOWN.



TYPE "B" HEADWALL



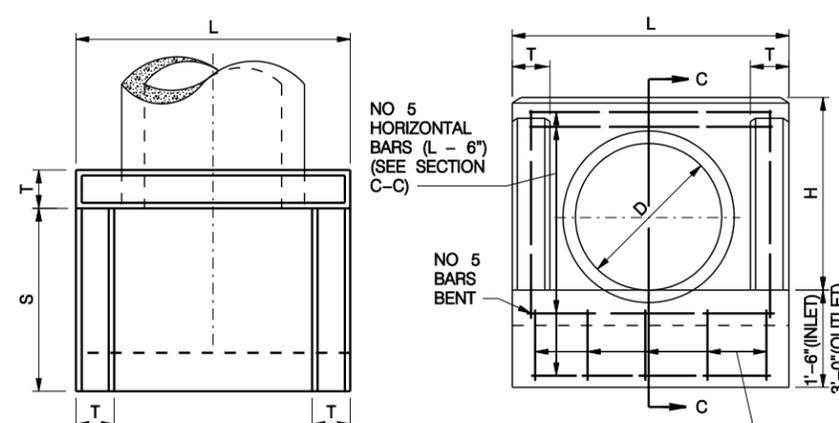
SECTION B-B



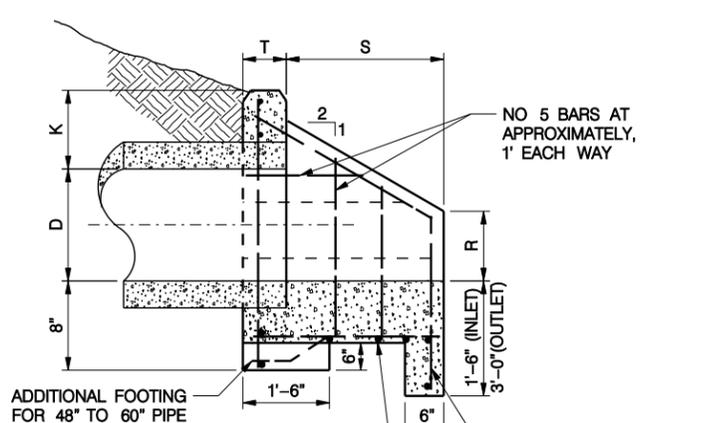
NO 5 HORIZONTAL BARS, 4 ADDITIONAL REQUIRED ON OUTLET WALL

| TYPE "B" HEADWALL | | | | | | | |
|-------------------|------------|----------|--------|-------|-------|--------|----------------------|
| D | DIMENSIONS | | | INLET | | OUTLET | |
| | H INLET | H OUTLET | L | K | X | T | CONCRETE CUBIC YARDS |
| 15" | 3'-9" | 5'-3" | 2'-2" | 1'-0" | 1'-0" | 6" | 0.29 |
| 18" | 4'-0" | 5'-6" | 2'-5" | 1'-0" | 1'-0" | 6" | 0.32 |
| 21" | 4'-3" | 5'-9" | 2'-9" | 1'-0" | 1'-3" | 6" | 0.39 |
| 24" | 4'-6" | 6'-0" | 3'-0" | 1'-0" | 1'-6" | 6" | 0.46 |
| 30" | 5'-1" | 6'-7" | 3'-7" | 1'-1" | 2'-0" | 6" | 0.63 |
| 36" | 5'-7" | 7'-1" | 4'-2" | 1'-1" | 2'-0" | 8" | 0.95 |
| 42" | 6'-2" | 7'-8" | 4'-9" | 1'-2" | 2'-6" | 8" | 1.22 |
| 48" | 6'-8" | 8'-2" | 5'-4" | 1'-2" | 3'-0" | 8" | 1.51 |
| 54" | 7'-3" | 8'-9" | 5'-11" | 1'-3" | 3'-6" | 8" | 1.85 |
| 60" | 7'-9" | 9'-3" | 6'-6" | 1'-3" | 3'-6" | 8" | 2.00 |

NOTE: ALL REINFORCING STEEL SHALL BE NO 5 BARS, PLACED AS SHOWN.



TYPE "C" HEADWALL



SECTION C-C

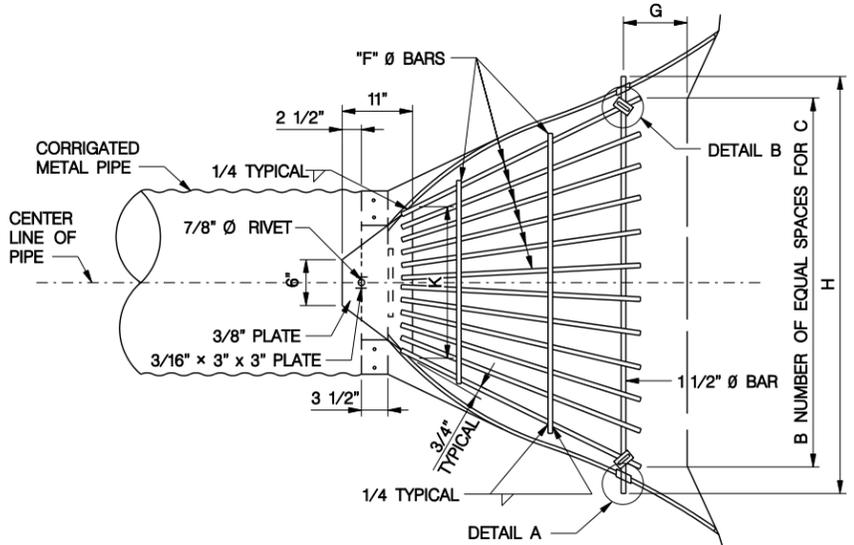
| TYPE "C" HEADWALL | | | | | | | | | |
|-------------------|------------|--------|-------|--------|--------|-------|----------------------|--------------|--|
| D | DIMENSIONS | | | | | INLET | | OUTLET | |
| | H | L | K | S | R | T | CONCRETE CUBIC YARDS | STEEL POUNDS | |
| 15" | 2'-3" | 3'-2" | 1'-0" | 1'-10" | 1'-0" | 6" | 0.43 | 50 | |
| 18" | 2'-6" | 3'-5" | 1'-0" | 2'-1" | 1'-2" | 6" | 0.51 | 59 | |
| 21" | 2'-9" | 3'-9" | 1'-0" | 2'-4" | 1'-3" | 6" | 0.60 | 73 | |
| 24" | 3'-0" | 4'-0" | 1'-0" | 2'-6" | 1'-5" | 6" | 0.68 | 79 | |
| 30" | 3'-7" | 4'-7" | 1'-1" | 3'-1" | 1'-8" | 6" | 0.93 | 102 | |
| 36" | 4'-1" | 5'-6" | 1'-1" | 4'-0" | 1'-9" | 8" | 1.56 | 150 | |
| 42" | 4'-8" | 6'-1" | 1'-2" | 4'-10" | 1'-11" | 8" | 2.02 | 189 | |
| 48" | 5'-2" | 6'-8" | 1'-2" | 5'-9" | 2'-0" | 8" | 2.72 | 245 | |
| 54" | 5'-9" | 7'-3" | 1'-3" | 6'-7" | 2'-3" | 8" | 3.32 | 305 | |
| 60" | 6'-3" | 7'-10" | 1'-3" | 7'-4" | 2'-3" | 8" | 3.88 | 334 | |

NOTE: ALL REINFORCING STEEL SHALL BE NO 5 BARS, PLACED AS SHOWN.

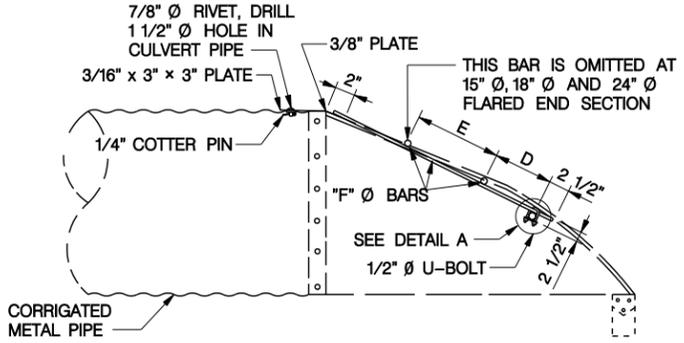
GENERAL NOTES:
 ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO A.S.T.M. SERIAL DESIGNATION A-305-507 AND SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL GRADE STEEL IN ACCORDANCE WITH THE REQUIREMENTS.
 ALL CONCRETE SHALL BE L3500.
 MINIMUM DEPTH OF EMBEDMENT FOR REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE INDICATED.
 GROOVE END OF CONCRETE PIPE TO FACE UPSTREAM.
 ALL REINFORCING STEEL SHALL BE EPOXY COATED.
 INSTALL END GUARD ON INLET ENDS OF STORM SEWER SYSTEM ONLY.



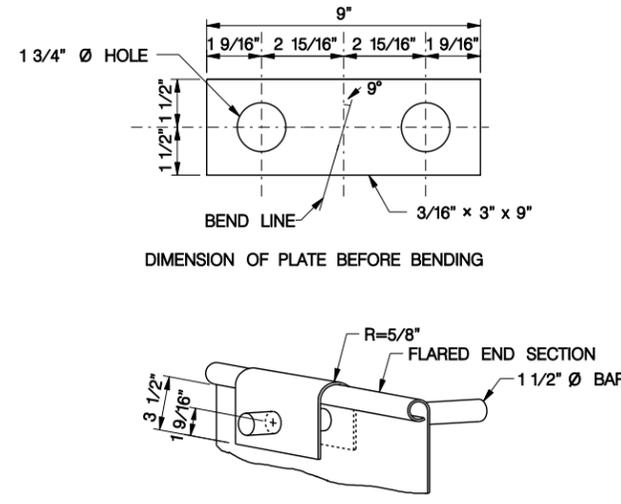
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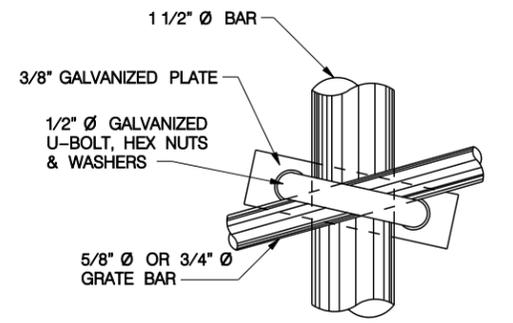
PLAN FOR BAR GRATE
BAR GRATE FOR METAL FLARED END SECTION



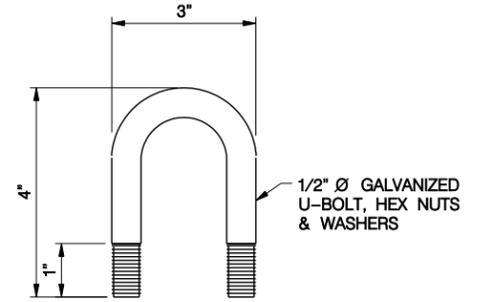
ELEVATION OF BAR GRATE



DETAIL A
 (2) 3/16" x 3" x 9" PLATES
 REQUIRED PER ASSEMBLY

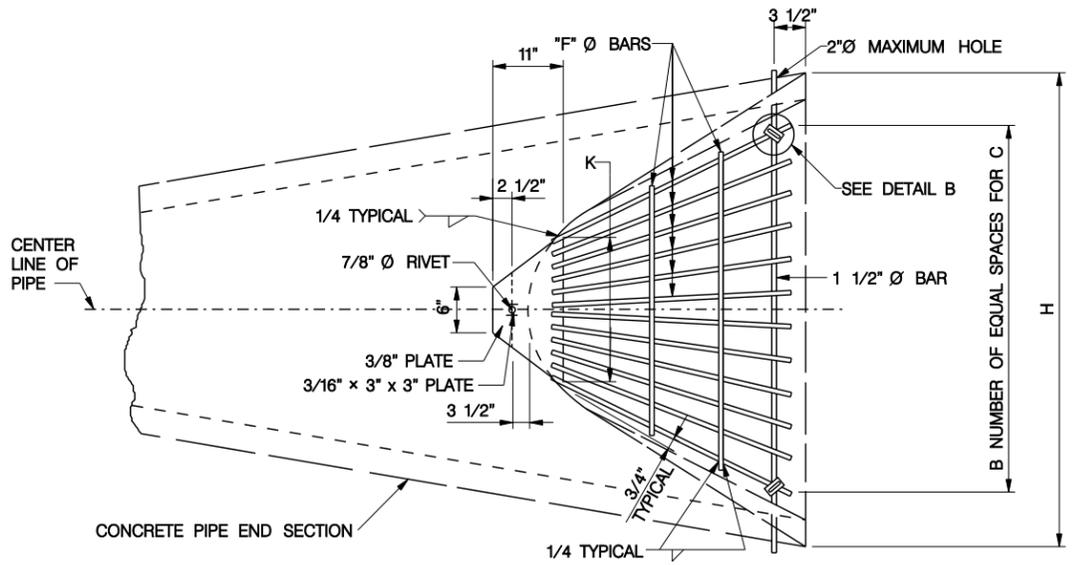


DETAIL B

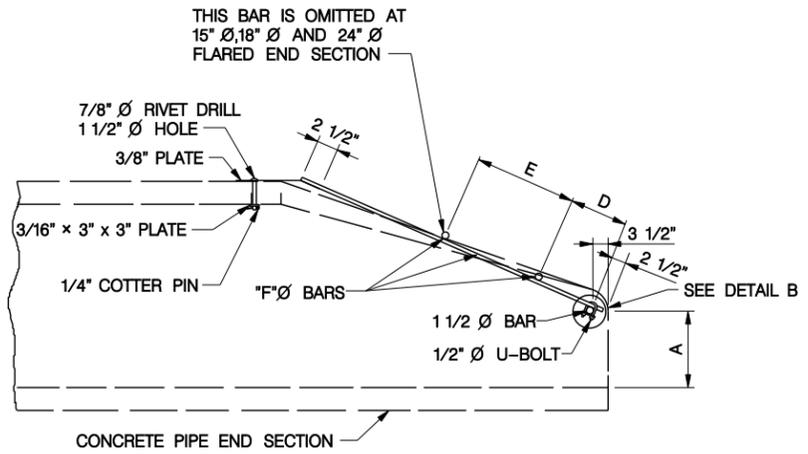


U-BOLT AND PLATE DETAIL

NOTE:
 ALL BARS USED IN GRATES SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. A575 GRADE 1020 STEEL.
 THE BAR GRATE MAY BE SHOP ASSEMBLED WITH THE FLARED END SECTIONS.



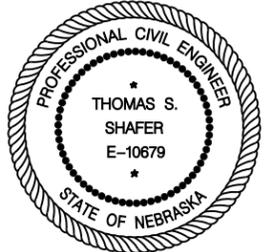
PLAN OF BAR GRATE
BAR GRATE FOR CONCRETE PIPE END SECTION



ELEVATION OF BAR GRATE

NOTE:
 INSTALL BAR GRATE ON INLET ENDS OF STORM SEWER SYSTEM ONLY.

| BAR GRATE DATA | | | | | | | | | |
|----------------|--------|----|-------|-------|-------|------|-------|--------|-------|
| | A | B | C | D | E | F | G | H | K |
| 15" Ø PIPE | 5" | 4 | 2'-0" | 6" | --- | 5/8" | 6" | 2'-11" | 1'-4" |
| 18" Ø PIPE | 8" | 5 | 2'-6" | 6" | --- | 5/8" | 8" | 3'-6" | 1'-4" |
| 24" Ø PIPE | 8 1/2" | 7 | 3'-6" | 9" | --- | 5/8" | 8" | 4'-7" | 1'-8" |
| 30" Ø PIPE | 11" | 9 | 4'-6" | 1'-0" | 1'-6" | 3/4" | 1'-0" | 5'-8" | 1'-8" |
| 36" Ø PIPE | 1'-2" | 11 | 5'-6" | 1'-0" | 1'-6" | 3/4" | 1'-0" | 6'-9" | 2'-0" |

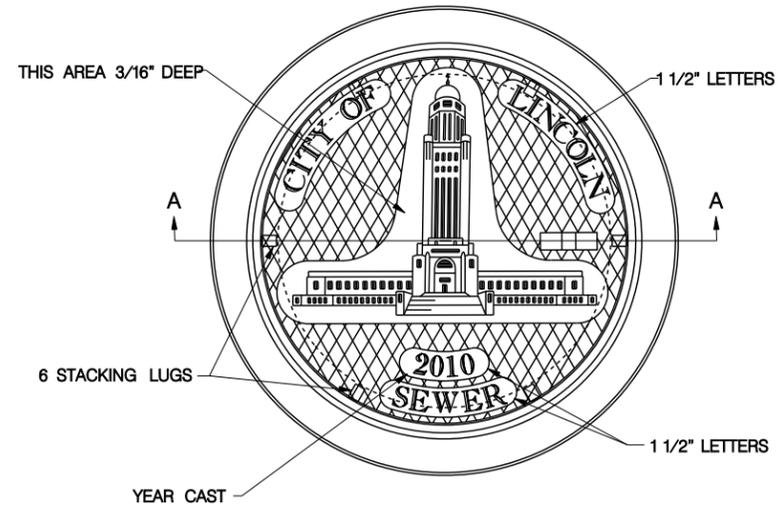


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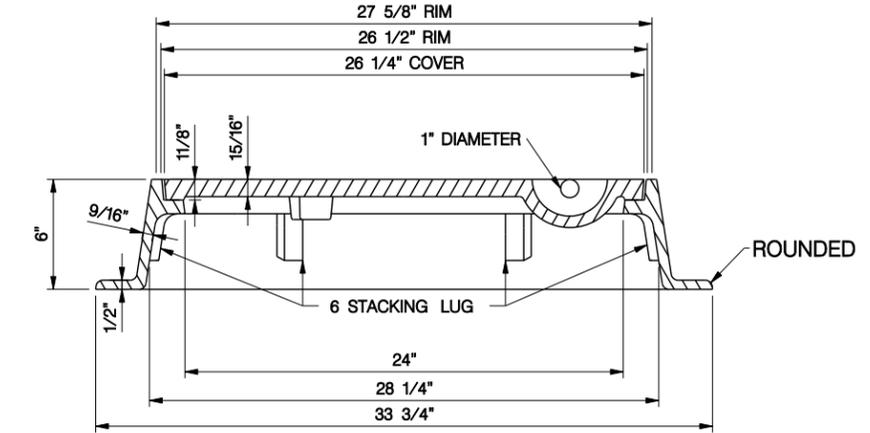
STORM SEWER MANHOLE



SANITARY SEWER MANHOLE

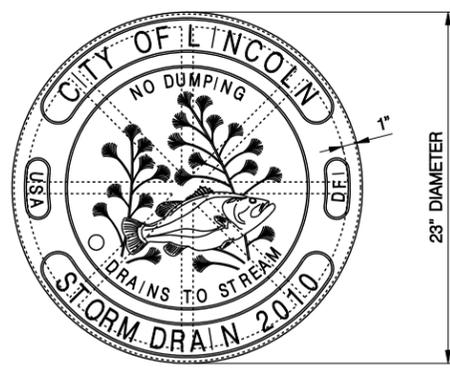


WATER MANHOLE



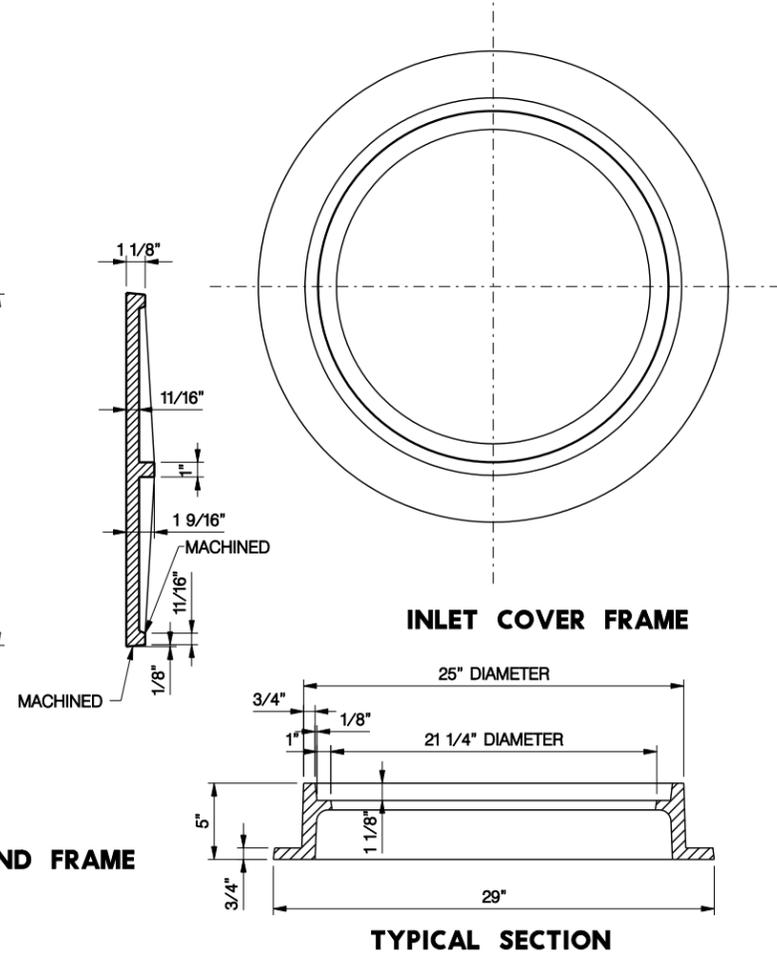
TYPICAL SECTION A-A

STANDARD HEAVY TRAFFIC TYPE MANHOLE COVER AND FRAME



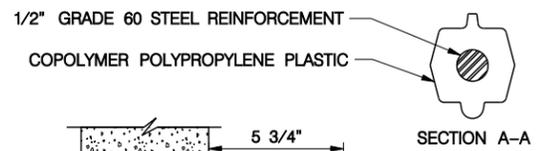
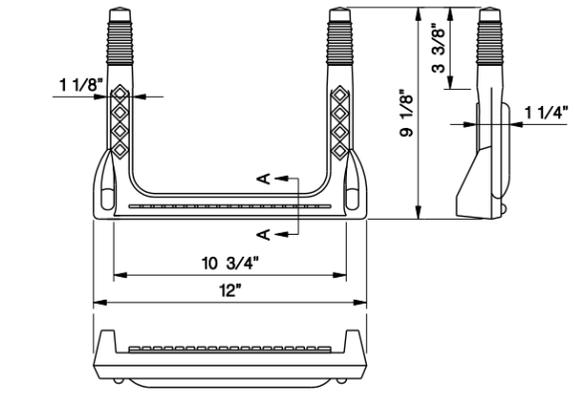
INLET COVER

STANDARD CAST IRON INLET COVER AND FRAME



INLET COVER FRAME

TYPICAL SECTION



1. STEP SHALL MEET THE REQUIREMENTS OF ASTM C-478, AASHTO M-199 AND OSHA INSTRUCTION STD 1-1.9
2. POLYPROPYLENE PLASTIC SHALL CONFORM TO ASTM D-4101

REINFORCED PLASTIC STEPS

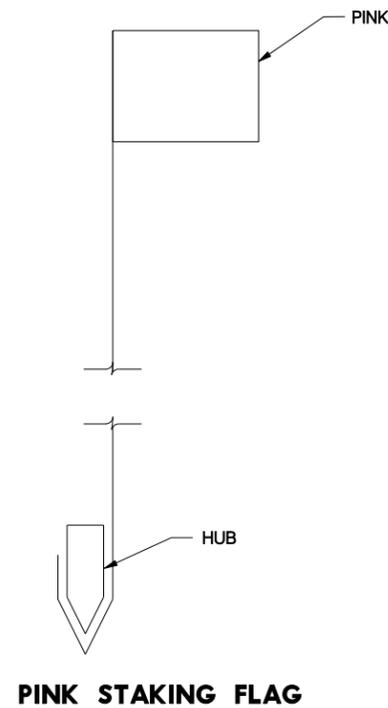
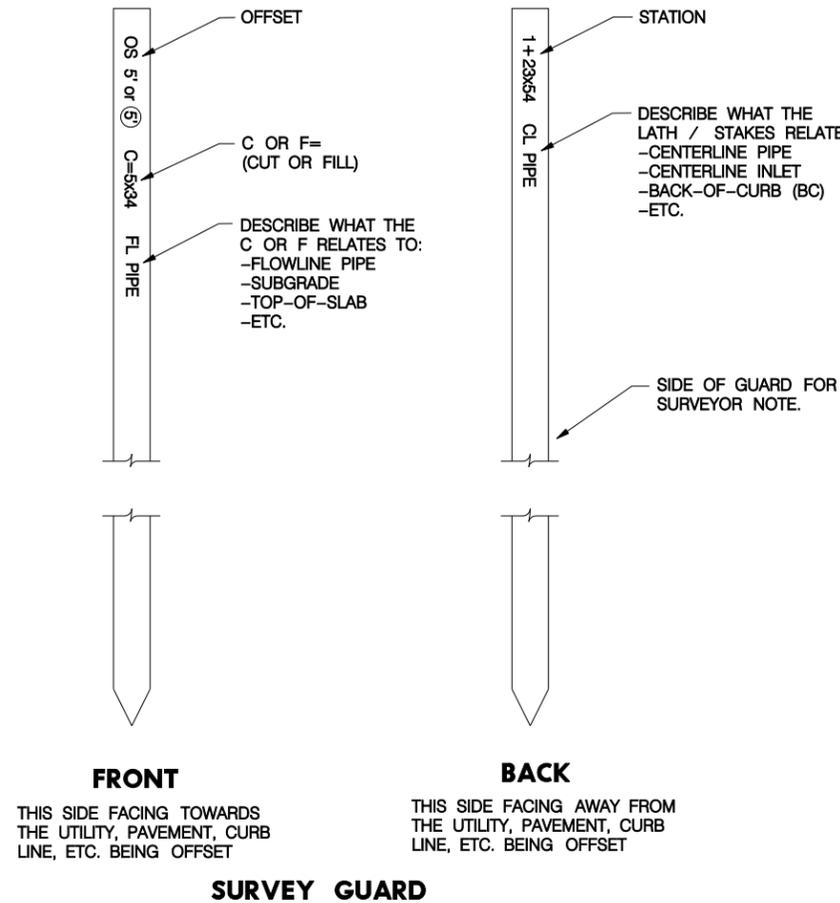
GENERAL NOTES:

1. CASTING SHALL CONFORM TO THE REQUIREMENTS OF 'SPECIFICATIONS FOR GRAY IRON CASTING' IN ACCORDANCE WITH A.S.T.M. DESIGNATION A-48-83, CLASS 35B
2. CASTINGS ARE TO BE MANUFACTURED TRUE TO PATTERN WITH SATISFACTORY FIT OF COMPONENT PARTS. CASTINGS SHALL BE FREE OF DEFECTS. DIMENSIONS AS DETAILED ON PLAN SHALL NOT DEVIATE BY +/- 1/16" PER FOOT.
3. CASTING SHALL BE FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES.
4. CASTING SHALL BE RATED 'HEAVY DUTY' SUITABLE FOR H-20 TRAFFIC LOADING.



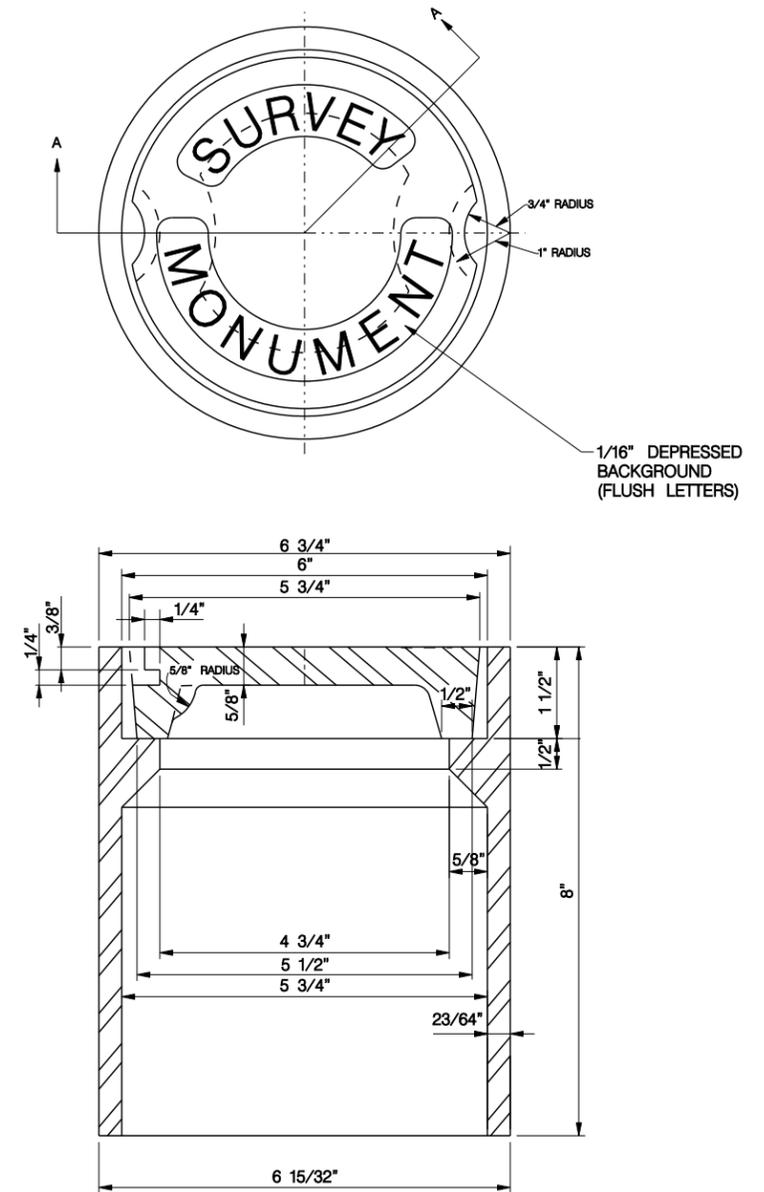
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|---|------------------|-------------------------------------|
|  CITY OF LINCOLN NEBRASKA | PROJECT NO. | SHEET NO. |
| | LSP 163 | 1 |
| | Date: 01/14/2010 | Drawn: CAW Checked: Approved: |

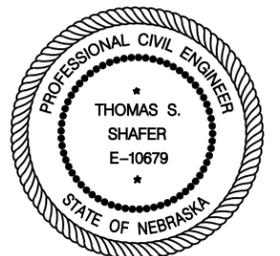


NOTES:
 SURVEYOR TO PAINT GUARD WHERE THEY CHOOSE.
 COLORS TO BE:
 RED FOR ELECTRICAL AND SIGNALS
 ORANGE FOR COMMUNICATION
 BLUE FOR WATER
 GREEN FOR WASTEWATER AND DRAINAGE
 NO PAINT FOR PAVING

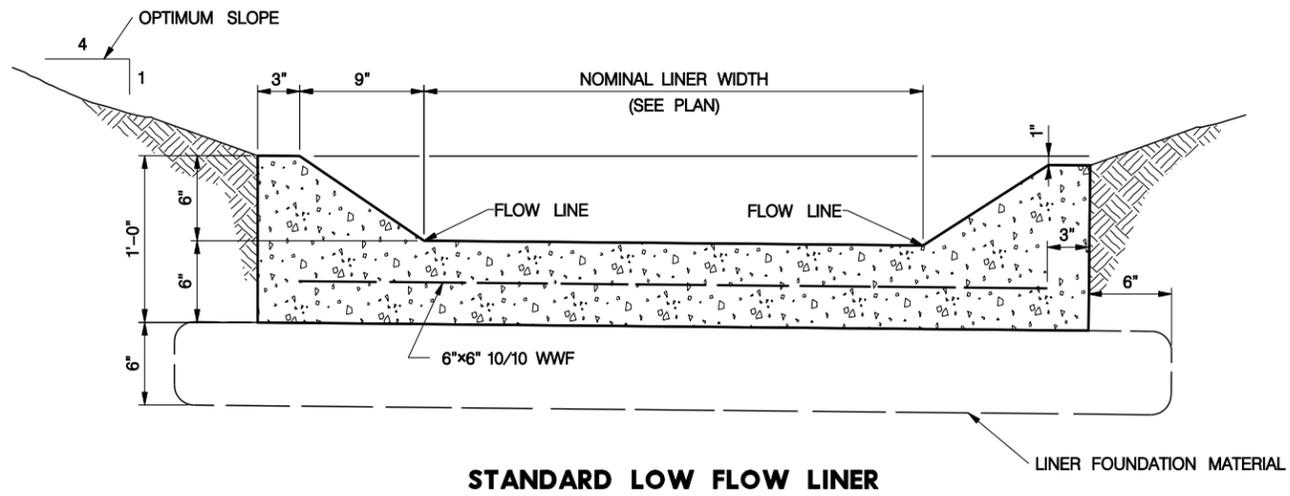
SURVEYOR TO PROVIDE ALL ELECTRONIC DATA, COPY OF ELECTRONIC DATA AND COPY OF THE FIELD BOOK (IF REQUIRED). FREQUENCY FOR GUARDS SHALL BE 50' IN STRAIGHT ALIGNMENTS AND 25' ON HORIZONTAL OR VERTICAL CURVES, UNLESS OTHERWISE REQUESTED BY CONTRACTOR. PINK IS THE ONLY ACCEPTABLE FLAG COLOR.



NOTE:
 STANDARD SURVEY MONUMENT BOXES SHALL BE PLACED AT THE < OF ALL STREET INTERSECTIONS, P.C.H.C., P.C.C.H.C., P.R.C.H.C., P.T.H.C., AND SECTION LINES AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.



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STANDARD LOW FLOW LINER

NO SCALE

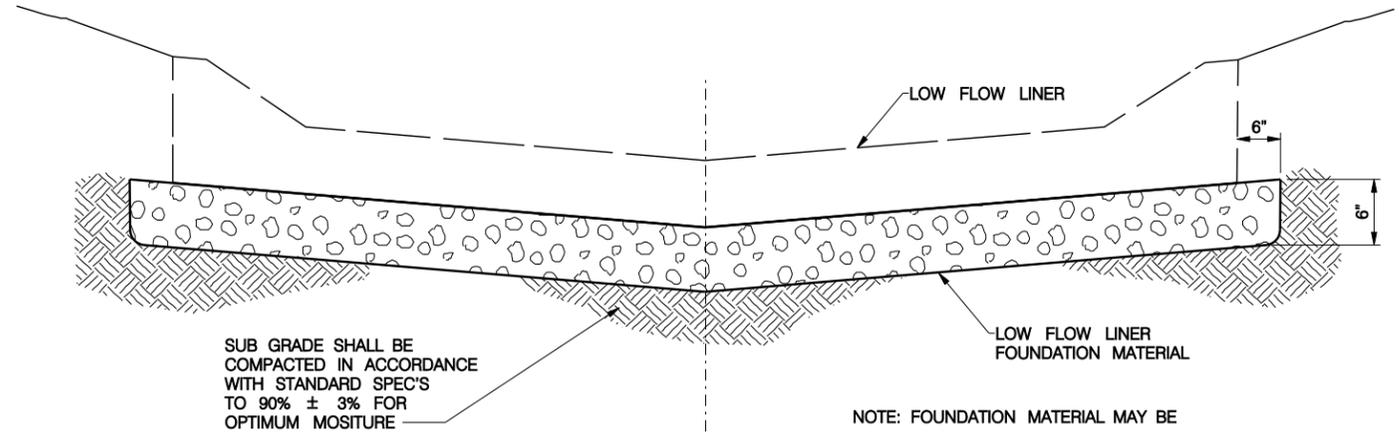
NOTE:

1" PREFORMED EXPANSION JOINT SEALED WITH 1" OF JOINT FILLING FILLER (HOT POURED TYPE) SHALL BE INSTALLED @ INTERVALS OF 80' MAXIMUM.

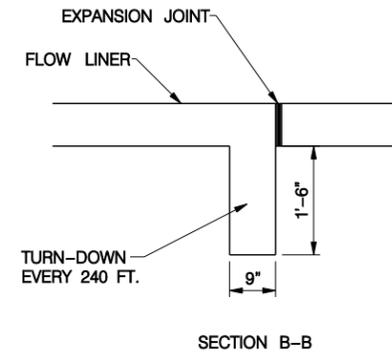
CONTRACTION JOINT SPACING SHALL BE 10' MAXIMUM. ALL CONCRETE SHALL BE L3500.

ALL WELDED STEEL WIRE FABRIC SHALL CONFORM TO A.S.T.M. DESIGNATION A-185.

CHAMFER ALL EXPOSED EDGES 1/2".

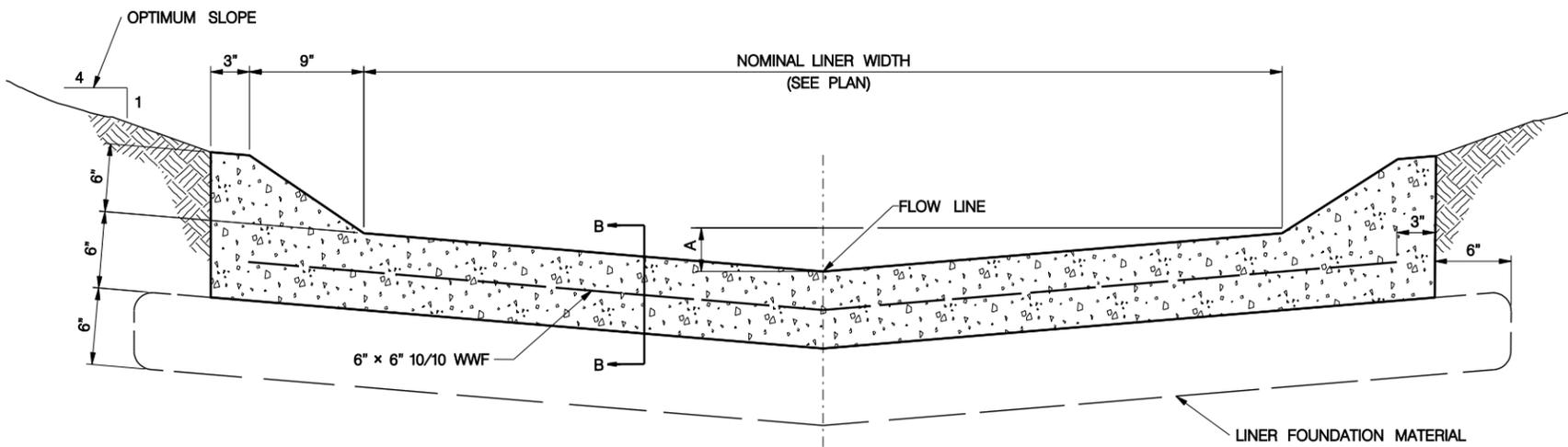


STANDARD TEMPLATE FOR LINER FOUNDATION 3' OR LESS



SECTION B-B

| MATERIAL REQUIREMENTS FOR LINER AND FOUNDATION | | | |
|--|----|------------------------|-------------------------------------|
| (QUANTITIES/LINEAL FEET) | | | |
| SIZE | A | CONCRETE (CUBIC YARDS) | FOUNDATION (CUBIC YARDS) (6" THICK) |
| 2' | | .10 | .09 |
| 2.5' | | .11 | .10 |
| 3' | | .12 | .11 |
| 3.5' | 2" | .125 | .12 |
| 4' | 2" | .13 | .13 |
| 4.5' | 2" | .14 | .14 |
| 5' | 2" | .15 | .15 |
| 5.5' | 3" | .16 | .16 |
| 6' | 3" | .17 | .17 |
| 6.5' | 3" | .18 | .18 |
| 7' | 3" | .19 | .185 |
| 7.5' | 4" | .20 | .19 |
| 8' | 4" | .21 | .20 |
| 8.5' | 4" | .22 | .21 |
| 9' | 4" | .23 | .22 |
| 9.5' | 4" | .24 | .23 |
| 10' | 4" | .245 | .24 |



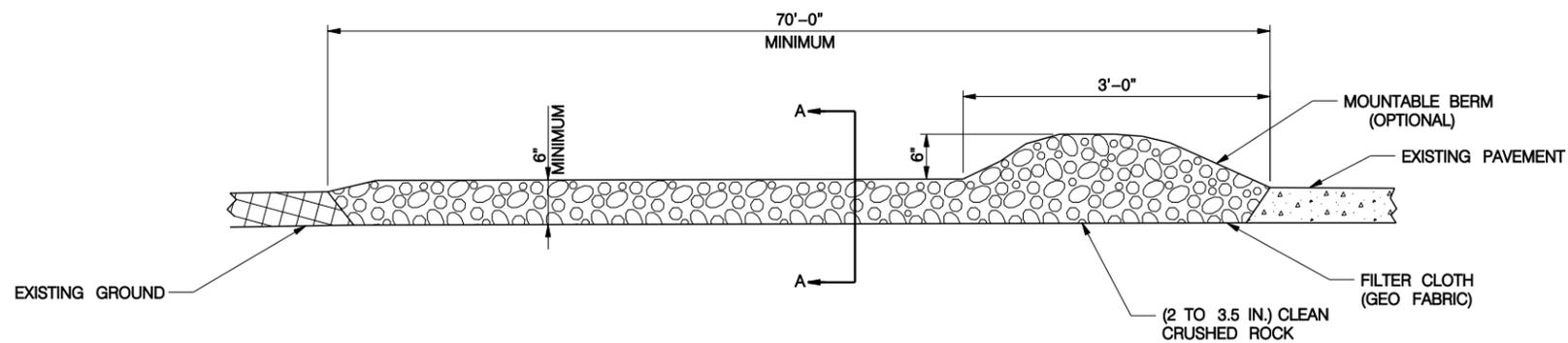
STANDARD LOW FLOW LINER 3.5' OR GREATER



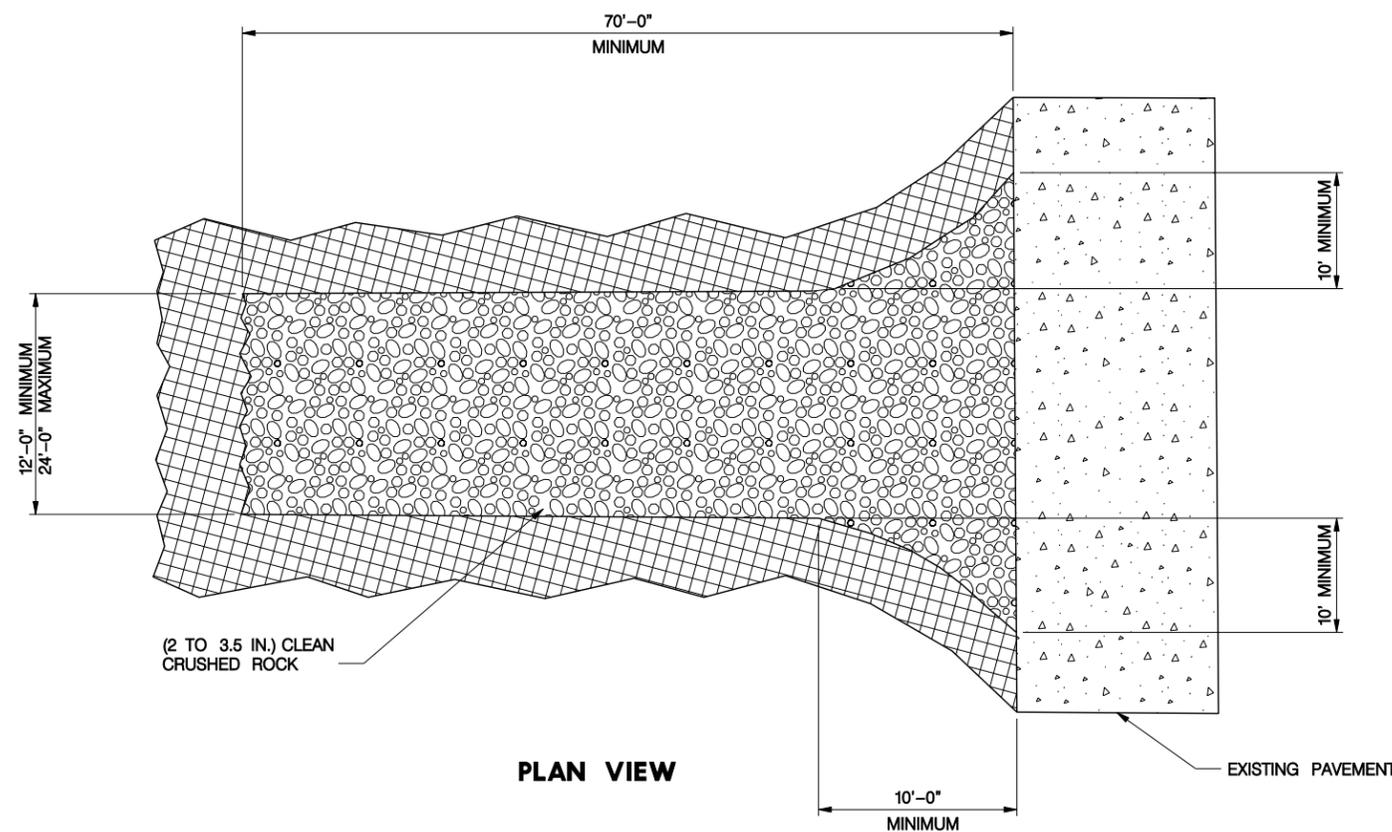
LOW FLOW LINER L.S.P. 170

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 DATE: 9/27/2011
 DGN: ..\STANDARD\Curent\Nsp176.dgn

