



ACHD Self-Evaluation and Transition Plan

Appendix C: Standard Plan and Specification Review

Adopted April 2019 by Resolution 2272

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2017 ACHD Supplement to the 2017 ISPWC December 2017

Division 100 – General Conditions

This Division shall be deleted in its entirety.

Division 200 – Earthwork

- *Section 202 – Excavation and Embankment*, Part 3.8-EMBANKMENT CONSTRUCTION-Paragraph C-Compaction Control Tests, Section 3-Material Too Granular to Test, Page 11. Add the following:
 - h. A gradation and sand equivalency to verify “Too Granular to Test” will be performed at the same frequency as a density test would have been performed. Sand equivalency test results shall be equal to or greater than 25.
- *Section 206 – Permanent Erosion Control*, Part 4- Measurement and Payment - Part 4.1.A-H, Page 8 & 9. The modifications are as follows:
 - 1. Bid Schedule Payment References: 206.4.1.A.1
 - 2. Bid Schedule Description: Seedbed Preparation.....square yard **(SY)**
 - 1. Bid Schedule Payment Reference: 206.4.1.B.1
 - 2. Bid Schedule Description: Seeding.....square yard **(SY)**
 - 1. Bid Schedule Payment Reference: 206.4.1.C.1
 - 2. Bid Schedule Description: Mulching.....square yard **(SY)**
 - 1. Bid Schedule Payment Reference: 206.4.1.D.1
 - 2. Bid Schedule Description: Mulch Anchoring (mechanical).....square yard **(SY)**
 - 1. Bid Schedule Payment Reference: 206.4.1.E.1
 - 2. Bid Schedule Description: Mulch Anchoring (tack).....square yard **(SY)**
 - 1. Bid Schedule Payment Reference: 206.4.1.F.1
 - 2. Bid Schedule Description: Erosion Blanket.....square yard **(SY)**
 - 1. Bid Schedule Payment Reference: 206.4.1.G.1
 - 2. Bid Schedule Description: Fertilizing.....square yard **(SY)**

Division 200 – Earthwork

- *Section 207 – Permanent Stormwater Best Management Practices, Part 1-4. Delete entire section and replace with the following:*

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. BMP 01: SAND AND GREASE TRAP (PRETREATMENT)
- B. BMP 02: TREATMENT AND CONVEYANCE SWALE (PRETREATMENT)
- C. BMP 03: GRASS BUFFER STRIP (PRETREATMENT)
- D. BMP 04: CONCRETE CATCH MANHOLE (PRETREATMENT)
- E. BMP 05: MANUFACTURED SYSTEMS (PRETREATMENTS)
- F. BMP 10: INFILTRATION BASIN WITH FOREBAY (PRETREATMENT, TREATMENT & STORAGE)
- G. BMP 11: DETENTION BASIN WITH FOREBAY (PRETREATMENT, TREATMENT & STORAGE)
- H. BMP 12: DETENTION BASIN WITH UNDERDRAIN (PRETREATMENT, TREATMENT & STORAGE)
- I. BMP 13: WET RETENTION OR DETENTION BASIN (PRETREATMENT, TREATMENT & STORAGE)
- J. BMP 14: CONSTRUCTED WETLAND BASIN (TREATMENT & STORAGE)
- K. BMP 20: SEEPAGE BED WITH OPTIONAL CHAMBERS (TREATMENT & STORAGE)
- L. BMP 21: VERTICAL SAND FILTER
- M. BMP 22: UNDERGROUND SAND FILTER VAULT (PRETREATMENT, TREATMENT)
- N. BMP 30: BIORETENTION SWALE (TREATMENT & STORAGE)
- O. BMP 31: BIORETENTION PLANTER
- P. BMP 32: BIORETENTION CURB EXTENSION (TREATMENT & STORAGE)
- Q. BMP 33: STORMWATER TREE CELLS
- R. BMP 34: PERMEABLE PAVERS (TREATMENT & STORAGE)

1.2 RELATED SECTIONS

- A. Section 201 – Clearing and Grubbing
- B. Section 202 – Excavation and Embankment
- C. Section 205 – Dewatering
- D. Section 206 – Permanent Erosion Control
- E. Section 301 – Trench Excavation
- F. Section 305 – Pipe Bedding
- G. Section 306 – Trench Backfill
- H. Section 601 – Culvert, Storm Drain and Gravity Irrigation Pipe
- I. Section 602 – Storm Drain Inlets, Catch Basins, Manholes, and Gravity Irrigation Structures
- J. Section 704 – Precast Concrete
- K. Section 801 – Uncrushed Aggregates
- L. Division 1000 – Construction Stormwater Best Management Practices

1.3 REFERENCES

- A. ACHD Policy Section 8000 - Drainage & Stormwater Management
- B. ACHD Policy Section 8200 - Stormwater Design Manual

1.4 REGULATORY REQUIREMENTS

- A. Conform to applicable code for disposal of debris.
- B. Coordinate with utility companies before excavating.

1.5 SUBMITTALS

- A. Submit manufacturer's certification that materials meet or exceed specified requirements.
- B. Submit manufacturers' installation instruction and maintain copy at the jobsite.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Unload, store and load construction site management materials in a manner which prevents damage.

PART 2 MATERIALS

2.1 INCORPORATE BY REFERENCE

- A. ACHD Policy Section 8000 - Drainage & Stormwater Management

- B. ACHD Policy Section 8200 - Stormwater Design Manual

PART 3 WORKMANSHIP

3.1 INCORPORATE BY REFERENCE

- A. ACHD Policy Section 8000 - Drainage & Stormwater Management
- B. ACHD Policy Section 8200 - Stormwater Design Manual
- C. Unless otherwise specified in the Contract Documents, monitor, maintain and remove BMPs in accordance with the Stormwater Pollution Prevention Plan and NOI.

PART 4 MEASUREMENT AND PAYMENT

4.1 Unless specifically indicated in the Bid Schedule, all labor, materials and equipment required for construction site management will be considered incidental to other Bid Items.

- A. BMP 01: Sand and Grease Trap: By the each. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference Section 602 – Storm Drain Inlets, Catch Basins, Manholes, and Gravity Irrigation Structures to pay each respective item needed, and also include the following as needed:
 - 1. Bid Schedule Payment Reference: 207.4.1.D.1.
 - 2. Bid Schedule Description: Other Structural Controls (Oil/Water Separator)...per each (EA).
- B. BMP 02: Treatment and Conveyance Swale: by the linear foot. Includes all appurtenances not itemized on the Bid Schedule.
 - 1. Bid Schedule Payment Reference: 207.4.1.A.1.
 - 2. Bid Schedule Description: Biofiltration Swale (Vegetated Swale)...per linear foot (LF).
 - 3. Bid Schedule Payment Reference: 207.4.1.A.3.
 - 4. Bid Schedule Description: Bioinfiltration Swale (Bioretention Swale)...per linear foot (LF).
- C. BMP 03: Grass Buffer Strip: By the linear foot. Includes all appurtenances not itemized on the Bid Schedule.
 - 1. Bid Schedule Payment Reference: 207.4.1.A.5.
 - 2. Bid Schedule Description: Vegetated Filter Strip...per linear foot (LF).
- D. BMP 04: Concrete Catch Manhole: By the per-each basis. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference Section 602 – Storm Drain Inlets, Catch Basins, Manholes, and Gravity Irrigation Structures to pay each respective item needed.
- E. BMP 05: Manufactured Systems: By the per-each basis. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed.

- F. BMP 10: Infiltration Basin With Forebay: By the lump sum or square foot. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed, and also include the following as needed:
1. Bid Schedule Payment Reference: 207.4.1.B.3.
 2. Bid Schedule Description: Infiltration Facilities (Bioretention Basin)...square foot (SF).
- G. BMP 11: Detention Basin With Forebay: By the lump sum or cubic yard. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed, and also include the following as needed:
1. Bid Schedule Payment Reference: 207.4.1.C.1.
 2. Bid Schedule Description: Detention Facilities Wet Pond (Wet Pond - Conventional)...cubic yard (CY).
 3. Bid Schedule Payment Reference: 207.4.1.C.7.
 4. Bid Schedule Description: Detention Facilities (Dry Extended Detention)...cubic yard (CY).
- H. BMP 12: Detention Basin With Underdrain: By the lump sum or cubic yard. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions, Standard Special Provisions; Section 602 – Storm Drain Inlets, Catch Basins, Manholes, and Gravity Irrigation Structures; Section 601 – Culvert, Storm Drain, and Gravity Irrigation Pipe, to pay each respective item needed.
- I. BMP 13: Wet Retention or Detention Basin: By the lump sum or cubic yard. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed.
- J. BMP 14: Constructed Wetland Basin: By the lump sum or cubic yard. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed.
- K. BMP 20: Seepage Bed with Optional Chambers: By the linear foot. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed, and also include the following as needed:
1. Bid Schedule Payment Reference: 207.4.1.B.1.
 2. Bid Schedule Description: Infiltration Trench...linear foot (LF).
- L. BMP 21: Vertical Sand Filter: By the linear foot. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed.
- M. BMP 22: Underground Sand Filter Vault: By the per-each basis. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed.

- N. BMP 30: Bioretention Swale: By the linear foot or square foot. Includes all appurtenances not itemized on the Bid Schedule.
1. Bid Schedule Payment Reference: 207.4.1.A.1.
 2. Bid Schedule Description: Biofiltration Swale (Vegetated Swale)...per linear foot (LF).
 3. Bid Schedule Payment Reference: 207.4.1.B.3.
 4. Bid Schedule Description: Bioretention Basin...per square foot (SF).
- O. BMP 31: Bioretention Planter: By the square foot. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed.
- P. BMP 32: Bioretention Curb Extension: By the lump sum. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed.
- Q. BMP 33: Stormwater Tree Cells: By the square foot. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed.
- R. BMP 34: Permeable Pavers: by the square foot. Includes all appurtenances not itemized on the Bid Schedule. Item shall reference the ACHD Special Provisions and Standard Special Provisions to pay each respective item needed.

Division 300 – Trenching

- *Section 306 – TRENCH BACKFILL, Part 2- Materials - Part 2.2 Native Trench Backfill Material, Page 2.* The following shall be added:
 - D. Use and placement of native trench material is at the Engineer's/Owner's Discretion.
- *Section 306 – TRENCH BACKFILL, Part 3- Workmanship - Section 3.3 TYPE A TRENCH BACKFILL (A-1, A-2, A-3), Page 4.* Delete the heading entirely and replace with the following:

TYPE A TRENCH BACKFILL (A-1, A-3)
- *Section 306 – TRENCH BACKFILL, Part 3- Workmanship - Section 3.3 TYPE A TRENCH BACKFILL (A-1, A-3), Page 4.* Delete paragraph D in its entirety.
- *Section 306 – TRENCH BACKFILL, Part 3- Workmanship – Section 3.3 TYPE A TRENCH BACKFILL (A-1, A-3), Paragraph E, Page 5* shall be modified to read as follows:
 2. Testing: No testing is required. If all material does not meet this specification, either remove the unsatisfactory material or compaction testing will be required per Type A-1 Compaction.
 4. Place each layer per Type A-1 compaction.

- *Section 306* – TRENCH BACKFILL, Part 3- Workmanship – Section 3.3 TYPE A TRENCH BACKFILL (A-1, A-3), Paragraph E, Page 5 shall add the following:

6. Density Requirements: As outlined in Section 202, Subsection 3.8.C.2

- *Section 307*– Street Cuts and Surface Repairs, Part 3.8- Type “P” Surface Restoration (Asphalt Roadway Surfaces), Page 5. Delete paragraph E in its entirety and replace with the following:

E. Replaced Asphalt Concrete Pavement on Principal and Minor Arterial Roadways shall be SP-3, 0.50 inch (1/2”) mix, PG 64-28 and 5” thick, as a minimum. Collector, Local Commercial, and Local Industrial Roadways shall be SP-3, 0.5 inch (1/2”) mix, PG 64-28 and 3” thick, as a minimum. Local Residential Roadways and alleys shall be a SP-3, 0.50 inch (1/2”) mix, PG 58-28 and 2.5” thick, as a minimum.

- *Section 307*– Street Cuts and Surface Repairs, Part 3.9- Type “P” Surface Restoration (with Pavement Fabric), Page 6. This section shall be deleted in its entirety.

- *Section 307*– Street Cuts and Surface Repairs, Part 4- Measurement and Payment - Part 4.1.A, Page 9. The modifications are as follows:

1. Bid Schedule Payment Reference: 307.4.1.A.1
2. Bid Schedule Description: Miscellaneous Surface Restoration (Landscaping).... **(SY)**
3. Bid Schedule Payment Reference: 307.4.1.A.3
4. Bid Schedule Description: Miscellaneous Surface Restoration (Sod).... **(SY)**
5. Bid Schedule Payment Reference: 307.4.1.A.5
6. Bid Schedule Description: Miscellaneous Surface Restoration (Pasture).... **(SY)**
7. Bid Schedule Payment Reference: 307.4.1.A.7
8. Bid Schedule Description: Miscellaneous Surface Restoration (Natural Ground).... **(SY)**

- *Section 307*– Street Cuts and Surface Repairs, Part 4- Measurement and Payment - Part 4.1.F, Pages 10 & 11. The modifications are as follows:

1. Bid Schedule Payment Reference:307.4.1.F.1
2. Bid Schedule Description: Main Line Type “P” Surface Restoration (Asphalt Roadway).....**(SY)**
3. Bid Schedule Payment Reference:307.4.1.F.3
4. Bid Schedule Description: Main Line Type “P” Surface Restoration (Asphalt Roadway with Fabric).... **(SY)**
5. Bid Schedule Payment Reference:307.4.1.F.5
6. Bid Schedule Description: Service Line Type “P” Surface Restoration (Asphalt Roadway with Fabric).....**(SY)**
7. Bid Schedule Payment Reference:307.4.1.F.7
8. Bid Schedule Description: Service Line Type “P” Surface Restoration (Asphalt Roadway with Fabric).....**(SY)**

- *Section 307– Street Cuts and Surface Repairs, Part 4- Measurement and Payment - Part 4.1.F, Page 10.*
Add the following:

1. Bid Schedule Payment Reference: 307.4.1.F.9
2. Bid Schedule Description: Service Line Type “P” Surface Restoration (Pot Hole Repair)..... **(CY)**

- *Section 307– Street Cuts and Surface Repairs, Part 4- Measurement and Payment - Part 4.1.J, Page 11.*
The modifications are as follows:

1. Bid Schedule Payment Reference: 307.4.1.J.1
2. Bid Schedule Description: Gravel Access Road –Type____..... **(SY)**

- The following Standard Drawing shall be **deleted** from *Division 300* of the ISPWC: SD-303
- The following **2017 ACHD Standard Drawing Revision** will be **added** to *Division 300* of the ISPWC:

SD-303

SD-309

Division 400 – Water

No Changes

Division 500 – Sewer

- The following Standard Drawing shall be **deleted** from *Division 500* of the ISPWC: SD-508
- The following 2015 ACHD Standard Drawing Revision will be **added** to *Division 500* of the ISPWC: SD-508

Division 600 –

- *Section 601 – Storm Drain Inlets, Catch Basins, Manholes and Gravity Irrigation Structures, Part 1- General – Section 1.3 References, Page 1.* Paragraph G shall be **deleted** in its entirety.
- *Section 601 – Storm Drain Inlets, Catch Basins, Manholes and Gravity Irrigation Structures, Part 2- Materials – Section 2.1 Pipe Size, Type and Strength.* Add the following:
 - D. The following shall not be allowed for public storm drain systems and street crossings within the public right of way for irrigation or storm drain crossings:
 1. Corrugated Galvanized Steel metal Pipe, Ribbed Pipe and Pipe Anchors
 2. Corrugated Aluminized Steel Pipe and Pipe Arches
- *Section 601 – Storm Drain Inlets, Catch Basins, Manholes and Gravity Irrigation Structures, Part 2- Materials – Section 2.2 Culvert, Storm Drain and Gravity Irrigation Pipe and Fittings, Page 4.* Paragraph F and G shall be **deleted** in its entirety.
- *Section 601 – Storm Drain Inlets, Catch Basins, Manholes and Gravity Irrigation Structures, Part 4- Measurement and Payment – Section 4.1, Paragraph A, Page 9.* Item 17 and Item 18 shall be **deleted** in its entirety.

- *Section 602* – Storm Drain Inlets, Catch Basins, Manholes and Gravity Irrigation Structures, Part 4- Measurement and Payment - Part 4.1.H Precast Sediment Box, Page 10. The modifications are as follows:
 1. Bid Schedule Payment Reference: 602.4.1.H.1A
Bid Schedule Description: Precast Sediment Box-Size 1000 Gal..... (EA)
 2. Bid Schedule Payment Reference: 602.4.1.H.1B
Bid Schedule Description: Precast Sediment Box-Size 1500 Gal..... (EA)
- *Section 602* – Storm Drain Inlets, Catch Basins, Manholes and Gravity Irrigation Structures, Part 4- Measurement and Payment - Part 4.1.O Irrigation Ditch ___wide x ___Deep, Page 11. The paragraph will be modified to read as follows:

Bid Schedule Description: Irrigation Ditch – Size ___ wide x ___ deep(I,F)

- A. The following Standard Drawings shall be **deleted** from *Division 600* of the ISPWC:

SD-601	SD-608A	SD-616
SD-602	SD-609	SD-617
SD-603	SD-610	SD-619
SD-604	SD-610A	SD-623
SD-604A	SD-611	SD-626
SD-605	SD-612	SD-627
SD-606	SD-613	SD-628
SD-607	SD-614	SD-629
SD-608		

- B. The following **2017 ACHD Standard Drawing Revision** shall be **added** to Division 600 of the ISPWC:

SD-601	SD-610A	SD-619A
SD-603	SD-611	SD-627
SD-604A	SD-616	SD-628
SD-606	SD-617	SD-629
SD-609	SD-619	

Division 700 –

- *Section 701-* Concrete Formwork, Part 3.8 Form Removal, Paragraph A, Page 5, shall read as follows:
 - A. Do not remove forms or bracing until concrete has achieved 90% of its design strength to carry its own weight and design loads.
- *Section 701-* Concrete Formwork, Part 3.8 Form Removal, Page 5, the following shall be added:
 - C. Maintain Cold Weather requirements as outlined in Section 703 – Cast-In-Place Concrete
- *Section 705-* Portland Cement Concrete Pavement, Part 1.3 References, Page 1, shall delete line E and F in its entirety and replace with the following:

E & F. ASTM D6690-15: Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements **REVISE ISPMC SECTION 705, 2.4.B REFERENCING POURABLE JOINT SEALER PER THE DELETED REFERENCES TO ASTM D 3405 AND ASTM D 3406.**

2.7 Tactile Warning Surface

TWS units shall be manufactured using a matte finish exterior grade homopolymer reinforced polyester based SMC composite material as manufactured by ADA Solutions, Inc. of Chelmsford, MA (Phone: 800-372-0519, website: www.adatale.com) or approved equal.

