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Mailbox Grouping

Grouping of two or more mailboxes together is encouraged.

The address should be either on the mailbox door or on the side of the mailbox. Placing a name on the box is optional.
GENERAL NOTES:

1. BEFORE PLACING ADJUSTING RINGS AND RISERS, THE TOP SECTION OF THE MANHOLE SHALL BE FLAT WITHOUT ANY LOOSE BRIK, CONCRETE OR OTHER MATERIAL. REMOVE LODGE MATERIAL UNTIL A SOLID SURFACE IS OBTAINED.

2. MANHOLE SURFACES WHICH ARE DAMAGED OR IRREGULAR SHALL BE CLEANED AND LEVELLED WITH NON-SHRINK GROUT PRIOR TO INSTALLATION OF THE ADJUSTING RINGS AND RISERS.

3. MANHOLE ADJUSTING RINGS SHALL BE USED FOR THE TOP 4" OF ADJUSTMENT.

4. MANHOLE ADJUSTING RINGS SHALL BE USED TO ADJUST FROM 4" TO 35" BELOW THE MANHOLE FRAME.

5. ANGLED ADJUSTING RINGS SHALL BE USED TO MATCH PAVEMENT SLOPE.

6. ALL WORK SHALL BE APPROVED BY THE CITY CONSTRUCTION REPRESENTATIVE.

SIDE VIEW

UTILITY ADJUSTMENT IN EXISTING PAVEMENT

PLAN
DEAD END SIGNING

Signs shall be 18" red diamond panel with high intensity sheathing.

This isscribable only to be used as a substitute with the approval of the City Traffic Engineer.
ANCHOR EXTENSION SLEEVE

ANCHOR EXTENSION SLEEVE SHALL BE MADE OF 4" PVC PIPE. THE TOP OF SLEEVE SHALL BE LEVEL WITH SURFACE OF CONCRETE. BOTTOM OF SLEEVE SHALL EXTEND BELOW BASE OF CONCRETE. IF SLEEVE IS NOT INSTALLED AT TIME OF CONCRETE POUR, A 4" HOLE MAY BE DRILLED THROUGH THE CONCRETE AFTER CONCRETE HAS CURLED.

SQUARE SIGN POSTS AND ANCHORS

2" OD, 14 GAUGE SQUARE POST INSERT INTO 6" INTO ANCHOR EXTENSION

TOP OF ANCHOR EXTENSION SHALL BE 4" ABOVE SOIL

CORNER BOLT AND NUT IN ANCHOR EXTENSION TOP HOLE

10" X 2.25" CO. 12 GAUGE SQUARE SLEEVE

SQUARE POST IN SOIL

6" X 2.5" OD, 12 GAUGE SQUARE SLEEVE

SQUARE POST IN CONCRETE

4" X 14 GAUGE SQUARE POST INSERT INTO 6" INTO ANCHOR EXTENSION

CORNER BOLT AND NUT IN ANCHOR EXTENSION TOP HOLE

TOP OF ANCHOR EXTENSION SHALL BE 4" ABOVE CONCRETE SURFACE

CONCRETE SURFACE SHALL EXTEND BELOW BASE OF CONCRETE. IF SLEEVE IS NOT INSTALLED AT TIME OF CONCRETE POUR, A 4" HOLE MAY BE DRILLED THROUGH THE CONCRETE AFTER CONCRETE HAS CURLED.

10" X 2.25" CO. 12 GAUGE SQUARE SLEEVE

SQUARE POST IN SOIL

6" X 2.5" OD, 12 GAUGE SQUARE SLEEVE

SQUARE POST IN CONCRETE

TUBULAR MARKER TO SQUARE POST

4" DIAMETER PVC PIPE SLEEVE TOP LEVEL WITH CONCRETE SURFACE BOTTOM LEVEL WITH CONCRETE

CONCRETE SURFACE SHALL BE 4" ABOVE TOP OF ANCHOR EXTENSION

VOID OF CONCRETE

TUBULAR MARKER

NUT AND WASHER

BOLT AND WASHER

SQUARE TO ROUND ADAPTOR

COTTER PIN

COTTER HAIR PIN

BOLT AND WASHER

COTTER PIN AND COTTER HAIR PIN

PEA GRAVEL AFTER EXTENSION IS IN PLACE

VOID OF CONCRETE

BOLT AND WASHER

NUT AND WASHER

TUBULAR MARKER

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MARK E.

LUTJEHARMS

E-9742

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45 DEGREE SIGN BRACKET

This 0.25" thick zinc cadmium bracket shall be used when a sign needs to be installed at a 45 degree angle from another sign that is perpendicular to the street. 5/16" stainless steel bolts shall be used for installation.

MULTIPLE SIGNS ON POST

This sign plate shall be used when two 18" signs are to be installed side by side facing the same direction. The bolts that hold the sign plate to the post shall be installed side by side and facing the same direction. 5/16" x 2 1/2" zinc cadmium the signs shall be bolted to sign plate using 5/16" x 1" stainless steel bolts with nylon washers.

STOP SIGN WITH STREET NAME SIGNS AND ONE WAY

NOTE:
SIIIGS 6 OR GREATER IN WIDTH SHALL BE MOUNTED ON 2 POSTS.
AVOID WALK OR DRIVE COMPACTED EARTH FULL DEPTH CONDUIT CENTERED

PULL BOX T6 PLAN VIEW

CONDUIT CENTERED

ROCK

1'-6" 6"

2'-6" 12"

2'-6" 12"

1'-6"

CONDUIT CENTERED

PULL BOX T9 PLAN VIEW

CONDUIT CENTERED

ROCK

1'-6" 6"

2'-6" 12"

2'-6" 12"

1'-6"

PULL BOX T6 END VIEW

CONDUIT CENTERED

ROCK

1'-6" 6"

2'-6" 12"

2'-6" 12"

1'-6"

PULL BOX T9 END VIEW

CONDUIT CENTERED

ROCK

1'-6" 6"

2'-6" 12"

2'-6" 12"

1'-6"

PULL BOX ON SLOPE SIDE VIEW

TYPICAL PULL BOX STUBS FOR DIRECT BURIED CABLE END VIEW

COUPLING

ROCK

1'-6" 6"

2'-6" 12"

2'-6"

1'-6"

COUPLING

ROCK

1'-6" 6"

2'-6" 12"

2'-6"

1'-6"

ALL DIMENSIONS ARE NOMINAL

AL L D IM E N S I O N S  A R E  N O M IN A L  S T A N D A R D  S P E C IFIC A T IO N S .

THE REQUIREMENTS OF CHAPTER 3 OF THE CITY OF LINCOLN STANDARD SPECIFICATIONS, INC.

THE AGGREGATE BASE SHALL BE PLACED TO THE DIMENSIONS SHOWN FOR EACH TYPE OF PULL BOX.

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.

1' M

IM

U

M

1' - 0"

AVOID WALK OR DRIVE COMPACTED EARTH FULL DEPTH CONDUIT CENTERED

PULL BOX T6 IS FOR STREET LIGHTS ONLY WITH A Lid EMBOSSED ON THE TOP SURFACE WITH "T6" AND "ELECTRIC". PULL BOX T9 IS FOR GENERAL USE WITH A Lid EMBOSSED ON THE TOP SURFACE WITH "T9" AND "ELECTRIC". PULL BOX T48 IS THE TRAFFIC POLE PULL BOX WITH A Lid EMBOSSED ON THE TOP SURFACE WITH "T48" AND "TRAFFIC".

PULL BOX T6 IS THE FIBER OR CONTROLLER PULL BOX WITH A 2 PIECE Lid EMBOSSED ON THE TOP SURFACE WITH "T6" AND "TRAFFIC" OR "FIBER".

ALL PULL BOXES AND THEIR LIDS ARE REQUIRED TO CONFORM TO ALL TEST PROVISIONS OF ANSI/IEEE 17 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 08 IN ACCORDANCE WITH ASTM C1028.

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

DO NOT INSTALL LID BOLTS.

PULL BOX SHAL REST EMBOSSED ON AN AGGREGATE BASE MEETING ALL THE REQUIREMENTS OF CHAPTER 3 OF THE CITY OF LINCOLN STANDARD SPECIFICATIONS, INC. 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 PLACE TO THE DIMENSIONS SHOWN FOR EACH TYPE OF PULL BOX.

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.

FIBER MARKER AND PULL BOXES

MARK E

LUTJEHARMS

E-9742

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YOU APPROACH CORNER AS FROM RIGHT CONDUIT 4"

SUPPORT BAR

SPLIT LID WITH 30" X 48"

OPPOSITE THE CURB

FIBER MARKER PLACED OPPOSITE THE CURB

ON SIDEWALL PLACED GROUND BAR CENTERED 1'-0"

TO LID (TYP.) CUT PARALLEL 4' IF FIBER CONDUIT EXISTING 3" OR 4"

FIBER INNERDUCT TO ADJACENT PULL BOX COUPLER*

CAPTURE EMPTY 3" OR 4" CONDUIT DETAIL

CAPTURE EMPTY 3" OR 4" CONDUIT WITH FIBER DETAIL

CAPTURE MAIN LINE CONDUIT GROUP DETAIL

SPLIT Y DETAIL

*SPLIT Y IS CRS SPLIT Y AND COUPLINGS OR APPROVED ALTERNATE

ADHESIVE OR APPROVED ALTERNATE IS REQUIRED.

AN AIR TIGHT SYSTEM. AMERICAN POLYWATER'S BONDUIT CONDUIT (HDPE SCHEDULE 40, 80 AND PVC SCHEDULE 40 OR OTHER CREATING)

*COUPLER WILL SECURELY MATE TO EXISTING 2" OR 3" OR 4" CONDUIT (METAL SCHEDULE 40 AND 80 AND PVC SCHEDULE 40 OR OTHER CREATING AN AIR TIGHT SYSTEM). AMERICAN POLYWATER'S BONDUIT CONDUIT ADHESIVE OR APPROVED ALTERNATE IS REQUIRED.

