

Engineering Standards
Township of Baldwin
Sherburne County, Minnesota
Revised 07/17/2012

Index

Section	Page
00	Definitions.....1
100	Road Standards2
200	Driveway Standards7
300	Drainage Standards8
400	Utility Standards9
500	Development/Platting Standards.....9
600	Standard Plates.....10
700	References.....10

Section 00 Definitions

Arterial Roadways - High volume roads that provide thru movement of large volumes of traffic between regional centers such as cities.

Collector Roadways - Roads that connect minor roadways to other collector roads and arterial roads. Limited driveway accesses are desired.

Commercial Roadways - Also considered commercial streets within commercially zoned districts and also connect commercial districts to collector and arterial roads. Commercial roads provide private commercial driveway access to the public roads.

Minor Roadways - Also considered local streets that serve the interior traffic of adjoining plats which serve to provide private rural, residential and field driveway access to the public roads.

Roadbed embankment - The area below the road subgrade and at a 1:1 slope down and outward from the shoulder lines.

Section 100 Road Standards

110 Road Design

110.01 Minor residential roadways shall have a minimum finished roadway top width of 30 feet. For the purposes of these requirements minor residential roadways are defined as roadways serving the interior traffic of adjoining plats. Collector and Commercial roadway widths are to be determined by the Town Board in accordance with needs and requirements of the anticipated traffic loads. All roads shall be rural in nature except where permitted by the Town Board.

110.02 All roadways shall have minimum bituminous width of 24 feet.

110.03 Collector and commercial roadways shall have a 4:1 inslope and a 3:1 maximum backslope. Roadways in platted areas, subdivisions, and developments shall have minimum 4:1 inslope and 3:1 backslope. The inslope of a connecting county or state mainline roadway is to be 6:1 within the mainline roadway.

110.04 Roadway ditches shall have a minimum depth of 2.5 feet as measured from the edge of the shoulder and a minimum ditch bottom width of four feet.

110.05 Cul-de-sacs are discouraged and shall not be allowed unless the Developer can demonstrate that the topography will not allow efficient connections or through streets. If allowed, all cul-de-sacs shall have a 90 foot diameter bituminous surface with a teardrop type design (see typical plate) and an aggregate shoulder of three (3) feet in width for a graded top diameter of 96 feet. Maintenance fees will be collected from the developer for more than one permanent cul-de-sac as specified in item 1c. of the developers agreement. The fees will cover maintaining all permanent cul-de-sacs in perpetuity for the purpose of paying for the additional work needed to maintain cul-de-sacs over normal roadway systems. Cul-de-sac lengths shall be limited to 1,400 linear feet. Temporary cul-de-sac lengths beyond 1,400 feet will be considered by the Town Board provided that the Developer demonstrates the feasibility and likelihood of development of property beyond the proposed temporary cul-de-sac easement. It must also be shown that extension of the road can ultimately connect to a through roadway.

110.06 Any roadway approach to a Township or county road cannot exceed a 0.5% grade for a minimum of 50 feet from the edge the connecting roadway. Vertical curves are not allowed within this roadway approach zone.

110.07 Maximum road grades shall not exceed 7%, minimum road grades shall not be less than 0.5%, unless otherwise approved by the Township Engineer. Maximum longitudinal slope within any cul-de-sac shall not exceed 3%.

110.08 Road intersections shall be perpendicular, unless otherwise approved by the Township Engineer.

110.09 Edge of lane radii at intersections shall be 30 feet.

110.10 All residential through streets shall be designed for 30 miles per hour. The minimum horizontal radius for such roadways shall be no less than 300 feet unless otherwise approved by the Township Engineer.

110.11 Vertical alignment shall conform to current AASHTO Standards for stopping sight distance in all minor roadways.

110.12 Right turn lanes on Township roadways will be required for the following conditions:

- 1) Any residential or commercial subdivision with 10 lots or more or,
- 2) Any residential or commercial subdivision which in the opinion of the Town Board has the potential for 10 lots or more exiting onto a Township roadway.

110.13 Turn lanes for collector roadways shall comply with county geometric requirements.

110.14 Commercial roadways shall be constructed to meet 9 ton design requirements based upon Mn/DOT design specifications. In no case shall the minimum road section be less than one and a half inches (1-1/2") of wearing course, two inches (2") of binder course and seven inches (7") of aggregate base. The bituminous wearing course shall be constructed in accordance with Mn/DOT Spec 2360 mix SPWEB2B. The bituminous base course shall be constructed in accordance with Mn/DOT Spec 2360 mix SPNWB2B. The aggregate base shall be constructed in accordance with Mn/DOT spec 2211. The wear course shall not be constructed until the first bituminous lift has undergone a freeze thaw cycle, or at the discretion of the Township. The Developer shall test the density of the constructed roadway by coring the constructed surface at no less than two cores per 1000 tons and by nuclear density test as directed by and at the discretion of the Township Engineer. In no case shall less than three cores per project be taken. The control strip method will be used to determine passing densities.

110.15 Collector roadways shall be constructed to meet 9 ton design requirements based upon Mn/DOT design specifications. In no case shall the minimum road section be less than one and half inches (1-1/2") of wearing course, two inches (2") of bituminous non-wearing course and seven inches (7") of aggregate base. The bituminous wearing course shall be constructed in accordance with Mn/DOT Spec 2360 mix SPWEB2B. The bituminous non-wearing course shall be constructed in accordance with Mn/DOT Spec 2360 mix SPNWB2B. The aggregate base shall be constructed in accordance with Mn/DOT spec 2211. The wear course shall not be constructed until the first bituminous lift has undergone a freeze thaw cycle, or at the discretion of the Township. The Developer shall test the density of the constructed roadway by coring the constructed surface at no less than two cores per 1000 tons and by nuclear density test as directed by

and at the discretion of the Township Engineer. In no case shall less than three cores per project be taken. The control strip method will be used to determine passing densities.

110.16 Minor residential roadways shall be constructed to meet 7 ton design requirements based upon Mn/DOT design specifications. In no case shall the minimum road section be less than one and half inches (1-1/2") of wearing course, two inches (2") of non-wearing course, and six inches (6") of aggregate base. The bituminous wearing course shall be constructed in accordance with Mn/DOT Spec 2360 mix SPWEA2B. The bituminous non-wearing course shall be constructed in accordance with Mn/DOT Spec 2360 mix SPNWB2B. The aggregate base shall be constructed in accordance with Mn/DOT spec 2211. The wear course shall not be constructed until the first bituminous lift has undergone a freeze thaw cycle. The Developer shall test the density of the constructed roadway by coring the constructed surface at no less than two cores per 1000 tons and by nuclear density test as directed by and at the discretion of the Township Engineer. The control strip method will be used to determine passing densities.

110.17 Roadways shall be constructed in accordance with the most current applicable Mn/DOT roadway specifications.

110.18 Curbs shall be concrete.

110.19 Concrete curb islands are not permitted within proposed roadways.

110.20 Minimum roadway culverts shall be 15" in diameter. Allowable materials are 16 gauge corrugated metal and reinforced concrete pipe. A minimum of 12" of cover shall be maintained as measured at the edge of the bituminous mat between the top of the culvert and the roadway subgrade. All culverts shall be installed with aprons.

110.21 Other than grass, all landscaping must not encroach in the Township road right-of-way. Any encroachment, including tree branches must be removed by the residents. The Township reserves the right to remove any such encroachment and assess the costs of the removal to the owner.

110.22 A grading permit from the Township is required for moving more than 1000 cubic yards of material.

110.23 All new Township roads shall be striped as directed by the Township Engineer.

110.24 All pavement markings on Township roads such as paint stripes shall be required and shall conform with all local government designs.

110.26 All construction debris is to be enclosed by a fence or kept in a dumpster. Burial of construction debris is not allowed. Burning of trees, stumps, branches is permitted with a valid burning permit.