Color shall contrast visually with adjacent walking surfaces, either light-on-dark, or dark-on-light with a standard color of yellow. Methods for construction and coloration must be approved by ACHD prior to construction.

- *Section 706- Other Concrete Construction, Part 3 Workmanship, Page 5,*

TWS product shall be installed per manufacturer's instruction. To the maximum extent possible, the TWS units shall be oriented such that the rows of in-line truncated domes are parallel with the direction of the ramp and shall span the entire width of the ramp surface. The TWS unit shall be located so that the edge nearest the curb face line is 6" minimum and 8" maximum from the curb face line. **IS AT THE BACK OF CURB OR AT THE BOTTOM GRADE BREAK IF THE DISTANCE BETWEEN THE BACK OF CURB AND BOTTOM GRADE BREAK IS LESS THAN 5' PER PROWAG R305.2. SEE SD-712 FOR PLACEMENT OF THE TWS UNIT.** and the top level of the TWS unit is flush to the adjacent concrete surface. Upon curing (allow 24 to 48 hours) remove protective plastic covering. Protect TWS unit against damage during the construction period.

- *Section 706- Other Concrete Construction, Part 3 Workmanship, Page 5, the following shall be added:*

3.15 Shared Use Paths

The opening of a shared use path at the roadway shall be at least the same width as the shared use path itself. If a curb ramp is provided, the ramp should be the full width of the path, not including any flared sides, if utilized. A TWS shall be placed across the full width of the ramp opening.

- *Section 706- Other Concrete Construction, Part 3.8 Finishing, Paragraph C, Page 5, the following modification shall be made:*

Light broom perpendicular to long dimension

- *Section 706- Other Concrete Construction, Part 4 Measurement and Payment, Paragraph 4.1, Page 6, shall read as follows:*

Use one or more of the following unit prices as designated on the Bid Schedule. Prices include forming, furnishing and installing or constructing joint devices and fillers, furnishing and installing reinforcing steel (unless otherwise specified) miscellaneous embedded items, furnishing, placing, curing concrete. If required and not listed in the Bid Schedule, backfill and compaction are to be considered incidental to the following Bid Items:

NOT REVIEWED

- The following Standard Drawings shall be **deleted** from *Division 700* of the ISPWC:

SD-701	SD-706	SD-710B
SD-701B	SD-708	SD-710C
SD-702	SD-709	SD-712
SD-703	SD-709A	SD-712G
SD-704	SD-710	SD-714
SD-705	SD-710A	SD-714B
		SD-715

- The following **2017 ACHD Standard Drawing Revision** shall be **added** to *Division 700* of the ISPWC:

SD-701	SD -708	SD-710F
SD-701B	SD-709	SD-712
SD-701C	SD-709A	SD-712G
SD-701R	SD-710	SD-712H
SD-702	SD-710A	SD-714
SD-702R	SD-710B	SD-714B
SD-703	SD-710C	SD-715
SD-705	SD-710D	SD-715A
SD-706	SD-710E	SD-716

Division 800 –

- Section 810 – Plant Mix Pavement, Part 1.2 – Related Sections, Paragraph E will be deleted in its entirety
- Section 810 – Plant Mix Pavement, Part 2.1 – Hot Mix Asphalt Design, Paragraph D will be deleted in its entirety
- Section 810, Part 2.5 – Recycled Plant Mix (RAP), shall be deleted in its entirety and replaced with the following

2.5 RECYCLED PLANT MIX (RAP)

RAP is salvaged, milled, pulverized, broken, or crushed bituminous material that may have minor coatings of dust or aggregate particles with no discernable seams, pockets, or amounts of base, soil, or deleterious material.

Prepare and maintain a RAP processing and stockpiling Quality Control plan and make these records available to the Engineer.

RAP will be allowed in Superpave HMA mixes. Produce the mixture in accordance with Section 810 and 814 when using RAP. Select the mass of RAP included in the mixture, the type of RAP used in the mixture, and the extent of RAP processing necessary to meet the specifications. The District will not change the contract unit price if RAP is used in the mixture.

If RAP material is to be used from the project, obtain a representative sample of material for use in the mix design.

The mass of RAP used in Superpave HMA is calculated as the mass of asphalt binder, in percent, that the RAP contributes to the total mass of binder in the mixture.

A. RAP Binder Percentages and Binder Grade Selection

Determine the percentage of RAP used and the binder grade required to meet specifications. Select the percentage of RAP used in the mix by determining the contribution of the RAP binder toward the total binder in the mix, by weight.

It may be necessary to use a softer virgin PG binder than is specified in the contract to compensate for the age hardened binder contributed by the RAP. Adjust the binder grade specified in the contract as needed to account for the stiffening effect of the

aged binder in the RAP. Ensure the adjustment will result in a composite binder that meets the contract requirement. The method for determining the binder grade adjustment in Superpave HMA mixtures incorporating RAP is designated Level 1 and Level 2, as shown in Table 810.1. Each level has a range of percentages that represent the contribution of the RAP binder toward the total binder, by weight.

Table 810.1 - Grade Adjustment for RAP usage

Level	RAP binder by weight of the total binder in the mixture, %	Binder Grade Adjustment to compensate for the stiffness of the asphalt binder in the RAP
1	0 to 17	No binder grade adjustment is made.
2	> 17 to 30	Unless otherwise shown on the plans, the selected binder grade adjustment for the binder grade specified on the plans is one grade lower for the high and the low temperatures designated. or; determine the asphalt binder grade adjustment as shown in Level 3.

Table 810.2 identifies the typical binder grades used and the recommended binder grade adjustments for each binder grade at the RAP level described in Table 810.1. If the binder grade adjustment is not in Table 810.2, use Table 810.1 to determine the binder grade adjustment needed.

Table 810.2 Typical Adjusted Binder Grades

	Level 1	Level 2
Binder grade specified in contract	Adjusted Binder grade	Adjusted Binder grade
58-28	No Adjustment is made	52-34
58-34		52-40
64-28		58-34
64-34		58-40
70-28		64-34
76-28		70-34

Use the following equation to determine the percent of RAP by weight of mix (X%):

$$X\% = c(a/b)$$

Where:

- a = optimum AC content, % in mixture to produce 4.0% air voids
- b = % AC in the RAP (from chemical extraction and/or AASHTO T 308 burn)
- c = percent of RAP binder by weight of the total binder desired in the mix
- X = desired RAP percent by total weight of mix

The following is an example of the calculation:

Total RAP binder desired equals 17% of Total binder in the mixture (X%). If RAP will contribute 5.1% AC (b) and the desired RAP percent by total weight of mix (optimum AC) is 5.8% (c) then:

$$X\% = 17\% * (5.8/5.1) = 19.3\%$$

Submittals. Submit virgin and RAP material for Bulk Dry Specific Gravity of Aggregate (Gsb) determination for all classes of mix.

Provide materials as specified in the ISPWC.

Test materials in accordance with the following applicable standard methods:

Particle Size Distribution of Aggregate.....	AASHTO T 27
with Materials Finer than 75um (No. 200) Sieve	
In Mineral Aggregate by Washing	AASHTO T 11
	Method A or B
Mechanical Analysis of Extracted Aggregate.....	AASHTO T 30
Preparing and Determining the Density of Hot-Mix-Asphalt (HMA)	
Specimens by Means of the Superpave Gyratory Compactor.....	AASHTO T 312
Superpave Volumetric Design for Hot-Mix Asphalt (HMA).....	AASHTO R 35
Determining the Percentage of Fracture in Coarse Aggregate.....	AASHTO T 335
	Method 1
Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures.....	AASHTO T 269
Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.....	AASHTO T 209
	Bowl Method
Bulk Specific Gravity of Compacted Bituminous	
Mixtures Using Saturated Surface Dry Specimens.....	AASHTO T 166
	Method A
Bulk Specific Gravity of Compacted Bituminous	
Mixtures Using paraffin-Coated Specimens.....	AASHTO T 275
Pavement Straightedge Procedures	Idaho IR-87
In Place Density of Bituminous Mixes Using the Nuclear Moisture Density Gauge.....	WAQTC TM-8
	Backscatter mode
Determining Volume of Liquids in Horizontal or Vertical Storage Tanks.....	Idaho IT-120
Acceptance Test Strip for Hot Mix Asphalt (HMA) Pavement.....	Idaho IR-125
Standard Practice for Operating Inertial Profilers and Evaluating Pavement Profiles.....	AASHTO PP-50
Determining the Asphalt Binder Content	
of Hot Mix Asphalt (HMA) by the Ignition Method	FOP for ASHTO T 308
Sampling Bituminous Paving Mixtures.....	AASHTO T 168
Reducing Samples of Hot Mix Asphalt to Testing Size.....	AASHTO R 47
Moisture Content of Hot Mix Asphalt (HMA) by Oven Method.....	AASHTO T 329
Plastic Fines in Graded Aggregate and Soils by Use of the Sand Equivalent Test.....	AASHTO T 176
	Alternate Method #2, Mechanical, Prewet
Standard Test Method for Effect of Water on	
Compressive Strength of Compacted Bituminous Mixtures	
(Immersion- Compression).....	ASTM D1075
(Replace D1074 and D2726 with AASHTO T 167 and AASHTO T 168)	
Compressive Strength of Hot Mix Asphalt.....	AASHTO T 167
Uncompacted Void Content of Fine Aggregate, Method A.....	AASHTO T 304
Mixture Conditioning of Hot-Mix Asphalt (HMA).....	AASHTO R 30
Determining Rutting Susceptibility of Asphalt Pavement	
Mixture Using the Asphalt Pavement Analyzer (APA)	AASHTO T 340
Superpave Volumetric Mix Design	AASHTO M 323
Evaluation of the Superpave Gyratory Compactor (SGC)	
Internal angle of Gyration Using Simulated Loading.....	AASHTO T 344
Standard Test Method for Flat Particles, Elongated Particles,	
or Flat and Elongated Particles in Coarse Aggregate	FOP for ASTM D4791
	(ratio of length to thickness equal to or greater than 5:1)
Bulk Specific Gravity and Density of Compacted Asphalt Mixtures	
Using Automatic Vacuum Sealing Method	AASHTO T 331
Standard Practice for Rapid Drying of Compacted	
Asphalt Specimens Using Vacuum Drying Apparatus.....	ASTM D7227

Standard Test Method for Maximum Specific Gravity and Density of Bituminous Paving Mixtures Using Automatic Vacuum Sealing Method	ASTM D6857
Specific Gravity and Absorption of Aggregate Using Automatic Vacuum Sealing Method	Idaho IT 144
Quantitative Extraction of Bitumen from Bituminous Paving Mixtures.....	AASHTO T 164
Quantitative Extraction and Recovery of Asphalt Binder From Asphalt Mixtures	AASHTO T 319
Lime for Asphalt Mixtures.....	AASHTO T 303
Density of In-Place Hot Mix Asphalt (HMA) Pavement by Electronic Surface Contact Devices	FOP for AASHTO T 343 Method C

B. RAP Categories

Provide RAP that complies with one of the following categories:

Category 1: Material being from or traceable to an ACHD or Idaho Transportation Department project. The Engineer will accept Category 1 RAP for use provided the Contractor submits a letter of certification to the Engineer stating the RAP is from a specific pavement, including the road and location. Do not add material from other sources during stockpiling and provide certification of this from the producer on a stockpile by stockpile basis.

Category 1 RAP may consist of asphalt material removed from Interstates, United States Highways, Primary routes, Secondary routes, and ACHD roads.

Category 2: Material not being from or traceable to an ACHD or Idaho Transportation Department project. Produce uniform RAP stockpiles when Category 2 material originates from different sources. The Engineer will accept Category 2 RAP for use as Category 1 RAP if the Contractor performs all tests as described in "Section 810.3 RAP Testing and Test Frequency, Category 2", and submits test results and materials to the Engineer that show the RAP meets the specifications and is verifiable by the District. Submit test results no less than 10 calendar days before mix design submittal.

Do not use Category 2 RAP that does not meet these requirements as Category 1 RAP.

Category 2 RAP may consist of asphalt material generated from plant waste, i.e., start-up/shut down material; and Random RAP – crushed and screened asphalt material removed from private paving projects, plant overruns, rejected loads, or any combination. Category 2 RAP shall come from asphalt pavement sources only, and is not allowed from other sources, such as asphalt roofing shingles.

C. RAP Processing

The Contractor may use processed or unprocessed RAP as follows:

Processed RAP: RAP that is at least processed by crushing and screening to produce a uniform gradation from coarse to fine and a uniform binder content in the RAP before use in a recycled mix. The Engineer will accept millings as processed provided they have a reasonably uniform gradation, from coarse to fine, a reasonably uniform binder content, and do not contain oversize material as Engineer determined. Provide processed RAP that has 100 percent passing the ¾ inch sieve upon entry into the mixing plant. The Contractor may recycle processed RAP in Superpave HMA at the percentages shown below:

- Category 1 RAP is limited to 30 percent in any lift.
- Category 2 RAP is allowed up to 10 percent when used in the top lift and is limited to 30 percent maximum when used in a lower lift.

Processed RAP stockpiles may contain RAP from sources as indicated by the category and *may be replenished* with RAP from sources of that same category.

Unprocessed RAP: RAP removed from the original location that has not been processed for gradation and binder content uniformity. The Contractor may stockpile different sources of unprocessed RAP together provided it is generally free of contamination from dirt, debris, clean stone, concrete, etc. Provide unprocessed RAP that has 100 percent passing the ¾ inch sieve upon entry into the mixing plant.

The Contractor may recycle unprocessed RAP into any Superpave HMA at the percentages shown here:

- Category 1 RAP is limited to 17 percent maximum in the top lift and to 30 percent maximum in a lower lift.
- Category 2 RAP is not allowed in the top lift and is limited to 17 percent maximum when used in a lower lift.

Unprocessed RAP stockpiles may contain RAP from sources as indicated by the category and *cannot be replenished* once approved by the Engineer.

The Contractor may re-crush RAP particles retained on the ¾ inch screen provided the re-crushing does not result in further degradation of the aggregates.

Fractionation of RAP stockpiles may be necessary to meet specifications when high RAP percentages are used.

Because stiff, old asphalt doesn't mix well with the virgin binder, the mixing process shall require more effort and diligent attention when preparing and using RAP.

D. RAP Testing and Test Frequency

Perform the following tests at the specified testing frequencies for each Category:

Category 1: Establish an extraction correlation. Determine the asphalt binder content and aggregate gradation in accordance with the FOP for AASHTO T 308 and AASHTO T 30 at the minimum frequency of one test per 500 ton for the first 2,000 ton and one test per 1,000 ton thereafter. Then perform a minimum of six tests for stockpiles less than 4,000 ton.

Perform chemical binder extractions in accordance with AASHTO T 164 or AASHTO T 319 to reclaim the binder from the RAP when the RAP asphalt binder contribution to the mixture exceeds 30 percent of the total asphalt binder. Determine the PG binder grading of the reclaimed binder in accordance with Section 805, at the frequency of one test per 5000 ton with at least one test per stockpile.

Category 2: Asphalt binder content, aggregate gradation testing and binder grade testing requirements are the same as Category 1. In addition, test the aggregate recovered from the RAP by the extraction process AASHTO T 308 or AASHTO T 164 or AASHTO T 319 to determine the aggregate quality. Test RAP aggregate quality as follows:

AASHTO T 96 and Idaho IT-15 tested on extracted aggregate as specified at a frequency of one test per stockpile.

AASHTO T 335, AASHTO T 304, and ASTM D4791 at the minimum frequency of one test per 500 ton for the first 2,000 ton and one test per 1,000 ton thereafter. Perform at least six tests for stockpiles less than 4,000 ton.

Meet the applicable aggregate quality requirements as outlined in 810.2.5.F, for the combination of virgin and RAP aggregate.

Use the RAP as Category 2 RAP, Unprocessed, if it was not tested.

Asphalt Binder/Aggregate Correlation Factor: Perform at least six AASHTO T 164 or AASHTO T 319 chemical extraction tests and AASHTO T 30 gradation tests and six AASHTO T 308 burn tests and AASHTO T 30 gradation tests to establish a correlation factor for asphalt binder and aggregate gradation.

Prepare six identical pairs of samples and test one sample of each pair by AASHTO T 164 or AASHTO T 319 and test the other sample by AASHTO T 308. The standard deviation of the correlation test results must be less than 0.07. If the standard deviation for the correlation test results exceeds 0.07, the

Engineer will require additional AASHTO T 164 or AASHTO T 319 and AASHTO T 308 testing until the standard deviation for the correlation testing falls below 0.07.

For testing after stockpiling, submit a plan to sample and test the RAP pile, either insitu or by re-stockpiling, to the Engineer for approval. Meet the minimum frequency required and detail the procedure used to obtain representative samples throughout the stockpile for testing.

E. RAP Stockpiles and Record Keeping

Place RAP stockpiles on a base with adequate drainage, and construct in layers to minimize RAP segregation and ensure a workable face. Construct separate stockpiles for each source of RAP based on the category of RAP, the quality of aggregate, type and quantity of asphalt binder, and size of processed material. Positively identify RAP stockpiles on a map of the stockpile areas and place signs in or near each stockpile. Maintain a record system at the plant site for RAP stockpiles that includes at a minimum, the following:

1. Stockpile identification and a sketch of stockpile areas at the plant site.
2. RAP category (project, state route, plant waste, rejected loads)
3. Origin or dates milled and approximate number of tons in the stockpile.
4. Chemical extraction and AASHTO T 308 burn test results.

Make the RAP stockpile records available to the Engineer at the plant site. The Engineer will reject, by visual inspection, stockpiles that are not kept clean and free of foreign materials. The Engineer will reject RAP containing contaminants, such as earth, brick, sand, concrete, pavement fabric, joint sealants, etc. The Contractor may reprocess the rejected RAP stockpile to meet requirements or remove the stockpile from use in Department projects.

F. Aggregate for Superpave HMA Pavement

Provide aggregate for mixes, in a minimum of two separate stockpiles. Use aggregate consisting of crushed stone or crushed gravel. Combine with other required aggregate fractions and fillers, in proper proportion so the resulting mixture meets the gradation required for the specific class under contract.

Screen the aggregate used for Superpave HMA so that not more than 10 percent of the naturally occurring minus $\frac{1}{2}$ inch material remains in the material used to produce the stockpile(s). Crush the plus $\frac{1}{2}$ inch material thus produced to produce the required gradation.

Size, grade, and combine the fractions for the mixture in proportions so the resulting blend conforms to the grading requirements as defined in the Table 810.4.

Use aggregate that meets the requirements of Table 810.3.