**SPLIT Y IS CRS SPLIT Y AND COUPLINGS OR APPROVED ALTERNATE

FIBER MARKER AND PULL BOXES

PULL BOX T48 MID-BLOCK

PULL BOX T48 ARTERIAL CORNER

1'-0"

3'-0"

1'-0"

3'-0"

1'-0"

3'-0"

1'-0"
EMPTY FOR CITY USE
LIGHT POLE, 42" DEEP, 2" TO MAST ARM/STREET LIGHT
IN 4", 54" DEPTH
FIBER TRACER WIRE
FIBER OR PIGTAIL AND INTERSECTION FOR FIBER
GROUP, 48" DEEP
MAIN LINE CONDUIT OF 2 CONDUITS ABOVE STREET LIGHT CABLES IN
PLACE 42" DEEP, FOR TRAFFIC AND 3" TO STREET LIGHT POLE ONLY,
AND STREET LIGHT POLES ELECTRICAL SERVICE 2", 42" DEEP FOR
T48 PULL BOX FIBER T48 PULL BOX TRAFFIC T48 PULL BOX FIBER T48 PULL BOX TRAFFIC T48 PULL BOX FIBER

F-4A FOUNDATION FOR PEDESTAL POLES
SIDE VIEW
ANCHOR BOLT CIRCLE CENTERED IN FOUNDATION SEE TABLE BELOW
ANCHOR BOLTS
TOP OF FOUNDATION SHALL BE FINISHED TO ELEVATIONS PROVIDED
FROM THE DESIGN PLANS—
1' PERFORMED EXPANSION JOINT—
1/2" BELOW TOP OF FOUNDATION—
SIDEWALK TO MEET TOP OF FOUNDATION ELEVATION
BOLT PROTRUSION (SEE TABLE BELOW)
CLAMP
3/4" x 15" CONCRETE GROUND ROD

ANCHOR BOLT CIRCLES CENTERED IN FOUNDATION
ANCHOR BOLTS
TOP OF FOUNDATION SHALL BE FINISHED TO ELEVATIONS PROVIDED
FROM THE DESIGN PLANS—
1' PERFORMED EXPANSION JOINT—
1/2" BELOW TOP OF FOUNDATION—
SIDEWALK TO MEET TOP OF FOUNDATION ELEVATION
BOLT PROTRUSION (SEE TABLE BELOW)
CLAMP
3/4" x 15" CONCRETE GROUND ROD

ANCHOR BOLT INFORMATION
ANCHOR BOLT CIRCLES CENTERED IN FOUNDATION
ANCHOR BOLTS
TOP OF FOUNDATION SHALL BE FINISHED TO ELEVATIONS PROVIDED
FROM THE DESIGN PLANS—
1' PERFORMED EXPANSION JOINT—
1/2" BELOW TOP OF FOUNDATION—
SIDEWALK TO MEET TOP OF FOUNDATION ELEVATION
BOLT PROTRUSION (SEE TABLE BELOW)
CLAMP
3/4" x 15" CONCRETE GROUND ROD
**Electric Control Assembly**

- No 6 Bare Copper Ground

**Section A-A**

**Power to Wood Pole Details**

- Meter by LES
- No 2 Soft Drawn Ground Cable
- LES Line
- LES GROUND
- Traffic Signal Ground (if no street lighting)
- Traffic Signal Neutral (ground)
- Traffic Signal Load
- Street Lighting Load
- Street Lighting Ground
- 3/8" X 15' Copperweld Ground Rod

**Control Relay and Wood Power Pole Details**

**Side of Building Details**

- Pipe Clamp should be over each coupling (Spacing not to exceed 5')
- Each Coupling (Spacing)
- Spacing to Second Standoff
- Above the PVC 90 is GRS
- PVC to top of Riser above Contractor Installed Gar
- For Non-Metered Service, Contractor to Provide PVC to Top of Riser
- LES to Provide Stand-Offs for Contractor Installation
- Pipe Clamp should be over each coupling (Spacing not to exceed 5')
- Each Coupling (Spacing)
- Spacing to Second Standoff
- Above the PVC 90 is GRS
- PVC to top of Riser above Contractor Installed Gar
- For Non-Metered Service, Contractor to Provide PVC to Top of Riser
- LES to Provide Stand-Offs for Contractor Installation

**Electrical Service Note:**

Each Rigid Steel Riser, Other Wood Pole, or Side of Building shall be grounded in accordance with the National Electrical Code, Local Ordinances, Applicable Codes and the Requirements of The Lincoln Electric System.

This SIDE of Building Installation shall require a 1/2" Riser Grounding Clamp, No 6 Bare Copper, 5/8" X 15' Ground Rod and Wood Molding.

Provide Sufficient Lead Length for LES to Make Final Electrical Connections to Secondary.

Photo Electrical Control Assembly to be located on North Side or West Face of Pole with Photo Electric Cell Window Facing North.
HEAT SHRINK TUBING

NO 8 CIRCUIT GROUND
SEE LSP 82 FOR POLE GROUNDING

TYPICAL MAST ARM TRAFFIC SIGNAL AND STREET LIGHTING POLE WIRING DETAIL

BY CONNECTOR MANUFACTURER

STRIP OFF WIRE INSULATION AS REQUIRED

6" TYPICAL

15' (PER HEAD) OF 3/C FOR PEDESTRIAN SIGNAL
5' (PER BUTTON) OF 3/C FOR PEDESTRIAN PUSH BUTTON
3/C FOR PEDESTRIAN PUSH BUTTON
12/C OR 16/C FOR TRAFFIC SIGNAL
1/C LINE IN STREET LIGHT
1/C LINE OUT STREET LIGHT

COMPRESSION SLEEVE
WITH INSULATION
CONDUCTOR
SINGLE STRANDED
WITHOUT INSULATION
CONDUCTOR
SINGLE STRANDED

DRIP LOOP OF 5/C FOR THROUGH TRAFFIC SIGNAL
18' + DISTANCE FROM POLE TO HEAD + 3' FOR DRIP LOOP

3" TYPICAL AS MEASURED FROM HOLE IN ARM OR INLET IN HEAD BRACKET WHICHER IS LOWEST

1/C LINE IN STREET LIGHT
1/C LINE OUT STREET LIGHT

HEAT SHRINK SPLICE

TYPICAL MAST ARM TRAFFIC SIGNAL AND STREET LIGHTING POLE WIRING DETAIL

1/C FOR TRAFFIC SIGNAL
3/C FOR PEDESTRIAN SIGNAL
7/C FOR PEDESTRIAN SIGNAL
2 BLACK NO 10 TYPE RHH OF TYPE XHHW FOR 240 VOLT CONNECTION, 2 10 AMP KTK FUSES (DO NOT FUSE NEUTRAL)
1 BLACK NO 10 TYPE RHH OR TYPE XHHW FOR 120 VOLT CONNECTION, 1 10 AMP KTK FUSE

40' MOUNTING HEIGHT & 12' ARM LENGTH
110' OF 1/C, NO 10 BASED ON...
FOUNDATION DESIGN FOR 'CBD' TRAFFIC CABINET

TOP VIEW

- 2 - 4" conduits
- 1 - 2" conduit
- Anchor bolts

SIDE VIEW

- 1/2" chamfered edge
- Expansion joint
- 1" preformed

GRADED INSTALLATION

19"
15"
2'-6"
2'-6"
2'-0"
3"
19"
1/2"

STREET SIDE

1 - 2" conduit
2 - 4" conduits
1 - 2" conduit

MARK E. LUTJEHARMS
E-9742

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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. THE POLES SHALL BE ARRANGED IN SUCH A MANNER THAT THE POLE CLAMP POSITIONS VARY BY MORE THAN SIX INCHES. IT'S 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 < 6" THEN SEPARATE POLE CLAMPS NOT NEEDED.

TYPICAL INSTALLATION OF SIGNAL EQUIPMENT

TIE WIRE SAFETY RELEASE

TETHER ASSEMBLY

TETHER ASSEMBLY WITH EXTENTION

TRAFFIC SIGNAL WOOD POLE INSTALLATION
CABLE SUSPENSION CLAMP
- Clamp size per manufacturer's specification
- Guy grip or strand vise
- Wrapped to prevent separation

TYPICAL DOUBLE DEADEND FOR STEEL POLE
- Square washer
- Thimbleye nut
- Thimbleye bolt
- Cable
- Guy grip or strand vise
- Wrapped to prevent separation

TYPICAL DOUBLE DEADEND FOR WOOD POLE
- Square washer
- Thimbleye nut
- 45° Thimbleye bolt
- Cable
- Guy grip or strand vise
- Wrapped to prevent separation

TYPICAL DEADEND TO UNDERGROUND FOR WOOD POLE
- Square washer
- Thimbleye nut
- Thimbleye nut
- Guy grip or strand vise
- Wrapped to prevent separation

TYPICAL DOUBLE DEADEND WITH OVERHEAD SPlice AT WOOD POLE
- Access cable closure

ALLEY ARM TO CLEAR TREES
- Overhead line spacing
- Line clearance

TYPICAL DOUBLE DEADEND WITH OVERHEAD SPlice AT STEEL POLE
- Access cable closure

OVERHEAD CABLE SUSPENSION DETAILS
- Steel span wire
- Wood pole
- Dead end with underground connection
- Dedicated communication cable in 1/2" riser
- Cable or power supply
NOTES:

CONTRACTOR TO TIGHTEN POLE SHAFT FORCESFULLY 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.

CONTRACTOR TO TIGHTEN POLE SHAFT FORCEFULLY INTO THE BASE, SO THAT ONLY TOOLS CAN LOOSEN.
**Minimum From Bottom of Grinding Groove**

**Inside Tube**

**IMSA 51-5 Wire Grinding Grooves**

0" to 3"

**Not be within 1' of joint**

**Detector shall not cover approximately 1" of conductor insulation**

**Slide heat-shrink tubing over splice. The tubing shall cover approximately 1' of conductor insulation at each end of splice. Heat the tubing as specified by the manufacturer, no open flame.**

**Lead-in Cable Splice Detail**

**Amplifier needs one lead-in Cable, 2/C**

**Phase**

**System Detector (indicates show nothing)**

**Vehicle Detector Numbering**

**SAWED LOOP DETECTOR UNDER OVERLAY**

**SAWED LOOP DETECTOR SECTION UNDER OVERLAY**

**FILL END OF CONDUIT WITH QUICK SEAL BEFORE POURING SEALANT**

**2' OVERLAY**

**Saw Cut**

**PULL BOX**

**Splice to Lead-in Cable (IMSA 50-2)**

**1/2" PVC**

**Drill and Grout 1/2" PVC thru existing gutter**

**Seal Before Pouring Sealant**

**Fill End of Conduit with Duct**

**SAWED LOOP DETECTOR SECTION UNDER OVERLAY**

**Metal Sheath**

**IMSA 31-8 Wire Inside Tube**

**SAWED LOOP DETECTOR SECTION**

**LEAD-IN CABLE SPLICE DETAIL**

**Vehicles detector numbering**

**Vehicle Detector Numbering**

**Lead-in Cable Splice Detail**

**Loop Detector Sawed Corner Detail**

**Loop Detector Wire Arrangement**

**Detector Wire**

**DRAIN WIRE**

**FOIL SHEILD**

**2" OVERLAY**

**SAWED LOOP DETECTOR UNDER OVERLAY**

**SAWED LOOP DETECTOR UNDER OVERLAY**

**PREFORMED LOOP DETECTOR**

**UNDER OVERLAY**
**GROUNDS RECOMMENDATIONS:**

1. **No. 6 Bare Stranded Copper Wire** shall be installed in conduit with power supply and connected to ground rod in nearest pull box.
2. Cabinet shall be grounded to the No. 6 bare stranded copper wire.
3. Ground rod and ground wire connections are subsidiary to pole installation.

**NOTES:**

- HANDLING, TRANSPORTATION AND INSTALLATION OF POLE PER MANUFACTURER'S RECOMMENDATIONS SHALL INCLUDE:
  1. Choke the pole with a nylon sling to 20-25% of pole length from top.
  2. Attach sling to hook and lift, allowing butt of pole to rest on ground until vertical.
  3. Lift pole and position over augured hole.
  4. Lower pole until butt rests on bottom center of hole.
  5. While continuing to hold pole, add backfill tamping every 4".
  6. Check for plumbness after which below grade wiring can be made.