110.27 All construction shall comply with applicable county, state, and federal rules and regulations.

120 Road Construction

	Local/Minor Streets (Rural)	Collector/Commercial Roadways (Rural)	Cul-de-sacs (Rural)
Pavement Width	24'	T.B.	90' Diameter
Shoulder Width	3'	3'	3'
Inslope (Min.)	4:1	4:1	4:1
Ditch Width (Min.)	4'	4'	4'
Backslope (Min.)	3:1	3:1	3:1
Wearing Course Mn/DOT Spec 2350 type LV-4	1 ½"	1 ½"	1 ½"
Non-wearing Course Mn/DOT Spec 2350 type LV-3	2"	2"	2"
Gravel Base	5"	7"	7"

130 Road Maintenance

130.01 The Developer agrees to maintain all roads within the Plat in a safe and passable condition on and after the date of the approval of said plat until the date of final inspection by Developer's Engineer and acceptance by the Town Board of all said work included within the Plan A Improvements of the developers agreement. In the event that such roads are not maintained in a safe and passable condition, as determined by the Town Board, that the Town shall have the right to perform such work, and in that event the Developer shall reimburse the Town for all costs incurred in the maintenance thereof from the security escrow deposit.

140 Right-of-Way

140.01 Minor roadways shall have a minimum of 66 feet of right-of-way.

140.02 Collector roadways shall be required to have a 100 foot right-of-way.

140.03 The right of way dedicated for a cul-de-sac shall have a minimum radius of 66 feet, unless variance granted by the Town Board.

150 Trails

150.01 Attached trail systems required by the Township shall have typical section equivalent to proposed road section with 4 foot in width on each side of the proposed roadway.

160 Signs

160.01 911 Address Signs shall be designed to the following specification: Flag mounted 15.5"x 8" aluminum with 1" "BALDWIN TWP" at top; 1" street name at bottom; 4" residential numbers in center; 1/4" border with 1-1/2" radius corners on one end & square corners on the other end with 3/8" holes on 5" centers in 1" from edge of sign to the center of the hole. No reflective sheeting on 3" of either side on post side. Color: white on blue; double faced high intensity grade reflective sheeting. Posts: Green 8' long x 1.12 lbs/ft; 30-3/8" holes on 1" centers on tapered end. Hardware: 5/16"x1-1/2" bolts; zinc plated steel per sign; 5/16" nylon lock nuts

170 Mailboxes

170.01 Mailboxes shall conform to all postal regulations and shall be the swing away type.

Section 200 Driveway Standards

200.01 Driveway permits are required.

210 Construction

210.01 Driveway culverts shall be a minimum of 15" in diameter and a minimum of 24 feet in length. Allowable materials are 16 gauge corrugated metal pipe. Aprons are required. Head walls constructed around the ends of culverts shall not be permitted. Driveway inslope in the ditch at the culvert shall be no greater than 4:1. Only one driveway will be allowed per residential lot per roadway except when authorized by the Town Board. Driveways must be spaced no closer than 150 feet to each other on a Township road designated as a collector roadway. Any variances from these requirements must be brought to the Town Board. Unapproved driveways will be required to be removed at the owners expense.

210.02 Safety aprons are required on all culverts located at the intersections of Township and collector roadways.

210.03 The maximum top width of a residential driveway within the public right-of-way shall be limited to 24 feet. A commercial driveway shall be limited to 30 feet in width.

210.04 The full width of the right of way shall be cleared and grubbed for the construction of the roadway section. All stumps, roots, logs, brush, etc . shall be removed from the upper 24 inches of roadbed embankment and oversized rock, broken concrete, metals, etc. shall be removed from the upper 12 inches of roadbed embankment.

Section 300 Drainage Standards

310 Storm Design

310.01 Storm drainage design shall conform to Sherburne County regulations described in "Information Required for Drainage, Grading and Erosion Control Plans".

310.02 Storm sewer piping is will not be allowed over 60 feet in length. Storm sewer over 60 feet in length requires a variance by the Town Board.

310.03 Ditch slopes should have a minimum slope of 1.0 %. Ditches under 1.0 % may be permitted as allowed by the Township Engineer.

310.04 Storm sewer shall be designed for a 10 year frequency storm event.

310.05 Roadway and driveway culverts shall be designed for the 10 year frequency storm event without overtopping the roadway or driveway.

310.06 Detention basins and outlet structures shall be designed for the 100 year frequency, 24 hour duration storm event. Drainage easements shall be provided for all detention and sediment basins. Basin areas shall encompass the 100 year high water elevation. Landlocked basin areas shall be designed to provide storage volume for up to 7.2 inches of runoff unless a lower runoff elevation from the landlocked area is provided. Proposed lowest floor elevations shall be set a minimum of 18" above the runoff elevation or the flood stage for the 7.2 inches of runoff in the land locked area.

320 Erosion Control

320.08 All construction shall conform to MPCA requirements for erosion control and storm water management under the NPDES permit process. All disturbed areas shall be seeded with MNDOT Mix 240 or other approved seed mix.

330 Turf Establishment

330.01 All available topsoil shall be salvaged and replaced on road inslopes, backslopes and ditch bottoms to a minimum depth of 4 inches and seeded with MN/DOT seed mix 240 at a rate of 75 lbs per acre in accordance with MN/DOT Spec 3876. Fertilizer shall be applied at a rate of 300 lbs per acre with type 1 mulch per Mn/DOT Spec 3882.

Section 400 Utility Standards

410 Water

410.01 All utility construction, water, sanitary sewer, and storm sewer shall be construction in accordance with the latest version of the "Standard Utilities Specifications for Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation", City Engineers Association of Minnesota, latest Ed. All utilities installed under the roadbed, either public or private, shall be inspected by the Township during construction. Acceptance of the roadway by the Township shall be subject to the testing of the utilities to meet "Standard Utilities Specifications for Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation", City Engineers Association of Minnesota, latest Ed.

420 Sanitary Sewer/Septic

420.01 All utility construction, water, sanitary sewer, and storm sewer shall be construction in accordance with the latest version of the "Standard Utilities Specifications for Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation", City Engineers Association of Minnesota, latest Ed. All utilities installed under the roadbed, either public or private, shall be inspected by the Township during construction. Acceptance of the roadway by the Township shall be subject to the testing of the utilities to meet "Standard Utilities Specifications for Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation", City Engineers Association of Minnesota, latest Ed.

430 Storm Sewer

430.01 All utility construction, water, sanitary sewer, and storm sewer shall be construction in accordance with the latest version of the "Standard Utilities Specifications for Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation", City Engineers Association of Minnesota, latest Ed. All utilities installed under the roadbed, either public or private, shall be inspected by the Township during construction. Acceptance of the roadway by the Township shall be subject to the testing of the utilities to meet "Standard Utilities Specifications for Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation", City Engineers Association of Minnesota, latest Ed.

Section 500 Development/Platting Standards

510 Platting

510.01 Roadways required to connect the constructed development to undeveloped land shall be graded and paved to the edge of the plat.

510.02 Unimproved existing Township roads, right of ways or outlots that connect to proposed plats will be required to be constructed to current Township road standards at the expense of the developer in order to provide interior traffic circulation within the Township.

510.03 All lots are to have a roughed in driveway at the time the basement is dug for construction vehicles to use. Driving randomly off the blacktop is not permitted. The cost of repair to Town roads and ditches will be billed to the owner.

510.04 Adjacent property owners/developers benefiting from the street continuation will be responsible for cul-de-sac removal and restoration of the street and all drainage to township standards.

510.05 Where plat or subdivision approval is sought, before the plat is allowed to be recorded, a developers agreement must be entered into between the Township and the developer.