Table 810.3 - Superpave Mixture Requirements

Mix. Type	SP3	SP5
Design ESALs ^a (millions)	1 ≤ 10	10 ≤ 30
Idaho Degradation, maximum loss, %	5.0	5.0
Ethylene Glycol, minimum retained, %	90	90
R-Value	80 or more	80 or more
LA Wear, Max % loss	30	30
Sodium Sulfate Soundness ^b Max loss after 5 cycles, %	12	12
Fractured Face, Coarse Aggregate ^c % Minimum,	75/60	95/90
Uncompacted Void Content of Fine Aggregate, % Min.	40	45
Sand Equivalent, Minimum	40	45
Flat and Elongated ^d , % Max.	10	10

a. The anticipated project traffic level expected on the design lane over a 20-year period. Regardless of the actual design life of the roadway, determine the design ESALs for 20 years.

b. Perform sodium sulfate soundness testing when requested by the Engineer.

c. 95/90 denotes that 95 percent of the coarse aggregate has one fractured face and 90 percent has two or more fractured faces.

d. This criterion does not apply to No. 4 nominal maximum size mixtures.

Table 810.4

Nominal Maximum Aggregate Size-control points (Percent Passing) and VMA Requirements

PCS Control points for Mixture nominal Maximum Aggregate Size**

Sieve Size	1-1/2 in.		1-in.		¾ in.		½ in.		3/8 in.		#4	
	Restricted Zone	Control Points	Restricted Zone	Control Points	Restricted Zone	Control Points	Restricted Zone	Control Points	Restricted Zone	Control Points	Restricted Zone	Control Points
2 in.				---		---		---		---		---
1-1/2 in.		90-100		100		---		---		---		---
1 in.		90 max.		*90-100		100				---		---
¾ in.		---		90 max.		*90-100		100		---		---
½ in.		*40-70		---		90 max.		*90-100		100		100
3/8 in.		---		*42-70		*52-80		90 max.		*90-100		*95-100
No. 4	34.7	---	39.5	---		---		---		90 max.		90-100
No. 8	23.3	*15-41	26.8	*19-45	34.6	*23-49	39.1	*28-58	47.2	*32-67		---
No. 16	15.5	---	18.1	---	23.1	---	25.6	---	31.6	---		*30-60
No. 30	11.7	---	13.6	---	16.7	---	19.1	---	23.5	---		---
No. 50	10	---	11.4	---	13.7	---	15.5	---	18.7	---		---
No. 100		---		---		---		---		---		---
No. 200		*0.0-6.0		*1.0-7.0		*2.0-8.0		*2.0-10.0		*2.0-10.0		*6.0
VMA, % Min.	11		12		13		14		15		16	
Primary Control Sieve	3/8"		No. 4		No. 4		No. 8		No. 8		No. 16	
PCS Control Point (% passing)	47		40		47		39		47		42	

Note: (*) denotes the sieves that will be used for mix design control points and quality analysis sieves for a Class SP 2 mix.

** The combined aggregate gradation shall be classified as coarse graded when it passes below the Primary Control Sieve (PCS) control point as defined in Table 810.4. All other gradations shall be classified as fine graded. (This classification is based on the Contractor Job Mix Formula and not individual gradation tests.)

Coarse graded mixtures shall not pass through the restricted zone.

- **Section 810 – Plant Mix Pavement, Part 3 Workmanship, Section 3.8 Joints.** Paragraph F will be modified to read as follows:

F. Apply an asphalt tack coat on contact surfaces of transverse and cold longitudinal joints just before mixture is placed against previously laid or existing material. CSS-1 emulsified asphalt at 0.10 gallons per SY.

- *Section 814 – Superpave Plant Mix Asphalt shall be added in its entirety*
- *This section shall apply only to Collector and Arterial roadways*

SECTION 814

SUPERPAVE PLANT MIX ASPHALT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This work consists of constructing one or more courses of Superpave Plant Mix pavement in accordance with these specifications and in reasonably close conformity to the lines, grades, thicknesses, and typical cross section(s) shown in the Contract Documents, or as established.

1.2 RELATED SECTIONS

- A. Section 803 – Plant Mix Aggregate
- B. Section 805 – Asphalt
- C. Section 806 – Tack
- D. Section 810 – Plant Mix Pavement

1.3 REFERENCES

- A. AASHTO Standard Specifications for Transportation and Methods of Sampling and Testing
- B. WAQTC – Western Alliance for Quality Transportation Construction

PART 2 MATERIALS

2.1 CLASSIFICATION

- A. The Superpave HMA shall be composed of a combination of aggregate, mineral filler (if required), and performance graded (PG) asphalt binder material. The Contractor shall furnish a job mix formula (JMF) and a HMA pavement that complies with the following requirements. Any JMF dated more than 1-year from the date of submittal will either require updated specific gravities from the original crush, or a new JMF. Updated specific gravities shall not alter the JMF target values out of tolerance; otherwise a new JMF will be required.

2.2 AGGREGATE & MIX DESIGN REQUIREMENTS and PRODUCTION LIMITS

- A. Aggregate for all mixes, except SP2, as a minimum shall be provided in two separate stockpiles. Aggregate shall be crushed stone or crushed gravel of such gradation that when combined with other required aggregate fractions and fillers, in proper proportion, the resultant mixture meets the gradation required under the composition of mixture for the specific class under contract.
- B. The fractions for the mixture shall be sized, graded, and combined in such proportions that the resulting blend conforms to the grading requirements as defined in Table 1 below.
- C. Aggregates shall meet the requirements of Section 803 – Plant Mix Aggregates with the exception of Table 1 through 4.

Table 1 SUPERPAVE AGGREGATE DESIGN BANDS and VMA TOLERANCES			
SIEVE SIZE	NOMINAL MAXIMUM SIZE		
	3/4 in.	1/2 in.	3/8 in.
	PERCENT PASSING		
1 in.	100		
3/4 in.	* 90-100	100	
1/2 in.	90 max	* 90-100	100
3/8 in.	* 52-80	90 max	* 90-100
No. 4	-	-	90 max
No. 8	* 23-49	* 28-58	* 32-67
No. 200	* 2.0-8.0	* 2.0-10.0	* 2.0-10.0
VMA, % Minimum	13.0	14.0	15.0
PRIMARY CONTROL SIEVE (PCS) CONTROL POINT FOR MIXTURE NOMINAL MAXIMUM AGG SIZE **			
Primary Control Sieve	No. 4	No. 8	No. 8
PCS Control Point (% passing)	47	38	47

- * Denotes the sieves that will be used for mix design control points and quality analysis sieves for Class SP2 mixes.
- ** The combined aggregate gradation shall be classified as coarse graded when it passes below the PCS control point as defined in table 1. All other gradations shall be classified as fine graded. (This classification is based on the Contractors JMF and not individual gradation tests.)

TABLE 2 SUPERPAVE MIXTURE REQUIREMENTS			
Minimum Use	Temporary Paving	Arterials & Collectors	
Quality Characteristics	SP2	SP3	SP5
Design ESALs (million) (1)	< 1	1 - <10	10 - < 30
Gyratory Compaction Gyrations for Ndes	50	75	100
Relative density, %Gmm@Ndes	96.0	96.0	96.0
Air Voids, %VA	4.0	4.0	4.0
Dust to Binder Ratio Range DP (2)	0.6-1.2	0.6-1.2	0.6-1.2
Voids Filled With Asphalt, % VFA range	65 – 78	65 – 75	65 – 75
Idaho Degradation, max loss, %	5.0		
Ethylene Glycol, min retained, %	90		
R-Value	80 or more		
Sodium Sulfate Soundness, max loss after 5 cycles, % (3)	12		
LA Wear - AASHTO T-96, Max % loss	35	30	30
Fractured Face - 1 fracture/2 fracture, % Min (4)	65/-	75/60	95/90
Uncompacted void content of fine agg, % Min	40	40	45
Sand Equivalent, % Min	35	40	45
Flat & Elongated, % Max	10	10	10

- (1) The anticipated project traffic level expected on the design lane over a 20-year period. Regardless of the actual design life of the roadway, determine the design ESALs for 20 years.
- (2) For No. 4 nominal maximum size mixtures, the dust-binder-ratio is 0.9 to 2.0. If the aggregate gradation passes beneath the PCS Control Point specified in Table 1, the allowable dust-to-binder ratio range may increase from 0.6-1.2 to 0.8-1.6.
- (3) Perform sodium sulfate soundness testing when requested by the Engineer.
- (4) 95/90 denotes that 95% of the coarse aggregate has one fractured face and 90% has two or more fractured faces.

Table 3 SUPERPAVE PRODUCTION REQUIREMENTS			
Quality Characteristics	SP2, SP3,SP5		
Asphalt Binder, % PBe	JMF value $\pm$ 0.4		
Laboratory Air Voids, % Va	4.0 $\pm$ 1.0		
Voids in Mineral Agg, VMA	Per Table 4		
Density on Mat & Longitudinal Joint, %	See ACHD QC/QA Testing Frequency Table		
Table 4 SUPERPAVE AGGREGATE GRADATION & VMA TOLERANCES - PRODUCTION			
SIEVE SIZE	TOLERANCES FROM JMF		
	3/4 in.	1/2 in.	3/8 in.
1 in. – No.4	JMF value $\pm$ 6.0%		
No. 8 – No. 30	JMF value $\pm$ 5.0%		
No. 50 – No. 100	JMF value $\pm$ 4.0%		
No. 200	JMF value $\pm$ 2.0%		
VMA, % min	13.0	14.0	15.0

1. Please see ACHD's QC/QA table for sampling requirements
2. Tolerances cannot be outside of design band

2.3 ASPHALT

A. Asphalt Binder shall meet the requirements of Section 805 – Asphalt.

1. Asphalt to be of the type and grade called for in the Contract Documents.
2. Asphalt will be accepted at the point of delivery.
3. Unless otherwise permitted, all asphalt for a specified project shall be furnished by one (1) supplier. If a change of supplier for asphalt is proposed, or if blending of plant mix asphalt from more than one supplier is proposed, mix design testing and verification are required as conditions of approval.

2.4 ANTI-STRIPPING ADDITIVE

A. Anti-stripping additive shall meet the requirements of Section 810 – Plant Mix Pavement, 2.4 Anti-Stripping Additive.

B. All Superpave Plant Mixes shall use a minimum 0.5% approved liquid anti-stripping additive by weight of asphalt.

2.5 TEST METHODS

- A. Sieve Analysis of Fine and Coarse Aggregates – AASHTO T 27.
- B. Materials Finer than No. 200 sieve in Mineral Aggregates by Washing – AASHTO T 11.
- C. Preparing and Determining the Density of HMA Specimens by Means of the Superpave Gyratory Compactor – AASHTO T 312.
- D. Percentage of Fracture in Coarse Aggregate – AASHTO TP 61.

- E. Plastic Fines in Graded Aggregate and Soils by Use of the Sand Equivalent Test –AASHTO T 176.
- F. Flat and Elongated Particles in Coarse Aggregate – ASTM D 4791
- G. Theoretical Maximum Specific Gravity and Density of HMA Paving Mixtures – AASHTO T 209.
- H. Bulk Specific Gravity of Compacted HMA using Saturated Surface-Dry Specimens – AASHTO T 166.
- I. Sampling Bituminous Paving Mixtures – AASHTO T 168.
- J. Sampling Bituminous Materials – AASHTO T 40.
- K. In Place Density of HMA – AASHTO T 355.
- L. Determining the Asphalt Binder Content of HMA by Ignition method – AASHTO T 308.
- M. Bulk Specific Gravity of compacted HMA mixtures using saturated surface-dry specimens – AASHTO T 166.
- N. Mechanical analysis of extracted aggregate – AASHTO T 30

PART 3 WORKMANSHIP

- 3.1 Workmanship shall meet the requirements of Section 810, Part 3. Including, but not limited to, mixing plant, sampling devices, all equipment, paver, rollers, mix design approval and weather limitations and cutoff dates. Pavement shall be compacted to a range between 93% - 97% of the theoretical maximum value from the JMF on the mat, and 91% - 97% of the theoretical maximum value on the longitudinal joint. *(See ACHD QC/QA Testing Frequency Table for requirements)*. Recycled plant mix (RAP) will be allowed up to 17% by weight of binder as outlined in the requirements of Section 810, Part 2.5

PART 4 MEASUREMENTS AND PAYMENT

- 4.1 Measurement and payment shall meet the requirements of Section 810, Part 4 and unless otherwise specified in the contract documents, acceptance of the Superpave plant mix and the incentive/disincentive payment will be in accordance with section 4.2.
 - A. Incentive/Disincentive payments will not be calculated for quantities under 1500 tons. Failing tests are subject to rejection or pay reduction as determined by Engineer.
- 4.2 Acceptance, Pay Factors & Incentive/Disincentive Payment. For projects not funded by ACHD, a pay factor of 1.0 will be used, and material failing to meet the project specifications will be subject to rejection, an extended warranty, or a fee.

- A. Mix Characteristic Acceptance and Pay Factors

Determine the arithmetic mean, $\bar{X}$

$$\bar{X} = \frac{\sum x_i}{n}$$

Where,

Σ = Summation

x_i = Individual test value

n = Total number test values

Compute the sample standard deviation, (S)

$$S = \sqrt{\frac{\Sigma(x_i - \bar{X})^2}{n-1}}$$

Compute the upper quality index (Q_u).

$$Q_u = \frac{USL - \bar{X}}{S}$$

Where USL = Upper specification limit.

S = Standard deviation

$$Q_L = \frac{\bar{X} - LSL}{S}$$

Compute the lower quality index (Q_L).

Where LSL = Lower specification limit.

S = Standard deviation

Determine P_U (percent within the upper specification limit, which corresponds to a given Q_u) from Table 7. If a USL is not specified, P_U will be 100.

Determine P_L (percent within lower specification limit, which corresponds to a given Q_L) from Table 7. If a LSL is not specified or the specification is zero (0), P_L will be 100.

Determine the Quality Level (QL) (the total percent within the specification limits).

$$\text{Quality Level (QL)} = (P_U + P_L) - 100$$

For air voids, each lot will be assigned a pay factor using the following equation:

$$\frac{55 + (0.5)QL}{100}$$

Table 5
P_U or P_L Percent within Limits for Positive Values of Q_U or Q_L for a given Sample Size (n)

PWL	n = 3	n = 4	n = 5	n = 6	n = 7	n = 8	n = 9	n = 10 to 11	n = 12 to 14	n = 15 to 18
100	1.16	1.50	1.79	2.03	2.23	2.39	2.53	2.65	2.83	3.03
99	–	1.47	1.67	1.80	1.89	1.95	2.00	2.04	2.09	2.14
98	1.15	1.44	1.60	1.70	1.76	1.81	1.84	1.86	1.91	1.93
97	–	1.41	1.54	1.62	1.67	1.70	1.72	1.74	1.77	1.79
96	1.14	1.38	1.49	1.55	1.59	1.61	1.63	1.65	1.67	1.68
95	–	1.35	1.44	1.49	1.52	1.54	1.55	1.56	1.58	1.59
94	1.13	1.32	1.39	1.43	1.46	1.47	1.48	1.49	1.50	1.51
93	–	1.29	1.35	1.38	1.40	1.41	1.42	1.43	1.44	1.44
92	1.12	1.26	1.31	1.33	1.35	1.36	1.36	1.37	1.37	1.38
91	1.11	1.23	1.27	1.29	1.30	1.30	1.31	1.31	1.32	1.32
90	1.10	1.20	1.23	1.24	1.25	1.25	1.26	1.26	1.26	1.27
89	1.09	1.17	1.19	1.20	1.20	1.21	1.21	1.21	1.21	1.22
88	1.07	1.14	1.15	1.16	1.16	1.16	1.16	1.17	1.17	1.17
87	1.06	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
86	1.04	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.04	1.04	1.04	1.04	1.04	1.04	1.04
84	1.01	1.02	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00
83	1.00	0.99	0.98	0.97	0.97	0.96	0.96	0.96	0.96	0.96
82	0.97	0.96	0.95	0.94	0.93	0.93	0.93	0.92	0.92	0.92
81	0.96	0.93	0.91	0.90	0.90	0.89	0.89	0.89	0.89	0.88
80	0.93	0.90	0.88	0.87	0.86	0.86	0.86	0.85	0.85	0.85
79	0.91	0.87	0.85	0.84	0.83	0.82	0.82	0.82	0.82	0.81
78	0.89	0.84	0.82	0.80	0.80	0.79	0.79	0.79	0.78	0.78
77	0.87	0.81	0.78	0.77	0.76	0.76	0.76	0.75	0.75	0.75
76	0.84	0.78	0.75	0.74	0.73	0.73	0.72	0.72	0.72	0.71
75	0.82	0.75	0.72	0.71	0.70	0.70	0.69	0.69	0.69	0.68
74	0.79	0.72	0.69	0.68	0.67	0.66	0.66	0.66	0.66	0.65
73	0.76	0.69	0.66	0.65	0.64	0.63	0.63	0.63	0.62	0.62

PWL	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$	$n = 8$	$n = 9$	$n = 10 \text{ to } 11$	$n = 12 \text{ to } 14$	$n = 15 \text{ to } 18$
72	0.74	0.66	0.63	0.62	0.61	0.60	0.60	0.60	0.59	0.59
71	0.71	0.63	0.60	0.59	0.58	0.57	0.57	0.57	0.57	0.56
70	0.68	0.60	0.57	0.56	0.55	0.55	0.54	0.54	0.54	0.53
69	0.65	0.57	0.54	0.53	0.52	0.52	0.51	0.51	0.51	0.50
68	0.62	0.54	0.51	0.50	0.49	0.49	0.48	0.48	0.48	0.48
67	0.59	0.51	0.47	0.47	0.46	0.46	0.46	0.45	0.45	0.45
66	0.56	0.48	0.45	0.44	0.44	0.43	0.43	0.43	0.42	0.42
65	0.52	0.45	0.43	0.41	0.41	0.40	0.40	0.40	0.40	0.39
64	0.49	0.42	0.40	0.39	0.38	0.38	0.37	0.37	0.37	0.36
63	0.46	0.39	0.37	0.36	0.35	0.35	0.35	0.34	0.34	0.34
62	0.43	0.36	0.34	0.33	0.32	0.32	0.32	0.32	0.31	0.31
61	0.39	0.33	0.31	0.30	0.30	0.29	0.29	0.29	0.29	0.29
60	0.36	0.30	0.28	0.27	0.27	0.27	0.26	0.26	0.26	0.26
59	0.32	0.27	0.25	0.25	0.24	0.24	0.24	0.24	0.23	0.23
58	0.29	0.24	0.23	0.22	0.21	0.21	0.21	0.21	0.21	0.21
57	0.25	0.21	0.20	0.19	0.19	0.19	0.18	0.18	0.18	0.18
56	0.22	0.18	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.15
55	0.18	0.15	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.13
54	0.14	0.12	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10
53	0.11	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
52	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05
51	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOTE: For negative values of Q_U or Q_L , P_U or P_L is equal to 100 minus the table value for P_U or P_L . If the value of Q_U or Q_L does not correspond exactly to a figure in the table, use the next higher figure.