**ORIENTATION DETAIL**

- Grounding:
  1. Ground rod and ground wire connection are subsidiary to pole installation.
  2. Ground rod in nearest pull box.
  3. Copper wire.
  4. Cabinet shall be grounded to the No. 6 bare stranded copper wire.

**CONCRETE POLE EMBEDMENT DETAIL**

- Dimensions and materials as per manufacturer's recommendations.
OVERHEAD SIGNS

NO TURN ON RED

S 48th St

ONE WAY

ONE WAY

ONE WAY

ONLY

ONLY

ONLY

SIGN MOUNTING

Must arm signs shall be installed with
Astro Sign-Brac, model
AK-2443-30-02-15-PNC

34" Vertical Aluminum Pipe
centered to
Sign, for Astro
Sign-Brac

Mark Lutjeharms, E-9742, on 12-20-2019. This media should not be considered a certified document.
STORM DRAINAGE INLET, TYPE "A-2"

ELEVATION OF GUTTER DEPRESSION AT FACE OF CURB

GENERAL NOTES:
1. All reinforcing steel shall be deformed bars conforming to ASTM A-356.90 and shall satisfy the requirements for structural grade steel in accordance with the requirements.
2. Minimum #30% of reinforcement for reinforcing steel shall be 2% unless otherwise indicated.
3. All concrete shall be 1500 psi.
4. Inlet top shall be precast unless otherwise approved by the engineer.
5. Each inlet shall include a cast iron inlet cover and frame. (See LSP 162)
   Each shall include length of curb as per specifications.
6. Curb gutter and gutter line on each side of the inlet top shall be transitioned gradually to the inlet throat in no less than 4 feet.
7. Concrete gutter shall be transitioned to the inlet throat opening shall be constructed for inlet throat depression detail.
8. Inlet top shall be placed such that a minimum of 6" inlet throat opening is maintained.
9. Inlet top shall be placed in a manner that minimizes interference with snow plow operations. The tops of all inlet tops shall be no instance protrude beyond the normal gutter line on adjacent curb faces.
10. Inlet top shall be transitioned gradually and uniformly to the inlet top face within 2 feet of the inlet top.
11. All reinforcing steel shall be epoxy coated.
12. The cast iron inlet cover and frame shall be set in a bed of mortar, and carefully adjusted to prescribed dimensions.
13. The concrete gutter along the entire length of the inlet opening shall be constructed to form a V-notch through which the inlet throat shall be gradually depressed from the edge of gutter to the face of curb.
14. Contractor shall use inlet throat depression template held against the upper front edge of inlet, to ensure adequate inlet throat depression along the inlet opening.
15. Concrete gutter to be reinforced with (6) No. 4 bars placed as shown.
16. Plan of Precast Concrete Inlet Top

PLAN & SECTION OF PRECAST REINFORCED CONCRETE INLET TOP

INLET THROAT DEPRESSION TEMPLATE

ENVIRONMENTAL STAMP

No. 6 Bars @ 1'-1" Centers

INLET TOP SHALL BE PLACES SUCH THAT A MINIMUM OF 6" INLET THROAT OPENING IS MAINTAINED DEPENDING ON INLET DETAILS.
APPROXIMATE QUANTITIES FOR DRAINAGE INLETS:

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Each Inlet shall include a cast iron grate and frame.

Table does not include deduction for pipe opening.

Note:

Provide openings in walls of Type 'F-2' and 'F-3' inlets as noted on the plans.

Details and quantities reflect openings in 1½ walls as typical for Type 'F-2' and Type 'F-3' grate inlets.

All concrete shall be L3500.

All casings are to be coated with bituminous paint.

Brick grate inlet shall not exceed 6'.
PIPE DIAMETER | PIPE WALL THICKNESS - "T" | "X" (MINIMUM) | "Y"
---|---|---|---
15'-30' | 3 1/2" | VARIES | 4'-6"
36" | 4" | 3'-9" | 5'-0"
48" | 4 1/2" | 4'-0" | 5'-6"
54" | 5" | 4'-5" | 6'-0"
60" | 5 1/2" | 5'-3" | 6'-6"
66" | 6" | 6'-0" | 7'-0"
72" | 6 1/2" | 6'-7" | 7'-6"
78" | 7" | 7'-3" | 8'-3"
84" | 7 1/2" | 8'-0" | 8'-9"
90" | 8" | 8'-3" | 9'-0"
96" | 8 1/2" | 9'-0" | 9'-9"
108" | 9" | 9'-6" | 10'-6"

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.

GENERAL NOTES:

ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM SERIAL DESIGNATION A-365-97.
AND SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL STEEL IN ACCORDANCE WITH THE REQUIREMENTS.

ALL CONCRETE SHALL BE 1350.

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 STEPS AS SHOWN IN LSP 162.

PLASTER SHOUL SURFACES PROPE AND SUP OUT 1/2".
This document was originally issued and sealed by Ben Higgins, E-7413, on 12-20-2019. This media should not be considered a certified document.

**R.C. Collars, Elbows and Plugs**

### Reinf. Concrete Elbows and Collars

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<th>DIA</th>
<th>H</th>
<th>A</th>
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**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. specification A 360 and shall satisfy the bending 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.

**Temporary Brick Plug**

**Concrete Plugs**

**Plan**

**Side Elevation**

**Typical Section**

**End Elevation**

**R.C. Elbows for Vertical Deflection Only**

**N.B.:** Concrete plugs shall be placed as shown.

**Concrete CU. YDS.**

- 0.28
- 0.81
- 1.21
- 1.92
- 2.59
- 3.28

**Temporary Brick Plug**: 0.74

**R.C. Collars**: 0.86

**Concrete CU. YDS.**

- 0.15
- 0.23
- 0.30
- 0.34
- 0.74

**Steel**: 0.63

**Minimum Depth of Embedment**: 1'-0"
CAST IRON MANHOLE RING, COVER AND STEPS

GENERAL NOTES:
1. CASTING SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATIONS FOR GRAY IRON CASTINGS 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 DETAIL 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.

CAST IRON MANHOLE RING, COVER AND STEPS TYPICAL SECTION A-A

2. POLYPROPYLENE PLASTIC SHALL CONFORM TO ASTM D-497.
3. POLYPROPYLENE PLASTIC SHALL CONFORM TO ASTM D-497.
4. POLYPROPYLENE PLASTIC SHALL CONFORM TO ASTM D-497.

STORM DRAINAGE MANHOLE
WASTEWATER MANHOLE
STANDARD HEAVY TRAFFIC TYPE MANHOLE COVER AND FRAME

INLET COVER FRAME

INLET COVER

STANDARD CAST IRON INLET COVER AND FRAME

TYPICAL SECTION
SURVEY GUARD

NOTES:
SURVEYOR TO PAINT GUARD WHERE THEY CHOOSE, COLORS TO BE:

RED FOR ELECTRICAL AND SIGNALS
ORANGE FOR COMMUNICATION
GREEN FOR WASTEWATER AND DRAINAGE
NO PAINT FOR PAVING

SURVEYOR TO PROVIDE ALL ELECTRONIC DATA, COPY OF ELECTRONIC DATA, AND OR COPY OF THE FIELD BOOK (IF REQUIRED). FREQUENCY FOR GUARDS SHALL BE


PINK IS THE ONLY ACCEPTABLE FLAG COLOR.

SECTION A-A

STANDARD MONUMENT BOX

NOTE:

EVERY 240 FT.

TURN-DOWN FLOW LINER EXPANSION JOINT

NOTE: FOUNDATION MATERIAL MAY BE ALTERED OR OMITTED AT THE OPTION OF THE ENGINEER.

6" FLOW LINE

6" FLOW LINE

NOMINAL LINER WIDTH (SEE PLAN)

B

B

STANDARD LOW FLOW LINER

NOTE:
1" PREFORMED EXPANSION JOINT SEAL WITH 1" OF JOINT FILLING FILLER HOT MORTAR TYPE SHALL BE INSTALLED @ INTERVALS OF 80' MAXIMUM

CONTRACTION JOINT SPACING SHALL BE 10' MAXIMUM ALL CONCRETE SHALL BE 3,500

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

CHAMFER ALL EXPOSED EDGES 1/2".

OPTIMUM SLOPE

STANDARD TEMPLATE FOR LINER FOUNDATION
3' OR LESS

STANDARD LOW FLOW LINER
3.5' OR GREATER

LOW FLOW LINER FOUNDATION MATERIAL

SUB GRADE SHALL BE COMPACTED IN ACCORDANCE WITH STANDARD SPEC'S TO ACHIEVE 90% FOR OPTIMUM MOISTURE

LOW FLOW LINER FOUNDATION MATERIAL

MATERIAL REQUIREMENTS FOR LINER AND FOUNDATION

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CONCRETE (CUBIC YARDS)

FOUNDATION (CUBIC YARDS)

CHAMFER ALL EXPOSED EDGES 1/2".
SILT FENCE PLACEMENT/ONE SLOPE
Installation with J-hooks or "smiles" increases silt fence efficiency.

SILT FENCE PLACEMENT/TWO SLOPES
Installation with J-hooks will increase silt fence efficiency and reduce erosion causing failures.

SILT FENCE PLACEMENT/PERIMETER CONTROL
Incorrect - do not layout "perimeter control" silt fences along property lines. All sediment laden runoff will concentrate and overwhelm the system.

Correct - install J-hooks
Correct - install J-hooks
Correct - install J-hooks
Different segments of silt fence installed with J-hooks or "smiles" will be much more effective.

NOTE:
Refer to Chapter 9 of the City of Lincoln Drainage Criteria Manual for more information on silt fence and erosion control measures.
10'-0" MINIMUM
2'-0" MINIMUM

EXISTING GROUND

EXISTING PAVEMENT

FILTER CLOTH (GEO FABRIC)

SID VIEW

70'-0" MINIMUM

2'-0" MINIMUM

EXISTING PAVEMENT

FILTER CLOTH (GEO FABRIC)

PLAN VIEW

70'-0" MINIMUM

12'-0" MINIMUM

5'-0" MINIMUM

2'-0" MINIMUM

EXISTING PAVEMENT

SECTION A-A

12'-0" MINIMUM

24'-0" MAXIMUM

2'-0" MINIMUM

2'-0" MINIMUM

FILTER CLOTH (GEO FABRIC)

NOTE:
FILTER CLOTH 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 9 OF THE CITY OF LINCOLN DRAINAGE CRITERIA MANUAL FOR MORE INFORMATION OF SEDIMENT AND EROSION CONTROL MEASURES.
DO NOT USE RECYCLED CONCRETE.
SNAPPY SIGN MUST BE LOCATED NEAR CONSTRUCTION ENTRANCE.
**ROCK OUTLET, CULVERT INLET PROTECTION**

**SECTION A-A**

- **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.
- **CHANNEL SLOPE:**
  - **END OF APRON EXISTING SLOPE**: 2:1 at pipe outlet to the sides slopes to vary from 3:1.
  - **MINIMUM DEPTH OF RIP-RAP**: 6" min.
  - **MAXIMUM DEPTH OF FLOW**: Downstream normal depth or discharge depth, whichever is greater.
- **FILTER FABRIC LINING:** From end of apron to at least 6" from edge of rip-rap.
- **NOTE:** Filter cloth shall be geotextile, class C. An alternative geotextile with concrete squares may be substituted for rip-rap if installed per the manufacturer's specifications.