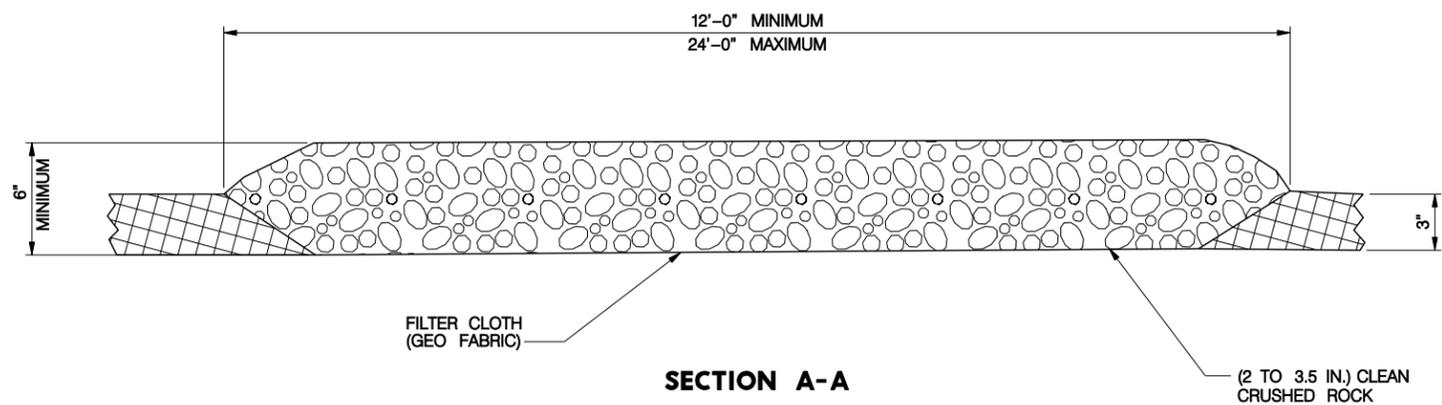
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| PROJECT NO. SHEET NO. | |
| LSP 176 | 1 |
| Date: 01/14/2010 | Drawn: GLL/CAW |
| | Checked: Approved: |



SIDE VIEW



PLAN VIEW



SECTION A-A

NOTE:

* MUST EXTEND THE FULL WIDTH AND LENGTH OF THE CONSTRUCTION ENTRANCE

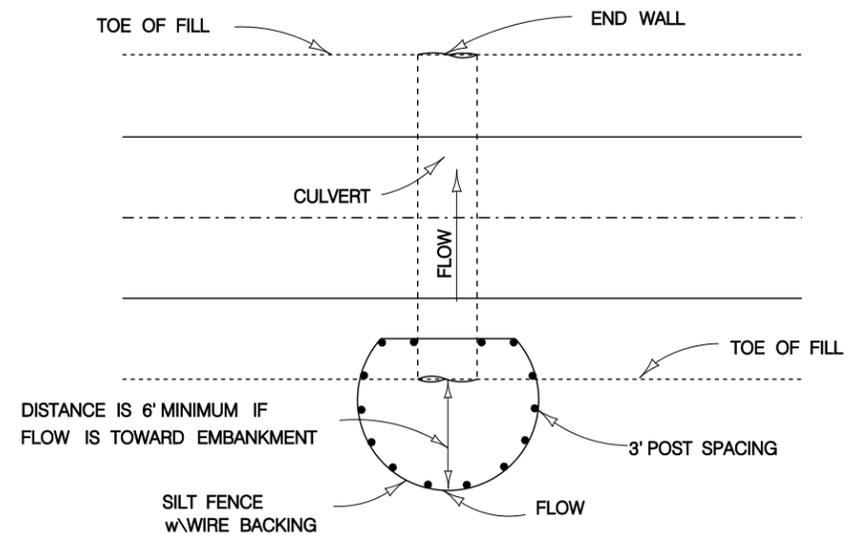
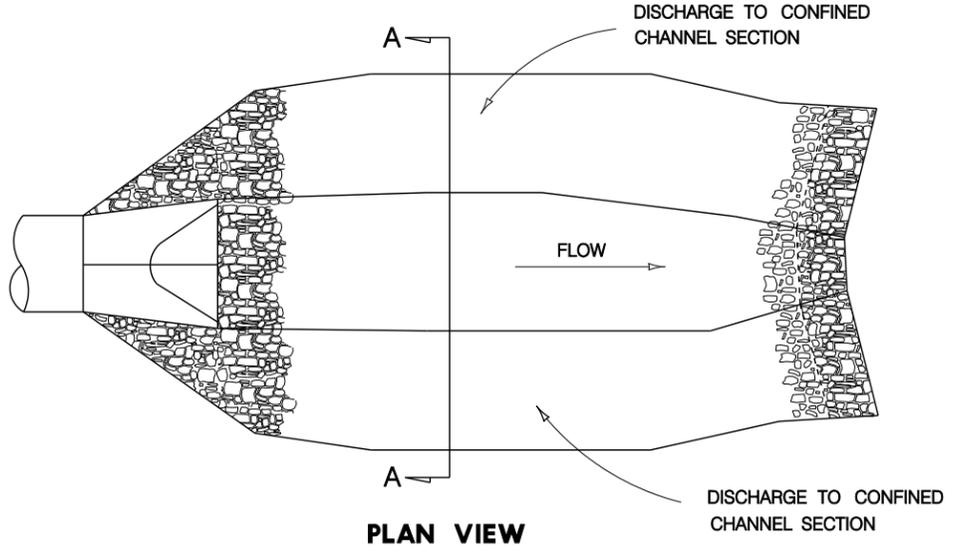
THE 24'-0" WIDTH IS REQUIRED WHEN THE INGRESS AND THE EGRESS ARE THE SAME

REFER TO CHAPTER 8 AND 9 OF THE CITY OF LINCOLN DRAINAGE CRITERIA MANUAL FOR MORE INFORMATION OF SEDIMENT AND EROSION CONTROL MEASURES

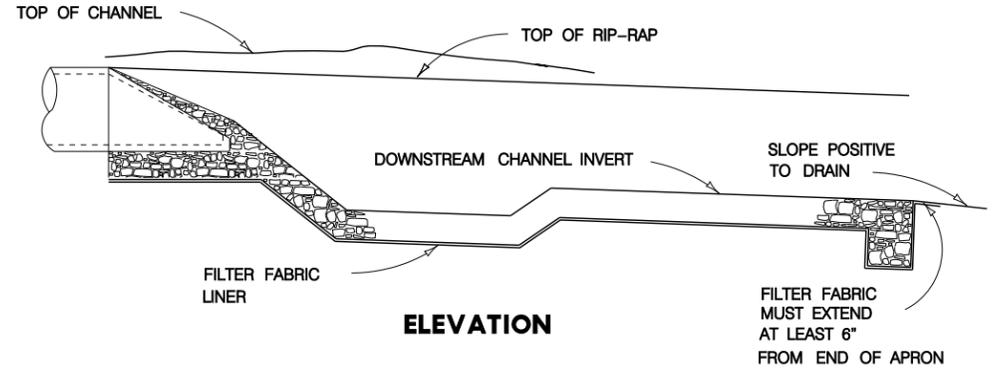


**CONSTRUCTION ENTRANCE
L.S.P. 176**

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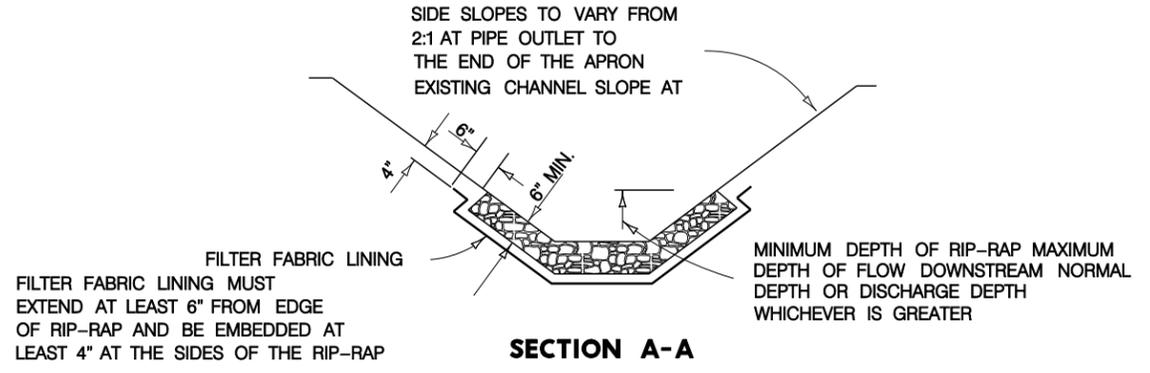
SILT FENCE INLET PROTECTION



* OUTLET PROTECTION ACCORDING TO CHAPTER 7 OF THE DRAINAGE CRITERIA MANUAL

| NDOR DESIGNATION | ROCK SIZE D50 | ROCK SIZE Dmax | 100% of Rock Sizes Passing | 50% of Rock Sizes Passing | Rock Sizes No More Than 10% Less Than |
|------------------|---------------|----------------|-------------------------------|---------------------------|---------------------------------------|
| Type A | 0.77 ft | 1.28 ft | 154.3 Lbs. | 33.0 Lbs. | 2.2 Lbs. |
| Type B | 1.02 ft | 1.61 ft | 308.6 Lbs. | 77.2 Lbs. | 4.4 Lbs. |
| Type C | 1.28 ft | 2.12 ft | 694.4 Lbs. | 154.3 Lbs. | 11.0 Lbs. |
| Broken Concrete | 1.10 ft | 1.88 ft | Weight approx 100 lbs/cu. ft. | | |

1. LIMESTONE, QUARTZITE OR OTHER HARD STONE CLEAN OF DEBRIS
2. ROCK SHALL HAVE A DENSITY OF AT LEAST 140 LB / CF
3. EACH PIECE SHALL HAVE NO DIMENSION GREATER THAN 3 TIMES ITS LEAST DIMENSION
4. ROCK SIZE TO BE CHOSEN BY EVALUATING THE APPROPRIATE OUTLET PARAMETERS
5. BROKEN CONCRETE MUST BE CLEAN OF DEBRIS AND CONTAIN NO ASPHALT



FILTER FABRIC LINING MUST EXTEND AT LEAST 6" FROM EDGE OF RIP-RAP AND BE EMBEDDED AT LEAST 4" AT THE SIDES OF THE RIP-RAP

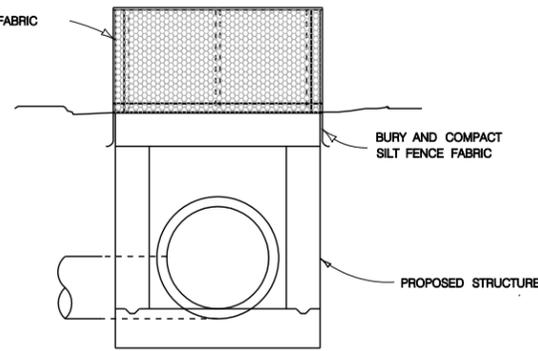
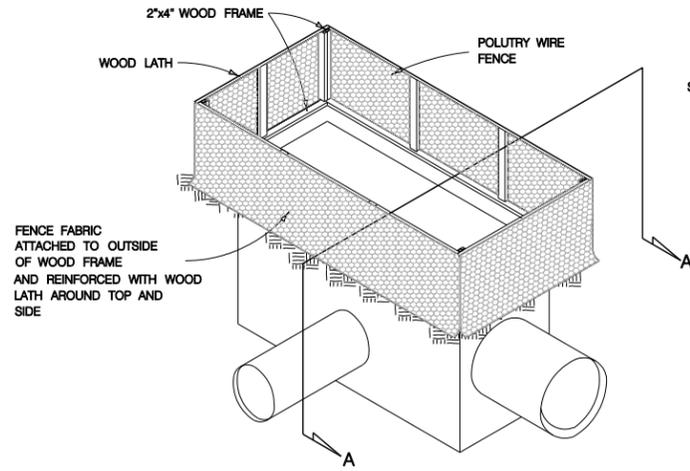
NOTE:
 FILTER CLOTH SHALL BE GEOTEXTILE, CLASS C

NOTE:
 REFER TO CHAPTER 8 AND 9 OF THE CITY OF LINCOLN DRAINAGE CRITERIA MANUAL FOR MORE INFORMATION ON SEDIMENT AND EROSION CONTROL MEASURES

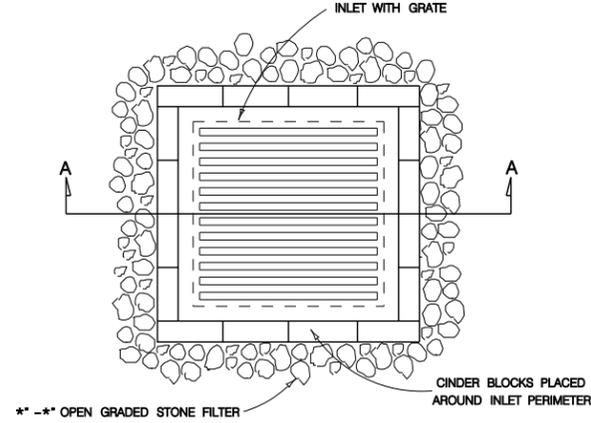


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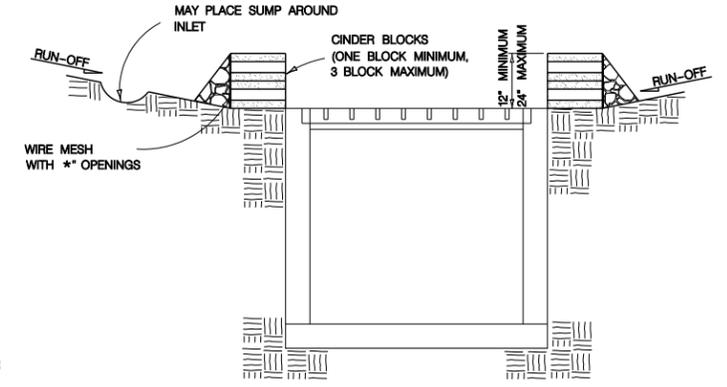
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SECTION A-A

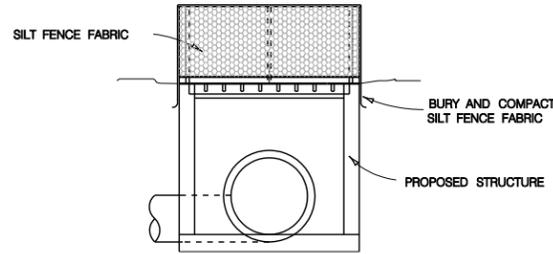
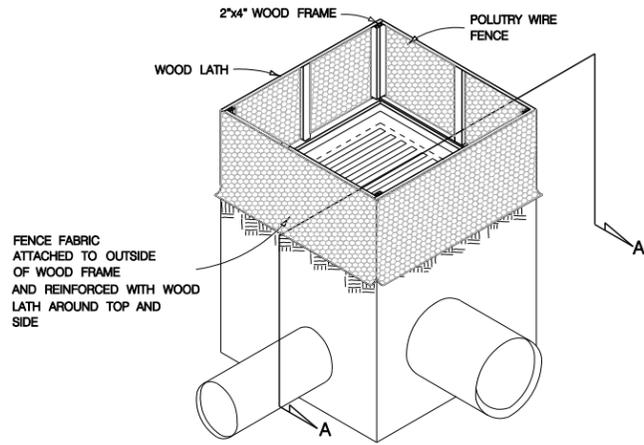


PLAN VIEW

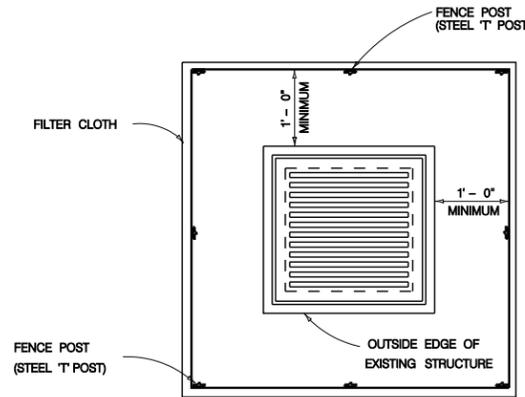


SECTION A-A

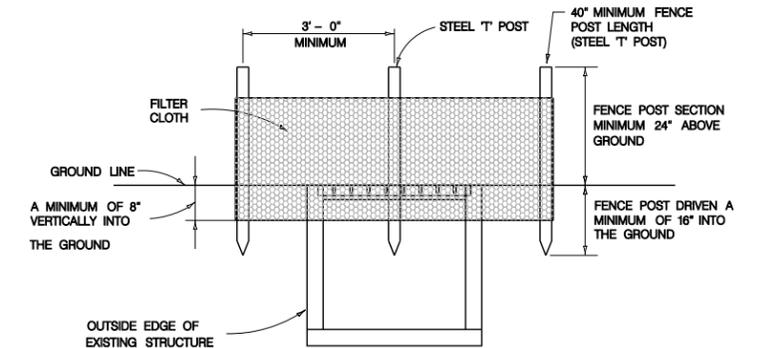
INLET PROTECTION TYPE II



SECTION A-A

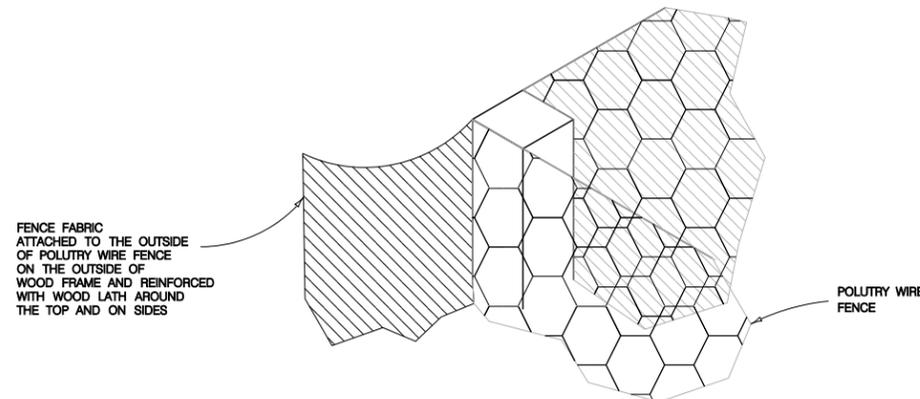


PLAN VIEW



SIDE VIEW

INLET PROTECTION TYPE III



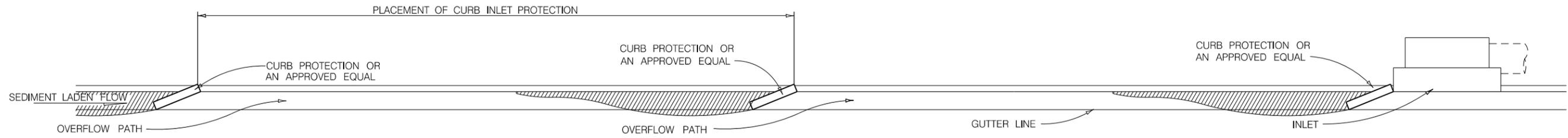
FENCE FABRIC DETAIL

NOTE:
 REFER TO CHAPTER 8 AND 9 OF THE CITY OF LINCOLN DRAINAGE CRITERIA MANUAL FOR MORE INFORMATION ON SEDIMENT AND EROSION CONTROL MEASURES



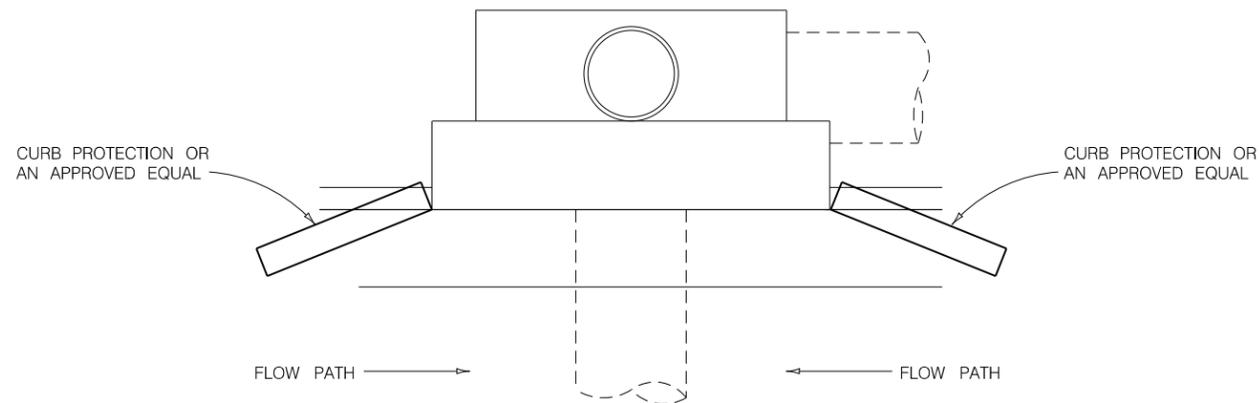
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 DGN: ..\STANDARD\2016\lsp178s2.dgn



DETAIL OF
**SEDIMENT BARRIERS
 FOR LINEAR PROJECTS
 TYPE I**
 (TO BE USED ON STREETS
 NOT OPEN TO TRAFFIC)

| PLACEMENT | |
|--------------|---------|
| STREET GRADE | PLACING |
| .5 | 100' |
| 1.0 | 50' |
| 2.0 | 25' |
| 3.0 | 16' |
| 4.0 | 13' |
| 5.0 | 10' |



DETAIL OF
**SUMP CURB INLET PROTECTION
 TYPE 2**
 (TO BE USED ON STREETS
 NOT OPEN TO TRAFFIC)

GENERAL NOTE

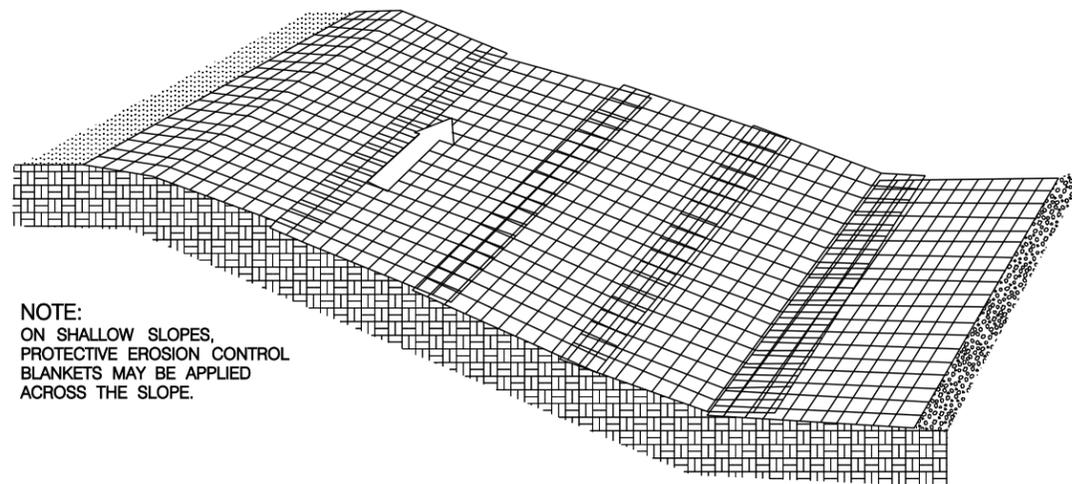
- DO NOT BLOCK INLET THROAT.
- DO NOT USE BARRIERS AS THE ONLY SEDIMENT CONTROL MEASURES. INLET PROTECTION IS ONLY EFFECTIVE WHEN USED IN CONJUNCTION WITH OTHER UPSTREAM EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES. INLET BARRIER PROTECTION SHOULD BE A LAST LINE OF DEFENSE FOR SEDIMENT CAPTURE.
- INSPECT WEEKLY AND AFTER EACH RAIN FALL EVENT.
- REMOVE SEDIMENT WHEN HALF FULL (1/2 WAY UP SEDIMENT BARRIER)
- IN SUMP LOCATIONS INLET PROTECTION WILL BE PLACED AS DIRECTED BY THE ENGINEER
- DO NOT USE IF STREET IS OPEN TO PUBLIC TRAFFIC. INTENDED FOR GENERAL USE AFTER PAVING AND BEFORE OPEN TO PUBLIC TRAFFIC.



EFFECTIVE DATE FEBRUARY 4, 2016

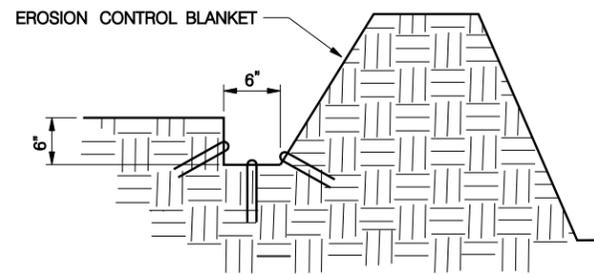
INLET PROTECTION

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USER: elocaw
DATE: 9/27/2011
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NOTE:
ON SHALLOW SLOPES,
PROTECTIVE EROSION CONTROL
BLANKETS MAY BE APPLIED
ACROSS THE SLOPE.

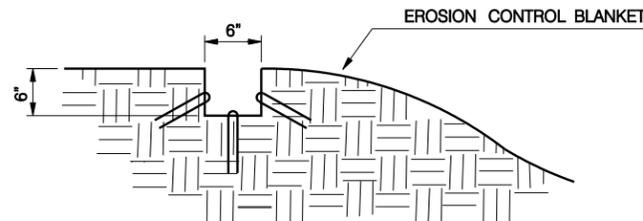
SHALLOW SLOPE APPLICATION



DETAIL OF
BERM

NOTE:
WHERE THERE IS A BERM AT THE TOP OF THE SLOPE, INSTALL THE
MATERIAL OVER THE BERM AND ANCHOR IT BEHIND THE BERM.

THE MATERIAL SHALL BE INSTALLED DOWN THE SLOPE TO A LEVEL
AREA BEFORE TERMINATING.



DETAIL OF
TOP OF SLOPE

SITE PREPARATION

AFTER THE SITE HAS BEEN GRADED AND SHAPED, PREPARE A SEED BED RELATIVELY FREE FROM CLODS AND ROCKS MORE THAN 1 1/2 INCHES IN DIAMETER AND ANY FOREIGN MATERIAL THAT WILL PREVENT UNIFORM CONTACT OF THE PROTECTIVE COVERING WITH THE SOIL SURFACE.

PLANTING

FERTILIZE AND SEED IN ACCORDANCE WITH THE SEEDING OR PLANTING PLAN. WHEN USING JUTE MESH ON A SEEDED AREA, APPLY APPROXIMATELY ONE HALF THE SEED AFTER LAYING THE MAT. THE PROTECTIVE COVERING CAN BE LAID OVER AREAS WHERE SMALL GRASS PLANTS HAVE BEEN INSERTED INTO THE SOIL WHERE GROUND COVERS ARE TO BE PLANTED. LAY THE PROTECTIVE COVERING FIRST AND THEN PLANT THROUGH THE MATERIAL AS PER PLANTING PLAN.

INSTALLATION:

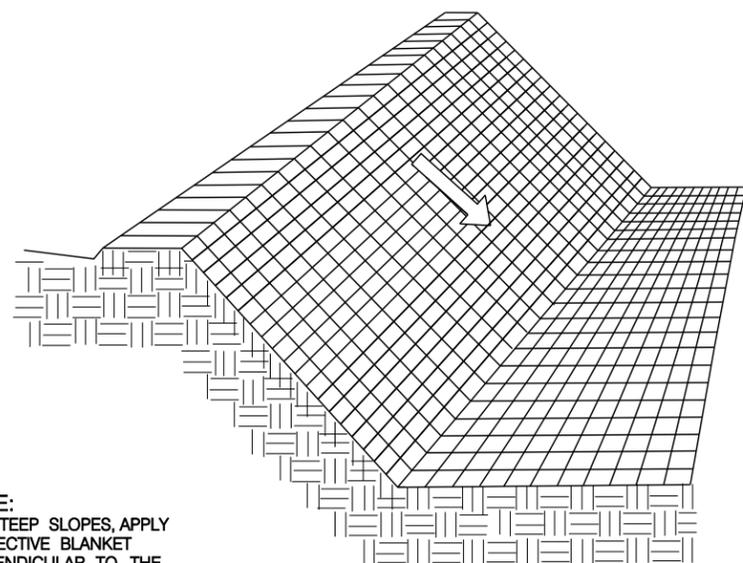
1. START LAYING THE PROTECTIVE COVERING FROM THE TOP OF THE CHANNEL OR SLOPE AND UNROLL DOWN HILL. ALLOW TO LAY LOOSELY ON SOIL DO NOT STRETCH!
2. UP SLOPE ENDS OF THE BLANKET SHOULD BE BURIED IN AN ANCHOR SLOT NO LESS THAN 6 INCHES DEEP. TAMP EARTH
3. EXTEND BLANKET ABOUT 40 INCHES OVER THE TOP OF SLOPE WHEN MATERIAL IS RELATIVELY FLAT. STAPLE MATERIAL AT A MINIMUM OF EVERY 12 INCHES ACROSS THE TOP.
4. EDGES OF THE MATERIAL SHALL BE STAPLED EVERY 3 FT. WHERE MULTIPLE WIDTHS ARE LAID SIDE BY SIDE. THE ADJACENT EDGE SHALL BE OVERLAPPED A MINIMUM OF 6 INCHES AND STAPLED TOGETHER.
5. STAPLE PATTERNS VARY REFER TO CITY ENGINEER SPECIAL PROVISIONS OR PRODUCT MANUFACTURER FOR APPROPRIATE PATTERN.

MAINTENANCE AND INSPECTION:

INSPECT CONTROLS AFTER EACH RAIN EVENT OF 1/2 INCH OR GREATER, AND EVERY 7 DAYS UNTIL VEGETATION IS ESTABLISHED, FOR EROSION OR UNDERMINING BENEATH THE NETTING BLANKETS, OR MATS. IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE MATERIAL, ADD SOIL, TAMP DOWN, AND RESEED; RE-SECURE THE MATERIAL IN PLACE. IF NETTING, BLANKETS OR MATS BECOME DISLOCATED OR DAMAGED, REPAIR OR REPLACE AND RE-SECURE IMMEDIATELY.

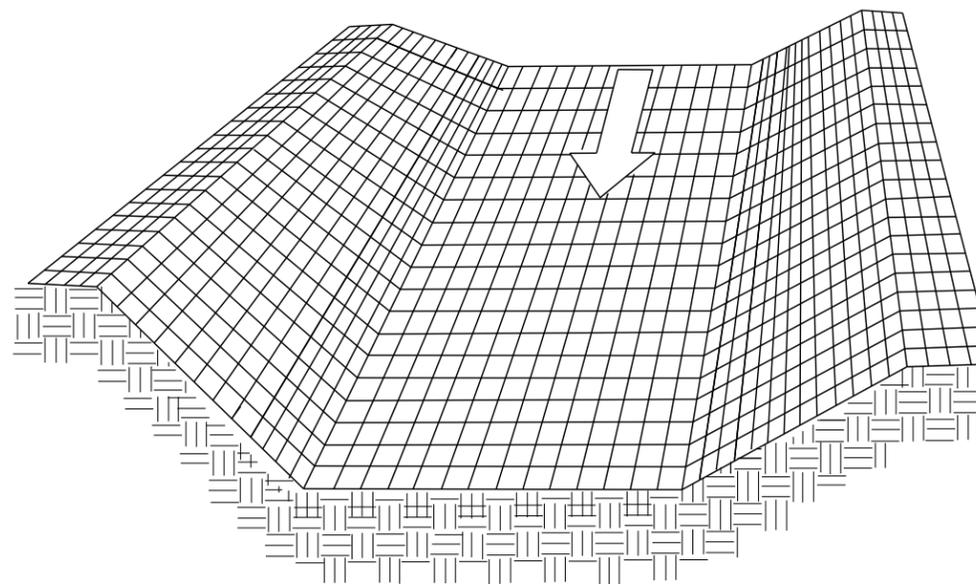
NOTE:

IN DITCHES APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. AVOID JOINING MATERIAL IN THE CENTER OF THE DITCH IF AT ALL POSSIBLE. FOLLOW BLANKET MANUFACTURER'S RECOMMENDATIONS FOR ALLOWABLE VELOCITY AND SHEAR STRESS.



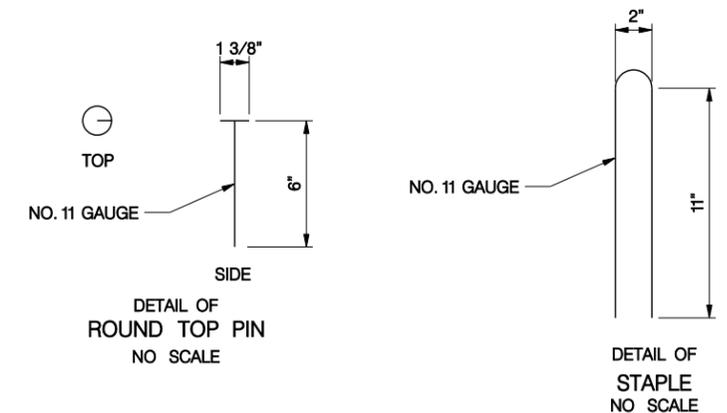
NOTE:
ON STEEP SLOPES, APPLY
PROTECTIVE BLANKET
PERPENDICULAR TO THE
DIRECTION OF FLOW AND
ANCHOR SECURELY

STEEP SLOPE APPLICATION



NOTE:
BRING MATERIAL DOWN TO A LEVEL AREA
BEFORE TERMINATING THE INSTALLATION

DITCH APPLICATION

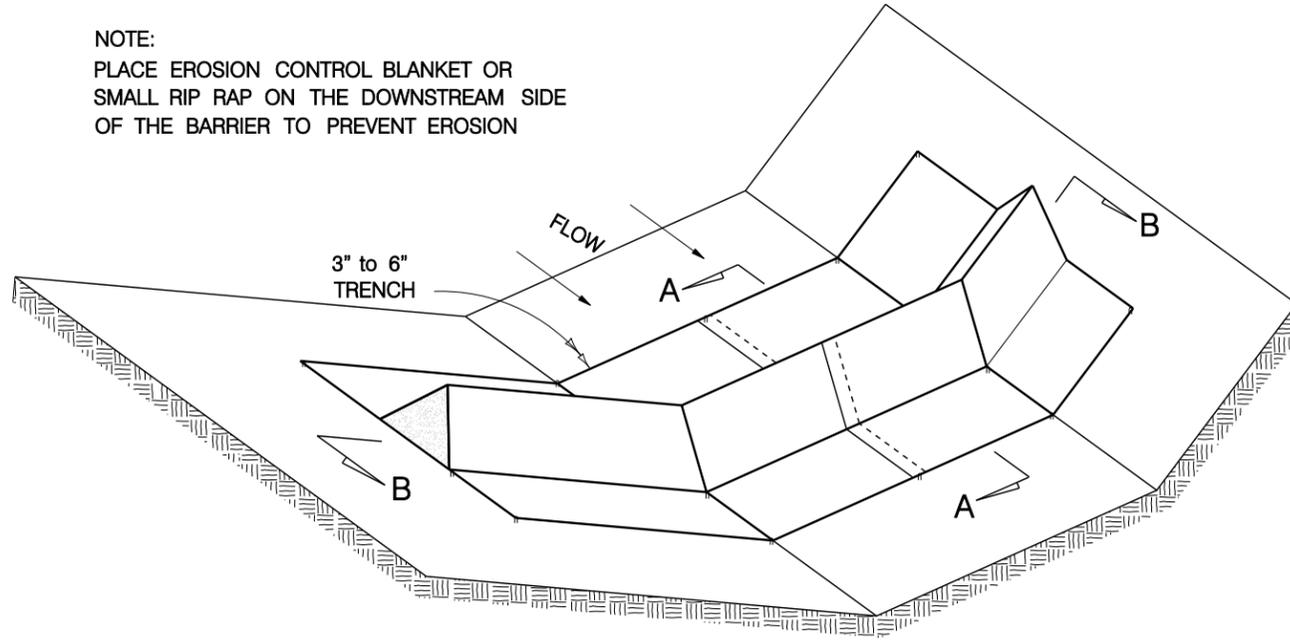


NOTE:
REFER TO CHAPTER 8 AND 9 OF THE CITY OF
LINCOLN DRAINAGE CRITERIA MANUAL FOR MORE
INFORMATION ON SEDIMENT AND EROSION CONTROL
MEASURES

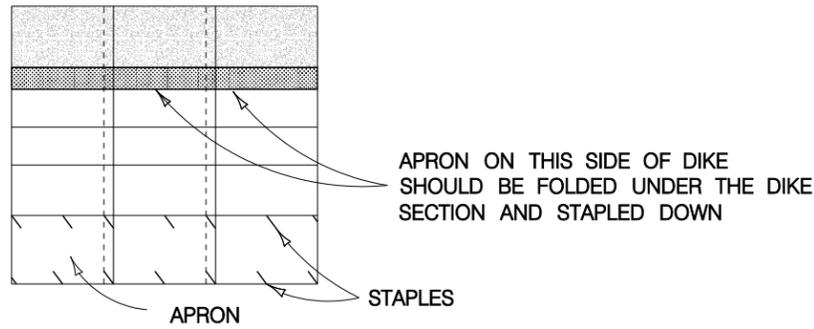


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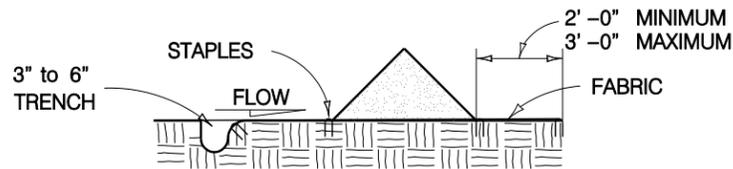
NOTE:
 PLACE EROSION CONTROL BLANKET OR
 SMALL RIP RAP ON THE DOWNSTREAM SIDE
 OF THE BARRIER TO PREVENT EROSION



TRIANGULAR SILT BARRIER

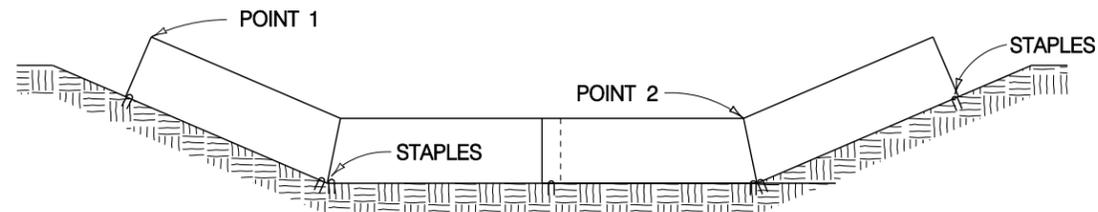


DIKE PLAN VIEW



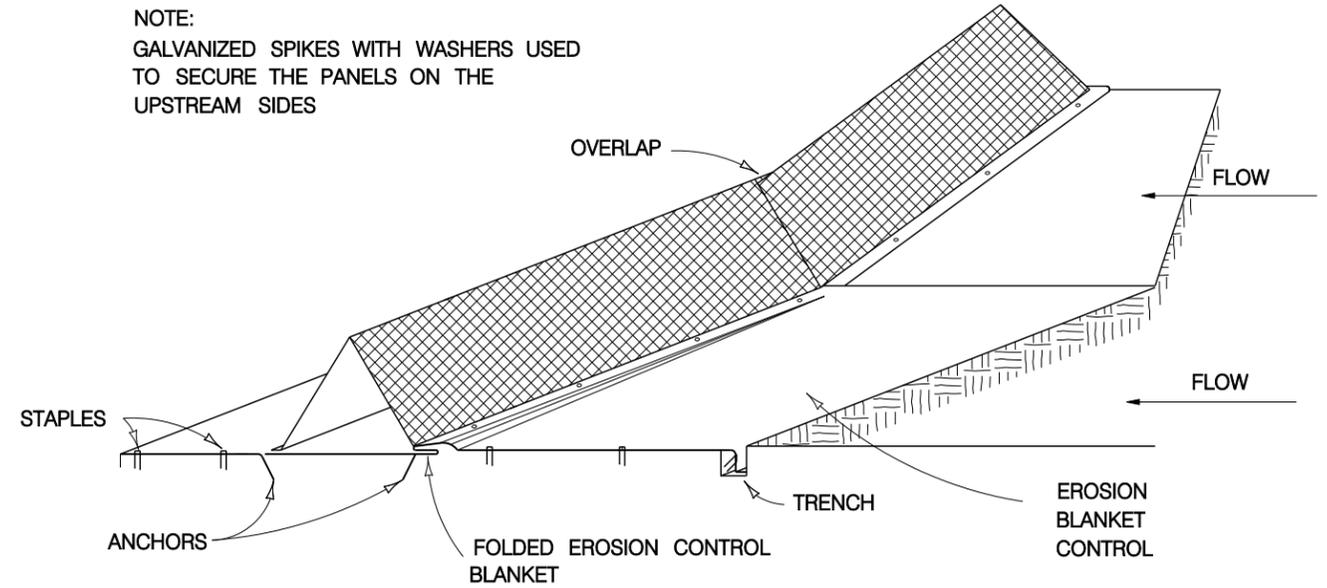
SECTION A - A

NOTE:
 POINT 1 MUST BE HIGHER THAN POINT 2.
 THIS IS TO ENSURE THAT THE WATER
 FLOWS OVER THE DIKE AND NOT AROUND
 THE ENDS.

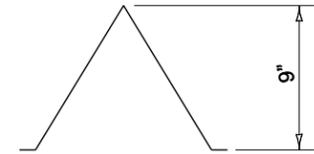


SECTION B-B

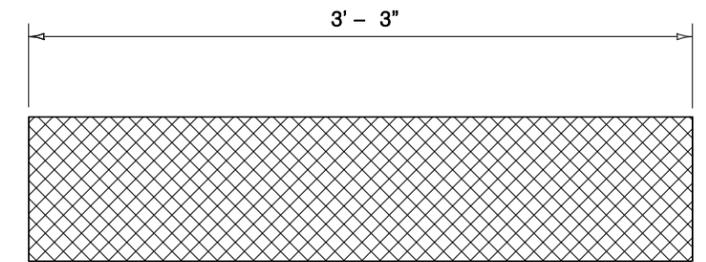
NOTE:
 GALVANIZED SPIKES WITH WASHERS USED
 TO SECURE THE PANELS ON THE
 UPSTREAM SIDES



PERMEABLE A-SHAPED BERM



END VIEW



SIDE VIEW

NOTE:
 SEDIMENT BARRIERS SHOULD BE PLACED PERPENDICULAR
 TO THE FLOWLINE OF THE DITCH

THE SEDIMENT BARRIERS SHOULD EXTEND FAR ENOUGH
 SO THAT THE BOTTOMS OF THE END DIKES ARE HIGHER
 THAN THE TOP OF THE LOWEST DIKE. THIS PREVENTS
 WATER FROM FLOWING AROUND THE SEDIMENT BARRIER.