510.06 All lots must have a address and a Sherburne County building permit before construction begins.

510.07 All houses and outbuildings shall be graded so as to drain freely away from the structure.

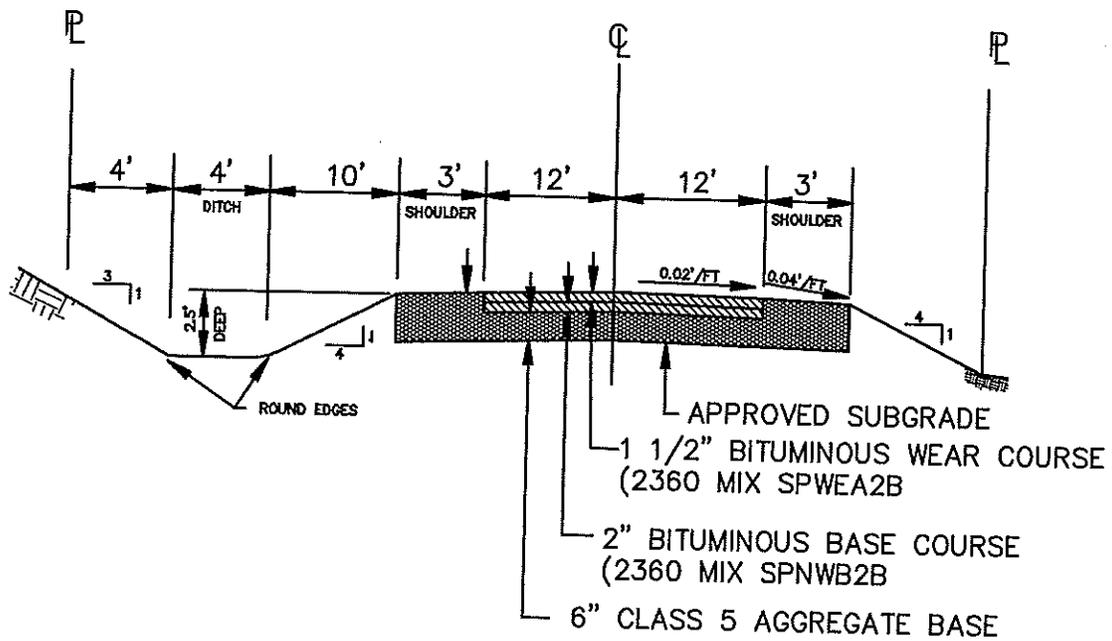
600 Standard Plates

Plate No.	Title	Date Revised
BLD-100.0	7 Ton Rural Road Typical Section (Residential Roadways)	12/1/2011
BLD-101.0	9 Ton Rural Road Typical Section (Commercial/Collector Roadways)	12/1/2011
BLD-102.0	10 ton Industrial Section	12/1/2011
BLD-103.0	Typical Right-Turn Lane	4/7/03
BLD-104.0	Detached Bituminous Pathway Typical Section	4/7/03
BLD-105.0	Typical Cul-De-Sac (Perm)	2/6/06
BLD-105.1	Typical Cul-De-Sac (Temp)	3/1/99
BLD-107.0	Typical Urban Roadway Section	2/17/04
BLD-109.0	Telephone Pedestal Placement	3/1/02
BLD-201.0	Mailbox Support	2/6/06
BLD-202.0	Driveway Culvert Detail (Residential)	3/7/03
BLD-203.0	Driveway Culvert Detail (Commercial)	4/7/03
BLD-300.0	Catch Basin – Rectangular – 24” x 36”	2/6/06
BLD-302.0	Standard Manhole – Storm Sewer	2/6/06
BLD-303.0	Standard Manhole – Sanitary Sewer	2/6/06
BLD-304.0	Random Riprap	2/6/06
BLD-305.0	Trash Guard for Corrugated Metal Pipe	2/6/06

700 References

- i. *MnDOT Standard Specifications for Construction, latest edition*
- ii. *Standard Utilities Specifications, latest edition, City Engineers Association of Minnesota, (CEAM)*
- iii. *MnDOT Standard Plates Manual*
- iv. *MN Stormwater Manual latest edition*
- v. *MnDOT latest edition Seeding Manual*

Any prior inconsistent policies of Baldwin Township are hereby rescinded. No road shall be accepted upon petition by private owners unless all applicable requirements herein are satisfied. The foregoing shall apply to roadways in all subdivisions, developments, platted, and unplatted areas within Baldwin Township from the date of adoption of the resolution.



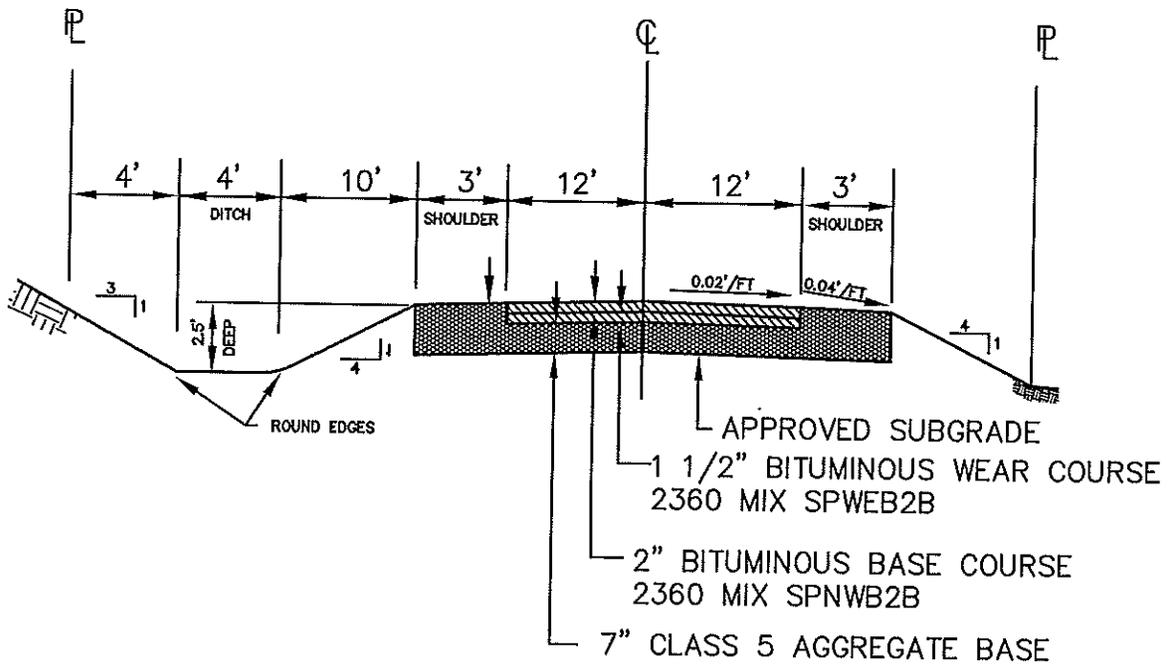
2 LIFT / 7 TON DESIGN

BALDWIN TOWNSHIP
STANDARD DETAILS

RURAL ROAD SECTION (TYP)
(RESIDENTIAL 7 Ton)