**NOTE:**
- Refer to Chapter 9 of the City of Lincoln Drainage Criteria Manual for more information on sediment and erosion control measures.
- Limestone, quartzite, or other hard stone clean of debris.
- Rock must have a density of at least 100 lb/cu. ft or 140 lb/cu. ft.
- Rock must be clean of debris and contain no asphalt.
- Each piece shall have no dimension greater than 3 times its least dimension.
- Density of rip-rap rock shall be at least 90% of rock size.

**NODT DESIGNATION:**

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<tr>
<th>ROCK SIZE</th>
<th>ROCK SIZE</th>
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<th>50% of Rock Size Passing</th>
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**SILT FENCE INLET PROTECTION**

- **DISTANCE IS 6' MINIMUM IF FLOW IS TOWARD EMBANKMENT**
- **4' POST SPACING**
- **FLOW IS TOWARD EMBANKMENT**
- **6" MIN.***

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*This document was originally issued and sealed by Ben Higgins, E-7413, on 12-20-2019. This media should not be considered a certified document.*
SEEDMEN BARRIERS
FOR LINEAR PROJECTS
TYPE I
(TO BE USED ON STREETS
NOT OPEN TO TRAFFIC)

PLACEMENT

STREET GRADE PLACING
A 100'
B 50'
C 25'
D 16'
E 13'
F 10'

FLOW PATH

CURB PROTECTION OR
AN APPROVED EQUAL

INLET PROTECTION

FLOW PATH

CURB PROTECTION OR
AN APPROVED EQUAL

GENERAL NOTE
1. DO NOT BLOCK INLET THROAT.
2. DO NOT USE BARRIERS AS THE ONLY SEDIMENT CONTROL MEASURES. INLET PROTECTION IS ONLY EFFECTIVE WHEN USED IN CONJUNCTION WITH OTHER UPLRIST STREAM EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES.
3. INLET BARRIER PROTECTION SHOULD BE A LAST LINE OF DEFENSE FOR SEDIMENT CAPTURE.
4. INSPECT WEEKLY AND AFTER EACH RAIN EVENT.
5. REMOVE SEDIMENT WHEN HALF FULL (1/2 WAY UP SEDIMENT BARRIER).
6. DO NOT USE IF STREET IS OPEN TO PUBLIC TRAFFIC. USE AFTER PAVING AND BEFORE OPEN TO PUBLIC TRAFFIC.
NOTE:
ANCHOR SECURELY DIRECTION OF FLOW AND PERPENDICULAR TO THE PROTECTIVE BLANKET ON STEEP SLOPES, APPLY BEFORE TERMINATING THE INSTALLATION.

BRING MATERIAL DOWN TO A LEVEL AREA ACROSS THE SLOPE.

BLANKETS MAY BE APPLIED PROTECTIVE EROSION CONTROL ON SHALLOW SLOPES, COVERING FIRST AND THEN PLANT THROUGH THE MATERIAL AS PER PLANTING PLAN. INSERTED INTO THE SOIL WHERE GROUND COVERS ARE TO BE PLANTED. LAY THE PROTECTIVE BLANKET ON THE SLOPE. ALLOW TO LAY LOOSELY ON SOIL, DO NOT STRETCH!

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.

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

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

NOTE:
IN DITCHES APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. BURROWING MAMMALS MAY BE RE-SECURE THE MATERIAL IN PLACE IF NETTING BLANKETS OR MATS BECOME DISLOCATED OR DAMAGED, REPAIR OR REPLACE AND RE-SECURE IMMEDIATELY.

NOTE:
IN SITES WITH SUBMERGED VEGETATION, ADD SOIL, TAMP DOWN, AND RESEED; RE-SECURE THE MATERIAL IN PLACE. IF NETTING, BLANKETS OR MATS, RE-SECURE IMMEDIATELY.

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SEDIMENT AND EROSION CONTROL MEASURES

NOTE:
PLATE EROSION CONTROL BLANKET ON DRAINAGE RILL ON THE DOWNSLOPE SIDE OF THE BARRIER TO PREVENT EROSION.

NOTE:
SIMILAR BARRIERS SHOULD BE USED ON THE SIDES OF TRENCHES.

NOTE:
SILT BARRIERS SHOULD BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED.

NOTE:
SEDIMENT BARRIERS SHOULD NOT BE PLACED IN DITCHES WATER FROM FLOWING AROUND THE SEDIMENT BARRIER. THIS PREVENTS THE BOTTOMS OF THE END DIKES ARE HIGHER THAN THE TOP OF THE LOWEST DIKE. THIS PREVENTS THE END DIKES.

NOTE:
SEDIMENT BARRIERS SHOULD EXTEND FAR ENOUGH TO THE FLOWLINE OF THE DITCH.

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

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**For Trenched Water Mains**

1. **General Notes:**
   - **Foundation Material:**
     - When foundation material is required/approved by the contract administration, it shall be paid at an agreed unit price of $3.00 per cubic yard installed based on the increased dimensions of the material added to stabilize the trench bottom.
   - **Flexible Piping:**
     - Water shall be added to the material excavated during construction at the agreed unit price of $0.50 per cubic foot of water applied to complete the compaction.

2. **Tracer Wire Location:**
   - Tracer wire shall be applied to complete the compaction.

3. **Pipe Bedding:**
   - Pipe bedding shall be applied to complete the compaction.

---

**Pipe Bedding and Foundation Material**

- For all pipe except ductile iron, vitrified clay, and reinforced concrete.

**Pipe Bedding for Ductile Iron, Vitrified Clay and Reinforced Concrete Pipe 15" Diameter and Larger**

- Geo-textile fabric to overlap as per manufacturer.
- **6" Min. for all pressure rated flexible pipes (C900) or non-pressure rated flexible pipes that are SDR 26 Schedule 40 or stronger.**
- 18 inches are required for flexible pipes that are SDR 26 Schedule 40 or stronger.
- Foundation material (when required, see note)

**Tracer Wire Location**

- Tracer wire shall be applied to complete the compaction.
- For trenched water mains, tracer wire shall be applied to complete the compaction.

---

**Plan No.:** LSP 185

**Sheet No.:** 1

**Drawn:**

**Approved:**

**Checked:**

**Date:**

**Plan No.:** LSP 185
ENCASEMENT WITH CASING CHOCKS

ENCASEMENT WITH CASING CHOCKS AND ENCASEMENT PLUGS

BRICK ENCASEMENT PLUGS

- Carrier Pipe
- Steel Casing Pipe
- Standard Brick
- Encase with mortar on outside of brick, inside to cover entire opening of steel casing or approved manufactured plug.

NOTE: This document was originally issued and sealed by Brian Kramer, E-10467, on 12-20-2019. This media should not be considered a certified document.
WASTEWATER MANHOLES, TYPE 'R' AND 'S'

6" MIN. DIAMETER

ADJUSTING RISER

ADJUSTING RINGS

EXTERNAL FRAME SEAL (TYPICAL)

MANHOLE FRAME AND COVER SHALL BE CITY OF LINCOLN HEAVY TRAFFIC TYPE (SEE LSP 162)

FLEXIBLE WATERPROOF CONNECTOR, TYPICAL

LONG 45° PAQUE ELBOW IN A MINIMUM 2 SQUARE FOOT ENCASEMENT ON CRUSHED ROCK

INVERT OF DROP PIPE SHALL MATCH THE CENTERLINE OF THE LOWEST PIPE

GENERAL NOTES:
1. SEE CHAPTER 22 OF THE LINCOLN STANDARD SPECIFICATIONS.
2. PLACE VERTICAL SIDE OF ECCENTRIC SECTION FARthest FROM BACK OF CURB MANHOLE ACCESS TO BE POSITIONED OVER THE INCOMING LINES.
3. SOLVENT WELD FITTINGS ON OUTSIDE DROPS ARE ACCEPTABLE.

WASTEWATER MANHOLES, TYPE 'R' AND 'S'

UNFRAMED MANHOLE FRAME AND COVER SHALL BE CITY OF LINCOLN HEAVY TRAFFIC TYPE (SEE LSP 162)
WASTEWATER MANHOLES, TYPE 'G', 'H', 'P' AND 'Q'

**PRECAST REINFORCED CONCRETE MANHOLE**

<table>
<thead>
<tr>
<th>Standard Sanitary Sider Manhole</th>
<th>Sanitary Trunk Sider Diameter</th>
<th>Dimensions</th>
<th>Reinforcing Steel, B/W/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE 'P' (LINE)</td>
<td>15' THRU 27' INCL.</td>
<td>A 6'-0&quot; B 6'-2&quot; C 6&quot;</td>
<td>NO 5 BARS @ 12' EACH WAY</td>
</tr>
<tr>
<td>TYPE 'G' (LINE)</td>
<td>30' THRU 48' INCL.</td>
<td>6'-0&quot; B 6'-4&quot; C 6'-4&quot;</td>
<td>NO 5 BARS @ 12' EACH WAY</td>
</tr>
<tr>
<td>TYPE 1/2 DROP</td>
<td>15' THRU 27' INCL.</td>
<td>6'-0&quot; B 6'-4&quot; C 6'-4&quot;</td>
<td>NO 5 BARS @ 12' EACH WAY</td>
</tr>
<tr>
<td>TYPE 1/4 DROP</td>
<td>30' THRU 48' INCL.</td>
<td>6'-0&quot; B 6'-4&quot; C 6'-4&quot;</td>
<td>NO 5 BARS @ 12' EACH WAY</td>
</tr>
</tbody>
</table>

**GENERAL NOTES:**

1. SEE CHAPTER 20 OF THE LINCOLN STANDARD SPECIFICATIONS.
2. PLACE VERTICAL SECS OF ECCENTRIC SECTION PARALLEL WITH WINGS OF CURVE MANHOLE ACCESS TO BE POSITIONED OVER THE INCOMING LINES.
3. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
4. MAXIMUM DROP PIPE SIZE IS 12".
5. SOLVENT WELD FITTINGS ON OUTSIDE DROPS ARE ACCEPTABLE.

...
SANITARY SERVICE LOCATIONS

GENERAL NOTES:

1. SERVICE LINE SHALL BE INSTALLED SO THAT SERVICE CONNECTION IS AT LEAST 45 DEGREES FROM HORIZONTAL.

2. SERVICE LINE SHALL BE EXTENDED TO THE PROPERTY LINE.

3. SOLVENT WELD COUPLINGS ARE REQUIRED FOR THE ENTIRE SERVICE LINE CONNECTION FROM LINE WYE TO THE CAP.

4. MINIMUM GRADE FOR SERVICE LATERAL IS 1/8 PER FOOT (0.01' PER FOOT).

PLAN OF SANITARY SERVICE LOCATIONS

TRENCH WALL
TRENCH BOTTOM
SANITARY SEWER MAIN
SANITARY SERVICE CONNECTION
CENTER LINE STREET R.O.W.
SEWER SERVICE
WIDE OF LOT (TYPICAL)
R.O.W. LINE

FOUNDATION MATERIAL IF REQUIRED
SCHEDULE 40 PVC
WELD JOINTS
LATERAL SOLVENT WELD CAPS
SOLVENT WELD CAPS

1 1/2" SOLVENT WELD CAP
1 1/2" PVC STUB MARKER
45° BEND
WYE ADAPTOR

MINIMUM DISTANCE 5'
LOT LINE
WIDTH OF LOT (TYPICAL)
R.O.W. LINE

SANITARY SERVICE LOCATIONS

PLAN OF

SANITARY SERVICE

T A B L E
PEN:
PROJ:
USER:
DATE:
DGN:
12/4/2019

SHEET NO.
Drawn:
Checked:
Approved:
Date:
Horz. Scale:

PLAN NO.