SEDIMENT BARRIERS SHOULD NOT BE PLACED IN DITCHES
 WHERE HIGH FLOWS ARE EXPECTED.

ROCK CHECKS SHOULD BE USED INSTEAD.

SEDIMENT BARRIERS SHOULD BE PLACED IN DITCHES
 WITH A SLOPE OF 6 PERCENT OR LESS.

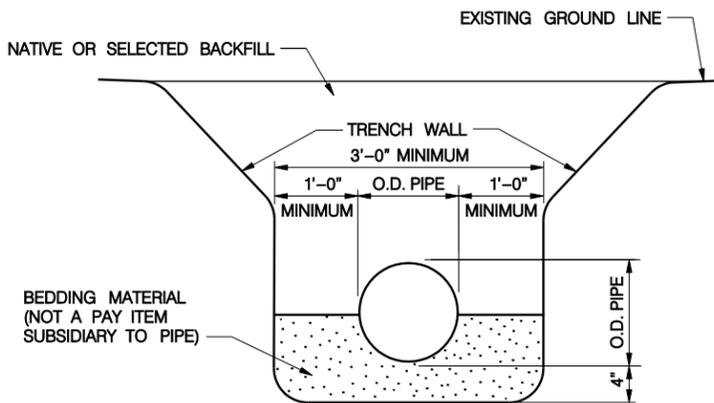
FOR SLOPES STEEPER THAN 6 PERCENT, ROCK
 CHECKS SHOULD BE USED.

| CHECK SPACING | |
|------------------|-----------------|
| PERCENT OF GRADE | SPACING PER FT. |
| 1.0 | 200 |
| 2.0 | 98 |
| 3.0 | 66 |
| 4.0 | 49 |
| 5.0 | 39 |
| 6.0 | 10 |

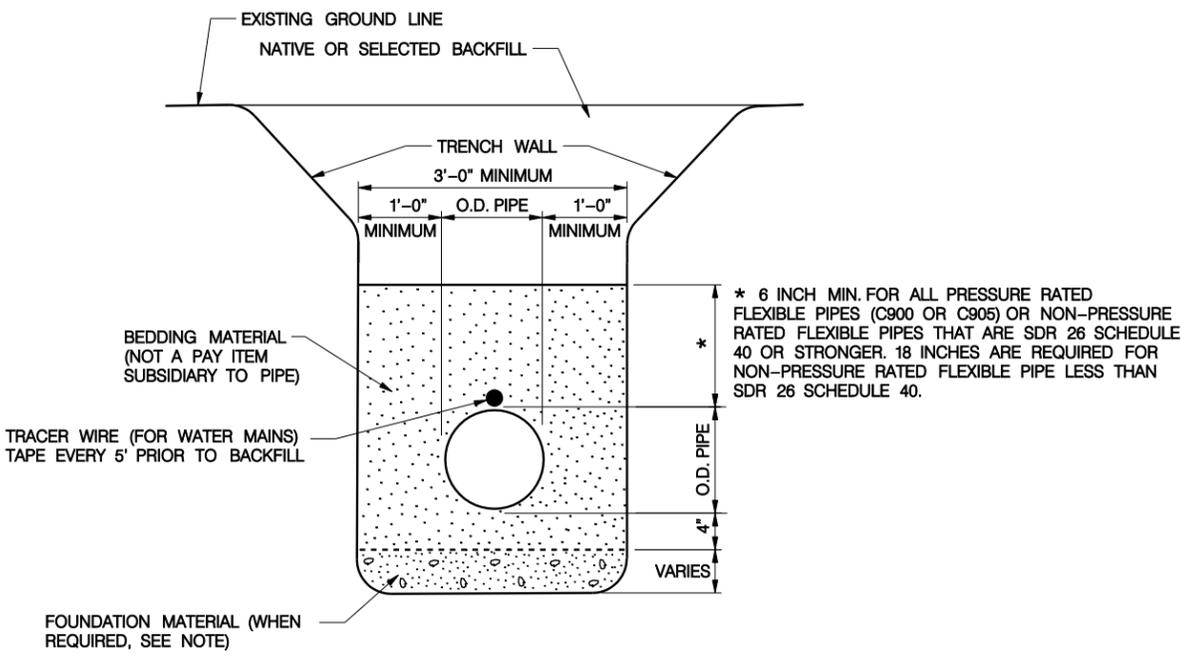
NOTE:
 REFER TO CHAPTER 8 AND 9 OF THE CITY OF LINCOLN
 DRAINAGE CRITERIA MANUAL FOR MORE INFORMATION ON
 SEDIMENT AND EROSION CONTROL MEASURES



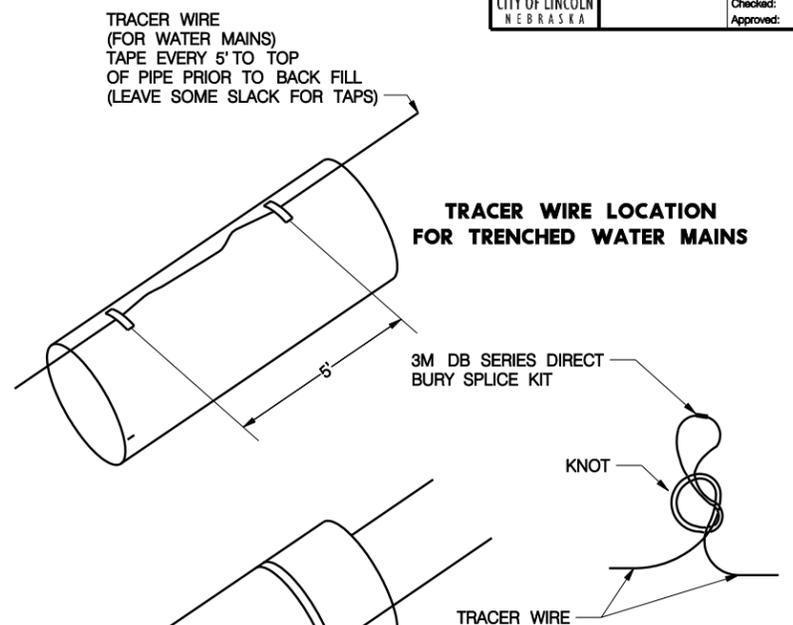
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PIPE BEDDING FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE 15" DIAMETER AND LARGER

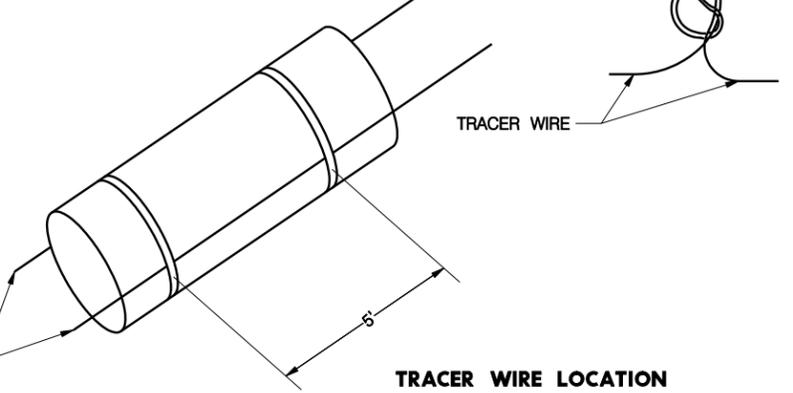


PIPE BEDDING AND FOUNDATION MATERIAL FOR ALL PIPE EXCEPT DUCTILE IRON AND REINFORCED CONCRETE

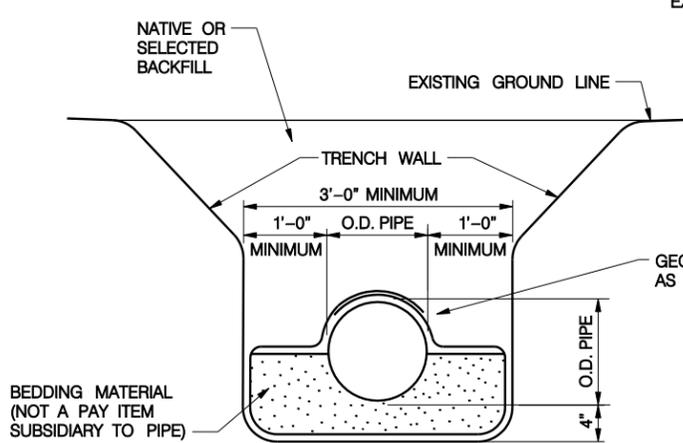


TRACER WIRE LOCATION FOR TRENCHED WATER MAINS

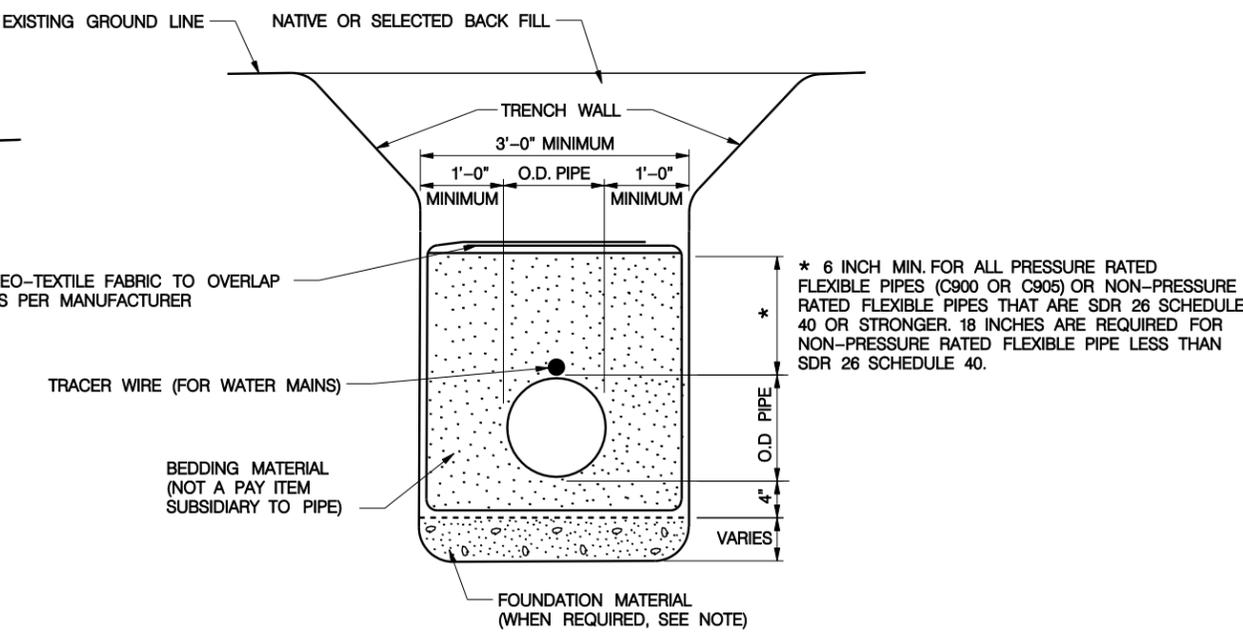
TRACER WIRES ON OPPOSITE SIDES OF THE PIPE (FOR WATER MAINS) TAPE EVERY 5' AROUND THE ENTIRE CIRCUMFERENCE PRIOR TO BACK FILL



TRACER WIRE LOCATION FOR WATER MAIN BORED IN PLACE



PIPE BEDDING FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE 15" DIAMETER AND LARGER WITH GEO-TEXTILE FABRIC



PIPE BEDDING AND FOUNDATION MATERIAL FOR ALL PIPE EXCEPT DUCTILE IRON AND REINFORCED CONCRETE WITH GEO-TEXTILE FABRIC

NOTE:
 WHEN "FOUNDATION MATERIAL" IS REQUIRED/APPROVED BY THE CONTRACT ADMINISTRATOR, IT SHALL BE PAID AT AN AGREED UNIT PRICE OF \$35 PER CUBIC YARD INSTALLED, BASED ON THE INCREASED DIMENSIONS OF THE MATERIAL ADDED TO STABILIZE THE TRENCH BOTTOM.
 WHEN REQUIRED BY THE CITY'S PROJECT MANAGER, WATER SHALL BE ADDED TO THE MATERIAL EXCAVATED FROM THE TRENCH WHEN NECESSARY TO MEET SPECIFICATIONS, DURING COMPACTION, AT THE AGREED UNIT PRICE OF \$50 PER 100 CUBIC FEET OF WATER APPLIED TO COMPLETE THE COMPACTION.
 WIRE SPLICES SHALL BE 3M DBR CONNECTORS, SEALED WITH SILICONE SEALANT, OR EQUAL AND COVERED WITH SCOTCH #33 ELECTRICAL TAPE.



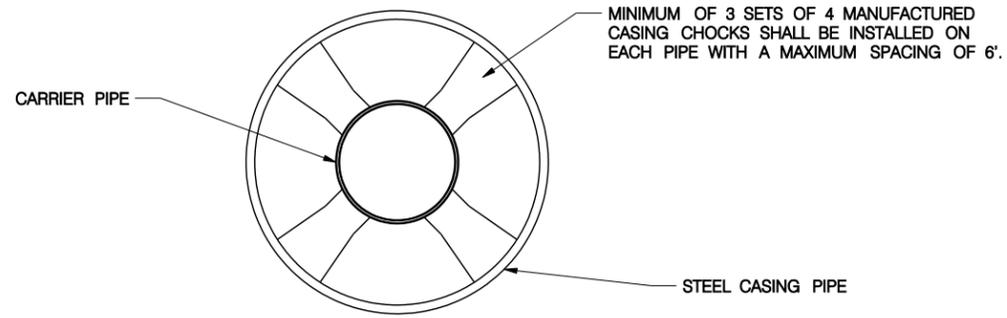
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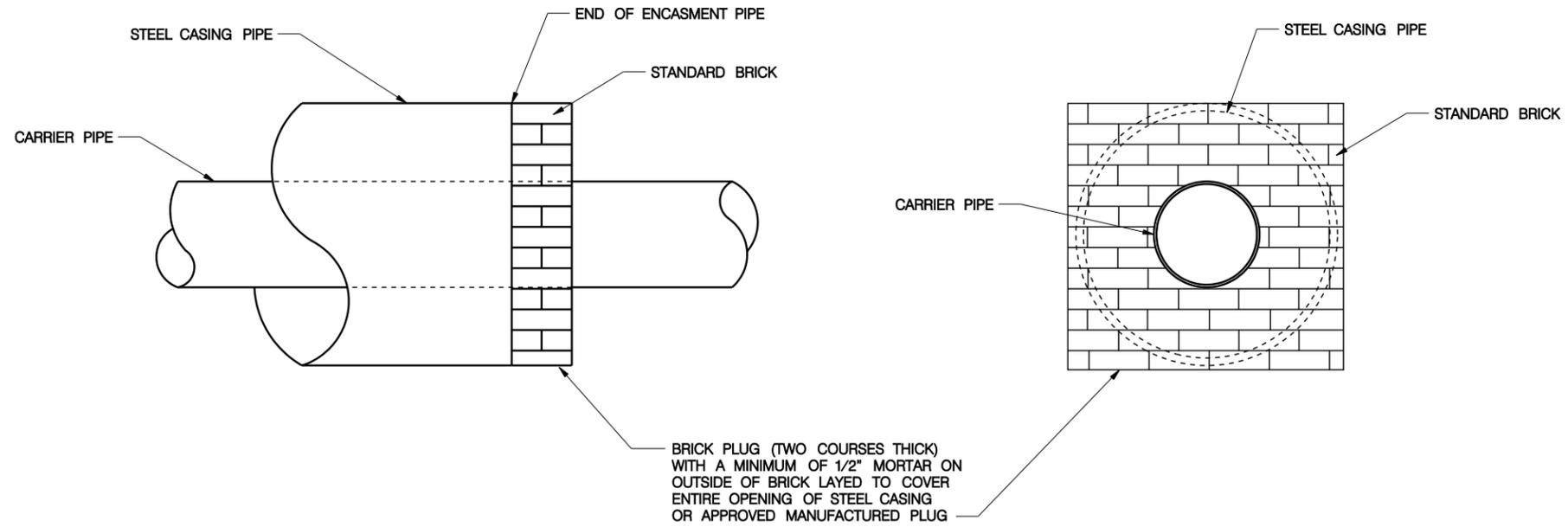


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| PROJECT NO. | SHEET NO. |
| LSP 190 | 1 |
| Date: 02/26/2010 | Drawn: CAW |
| | Checked: |
| | Approved: |

LSP 190



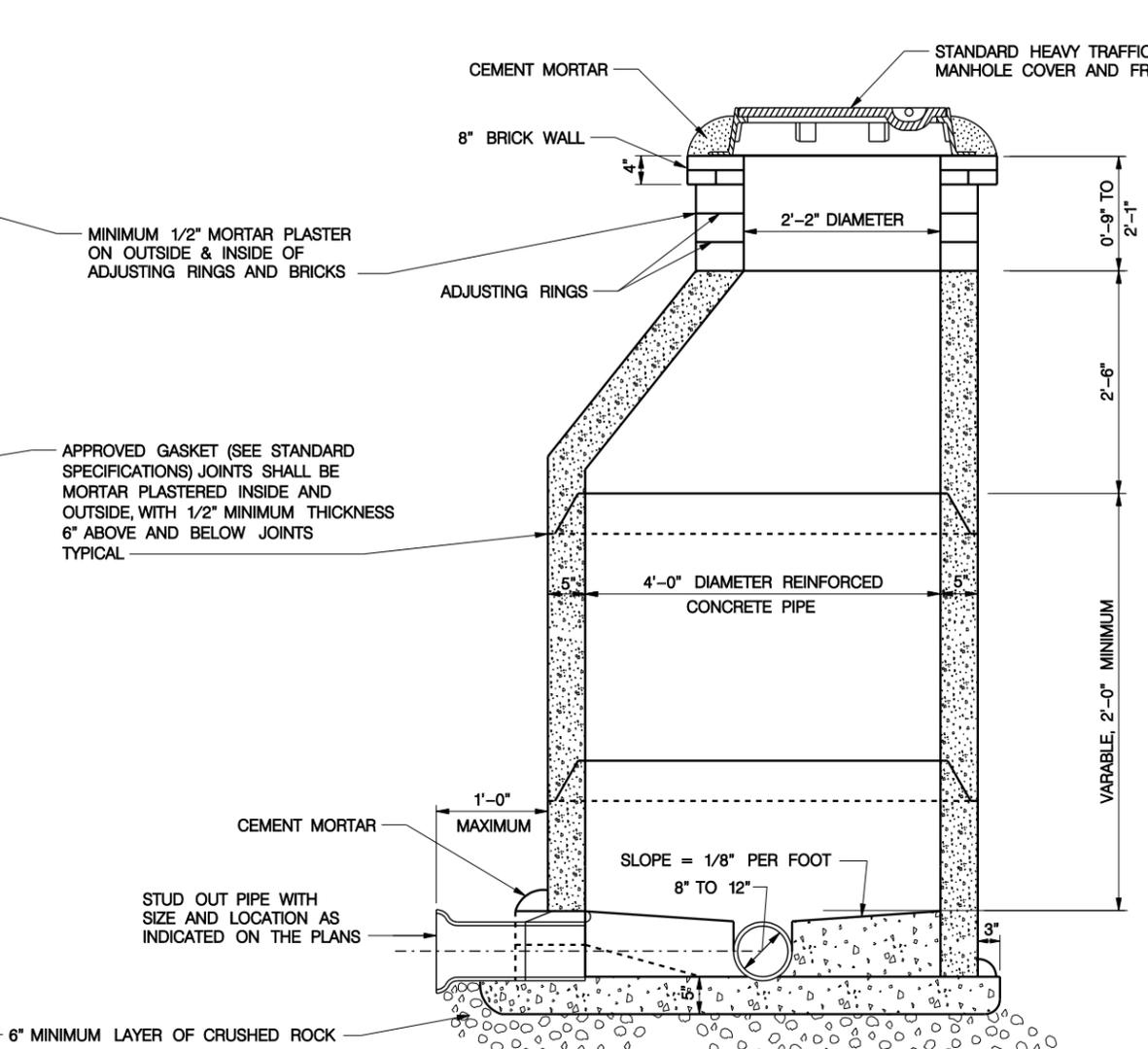
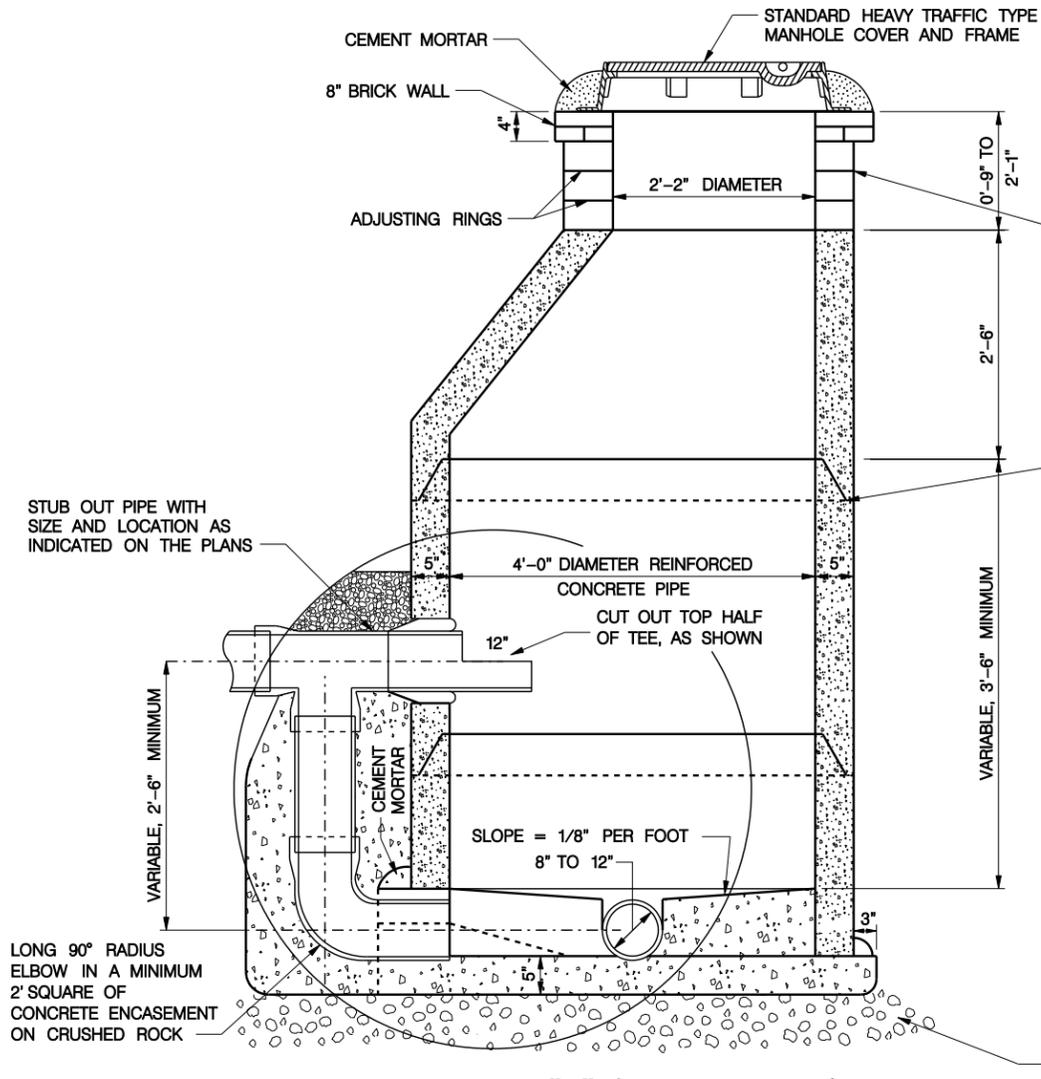
ENCASEMENT WITH CASING CHOCKS



BRICK ENCASEMENT PLUGS



PROJ: 70028 OLD AS OF 070610.dwg
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 DATE: 9/27/2011
 DGN: ...STANDARD_Current\Nsp200.dgn



GENERAL NOTES:

MANHOLES MAY BE CONSTRUCTED OF BRICK OR CONCRETE.

ALL MANHOLES ARE TO BE CONSTRUCTED CIRCULAR IN PLAN SIMILAR TO DRAWING.

CONCRETE IN MANHOLE SHALL BE L3500, VIBRATED IN PLACE.

ALL JOINTS ON BRICK MANHOLES SHALL BE SHAVED, CAREFULLY STRUCK WHEN LAID, THE OUTSIDE SHALL BE FILLED WITH MORTAR, FLUSH WITH THE OUTSIDE OF THE BRICK.

BRICK MANHOLES SHALL BE FINISHED WITH ONE HALF INCH PLASTER COAT ON THE OUTSIDE & INSIDE COMPOSED OF CEMENT MORTAR, ONE PART PORTLAND CEMENT AND THREE PARTS SAND BY VOLUME.

THE CAST IRON MANHOLE RING SHALL SET IN A BED OF MORTAR, AND CAREFULLY ADJUST TO PROPOSED GRADE.

MANHOLE RING AND COVER SHALL BE CITY OF LINCOLN HEAVY TRAFFIC TYPE (SEE L.S.P. 162)

MANHOLE FLOOR SHALL BE FINISHED TO A SMOOTH SURFACE.

PLACE VERTICAL SIDE OF TAPER SECTION FARTHEST FROM BACK OF CURB.

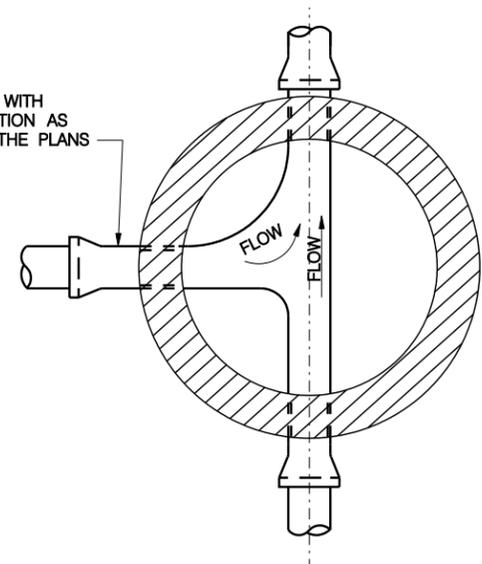
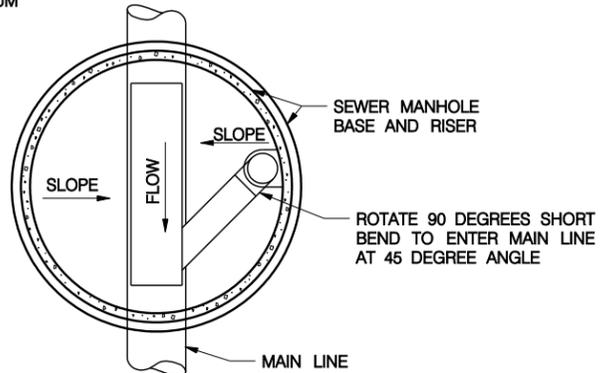
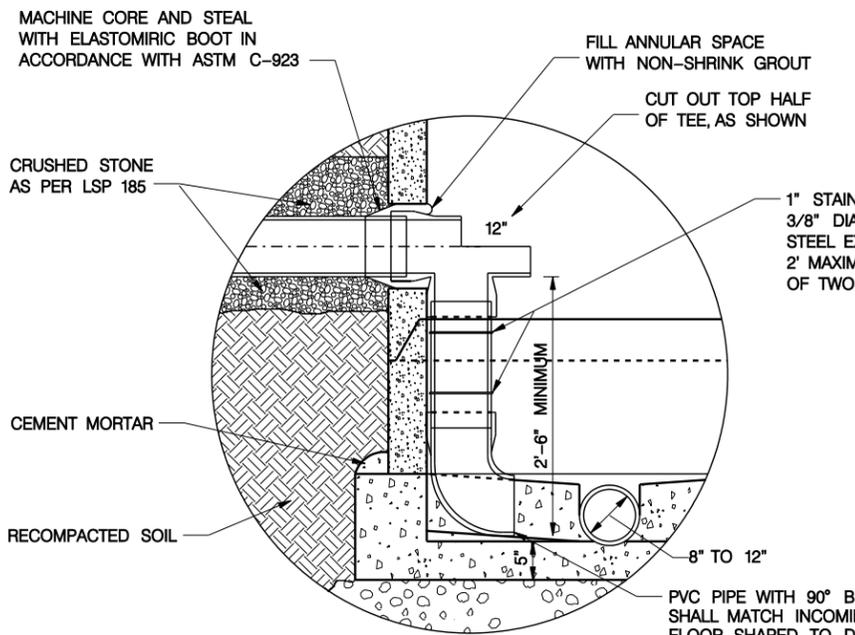
PIPE MATERIAL FOR INSIDE DROP SHALL BE PVC (ASTM D3034, TYPE PSM SDR-35) TO MATCH LATERAL SIZE.

PIPE FITTINGS SHALL BE SOLVENT WELDED.

IN THE EVENT AN INSIDE DROP IS ADDED TO AN EXISTING MANHOLE, THE NEW DROP SHALL BE ON TOP OF THE FLOOR AND SPECIAL PERMISSION MUST BE OBTAINED FROM WASTEWATER IF THE BARREL IS LESS THAN 5' DIAMETER.

TYPE "R" (OUTSIDE DROP)

TYPE "S" (LINE)



TYPE "R" (INSIDE DROP 12" PIPE OR LESS)
 INSIDE DROP ALLOWED ON NEW CONSTRUCTION ONLY, WHEN THE EXISTING BARREL IS 5' DIAMETER OR MORE

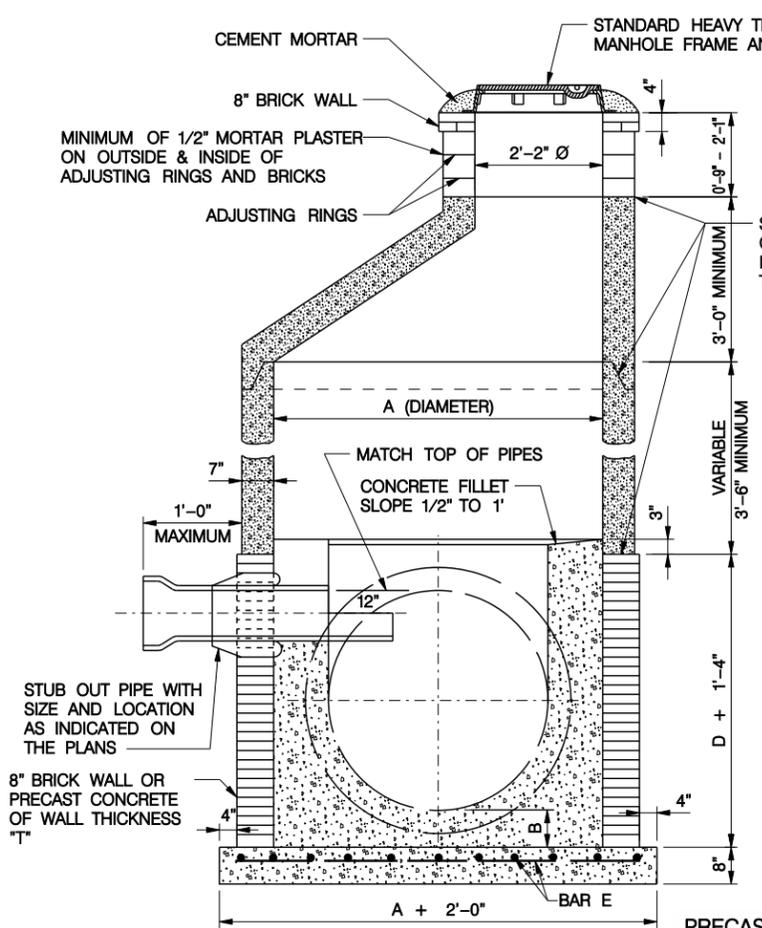
TYPE "R" INSIDE DROP PLAN (12" PIPE OR LESS)

TYPICAL SECTION MANHOLE INVERT

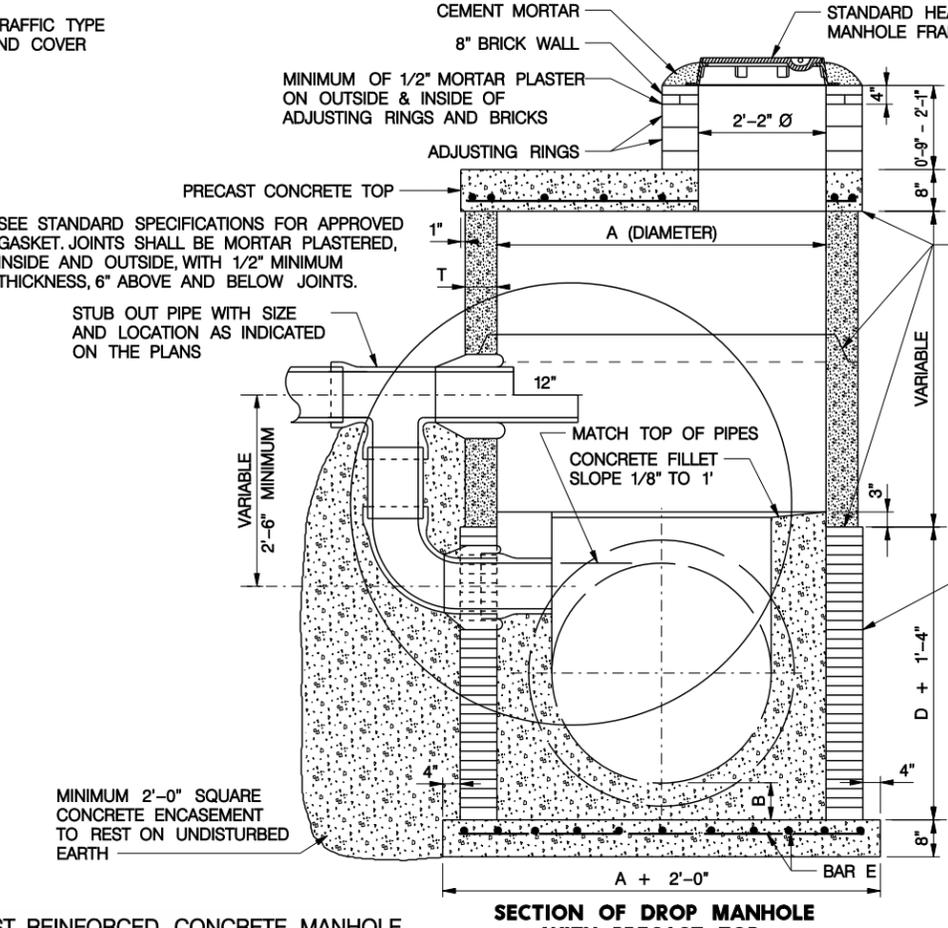


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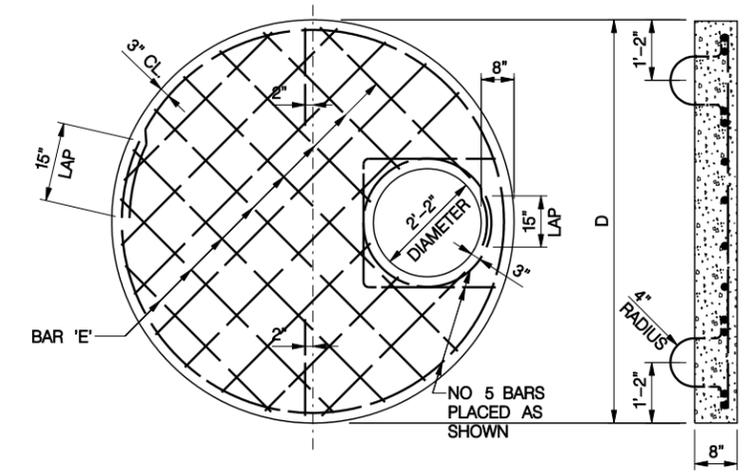
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 USER: elocaw
 DATE: 9/27/2011
 DGN: ..STANDARD Current\lsp201.dgn



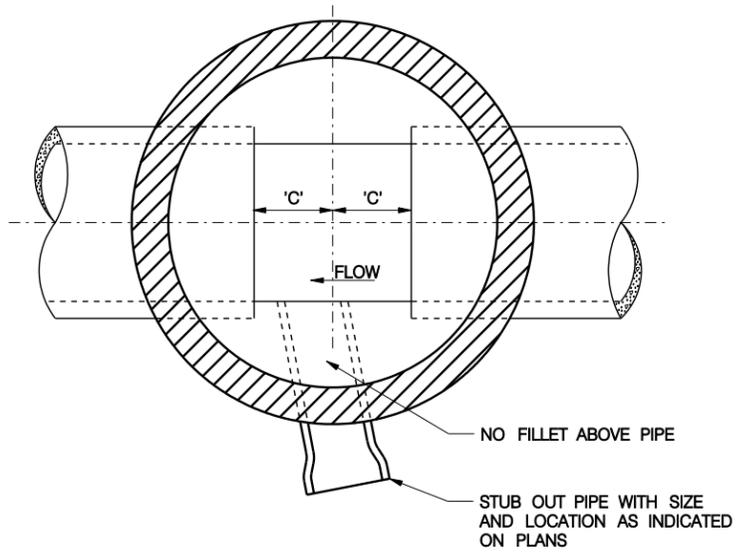
SECTION OF LINE MANHOLE WITH CONCENTRIC TOP



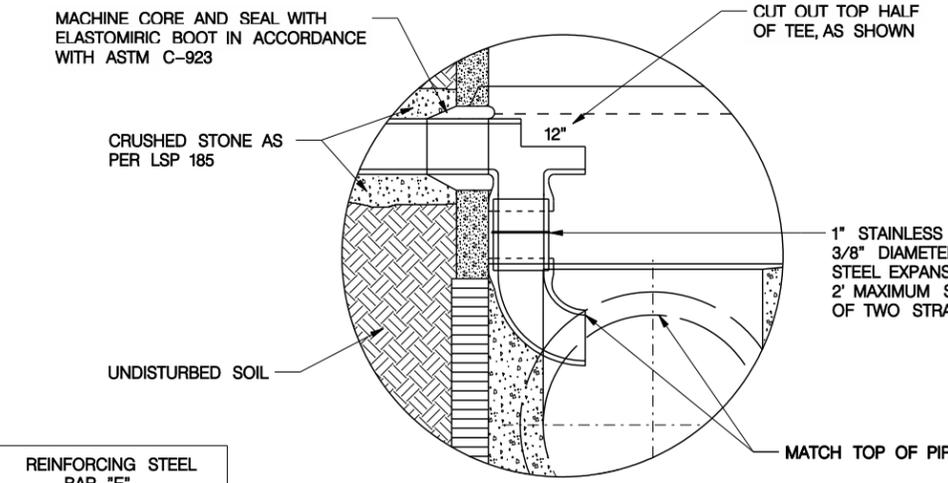
SECTION OF DROP MANHOLE WITH PRECAST TOP



PRECAST MANHOLE TOP



MANHOLE INVERT



INSIDE DROP

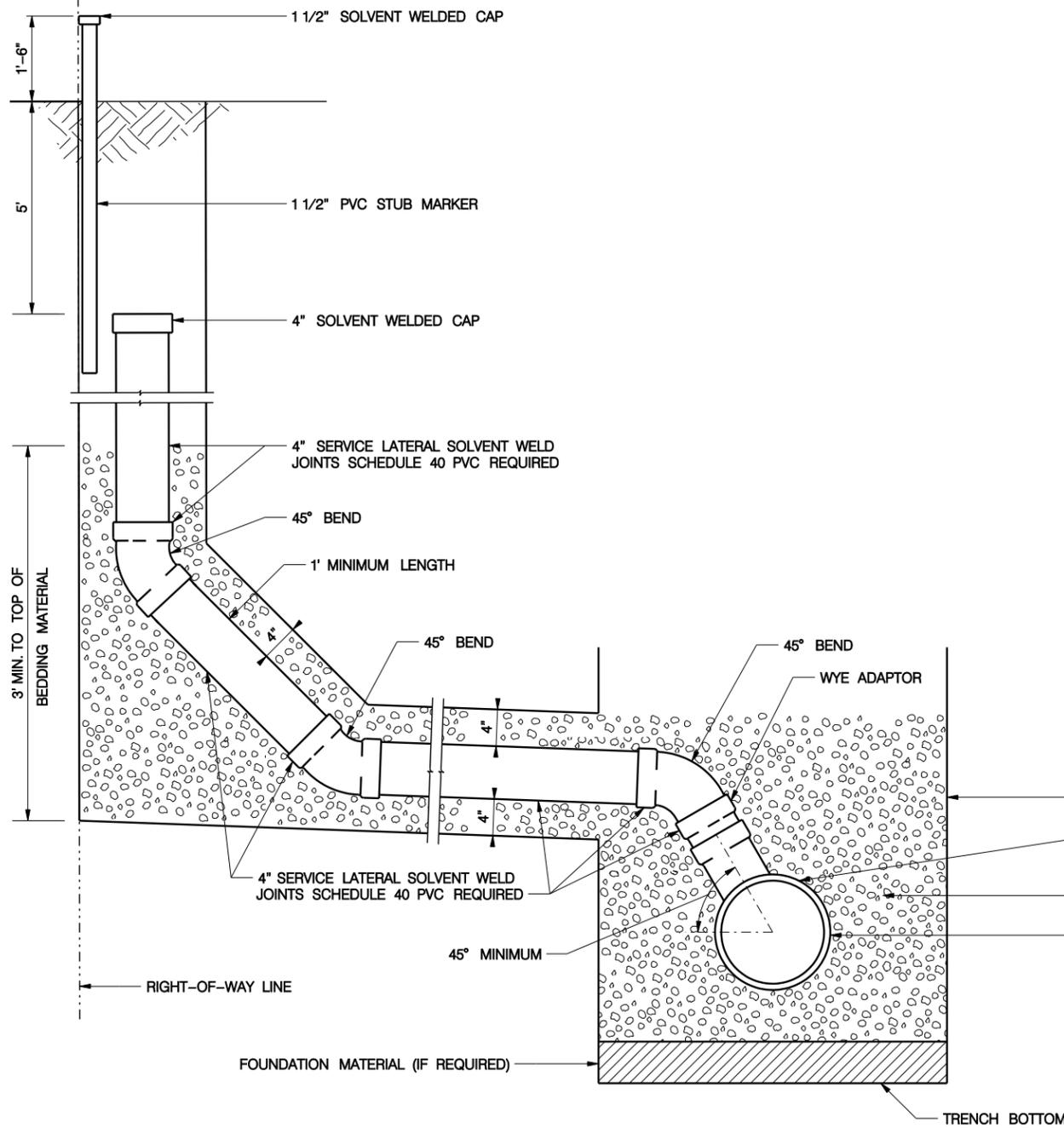
GENERAL NOTES:

- THE CAST IRON MANHOLE RING SHALL SET IN A BED OF MORTAR, AND CAREFULLY ADJUSTED TO PROPOSED GRADE.
- MANHOLE RING AND COVER SHALL BE CITY OF LINCOLN HEAVY TRAFFIC TYPE (SEE L.S.P. 162)
- CONCRETE IN MANHOLE SHALL BE L-3500, VIBRATED IN PLACE.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED.
- MAXIMUM DROP PIPE SIZE IS 15" DIAMETER, FOR 18" DIAMETER AND LARGER, CONSTRUCT LINE MANHOLE AND MATCH TOP OF PIPES