B. Pay Factors for Gradation (SP-2 only), VMA (SP-3 and SP-5) and Density (all mix classes)

Table 6

Pay Factor for a given Sample Size (n) and Quality Level

Pay Factor	n = 3	n = 4	n = 5	n = 6	n = 7	n = 8	n = 9	n = 10 to n=11	n = 12 to n=14	n = 15 to n=18
1.05	100	100	100	100	100	100	100	100	100	100
1.04	90	91	92	93	93	93	94	94	95	95
1.03	80	85	87	88	89	90	91	91	92	93
1.02	75	80	83	85	86	87	88	88	89	90
1.01	71	77	80	82	84	85	85	86	87	88
1.00	68	74	78	80	81	82	83	84	85	86
0.99	66	72	75	77	79	80	81	82	83	85
0.98	64	70	73	75	77	78	79	80	81	83
0.97	62	68	71	74	75	77	78	78	80	81
0.96	60	66	69	72	73	75	76	77	78	80
0.95	59	64	68	70	72	73	74	75	77	78
0.94	57	63	66	68	70	72	73	74	75	77
0.93	56	61	65	67	69	70	71	72	74	75
0.92	55	60	63	65	67	69	70	71	72	74
0.91	53	58	62	64	66	67	68	69	71	73
0.90	52	57	60	63	64	66	67	68	70	71
0.89	51	55	59	61	63	65	66	67	68	70
0.88	50	54	57	60	62	63	64	65	67	69
0.87	48	53	56	58	60	62	63	64	66	67
0.86	47	51	55	57	59	60	62	63	64	66
0.85	46	50	53	56	58	59	60	61	63	65
0.84	45	49	52	55	56	58	59	60	62	64
0.83	44	48	51	53	55	57	58	59	61	63
0.82	42	46	50	52	54	55	57	58	60	61
0.81	41	45	48	51	53	54	56	57	58	60
0.80	40	44	47	50	52	53	54	55	57	59
0.79	38	43	46	48	50	52	53	54	55	58
0.78	37	41	45	47	49	51	52	53	55	57
0.77	36	40	43	46	48	50	51	52	54	56
0.76	34	39	42	45	47	48	50	51	53	55
0.75	33	38	41	44	46	47	49	50	51	53

C. Calculation of Incentive/Disincentive Payment for SP-2 mixes

1. Pay factors for test strips, leveling courses, approaches and miscellaneous paving not placed with mainline paving shall be 1.00. The Maximum Pay Factor will be 1.05. If any individual Composite Pay Factor Value falls below 0.85 the maximum Pay Factor Value, the lowest CPF Value. Material with a Pay Factor less than 0.75 shall be rejected and removed at no cost to the District.
2. A Composite Pay Factor for Plant Mix Aggregate ($CPF_{(PMA)}$) will be computed as:
 - a. $(PF_{AV}) (0.3) = CPF_{(PMA)}$
 - b. PF_{AV} = Weighted average based on quantity of material in each lot.
3. A Composite Pay Factor for Asphalt Binder Content ($CPF_{(ABC)}$) will be computed as:
 - a. $(PF_{AV}) (0.3) = CPF_{(ABC)}$
 - b. PF_{AV} = Weighted average based on quantity of material in each lot.
4. A Composite Pay Factor for Density ($CPF_{(Dens.)}$) will be computed as follows:
 - a. $(PF_{AV}) (0.4) = CPF_{(Dens.)}$
 - b. PF_{AV} = Weighted average based on quantity of material in each lot.
5. Calculation of Incentive/Disincentive Payment. The incentive/disincentive payment for all Superpave plant mix pavement accepted by the Owner, excluding plant mix pavement for approaches and miscellaneous paving not placed with mainline paving, will be computed using the formula:
 - a. $B = (A) ((CPF_{(PMA)} + CPF_{(ABC)} + CPF_{(Dens.)}) - 1) (Q)$
 - b. B = Total Incentive/disincentive payment for all Plant Mix Pavement accepted
 - c. A = Unit Bid Price
 - d. Q = Total Quantity of Plant Mix Pavement accepted

D. Calculation of Incentive/Disincentive Payment for SP-3 and SP-5 mixes

1. Pay factors for leveling courses, approaches and miscellaneous paving not placed with mainline paving shall be 1.00. The Maximum Pay Factor will be 1.05. If any individual Composite Pay Factor Value falls below 0.85 the maximum Pay Factor Value, the lowest CPF Value. Material with a Pay Factor less than 0.75 shall be rejected and removed at no cost to the District.
2. A Composite Pay Factor for Air Void ($CPF_{(AIR VOID)}$) will be computed as:
 - a. $(PF_{AV}) (0.3) = CPF_{(AIR VOID)}$
 - b. PF_{AV} = Weighted average based on quantity of material in each lot.

3. A Composite Pay Factor for VMA ($CPF_{(VMA)}$) will be computed as:
 - a. $(PF_{AV}) (0.3) = CPF_{(VMA)}$
 - b. PF_{AV} = Weighted average based on quantity of material in each lot.
4. A Composite Pay Factor for Density ($CPF_{(Dens.)}$) will be computed as follows:
 - a. $(PF_{AV}) (0.4) = CPF_{(Dens.)}$
 - b. PF_{AV} = Weighted average based on quantity of material in each lot.
5. Calculation of incentive/disincentive payment. The incentive/disincentive payment for all Superpave Hot Mix Asphalt accepted by the Owner, excluding plant mix pavement for approaches and miscellaneous paving not placed with mainline paving, will be computed using the formula:
 - a. $B = (A) ((CPF_{(AIR VOID)} + CPF_{(VMA)} + CPF_{(Dens.)}) - 1) (Q)$
 - b. B = Total incentive/disincentive payment for all Plant Mix Pavement accepted
 - c. A = Unit Bid Price
 - i. Q = Total Quantity of Plant Mix Pavement accepted

PART 5 DISPUTE RESOLUTION SIGNIFICANT DIFFERENCE

- 5.1 Table 7 quantifies the significant difference for differing quality assurance measures.
 - A. For Superpave Plant Mix dispute density testing, cores obtained from the same location as the nuclear or non-nuclear gauge test shall be used.

Table 7

Characteristic	Significant Difference
Air Voids	0.5 percent
VMA	0.5 percent
Asphalt Content	0.2 percent
Percent Compaction	1 percent
#4 or Larger Sieves	4 percent
#8 to #30 Sieves	3 percent
#50 to #100 Sieves	2 percent
#200 Sieve	1.0 percent
Sand Equivalent	4

- 5.2 **QUALITY ASSURANCE**
 - A. Quality Assurance/verification of the Contractors testing will be performed by the County. Quality Assurance test results will not be substituted for acceptance results.
 - B. Quality Assurance results will be used to evaluate the Contractor's Quality Control/acceptance test results. The data will be evaluated on a cumulative basis and not on a lot by lot basis as follows:
 - 1) If the evaluation indicates the test results are consistent (t-test passes), then the Engineer will combine the Contractor's tests into lots for Quality Analysis. The lots will be used by the Engineer to represent the material produced in Quality Analysis.

Tests can only be excluded with approval of the Engineer. Lot size will be determined by the Engineer. The following criteria will be used:

- i. A lot is based on work shift's production.
 - ii. Minimum Lot size is 3 tests.
 - iii. If the work shift is represented by less than three tests, the test (s) will be combined with the following work shift.
 - iv. If the final work shift is represented by less than three tests, the test (s) will be combined with the previous work shift.
- 2) If the evaluation indicates the test results are inconsistent (test fails), production shall be stopped. The Engineer will review contractor test procedures, calculations, and documentation to determine the source of the differences. Production will not be allowed to resume until the source of the differences is determined and corrected. If the source of the differences is determined to be caused by the Contractor, the State will not grant additional contract time.

PART 6 HOT MIX DEPTH

6.1 Depth will be based on the average from the cores obtained for the density gauge correlations, as outlined in the Minimum Testing Frequency Table for QC/QA.

- A. For newly constructed roadways, roadways that have had the existing plant mix milled the full width, existing plant mix has been removed, or one or more leveling courses are required. If more than one lift of plant mix is placed, the depth will be based on the both lifts combined. The following table 8 shall apply.

Table 8

Actual Pavement Depth Vs. Planned	Payment Adjustment
Over .55"	No Payment for overage, and remedy action required if under .55"
.45" to .55"	65% Deduct
.35" to .45"	45% Deduct
.25" to .35"	25% Deduct
.00" to .25"	0% Deduct

- B. Example: 3" of hot plant mix is required per plan. Cores averaged 3.6". 700 tons of plant mix was placed. Bid per ton was \$60.

Deduct:

3.00" to 3.25"	=	Zero
3.25" to 3.35"	=	$700\text{ton} \times (1 - (3.25/3.35)) \times \$60 \times .25\% = \$313.43$ deduct
3.35" to 3.45"	=	$700\text{ton} \times (1 - (3.35/3.45)) \times \$60 \times .45\% = \$547.83$ deduct
3.45" to 3.55"	=	$700\text{ton} \times (1 - (3.45/3.55)) \times \$60 \times .65\% = \$769.01$ deduct
3.55" to 3.60"	=	$700\text{ton} \times (1 - (3.55/3.60)) \times \$60 \times 1.0\% = \$588.33$ deduct
Total Deduct	=	$\$313.43 + \$547.83 + \$769.01 + \$588.33 = \underline{\$2,218.60}$ deduct

- The following Standard Drawings shall be **deleted** from *Division 800* of the ISPWC:

SD-801	SD-803	SD-806
SD-802	SD-805	SD-809

- The following **2017 ACHD Standard Drawing Revision** shall be **added** to *Division 800* of the ISPWC:

SD-801	SD-803A	SD-806
SD-802	SD-805	SD-809
SD-803		

Division 900 –
No Changes

Division 1000 –
No Changes

ADD ACHD DEVELOPMENT POLICY SECTION 6007.11 TO ADDRESS TEMPORARY TRAFFIC CONTROL REQUIREMENTS FOR PEDESTRIANS AND BICYCLISTS.

PER FHWA MEMO REGARDING USE OF RECTANGULAR RAPID-FLASHING BEACONS DATED 3/20/2018, STATE AND LOCAL AGENCIES MUST REQUEST AND RECEIVE PERMISSION TO USE THIS NEW INTERIM APPROVAL, DESIGNATED IA-21, FROM THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) IN ACCORDANCE WITH THE PROVISIONS OF SECTION 1A.10 OF THE MUTCD BEFORE THEY CAN USE THE RRFB, EVEN IF PRIOR APPROVAL HAD BEEN GIVEN FOR INTERIM APPROVAL 11 (IA-11), NOW TERMINATED. THE ISSUANCE OF THIS NEW INTERIM APPROVAL DOES NOT REINSTATE IA-11 EITHER IN WHOLE OR IN PART. https://mutcd.fhwa.dot.gov/resources/interim_approval/ia21/ia21.pdf

- ACHD Traffic Department Section 1130 – General Conditions **shall be added in its entirety**

-

- ACHD Traffic Department Section 1134 – Pavement Markings and Delineation **shall be added in its entirety**

- ACHD Traffic Department Section 1135 – Roadside Traffic Signs **shall be added in its entirety**

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ACHD TRAFFIC DEPARTMENT SECTION 1150 IS NOT POSTED ON ACHD TRAFFIC STANDARDS/SPECIFICATIONS WEBSITE AS OF 3/21/2018.

- ACHD Traffic Department, Section 1131.13 – Luminaires and Lamps for Intersection Safety Lighting – General Information, Paragraph 3. The following shall be **added**: The LED luminaire Fixtures shall be LEOTEK Part Number – EC7 18M MV NW 700 3 GY, Autobahn Number – ATB2 40BLED MVOLT R3 AO, Cooper Navion Part Number - NVN-AE-03-E-U-T3-10K-4-BK or an ACHD approved equal.
- ACHD Traffic Department, Section 1135.02 – Materials – Part D, Sections 1 and 2 – Added details regarding stop and yield signs sizes. This information was moved from Traffic Policy to Specifications, which better conforms to the other information in sign specifications.
- ACHD Traffic Department, Section 1135.03 – General Installation Requirements – Part A – Added priority level for sign installation. This information was moved from Traffic Policy to Specifications, which better conforms to the other information in sign specifications.

The following ACHD Traffic Department Standard Drawings shall be added:



ACHD TRAFFIC DEPARTMENT STANDARD DRAWINGS WITH REVISION DATES AS IDENTIFIED IN PARENTHESIS FOR EACH DRAWING IS NOT POSTED ON ADHD TRAFFIC STANDARD/SPECIFICATIONS WEBSITE AS OF 3/21/2018. HOWEVER, OLDER VERSIONS OF SOME OF THESE STANDARD PLANS ARE POSTED. NOT ALL OF THESE STANDARD PLANS ARE POSTED - FOR EXAMPLE, THERE IS NO RRFB DETAILED IN THE STANDARD DRAWING TS-1106 THAT IS CURRENTLY POSTED.



ACHD TRAFFIC DEPARTMENT STANDARD DRAWINGS WITH REVISION DATES AS IDENTIFIED IN PARENTHESIS FOR EACH DRAWING IS NOT POSTED ON ADHD TRAFFIC STANDARD/SPECIFICATIONS WEBSITE AS OF 3/21/2018. HOWEVER, OLDER VERSIONS OF SOME OF THESE STANDARD PLANS ARE POSTED. NOT ALL OF THESE STANDARD PLANS ARE POSTED - FOR EXAMPLE, THERE IS NO OFFSET CROSSWALK DETAILED IN THE STANDARD DRAWING TS-1112 THAT IS CURRENTLY POSTED.

- The following **2017 ACHD Standard Drawing Revision** shall be added to *Division 1100* of the ISPWC:

SD-1132A
SD-1132B

Division 2000-

- Section 2020-* Survey Monuments, Part 3.1 Reference Points, Paragraph A, Page 3, the following shall be added:

Monuments include but not limited to 1/2", 5/8" iron pins (with or without survey caps), brass and aluminum caps and iron pipes.

- Section 2020-* Survey Monuments, Part 3.4 Standard Rebar Monument, Paragraph A, Page 4, the following shall be added:

NOT REVIEWED

Lost monuments shall be remonumented under the direction of a PLS and shall conform to the following Idaho Code; Title 54-1227, Title 55-1604, Title 55-1608 and Title 55-1613. Section and Section 1/4 corners shall be replaced with a minimum 3" diameter brass cap or aluminum cap monument and shall be marked in conformance with Title 55-1608, Idaho Code. Those corners found to lie greater than 0.5' below the road surface shall be brought flush with the finish surface upon completion of the road work.

A Corner Record (CP&F) and if necessary a Record of Survey shall be prepared for corners replaced and then filed in the Office of the County Recorder.

- Section 2020-* Survey Monuments, Part 3.4 Standard Rebar Monument, Paragraph B, Page 4, shall be deleted in its entirety and replaced with the following:

Use 5/8" rebar driven to a minimum of 24" depth or refusal. Place surveyor's cap securely on the end of rebar.

- Section 2030* – Utility Adjustments, Part 3.1 Manholes, Storm Drains, and Valve Boxes, Paragraph A, Page 2, the following shall be added:

If necessary, this may include supplying a new cone section.

- *Section 2030 – Utility Adjustments, Part 4.1 Manholes, Storm Drains, and Valve Boxes, Paragraph A, Page 4*, the following shall be added.

When existing manhole frames and covers are to be reused on a project, the contractor shall assure that individual covers are paired and reinstalled with their pre-existing companion frames, by marking or tagging the individual pairs upon temporary removal. Each manhole cover shall seat in the frame firmly such that no rocking or movement shall occur when driven over. The contractor shall be responsible to supply all materials necessary, as approved by the Engineer, to achieve this requirement.

- *Section 2040 – Fencing, Part 2 – Materials, Section 2.2 Fencing Hardware, Page 2*, the following shall be added.
 - C. Wood Fencing Fasteners: Nails shall not be allowed for use when fastening pickets to the fence beam. At a minimum all fasteners shall be #9 - hot dip galvanized. A minimum of two fasteners shall be placed along the top and bottom beams for each picket placed.

- *Section 2040 – Fencing, Part 3 – Workmanship, Section 3.2 Construction Requirements, Paragraph I, Page 5*, shall be modified to read as follows.

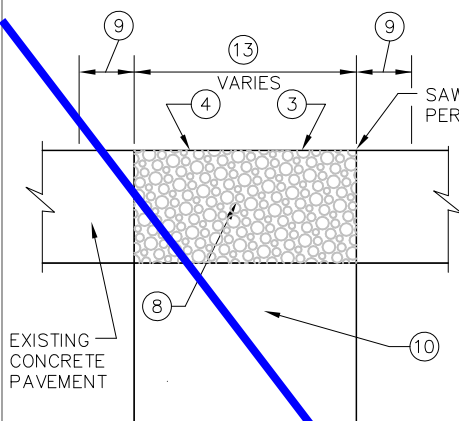
- I. Horizontal and inclined braces are to be 4 x 4 inches No. 2 Common Douglas Fir or Larch. Posts must be notched to receive the braces, and the ends of the brace anchored with a 3/8 x 4-inch steel dowel. Notches on the posts and the ends of the braces are to be given a coat of pentachlorophenol solution before assembly. Brace wires are to consist of two loops of 9 gauge wire placed as shown on the Contract Documents and twisted to form a taut cable. Lightly notch the posts to position the wire, and drive three staples at each notch to secure the wire.