VARIES
VARIES
VARIES
VARIES
VARIES
VARIES

SANITARY SERVICE PLAN OF DETAIL OF (TYPICAL)
WIDTH OF LOT CENTER LINE STREET R.O.W.
SEWER SERVICE
SANITARY SEWER MAIN
PLANS
SANITARY SERVICE SHOWN ON INVERT ELEVATION OF 4" SOLVENT WELDED CAP.
(01' PER FOOT). MINIMUM GRADE FOR SERVICE LATERAL IS 1/8" PER FOOT.
4. LINE WYE SHALL BE INSTALLED SO THAT SERVICE CONNECTION IS AT LEAST 45 DEGREES FROM HORIZONTAL.
2. SERVICE LINE SHALL BE EXTENDED TO THE PROPERTY LINE.
3. SOLVENT WELD COUPLINGS ARE REQUIRED FOR THE ENTIRE SERVICE LINE CONNECTION FROM LINE WYE TO THE CAP.
4. MINIMUM GRADE FOR SERVICE LATERAL IS 1/8 PER FOOT (0.01' PER FOOT).

SANITARY SERVICE

PLAN OF

SANITARY SERVICE LOCATIONS

TRENCH WALL
TRENCH BOTTOM
SANITARY SEWER MAIN
SANITARY SERVICE CONNECTION
CENTER LINE STREET R.O.W.
SEWER SERVICE
WIDE OF LOT (TYPICAL)
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SCHEDULE 40 PVC
WELD JOINTS
LATERAL SOLVENT WELD CAPS
SOLVENT WELD CAPS

1 1/2" SOLVENT WELD CAP
1 1/2" PVC STUB MARKER
45° BEND
WYE ADAPTOR

MINIMUM DISTANCE 5'
LOT LINE
WIDTH OF LOT (TYPICAL)
R.O.W. LINE

SANITARY SERVICE LOCATIONS

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VARIES
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SANITARY SERVICE PLAN OF DETAIL OF (TYPICAL)
WIDTH OF LOT CENTER LINE STREET R.O.W.
SEWER SERVICE
SANITARY SEWER MAIN
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SANITARY SERVICE

PLAN OF

SANITARY SERVICE LOCATIONS

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TRENCH BOTTOM
SANITARY SEWER MAIN
SANITARY SERVICE CONNECTION
CENTER LINE STREET R.O.W.
SEWER SERVICE
WIDE OF LOT (TYPICAL)
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SCHEDULE 40 PVC
WELD JOINTS
LATERAL SOLVENT WELD CAPS
SOLVENT WELD CAPS

1 1/2" SOLVENT WELD CAP
1 1/2" PVC STUB MARKER
45° BEND
WYE ADAPTOR

MINIMUM DISTANCE 5'
LOT LINE
WIDTH OF LOT (TYPICAL)
R.O.W. LINE

SANITARY SERVICE LOCATIONS

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VARIES
VARIES
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STREAM CROSSING DETAIL

- **3' Minimum Transverse to Stream Flow**
- **3' Minimum Upstream**
- **1" Threaded Rod with Washers and Nuts**
- **USG Concrete**
- **Construction to place Rock Rip-Rap as shown**
- **See Contract Documents for Size**

**Typical**

- **3' Minimum, Transverse to stream Flow**
- **10' Minimum Upstream**
- **1' Minimum**
- **All Reinforcing Steel shall be epoxy coated**
- **Drive 15 Vertical Feet of 7 Gauge Steel sheeting**
- **The full width and height of Concrete Encasement, on both sides of concrete Encasement**

**Contractor to place Rock Rip-Rap as shown**

- **See Contract Documents for Size**

**Notes:***

- **1" Nominal Diameter**
- **Typical**
- **L3500 Concrete**
- **Center Line of Pipe**
- **Geotextile Fabric**
CONCRETE BLOCKS
EXISTING WATER MAIN
WOOD WEDGES
UNDER SLEEVE,
DRIVE TREATED
RETAINER GLAND, M.J.

PROPOSED WATER MAIN
ONE FULL LENGTH (20' NOMINAL) CENTERED ON UTILITY WHEN CROSSING STORMWATER OR WASTEWATER UTILITY

WATER MAIN RECONSTRUCTION USING BENDS

WATER MAIN RECONSTRUCTION USING OFFSETS

NOTE:
NO ANCHORAGES OR IN SCENARIOS WHERE IT IS RECONSTRUCTED BELOW WATER PIPE SHALL BE ENCASED WITH FLOWABLE FILL THE RECONSTRUCTION.

NOTE:
THE TOTAL LENGTH OF WATER RECONSTRUCTION IS TO BE
POWERS EMPLOYED DUCTILE IRON PIPE. SEE STANDARD SPECIFICATIONS.

THE WATER PIPE SHALL BE ENCASED WITH FLOWABLE FILL IN SCENARIOS WHERE IT IS RECONSTRUCTED BELOW ANY EXISTING PROPOSED WATER_MAIN LINE.
12" OR SMALLER WATER MAIN

NO 4 BARS, PLACED AS SHOWN
CONCRETE 0.4 CUBIC YARDS
STEEL 18.7 POUNDS

STEEL 16.7 POUNDS
CONCRETE 0.6 CUBIC YARDS

16" WATER MAIN

NO 4 BARS, PLACED AS SHOWN
CONCRETE 1.4 CUBIC YARDS
STEEL 46.4 POUNDS

STEEL 45.4 POUNDS
CONCRETE 1.4 CUBIC YARDS

24" WATER MAIN

NO 5 BARS, PLACED AS SHOWN
CONCRETE 3.3 CUBIC YARDS
STEEL 61.5 POUNDS

STEEL 108.5 POUNDS
CONCRETE 3.8 CUBIC YARDS

CONCRETE 30" WATER MAINS

NO 5 BARS, PLACED AS SHOWN
CONCRETE 6.6 CUBIC YARDS
STEEL 241.3 POUNDS

STEEL 241.3 POUNDS
CONCRETE 8.6 CUBIC YARDS

REINFORCED CONCRETE COLLARS

NOTE
ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO A.S.T.M. DESIGNATION A 307.37 AND SHALL SATISFY THE BEND TEST REQUIREMENTS FOR STRUCTURAL GRADE STEEL IN ACCORDANCE WITH THE REQUIREMENTS.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

ALL CONCRETE SHALL BE L3500.

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

R.C. COLLARS FOR REDUCERS SHALL BE INSTALLED ON THE SMALL PIPE SIDE OF A REDUCER. FOR REDUCERS THE SIDE SHALL BE BASED ON THE LARGER DIAMETER PIPE.

R.C. THRUST COLLARS TO BE BUILT ADJACENT TO THE SPREAD SIDE OF LAST PIPE CONNECTION OR ADJACENT TO THE SMALLER DIAMETER SIDE OF ALL REDUCERS.

THRU MR. S. B. COLLARS FOR PVC PIPE

WHEN PVC PIPE IS USED FOR WATER MAIN MATERIAL, A THRUST COLLAR SHALL BE INSTALLED FROM EACH LINE VALVE OR REDUCER TOWARDS THE THRUST COLLAR WITH THE EXPANDING ADESSES FACING OPPOSITE DIRECTIONS, TO PROVIDE THRUST RESTRAINT FROM EITHER DIRECTION. A SINGLE WEDGE ACTION RETAINER GLAND SHALL BE INSTALLED 5' FROM EACH LINE VALVE OR REDUCER. TWO WEDGE ACTION RETAINER GLANDS SHALL BE INSTALLED ON THE MECHANICAL JOINT ON THE SMALL PIPE SIDE OF A REDUCER. ONE WEDGE ACTION RETAINER GLAND SHALL BE INSTALLED ON THE MECHANICAL JOINT ON THE LARGE PIPE SIDE OF A REDUCER. TWO WEDGE ACTION RETAINER GLANDS SHALL BE INSTALLED 5' FROM EACH LINE VALVE OR REDUCER. ONE WEDGE ACTION RETAINER GLAND SHALL BE INSTALLED ON THE MECHANICAL JOINT ON THE LARGE PIPE SIDE OF A REDUCER.

NOTE:
SEE L.S.P. 320 FOR CONCRETE AND REINFORCING STEEL DETAILS.

SYNOPSIS:
- 12" OR SMALLER WATER MAIN
- 16" WATER MAIN
- 24" WATER MAIN
- CONCRETE 30" WATER MAINS
- REINFORCED CONCRETE COLLARS
- THRUST COLLAR FOR PVC PIPE

This document was originally issued and sealed by David Beyersdorf, E-12239, on 12-20-2019. This media should not be considered a certified document.
CORRECT HYDRANT ORIENTATION
TYPES I, II, III

HYDRANT CONFIGURATION

RIGHT FACING SHOE

LEFT FACING SHOE

NOTE:
MAINLINE VALVES SHALL BE A MINIMUM OF 3 FEET AWAY FROM ANY HYDRANT BARREL.

THE CONTRACTOR SHALL ORIENT THE LARGE STEAMER NOZZLE OF THE HYDRANT TO FACE THE ROADWAY.
REQUIREMENT: O.S.H.A. STANDARDS, NO EXCEPTIONS

TRENCH PROTECTION MUST MEET SLOPE OF TRENCH WALLS AND/OR ALL DIMENSIONS INSIDE OF EXCAVATION FOR TAP ARE MINIMUM DIMENSIONS AT BASE OF EXCAVATION.