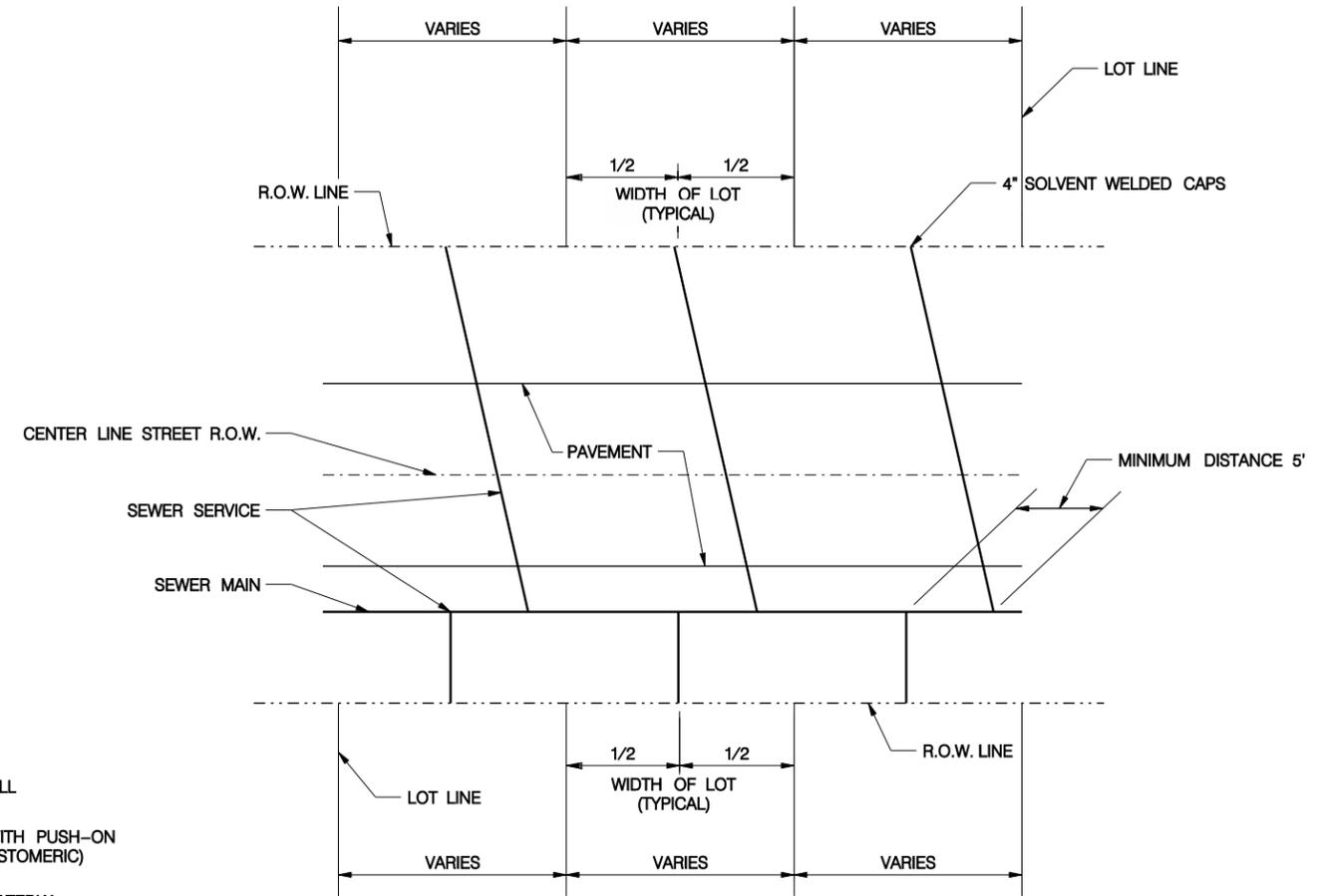
| STANDARD SANITARY SEWER MANHOLE | SANITARY TRUNK SEWER DIAMETER | DIMENSIONS | | | | | REINFORCING STEEL BAR "E" |
|---------------------------------|-------------------------------|------------|-------|-------|-------|----|---------------------------|
| | | A | B | C | D | T | |
| TYPE "P" (LINE) | 15" THRU 27" INCL. | 5'-0" | 0'-6" | 1'-6" | 6'-2" | 6" | NO 5 BARS @ 12" EACH WAY |
| TYPE "G" (LINE) | 30" THRU 48" INCL. | 6'-0" | 0'-8" | 1'-9" | 7'-4" | 7" | NO 5 BARS @ 9" EACH WAY |
| TYPE "Q" (DROP) | 15" THRU 27" INCL. | 5'-0" | 0'-6" | 1'-6" | 6'-2" | 6" | NO 5 BARS @ 12" EACH WAY |
| TYPE "H" (DROP) | 30" THRU 48" INCL. | 6'-0" | 0'-8" | 1'-9" | 7'-4" | 7" | NO 5 BARS @ 9" EACH WAY |



PROJ: 70028 OLD AS OF 070610.dwg
 PEN: ..\..\..\..\..\Pen\SW_PENTABLE.TBL
 USER: elocaw
 DATE: 9/27/2011
 DGN: ..\STANDARD\Curent\Nsp210.dgn



DETAIL OF
SEWER SERVICE CONNECTION



PLAN OF
WASTEWATER SERVICE LOCATIONS

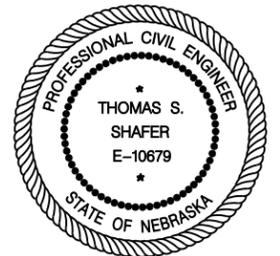
GENERAL NOTES:

SERVICE WYE SHALL BE INSTALLED SO THAT SERVICE CONNECTION IS AT LEAST 45 DEGREES FROM HORIZONTAL

SERVICE LINE SHALL BE EXTENDED VERTICALLY AT PROPERTY LINE AND TERMINATED 5' BELOW FINISHED GRADE

SOLVENT WELDED CONNECTIONS ARE REQUIRED FOR THE ENTIRE SEWER SERVICE CONNECTION FROM LINE WYE TO THE CAP

MINIMUM GRADE FOR SERVICE LATERAL IS 1/8" PER FOOT (.01" PER FOOT)

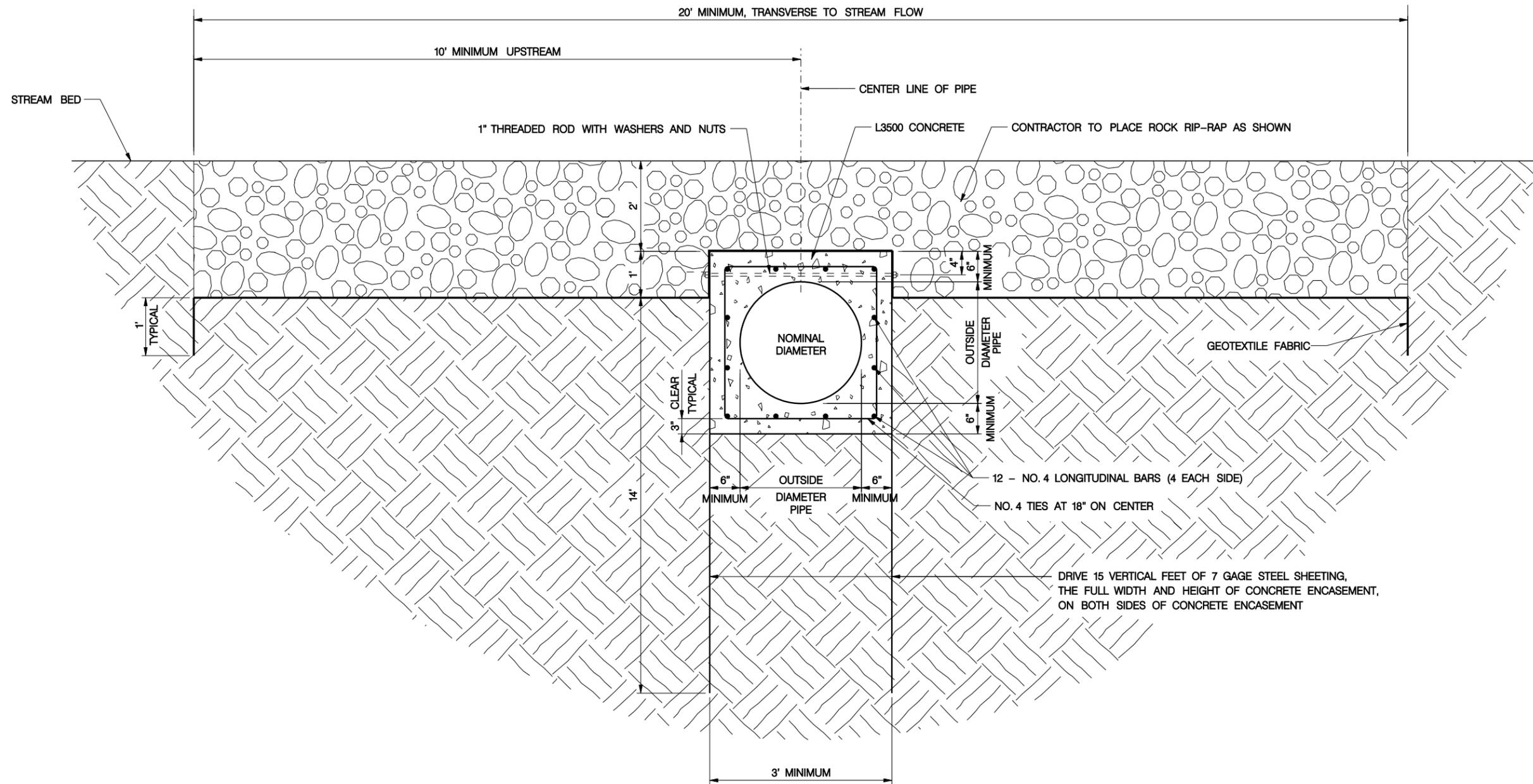


WASTEWATER SERVICE
L.S.P. 210

PROJ: 70028_OLD AS OF 070610.dgn
 PEN: ..\ables\Pen\SW_PENTABLE.TBL
 USER: elocaw
 DATE: 9/27/2011
 DGN: ..\STANDARD\Curent\Nsp220.dgn



| | |
|-----------------|------------|
| PROJECT NO. | SHEET NO. |
| LSP 220 | 1 |
| Date: 1/10/2011 | Drawn: CAW |
| | Checked: |
| | Approved: |

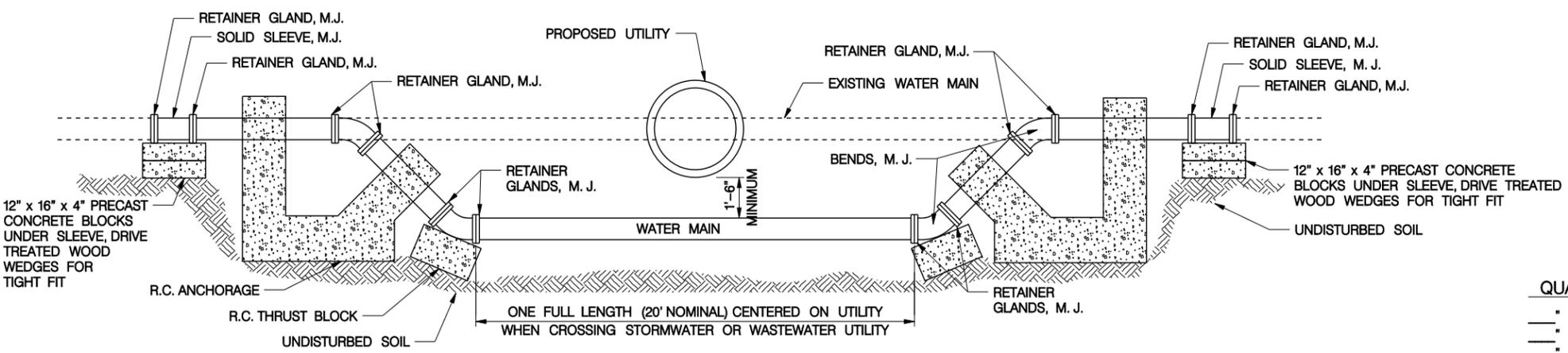


STREAM CROSSING DETAIL



**STREAM CROSSING PROTECTION
L.S.P. 220**

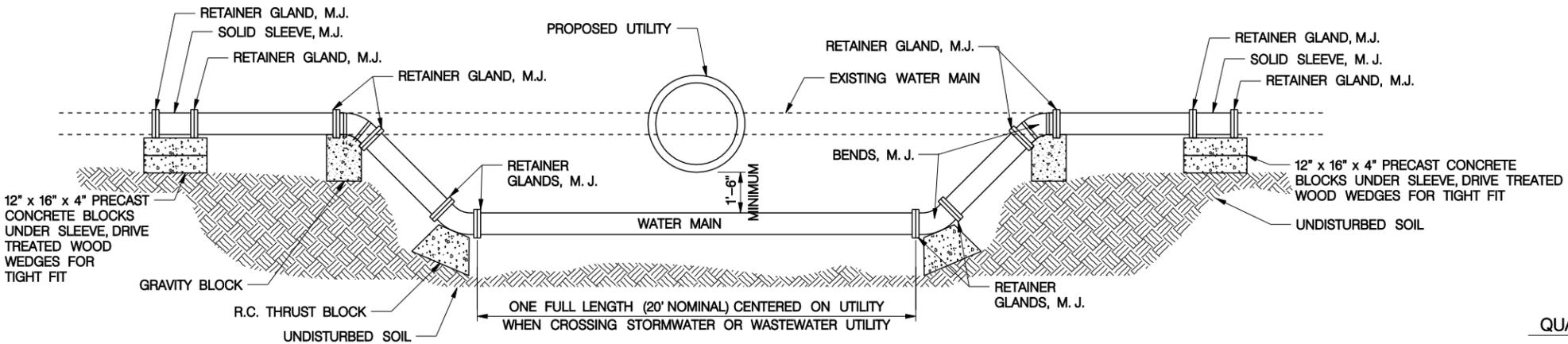
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 USER: elocaw
 DATE: 9/27/2011
 DGN: ..\\STANDARD\\Current\\Nap301.dgn



WATER MAIN RECONSTRUCTION
USING BENDS

QUANTITIES USED IN WATER MAIN RECONSTRUCTION USING BENDS

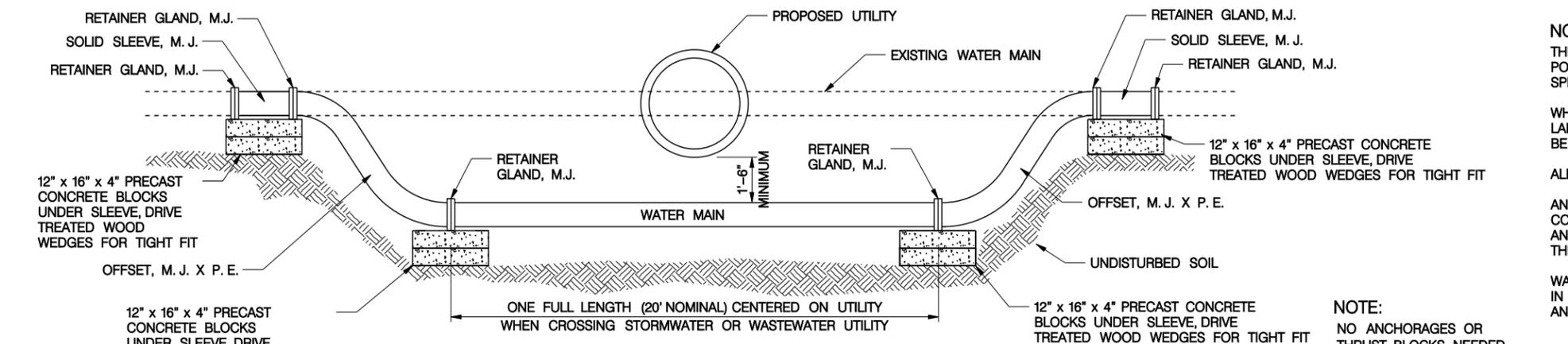
| | |
|--|----------------|
| ___" X 45° BEND, M.J. | 4 EA. |
| ___" SOLID SLEEVE, M.J. (L=___") | 2 EA. |
| ___" DUAL PURPOSE SLEEVE, M.J. (TO BE USED WITH A.W.W.A. PIPE) | 2 EA. |
| ___" X ___ GRAVITY BLOCK | 2 EA. |
| ___" X ___ R.C. THRUST BLOCK | 2 EA. |
| ___" WATER MAIN | VARIABLES L.F. |
| REMOVE ___" WATER MAIN | VARIABLES L.F. |
| ___" RETAINER GLANDS, M.J. | 12 EA. |



WATER MAIN RECONSTRUCTION
USING BENDS

QUANTITIES USED IN WATER MAIN RECONSTRUCTION USING OFFSETS

| | |
|--|----------------|
| ___" OFFSET, ___" DROP, M.J. X P.E. | 2 EA. |
| ___" SOLID SLEEVE, M.J. (L=___") | 2 EA. |
| ___" DUAL PURPOSE SLEEVE, M.J. (TO BE USED WITH A.W.W.A. PIPE) | 2 EA. |
| ___" WATER MAIN | VARIABLES L.F. |
| REMOVE ___" WATER MAIN | VARIABLES L.F. |
| ___" RETAINER GLANDS, M.J. | 6 EA. |



WATER MAIN RECONSTRUCTION
USING OFFSETS

NOTE:
NO ANCHORAGES OR THRUST BLOCKS NEEDED WITH OFFSETS.

NOTE:
THE TOTAL LENGTH OF WATER RECONSTRUCTION IS TO BE POLYWRAPPED, IF DUCTILE IRON PIPE. SEE STANDARD SPECIFICATIONS.

WHEN PROPOSED UTILITY CROSSING IS 36" IN DIA. OR LARGER, CRUSHED ROCK FOUNDATION MATERIAL SHOULD BE USED AS BACKFILL UNDER PROPOSED UTILITY.

ALL CONCRETE SHALL BE L3500.

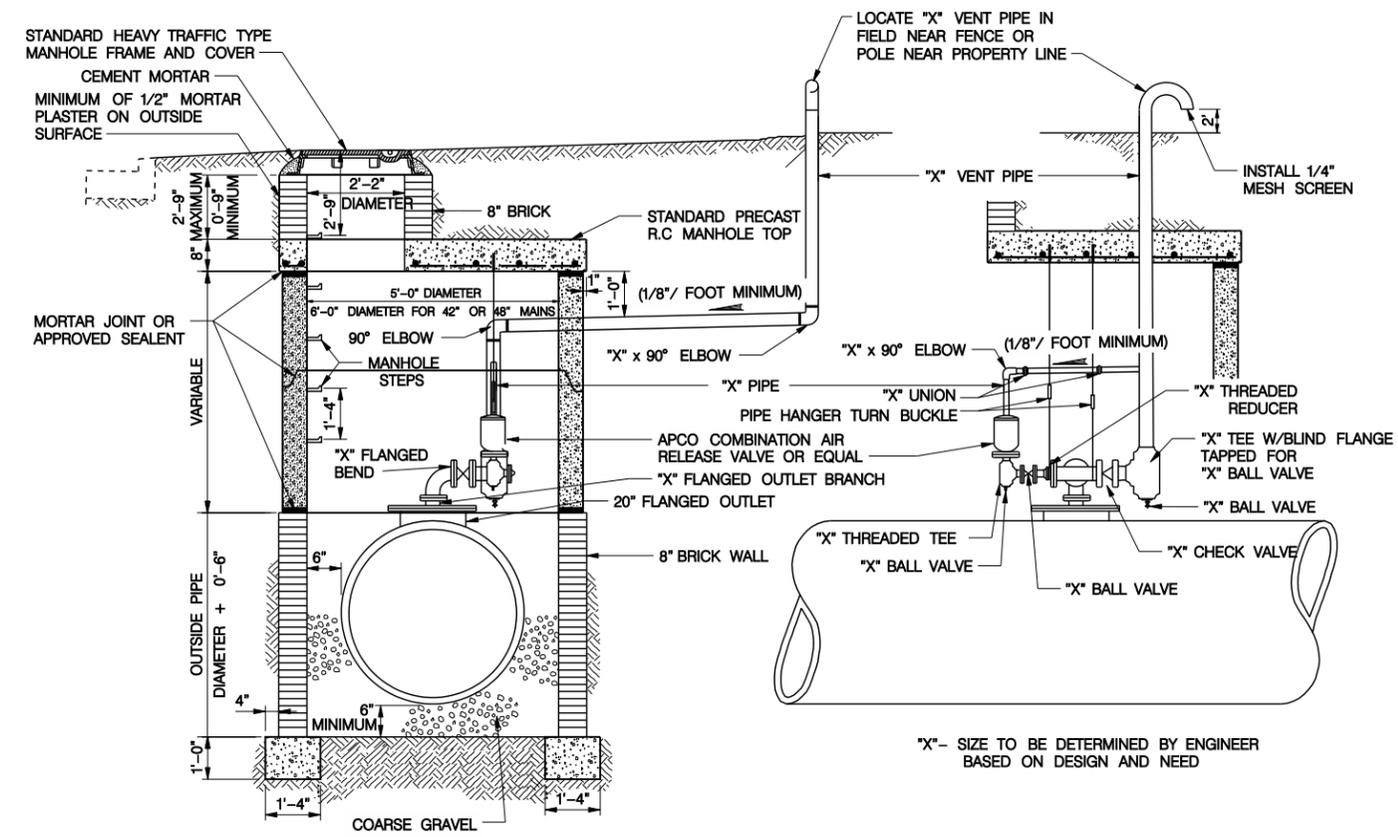
ANY 4" WATER MAIN RECONSTRUCTION IS TO BE COMPLETED USING A MINIMUM OF 6" PIPE AND FITTINGS AND REDUCED TO MEET THE 4" MAIN AT EACH END OF THE RECONSTRUCTION.

WATER PIPE SHALL BE ENCASED WITH FLOWABLE FILL IN SCENARIOS WHERE IT IS RECONSTRUCTED BELOW AN EXISTING OR PROPOSED WASTEWATER LINE.

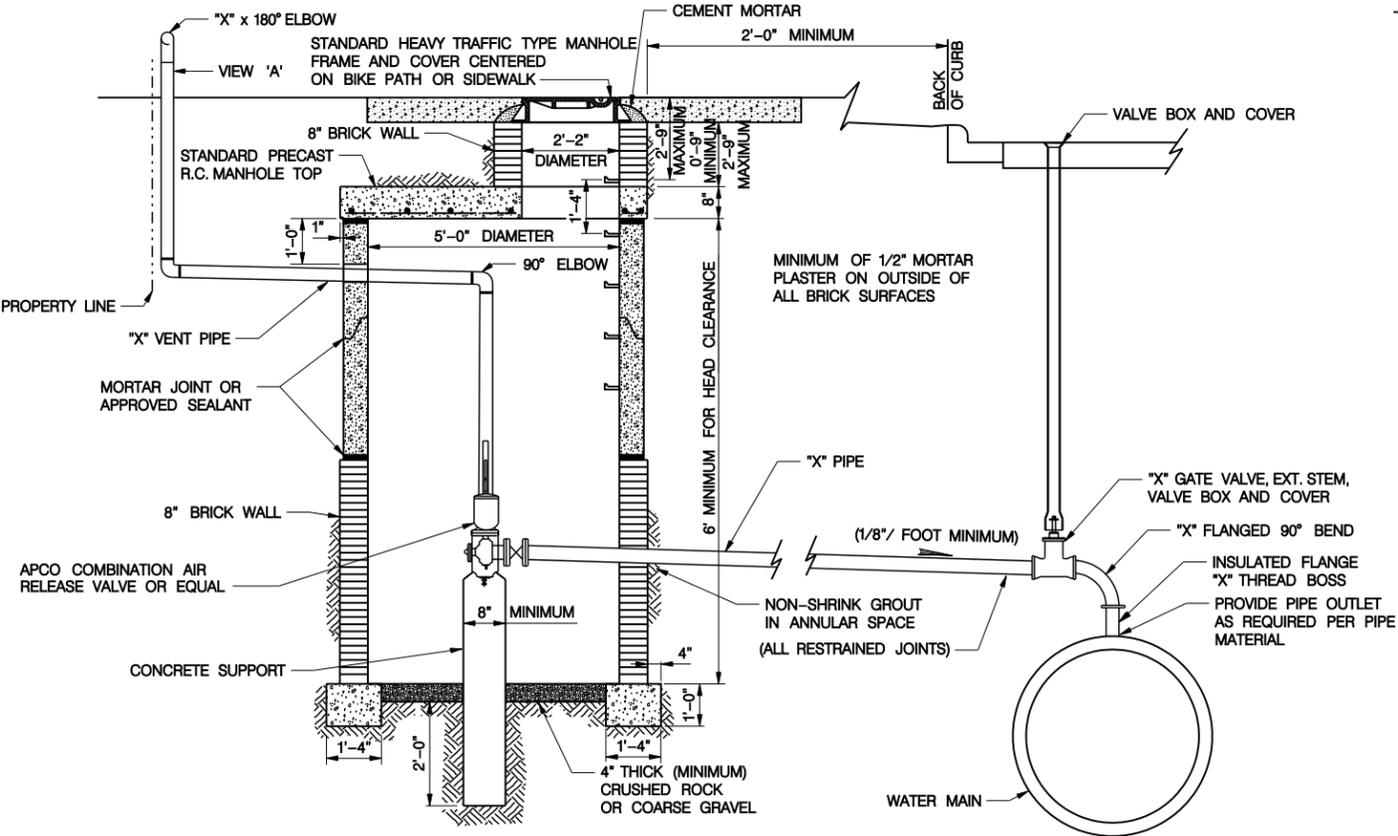
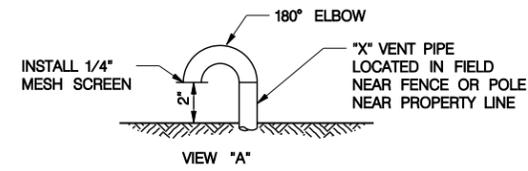


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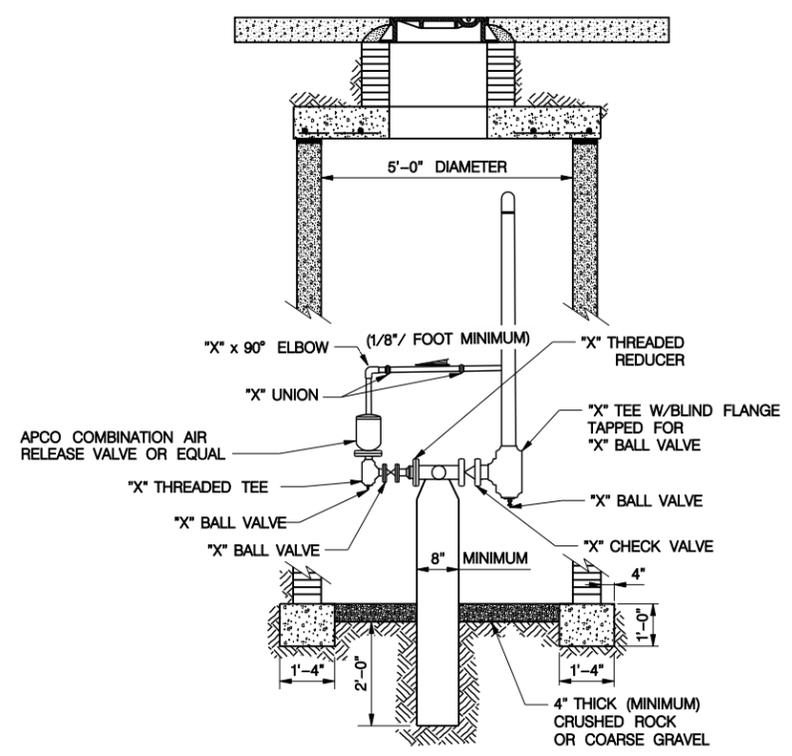
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AUTOMATIC AIR RELIEF VAULT INSTALLATION



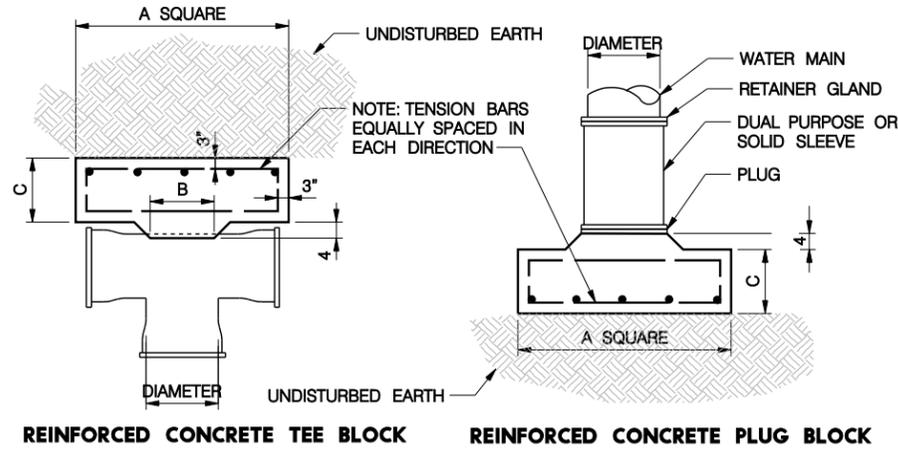
AUTOMATIC AIR RELIEF VAULT INSTALLATION FOR MAINS UNDER PAVING



- NOTES:**
- SHUTOFF VALVES SHALL BE CARBON STEEL CONBRACO "APOLLO 88-100 SERIES", NELES-JAMESBURY "SERIES 5000, FIG 5150-11-2200TT", OR POWELL "FIG A224T" BALL VALVES.
 - DRAIN VALVES SHALL BE BRASS OR BRONZE CONBRACO "APOLLO 70-100 SERIES" OR STOCKHAM "S-216".
 - CHECK VALVES SHALL BE APCO "SERIES 9000 CLASS 150 DOUBLE DOOR CHECK VALVE" OR EQUAL.
 - COMBINATION AIR RELEASE VALVES SHALL BE APCO OR EQUAL.
 - THE CAST IRON MANHOLE RING SHALL SET IN A BED OF MORTAR, AND CAREFULLY ADJUSTED TO PROPOSED GRADE.
 - MANHOLE RING AND COVER SHALL BE CITY OF LINCOLN HEAVY TRAFFIC TYPE. (SEE LSP 162)
 - MANHOLE STEPS SHALL BE CITY OF LINCOLN STANDARD MANHOLE STEPS. (SEE LSP 162)
 - ALL REINFORCING STEEL SHALL BE EPOXY COATED.
 - ANY TAP LARGER THAN 1" SHALL BE INSTALLED BY FACTORY.
 - "X" - SIZE AND TYPE TO BE DETERMINED BY ENGINEER BASED ON DESIGN AND NEED



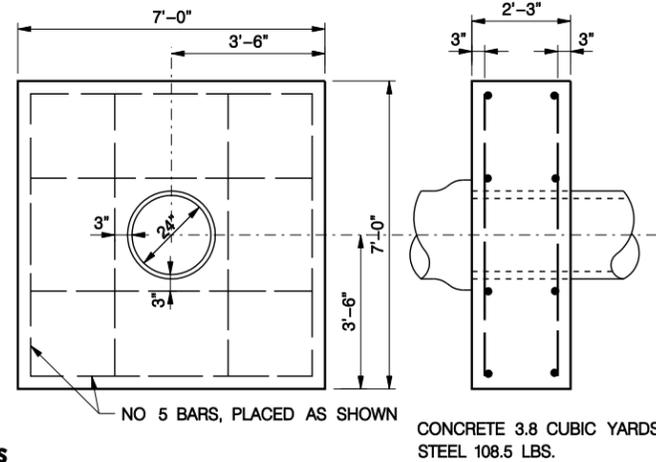
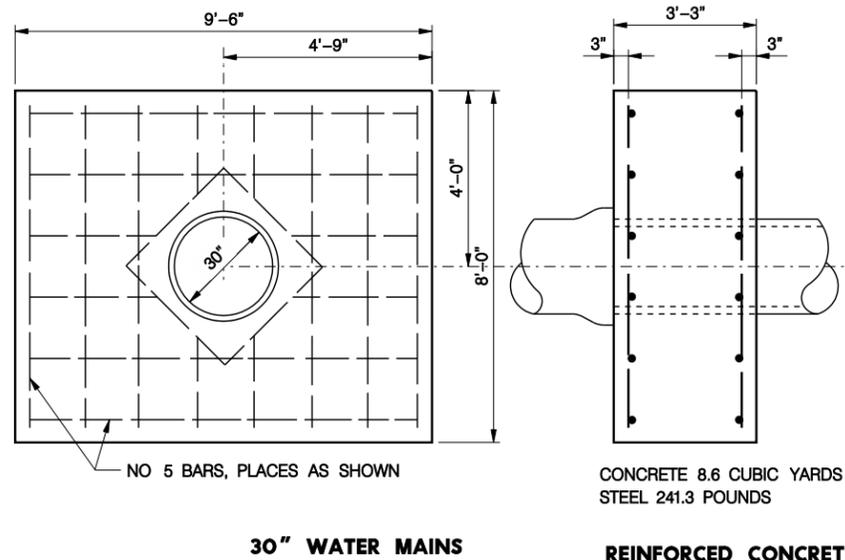
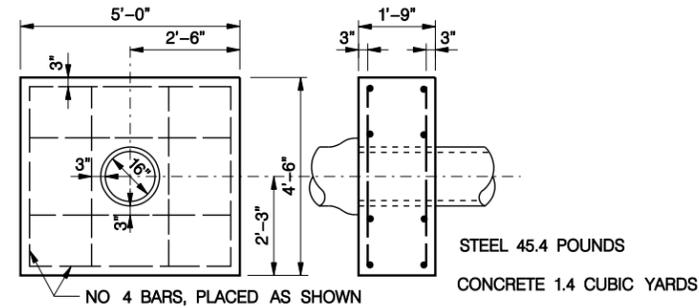
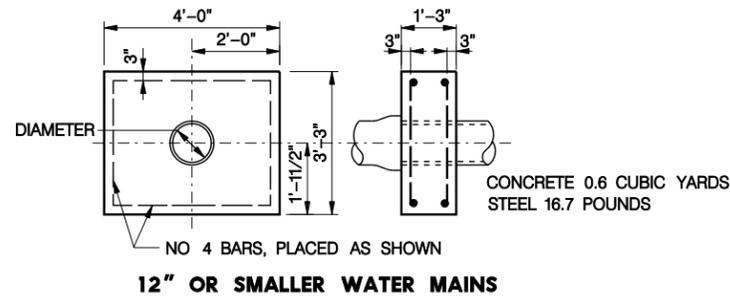
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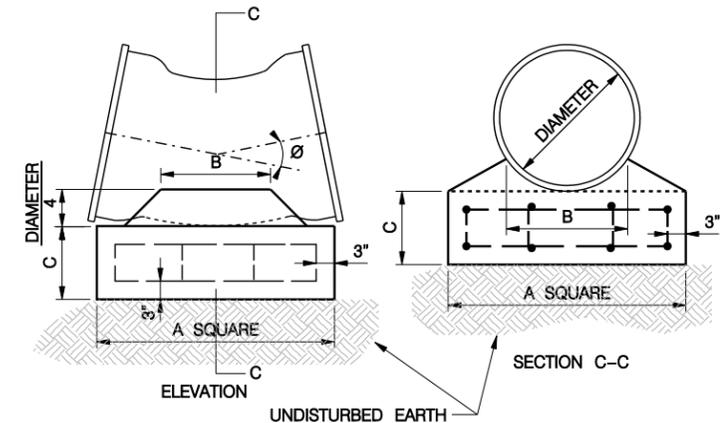
| DIAMETER | A | B | C | BAR SIZE | NUMBER OF BARS EACH WAY | STEEL (LBS.) | CONCRETE CUBIC YARDS |
|----------|--------|-------|-------|----------|-------------------------|--------------|----------------------|
| 6 | 1'-9" | 0'-8" | 0'-8" | - | - | - | 0.1 |
| 8 | 2'-3" | 0'-9" | 0'-9" | - | - | - | 0.2 |
| 12 | 3'-4" | 1'-0" | 1'-0" | NO 4 | 6 | 22.7 | 0.4 |
| 16 | 4'-6" | 1'-3" | 1'-3" | NO 4 | 8 | 42.8 | 1.0 |
| 20 | 5'-8" | 1'-6" | 1'-6" | NO 5 | 8 | 86.8 | 1.9 |
| 24 | 6'-9" | 1'-9" | 1'-9" | NO 5 | 11 | 143.5 | 3.1 |
| 30 | 8'-6" | 2'-6" | 2'-0" | NO 5 | 16 | 267.0 | 5.5 |
| 36 | 10'-0" | 3'-0" | 2'-6" | NO 6 | 15 | 428.0 | 9.5 |
| 48 | 13'-6" | 4'-0" | 3'-0" | NO 7 | 20 | 1063.0 | 21.2 |

| DIAMETER | Ø=11 1/4" | | | | | | | Ø=22 1/2" | | | | | | | |
|----------|-----------|-------|-------|----------|-------------------------|--------------|----------------------|-----------|-------|-------|----------|-------------------------|--------------|----------------------|-----|
| | A | B | C | BAR SIZE | NUMBER OF BARS EACH WAY | STEEL (LBS.) | CONCRETE CUBIC YARDS | A | B | C | BAR SIZE | NUMBER OF BARS EACH WAY | STEEL (LBS.) | CONCRETE CUBIC YARDS | |
| 6 | 1'-3" | 0'-9" | 1'-0" | - | - | - | 0.1 | 6 | 1'-6" | 0'-9" | 1'-0" | - | - | - | 0.1 |
| 8 | 1'-6" | 1'-0" | 1'-0" | - | - | - | 0.1 | 8 | 1'-6" | 1'-0" | 1'-0" | - | - | - | 0.1 |
| 12 | 1'-6" | 1'-0" | 1'-0" | NO 4 | 3 | 4.0 | 0.1 | 12 | 2'-3" | 1'-0" | 1'-0" | NO 4 | 3 | 7.0 | 0.2 |
| 16 | 2'-3" | 1'-0" | 1'-0" | NO 4 | 3 | 7.0 | 0.2 | 16 | 3'-0" | 1'-0" | 1'-0" | NO 4 | 5 | 16.7 | 0.4 |
| 20 | 2'-9" | 1'-3" | 1'-0" | NO 4 | 4 | 12.0 | 0.4 | 20 | 3'-9" | 1'-3" | 1'-0" | NO 4 | 7 | 30.4 | 0.6 |
| 24 | 3'-3" | 1'-6" | 1'-0" | NO 4 | 6 | 22.0 | 0.5 | 24 | 4'-6" | 1'-6" | 1'-3" | NO 5 | 6 | 50.1 | 1.1 |
| 30 | 4'-0" | 2'-0" | 1'-3" | NO 4 | 7 | 32.7 | 0.9 | 30 | 5'-6" | 2'-0" | 1'-6" | NO 5 | 9 | 93.9 | 1.9 |
| 36 | 4'-9" | 2'-6" | 1'-3" | NO 5 | 7 | 62.0 | 1.3 | 36 | 6'-9" | 2'-6" | 1'-9" | NO 5 | 12 | 169.5 | 3.3 |
| 48 | 6'-6" | 3'-3" | 1'-6" | NO 5 | 13 | 162.7 | 1.9 | 48 | 9'-0" | 3'-3" | 2'-0" | NO 10 | 6 | 438.9 | 6.7 |

| DIAMETER | Ø=45" | | | | | | | Ø=90" | | | | | | | |
|----------|--------|-------|-------|----------|-------------------------|--------------|----------------------|-------|--------|-------|----------|-------------------------|--------------|----------------------|------|
| | A | B | C | BAR SIZE | NUMBER OF BARS EACH WAY | STEEL (LBS.) | CONCRETE CUBIC YARDS | A | B | C | BAR SIZE | NUMBER OF BARS EACH WAY | STEEL (LBS.) | CONCRETE CUBIC YARDS | |
| 6 | 1'-9" | 1'-0" | 1'-0" | - | - | - | 0.2 | 6 | 2'-3" | 1'-0" | 1'-0" | - | - | - | 0.2 |
| 8 | 2'-3" | 1'-0" | 1'-0" | - | - | - | 0.2 | 8 | 3'-0" | 1'-0" | 1'-0" | - | - | - | 0.4 |
| 12 | 3'-3" | 1'-0" | 1'-0" | NO 4 | 6 | 22.0 | 0.4 | 12 | 4'-3" | 1'-0" | 1'-3" | NO 5 | 6 | 47.0 | 0.9 |
| 16 | 4'-3" | 1'-0" | 1'-3" | NO 5 | 6 | 46.9 | 0.9 | 16 | 5'-9" | 1'-0" | 1'-6" | NO 5 | 10 | 109.5 | 2.0 |
| 20 | 5'-3" | 1'-3" | 1'-6" | NO 5 | 8 | 79.3 | 1.6 | 20 | 7'-0" | 1'-3" | 1'-9" | NO 5 | 15 | 203.4 | 3.3 |
| 24 | 6'-3" | 1'-6" | 1'-6" | NO 5 | 11 | 131.9 | 2.3 | 24 | 8'-6" | 1'-6" | 2'-0" | NO 6 | 15 | 360.5 | 5.6 |
| 30 | 7'-9" | 2'-0" | 1'-9" | NO 7 | 9 | 266.7 | 4.1 | 30 | 10'-6" | 2'-0" | 2'-3" | NO 9 | 10 | 680.0 | 9.5 |
| 36 | 9'-3" | 2'-6" | 2'-0" | NO 7 | 14 | 500.8 | 6.8 | 36 | 12'-6" | 2'-6" | 2'-9" | NO 10 | 11 | 1136.0 | 16.3 |
| 48 | 12'-3" | 3'-3" | 2'-6" | NO 10 | 11 | 1112.3 | 14.8 | 48 | 16'-9" | 3'-3" | 3'-6" | NO 11 | 16 | 2763.0 | 37.2 |



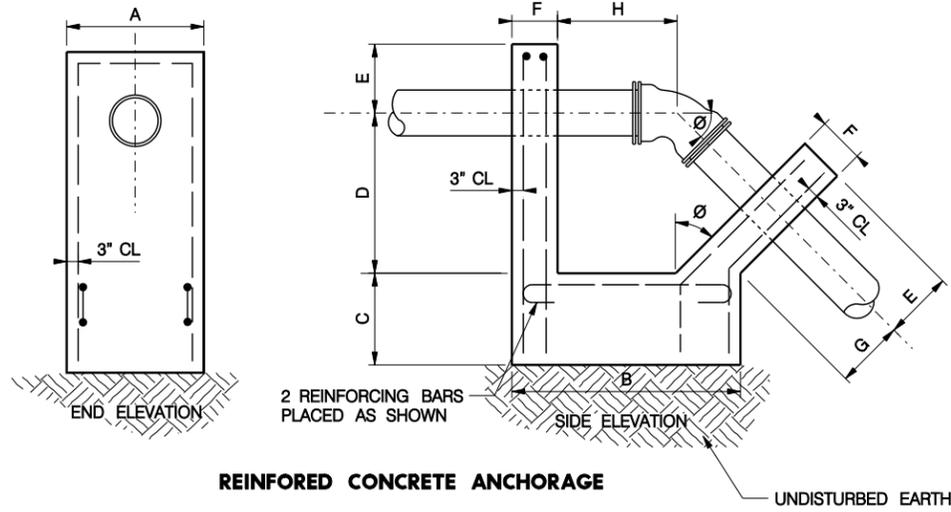
REINFORCED CONCRETE COLLARS
 NOTE: R.C. THRUST COLLARS TO BE BUILT ADJACENT TO VALVES, AT THE SPIGOT SIDE OF LAST PIPE CONNECTION OR ADJACENT TO THE SMALLER DIAMETER SIDE OF M.J. REDUCERS.