- D. The following **2017 ACHD Standard Drawing Revision** shall be added to *Division 2000* of the ISPWC:

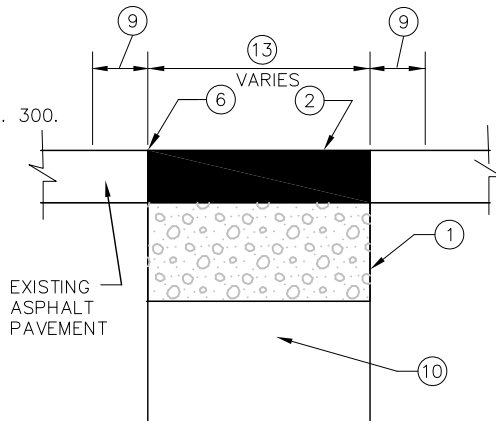
SD-2040J
SD-2040M

SD-2040K

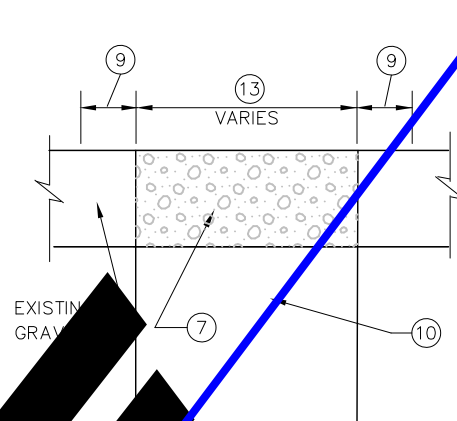
SD-2040L



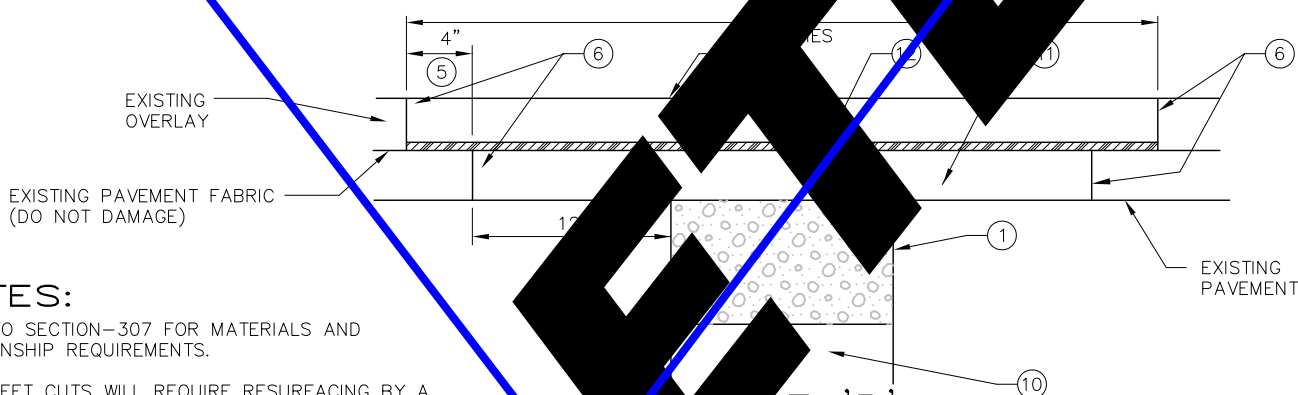
TYPE "B"
CONCRETE



TYPE "P"
ASPHALT



TYPE "C"
GRAVEL



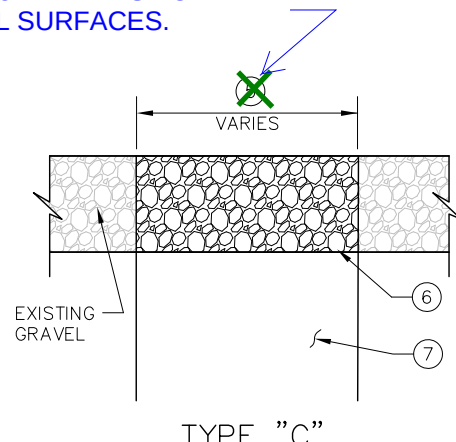
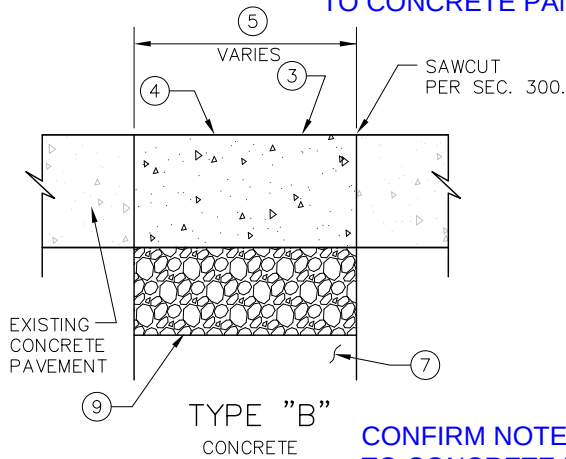
NOTES:

- (A) REFER TO SECTION-307 FOR MATERIALS AND WORKMANSHIP REQUIREMENTS.
- (B) ALL STREET CUTS WILL REQUIRE RESURFACING BY A PAVING MACHINE OR SPREADER BOX. PATCH WIDTHS ARE NEVER TO BE LESS THAN 4' IN WIDTH. LOCATE THE MATCH OF THE NEW TO EXISTING PAVEMENT OUT OF THE VEHICLE WHEEL PATH OF THE STREET.
- (C) WHERE THE STREET SURFACE INCLUDES AN OVERLAY FABRIC, TAKE THE FOLLOWING ADDITIONAL STEPS:
 - A. OVERLAY ABOVE FABRIC AN ADDITIONAL 4" ON EACH SIDE TO EXPOSE EXISTING FABRIC.
 - B. INSTALL NEW ASPHALT TO GRAVEL FABRIC.
 - C. INSTALL NEW FABRIC FULL WIDTH OF CUT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - D. OVERLAY FABRIC WITH ASPHALT TO FINISH GRADE OF STREET.
- (D) TACK ALL COLD JOINT SURFACES TO EXISTING PAVEMENT WHICH HAS BEEN "BROKEN" PRIOR TO PATCHING.

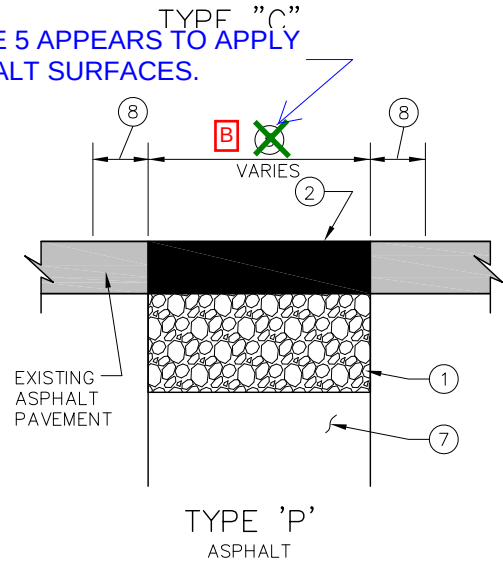
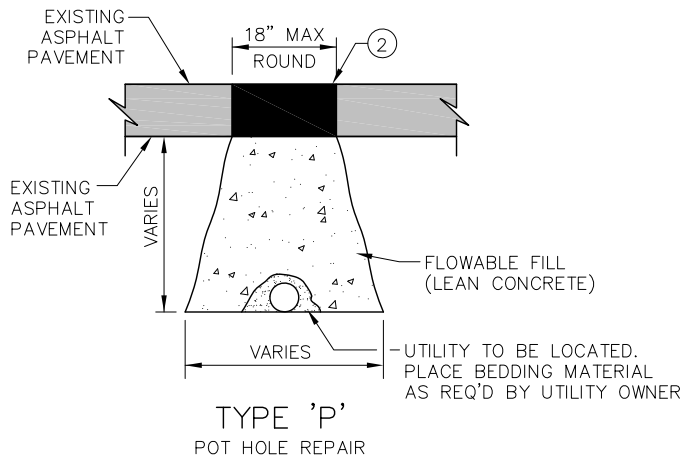
LEGEND

- (1) 8" OF 3/4" MINUS CRUSHED AGGREGATE BASE (MIN.) UNLESS A GREATER DEPTH IS OTHERWISE SPECIFIED.
- (2) MATCH EXISTING PAVEMENT DEPTH TO 6" UNLESS A GREATER DEPTH IS OTHERWISE SPECIFIED. USE A 2 1/2" (MIN.) MAT ON RESIDENTIAL STREETS AND 3" (MIN.) MAT ON COLLECTORS AND ARTERIALS.
- (3) PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000 psi EARLY STRENGTH, AND COMPLY WITH SECTION-706. CUT ASPHALT MAT IN NEAT STRAIGHT LINE.
- (4) KEEP TRAFFIC OFF 72 HOURS, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- (5) MINIMUM DISTANCES. 4" OVERLAP APPLIES WHERE FABRIC IS BETWEEN ASPHALT LAYERS.
- (6) CUT ASPHALT IN NEAT STRAIGHT LINE.
- (7) 3/4" MINUS AGGREGATE SURFACE COURSE (8") OR THICKNESS OF EXISTING GRAVEL, WHICHEVER IS GREATER.
- (8) THICKNESS EQUALS EXISTING PAVEMENT DEPTH PLUS 2" OF CONCRETE OF PAVEMENT.
- (9) LOCAL CUTBACK, ONLY IF REQUIRED.
- (10) COMPACTED TRENCH BACKFILL AS PER SD-301 AND SECTION-306 OF THESE SPECIFICATIONS.
- (11) ASPHALT TO EXISTING SHELF (MIN 2" THICK).
- (12) PLACE NEW PAVEMENT FABRIC FULL WIDTH OF ASPHALT PATCH.
- (13) 4' MINIMUM WIDTH FOR SURFACE RESTORATION.

CONFIRM NOTE REFERENCE. NOTE 5 APPEARS TO APPLY TO CONCRETE PANELS NOT GRAVEL SURFACES.



CONFIRM NOTE REFERENCE. NOTE 5 APPEARS TO APPLY TO CONCRETE PANELS NOT ASPHALT SURFACES.



CONFIRM SECTION REFERENCE. CLASS 4000 PORTLAND CEMENT CONCRETE DOES NOT APPEAR TO BE DEFINED IN SECTION 706.

NOTES:

- (A) REFER TO SECTION-307 FOR MATERIALS AND WORKMANSHIP REQUIREMENTS.
- (B) PATCH WIDTHS ARE NEVER TO BE LESS THAN 4' IN WIDTH. LOCATE THE MATCH OF THE NEW TO EXISTING PAVEMENT OUT OF THE VEHICLE WHEEL PATH OF THE STREET. 2' CUTS ALLOWED ONLY ADJACENT TO CURBS.
- (C) CONCRETE PAVEMENT MUST BE REPLACED IN FULL PANELS UNLESS AUTHORIZED IN WRITING BY ACHD.
- (D) TACK ALL COLD JOINT SURFACES WITH EMULSION WHICH HAS BEEN "BROKEN" PRIOR TO PATCHING.
- (E) THE ACHD DEVELOPMENT POLICY, SECTION 6000--CONSTRUCTION, INDICATES SPECIFIC MATERIAL THICKNESS PLACEMENT BASED ON ROADWAY CLASSIFICATION FOR STREET CUTS AND SURFACE REPAIRS. BETWEEN THE CONTENTS OF THE ISPWC AND ACHD DEVELOPMENT POLICY THE MOST STRINGENT (i.e. THE THICKEST SECTION) REQUIREMENT MUST BE MET FOR FIELD PLACEMENT ACCEPTANCE.
- (F) POTHOLE REPAIR NOT ALLOWED IN CONCRETE SECTIONS UNLESS AUTHORIZED IN WRITING BY ACHD.
- (G) IF POTHOLE ARE LOCATED WITHIN 4 FEET OF EACH OTHER THEY WILL BE REQUIRED TO MEET THE CRITERIA OUTLINED FOR PATCHING REQUIREMENTS.
- (1) 3/4" MINUS COMPACTED AGGREGATE BASE COURSE 8" FOR LOCAL ROADS, 12" FOR ARTERIAL OR COLLECTOR ROADS OR MATCH THE THICKNESS OF EXISTING GRAVEL, WHICHEVER IS GREATER
- (2) PRINCIPAL AND MINOR ARTERIAL ROADWAYS SHALL BE PAVED 5" THICK, IN 2 EQUAL LIFTS, WITH PG 64-28, AS A MINIMUM. COLLECTOR, LOCAL COMMERCIAL AND LOCAL INDUSTRIAL ROADWAYS SHALL BE PAVED BACK 3" THICK, WITH PG 64-28, AS A MINIMUM. LOCAL RESIDENTIAL ROADWAYS AND ALLEYS SHALL BE PAVED BACK 2.5" THICK, WITH PG 58-28, AS A MINIMUM. ALL PAVEMENT SHALL BE 0.50 INCH (1/2") MIX.
- (3) PORTLAND CEMENT CONCRETE SHALL BE CLASS 4000 psi AND COMPLY WITH [REDACTED]
- (4) KEEP TRAFFIC OFF 72 HOURS, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- (5) FULL PANEL REPLACEMENT REQUIRED FOR SURFACE RESTORATION. 2' CUTS ALLOWED ONLY ADJACENT TO CURBS.
- (6) 3/4" MINUS AGGREGATE SURFACE COURSE (8") OR THICKNESS OF EXISTING GRAVEL, WHICHEVER IS GREATER.
- (7) COMPACTED TRENCH BACKFILL AS PER SD-301 AND SECTION-306 OF THESE SPECIFICATIONS.
- (8) CUT ASPHALT IN A NEAT STRAIGHT LINE 12" FROM THE EDGE OF TRENCH, UNLESS OTHERWISE SPECIFIED.
- (9) 6" OF 3/4" MINUS CRUSHED AGGREGATE BASE (MIN.) UNLESS A GREATER DEPTH IS OTHERWISE SPECIFIED.

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

STREET CUTS AND
SURFACE REPAIR DETAILS

STANDARD DRAWING
NO. SD-303

Steel Plate Installation	Posted Speed Limit	Steel Plate Thickness
TYPE 1	35 MPH Or Less	1-Inch Minimum
TYPE 2	Greater Than 35 MPH	1-1/4 -Inch Minimum

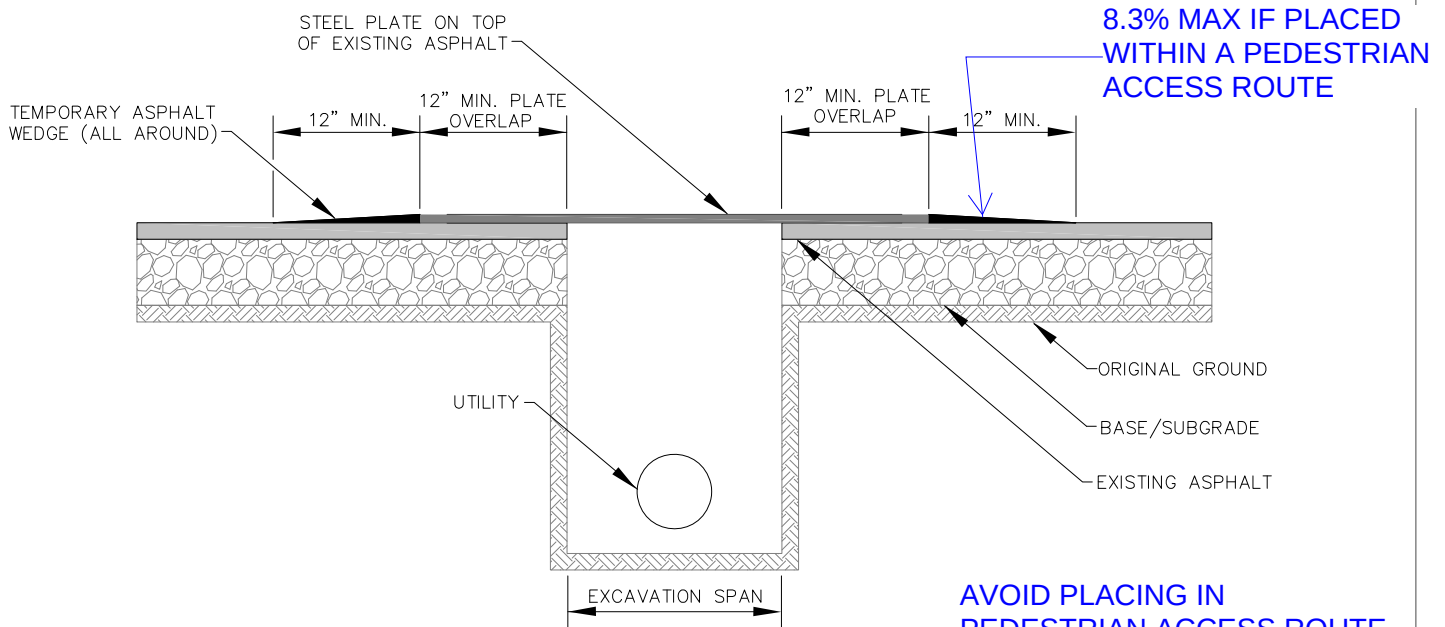


Figure 1 - Type 1 Installation Detail

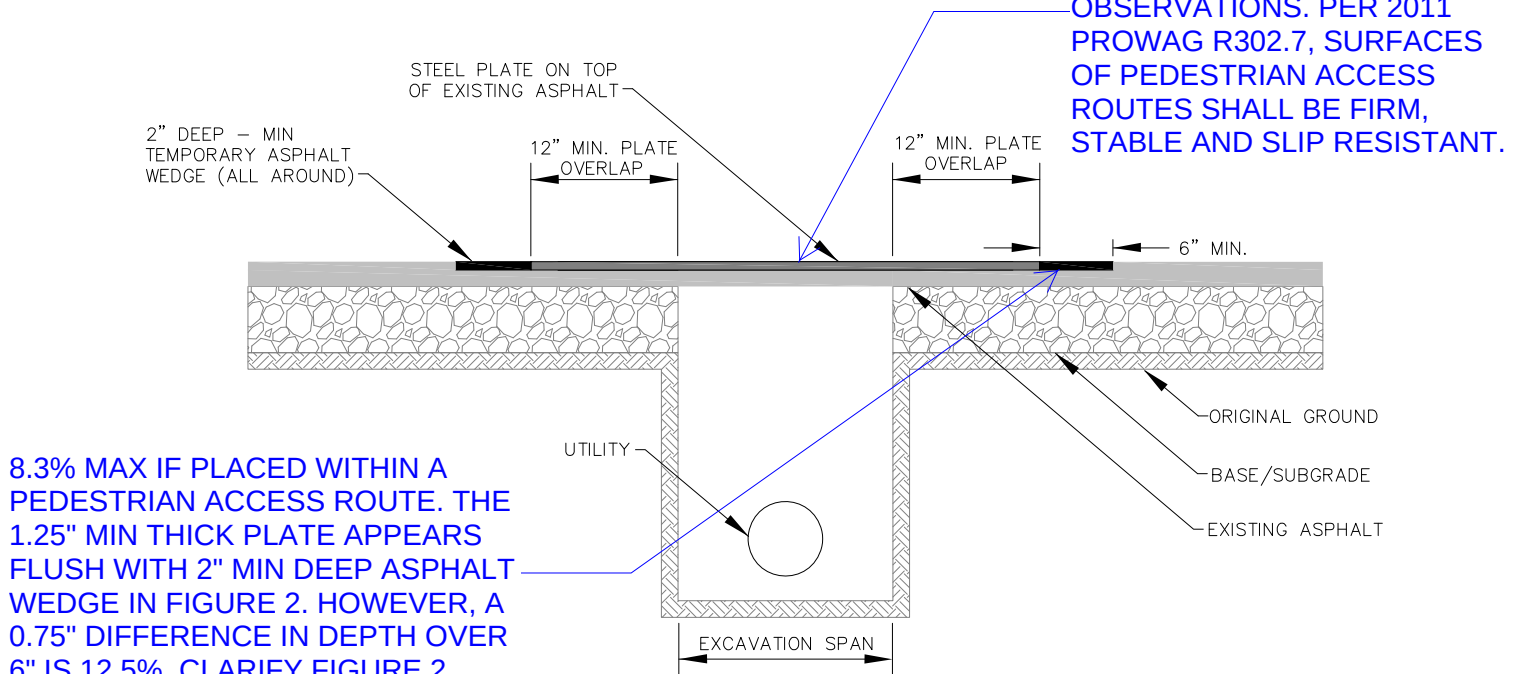


Figure 2 - Type 2 Installation Detail

NOTE:

①

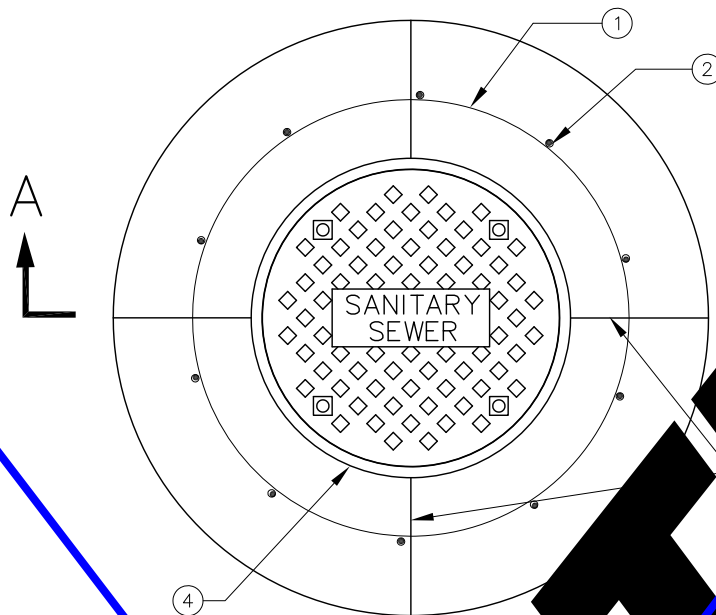
COLD MIX ASPHALT ALLOWED ONLY WHEN HOT MIX ASPHALT IS NOT AVAILABLE

2017 ACHD REVISION

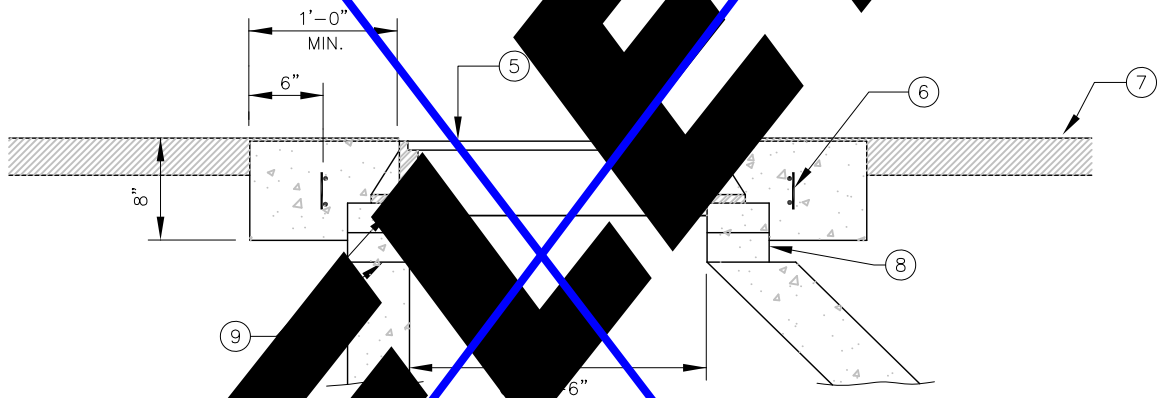
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

STEEL PLATE PLACEMENT
IN ACHD ROW

STANDARD DRAWING
NO. SD-309



PLAN
N.T.S.



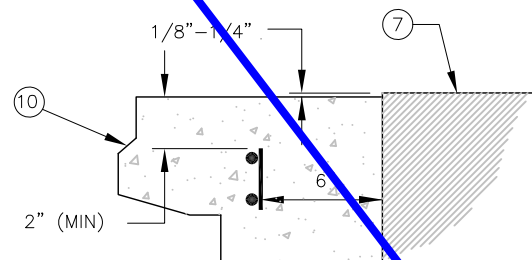
SECTION A-A
N.T.S.

NOTE:

- (A) TOP OF COLLAR TO BE FLUSH WITH MANHOLE COVER.

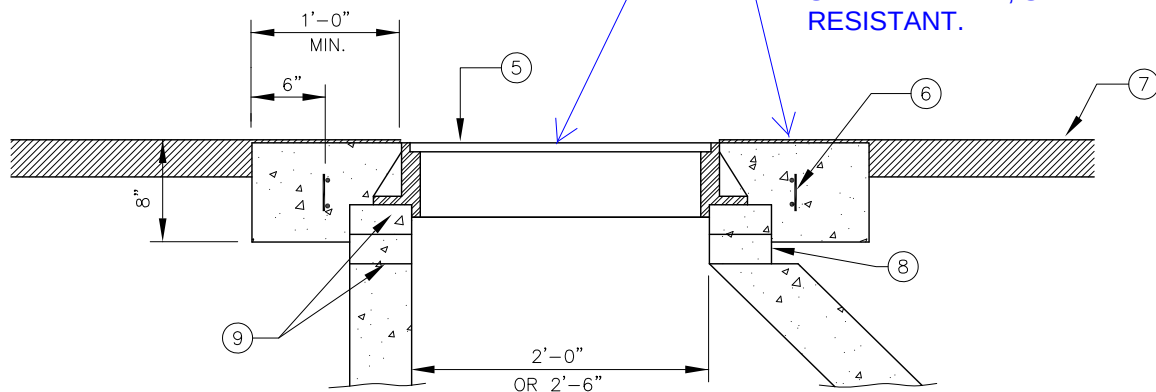
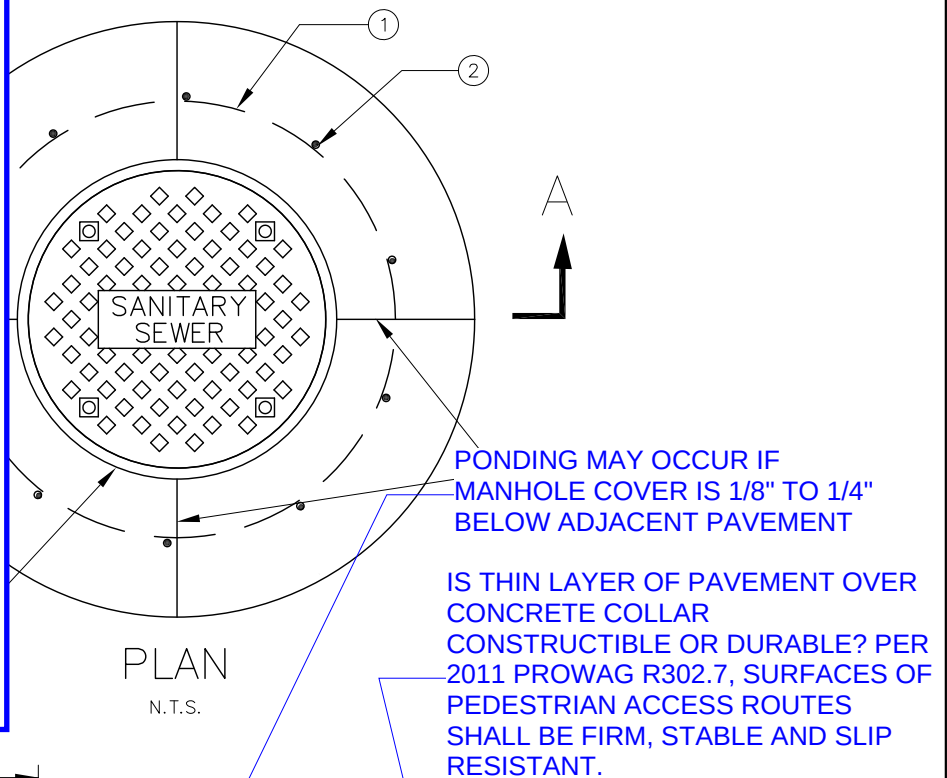
LEGEND

- (1) #4 REBAR (EACH) SEE SECTION A-A).
- (2) #4 REBAR AT 2' ON G.
- (3) SCORES.
- (4) RIM.
- (5) FRAME AND COVER PER SD-507 AND SD-507A.
- (6) SEE "DETAIL A" FOR REBAR IN COLLAR.
- (7) FINISHED GRADE.
- (8) SEE OTHER STANDARD DRAWINGS OF MANHOLES FOR MAXIMUM HEIGHT.
- (9) GROUT BETWEEN RING AND COVER AND GRADE RINGS.
- (10) FRIBULATED POLYPROPYLENE FIBER (ADDED PER MANUFACTURER'S RECOMMENDATIONS) MAY BE USED IN LIEU OF #4 REBAR IN CONCRETE COLLARS.



DETAIL A
N.T.S.

ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7) RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).

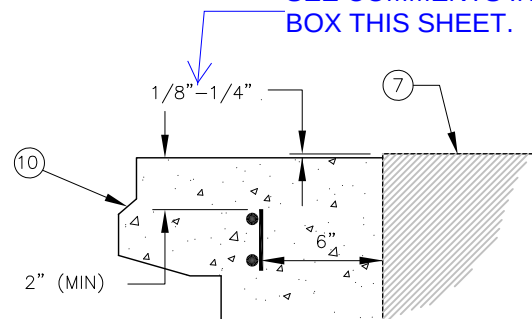


SECTION A-A
N.T.S.

NOTE:

- (A) TOP OF COLLAR TO BE FLUSH WITH MANHOLE COVER.

SEE COMMENTS IN TEXT BOX THIS SHEET.



DETAIL A
N.T.S.

LEGEND

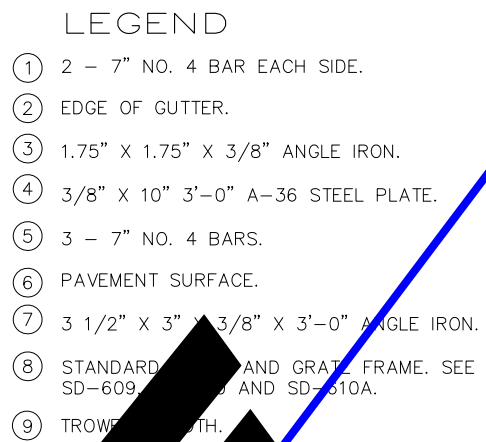
- (1) #4 REBAR HOOPS (2 EACH) SEE SECTION A-A).
- (2) #4 REBAR AT 20" SPACING.
- (3) SCORES ← DETAIL SCORING
- (4) RIM.
- (5) FRAME AND COVER PER SD-507 AND SD-507A.
- (6) SEE "DETAIL A" FOR REBAR IN COLLAR.
- (7) FINISHED GRADE.
- (8) SEE OTHER STANDARD DRAWINGS OF MANHOLES FOR MAXIMUM HEIGHT.
- (9) GROUT BETWEEN RING AND COVER AND GRADE RINGS.
- (10) FRIBILLATED POLYPROPYLENE FIBER (1 1/2 LBS./CY) MAY BE USED IN LIEU OF #4 REBAR IN CONCRETE COLLARS.

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

MANHOLE
COLLAR

STANDARD DRAWING
NO. SD-508

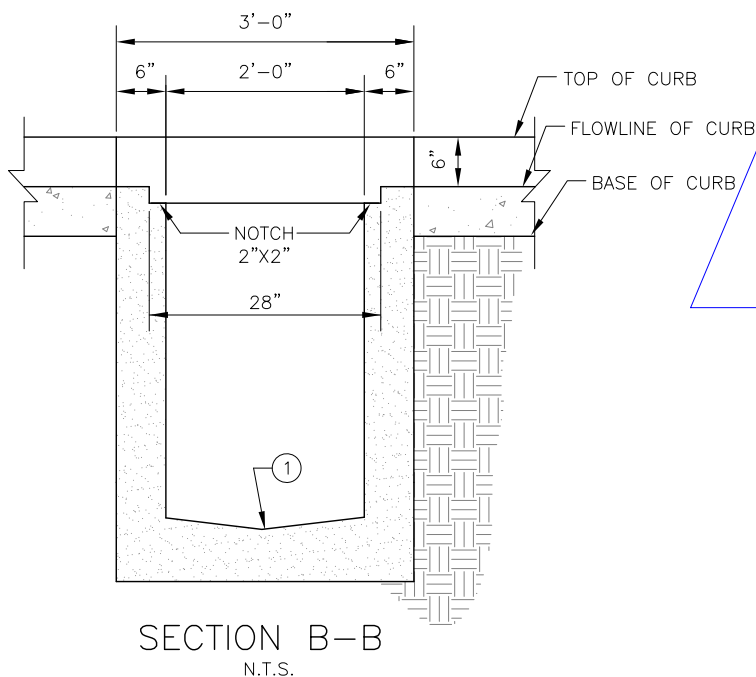
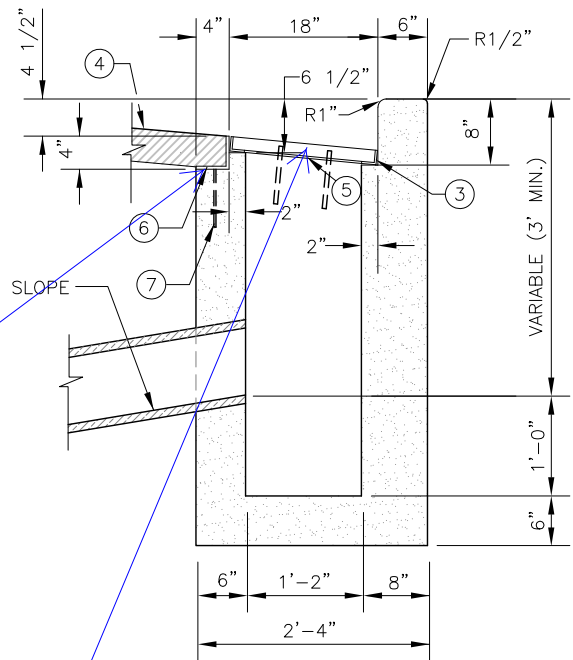
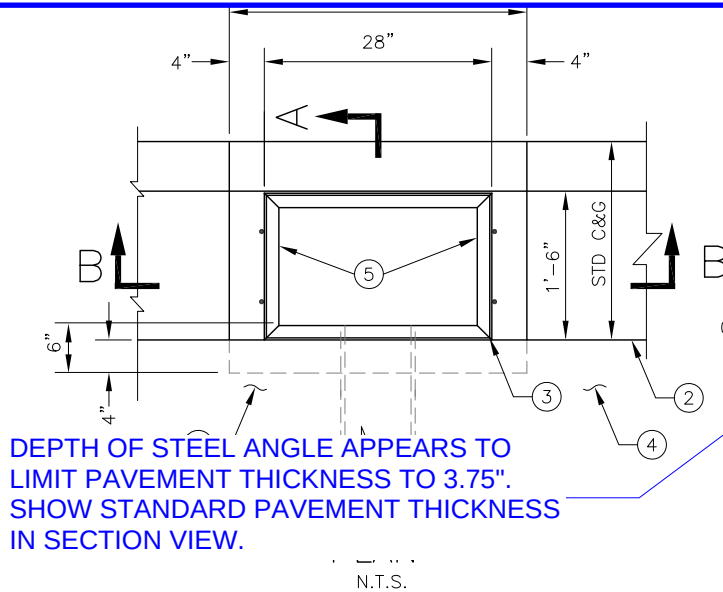


INLET CATCH BASIN
NOT REVIEWED
TYPE I

ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7) RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED ¼" OR ½" WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED ½" (2011 PROWAG R302.7.3).

LEGEND

- ① TROWEL SMOOTH
- ② EDGE OF GUTTER
- ③ 1.75" X 1.75" X 1/4" ANGLE IRON, STANDARD GRATE FRAME SEE SD-609 AND SD-610A
- ④ PAVEMENT SURFACE.
- ⑤ STANDARD GRATE AND GRATE FRAME. SEE SD-609 ~~OR~~ SD-610A.
- ⑥ 4" X 4" X 3/8" ANGLE IRON (ACHD)
- ⑦ (3) 7" NO.4 BARS

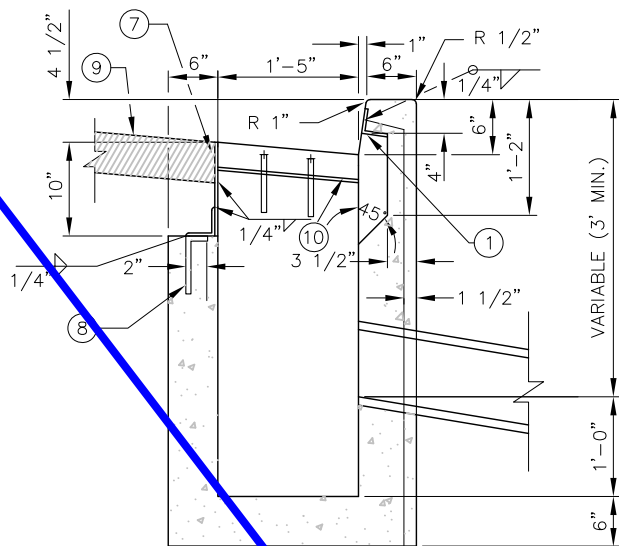


2017 ACHD REVISION

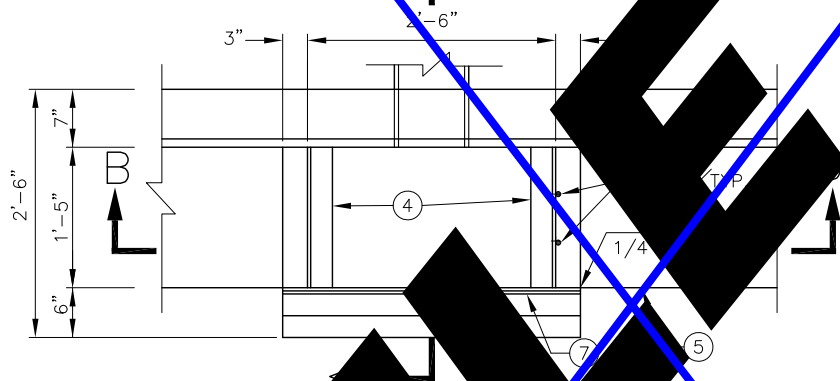
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

INLET CATCH BASIN
TYPE I

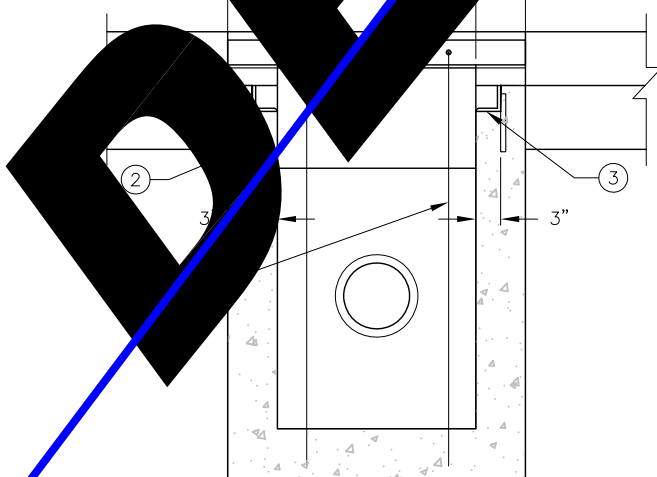
STANDARD DRAWING
NO. SD-601



SECTION A-A
N.T.S.