Date: 12/1/11

Plate No: BLD-100.0



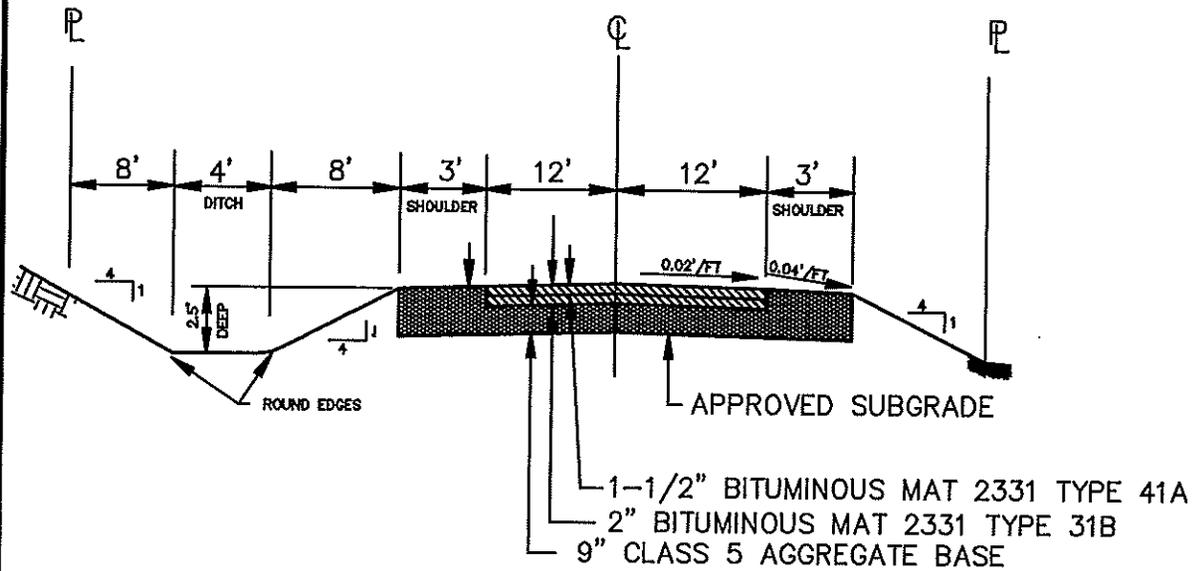
9 TON DESIGN

**BALDWIN TOWNSHIP
STANDARD DETAILS**

**RURAL ROAD SECTION (TYP)
MINIMUM 9 TON**

Date: 12/1/11

Plate No: BLD-101.0

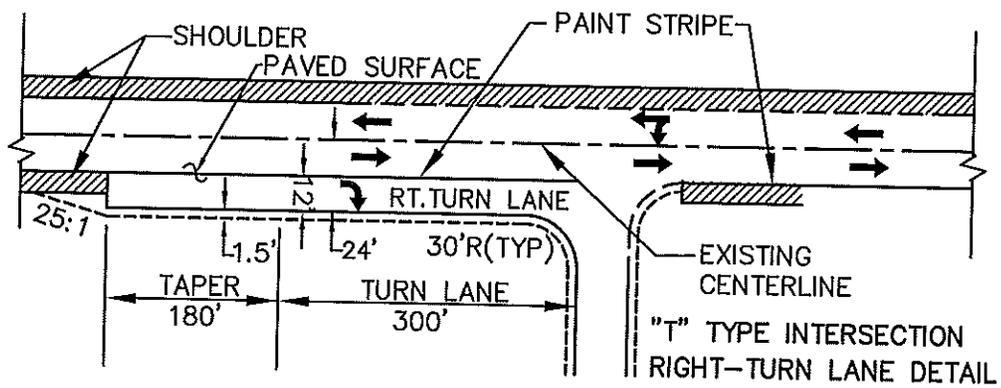


**BALDWIN TOWNSHIP
 STANDARD DETAILS**

INDUSTRIAL RURAL 10 TON
 ROAD SECTION (TYP)

Date: 12/1/11

Plate No: BLD-102.0

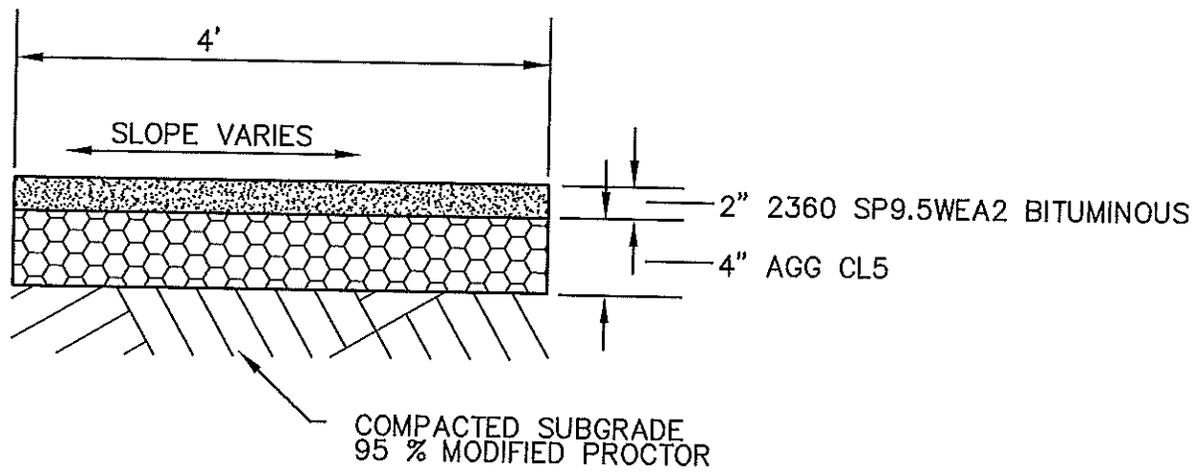


BALDWIN TOWNSHIP STANDARD DETAILS

TYPICAL RIGHT-TURN
LANE 55 MPH

Date: 4/7/03

Plate No: BLD-103.0



**BALDWIN TOWNSHIP
STANDARD DETAILS**

**DETACHED BITUMINOUS
PATHWAY TYP. SECTION**

Date: 4/7/03

Plate No: BLD-104.0

RIGHT-OF-WAY/
PROPERTY LINE

3' SHOULDER

$R=45'$
TO EDGE OF BIT.

$R=66'$
TO RIGHT OF WAY

$R=100'$

$R=100'$

EDGE OF BITUMINOUS

EDGE OF BITUMINOUS

66'

24'

33'

33'

CENTERLINE OF ROADWAY

BALDWIN TOWNSHIP STANDARD DETAILS

TYPICAL CUL-DE-SAC
(Permanent)

Date: 2/16/04 Plate No: BLD-100.0

RIGHT-OF-WAY/
PROPERTY LINE

3' SHOULDER

$R=45'$
TO EDGE OF BIT.

$R=66'$
TO RIGHT OF WAY

$R=100'$

$R=100'$

EDGE OF BITUMINOUS

EDGE OF BITUMINOUS

66'

24'

33'

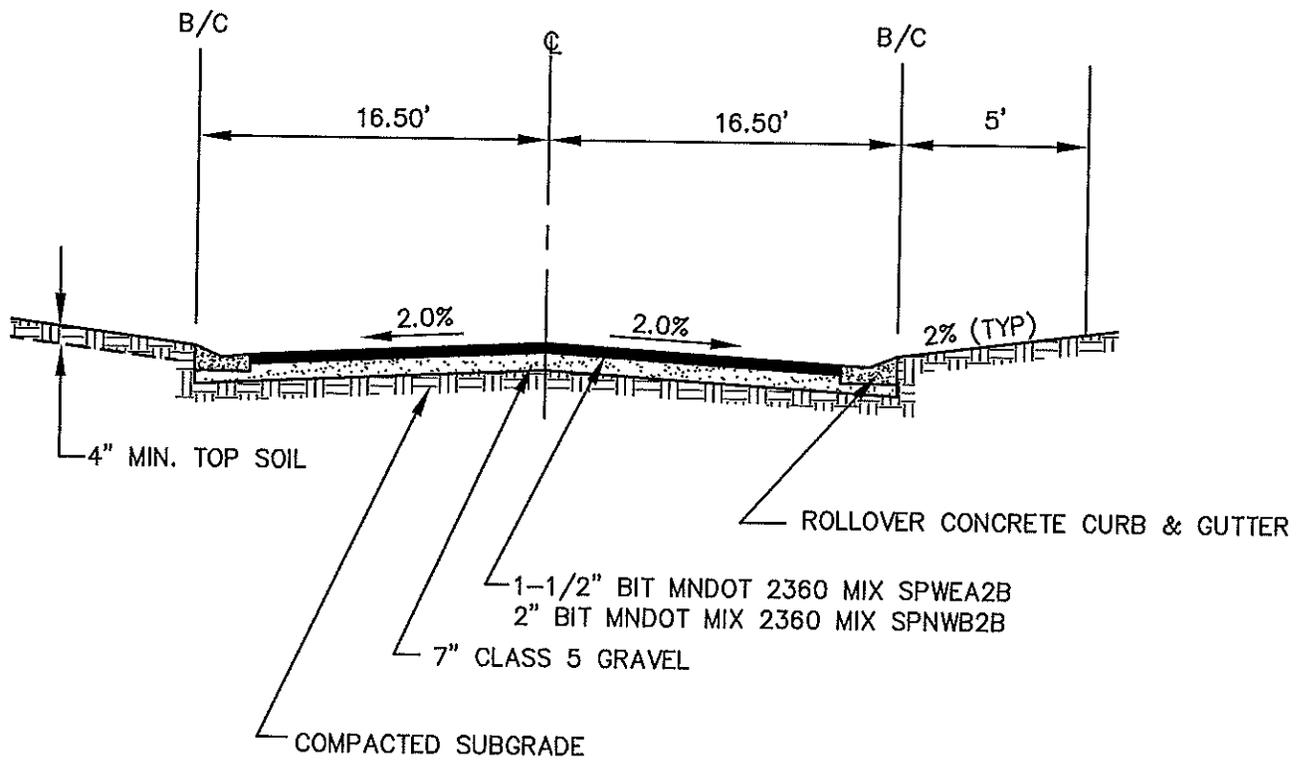
33'