NOTE:

SECTION A-A

NO SCALE

<table>
<thead>
<tr>
<th>MAPPING SLEEVE AND VALVE</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<tr>
<td>WATER SERVICE TAP</td>
<td>6&quot;</td>
<td>6&quot;</td>
<td>MINIMUM</td>
<td>6&quot; OR LESS</td>
<td>5'-0&quot;</td>
</tr>
<tr>
<td>WASTEWATER SERVICE TAP</td>
<td>6&quot;</td>
<td>6&quot;</td>
<td>MINIMUM</td>
<td>5&quot; OR LESS</td>
<td>3'-0&quot;</td>
</tr>
</tbody>
</table>

A

B

C

D

E

F

WATER TAPPING EXCAVATION PIT, BUTTERFLY VALVE AND CUT IN DETAIL

TOP VIEW

NO SCALE

CHAMFER FOR 12" PVC BUTTERFLY VALVE

CUT IN DETAIL FOR OVERSIZED O.D. PIPE

CUT IN DETAIL FOR STANDARD O.D. PIPE

BUTTERFLY VALVE CHAMFER FOR 12" PVC

EXISTING PIPE

NEW PIPE

PUMPS FOR Dewatering

PLACE CRUSHED ROCK BEFORE CUTTING PIPE TO STABILIZE WORK PLATFORM AND TO REDUCE CONTAMINATION

EXCAVATING AND DEWATER IN FOR TIE-INS LINCOLN WATER SYSTEM

WATER TAPPING EXCAVATION PIT, BUTTERFLY VALVE AND CUT IN DETAIL

NOTE:

SECTION A-A

NO SCALE

CHAMFER FOR 12" PVC BUTTERFLY VALVE

EXISTING PIPE

NEW PIPE

PUMPS FOR Dewatering

PLACE CRUSHED ROCK BEFORE CUTTING PIPE TO STABILIZE WORK PLATFORM AND TO REDUCE CONTAMINATION

EXCAVATING AND DEWATER IN FOR TIE-INS LINCOLN WATER SYSTEM

WATER TAPPING EXCAVATION PIT, BUTTERFLY VALVE AND CUT IN DETAIL
**TABLES**

**Pen:**
- **Proj:**
- **User:**
- **Date:** 11/27/2019
- **Dgn:**

**Sheets:**
- **No:**
- **Drawn:**
- **Checked:**
- **Approved:**
- **Date:**
- **Horz. Scale:**

**Slopes:**
- **Desirable Maximum:**
  - 1.5% (2.0% Absolute Maximum)
  - 7.3% (8.3% Absolute Maximum)
  - 9.0% (10.0% Absolute Maximum)

- **Notes:**
  - See Notes on Sheet 3 for further details
  - (Adjacent to non-concrete)
  - 1' Taper Option
  - Flare Option
  - Concrete
  - Turf

- **Obstacles:**
  - See Note 8

- **Ramp Thickness Variations:**
  - See Note 8

- **Detectable Warning Panel:**
  - See Note 6

- **Curb & Gutter:**
  - See Detail on Sheet 3

- **Curb & Wall Removal:**
  - See Detail on Sheet 3

**Contractor:**
- The contractor should account for construction tolerances to prevent exceeding the maximum slopes. Any slopes exceeding the absolute maximum shall not be accepted without prior approval from the project manager.

- The project manager's justification for the inability to meet slope requirements shall be determined by referencing Procedure No. 4322.8.1

**Slope Legend:**
- 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.
Curb & Gutter Detail

Ramp Transition

Construct ramp with a maximum vertical discontinuity of 0.25". Discontinuities up to 0.5" shall be beveled at a 1:2 minimum across the entire level change.

Detectable Warning Panel Placement Detail

NOTE: Construction concrete curb and gutter may be removed and replaced in lieu of milling.

Curb Removal Detail

1. Sidewalk ramp width requirements:
   - New construction: ramp width shall be 5' minimum.
   - Retrofit construction: ramp width shall be 4' minimum.
   - Bike path/fairway: ramp width shall be the same as the nominal width of the bike path/fairway.

2. The slope of turning spaces shall have an absolute maximum of 10% in all directions.
   - New construction: the turning space shall have absolute minimum dimensions of 9' x 9'.
   - Retrofit construction: the turning space shall have absolute minimum dimensions of 8.3' x 8.3'.
   - If turning space is constrained at the back of curb, the turning space shall be a minimum of 8' x 8' with the 8' dimension being in the direction of the ramp run.

3. Curb shall be taken to assure a uniform grade on the curb ramp, free of sand and short grade changes.

4. Ramp shall be constructed such that the maximum vertical discontinuity is 0.5". Discontinuities up to 0.5" shall be beveled at a 1:2 minimum across the entire level change.

5. Ramp blends shall be constructed with a 6" - 7" - 10% maximum slope at right angles to the slope of the curb ramp wall adjacent to concrete surface.

6. All curb ramps shall be constructed with a longitudinal detectable truncated surface across the entire width of ramp the last two feet (2') towards the curb, with color contrast to adjacent surface.

7. Detectable warning panels must be approved by the city and must comply with ADA dimensions and shall be installed as per manufacturer’s instructions.

8. Concrete transitions for detectable ramps shall be equal to the pavement thickness but no less than 0.5" and no more than 1". The transitions that are determined shall be carried out a distance of no less than 4' and no more than 8' measured parallel to the back of curb.

9. Curb ramps shall be tied to the back of the curb with #5 epoxy coated rebar, 18" long at a maximum spacing across the width of the ramp.

10. Where commercial driveways are constructed at the adjacent street elevation or where the commercial driveway utilizes curb ramps for stop control, detectable warning surfaces shall be installed at the junction between the pedestrian route and the vehicular route.

11. Effective drainage is required in all areas of curb ramp construction.

Slope Legend

1.5% Desirable Maximum 3.0% Absolute Maximum slope

0.9% Desirable Maximum 1.0% Absolute Maximum slope

Slopes may be less than the desirable maximum but shall not exceed the absolute maximum. The contractor should account for construction conditions to prevent exceeding the maximum slopes. Any slopes exceeding the absolute maximum shall not be accepted without prior approval from the project manager. Justification for inability to meet slope requirements shall be determined by referencing Firming Proving Model.

Median Crossing

Indicates 1/2" expansion joint

Indicates detectable warning panels full width of crossing

Curb Ramps

1. If the algebraic difference between any slope in the pedestrian access path is greater than 12.5%, a 2'-level surface must be provided.

2. If the algebraic difference between any slope at the intersection of the pedestrian access path is greater than 0.5%, a 2'-level surface must be provided.

3. Ramps shall be constructed such that the maximum vertical discontinuity is 0.25". Discontinuities up to 0.5" shall be beveled at a 1:2 minimum across the entire level change.

4. Ramp shall be constructed such that the maximum vertical discontinuity is 0.5". Discontinuities up to 0.5" shall be beveled at a 1:2 minimum across the entire level change.

5. Ramp blends shall be constructed with a 6" - 7" - 10% maximum slope at right angles to the slope of the curb ramp wall adjacent to concrete surface.

6. All curb ramps shall be constructed with a longitudinal detectable truncated surface across the entire width of ramp the last two feet (2') towards the curb, with color contrast to adjacent surface.

7. Detectable warning panels must be approved by the city and must comply with ADA dimensions and shall be installed as per manufacturer’s instructions.

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Slope Legend

1.5% Desirable Maximum 3.0% Absolute Maximum slope

0.9% Desirable Maximum 1.0% Absolute Maximum slope

Slopes may be less than the desirable maximum but shall not exceed the absolute maximum. The contractor should account for construction conditions to prevent exceeding the maximum slopes. Any slopes exceeding the absolute maximum shall not be accepted without prior approval from the project manager. Justification for inability to meet slope requirements shall be determined by referencing Firming Proving Model.

Curb Ramps

1. If the algebraic difference between any slope in the pedestrian access path is greater than 12.5%, a 2'-level surface must be provided.

2. If the algebraic difference between any slope at the intersection of the pedestrian access path is greater than 0.5%, a 2'-level surface must be provided.
**PEDESTRIAN ACCESS ROUTE**

**SLOPE REQUIREMENTS:**

New construction cross slope shall be 2% or less.

Where the existing cross slope exceeds 2%, the new construction shall be designed to match the existing.

**Expansion Joints:**

Expansion joints shall be placed at 100' intervals or at cold joints as approved by the Project Manager.

**Passing Space Detail:**

A passing space measuring 5' minimum shall be provided every 200' where the clear width of the pedestrian access route is less than 5'. A passing space width minimum shall be provided every 200'.

**Sidewalk Repair Transition:**

For sidewalk repairs requiring replacement of 2 or more sidewalk panels, a transition panel shall be installed on each end of the repair to account for variations in cross slope of the existing sidewalk not to be repaired.

**Sawing/Grinding Sidewalk Detail:**

Sidewalk trip hazards that measure less than 1.5% vertically may be removed by sawing/grinding if approved by the project manager.

For every 1/2" of vertical separation, the removal area shall measure a minimum of 3" horizontally.

The finished surface of the repair area shall be flat, smooth surface.

**Slope Legend:**

- \[ \text{1.5\% Desirable Maximum} \quad 2.0\% \text{ Absolute Maximum Slope} \]
- \[ \text{7.3\% Desirable Maximum} \quad 8.3\% \text{ Absolute Maximum Slope} \]
- \[ \text{9.0\% Desirable Maximum} \quad 10.0\% \text{ Absolute Maximum Slope} \]

Slopes may be less than the desirable maximum but shall not exceed the absolute maximum. The contractor shall account for construction tolerances and shall not exceed the maximum slopes. Any slopes exceeding the absolute maximum shall not be accepted without prior approval. Slope requirements shall be determined by referencing Nebraska RSA 32.1.
NOTE: ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" MINIMUM CROWNING, MEASURED FROM THE FACE OF THE CONCRETE TO THE SURFACE OF ANY REINFORCING BARS SHALL NOT BE LESS THAN 6" ALONG WALLS AT LOCATIONS TO BE DETERMINED BY THE ENGINEER AND AT 6' OR 8' 5" 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 PLACED AT 10'-0" CENTERS IN ALL RETAINING WALLS.

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 L350.

REINFORCED CONCRETE RETAINING WALL, TYPE 'A' AND 'B'

REINFORCING STEEL:
- All steel shall be Epoxy Coated.
- Minimum cover shall be 3" and the end of the reinforcing bars shall be cut at expansion joints.

HORIZONTAL BARS:
- Minimum cover shall be 3" and the end of the reinforcing bars shall be cut at expansion joints.

VERTICAL BARS:
- Minimum cover shall be 3" and the end of the reinforcing bars shall be cut at expansion joints.

CONCRETE:
- All concrete shall be L350.
**NOTES:**

- Minimum depth of embedment for reinforcing steel shall be 1-1/2".
- All reinforcing steel shall be epoxy coated.
- Chamfer all exposed edges of concrete 3/4".
- Quantities shown are computed using dimensions shown on this plan. The dimension may be varied to conform to field conditions.

**REINFORCED CONCRETE STEPS AND HANDRAILS**

*Handrail Details for Retaining Wall Steps*

<table>
<thead>
<tr>
<th>Size</th>
<th>Minimum Width</th>
<th>Minimum Depth</th>
<th>Per Additional Piece</th>
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<td>2'-0&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>3/8&quot;</td>
</tr>
<tr>
<td>3'-0&quot;</td>
<td>3&quot;</td>
<td>3&quot;</td>
<td>3/8&quot;</td>
</tr>
</tbody>
</table>

**Handrail Details for 3'-0" Walls and Under**

*Alternate I: Typical Post Detail*

- 5/8" x 3/8" x 0'-1-1/2" Anchor Bolts

*Alternate II: Typical Post Detail*

- 1-1/2" x 6-1/2" Anchor Bolts

**TYPICAL CROSS-SECTION OF STEPS**

FOR 3'-11" WALLS AND UNDER

**TYPICAL Section & Handrail Details of Terrace Steps Type II**

**TYPICAL Section A-A**

OF TYPE I & II STEPS

**Typical Cross-Section of Steps**

FOR 3'-11" WALL

**Notes for Handrails:**

- Handrail shall be installed on retaining wall steps and all remaining steps with 4 risers on more.
- Railings shall be installed on Type I Terrace Steps.
- Place end rail bracket at location of intermediate rail bracket when spacing of bracket is less than 1-1/2".
- Dimensions marked thus * are for 7" and 11" treads.

All handrails to be structural tubing A.S.T.M. A-36, gage as shown.

Steps shall be field measured for fabrication of handrail. All concrete shall be L3500.