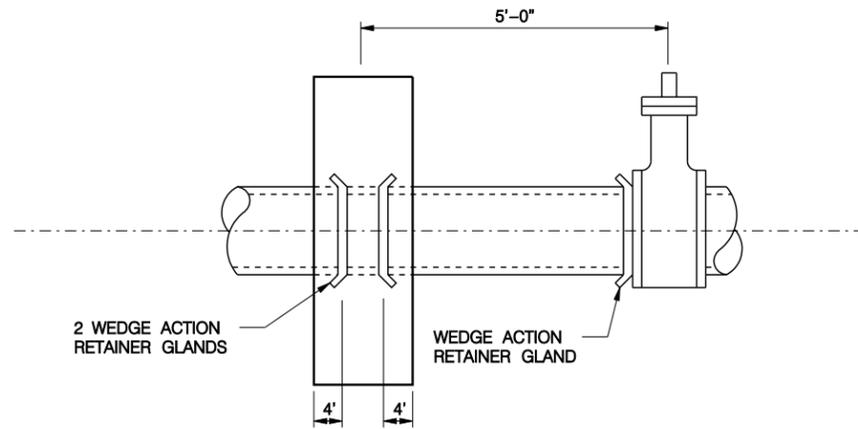
GENERAL NOTES:

- ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO A. S. T. M. SERIAL DESIGNATION A-305-507 AND SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL GRADE STEEL IN ACCORDANCE WITH THE REQUIREMENTS.
- ALL CONCRETE SHALL BE L3500.
- ALL CONCRETE COLLARS SHALL BE CONSTRUCTED SUCH THAT THEY ARE ANCHORED AGAINST UNDISTURBED SOIL.
- MINIMUM DEPTH OF EMBEDMENT FOR REINFORCING STEEL TO BE AS NOTED.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED.
- POURED IN PLACE THRUST BLOCKING SHALL BE PROPERLY FORMED TO THE STATED DIMENSIONS AND SHALL NOT ENCASE THE M.J. BOLTS AND FASTENERS.
- THRUST COLLARS FOR REDUCERS SHALL BE INSTALLED ON THE SMALL PIPE SIDE OF A REDUCER, HOWEVER THE SIZE SHALL BE BASED OFF OF THE LARGER DIAMETER PIPE.

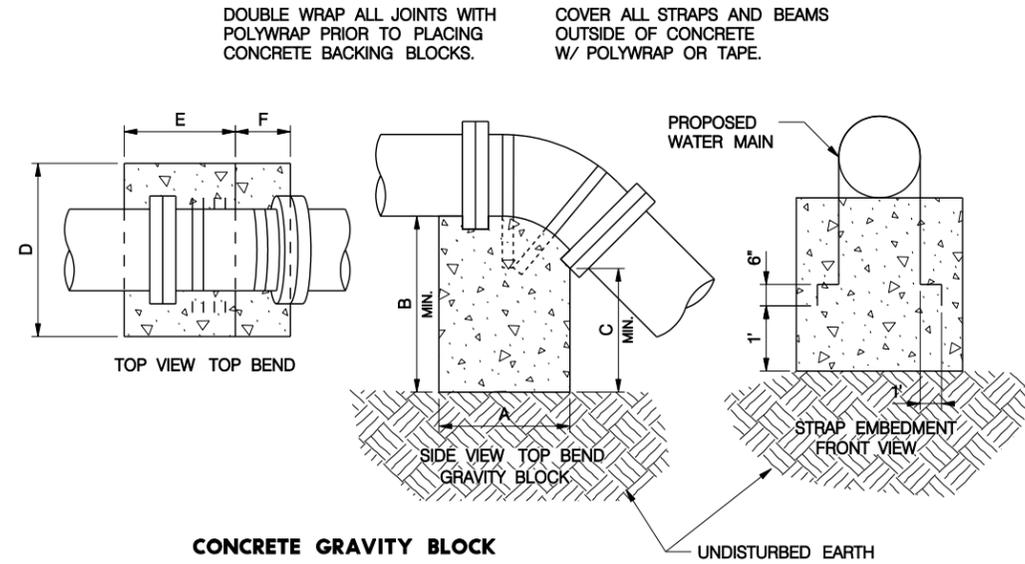




| DIA. | Ø=45° | | | | | | | | CONC. CU.YDS. | BAR SIZE REINF. | (LBS.) STEEL | Ø=22 1/2° | | | | | | | | CONC. CU.YDS. | BAR SIZE REINF. | (LBS.) STEEL |
|------|-------|--------|-------|-------|-------|-------|--------|--------|---------------|-----------------|--------------|-----------|-------|-------|-------|-------|-------|-------|-------|---------------|-----------------|--------------|
| | A | B | C | D | E | F | G | H | | | | A | B | C | D | E | F | G | H | | | |
| 6&8 | 2'-0" | 4'-6" | 1'-6" | 2'-6" | 1'-0" | 1'-0" | 0'-8" | 1'-11" | 0.94 | #4 | 34 | 2'-0" | 4'-6" | 0'-9" | 1'-6" | 1'-0" | 1'-0" | 0'-8" | 1'-7" | 0.54 | #4 | 28 |
| 10 | 2'-6" | 5'-0" | 1'-6" | 3'-0" | 1'-3" | 1'-0" | 1'-0" | 2'-4" | 1.31 | #4 | 42 | 2'-6" | 5'-0" | 0'-9" | 1'-9" | 1'-3" | 1'-0" | 0'-9" | 1'-8" | 0.75 | #4 | 32 |
| 12 | 3'-0" | 5'-0" | 2'-0" | 3'-6" | 1'-6" | 1'-0" | 1'-6" | 3'-1" | 1.98 | #4 | 48 | 3'-0" | 5'-0" | 0'-9" | 2'-0" | 1'-6" | 1'-0" | 1'-0" | 1'-9" | 1.05 | #4 | 36 |
| 14 | 3'-0" | 6'-0" | 2'-6" | 4'-0" | 1'-6" | 1'-0" | 1'-6" | 3'-1" | 2.58 | #5 | 83 | 3'-0" | 5'-6" | 1'-3" | 2'-3" | 1'-6" | 1'-0" | 1'-3" | 2'-3" | 1.40 | #4 | 36 |
| 16 | 3'-6" | 6'-6" | 2'-9" | 4'-6" | 1'-6" | 1'-0" | 1'-9" | 3'-5" | 3.46 | #5 | 92 | 3'-0" | 6'-6" | 2'-0" | 2'-9" | 1'-6" | 1'-0" | 1'-6" | 2'-9" | 1.79 | #4 | 47 |
| 18 | 3'-6" | 7'-0" | 3'-6" | 4'-6" | 1'-6" | 1'-0" | 1'-8" | 3'-10" | 4.29 | #5 | 96 | 3'-6" | 7'-0" | 1'-9" | 3'-0" | 1'-6" | 1'-0" | 1'-8" | 3'-1" | 2.44 | #4 | 50 |
| 20 | 4'-0" | 7'-6" | 3'-6" | 5'-0" | 1'-6" | 1'-0" | 2'-0" | 4'-4" | 5.25 | #6 | 146 | 4'-0" | 7'-0" | 2'-0" | 3'-0" | 1'-6" | 1'-0" | 1'-8" | 3'-1" | 3.04 | #5 | 80 |
| 24 | 5'-0" | 10'-0" | 3'-0" | 7'-0" | 2'-0" | 1'-0" | 2'-10" | 6'-0" | 7.96 | #7 | 250 | 4'-6" | 9'-0" | 1'-9" | 4'-0" | 2'-0" | 1'-0" | 2'-3" | 4'-2" | 4.11 | #6 | 143 |



WHENEVER PVC PIPE IS USED FOR WATER MAIN MATERIAL, A THRUST COLLAR SHALL BE INSTALLED 5' FROM EACH LINE VALVE OR REDUCER. TWO WEDGE ACTION RETAINER GLANDS SHALL BE EMBEDDED IN THE THRUST COLLAR, WITH THE GRIPPING WEDGES FACING OPPOSITE DIRECTIONS, TO PROVIDE THRUST RESTRAINT FROM EITHER DIRECTION. A SINGLE WEDGE ACTION RETAINER GLAND SHALL BE INSTALLED ON THE M.J. JOINT ON THE SIDE OF THE VALVE OR REDUCER NEAREST THE THRUST COLLAR. SEE LSP 320 FOR CONCRETE AND REINFORCING STEEL DETAILS.



| BEND | DIMENSION | | | | | | CONCRETE CY | NO. | STRAPS | |
|--------------|-----------|--------|--------|-------|-------|-------|-------------|-----|-----------|--------|
| | A | B MIN. | C MIN. | D | E | F | | | SIZE | EMBED. |
| 16" x 45° | 6'-0" | 6'-0" | 3'-0" | 7'-0" | 3'-0" | 3'-0" | 9.33 | 2 | 2" x 3/8" | 30" |
| 12" x 45° | 6'-0" | 5'-0" | 2'-0" | 5'-0" | 3'-0" | 3'-0" | 4.72 | 2 | 2" x 1/4" | 24" |
| 8" x 45° | 4'-0" | 4'-0" | 2'-0" | 4'-6" | 2'-0" | 2'-0" | 2.33 | 2 | 1" x 1/4" | 18" |
| 6" x 45° | 3'-6" | 3'-0" | 1'-6" | 3'-6" | 2'-0" | 1'-6" | 1.43 | 2 | 1" x 1/4" | 18" |
| 16" x 22.5° | 5'-6" | 5'-6" | 4'-6" | 4'-6" | 3'-0" | 2'-6" | 5.13 | 2 | 2" x 3/8" | 30" |
| 12" x 22.5° | 4'-6" | 5'-0" | 4'-2" | 3'-6" | 2'-6" | 2'-0" | 2.88 | 2 | 2" x 1/4" | 24" |
| 8" x 22.5° | 3'-0" | 4'-0" | 3'-6" | 3'-0" | 1'-6" | 1'-6" | 1.33 | 2 | 1" x 1/4" | 18" |
| 6" x 22.5° | 2'-0" | 3'-3" | 3'-0" | 3'-0" | 1'-3" | 0'-9" | 0.72 | 2 | 1" x 1/4" | 18" |
| 16" x 11.25° | 4'-0" | 4'-0" | 3'-6" | 4'-0" | 2'-0" | 2'-0" | 2.37 | 2 | 2" x 3/8" | 30" |
| 12" x 11.25° | 3'-0" | 3'-0" | 2'-9" | 3'-6" | 2'-0" | 1'-0" | 1.17 | 2 | 2" x 1/4" | 24" |
| 8" x 11.25° | 3'-0" | 2'-0" | 1'-9" | 3'-0" | 2'-0" | 1'-0" | 0.56 | 2 | 1" x 1/4" | 18" |
| 6" x 11.25° | 2'-0" | 2'-0" | 1'-9" | 2'-8" | 1'-0" | 1'-0" | 0.40 | 2 | 1" x 1/4" | 18" |

GENERAL NOTES:

GRAVITY BLOCK STRAPS OF THE SIZE AND TYPE SPECIFIED SHALL BE STATE STEEL TYPE M1020, OR EQUIVALENT, LOW CARBON, LOW MANGANESE, GENERAL PURPOSE, MERCHANT QUALITY STAINLESS STEEL THAT IS SUITABLE FOR FORMING AND WELDING.

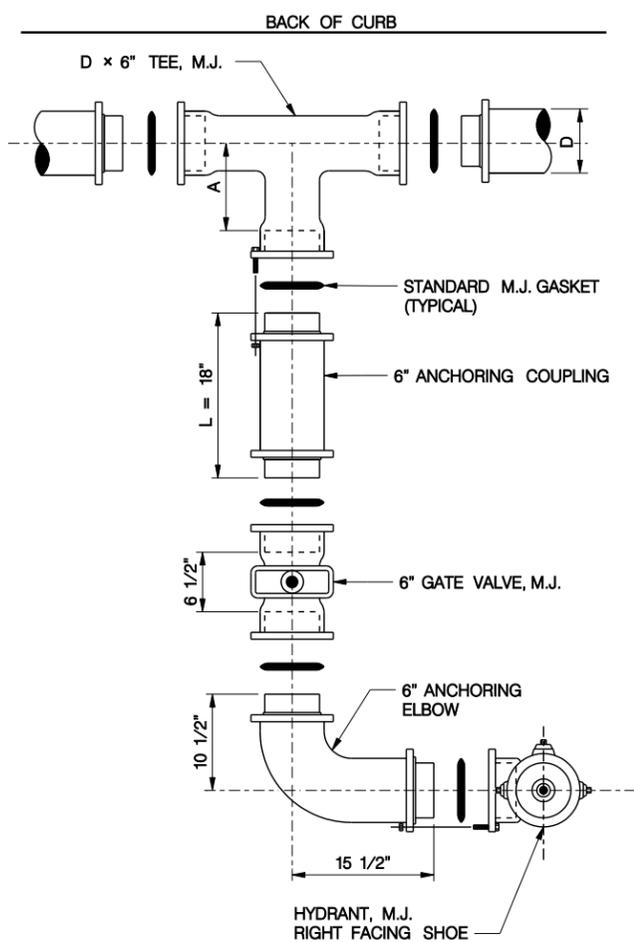
ALL STRAP MATERIAL NOT EMBEDDED IN CONCRETE SHALL BE COVERED WITH POLYWRAP OR TAPE PRIOR TO BACKFILLING.

ALL CONCRETE SHALL BE L3500.

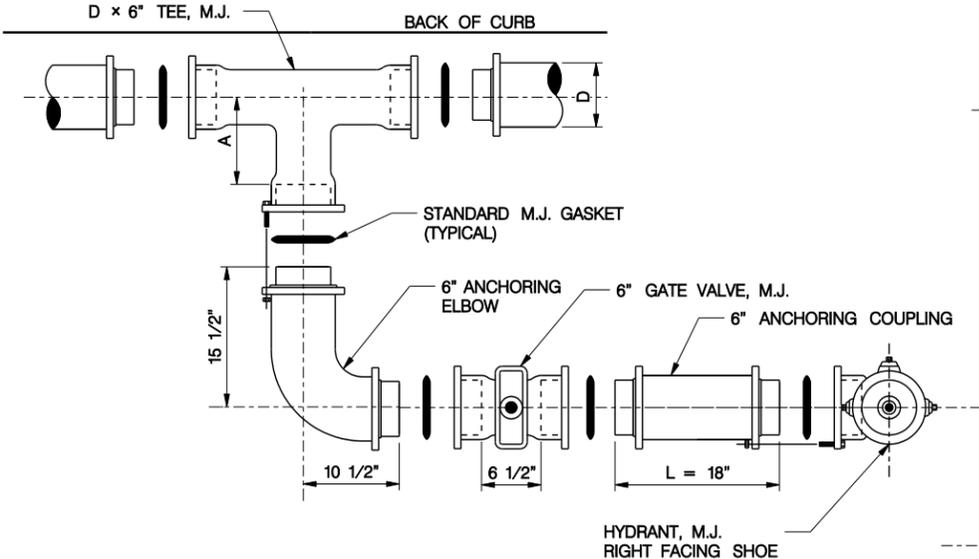
ALL CONCRETE COLLARS SHALL BE CONSTRUCTED SUCH THAT THEY ARE ANCHORED AGAINST UNDISTURBED SOIL.



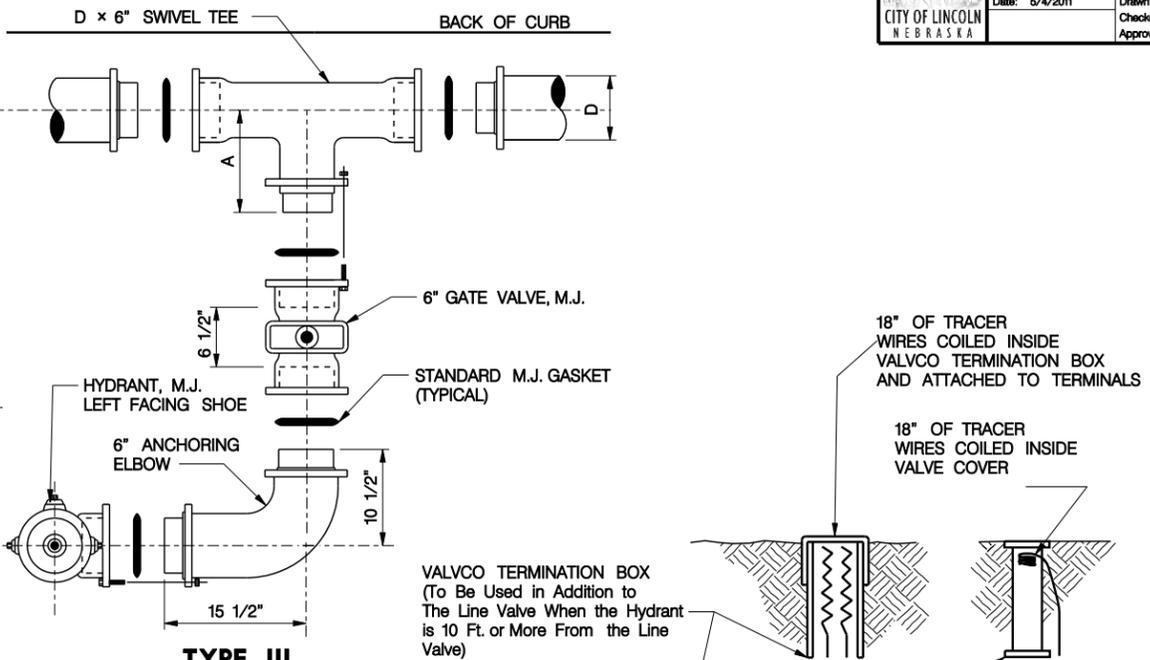
EFFECTIVE JULY 1, 2011



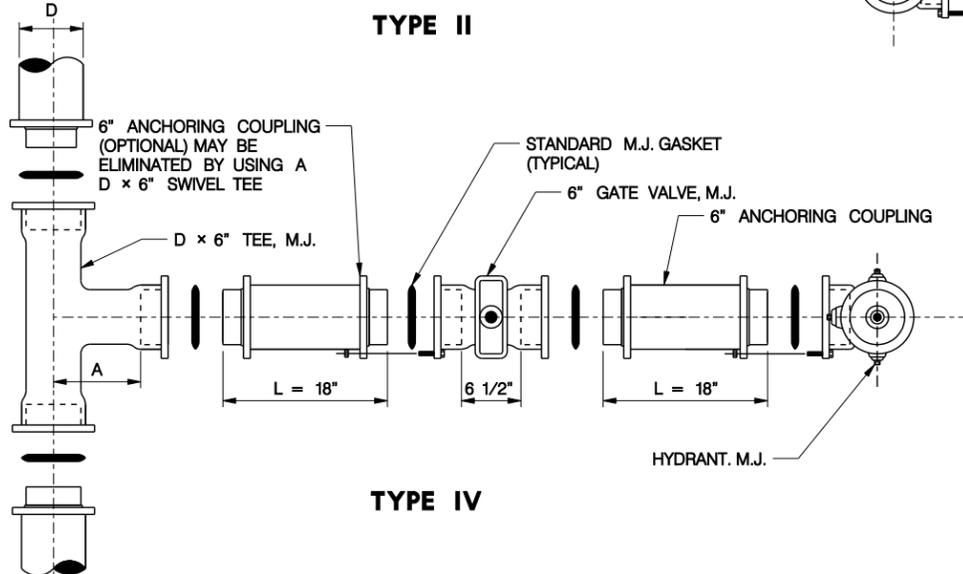
TYPE I



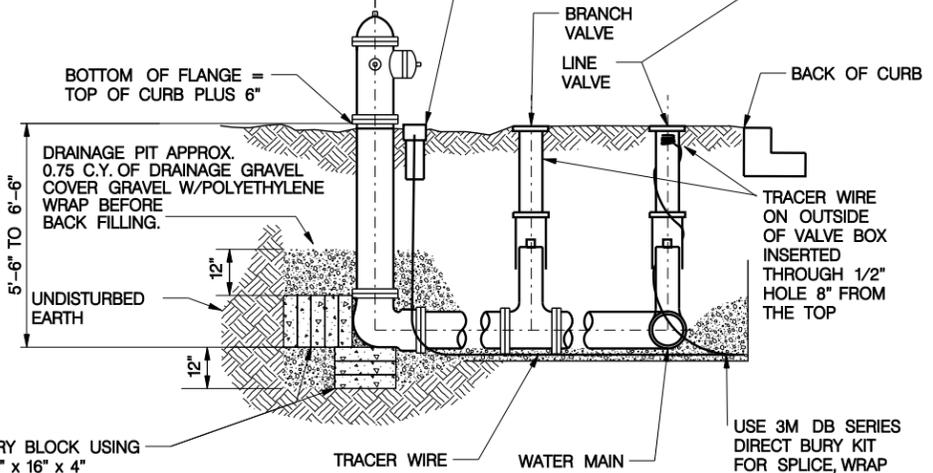
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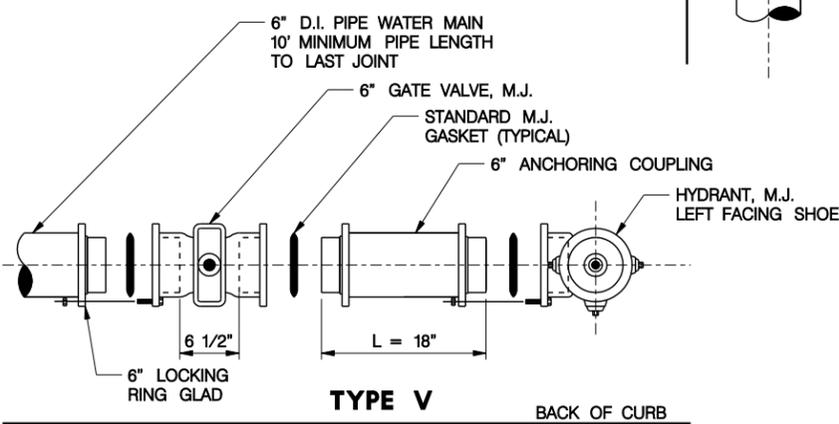
TYPE III



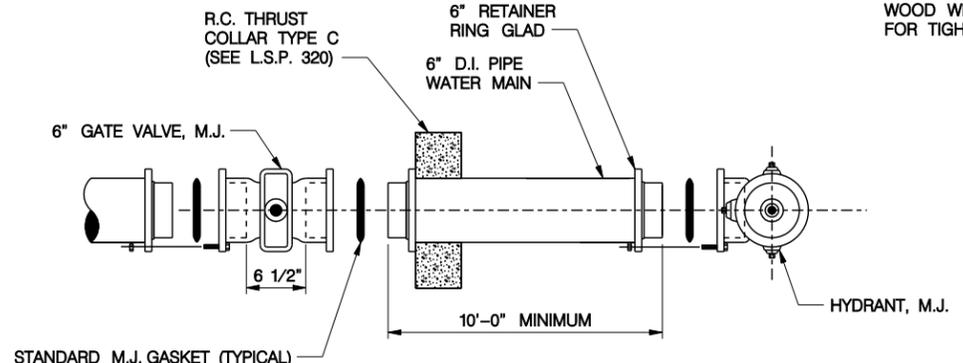
TYPE IV



FIELD SETTING DETAIL



TYPE V



TYPE VI

| TEE CONNECTION DIMENSIONS | | | |
|---------------------------|-------------|----------------------------|-----------------|
| MAIN RUN SIZE D | SIZE BRANCH | BRANCH LENGTH SWIVEL TEE A | BRANCH LENGTH A |
| 6" | 6" | 10.5" | 8" |
| 8" | 6" | 11.5" | 9" |
| 12" | 6" | 14.5" | 12" |
| 16" | 6" | 17.5" | 15" |
| 24" | 6" | 21.5" | 19" |
| 30" | 6" | 24.5" | 23" |

| HYDRANT ASSEMBLY | NUMBER OF FITTINGS REQUIRED | | | | | | |
|------------------|-----------------------------|---------------------|-----------------------------|--------------------------|------------------|-------------------------|-----------------------------|
| | 5 1/4" PUMPER HYDRANT | 6" GATE VALVE, M.J. | 6" ANCHORING COUPLING, M.J. | ELBOW, M.J. 6" ANCHORING | D X 6" TEE, M.J. | D X 6" SWIVEL TEE, M.J. | R.C. THRUST COLLAR (TYPE C) |
| TYPE I | 1 | 1 | 1 | 1 | 1 | | |
| TYPE II | 1 | 1 | 1 | 1 | 1 | | |
| TYPE III | 1 | 1 | | 1 | | 1 | |
| TYPE IV | 1 | 1 | 2 | | 1 | | |
| TYPE V | 1 | 1 | 1 | | | | |
| TYPE VI | 1 | 1 | | | | | 1 |

NOTES:

- ALL ANCHORING COUPLINGS SHALL BE 18" IN LENGTH UNLESS PLANS SHOW OTHERWISE
- ALL ANCHORING COUPLINGS AND ANCHORING ELBOWS SHALL BE CAST WITH AN INTEGRAL M.J. GLAND ON ONE END AND A DUCTILE IRON ROTATABLE M.J. GLAND ON THE OTHER END.
- A LOCKING RING FOR A STANDARD ANCHORING COUPLING SHALL BE SUBSTITUTED FOR ONE OF THE STANDARD GLANDS ON THE 6" GATE VALVE FOR THE TYPE V AND TYPE VI INSTALLATIONS.
- BACKFILL OF HYDRANTS AND VALVES SHALL BE COMPACTED BY HAND WITH SUITABLE MECHANICAL EQUIPMENT.
- THERE SHALL BE NO MORE THAN ONE HYDRANT EXTENSION.
- HYDRANT SHALL DRAIN FREELY AFTER INSTALLATION, DRAIN MATERIAL SHALL BE DRAINAGE GRAVEL ONLY, NO LIMESTONE MATERIAL
- THE HYDRANT SHOE SHALL BE DRY BLOCKED, NO POUR IN PLACE BLOCKING
- WHEN HYDRANT IS MORE THAN TEN (10) FEET FROM WATER MAIN, TRACER WIRE SHALL BE EXTENDED AND TERMINATED IN VALVCO TERMINATION BOX (OR EQUAL) LOCATED ON THE STREET SIDE OF THE HYDRANT.
- HYDRANT BRANCH VALVES SHALL BE OPENED PRIOR TO PRESSURE TESTING WATER MAIN.



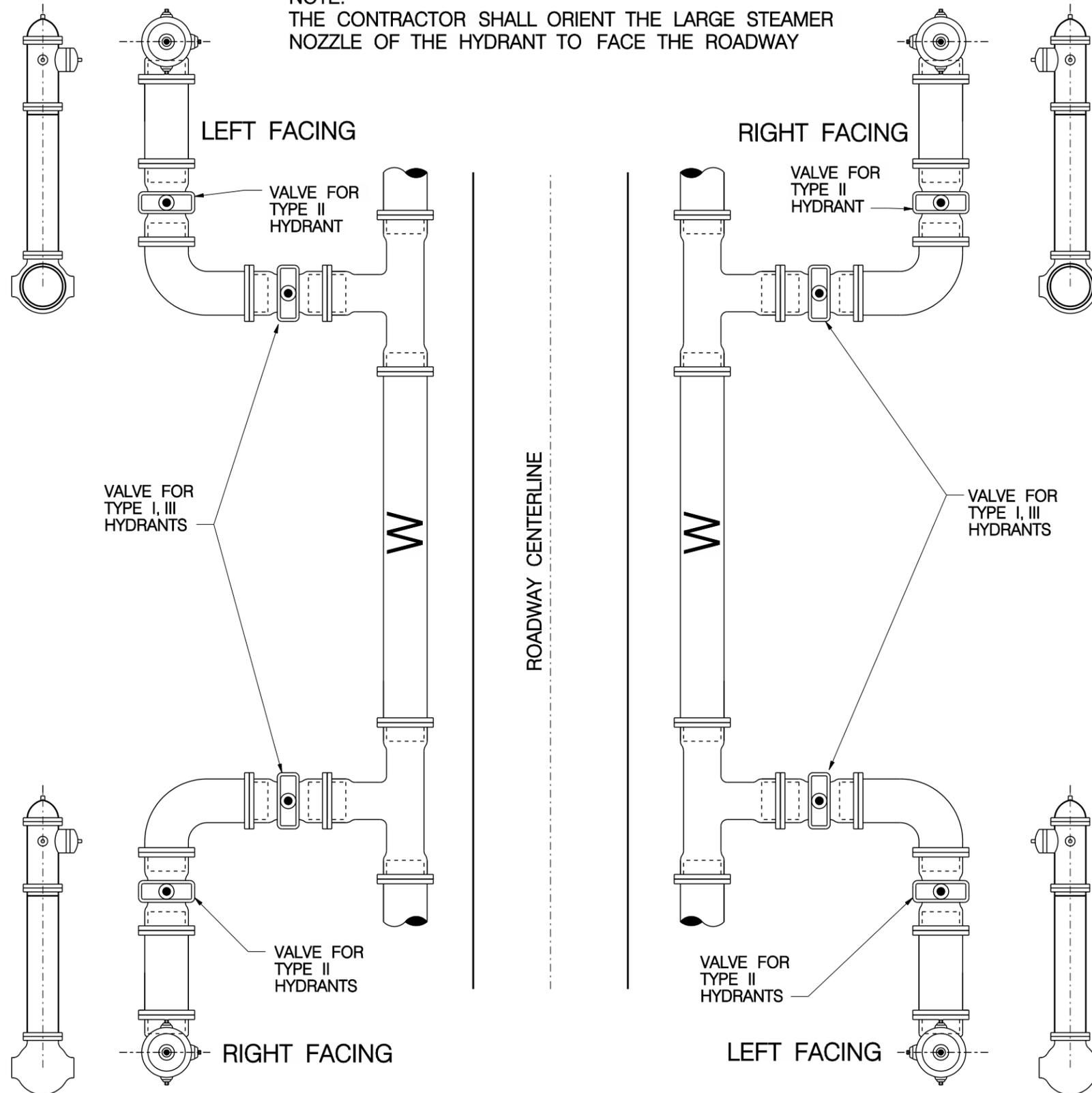
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| | |
|-----------------------|--------------------|
| PROJECT NO. SHEET NO. | |
| LSP 330 | 2 |
| Date: 6/4/2011 | Drawn: JWH/CEA |
| | Checked: Approved: |

CORRECT HYDRANT ORIENTATION

TYPES I, II, III

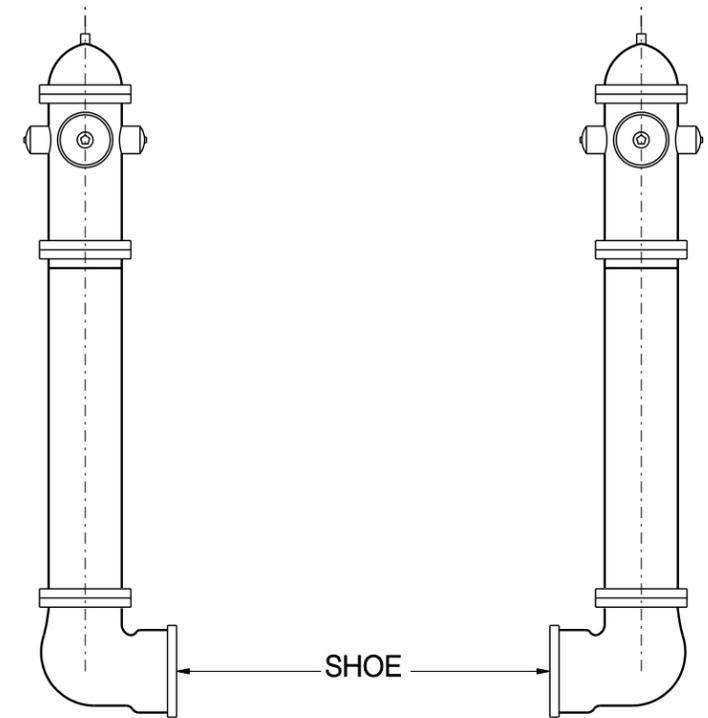
NOTE:
 THE CONTRACTOR SHALL ORIENT THE LARGE STEAMER
 NOZZLE OF THE HYDRANT TO FACE THE ROADWAY



HYDRANT CONFIGURATION

RIGHT FACING SHOE

LEFT FACING SHOE



WHEN FACING THE
 LARGE STEAMER
 NOZZLE, THE HYDRANT
 SHOE POINTS RIGHT

WHEN FACING THE
 LARGE STEAMER
 NOZZLE, THE HYDRANT
 SHOE POINTS LEFT

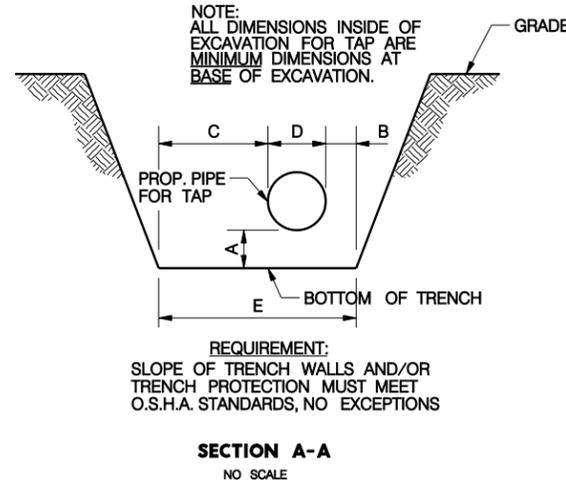
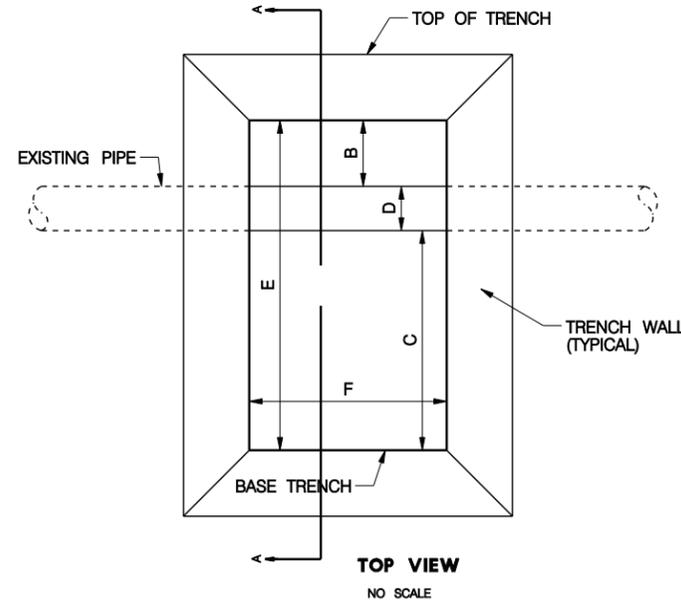


EFFECTIVE JULY 1, 2011 - HYDRANT INSTALLATIONS
 L.S.P. 330

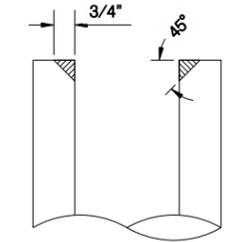
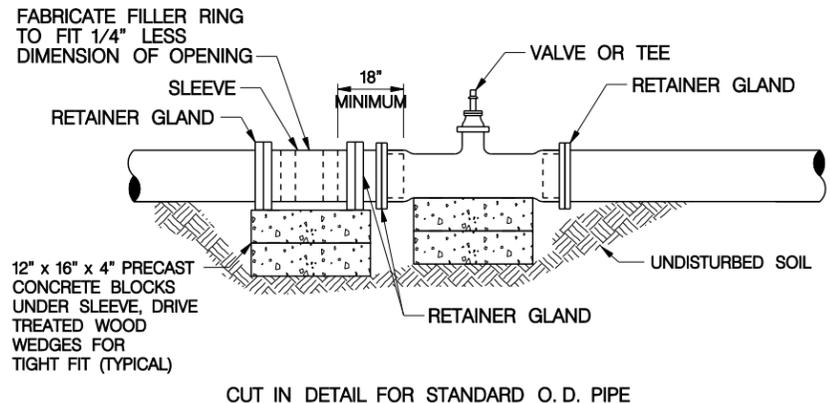
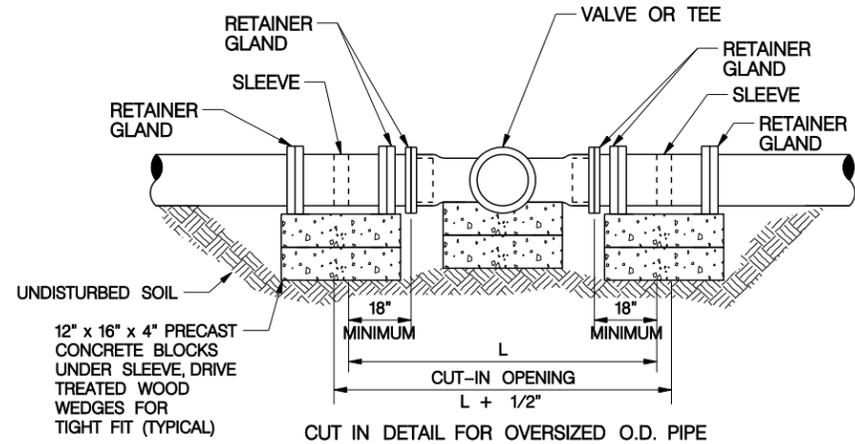
LSP 330

This document was originally issued and sealed by Steve R. Owen, E-6812, on 6-6-11. This media should not be considered a certified document.

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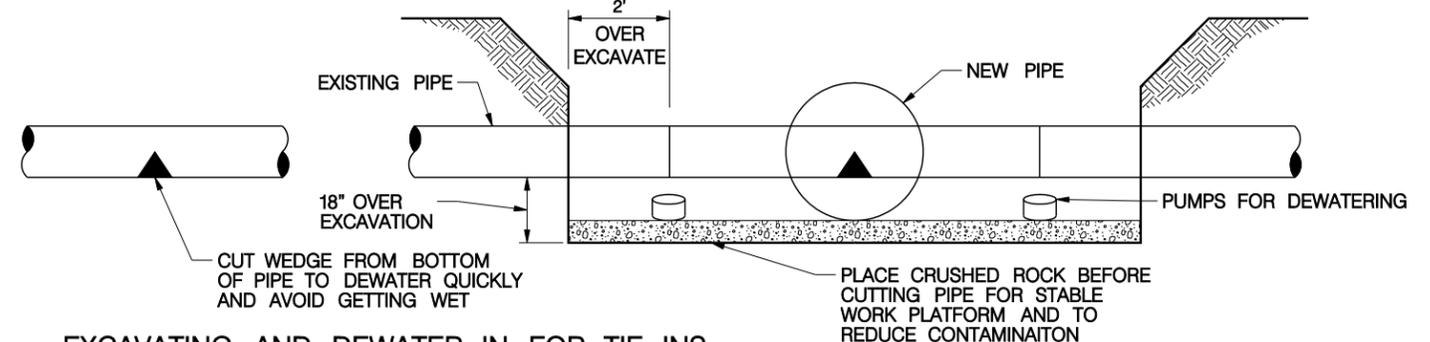
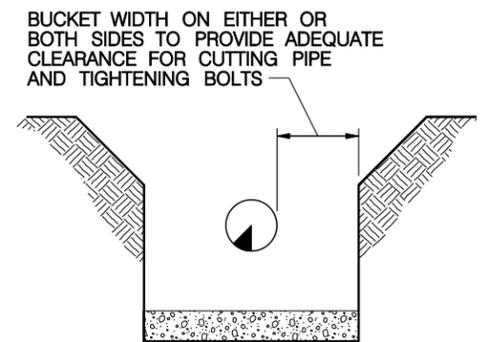


| WATER TAPPING EXCAVATION PIT | | | | | | |
|------------------------------|-----|-----|------------|-------------|------------|-------|
| | A | B | C | D | E | F |
| TAPPING SLEEVE AND VALVE | 12" | 12" | 6'-0" | 10" OR LESS | 8" MINIMUM | 4'-0" |
| | | | 7'-0" | 12" OR LESS | 9" MINIMUM | |
| WATER SERVICE TAP | 6" | 12" | 3' MINIMUM | 16" OR LESS | 5'-0" | 3'-0" |
| WASTEWATER SERVICE TAP | 6" | 12" | 3' MINIMUM | 15" OR LESS | 5'-0" | 3'-0" |



CHAMFER FOR 12" PVC BUTTERFLY VALVE

CUT IN FOR VALVES OR FITTINGS

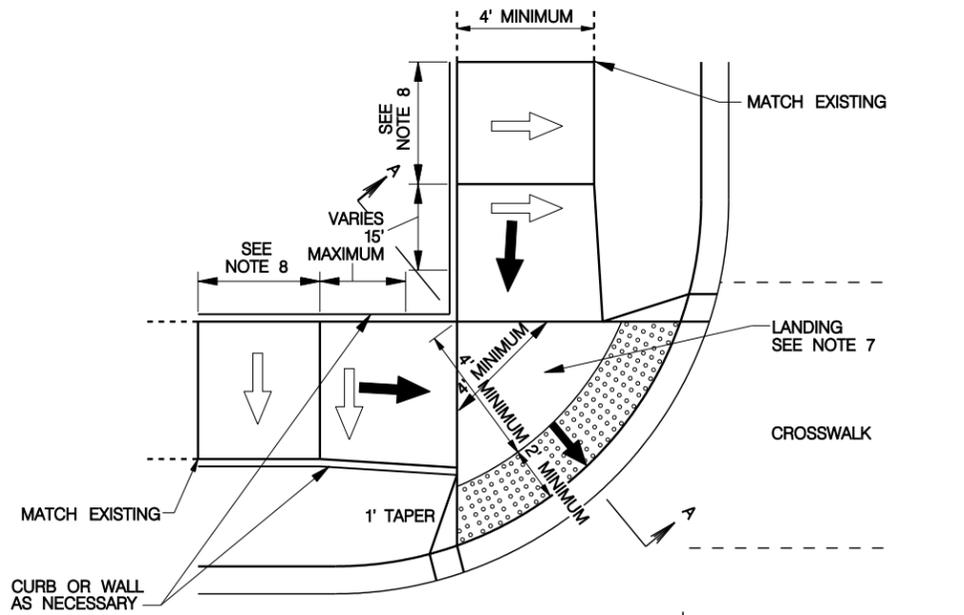


EXCAVATING AND DEWATER IN FOR TIE-INS LINCOLN WATER SYSTEM

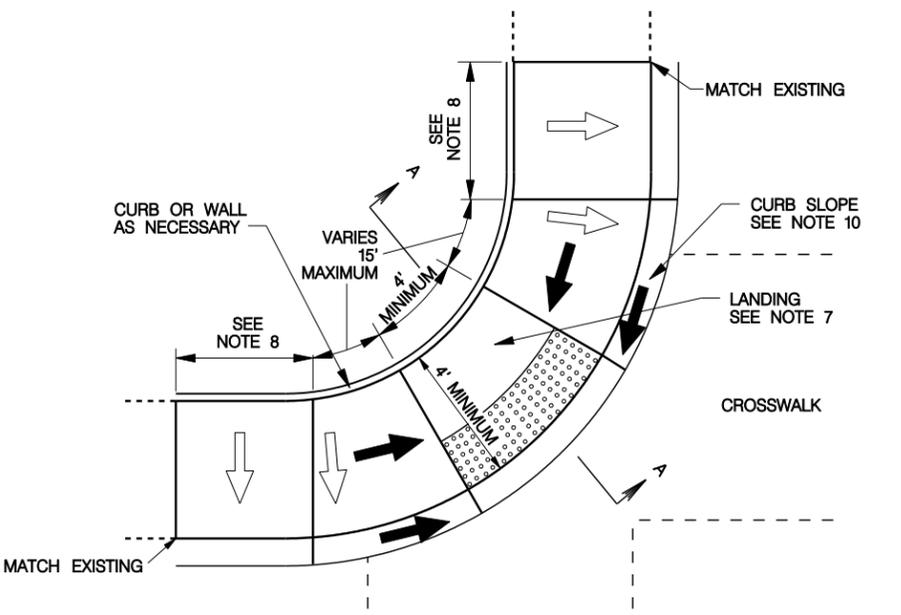


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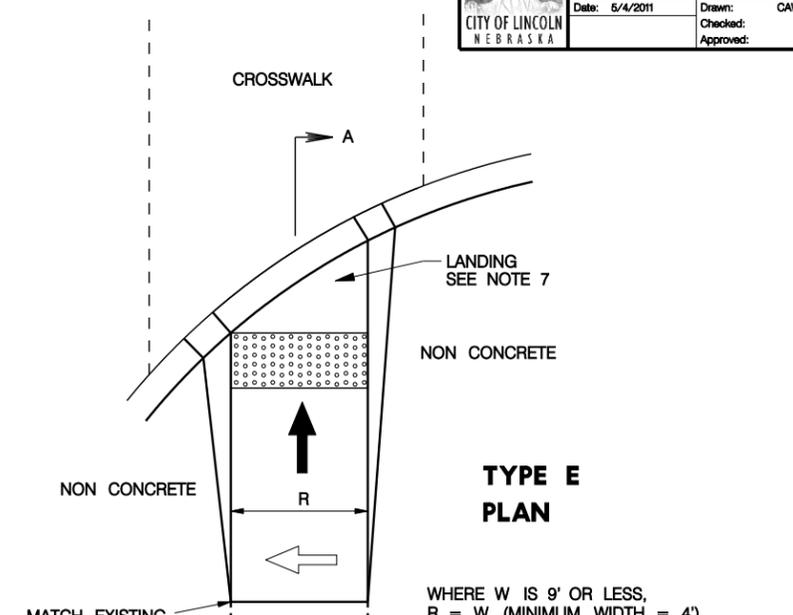
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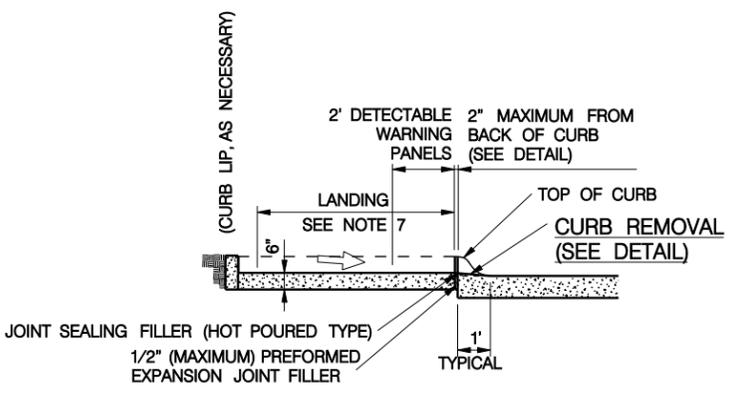
TYPE C PLAN