CENTERLINE OF ROADWAY

BALDWIN TOWNSHIP STANDARD DETAILS

TYPICAL CUL-DE-SAC (Temporary)

Date: 2/16/04 | Plate No: BLD-100.0



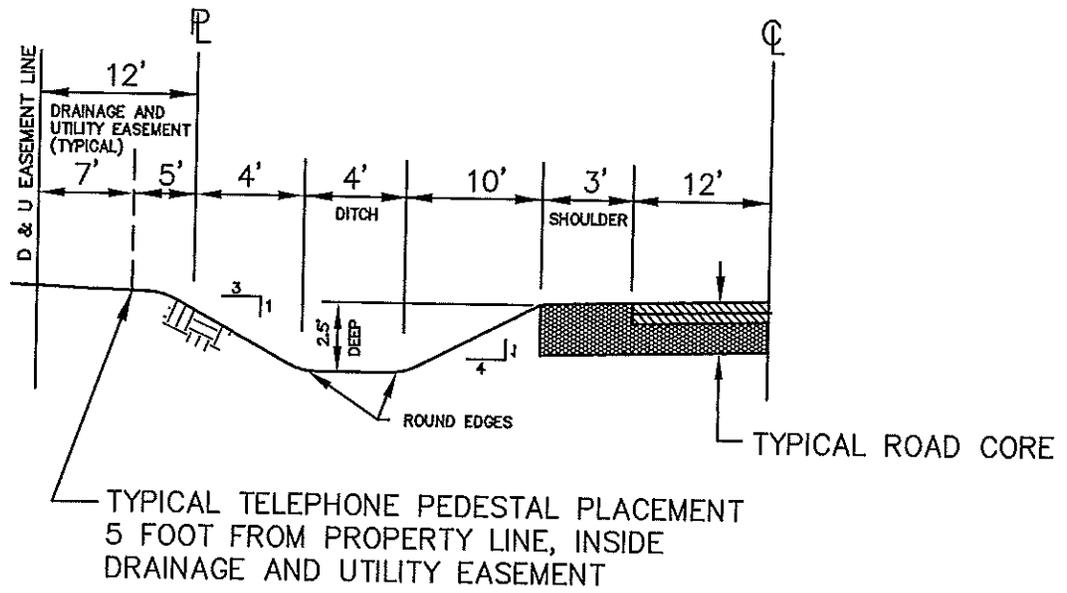
2 LIFT / 7 TON DESIGN

**BALDWIN TOWNSHIP
STANDARD DETAILS**

**URBAN SECTION
(7 TON RESIDENTIAL ROADWAY)**

Date: 12/1/11

Plate No: BLD-107.0

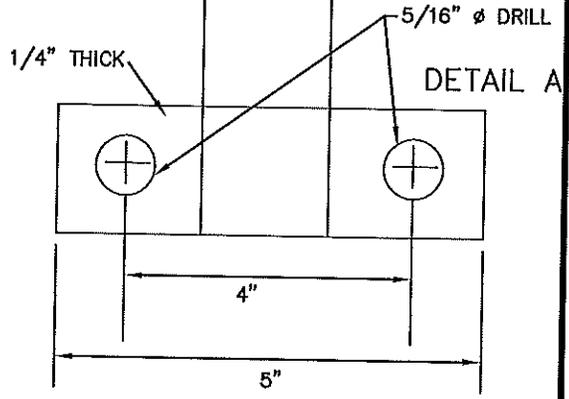
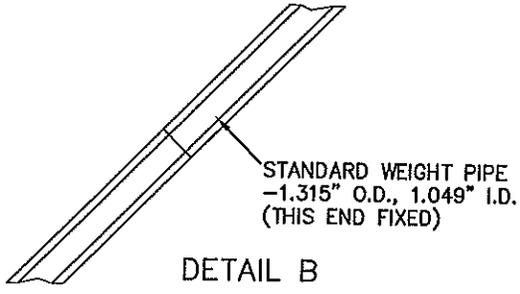
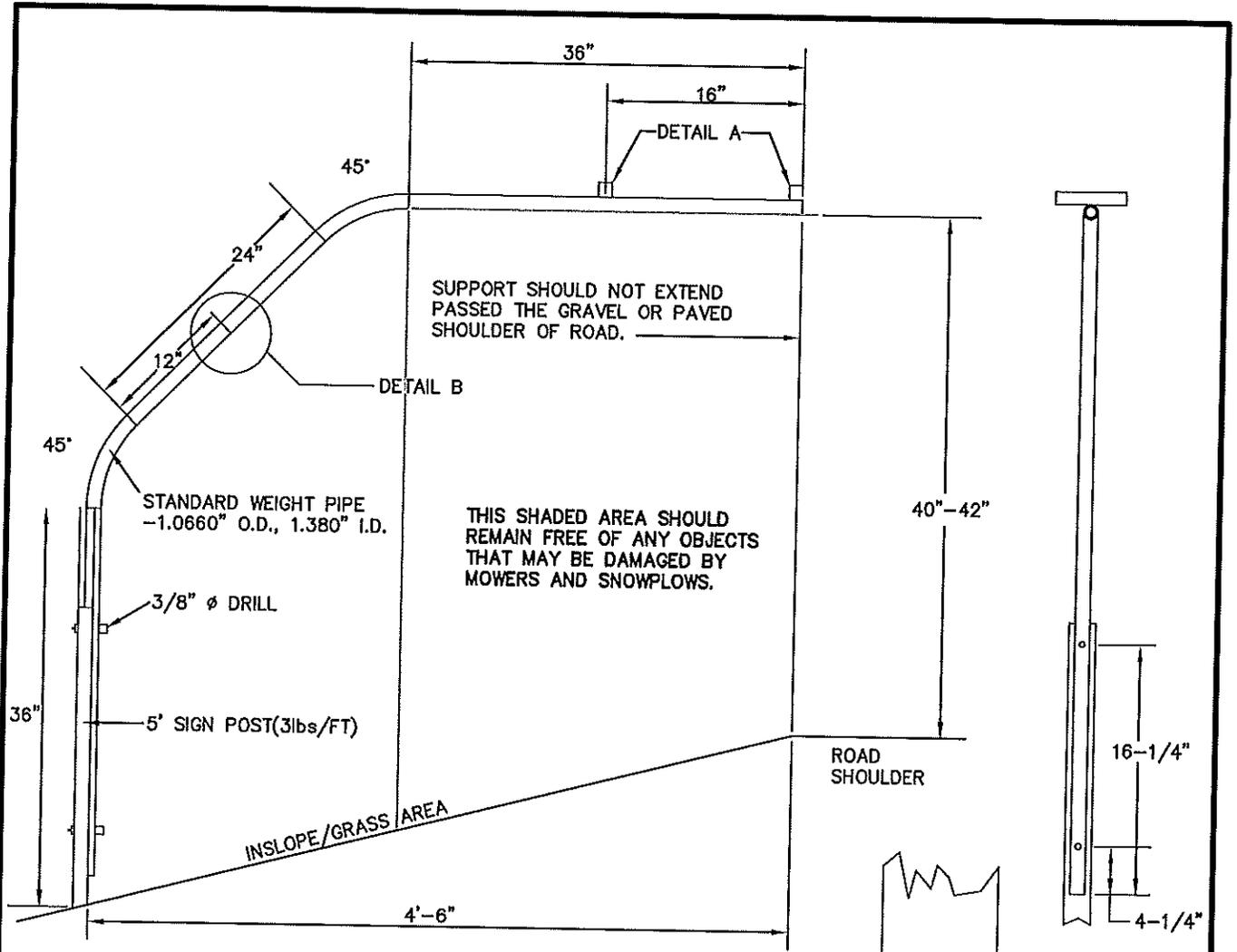