- All concrete shall be L3500.
- Concrete shall be 3 coats of paint.

**TYPICAL Section of Terrace Steps Type I**

**Part End View**

**Section C-C**

**Section D-D**

**Structural Tubing**

**Malleable Iron Handrail Bracket Detail**

- 1-1/2" Square Tubing #9 Gauge
- 5" x 5" Slip Flange
- 1-1/2" x 6-1/2" Anchor Bolts

**Rail Tubing**

- 3/16" (9 Gauge)

**Handrail Tubing**

- 3/16" (9 Gauge)

**Anchor Bolts**

- 1/2" R" (9 Gauge)

**Slip Flange**

- 1/2" R" (9 Gauge)

**TYPICAL Section B-B**

**TYPICAL Post Detail**

- 5/8" x 3/8" x 0'-1-1/2" Anchor Bolts

**Hangrail Details for Retaining Wall Steps**

- Anchor Bolts
- Slip Flange
- 1/2" R" (9 Gauge)

**Reinforced Concrete Steps and Handrails**

**Handrail Details for 3'-0" Walls and Under**

- Anchor Bolts
- Slip Flange
- 1/2" R" (9 Gauge)
NOTE: TEMPORARY CURB TO BE PLACED SEPARATELY FROM THE PAVEMENT.

NOTE: TEMPORARY PAVEMENT SHALL BE FULL-DEPTH ASPHALT OR 6" L3500 CONCRETE. TEMPORARY CURBS SHALL BE ASPHALT OR L3500 CONCRETE.
TYPICAL JOINT SPACING

JOINT SEALING FILLER

TIE BARS

EXISTING ALLEY PAVEMENT

1'-3"

TRANSVERSE CONTRACTION JOINT

ALLEY PAVEMENT

LONGITUDINAL JOINT

CONTRACTION JOINT

JOINT SEALING FILLER

EXPANSION JOINT AT END OF ALLEY RETURN

NOTE: WIDTH OF ALLEY PAVEMENT

W/2

CENTER LINE ALLEY

SUBGRADE PREPARATION

WIDTH OF SAW BLADE

JOINT SEALING FILLER

TIE BAR PIN

6"

4 1/2"

10'

4 1/2"

1/4"

2"

END OF ALLEY RETURN


CONCRETE ALLEY PAVEMENT

NOTES:

- All joints shall be sealed with joint sealing filler hot poured type as per standard specifications.
- All joints shall be epoxied coated 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, the tie bar pins as shown will be used.
- All concrete shall be L3500.
INTERSECTION OF COLLECTOR/COMMERCIAL WITH MAJOR/ARTERIAL

** ALL DIMENSIONS ARE FROM END OF RADIUS
GENERAL NOTES

FULL DEPTH DIAMOND SAW CUT TO BE USED. FULL DEPTH 4" WHEEL CUTTER SAW CUT WILL BE PERMITTED IF REPAIR WILL BE OVERLAP.

DOWEL BARS SHALL BE INSTALLED WHEN EXISTING CONCRETE PAVEMENT THICKNESS IS GREATER THAN 4", EXCLUDING EXISTING OVERLAY AND MILLING THICKNESS.

DOWEL BARS SHALL BE INSTALLED AT NEW TRANSVERSE JOINT NEAREST TO EXISTING TRANSVERSE JOINT OF ADJOINING LANE UNLESS DIRECTED BY THE CITY'S PROJECT MANAGER. EXISTING TRANSVERSE JOINT SHALL NOT BE RE-ESTABLISHED IN THE PAVEMENT REPAIR.

DOWEL BARS MUST BE DRILLED ALONG THE SAME HORIZONTAL PLANE.

TIE BARS SHALL BE INSTALLED IN ALL REPAIRS EVERY 4' (MAXIMUM) OR AS SHOWN UNLESS OTHERWISE DIRECTED BY THE CITY'S PROJECT MANAGER.

INSTALL TIE BARS AT NEW TRANSVERSE JOINT OPPOSITE OF DOWEL BARS.

ALL DOWEL AND TIE BARS SHALL BE EPOXY COATED PER ASTM A775/ A775M-17. SEE CHAPTER 4 OF THE LINCOLN STANDARD SPECIFICATIONS FOR MUNICIPAL CONSTRUCTION FOR ADDITIONAL MATERIAL REQUIREMENTS.

PAVEMENT REPAIR AT EXISTING TRANSVERSE JOINT SHALL EXTEND 2' FROM JOINT. ALL DOWELLED PAVEMENT UNLESS OTHERWISE REQUIRED BY REPAIR AND APPROVED BY THE CITY'S PROJECT MANAGER.

WHEN REPAIR EXTENDS THROUGH EXISTING JOINT, INSTALL DOWEL BARS TO MATCH JOINT IN DOWELLED PAVEMENT UNLESS OTHERWISE REQUIRED BY REPAIR AND APPROVED BY THE CITY'S PROJECT MANAGER.

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" CENETERS. BASKETS SHALL BE USED ACCORDING TO LSP 660 AND LINCOLN STANDARDS SPECIFICATIONS FOR MUNICIPAL CONSTRUCTION, CHAPTER 4, SECTION 4.3.

MINIMUM THICKNESS OF PARTIAL DEPTH REPAIRS SHALL BE 3" WHEN CONCRETE PAVEMENT MILLING THICKNESS IS GREATER THAN 6", EXCLUDING EXISTING OVERLAY AND MILLING THICKNESS.

IF PAVEMENT REPAIR SHOULD EXTEND THROUGH EXISTING CURB, THE NEW CURB SHALL BE CONSTRUCTED TO THE SAME DIMENSIONS AS EXISTING CURB.

NOTE: SEE GENERAL NOTES FOR ADDITIONAL MATERIAL REQUIREMENTS FOR FULL DEPTH DIAMOND SAW CUT IN CONCRETE.
LEGEND

MATERIAL LEFT AT MILLED CUTS
TIE BAR
DOWEL BAR
(EXCLUDING OVERLAY THICKNESS)

THICKNESS OF CONCRETE
DEPTH (MIN 1 1/2"; MAX 4")

LENGTH OF PANEL/REPAIR
WIDTH OF PANEL/REPAIR

LONGITUDINAL JOINT
BOND BREAKER
BOND BREAKER
BY THE ENGINEER.
LONGITUDINAL JOINT WHEN APPROVED
MAY BE SUBSTITUTED AT FULL DEPTH

30 LB. NON-PERFORATED BLACK FELT
STRUCTURE OR STYROFOAM.
POLYURETHANE OF CLOSED CELL

LONGITUDINAL JOINT BOND BREAKER

JO
IN T
EXISTING

"T"

"D"

CRACK
CRACK

LONGITUDINAL JOINT SEALING

TRANSVERSE AND LONGITUDINAL JOINTS
TRANSVERSE AND LONGITUDINAL CRACKS

TRANSVERSE AND LONGITUDINAL CRACK REPAIR F.P.M.C.

CONSTRUCT 1/4" RADIUS JOINT IN P.C.C
W/JOINT SEALING FILLER PER L.S.P 660,
ALL EDGES OF REPAIR SEAL ALL EDGES OF ASPHALT REPAIR W/JOINT SEALING FILLERS

PARTIAL DEPTH REPAIRS

DEPTH VARIABLE FROM GREATER THAN 1/4" TO APPROXIMATELY 1"

EXISTING SLAB
NEW SLAB

GREASE THIS SIDE ONLY

FILLER PER L.S.P. 660
JOINT W/JOINT SEALANT
CONSTRUCT 1/4" RADIUS JOINT IN P.C.C

2" MINIMUM
SQUEEGEE WIDTH
CENTERED ON JOINT

1/4" TO 5/8" RECESSED
THAN 1/4" TO APPROXIMATELY 1"
WIDTH VARIABLE FROM GREATER THAN 1/4" TO APPROXIMATELY 1"

1/4" TO 5/8" RECESSED

1/2" MINIMUM DIAMOND BLADE SAWING OR OTHER METHOD TO REMOVE ALL EXISTING JOINT SEALANT

EXISTING ASPHALT
NEW SLAB

REPAIR AREA
VARIABLE LENGTH OF
REPAIR AREA

DIAMOND BLADE SAWING OR OTHER METHOD TO REMOVE ALL EXISTING JOINT SEALANT

JOINT SEALANT (HOT POURED)
remove existing joint sealing filler
FILL WITH CRACK SEALANT
(1/8" RADIUS JOINT IN P.C.C)

LONGITUDINAL JOINT SEALANT
JOINT SEALANT
(1/8" RADIUS JOINT IN P.C.C)

3" MINIMUM SQUEEGEE WIDTH
CENTERED ON JOINT

1/4" TO 5/8" RECESSED
THAN 1/4" TO APPROXIMATELY 1"
WIDTH VARIABLE FROM GREATER THAN 1/4" TO APPROXIMATELY 1"

1/4" TO 5/8" RECESSED
THAN 1/4" TO APPROXIMATELY 1"
WIDTH VARIABLE FROM GREATER THAN 1/4" TO APPROXIMATELY 1"

1/4" TO 5/8" RECESSED
THAN 1/4" TO APPROXIMATELY 1"
WIDTH VARIABLE FROM GREATER THAN 1/4" TO APPROXIMATELY 1"

1/4" TO 5/8" RECESSED
THAN 1/4" TO APPROXIMATELY 1"
WIDTH VARIABLE FROM GREATER THAN 1/4" TO APPROXIMATELY 1"

1/4" TO 5/8" RECESSED
THAN 1/4" TO APPROXIMATELY 1"
WIDTH VARIABLE FROM GREATER THAN 1/4" TO APPROXIMATELY 1"
**ELEVATION VIEW**

**TYPICAL PIPE RAILING**

ON PARAPET, WINGWALL, HEADWALL OR RETAINING WALL

**DETAILED**

**TYPICAL POST SETTING**

ON PARAPET, WINGWALL, HEADWALL OR RETAINING WALL

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 VEHICULAR EMBANKMENT TO THE TOP OF THE SLOPE IS DESIRABLE. WHEN THIS DISTANCE FROM TREES, POLES, WALLS, FENCES, GUARDRAILS OR OTHER LATERAL OBSTRUCTIONS IS CONSIDERED, OTHER COMBINATIONS OF SLOPES, EMBANKMENTS, HILLSIDES AND CONDITIONS AT THE BOTTOM MAY WARRANT THE NEED FOR A RAILING.
**CONCRETE HEADER**

Joint sealant & saw cut to be used on Portland cement concrete pavement only.

**COMBINED CURB AND GUTTER**

Joint sealant & saw cut to be used on Portland cement concrete pavement only.

**24" CONCRETE GUTTER PAN**

Joint sealant to be used on Portland cement concrete pavement only.

**CONCRETE MEDIAN CURB**

Joint sealant to be used on Portland cement concrete pavement only.