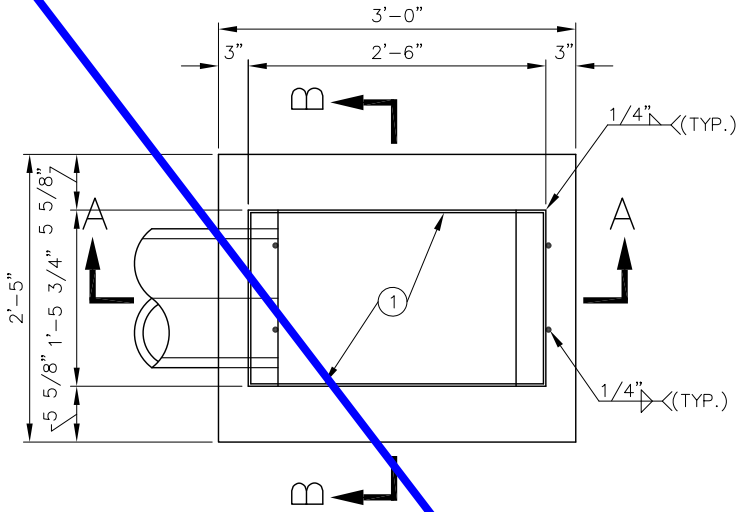
PLAN
S.S.



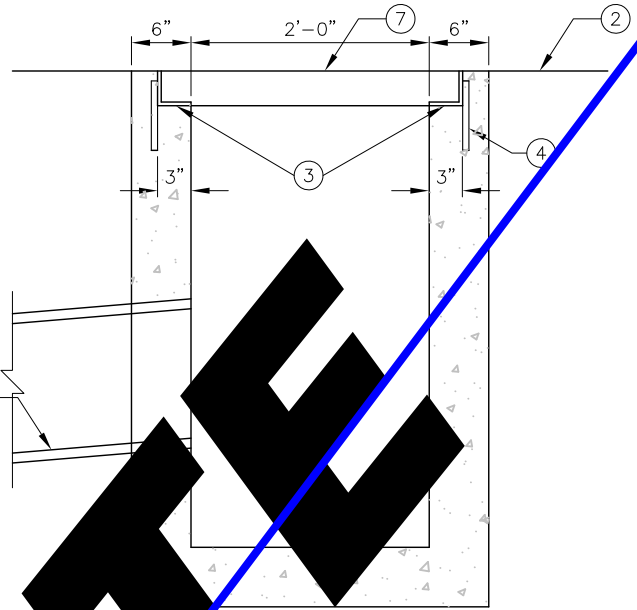
SECTION B-B
N.T.S.

LEGEND

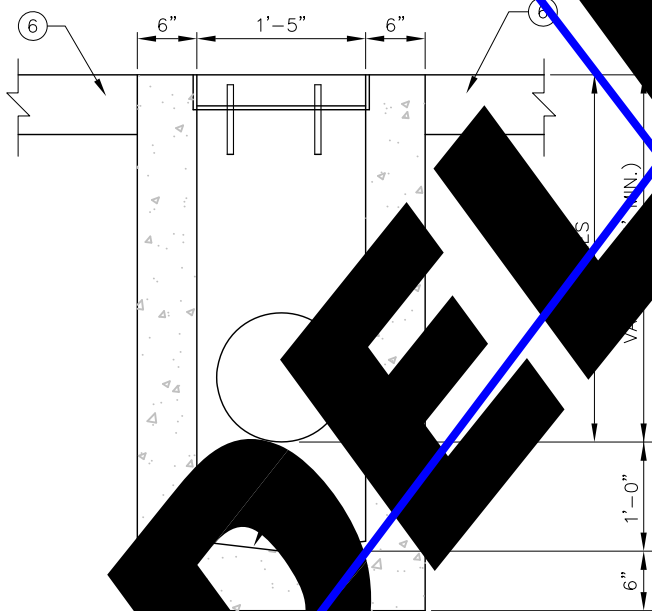
- ① GALV. 3" X 3" X 3/8" X 3'-0" ANGLE IRON.
- ② 2 - 7" NO. 4 BAR EACH SIDE.
- ③ 2 - 3'-0" NO. 4 BARS.
- ④ 3 1/2" X 3" X 3/8" X 1'-5" ANGLE IRON.
- ⑤ EDGE OF GUTTER.
- ⑥ 3 1/2" X 3" X 3/8" X 3'-0" ANGLE IRON.
- ⑦ 3/8" X 10" A-36 STEEL PLATE.
- ⑧ 3 - 7" NO. 4 BARS.
- ⑨ PAVEMENT SURFACE.
- ⑩ SAND AND GRAVEL FRAME. SEE SD-609 FOR DETAILS.



PLAN
N.T.S.



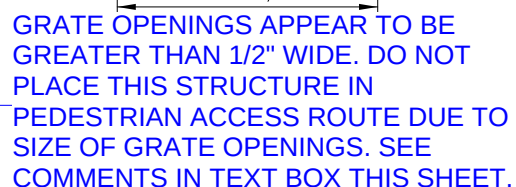
SECTION A-A
N.T.S.



SECTION B-B
N.T.S.

LEGEND

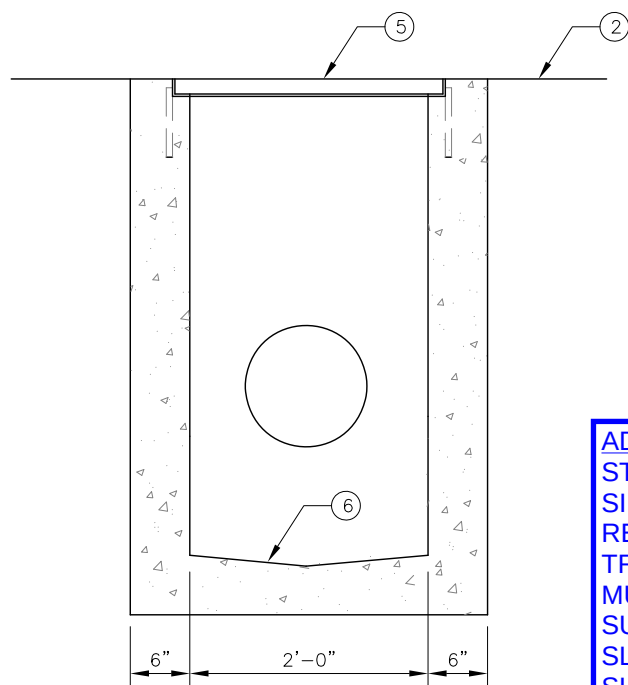
- ① 2 BARS 3 1/2" X 3/8" X 2'-6".
- ② FINISHED SURFACE.
- ③ 2 - ANGLES 3 1/2" X 3".
- ④ 2 - 7" NO. 4 BAR EACH SIDE.
- ⑤ 1" PER FOOT MINIMUM SLOPE.
- ⑥ PAVEMENT SURFACE.
- ⑦ STANDARD GRATE AND GRATE FRAME. SEE SD-609, SD-610 AND SD-610A.
- ⑧ TROWEL SMOOTH.



LEGEND

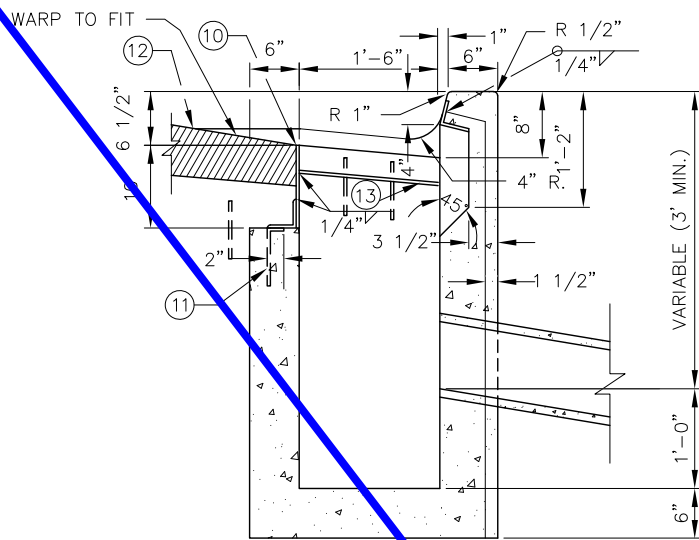
- ① 1.75" X 1.75" X 1/4" ANGLE IRON
- ② FINISHED SURFACE.
- ③ 0.20% MINIMUM SLOPE.
- ④ PAVEMENT SURFACE.
- ⑤ STANDARD GRATE AND GRATE FRAME. SEE SD-609 OR SD-610A.
- ⑥ TROWEL SMOOTH.

—(ACHD)



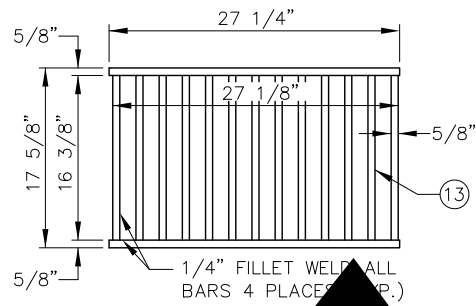
SECTION B-B
N.T.S.

ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7) RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).



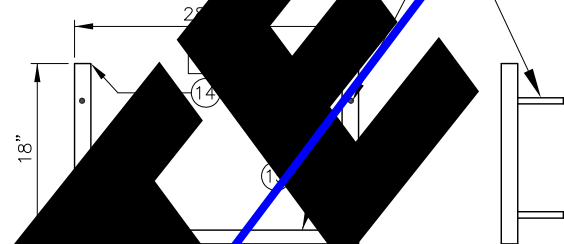
SECTION B-B

N.T.S.



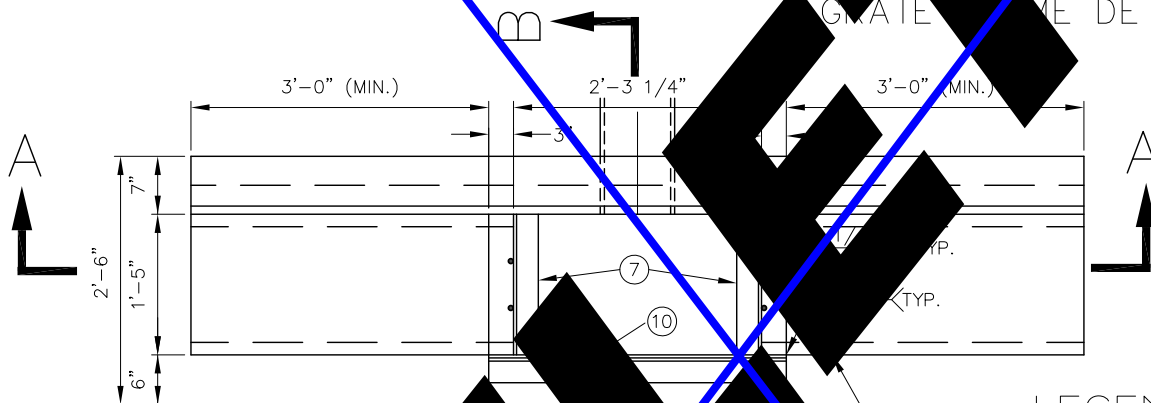
GRATE DETAIL

N.T.S.



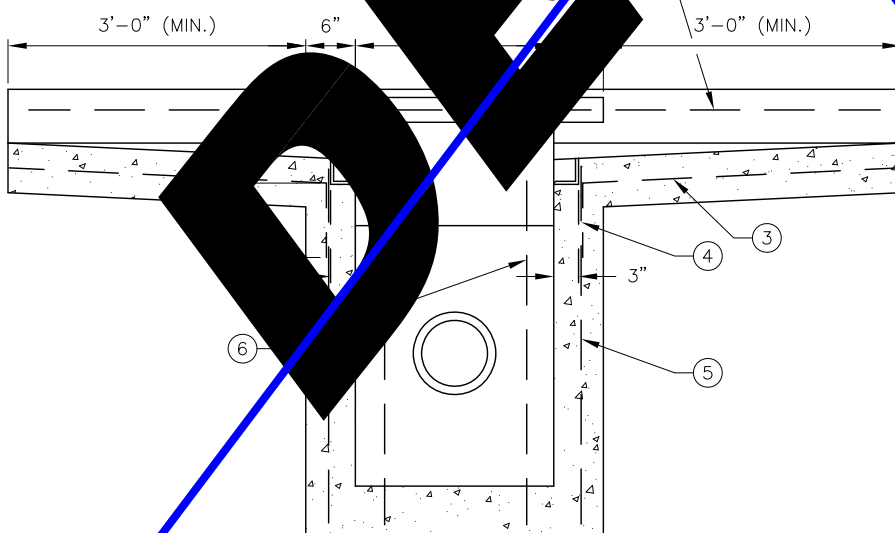
GRATE DETAIL END VIEW

N.T.S.



PLAN

N.T.S.

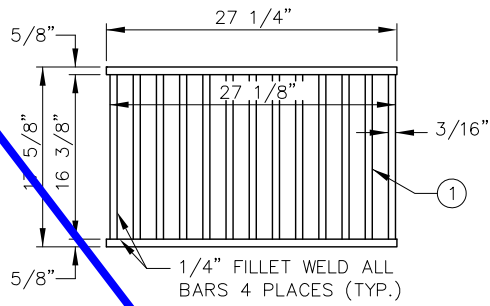


SECTION A-A

N.T.S.

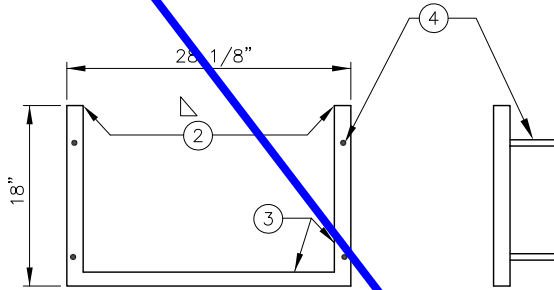
LEGEND

- ① GALV. 3" X 3" X 3/8" X 3'-0" ANGLE IRON.
- ② 1 - 8'-7" NO. 4 BAR (MIN).
- ③ 2 - 3'-9" NO. 4 BARS EACH SIDE.
- ④ 2 - 7" NO. 4 BAR EACH SIDE.
- ⑤ 1 - 3'-1" NO. 4 BAR EACH SIDE.
- ⑥ 2 - 3'-0" NO. 4 BARS.
- ⑦ 3 1/2" X 3" X 3/8" X 1'-5" ANGLE IRON.
- ⑧ EDGE OF GUTTER.
- ⑨ 3 1/2" X 3" X 3/8" X 3'-0" ANGLE IRON.
- ⑩ 3/8" X 10" 3'-0" A-36 STEEL PLATE.
- ⑪ 3 - 7" NO. 4 BARS.
- ⑫ PAVEMENT SURFACE.
- ⑬ 1 1/2" X 5/8" STEEL BAR (TYP.).
- ⑭ 1.5" X 1.5" X .25" STEEL TRIANGLE (2 PLACES).
- ⑮ 1.75" X 1.75" X .25" STEEL ANGLE.
- ⑯ WELD (4) 1/2" X 3" STUDS.



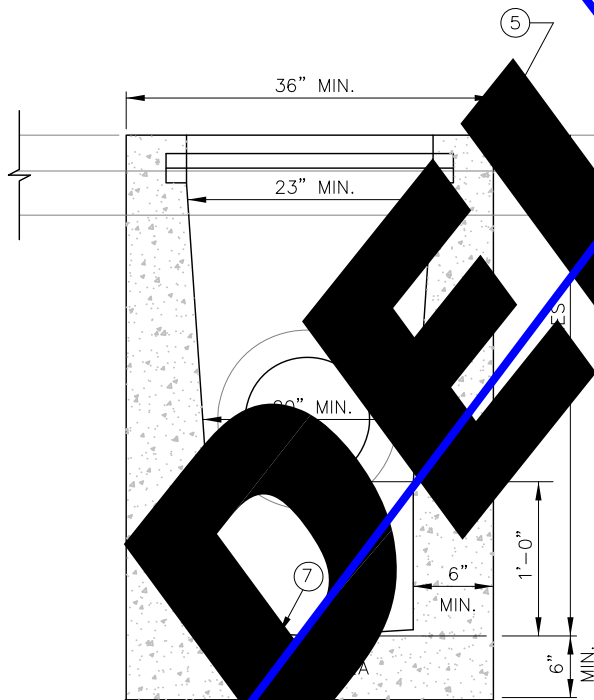
GRATE DETAIL

N.T.S.



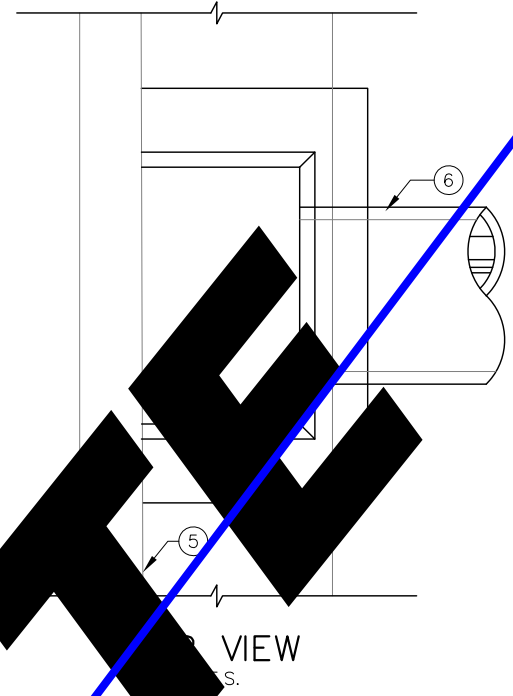
GRATE FRAME DETAIL END VIEW

N.T.S.



FRONT VIEW

N.T.S.