**BALDWIN TOWNSHIP
STANDARD DETAILS**

**TELEPHONE PEDESTAL PLACEMENT
TYPICAL**

Date: 3/1/02

Plate No: BLD-109.0



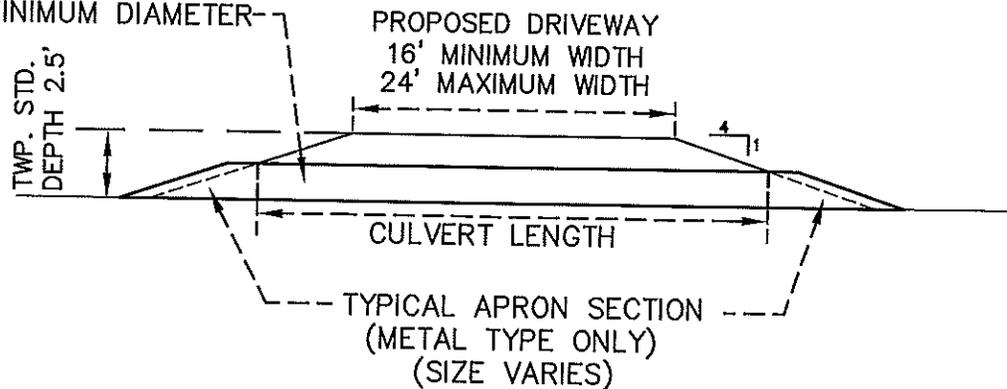
BALDWIN TOWNSHIP STANDARD DETAILS

MAILBOX SUPPORT

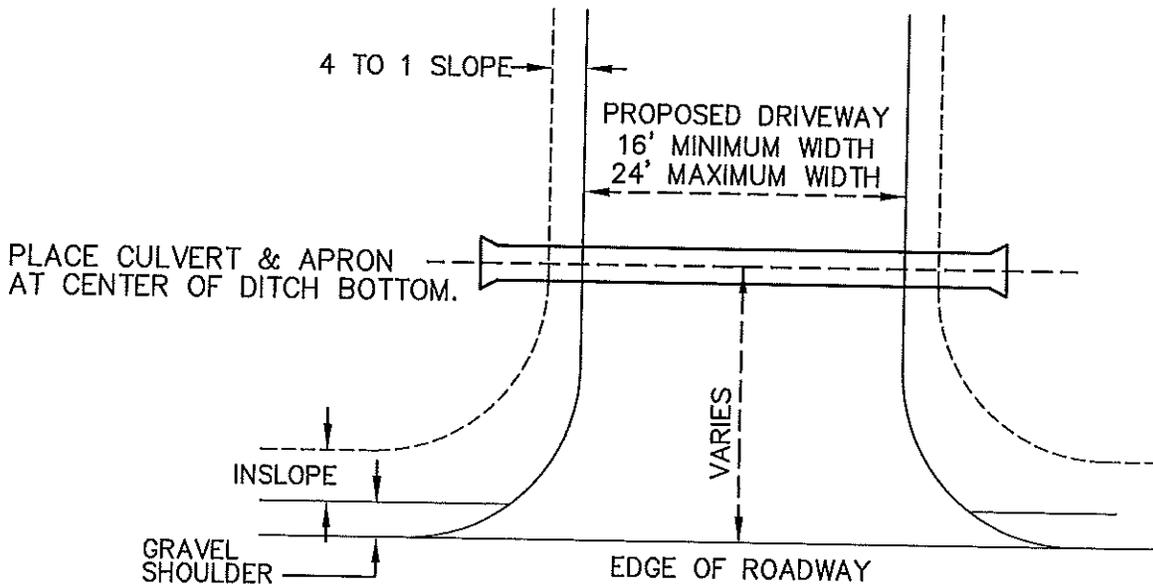
Date: 5/7/12

Plate No: BLD-201.0

16 GA. CMP CULVERT
15" MINIMUM DIAMETER-



CULVERT LEN. (ft.) = DRIVEWAY WID. (ft.) + 2[((DITCH DEPTH - CULVERT DIA. in.)/12) * 4]
 EXAMPLE: 16 ft DRIVEWAY WIDTH, 29" DITCH DEPTH, 15" CULVERT
 CULVERT LEN. (ft.) = 16' + 2[((29" - 15")/12) * 4] = 25 ft.



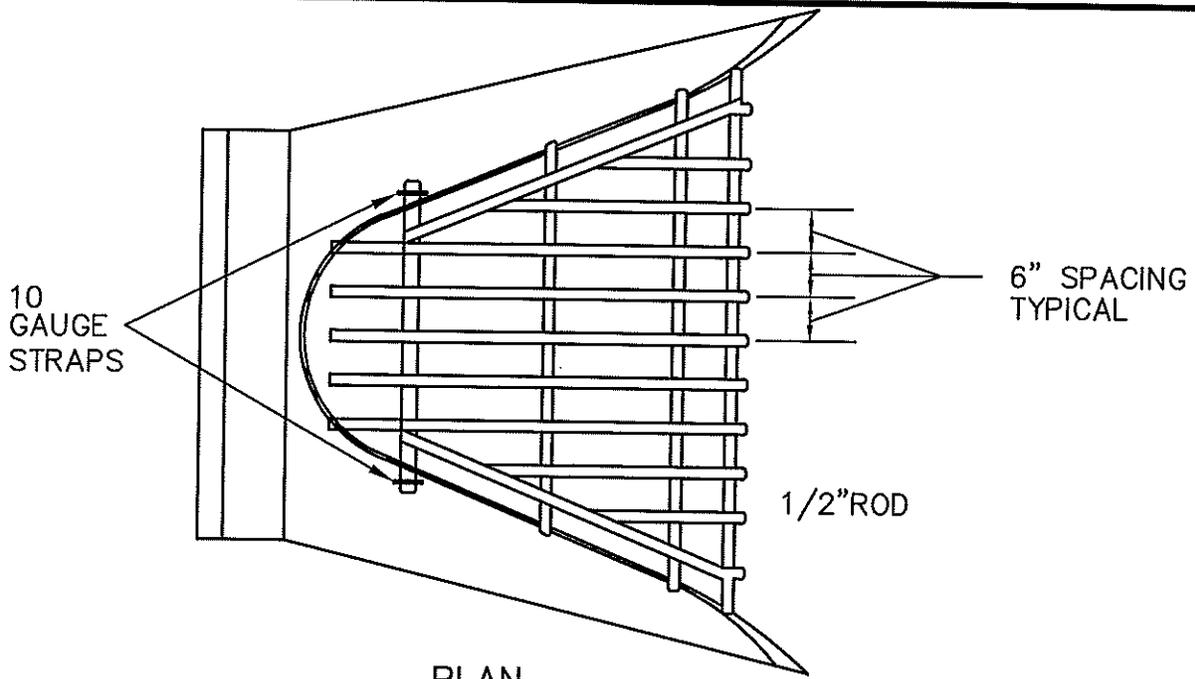
NOTES:
 CULVERT APRON LIP IS TO BE PLACED AT DITCH BOTTOM.
 IN THE OCCURRENCE THAT DITCH IS DEEPER THAN
 THE MINIMUM, THE CULVERT LENGTH SHALL
 BE EXTENDED TO MAINTAIN 4 TO 1 SLOPE.