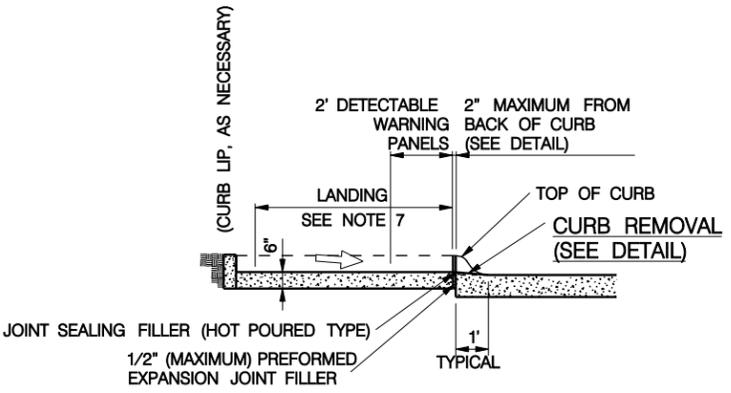
TYPE D PLAN



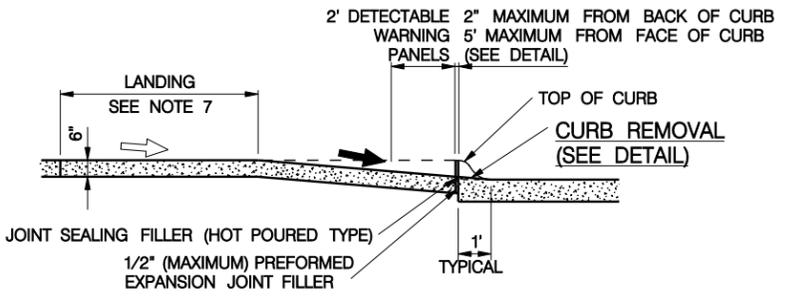
WHERE W IS 9' OR LESS,
 R = W (MINIMUM WIDTH = 4').
 WHERE W IS GREATER THAN 9',
 R = 4', EXCEPT BIKE PATH/TRAIL.
 SEE NOTE 1



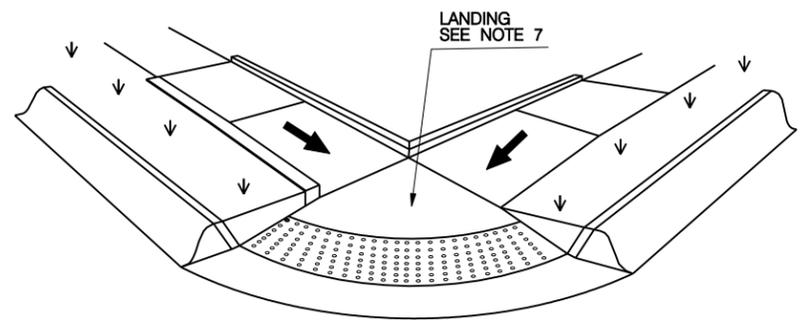
TYPE C CROSS SECTION SECTION A-A



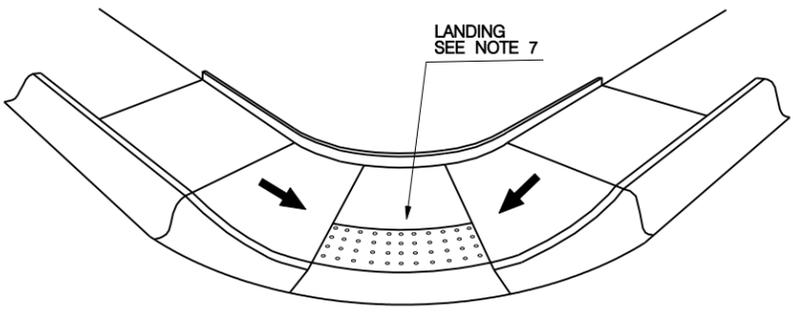
TYPE D CROSS SECTION SECTION A-A



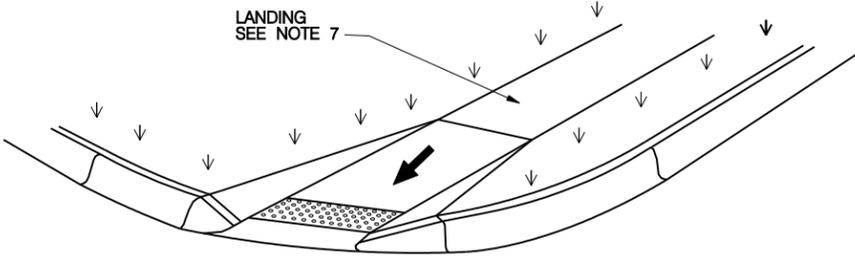
TYPE E CROSS SECTION SECTION A-A



ISOMETRIC VIEW



ISOMETRIC VIEW



ISOMETRIC VIEW

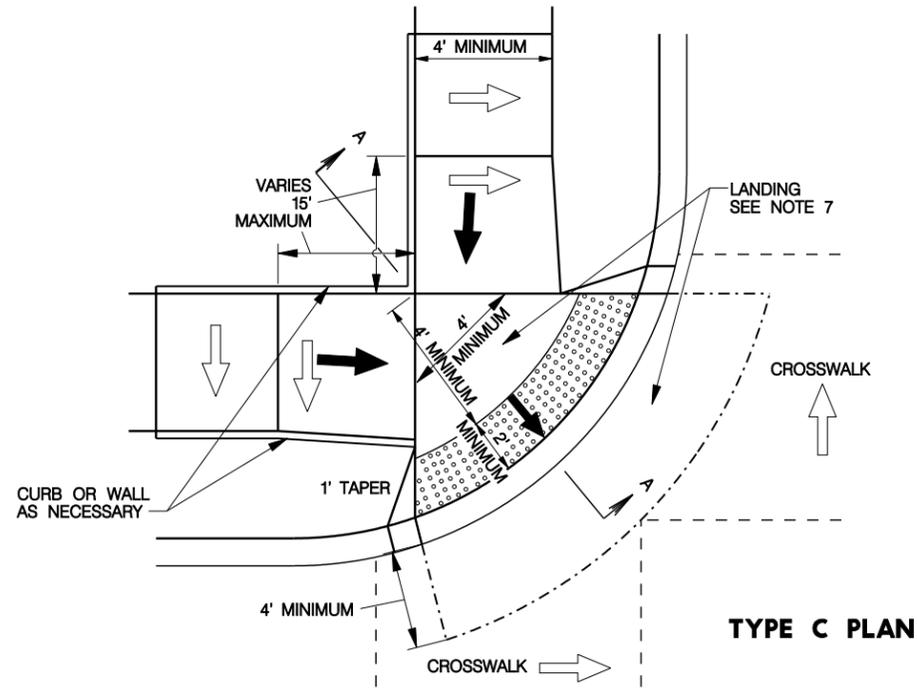
| | |
|--|---|
| | 1.5% DESIRABLE MAXIMUM (2.0% ABSOLUTE MAXIMUM) SLOPE |
| | 7.3% DESIRABLE MAXIMUM (8.3% ABSOLUTE MAXIMUM) SLOPE |
| | 9.0% DESIRABLE MAXIMUM (10.0% ABSOLUTE MAXIMUM) SLOPE |

SLOPES MAY BE LESS THAN THE DESIRABLE MAXIMUM, BUT SHALL NOT EXCEED THE ABSOLUTE MAXIMUM. THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE ABSOLUTE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE PROJECT MANAGER.

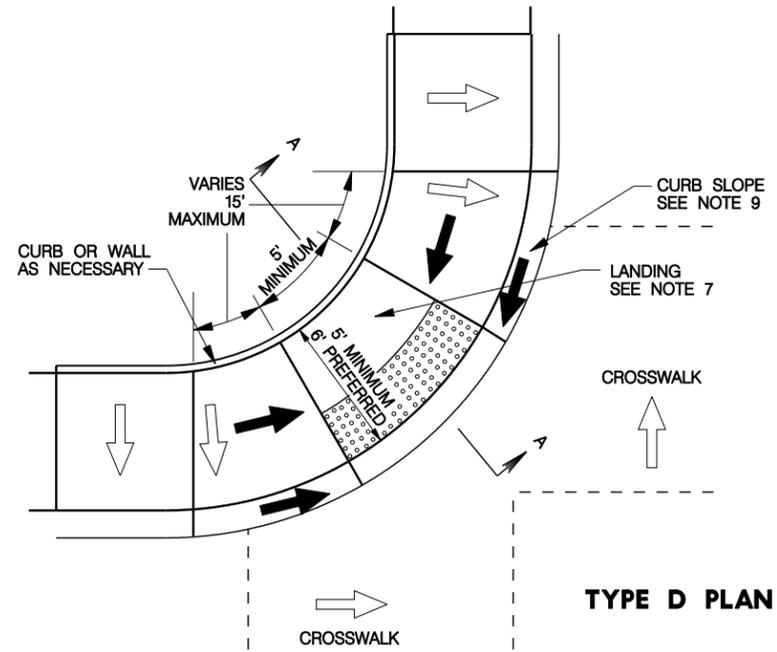
SLOPE LEGEND

FOR FURTHER DETAILS SEE NOTES ON SHEET 3

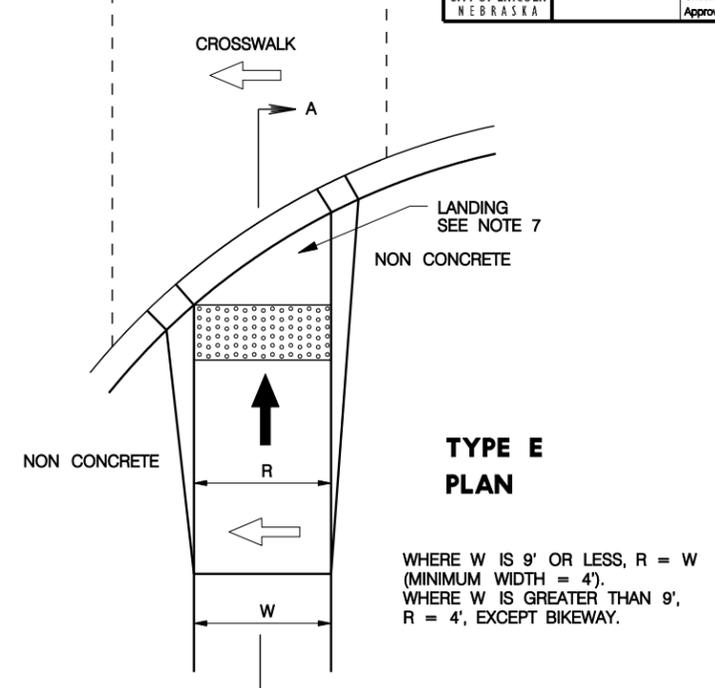




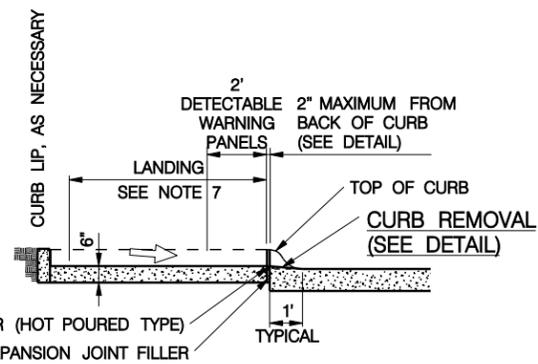
TYPE C PLAN



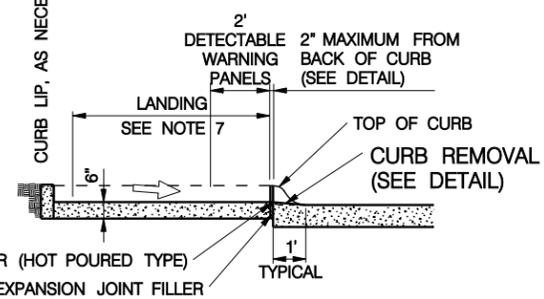
TYPE D PLAN



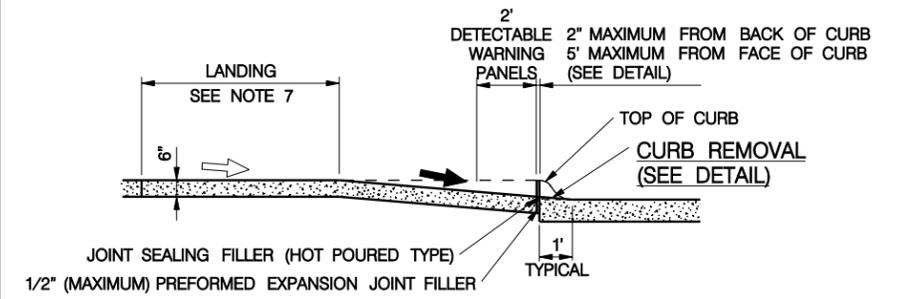
TYPE E PLAN



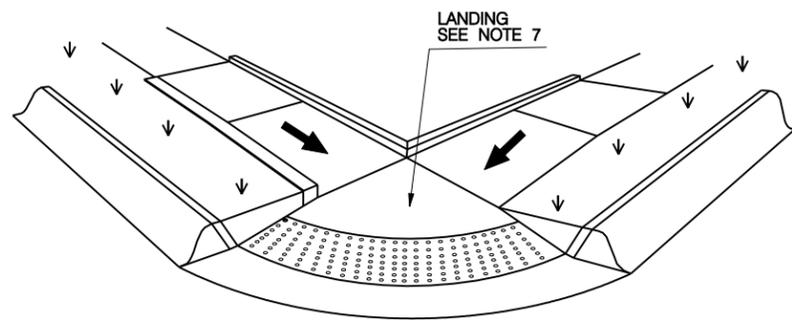
TYPE C CROSS SECTION SECTION A-A



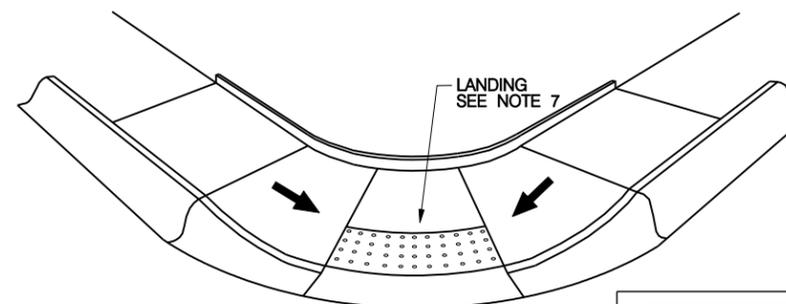
TYPE D CROSS SECTION SECTION A-A



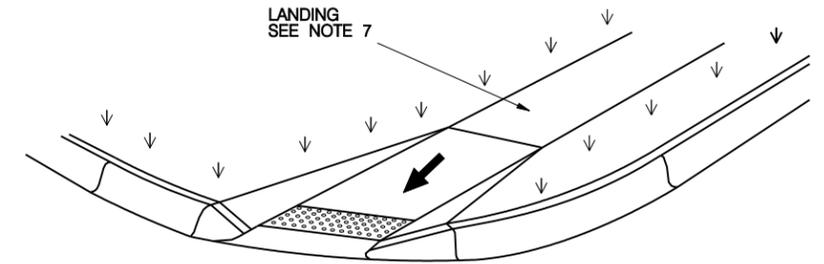
TYPE E CROSS SECTION SECTION A-A



TYPE C ISOMETRIC VIEW



TYPE D ISOMETRIC VIEW



TYPE E ISOMETRIC VIEW

| | |
|--|---|
| | 1.5% DESIRABLE MAXIMUM (2.0% ABSOLUTE MAXIMUM) SLOPE |
| | 7.3% DESIRABLE MAXIMUM (8.3% ABSOLUTE MAXIMUM) SLOPE |
| | 9.0% DESIRABLE MAXIMUM (10.0% ABSOLUTE MAXIMUM) SLOPE |

SLOPES MAY BE LESS THAN THE DESIRABLE MAXIMUM, BUT SHALL NOT EXCEED THE ABSOLUTE MAXIMUM. THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE ABSOLUTE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE PROJECT MANAGER.

SLOPE LEGEND

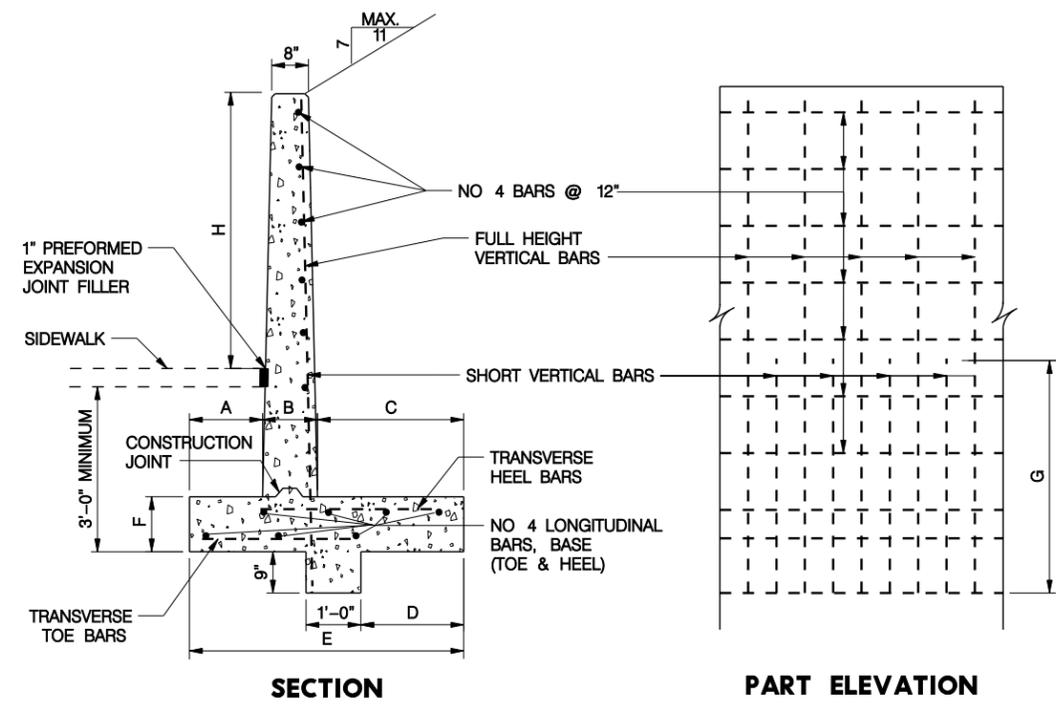
FOR FURTHER DETAILS, SEE NOTES ON SHEET 3



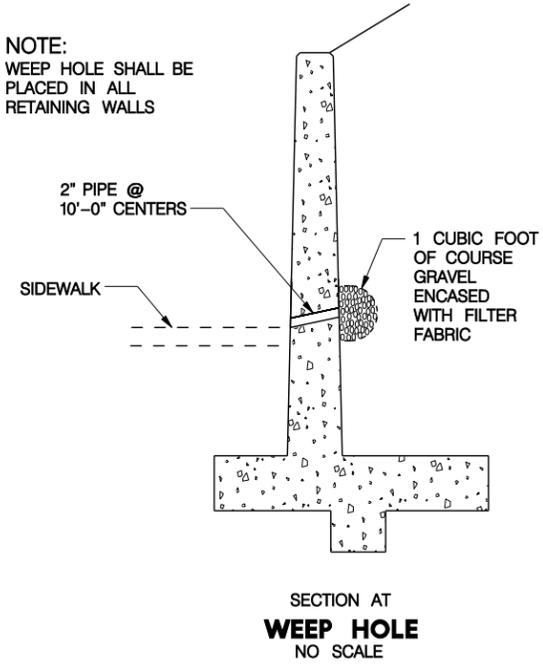
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 DATE: 10/9/2011
 DGN: ..\STANDARD\Curent\Nsp810.dgn

| HEIGHT OF WALL FEET | QUANTITIES PER LINEAR FOOT OF WALL | | | | | | |
|---------------------|------------------------------------|--------------------------|----------------------------|-----------------------------|---------------------------------|------------------------|----------------------------|
| | CONCRETE CUBIC YARDS | REINFORCING STEEL POUNDS | DAMP-PROOFING SQUARE YARDS | ADDITIONAL CONCRETE | | ADDITIONAL STEEL | |
| | | | | ONE WALL CORNER CUBIC YARDS | ONE ENTRANCE CORNER CUBIC YARDS | ONE WALL CORNER POUNDS | ONE ENTRANCE CORNER POUNDS |
| UNDER 35" | .305 | 11.7 | .572 | 1.1 | 0.14 | 93 | 27 |
| 35" - 47" | .355 | 14.9 | .669 | 1.5 | 0.15 | 121 | 35 |

| SURCHARGED FILL BEHIND WALL (MAXIMUM SURCHARGE SLOPE 11:7) | | | | | | | | | | | | | |
|--|------------|-------|--------|-------|--------|-------|--------|---|---|-----------------------|------------|--------------------------------|---------------------|
| HEIGHT OF WALL | DIMENSIONS | | | | | | | REINFORCING BARS | | | | | |
| | A | B | C | D | E | F | G | FULL HEIGHT VERTICAL BARS (ALTERNATE WITH SHORT BARS) | SHORT VERTICAL BARS (ALTERNATE WITH FULL HEIGHT BARS) | TRANSVERSE BARS, BASE | | LONGITUDINAL BARS, BASE (NO 4) | |
| | | | | | | | | | | TOE BARS | HEEL BARS | NUMBER OF TOE BARS | NUMBER OF HEEL BARS |
| UNDER 35" | 10" | 1'-0" | 1'-6" | 1'-2" | 3'-4" | 1'-0" | 3'-9" | NO 3 @ 14" | NO 3 @ 14" | NO 3 @ 12" | NO 3 @ 12" | 2 | 3 |
| 35" - 47" | 1'-0" | 1'-0" | 1'-10" | 1'-6" | 3'-10" | 1'-0" | 3'-10" | NO 4 @ 16" | NO 4 @ 16" | NO 3 @ 12" | NO 3 @ 12" | 2 | 3 |



NOTE:
 WEEP HOLE SHALL BE PLACED IN ALL RETAINING WALLS



NOTE:

ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4".

MINIMUM COVERING, MEASURED FROM FACE OF THE CONCRETE TO THE SURFACE OF ANY REINFORCING BARS SHALL BE 3".

EXPANSION JOINTS SHALL BE PLACED IN WALLS AT NOT MORE THAN 50'-0" INTERVALS, AT LOCATIONS TO BE DETERMINED BY THE ENGINEER, AND AT 8'-0" FROM ALL WALL AND ENTRANCE CORNERS. LONGITUDINAL BARS SHALL BE CUT AT EXPANSION JOINTS.

DUMMY JOINTS SHALL BE PLACED IN THE FACE OF WALLS AT LOCATIONS TO BE DETERMINED BY THE ENGINEER.

A CONTROL JOINT SHALL BE PLACED MIDWAY BETWEEN EXPANSION JOINTS OR MIDWAY BETWEEN EXPANSION JOINT AND THE END OF THE RETAINING WALL, EXCEPT CONTROL JOINTS MAY BE DELETED WHERE THE DISTANCE BETWEEN EXPANSION JOINTS OR THE DISTANCE BETWEEN EXPANSION JOINT AND END OF RETAINING WALL IS 30'-0" OR LESS. FIELD CUT ALTERNATE LONGITUDINAL BARS AT CONTROL JOINTS. TOP LONGITUDINAL BARS TO BE CONTINUOUS THROUGH CONTROL JOINT.

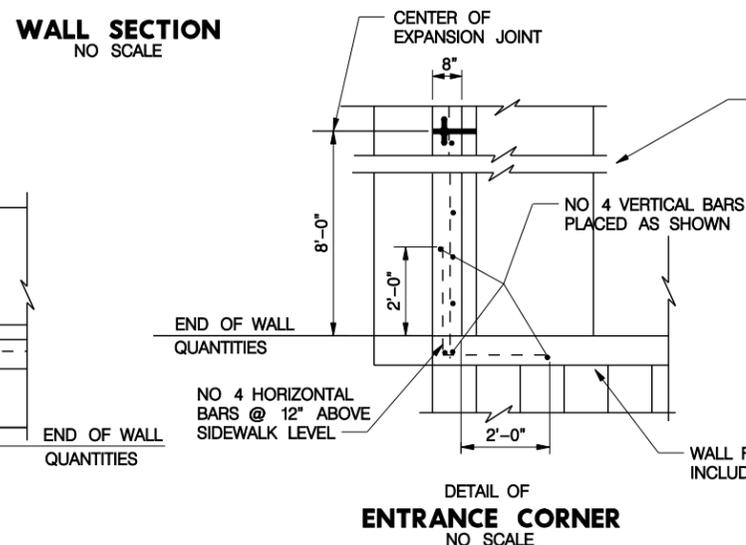
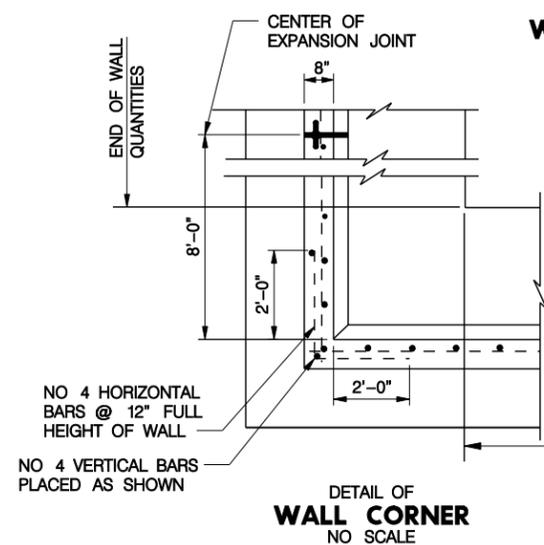
THE BACK FACE OF ALL RETAINING WALLS OVER TWO FEET HIGH SHALL BE DAMP-PROOFED ABOVE THE TOP OF THE FOOTING.

WEEP HOLES SHALL BE PLACED AT 10'-0" CENTERS IN ALL RETAINING WALLS.

ALL EXPOSED FACES OF RETAINING WALLS SHALL BE BUILT WITH FORMS TO SIMULATE A BRICK FACE.

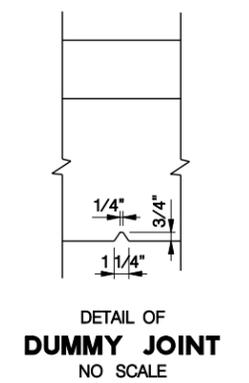
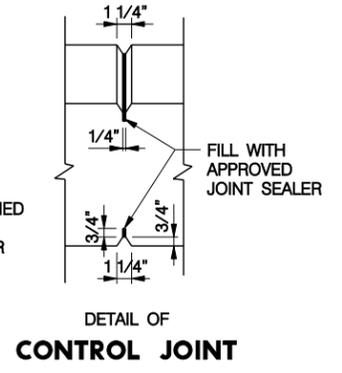
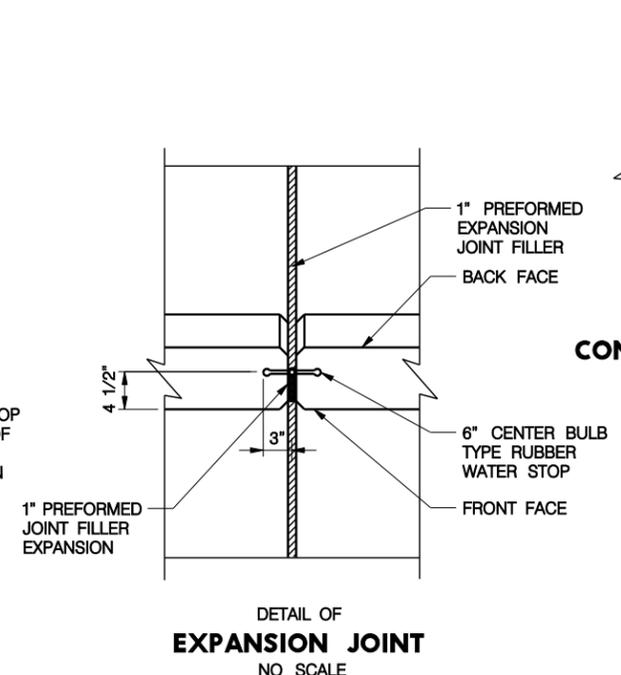
ALL REINFORCING STEEL SHALL BE EPOXY COATED.

ALL CONCRETE SHALL BE L3500.



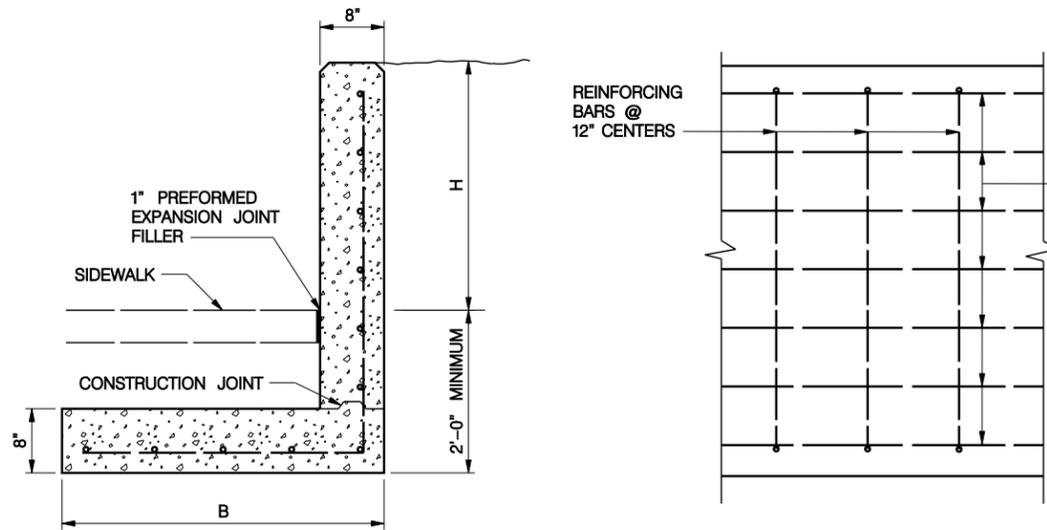
NOTE:
 RETAINING WALL AND WALL FOR STEPS TO BE POURED INTEGRALLY

NOTE:
 WATER STOP TO EXTEND FROM TOP OF FOOTING TO 3" BELOW TOP OF WALL ALL LONGITUDINAL STEEL IN WALL SHALL BE CUT AT EXPANSION JOINTS.



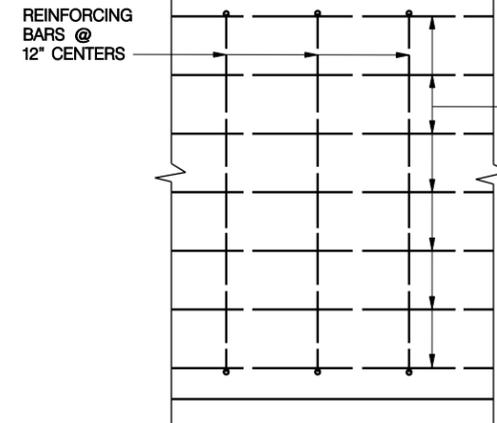
EFFECTIVE JULY 1, 2011
 REINFORCED CONCRETE RETAINING WALL TYPE 'A' AND 'B'
 L.S.P. 610

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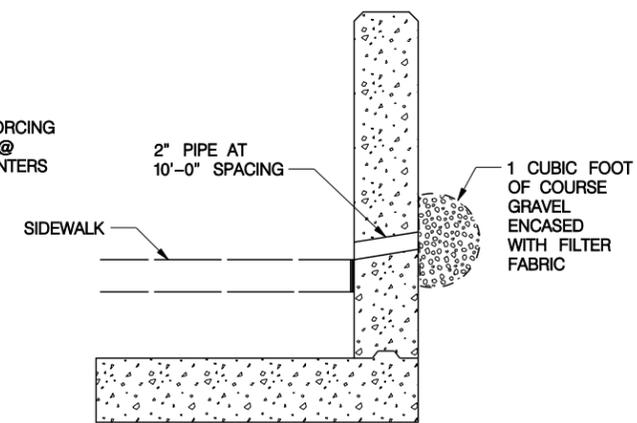


SECTION

WALL DETAIL



PART ELEVATION



SECTION AT WEEP HOLE

| WALL HEIGHT H | BASE LENGTH B | BAR SIZE | CONCRETE CUBIC YARDS | REINFORCING STEEL POUNDS | ADDITIONAL CONCRETE | | | DAMP PROOFING SQUARE YARDS |
|---------------|---------------|----------|----------------------|--------------------------|---------------------|-----------------|-------------------|----------------------------|
| | | | | | ONE WALL CORNER | ONE WALL CORNER | 1-ENTRANCE CORNER | |
| 1'-0" | 2'-0" | NO 3 | 0.107 | 3.38 | 0.53 | 55 | 11 | --- |
| 1'-6" | 2'-0" | NO 3 | 0.119 | 3.95 | 0.58 | 58 | 12 | --- |
| 2'-0" | 2'-0" | NO 3 | 0.132 | 4.14 | 0.64 | 66 | 16 | --- |
| 2'-6" | 2'-6" | NO 3 | 0.156 | 4.89 | 0.79 | 72 | 17 | 0.43 |
| 3'-0" | 2'-6" | NO 3 | 0.169 | 5.08 | 0.84 | 81 | 21 | 0.48 |
| 3'-6" | 3'-0" | NO 4 | 0.193 | 10.4 | 1.01 | 88 | 22 | 0.54 |
| 3'-11" | 4'-0" | NO 4 | 0.230 | 12.0 | 1.33 | 107 | 26 | 0.59 |

NOTE:

ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4".

MINIMUM COVERING, MEASURED FROM THE FACE OF THE CONCRETE TO THE SURFACE OF ANY REINFORCING BAR SHALL BE 3".

EXPANSION JOINT SHALL BE PLACED IN RETAINING WALLS AT NOT MORE THAN 50'-0" INTERVALS OR AT LOCATIONS TO BE DETERMINED BY THE ENGINEER, AND AT 4'-0" FROM WALL CORNERS AND ENTRANCE CORNERS FOR TYPE 'C' WALLS. LONGITUDINAL BARS SHALL BE CUT AT EXPANSION JOINTS.

DUMMY JOINTS SHALL BE PLACED IN THE FACE OF WALLS AT LOCATIONS TO BE DETERMINED BY THE ENGINEER.

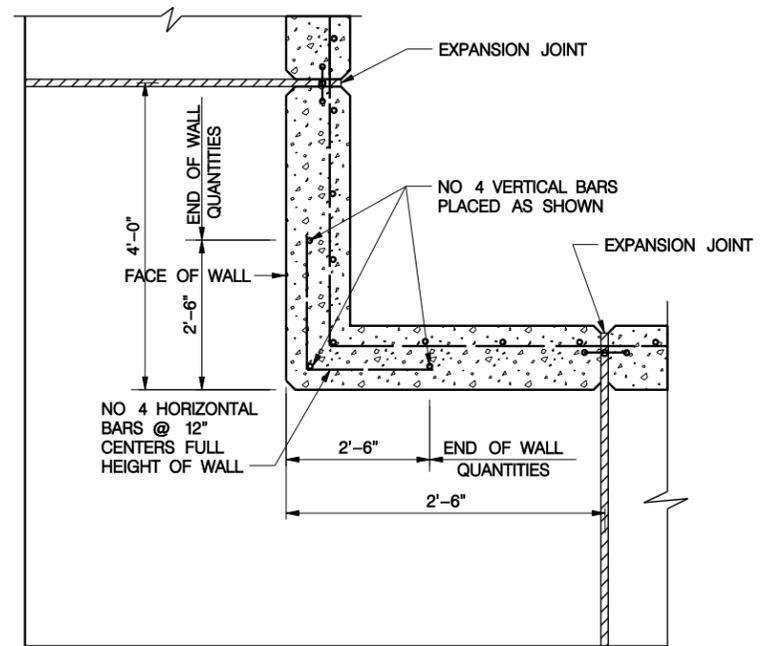
A CONTROL JOINT SHALL BE PLACED MIDWAY BETWEEN EXPANSION JOINTS OR MIDWAY BETWEEN EXPANSION JOINT AND THE END OF THE RETAINING WALL, EXCEPT CONTROL JOINTS WHERE EXPANSION JOINT AND THE END OF THE RETAINING WALL IS 30'-0" OR LESS. FIELD CUT ALTERNATE LONGITUDINAL BARS AT CONTROL JOINTS. TOP LONGITUDINAL BARS IS TO BE CONTINUOUS THROUGH CONTROL JOINT.

THE BACK FACE OF ALL RETAINING WALLS OVER TWO FEET HIGH SHALL BE DAMP PROOFED ABOVE THE TOP OF THE FOOTING.

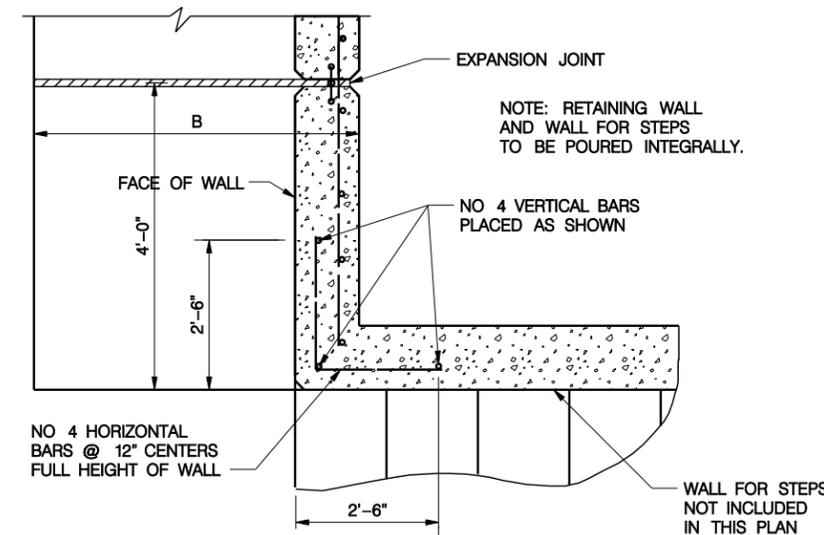
WEEP HOLES SHALL BE PLACED AT 10'-0" CENTERS IN ALL RETAINING WALL. ALL EXPOSED FACES OF RETAINING WALLS SHALL BE BUILT WITH FORMS TO SIMULATE A BRICK FACE.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

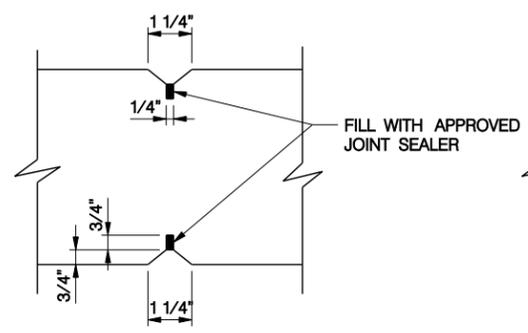
ALL CONCRETE SHALL BE L3500



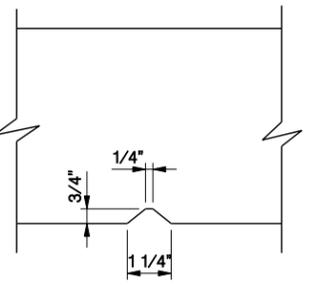
DETAIL OF WALL CORNER



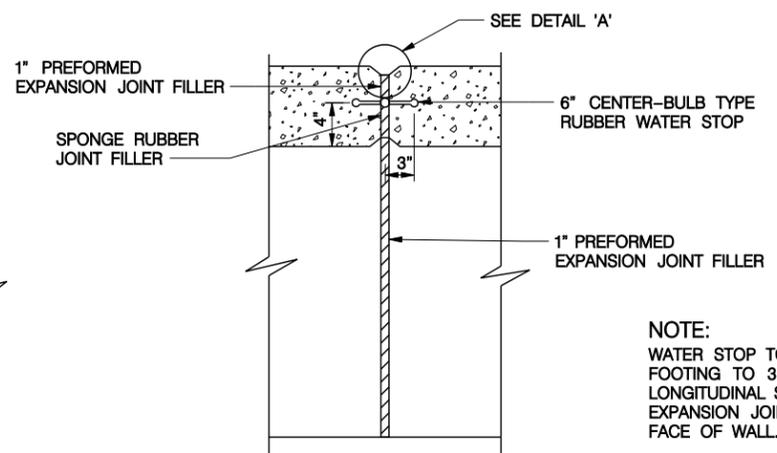
DETAIL OF ENTRANCE CORNER



DETAIL OF CONTROL JOINT



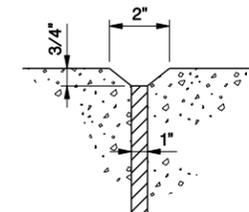
DETAIL OF DUMMY JOINT



DETAIL OF EXPANSION JOINT

NOTE:

WATER STOP TO EXTEND FROM BOTTOM OF FOOTING TO 3" BELOW TOP WALL. ALL LONGITUDINAL STEEL SHALL BE CUT AT EXPANSION JOINTS. GROVE FRONT AND BACK FACE OF WALL.