**SECTION C - C**

Typical Details of Concrete Median Nose

**SECTION E - E**

Section Expansion Joint Filler

**SECTION F - F**

Transition sidewalk to meet driveway (distance varies)

**SECTION G - G**

NOTES:

- All concrete shall be L-3500 or LC-3500
- All bars are epoxy coated
- 1" preformed expansion joint filler shall be placed through all cutouts on the pavement expansion joints as directed by engineer
- T = thickness of pavement

R = radius
X = depth
(R & T in feet)

<table>
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<th>R</th>
<th>T</th>
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<td>30</td>
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<td>35</td>
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This document was originally issued and sealed by Thomas S. Shafer, E-10679, on 12-20-2019. This media should not be considered a certified document.
A DIAMOND-BLADE CUTTING SAW SHALL BE USED FOR ALL REQUIRED CURB SAWING. THE SAW SHALL BE CAPABLE OF CUTTING EXISTING OR NEWLY PLACED CURB MATERIAL INTO THE SHAPE OF A CURB RAMP, LEAVING A SMOOTH, ACCURATE TOP FACE. THE SAW SHALL BE SPECIFICALLY DESIGNED FOR THIS PURPOSE AND SHALL BE APPROVED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE PRIOR TO THE START OF ANY CURB SAWING.

2. THE CURB SHALL BE SAWN IN ACCORDANCE WITH CITY OF LINCOLN STANDARDS OR AS DIRECTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. THE SAWING SHALL BE MADE ALONG NEAT LINES AND SHALL RESULT IN SMOOTH, EDGES AND TOP FACES. THE LENGTH OF CURB FACE WHICH MUST BE REMOVED IN ORDER TO CONFORM TO THE PROPOSED CURB RAMP, SHALL BE SAWN FULL DEPTH AT THE BOTTOM OF THE CURB FACE USING A DIAMOND SAW BLADE.

3. THE SAWING OF THE CURB FACE SHALL BE INITIATED AT AN ELEVATION 1/2 INCH ABOVE THE EXISTING GUTTER AND EXTENDS AT AN ANGLE OF 1/4 INCH PER FOOT (2.0%) UPWARDS AND AWAY FROM THE GUTTER PAN TO CONFORM TO THE NEW CURB RAMP. END CUTS SHALL BE SAWN FULL DEPTH ON AN ANGLE SO THAT THE SAW CUT FACE PROVIDES APPROPRIATE DIMENSIONS FOR CURB RAMPS (LSP 652).

4. A DIAMOND-GRINDING WHEEL SHALL BE USED FOR ROUNDOING ALL SAWN CONCRETE EDGES TO A RADIUS OF 1/4 INCH.

5. THE CONTRACTOR SHALL AT THE END OF EACH WORK DAY, REMOVE THE SLURRY OR RESIDUE FROM THE SAW CUT OPERATION. THE CONTRACTOR SHALL NOT PERMIT THE RESIDUE TO FLOW ACROSS SHOULDERS OR LANES OCCUPIED BY TRAFFIC OR INTO CUTTERS OR OTHER DRAINAGE FACILITIES AND SHALL LEAVE SLURRY CLEAN AND DRY, WITH NO RESIDUE REMAINING UPON COMPLETION OF SAWING OPERATIONS.
Notes:

1. A diamond blade cutting saw shall be utilized for all required curb sawing. The saw shall be capable of cutting existing or newly placed curb material into the shape of a driveway, leaving a smooth, accurate top face. The saw shall be specifically designed for this purpose and shall be approved by the engineer or designated representative prior to the start of any curb sawing.

2. The curb shall be sawn in accordance with City of Lincoln standards or as directed by the engineer or designated representative. The sawing shall be made along neat lines and shall result in smooth edges and top faces. The length of curb face, which must be removed in order to conform to the proposed driveway ramp, shall be sawn full depth at the bottom of the curb face. Using a diamond saw blade, the saw cutting of the curb face shall be initiated at an elevation 1/2 inch above the existing gutter and extended at an angle of 3/4 inch per foot (6.3° upward) and away from the gutter pan to conform to the new driveway grade. No curb shall be sawn full depth on an angle so that the saw cut face provides appropriate dimensions for driveways (see X-X).

3. A diamond grinding wheel shall be used for rounding all sawed concrete edges to a radius of 1/4 inch.

4. The contractor shall, at the end of each work day, remove the slurry or residue from the saw cut operation. The contractor shall not permit the residue to flow across shoulders or lanes occupied by traffic, or into cutters or other drainage facilities and shall leave slabs clean and dry with no residue remaining upon completion of sawing operations.

5. A diamond-grinding wheel shall be used for rounding all sawed concrete edges to a radius of 1/4 inch.

Max. Width of Driveway Cut

<table>
<thead>
<tr>
<th>Driveway Type</th>
<th>A Width of Driveway Cut</th>
<th>B Driveway Flare</th>
<th>C Max. Curb Cut Pay Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential (Single Family)</td>
<td>20</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>Residential (Multi-Family)</td>
<td>20</td>
<td>15</td>
<td>55</td>
</tr>
<tr>
<td>Commercial (2-Lane)</td>
<td>20</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>Commercial (3-Lane)</td>
<td>30</td>
<td>20</td>
<td>60</td>
</tr>
</tbody>
</table>

**PLAN VIEW**

**SECTION X-X**

**SECTION Y-Y**

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NOT POURED AT THE SAME TIME.
CONSTRUCTION JOINTS WHEN THE ADJACENT LANE IS
KEY TYPE JOINT SHALL BE USED ON ALL LONGITUDINAL
JOINT COMMON TO THE TWO LANES SHALL BE SAWED.
WHEN TWO ADJACENT LANES ARE POURED AT THE SAME TIME, THE
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 JOINTS SHALL BE SAWED.
TRANSVERSE CONSTRUCTION JOINT
PROPOSED TO EXISTING PAVEMENT

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.

EXPANSION JOINT

CONTRACTION JOINT

TRANSVERSE CONSTRUCTION JOINT

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.

EXPANSION JOINT

CONTRACTION JOINT

TRANSVERSE CONSTRUCTION JOINT

NOTE:
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CONTRACTION JOINT

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ENGINEER.

EXPANSION JOINT

CONTRACTION JOINT

TRANSVERSE CONSTRUCTION JOINT

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.
CONCRETE PAVEMENT JOINT DETAILS

NOTE:

- The contract 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.
- T-bar shall be deformed bars and all others shall be smooth.
- For load transfer devices in lanes other than the 18" lanes shown, maintain the spacing of the 18" dowel bars at 7' intervals.
- The ends of the dowel basket wire shall not be less than 1/4" from the edges of the pavement or the longitudinal joint.

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

**EXPANSION JOINTS SHALL NOT BE SKEWED.**

**T = PAVEMENT THICKNESS**

### DOWEL BAR HEIGHT AND DIAMETER

<table>
<thead>
<tr>
<th>Thickness (T)</th>
<th>Minimum</th>
<th>Height (T/2)</th>
<th>Draw Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than 18&quot;</td>
<td>1/2&quot;</td>
<td>T/2&quot;</td>
<td>T/2&quot;</td>
</tr>
<tr>
<td>18&quot; Or More</td>
<td>1/2&quot;</td>
<td>T/2&quot;</td>
<td>T/2&quot;</td>
</tr>
</tbody>
</table>

### JOINT SEALING FILLER

**DOWEL BASKET WIRE WITH CHAIRS**

**JOINT SEALING FILLER**

**DOWEL BASKET**

**ASSEMBLY PLAN**

**CONTRACTION JOINT**

**LONGITUDINAL JOINT**

**BACK OF CURB OR LONGITUDINAL JOINT**

**JOINT SEALING FILLER**

**DOWEL BASKET WIRE**

**DOWEL BARS**

**18" IN LENGTH.**

**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.**

**FOR LOAD TRANSFER DEVICES IN LANES OTHER THAN THE 18" LANES SHOWN, MAINTAIN THE SPACING OF THE 18" DOWEL BARS AT 7' INTERVALS.**

**THE ENDS OF THE DOWEL BASKET WIRE SHALL NOT BE LESS THAN 1/4" FROM THE EDGES OF THE PAVEMENT OR THE LONGITUDINAL JOINT.**

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

**EXPANSION JOINTS SHALL NOT BE SKEWED.**

**T = PAVEMENT THICKNESS**
CHAPTER 20

SECTION B-B

HIGHEST EXISTING UTILITIES

BACKFILL MATERIAL OPTIONS:
- *NATIVE SOIL PER CHAPTER 20
- ABC PFOU TYPE B ONLY
- *1/2-SACK CLSM PER CHAPTER 20

CONCRETE BASE
(THICKNESS VARIES)

6" BEDDING ABOVE TOP OF THE HIGHEST UTILITY PIPE TO CONFORM TO CHAPTER 20

HIGHEST EXISTING UTILITIES

CONCRETE BASE
(THICKNESS VARIES)

6" BEDDING ABOVE TOP OF THE HIGHEST UTILITY PIPE TO CONFORM TO CHAPTER 20

NOTE:
1. CUT REMOVE AND REPLACE PAVEMENT PLUG IN ACCORDANCE WITH CHAPTER 20
2. PLACE BACKFILL IN ACCORDANCE WITH CHAPTER 20
3. BONDING MATERIAL SHALL BE AS SPECIFIED IN CHAPTER 20
4. MINIMUM CORE SIZE = 2.5" KERF CUT
5. CORE MUST BE PROTECTED FROM TRAFFIC UNTIL DESIGN STRENGTH IS ACHIEVED.
6. ORIGINAL CORE IS LOST OR BROKEN, A NEW CORE OF THE SAME MATERIAL SIZE AND THICKNESS MUST BE SOURCED FROM PUBLIC WORKS CORE SLAB AND REINSTALLED WITH BONDING AGENT
7. ALL CORES MUST BE REPLACED WITH ORIGINAL CORE
8. CORE REQUIRES UTILIBOND OR APPROVED ALTERNATE SOURCED FROM PUBLIC WORKS CORE SLAB AND OF THE SAME MATERIAL SIZE AND THICKNESS MUST BE REINSTALLED WITH BONDING AGENT.
9. MINIMUM CORE SAW WALL THICKNESS IS 3/8" KERF CUT
10. CORES MUST BE PROTECTED FROM TRAFFIC UNTIL DESIGN STRENGTH IS ACHIEVED.

NOTE:
1. CUT REMOVE AND REPLACE PAVEMENT PLUG IN ACCORDANCE WITH CHAPTER 20
2. PLACE BACKFILL IN ACCORDANCE WITH CHAPTER 20
3. BONDING MATERIAL SHALL BE AS SPECIFIED IN CHAPTER 20
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10. CORES MUST BE PROTECTED FROM TRAFFIC UNTIL DESIGN STRENGTH IS ACHIEVED.

CHAPTER 20

*1/2-SACK CLSM PER
(TYPE B ONLY)

*ABC PER CHAPTER 20

*NATIVE SOIL PER CHAPTER 20

STRENGTH IS ACHIEVED.

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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 STANDARDS SPECIFICATIONS OF THE CITY OF LINCOLN FOR LOW DUST CONCRETE OR BETTER.
3. GROUND EACH SIDE OF TRENCH SHALL BE UNDISTURBED FOR REPLACEMENT CONCRETE.

THICKNESS SHALL BE THE SAME AS THE EXISTING PAVEMENT.

PAVEMENT REPLACEMENT FOR UTILITY CONSTRUCTION

NOTE: FOR REPLACEMENT CONCRETE
1. GROUND EACH SIDE OF TRENCH SHALL BE UNDISTURBED FOR REPLACEMENT CONCRETE.