**BALDWIN TOWNSHIP
STANDARD DETAILS**

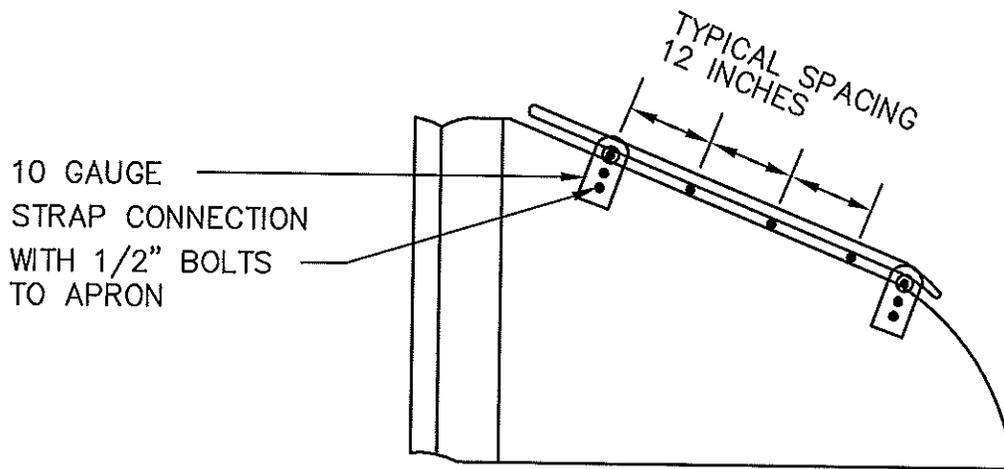
**DRIVEWAY CULVERT DETAIL
(RESIDENTIAL)**

Date: 4/7/03

Plate No: BLD-202.0



PLAN



ELEVATION

NOTES:

1. TRASH GUARD TO BE GALVANIZED AFTER FABRICATION.
2. THE SIZE OF EACH TRASH GUARD WILL VARY TO FIT APRON.

TRASH GUARD FOR CORRUGATED METAL PIPE

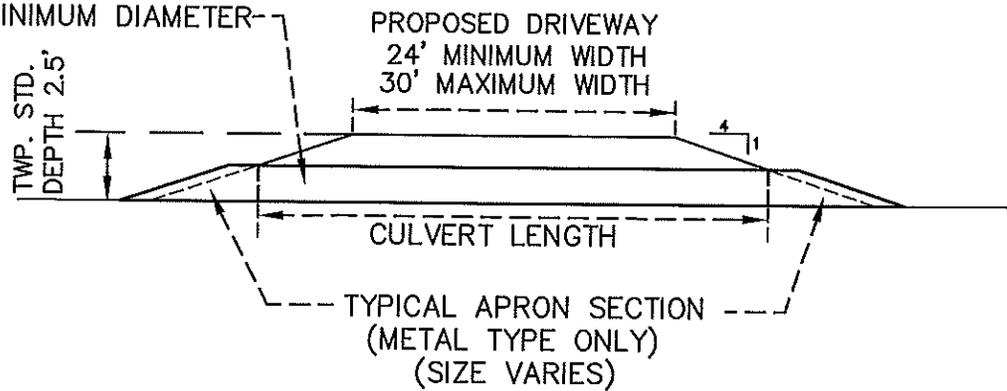
**BALDWIN TOWNSHIP
STANDARD DETAILS**

**TRASH GUARD FOR
CORRUGATED METAL PIPE**

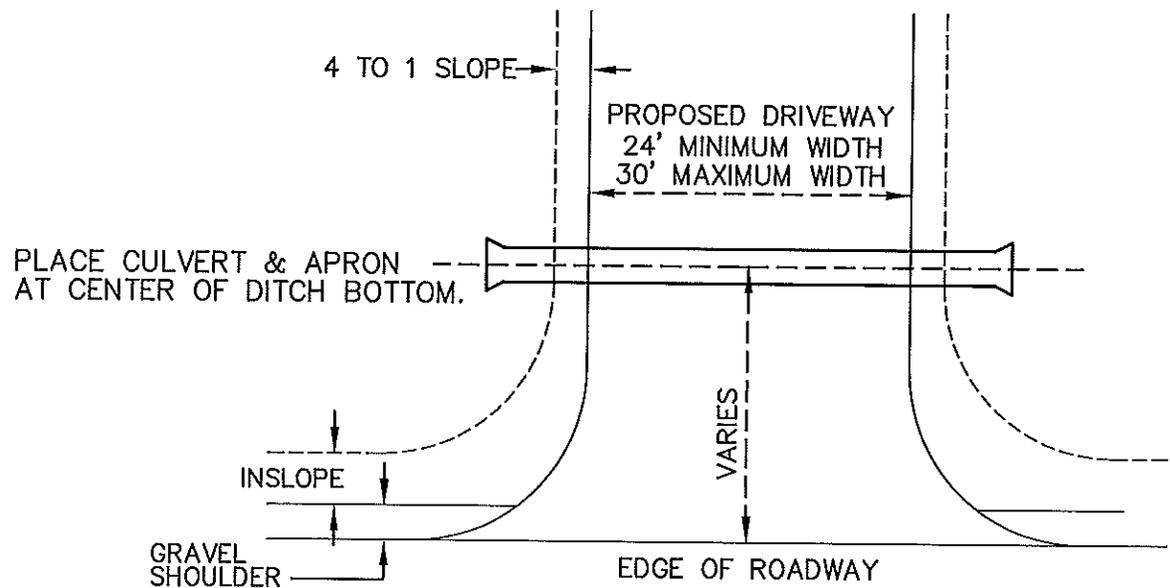
Date: 2/6/06

Plate No: BLD-305.0

16 GA. CMP CULVERT
15" MINIMUM DIAMETER



CULVERT LEN. (ft.) = DRIVEWAY WID. (ft.) + 2[((DITCH DEPTH - CULVERT DIA. in.) / 12) * 4]
 EXAMPLE: 16 ft DRIVEWAY WIDTH, 29" DITCH DEPTH, 15" CULVERT
 CULVERT LEN. (ft.) = 24' + 2[((29" - 15") / 12) * 4] = 33 ft.



NOTES:
CULVERT APRON LIP IS TO BE PLACED AT DITCH BOTTOM.
IN THE OCCURRENCE THAT DITCH IS DEEPER THAN
THE MINIMUM, THE CULVERT LENGTH SHALL
BE EXTENDED TO MAINTAIN 4 TO 1 SLOPE.

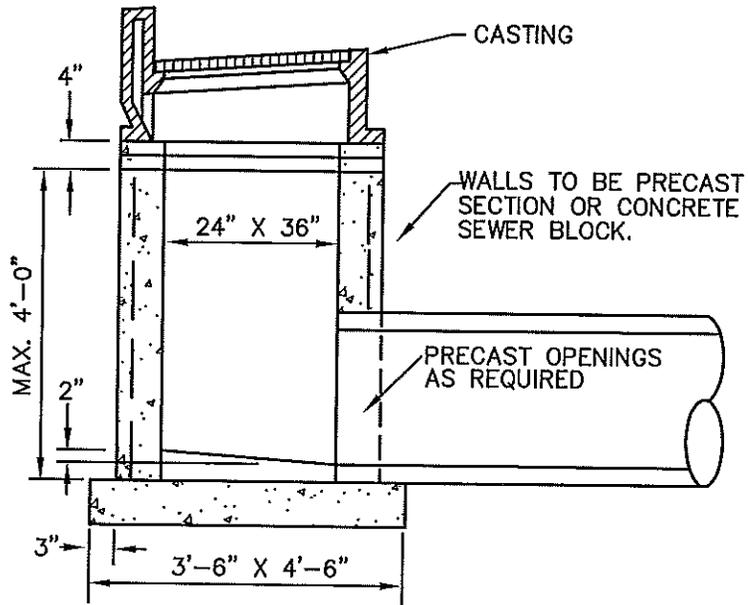
**BALDWIN TOWNSHIP
STANDARD DETAILS**

**DRIVEWAY CULVERT DETAIL
(COMMERCIAL)**

Date: 4/7/03 | Plate No: 203.0

NOTE:

- 1 CONCRETE ADJUSTING RINGS, MIN. 4" MAX 10"
NO MINIMUM WITH FINAL ADJUSTMENT.
- 2 CONCRETE BASE SHALL 6" POURED IN PLACE
OR 5" PRECAST SLAB.