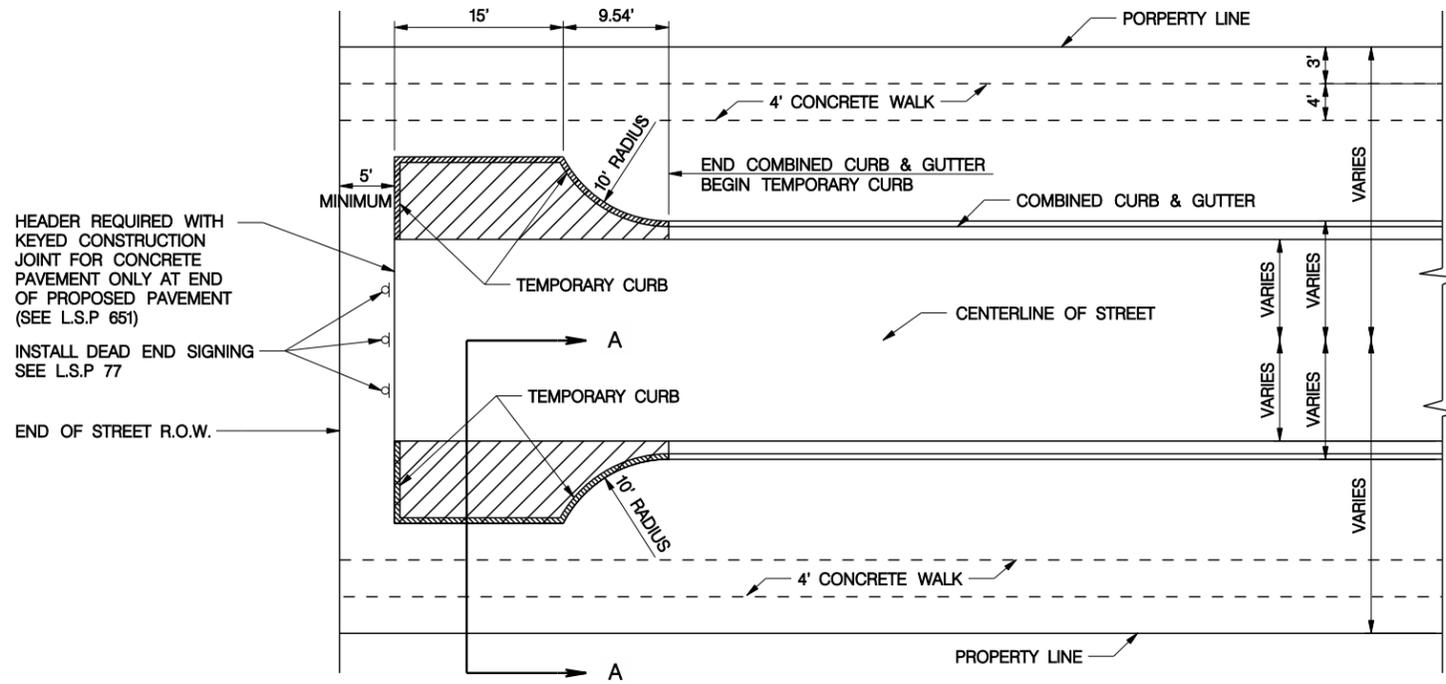


DETAIL 'A'



EFFECTIVE JULY 1, 2011
 REINFORCED CONCRETE RETAINING WALL TYPE 'C'
 L.S.P. 611

PROJ: 70028_OLD AS OF 07/01/10.dwg
 PEN: ..\\nables\\Pen\\SW_PENTABLE.TBL
 USER: elocaw
 DATE: 9/27/2011
 DGN: ..\\STANDARD\\Current\\Temp\\Lsp620.dgn

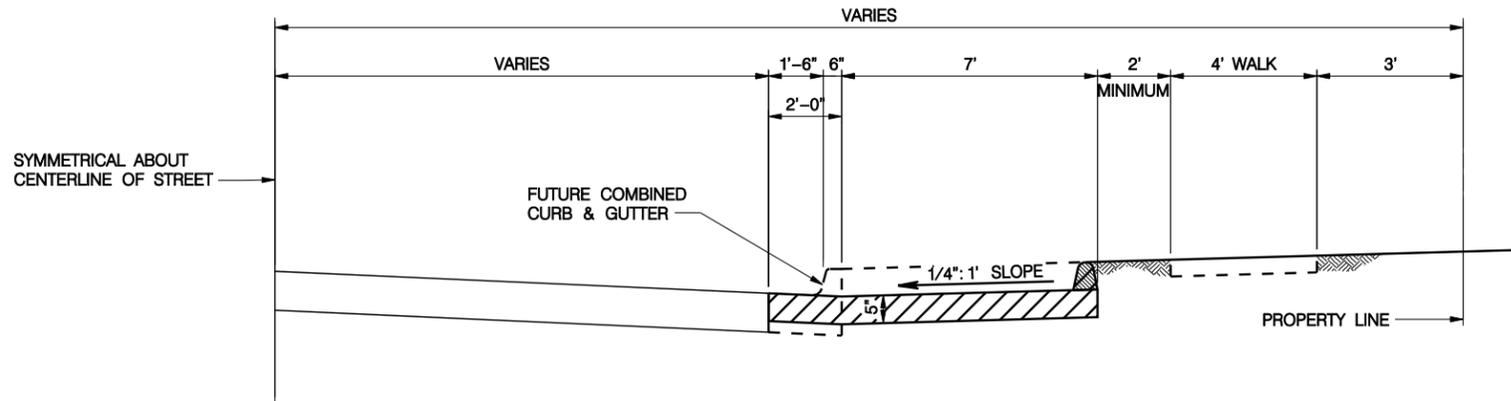


HEADER REQUIRED WITH
 KEYED CONSTRUCTION
 JOINT FOR CONCRETE
 PAVEMENT ONLY AT END
 OF PROPOSED PAVEMENT
 (SEE L.S.P 651)

INSTALL DEAD END SIGNING
 SEE L.S.P 77

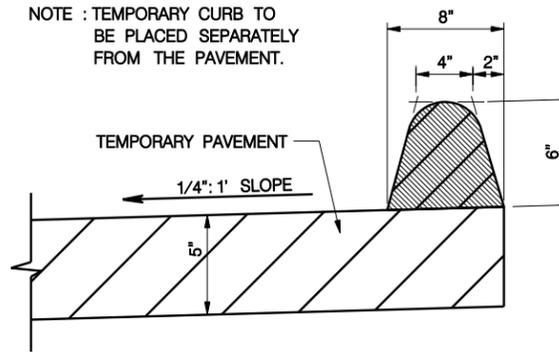
END OF STREET R.O.W.

PLAN OF
 TEMPORARY PAVEMENT TURN AROUND



HALF - SECTION A-A
 TEMPORARY PAVEMENT TURN AROUND

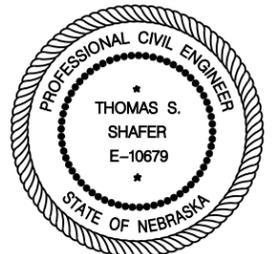
LEGEND



TEMPORARY CURB

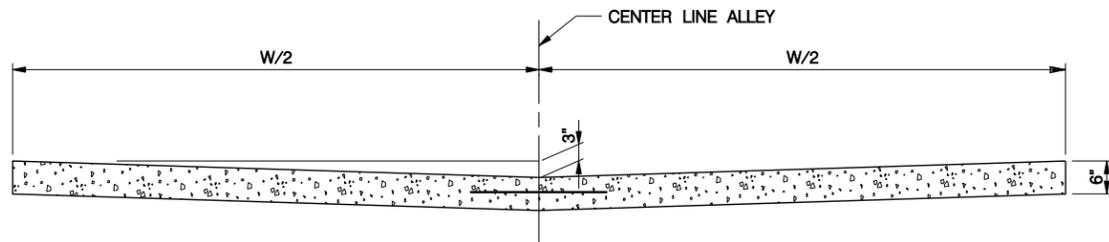
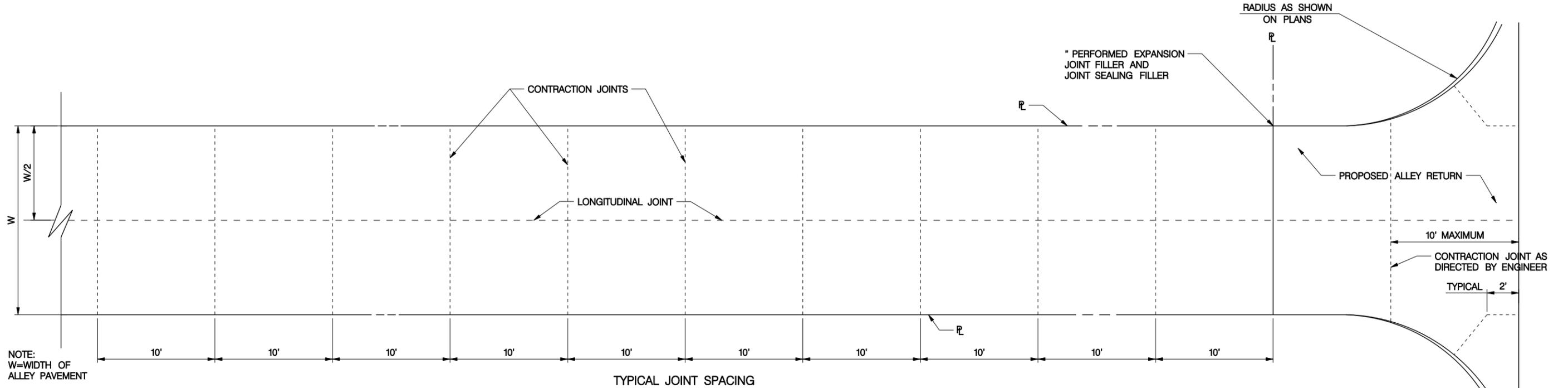
NOTE:
 TEMPORARY PAVEMENT SHALL BE FULL-DEPTH ASPHALT OR 6" L3500 CONCRETE. TEMPORARY CURB SHALL BE ASPHALT OR L3500 CONCRETE.

| QUANTITIES | | |
|--------------|----------------|-----------------|
| R.O.W. WIDTH | PAVEMENT WIDTH | QUANTITIES |
| 60' | 27' | 40 SQUARE YARDS |
| 80' | 39' | 40 SQUARE YARDS |

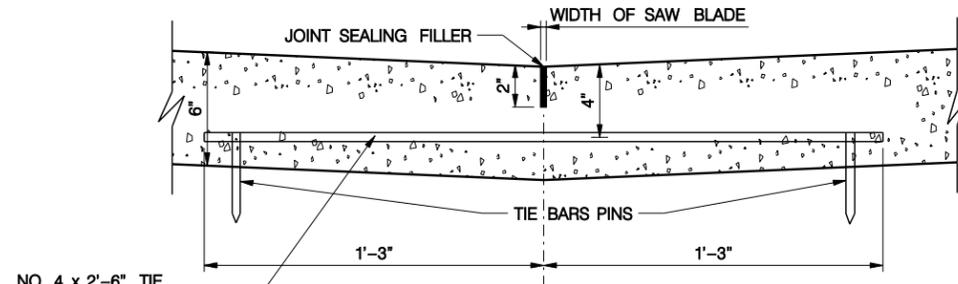
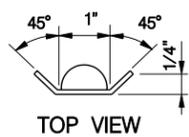


TEMPORARY PAVEMENT TURN AROUND
 L.S.P. 620

PROJ: No Project.dwg
 PEN: ..\\ables\\Pen\\SW_PENTABLE.TBL
 USER: eljrd
 DATE: 9/2/2013
 DGN: ..\\STANDARD\\2013\\isp630.dgn



ALLEY PAVEMENT



LONGITUDINAL JOINT

NOTES:
 THE CONTRACTOR MAY SUBSTITUTE OTHER DESIGNS FOR EXPANSION AND CONTRACTION JOINT SUPPORTS IN LIEU OF THE TYPE SHOWN WITH PRIOR WRITTEN APPROVAL BY THE ENGINEER.

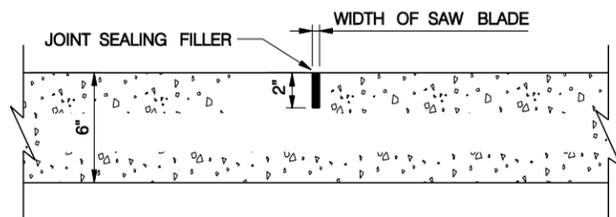
ALL JOINTS SHALL BE SEALED WITH JOINT SEALING FILLER (HOT POURED TYPE) AS PER STANDARD SPECIFICATIONS.

TIE BARS SHALL BE DEFORMED BARS.

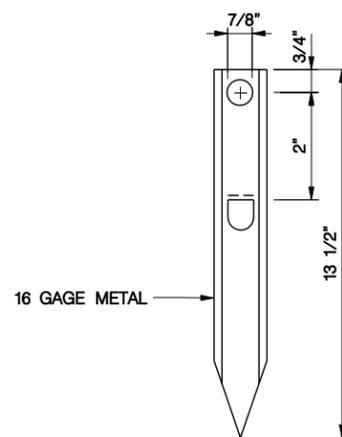
ALL BARS SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL GRADE BILLET STEEL IN ACCORDANCE WITH THE SPECIFICATIONS.

THE CONTRACTOR MAY USE MACHINE FOR PLACING THE LONGITUDINAL TIE BARS IN LIEU OF THE BAR PINS. IF A MECHANICAL TIE BAR PLACEMENT MACHINE IS NOT USED, TIE BAR PINS AS SHOWN WILL BE USED.

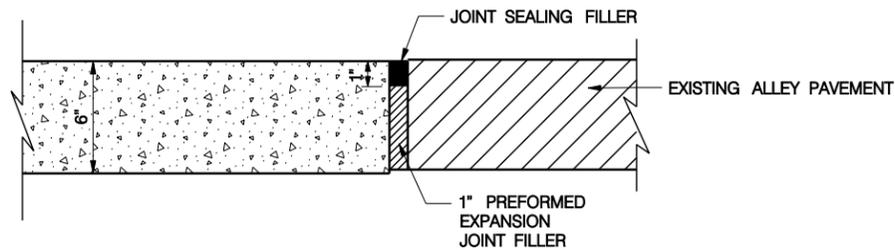
ALL CONCRETE SHALL BE L3500.



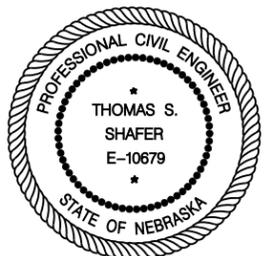
TRANSVERSE CONTRACTION JOINT



TIE BAR PIN

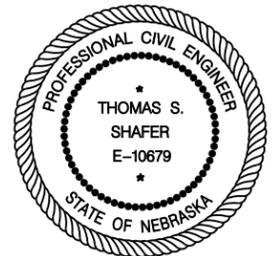
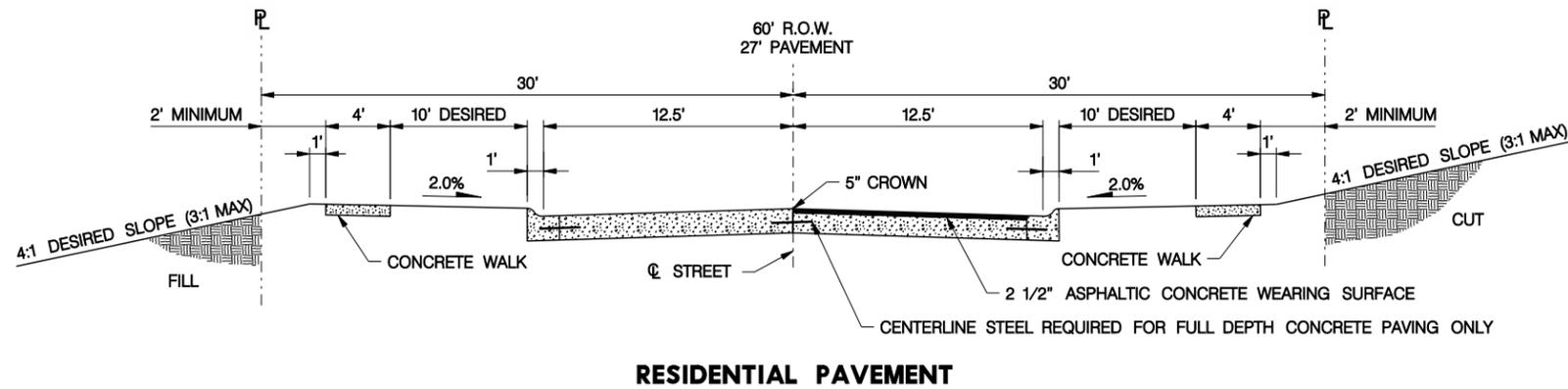
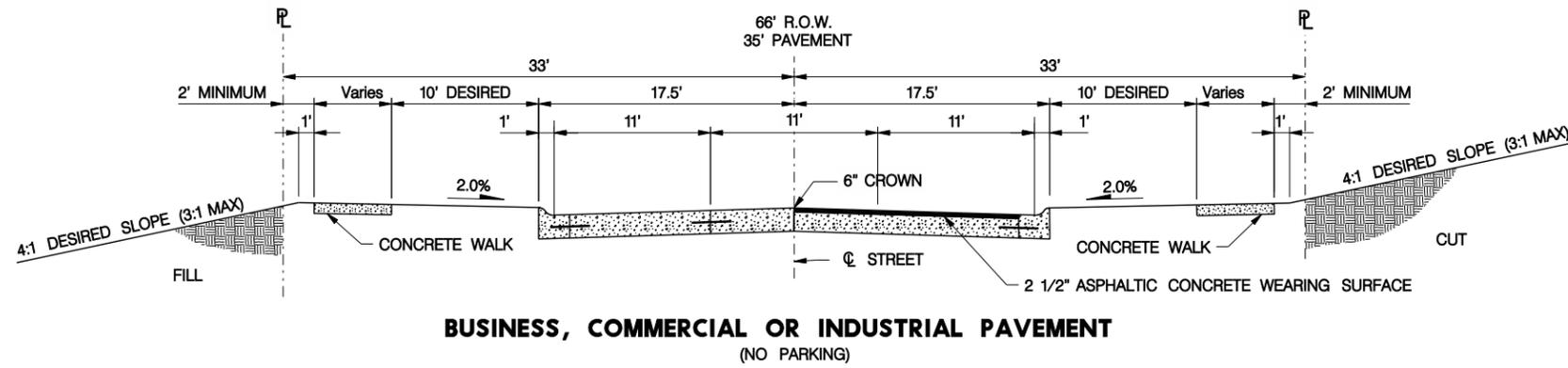
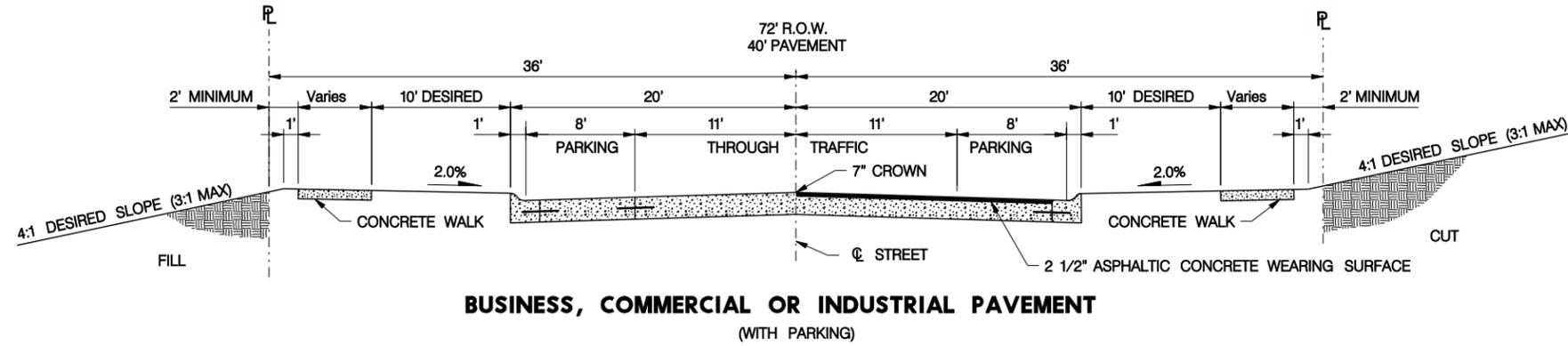
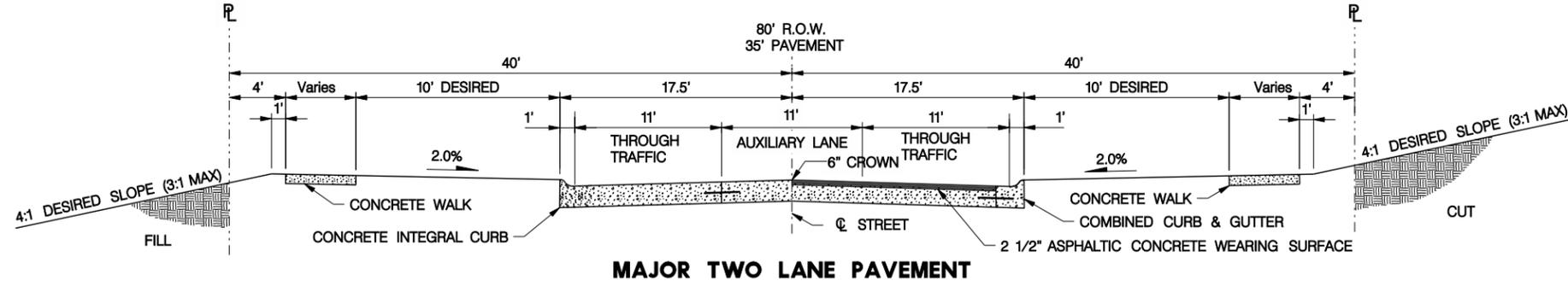


EXPANSION JOINT AT END OF ALLEY RETURN



PROJ: 70028 OLD AS OF 070610.dwg
 PEN: ..\..\..\..\Users\Pen\SW_PENTABLE.TBL
 USER: elocaw
 DATE: 10/9/2011
 DGN: ..\STANDARD\Curent\Nsp4gs1.dgn

| | | |
|---|-----------------|---|
|  CITY OF LINCOLN NEBRASKA | PROJECT NO. | SHEET NO. |
| | LSP 640 | 1 |
| | Date: 9/13/2011 | Drawn: JSC/CAW Checked: Approved: |



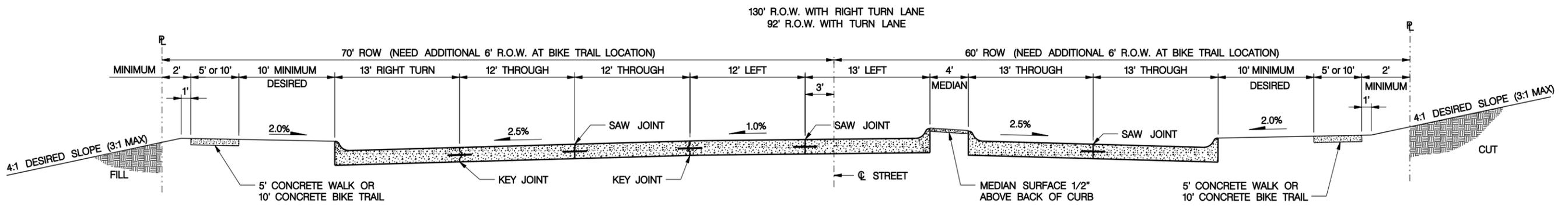
**EFFECTIVE JULY 1, 2011 - PAVEMENT SECTIONS
L.S.P. 640**

LSP 640

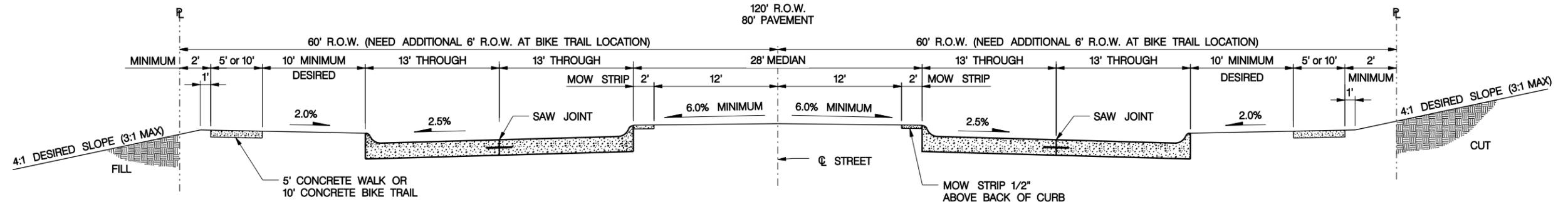
This document was originally issued and sealed by Thomas S. Shafer, E-10679, on 7-1-11. This media should not be considered a certified document.

PROJ: 70028 OLD AS OF 070610.dwg
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 USER: slocaw
 DATE: 10/9/2011
 DGN: ..\STANDARD\Curent\Nsp84e2.dgn

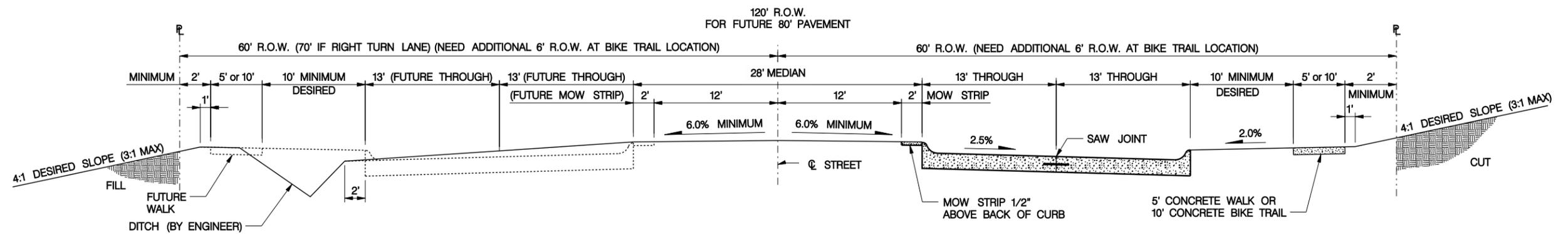
| | |
|-----------------------|--------------------|
| PROJECT NO. SHEET NO. | |
| LSP 640 | 2 |
| Date: 01/28/2010 | Drawn: CAW |
| | Checked: Approved: |



MAJOR FOUR LANE PAVEMENT AT INTERSECTION
 (MEDIAN DIVIDED)



MAJOR FOUR LANE PAVEMENT BETWEEN INTERSECTIONS
 (MEDIAN DIVIDED)

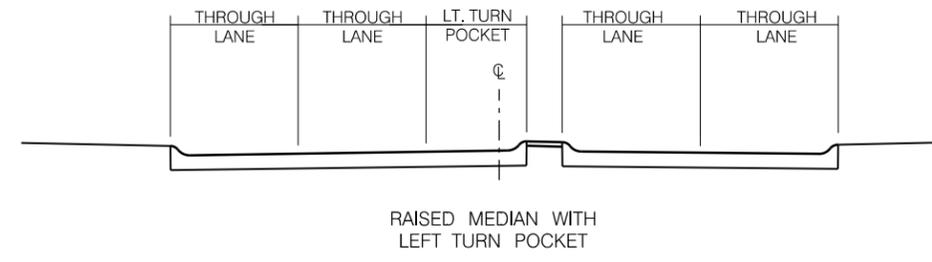
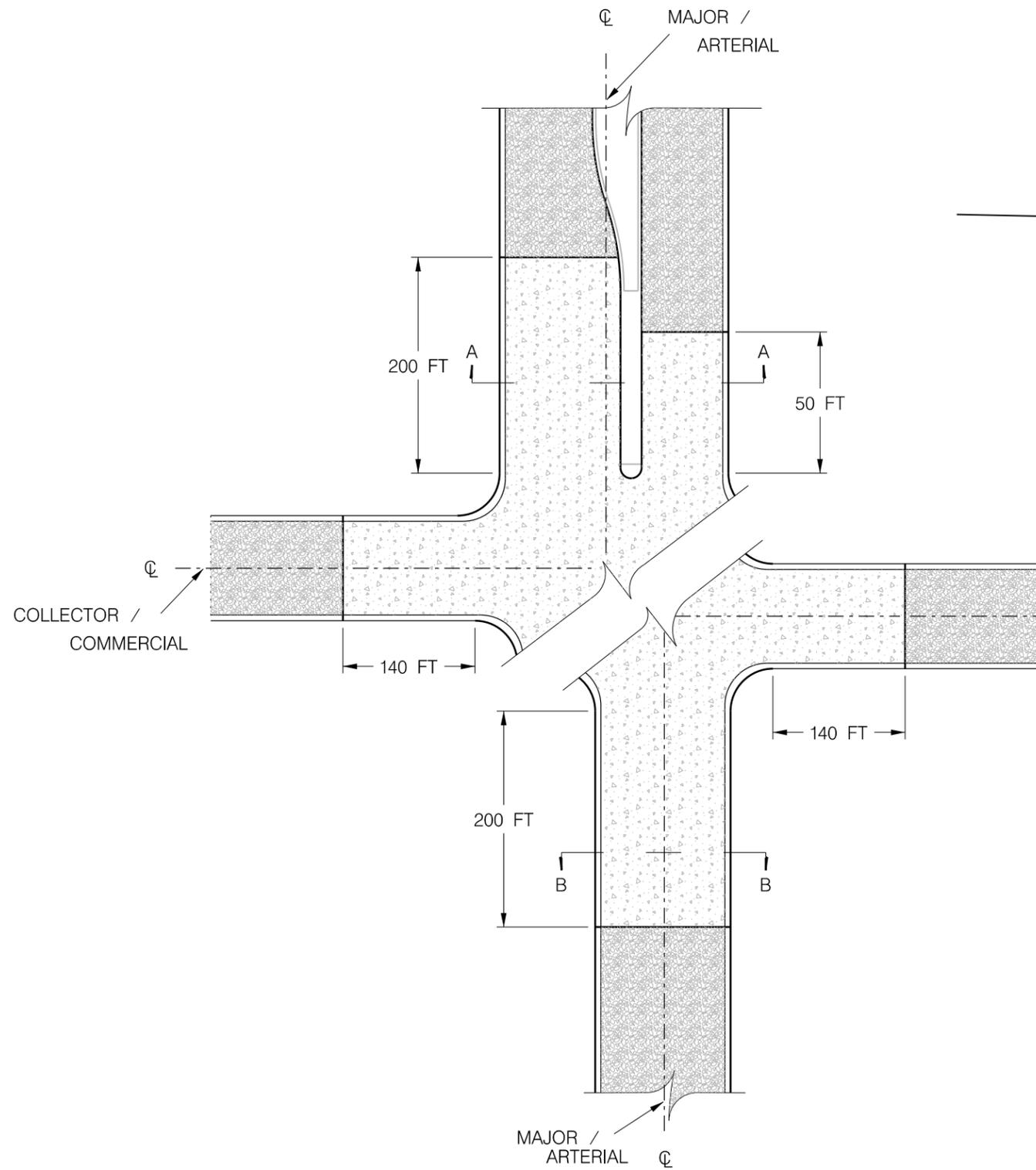


PHASE 1 FOR MAJOR FOUR LANE PAVEMENT
 MOW STRIP SURFACE 1/2" ABOVE BACK OF CURB



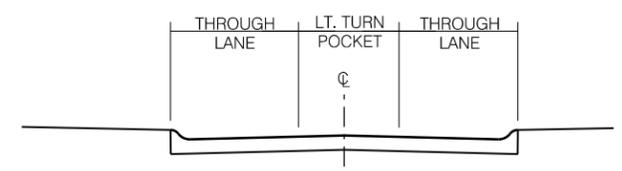
PAVEMENT SECTIONS
L.S.P. 640

PROJ: LPS_Standards.dwg
 PEN: ..\nabes\pen\BW_PENTABLE.tbl
 USER: slocaw
 DATE: 10/24/2014
 DGN: ..\STANDARD\2014\lsp641.dgn



RAISED MEDIAN WITH LEFT TURN POCKET

SECTION A-A



PAINTED LEFT TURN POCKET

SECTION B-B

LEGEND

-  - P.C.C PAVEMENT
-  - ASPHALTIC PAVEMENT

INTERSECTION OF COLLECTOR/COMMERCIAL WITH MAJOR/ARTERIAL

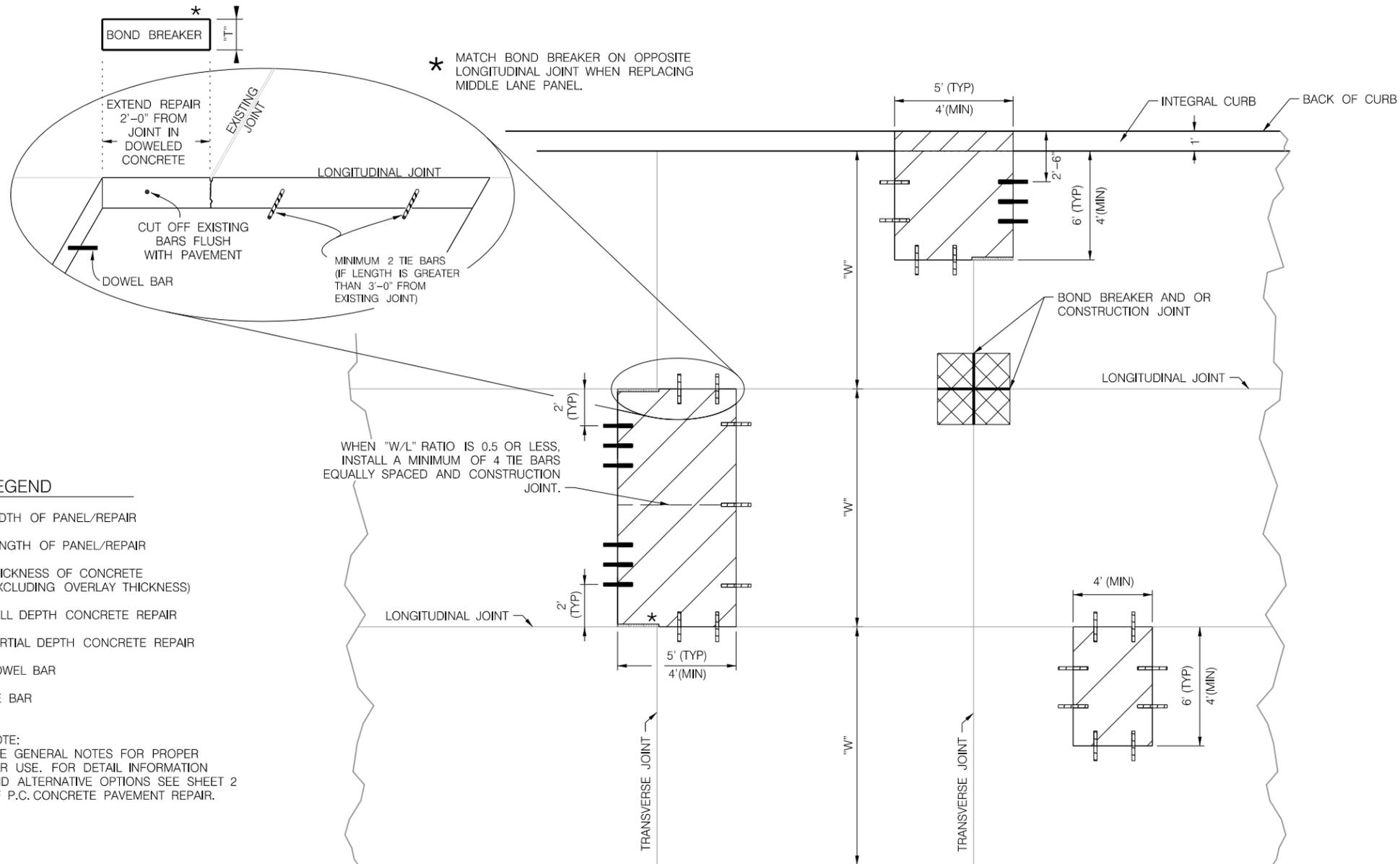
** ALL DIMENSIONS ARE FROM END OF RADIUS



EFFECTIVE DATE NOVEMBER 1, 2014

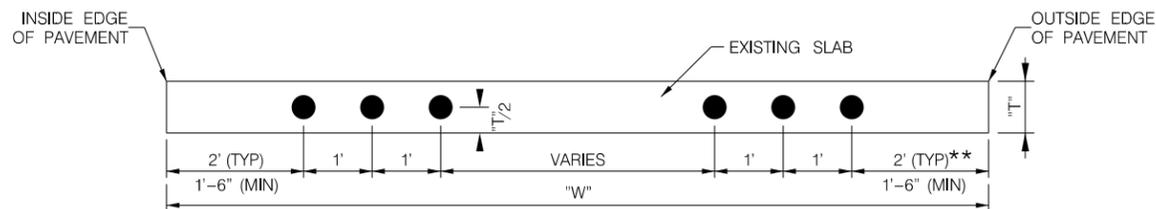
P.C. CONCRETE INTERSECTION

PROJ: LPS_Standards.dgn
 PEN: \\nables\pen\BW_PENTABLE.tbl
 USER: slocaw
 DATE: 2/11/2016
 DGN: ..\STANDARD_2016\lps642s1.dgn



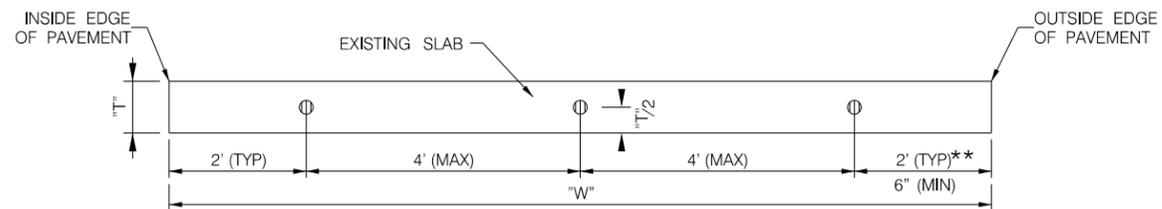
GENERAL NOTES

- FULL DEPTH DIAMOND SAW CUT. (FULL DEPTH 4" WHEEL CUTTER SAW CUT WILL BE PERMITTED IF REPAIR IS OVERLAID.)
- REINFORCING BARS SHALL BE INSTALLED WHEN EXISTING CONCRETE PAVEMENT THICKNESS IS GREATER THAN 6". (EXCLUDING EXISTING OVERLAY AND MILLING THICKNESS)
- PAVEMENT REPAIR AT EXISTING TRANSVERSE JOINTS SHALL EXTEND 2' FROM JOINT IN DOWELED PAVEMENT, UNLESS OTHERWISE REQUIRED BY REPAIR AND APPROVED BY THE CITY'S PROJECT MANAGER
- ARTERIAL REPAIR LOCATIONS SHALL HAVE DOWEL BARS AT NEW TRANSVERSE JOINT NEAREST TO EXISTING TRANSVERSE JOINT OF ADJOINING LANE UNLESS DIRECTED BY PROJECT MANAGER. (EXISTING TRANSVERSE JOINT SHALL NOT BE RE-ESTABLISHED IN THE PAVEMENT REPAIR.)
- DOWEL BARS MUST BE DRILLED ALONG THE SAME HORIZONTAL PLANE.
- DOWEL BARS ARE NOT REQUIRED FOR PAVEMENT REPAIR IN RESIDENTIAL PAVEMENT. TIE BARS SHALL BE INSTALLED EVERY 4' (MAX) OR AS SHOWN, UNLESS DIRECTED OTHERWISE BY THE CITY'S PROJECT MANAGER
- INSTALL TIE BARS AT NEW TRANSVERSE JOINT OPPOSITE OF DOWEL BARS.
- WHEN REPAIR EXTENDS THROUGH EXISTING JOINT, INSTALL BOND BREAKER ALONG LONGITUDINAL JOINT BETWEEN NEW DOWELED JOINT AND EXISTING TRANSVERSE JOINT OF ADJOINING LANE.
- IN THE CASE OF 2 OR MORE ADJOINING PANEL REPLACEMENTS IN THE SAME LANE, CONSTRUCT TRANSVERSE JOINT TO MATCH JOINT IN ADJOINING LANE. DOWEL BARS SHALL BE INSTALLED AT 12" CENTERS. BASKETS SHALL BE USED ACCORDING TO L.S.P. 660 AND STANDARD SPECIFICATIONS, SUBSECTION 4.01.
- IF PAVEMENT REPAIR SHOULD EXTEND THROUGH INTEGRAL CURB, THE NEW CURB SHALL BE CONSTRUCTED TO THE SAME DIMENSIONS AS THE EXISTING CURB



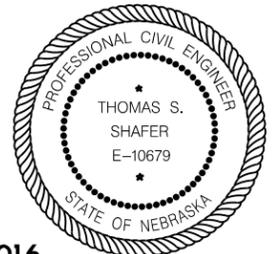
DETAIL OF TRANSVERSE DOWEL BAR PLACEMENT

** 2'-6" IF OUTSIDE EDGE IS BACK OF CURB



DETAIL OF TRANSVERSE TIE BAR PLACEMENT

** 2'-6" IF OUTSIDE EDGE IS BACK OF CURB



EFFECTIVE DATE FEBRUARY 4, 2016

P.C. CONCRETE PAVEMENT REPAIR

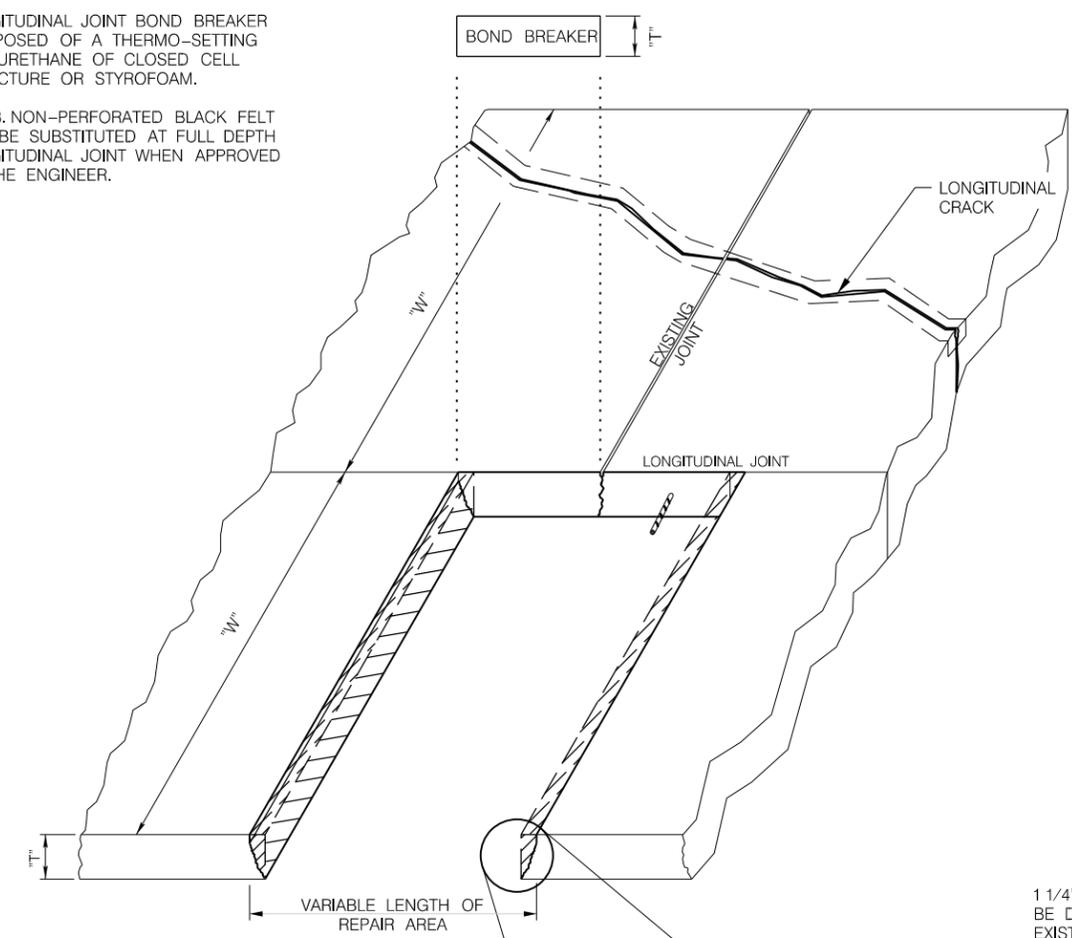
This document was originally issued and sealed by Thomas S. Shafer, E-10679, on 2-4-2016. This media should not be considered a certified document.

