SLOPED METAL END SECTIONS WITH GRATE GENERAL NOTES Top of end section 1. USE END SECTIONS ON 1V:4H TO 1V:6H SLOPES ONLY, USE Reinforced edge full length of end section TOE PLATE EXTENSION. Bolt to hold the surfaces (See Section A-A) tightly together 2. A 1:6 SLOPED END SECTION WILL BE USED FOR ALL PARALLEL DRAINAGE STRUCTURE END SECTIONS. (max.) Rise (max.) Slope spacing spacing 3. FABRICATE SAFETY AND LONGITUDINAL BARS FROM STEEL PIPE CONFORMING TO ASTM A53 SCHEDULE 40 SPECIFICATIONS. GALVANIZE BARS HOT DIPPED AFTER FABRICATION. Toe plate extension (same thickness as end section) 4. A LONGITUDINAL BAR IS REQUIRED FOR CROSS DRAINAGE END Safety bars Safety SECTIONS WHEN THE SPAN IS GREATER THAN 30". USE (typ.) bars ADDITIONAL LONGITUDINAL BARS IF SPACING EXCEEDS 30" ON (typ.) LARGER END SECTIONS. 6 5 Overall width 5. SAFETY AND LONGITUDINAL BARS ARE NOT REQUIRED ON 30" ELEVATION ELEVATION AND SMALLER CROSS DRAINAGE END SECTIONS. FRONT VIEW ROUND PIPE CULVERT CROSS DRAINAGE END SECTION PARALLEL DRAINAGE END SECTION 6. THESE END SECTIONS WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH FOR SLOPED METAL Top of end section END SECTIONS WITH GRATE OF THE DIAMETER SPECIFIED. ½" galvanized threaded ½" × 6" WHICH SHALL INCLUDE FURNISHING AND INSTALLING rod over top of end Reinforced edge full aalvanized THE END SECTION COMPLETE IN PLACE, INCLUDING section. Side lugs to be lenath of end section bolt w/nut THE TOE PLATE, EXCAVATING, BACKFILLING, bolted to end section (See Section A-A) CONNECTING TO THE PIPE, AND CROSS DRAINAGE BARS. Bolt to hold the $1'' \times \frac{5}{8}''$ slots Galvanized surfaces tightly together strap 48" (max.) Side lua Toe plate extension 5%′′ (same thickness as galvanized steel pipe: FOR METAL ROUND PIPES 30" 3½′′ end section) flatten end, then bend outside FOR METAL ROUND PIPES AND LARGER. FOR PIPE ARCHES 4" to match end section sides. 15" THRU 24" 21" X 15" AND LARGER LONGITUDINAL DRAINAGE BAR PARALLEL BARS Overall width TYPE #1 TYPE #2 CONNECTOR DETAILS SAFETY BAR DETAILS FRONT VIEW PIPE ARCH CULVERT METAL END SECTIONS FOR ROUND PIPE CULVERT Edge of sidewall sheet METAL DIMENSIONS IN INCHES rolled snugly against SIZE THICK steel rod OVERALL (MIN.) WIDTH Slope=4 Slope=6 INCHES INCH/GAG. 1/2" carriage ½" (min.) dia. 24 0.064/16 8 30 46 55 83 6 galvanized head galvanized steel Weld longitudinal bar bolts (typ.) 30 0.109/12 12 9 36 60 79 118 rod or #4 to safety bar (typ.) 36 0.109/12 12 9 42 66 102 154 aalvanized reinforcing bar 42 0.109/12 16 12 48 80 126 189 48 0.109/12 16 12 54 150 224 86 SECTION A-A 54 12 60 92 173 260 0.109/12 16 Parallel Corrugation sized 197 295 0.109/12 16 12 66 98 safety bars 60 to fit pipe 1/2" carriage galvanized METAL END SECTIONS FOR PIPE ARCH CULVERT head bolts (typ.) PIPE SIZE (INCHES) DIMENSIONS (INCHES) Pipe THICK OVFRALI EQUIV. (MIN.) SPAN RISE WIDTHSlope=4 Slope=6 INCH/GAGE 24 20 0.064/16 33 49 40 60 28 8 6 Longitudinal bar SECTION B-B 30 35 24 0.109/12 12 9 40 64 55 83 36 41 29 0.109/12 12 9 47 71 75 112 12 54 42 48 32 0.109/12 16 86 90 136 48 56 12 94 110 165 37 0.109/12 16 62 PARALLEL DRAINAGE 54 42 16 12 69 130 195 6.3 0.109/12 101 60 70 46 0.109/12 16 12 76 107 146 218 NO SCALE CROSS DRAINAGE END SECTION 72 82 56 0.109/12 16 12 88 120 185 278 * 5789 & 5861 DESIGNED USER NAME = cushmanbw REVISED SECTION COUNTY STATE OF ILLINOIS REGION 2 / DISTRICT 2 STANDARD 01709-sht-details.dor DRAWN REVISED HENRY 235 102 CHECKED REVISED **DEPARTMENT OF TRANSPORTATION** CONTRACT NO. 64J43 SCALE: SHEET NO. OF SHEETS STA. TO STA. PLOT DATE = Fr: Aug 01 09:53:45 2014 DATE REVISED