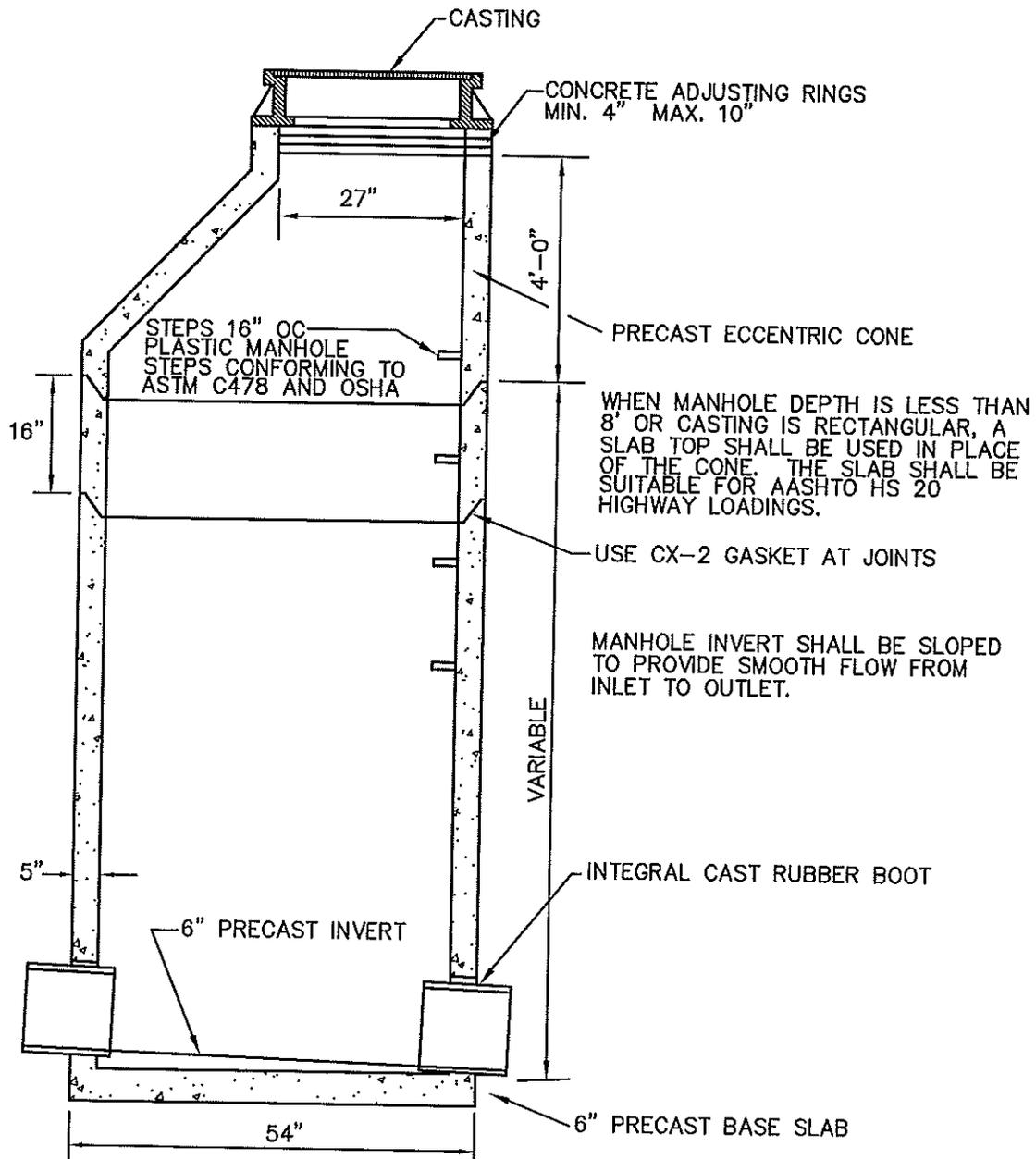
CATCHBASIN - RECTANGULAR - 24" X 36"

BALDWIN TOWNSHIP
STANDARD DETAILS

CATCHBASIN -
RECTANGULAR - 24" X 36"

Date: 2/6/06

Plate No: 300.0



STANDARD MANHOLE (SAN SEWER)

**BALDWIN TOWNSHIP
STANDARD DETAILS**

STANDARD MANHOLE (SAN SEWER)

Date: 2/6/06

Plate No: BLD-303.0

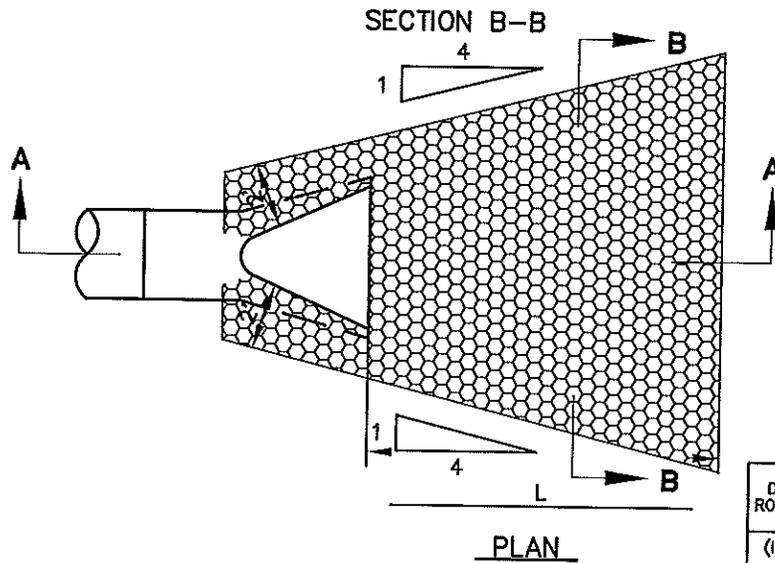
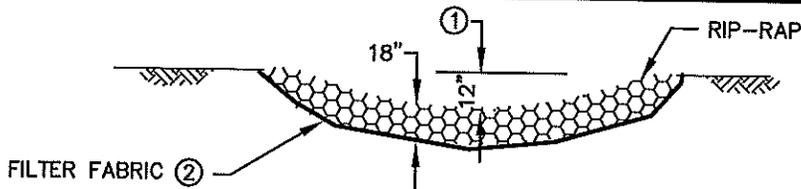
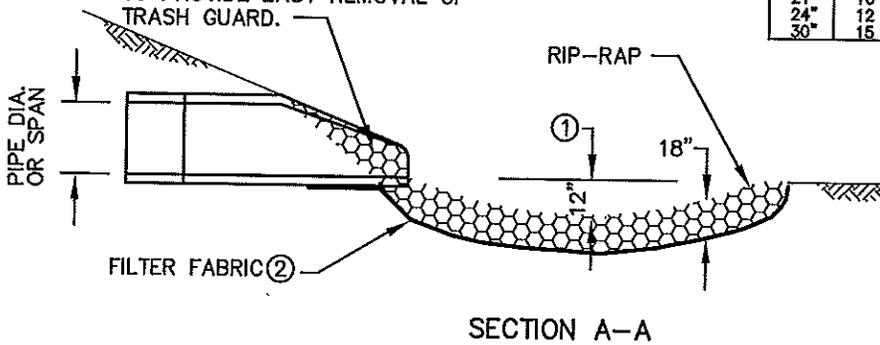


TABLE OF QUANTITIES

DIA. ROUND (IN.)	L FT.	CLASS 3 d50 = 9" RIP RAP 18" DEPTH CU. YD.	FILTER FABRIC SQ.YD.
12"	8	6.9	8
15"	8	7.1	9
18"	10	8.9	12
21"	10	10.4	13
24"	12	11.9	17
30"	15	14.0	21

NOTE:
RIP-RAP SHALL BE INSTALLED TO PROVIDE EASY REMOVAL OF TRASH GUARD.



- NOTE:
PIPE SIZES LARGER THAN THOSE SHOWN REQUIRE A SPECIAL DESIGN.
- ① FOR PIPES GREATER THAN OR EQUAL TO 30". USE 1.5'
 - ② GEOTEXTILE FABRIC, MnDOT SPEC. 3733, SHALL COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE CULVERT APRON 3 FT.

RIP-RAP INSTALLATION

BALDWIN TOWNSHIP
STANDARD DETAILS

RIP-RAP INSTALLATION

Date: 2/6/06

Plate No: BLD-304.0