PROJ: LPS_Standards.dwg
 PEN: \\nables\pen\BW_PENTABLE.tbl
 USER: slocaw
 DATE: 2/11/2016
 DGN: ...STANDARD_2016_lps642s2.dgn

BOND BREAKER

LONGITUDINAL JOINT BOND BREAKER
 COMPOSED OF A THERMO-SETTING
 POLYURETHANE OF CLOSED CELL
 STRUCTURE OR STYROFOAM.

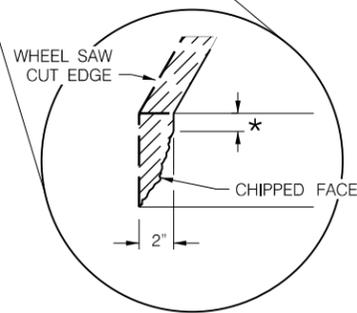
30 LB. NON-PERFORATED BLACK FELT
 MAY BE SUBSTITUTED AT FULL DEPTH
 LONGITUDINAL JOINT WHEN APPROVED
 BY THE ENGINEER.



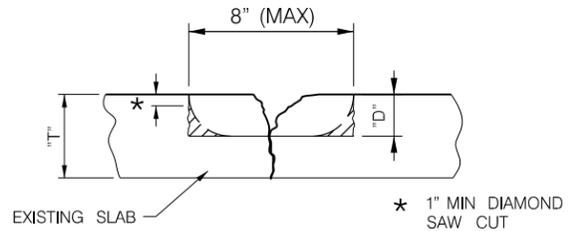
ALTERNATE SAW CUT

APPROX. 4" WHEEL CUTTER SAW CUT
 2" INBOARD FROM DIAMOND SAW CUT
 ON EACH SIDE OF SECTION TO BE
 REMOVED.

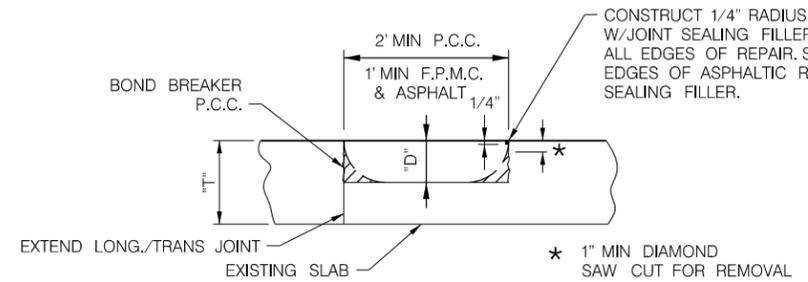
A 15# MAXIMUM CHIPPING HAMMER
 SHALL BE USED TO CONSTRUCT THE
 CHIPPED FACE.



ALTERNATE SAW CUT



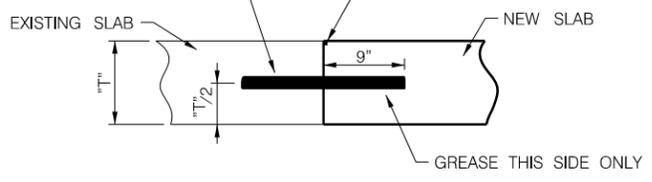
**TYPICAL SECTION OF TRANSVERSE /
 LONGITUDINAL CRACK REPAIR F.P.M.C.**



**TYPICAL SECTION OF
 PARTIAL DEPTH REPAIRS**

1 1/4" DIA. x 18" DOWEL BARS TO
 BE DRILLED AND GROUTED INTO
 EXISTING SLAB. SUPPORT DOWEL
 BARS IN HORIZONTAL POSITION
 UNTIL GROUT DRIES.

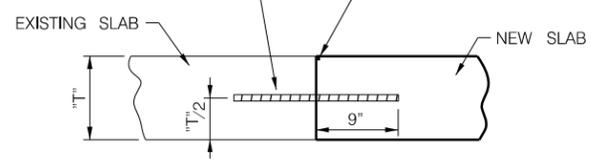
CONSTRUCT 1/4" RADIUS
 JOINT W/JOINT SEALING
 FILLER PER L.S.P. 660



DETAILS OF DOWEL BAR

NO. 5 x 18" TIE BARS AT 48" CTRS.
 TO BE DRILLED AND GROUTED INTO
 EXISTING SLAB

CONSTRUCT 1/4" RADIUS
 JOINT W/JOINT SEALING
 FILLER PER L.S.P. 660



DETAILS OF TIE BAR

GENERAL NOTES

REINFORCING BARS SHALL BE INSTALLED
 WHEN EXISTING CONCRETE PAVEMENT
 THICKNESS IS GREATER THAN 6".
 (EXCLUDING EXISTING OVERLAY AND MILLING
 THICKNESS)

DOWEL BARS MUST BE DRILLED ALONG THE
 SAME HORIZONTAL PLANE.

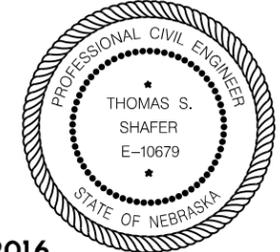
WHEN REPAIR EXTENDS THROUGH EXISTING
 JOINT. INSTALL BOND BREAKER ALONG
 LONGITUDINAL JOINT BETWEEN NEW DOWELED
 JOINT AND EXISTING TRANSVERSE JOINT OF
 ADJOINING LANE.

MINIMUM DEPTH ("D") FOR PARTIAL DEPTH
 REPAIRS SHALL BE 3" FOR P.C.C., 2" FOR
 ASPHALT, AND 1.5" FOR F.P.M.C. THE
 MAXIMUM DEPTH SHALL BE 4".

ALL DOWEL AND TIE BARS SHALL BE
 EPOXY COATED PER ASTM A775/A775M-07b
 SEE CHAPTER 4 OF THE STANDARD
 SPECIFICATIONS FOR ADDITIONAL
 MATERIAL REQUIREMENTS.

LEGEND

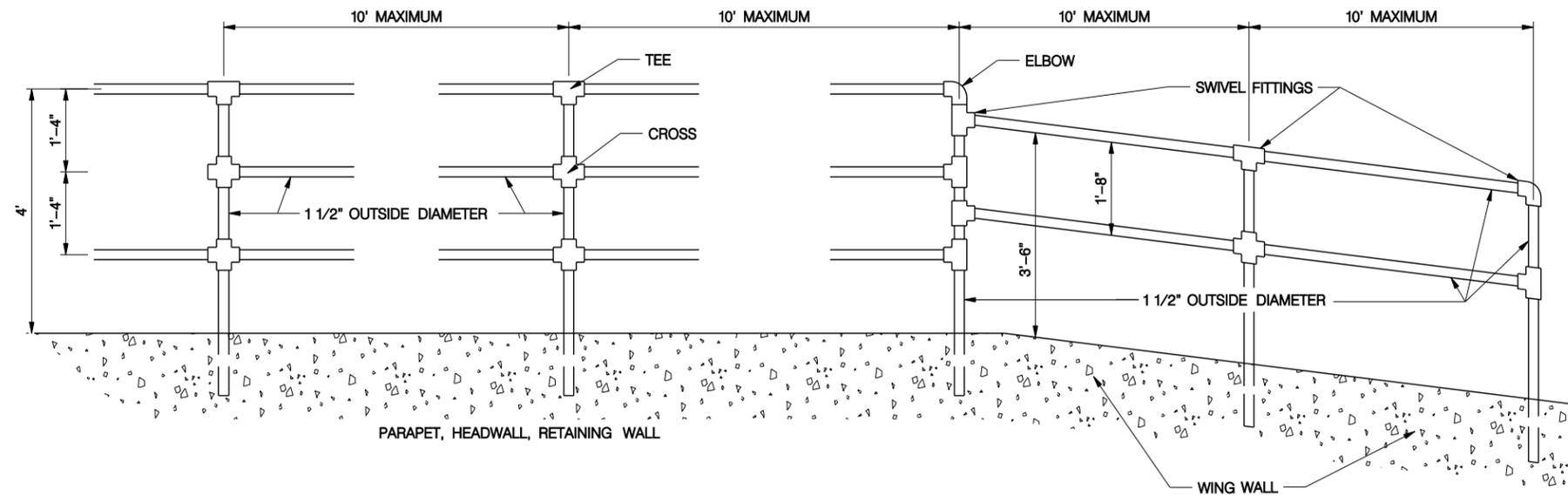
- "W" WIDTH OF PANEL/REPAIR
- "L" LENGTH OF PANEL/REPAIR
- "T" THICKNESS OF CONCRETE
(EXCLUDING OVERLAY THICKNESS)
- "D" DEPTH (MIN 1 1/2"; MAX 4")
- DOWEL BAR
- TIE BAR
- MATERIAL LEFT AT MILLED CUTS
TO BE REMOVED



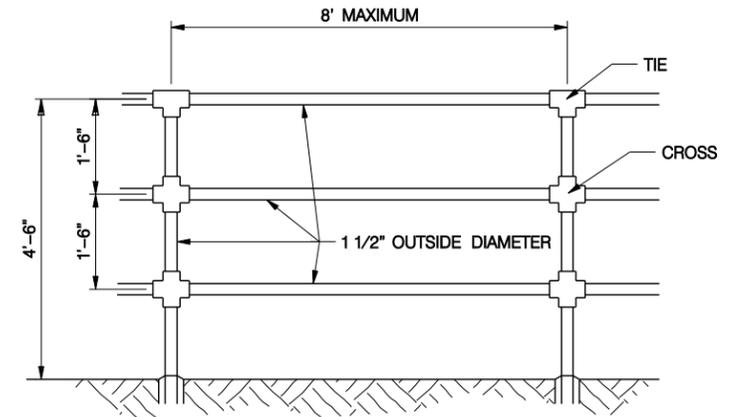
EFFECTIVE DATE FEBRUARY 4, 2016

P.C. CONCRETE PAVEMENT REPAIR

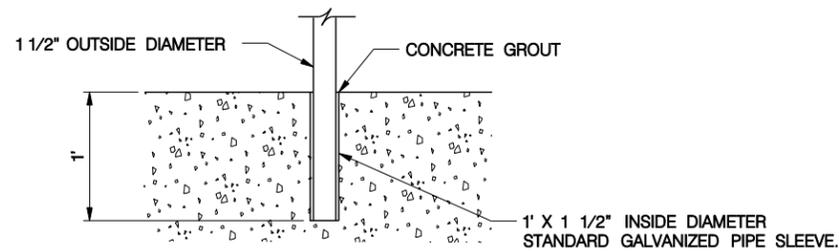
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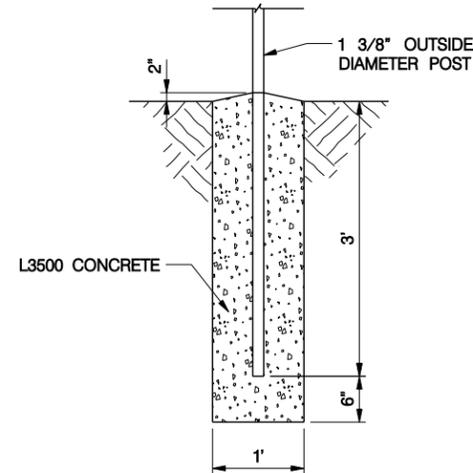
ELEVATION VIEW
**TYPICAL PIPE RAILING
 ON PARAPET, WINGWALL, HEADWALL
 OR RETAINING WALL**



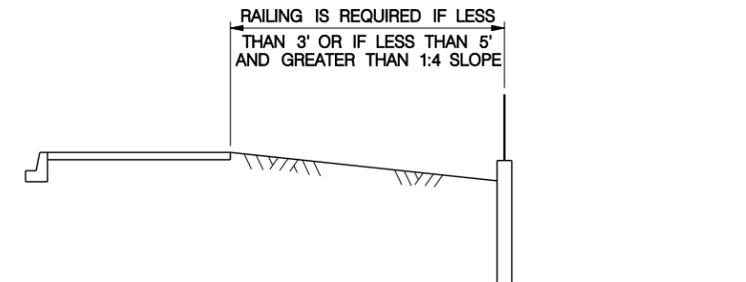
ELEVATION VIEW
**TYPICAL PIPE RAILING
 IN GROUND**



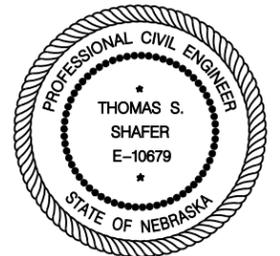
DETAIL OF
**TYPICAL POST SETTING
 ON PARAPET, WINGWALL, HEADWALL
 OR RETAINING WALL**



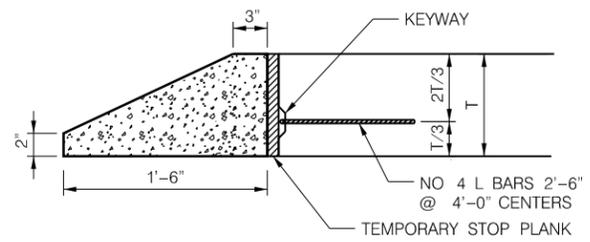
DETAIL OF
**TYPICAL POST SETTING IN
 GROUND (PIPE RAILING)**



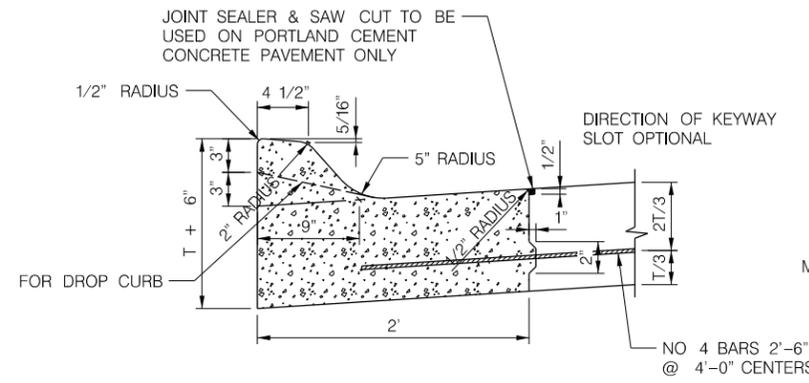
RAILINGS REQUIRED
 A MINIMUM 2' WIDE GRADED AREA WITH A MAXIMUM 1:6 SLOPE SHOULD BE MAINTAINED ADJACENT TO BOTH SIDES OF A PATH OR SIDEWALK. 3' OR MORE ARE DESIRABLE TO PROVIDE CLEARANCE FROM TREES, POLES, WALLS, FENCES, GUARDRAILS OR OTHER LATERAL OBSTRUCTIONS. WHERE THE PATH IS ADJACENT TO WATERWAYS OR SLOPES DOWN STEEPER THAN 1:4, A MINIMUM 5' SEPARATION FROM THE EDGE OF THE PAVEMENT TO THE TOP OF THE SLOPE IS DESIRABLE. WHEN THIS DESIRABLE DISTANCE CAN NOT BE MET, THE INSTALLATION OF HANDRAIL ADJACENT TO THE TOP OF SLOPE SHOULD BE CONSIDERED. OTHER COMBINATIONS OF SLOPES, EMBANKMENT HEIGHTS AND CONDITIONS AT THE BOTTOM MAY WARRANT THE NEED FOR A HANDRAIL.



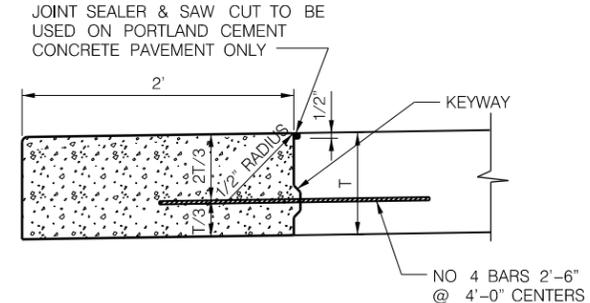
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 USER: slocaw
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 DGN: ...STANDARD_2016_lsp651.dgn



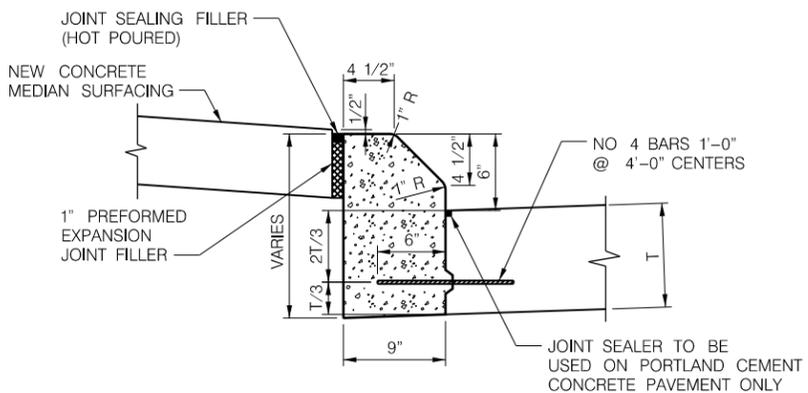
CONCRETE HEADER



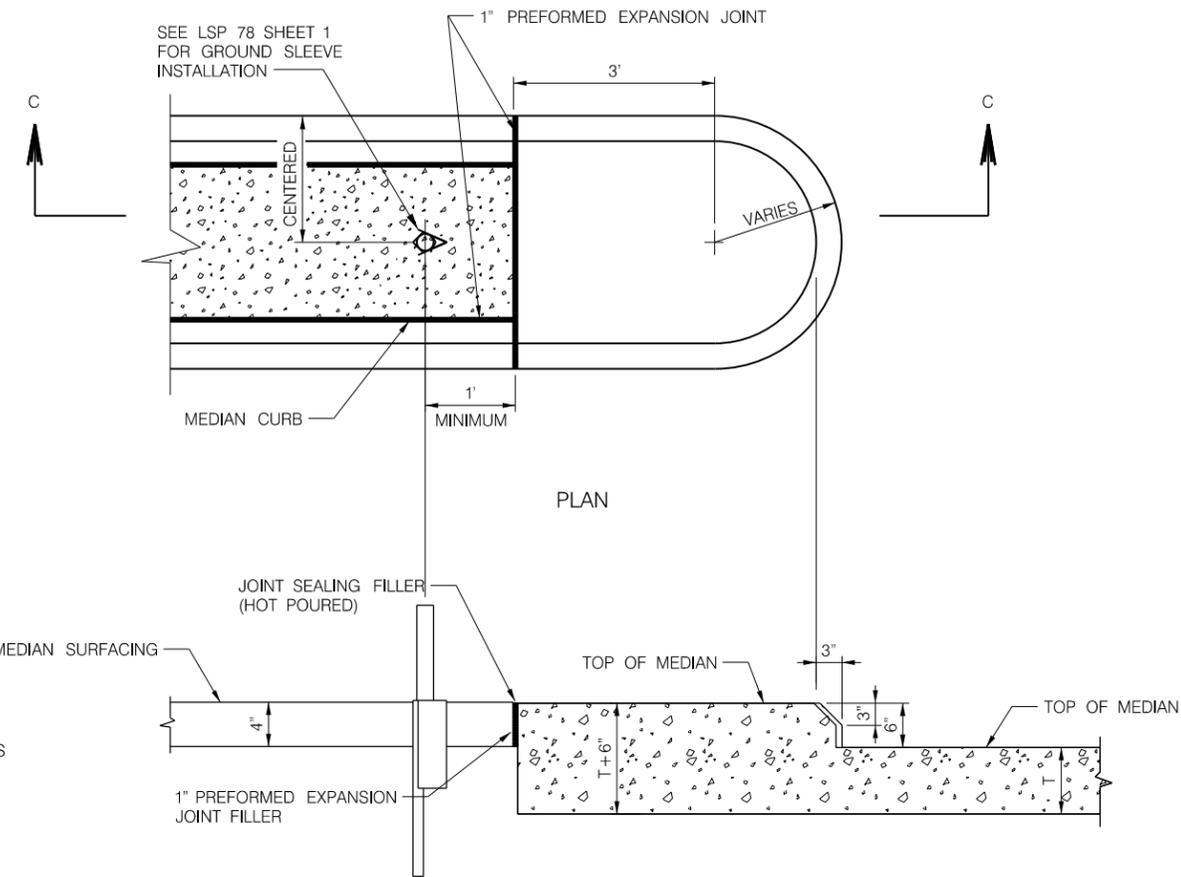
COMBINED CURB AND GUTTER



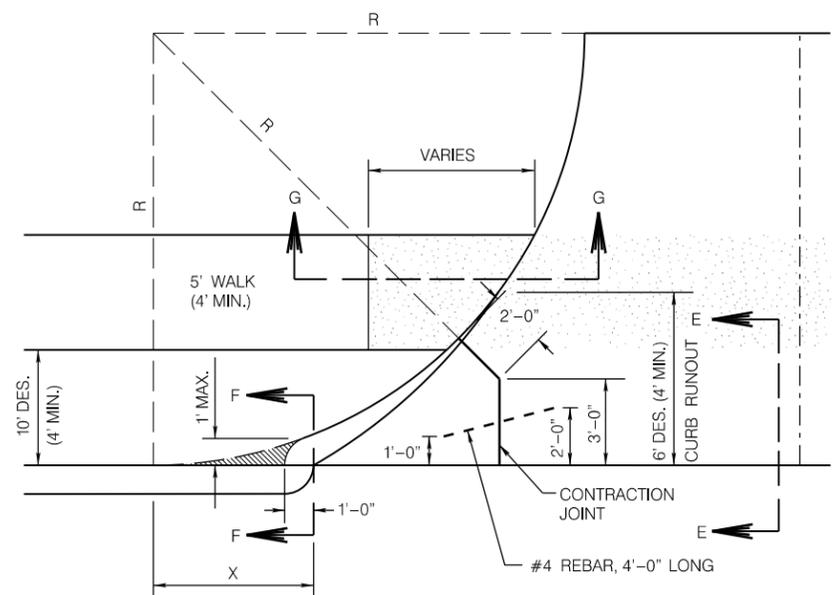
24" CONCRETE GUTTER PAN



CONCRETE MEDIAN CURB



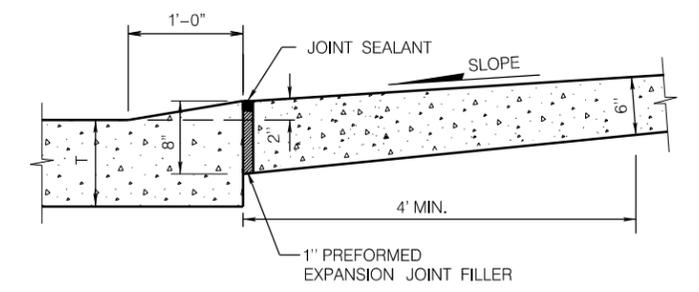
**SECTION C - C
TYPICAL DETAILS OF
CONCRETE MEDIAN NOSE**



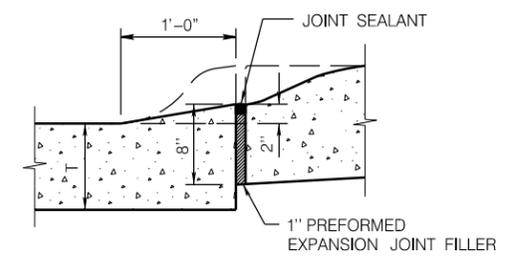
COMMERCIAL DRIVEWAY PLAN

R = RADIUS
 $X = \sqrt{(2R-1)}$
 (X & R IN FEET)

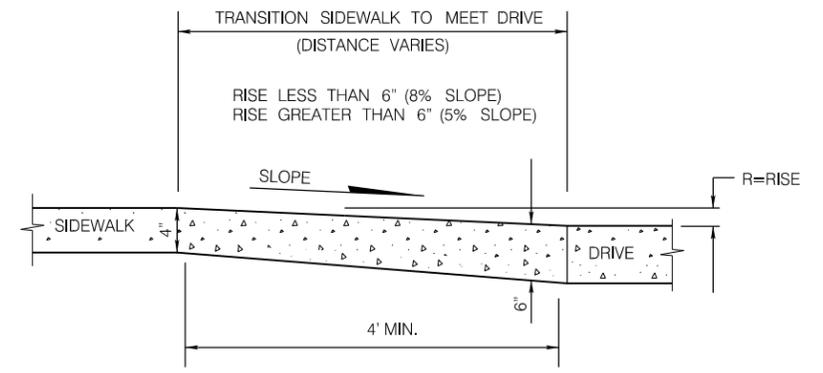
| R | X |
|-----|-------|
| 5' | 3.00' |
| 10' | 4.36' |
| 15' | 5.38' |
| 20' | 6.24' |
| 25' | 7.00' |
| 30' | 7.68' |
| 35' | 8.31' |
| 40' | 8.89' |



SECTION E-E



SECTION F-F

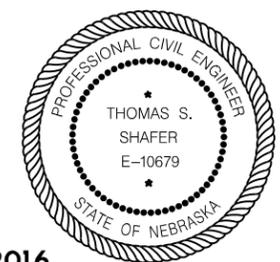


SECTION G-G

NOTES:
 ALL CONCRETE SHALL BE L-3500 OR LC-3500
 1" PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED THROUGH ALL CURBS OPPOSITE PAVEMENT EXPANSION JOINTS OR AS DIRECTED BY ENGINEER
 T = THICKNESS OF PAVEMENT

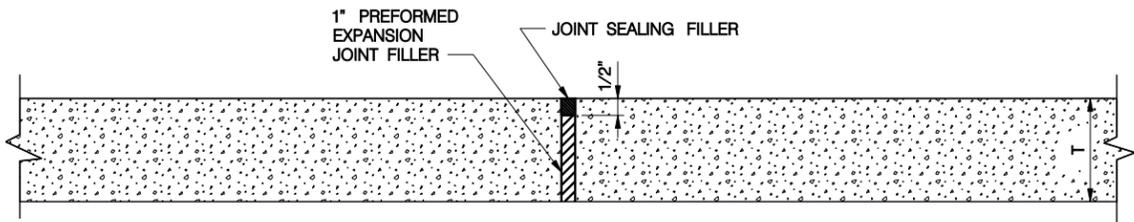
EFFECTIVE DATE FEBRUARY 4, 2016

CURB AND DRIVEWAY DETAILS

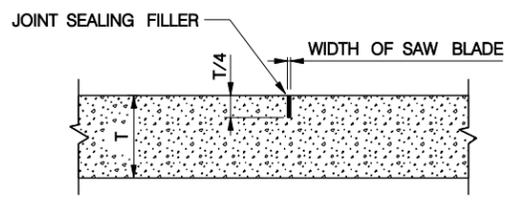


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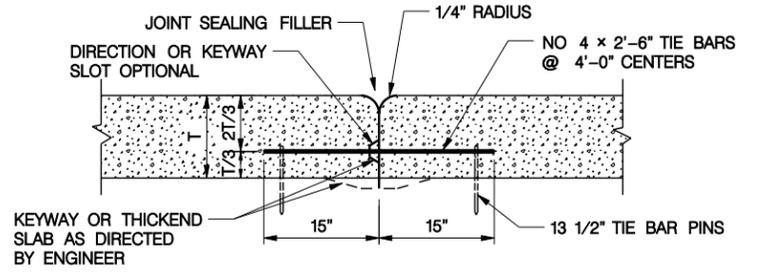


EXPANSION JOINT
 TO BE USED AT THE END OF RETURN ON THE NON THROUGH LEG OF A T-INTERSECTION AND AS PER ENGINEER AT THE END OF CURVES

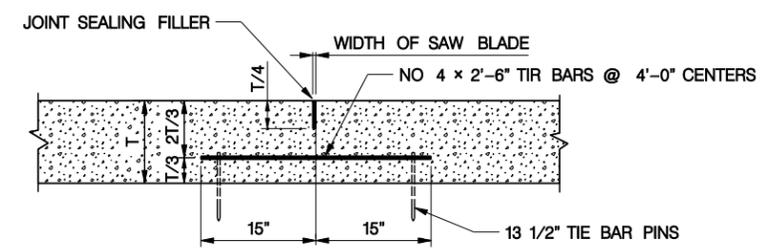


NOTE: CONTRACTION JOINTS SHALL BE SAWED. CONTRACTION JOINTS SHALL BE PLACED AT NOT MORE THAN 15' INTERVALS.

CONTRACTION JOINT

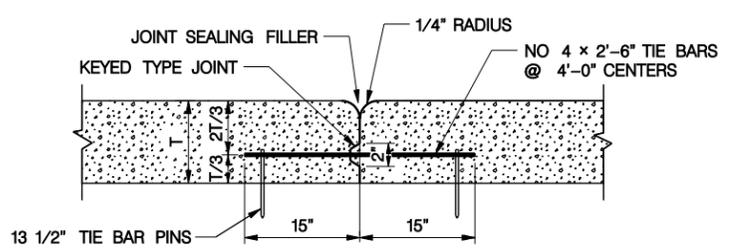


TRANSVERSE CONSTRUCTION JOINT



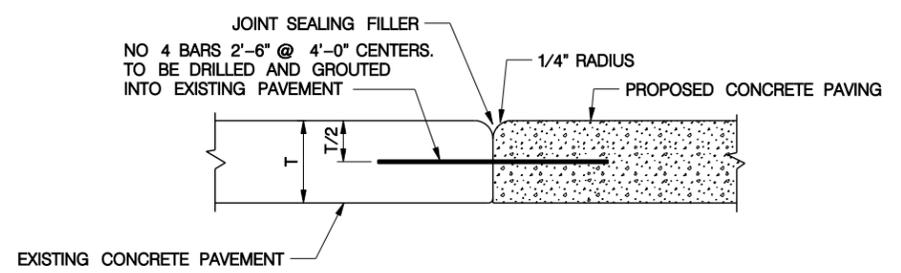
WHEN TWO ADJACENT LANES ARE POURED AT THE SAME TIME, THE LONGITUDINAL JOINT COMMON TO THE TWO LANES SHALL BE SAWED.

SAWED



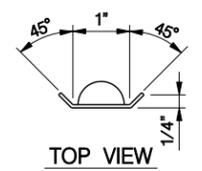
KEY TYPE JOINT SHALL BE USED ON ALL LONGITUDINAL CONSTRUCTION JOINTS WHEN THE ADJACENT LANE IS NOT POURED AT THE SAME TIME.

KEY TYPE

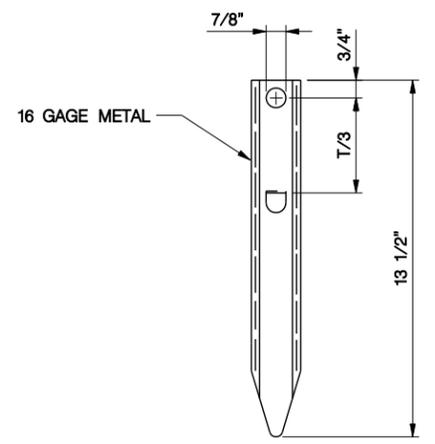


PROPOSED TO EXISTING PAVEMENT

DETAILS OF LONGITUDINAL JOINTS



TOP VIEW



TIE BAR PIN

NOTE:

THE CONTRACTOR MAY SUBSTITUTE OTHER DESIGNS FOR EXPANSION AND CONTRACTION JOINT SUPPORTS IN LIEU OF THE TYPE SHOWN WITH PRIOR WRITTEN APPROVAL BY THE ENGINEER.

ALL JOINTS SHALL BE SEALED WITH JOINT SEALING FILLER (HOT POURED TYPE) AS PER STANDARD SPECIFICATIONS.

TIE BARS SHALL BE DEFORMED BARS.

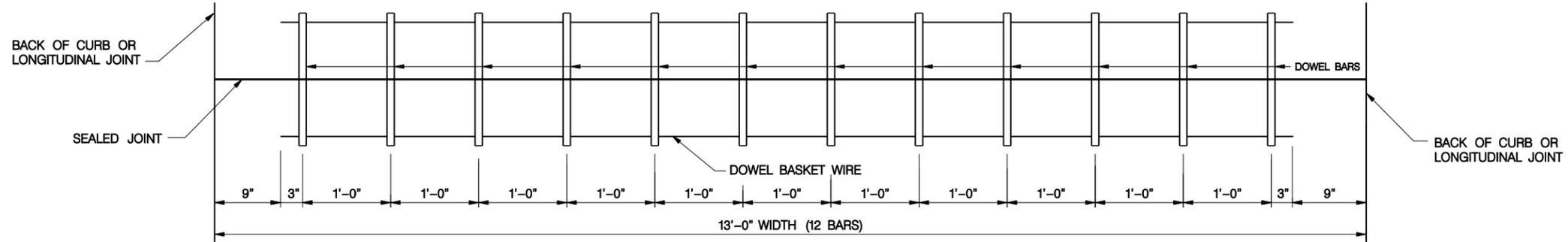
ALL BARS SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL GRADE BILLET STEEL IN ACCORDANCE WITH THE SPECIFICATIONS.

THE CONTRACTOR MAY USE A MACHINE FOR PLACING THE LONGITUDINAL TIE BARS IN LIEU OF THE TIE BAR PINS. IF A MECHANICAL TIE BAR PLACEMENT MACHINE IS NOT USED, TIE BAR PINS AS SHOWN WILL BE USED.

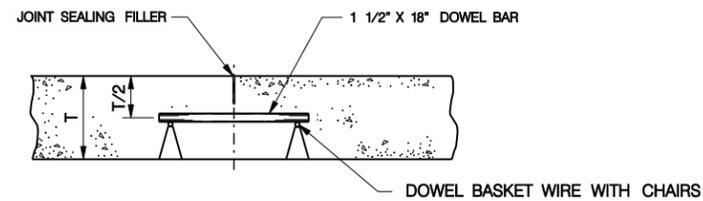


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| | LSP 660 | 2 |
| Date: 01/20/2010 | Drawn: CAW | Checked: Approved: |



ASSEMBLY PLAN



CONTRACTION JOINT

NOTES:

THE CONTRACTOR MAY SUBSTITUTE OTHER DESIGNS FOR EXPANSION AND CONTRACTION JOINT SUPPORTS IN LIEU OF THE TYPE SHOWN WITH PRIOR WRITTEN APPROVAL BY THE ENGINEER.

DOWEL BARS SHALL BE EPOXY COATED AND A MINIMUM OF 18" IN LENGTH.

TIE BARS SHALL BE DEFORMED BARS AND ALL OTHERS SHALL BE SMOOTH.

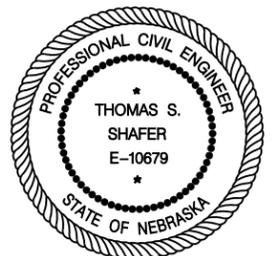
FOR LOAD TRANSFER DEVICES IN LANES OTHER THAN THE 13' LANES SHOWN, MAINTAIN THE SPACING OF THE 18" DOWEL BARS AT 1' INTERVALS.

THE ENDS OF THE DOWEL BASKET WIRE SHALL NOT BE LESS THAN 3" FROM THE EDGES OF THE PAVEMENT OR THE LONGITUDINAL JOINT.

KEY TYPE LONGITUDINAL JOINTS AND TRANSVERSE CONSTRUCTION JOINTS SHALL BE EDGED WITH 1/4" RADIUS AT TIME OF CONCRETE PLACEMENT.

EXPANSION JOINTS SHALL NOT BE SKEWED.

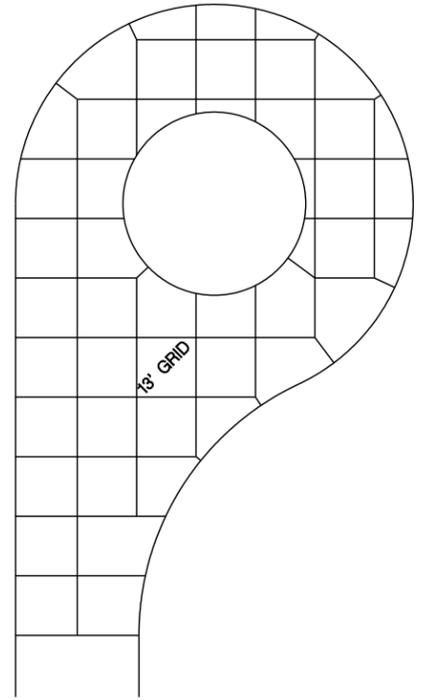
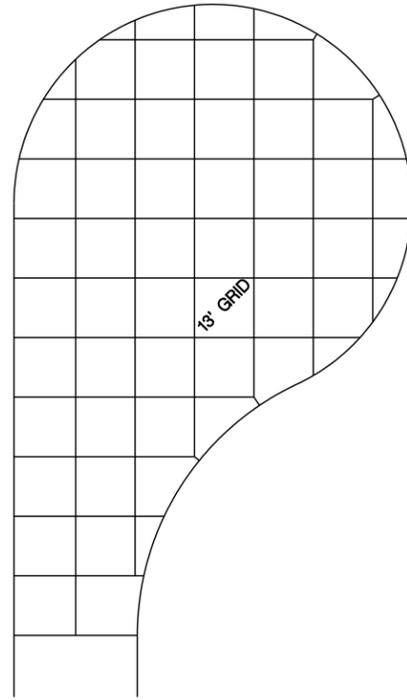
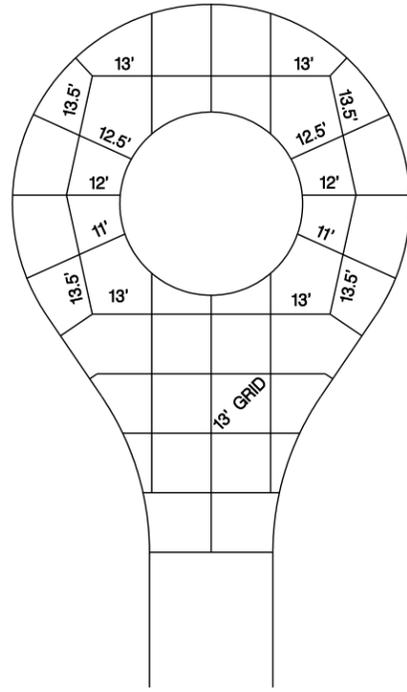
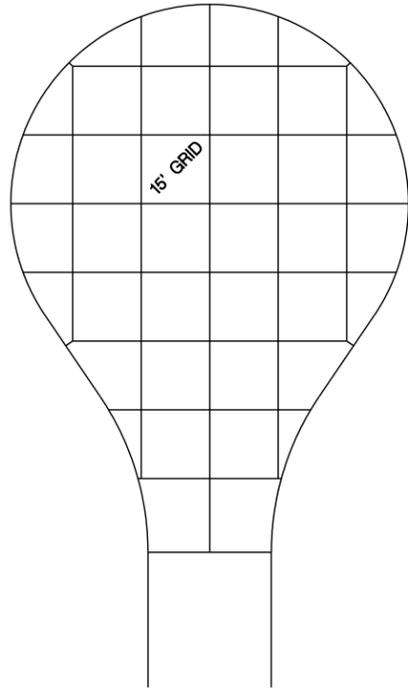
T = PAVEMENT THICKNESS



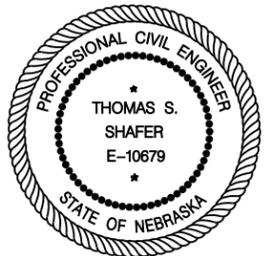
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| PROJECT NO. | SHEET NO. |
| LSP 662 | 1 |
| Date: 01/21/2010 | Drawn: CAW |
| | Checked: |
| | Approved: |



NOTE:
THESE JOINTS SHOWN ARE A GUIDE
SEE L.S.P. 660 FOR JOINT DETAILS



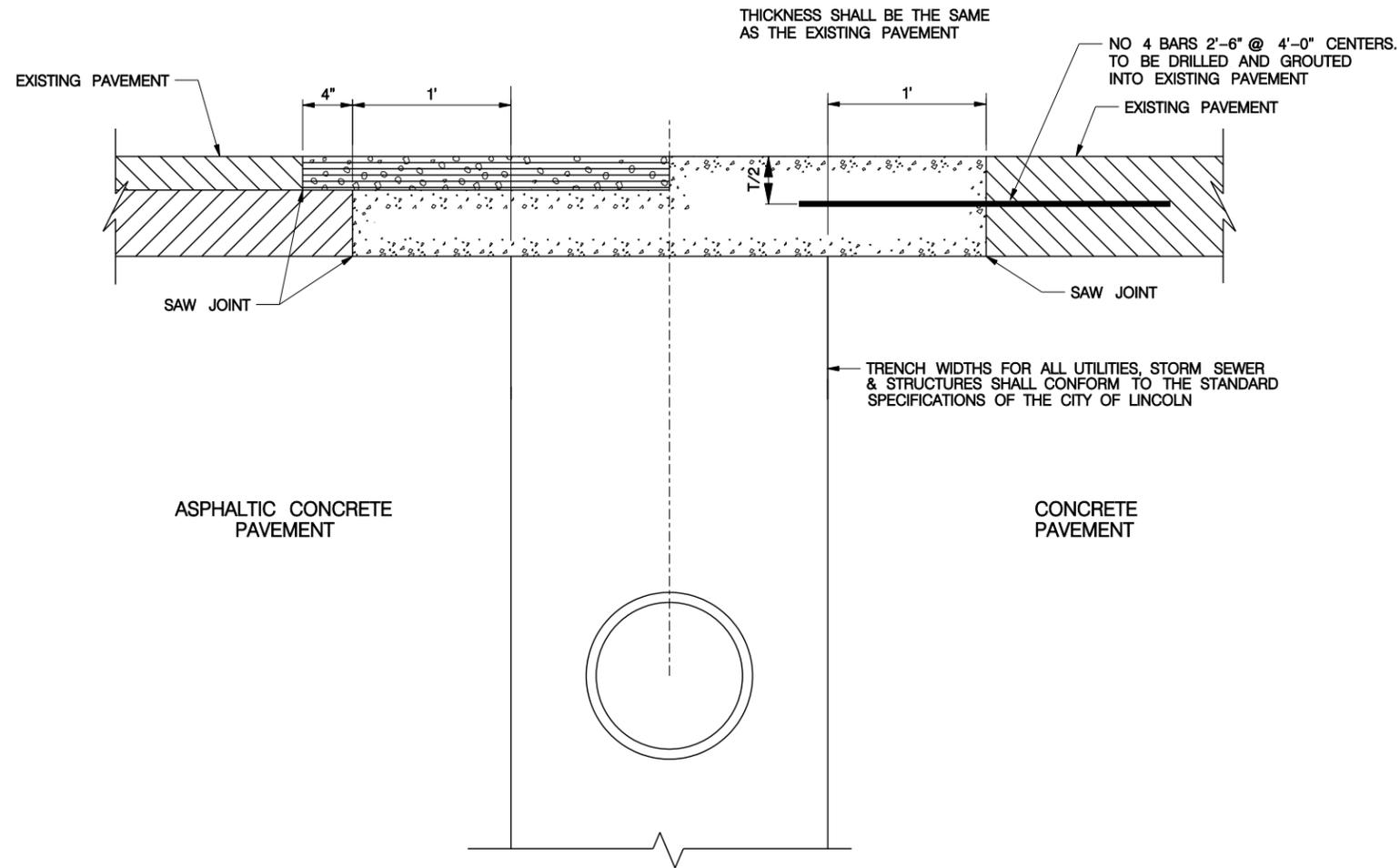
CUL-DE-SAC JOINTS
L.S.P. 662

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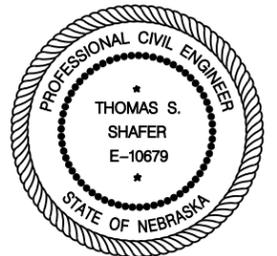
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| PROJECT NO. | SHEET NO. |
| LSP 670 | 1 |
| Date: 02/26/2010 | Drawn: CAW |
| | Checked: |
| | Approved: |

LSP 670



NOTES:

1. THE EDGES OF ALL PAVING CUTS SHALL BE NEAT AND SQUARE. ALL CUTS IN EXISTING PAVEMENT SHALL BE MADE USING A CONCRETE SAW.
2. ALL CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT STANDARD SPECIFICATIONS OF THE CITY OF LINCOLN FOR L3500 CONCRETE OR BETTER.
3. GROUND EACH SIDE OF TRENCH SHALL BE UNDISTURBED FOR REPLACEMENT CONCRETE



PAVEMENT REPLACEMENT FOR UTILITY CONSTRUCTION
L.S.P. 670

LSP 670

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