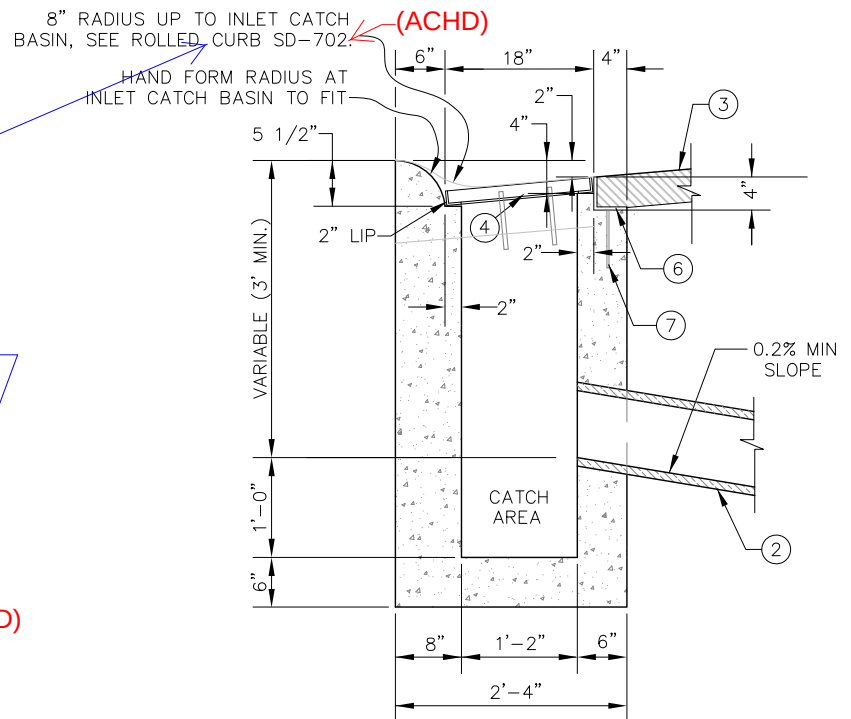
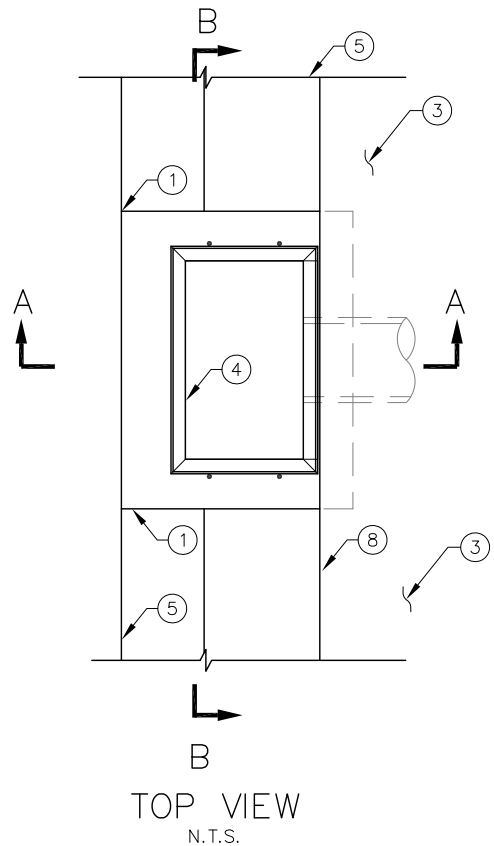
SIDE VIEW

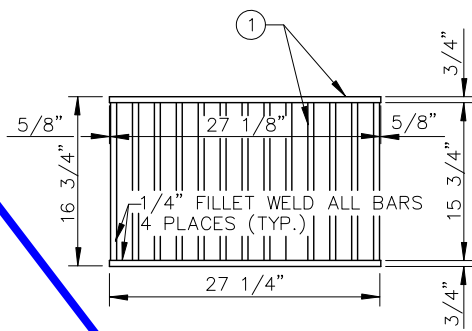
N.T.S.

LEGEND

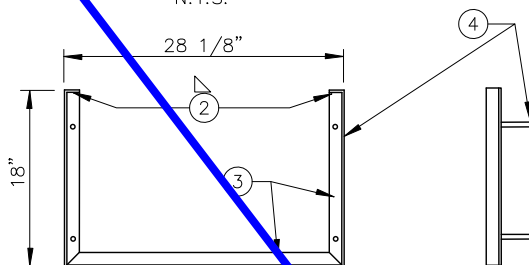
- (1) 1 1/2" X 5/8" STEEL BAR (TYP.).
- (2) 1.5" X 1.5" X .25" STEEL TRIANGLE (2 PLACES).
- (3) 1.75" X 1.75" X .25" STEEL ANGLE.
- (4) WELD (4) 1/2" X 3" STUDS.
- (5) ADJOINING TOP OF CURB.
- (6) OUTLET.
- (7) TROWEL SMOOTH.

Technical drawing of a wall section. The drawing shows a vertical wall with a horizontal line indicating a notch. The notch is labeled "NOTCH 2\"X2\"". Above the notch, there is a circular feature labeled "2". To the right of the notch, there is a horizontal dimension line labeled "28\"". Above the wall, there is a horizontal dimension line labeled "36\"".



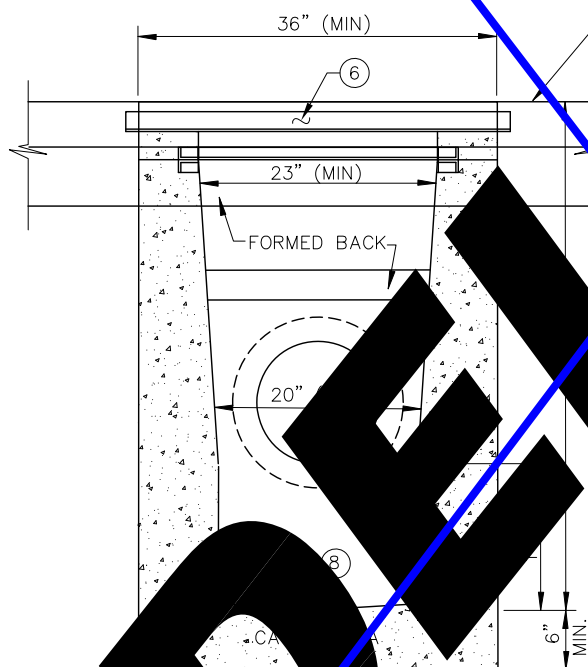


GRATE DETAIL
N.T.S.

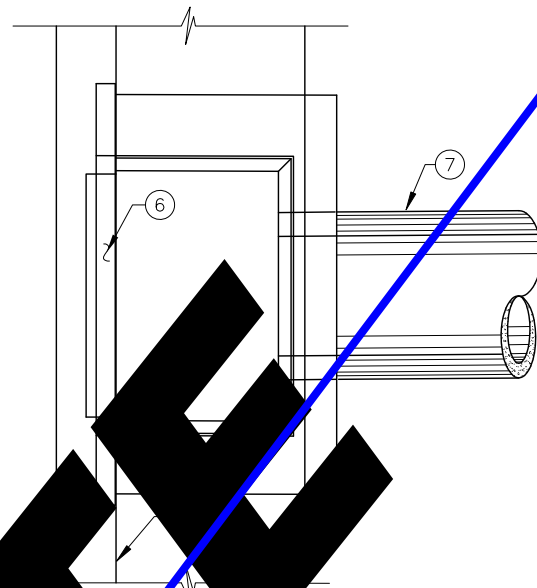


GRATE FRAME DETAIL
N.T.S.

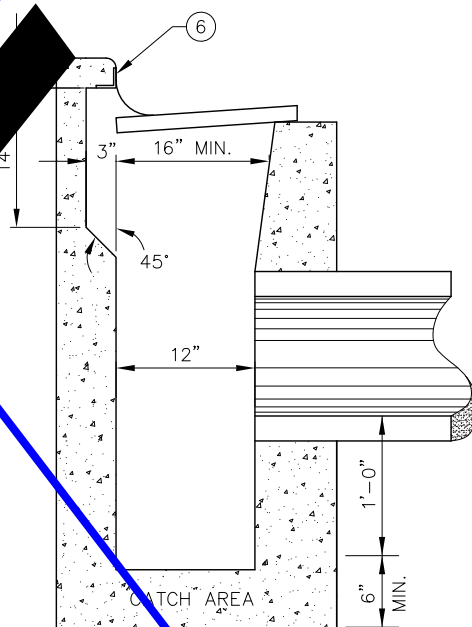
END VIEW
N.T.S.



FRONT VIEW
N.T.S.



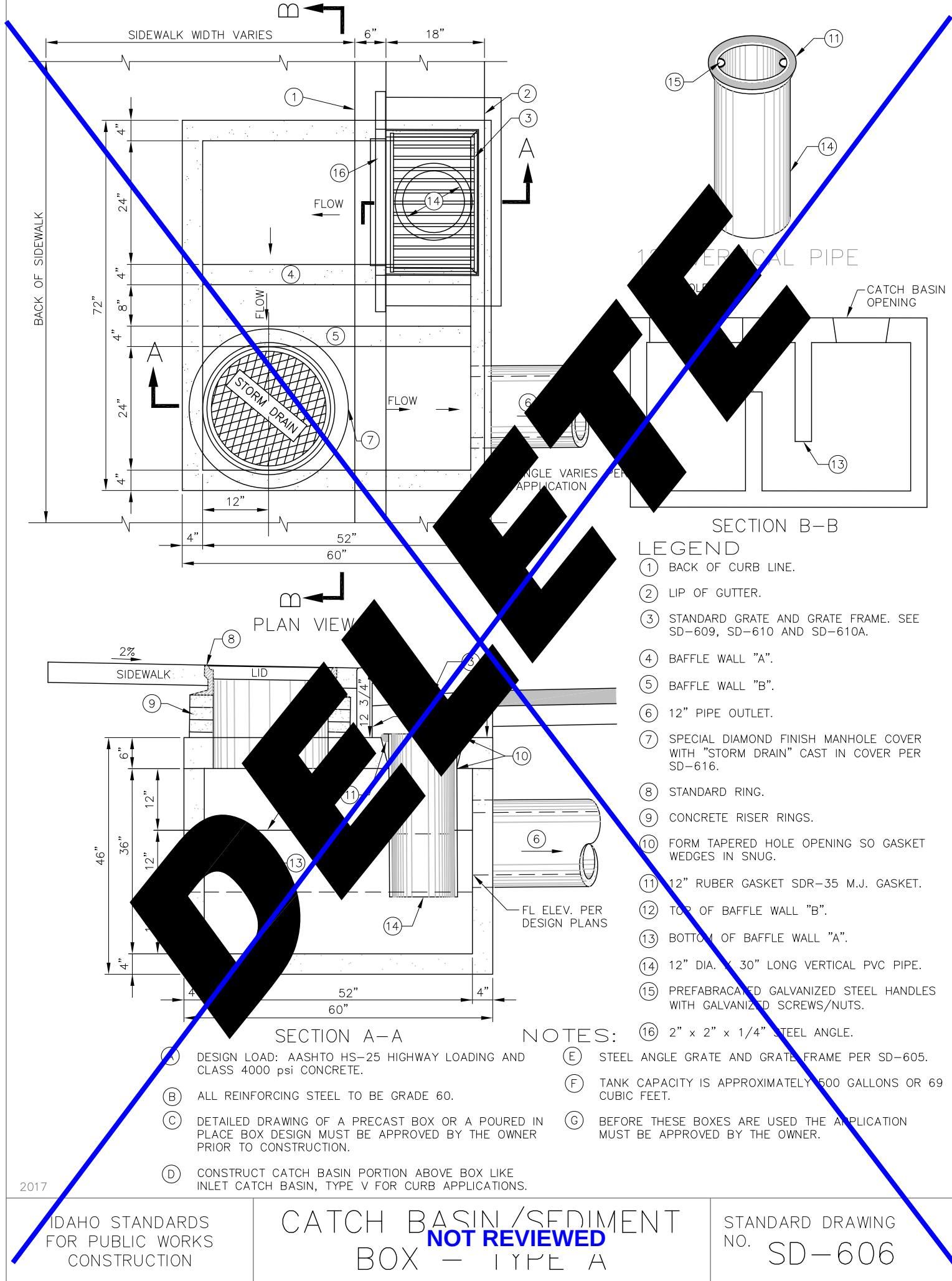
TOP VIEW
N.T.S.



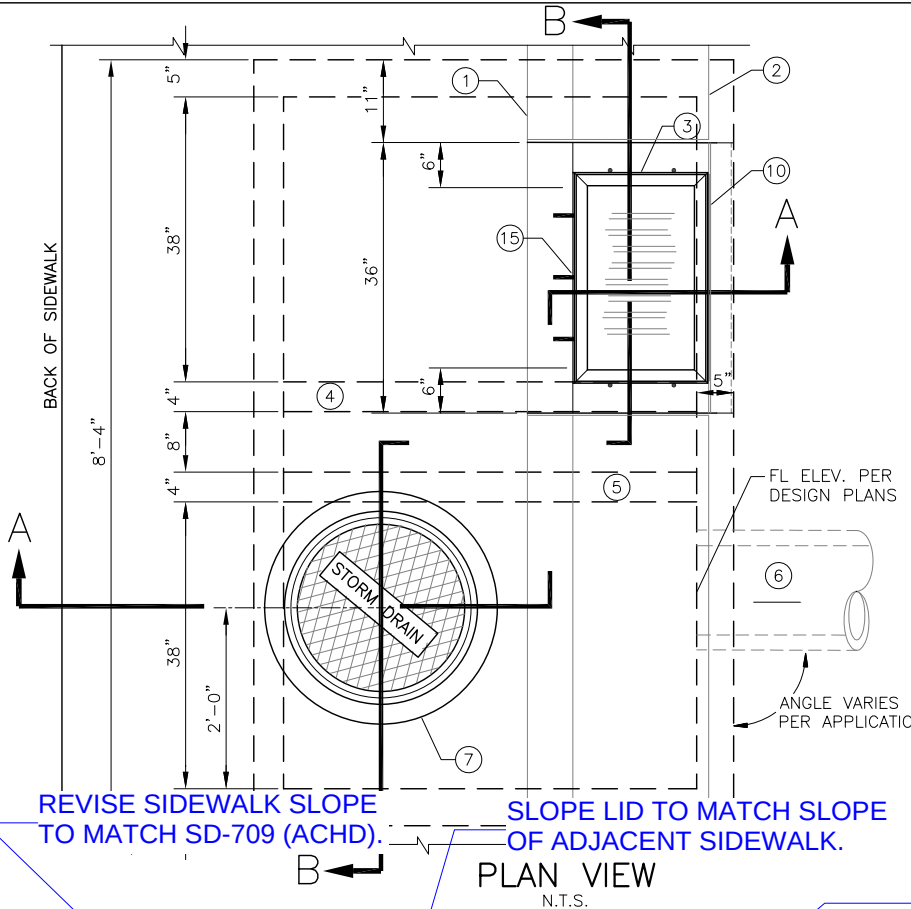
SIDE VIEW
N.T.S.

LEGEND

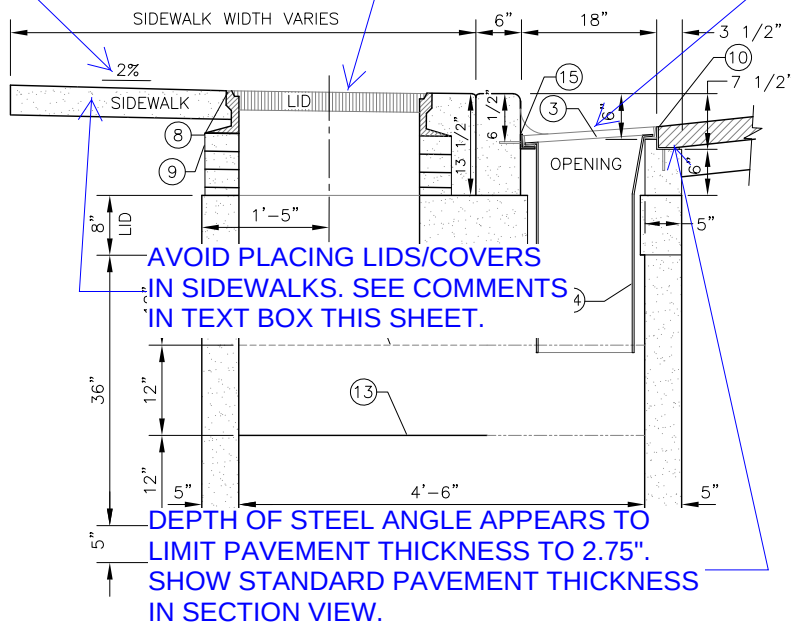
- ① 1 1/2" X 5/8" STEEL BAR (TYP.).
- ② 1.5" X 1.5" X .25" STEEL TRIANGLE (2 PLACES).
- ③ 1.75" X 1.75" X .25" STEEL ANGLE.
- ④ WELD (4) 1/2" X 3" STUDS.
- ⑤ ADJOINING TOP OF CURB.
- ⑥ 2" X 2" X 1/4" X 36" STEEL ANGLE, 36" LONG.
- ⑦ OUTLET.
- ⑧ TROWEL SMOOTH.



ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7) RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).



SLOPE OF GRATE APPEARS TO BE GREATER THAN 5%. GRATE OPENINGS APPEAR TO BE GREATER THAN $\frac{1}{2}$ " WIDE. DO NOT PLACE THIS STRUCTURE IN PEDESTRIAN ACCESS ROUTE DUE TO SLOPE OF GRATE AND SIZE OF GRATE OPENINGS. SEE COMMENTS IN TEXT BOX THIS SHEET.



- ① LIP OF GUTTER.
- ② LIP OF GUTTER.
- ③ STANDARD GRATE AND GRATE FRAME. SEE SD-609, ~~SD-610~~ AND SD-610A. (ACHD)
- ④ BAFFLE WALL "A".
- ⑤ BAFFLE WALL "B".
- ⑥ 12" PIPE OUTLET.
- ⑦ WITH "STORM DRAIN" CAST IN COVER PER SD-616. (ACHD)
- ⑧ STANDARD RING.
- ⑨ CONCRETE RISER RINGS.
- ⑩ 3" X 3" X $\frac{1}{4}$ " STEEL ANGLE w/ (3) $\frac{3}{8}$ "x3" ANCHORS
- ⑪ 1 $\frac{3}{4}$ " LIP TO SIT INSIDE GRATE FRAME BELOW GRATE
- ⑫ TOP OF BAFFLE WALL "B".
- ⑬ BOTTOM OF BAFFLE WALL "A".
- ⑭ 12GA SHEET METAL FABRICATED REMOVABLE FUNNEL.
- ⑮ 2" X 2" X $\frac{1}{4}$ " STEEL ANGLE w/ (3) $\frac{3}{8}$ "x3" ANCHORS

SPECIAL DIAMOND FINISH DOES NOT APPEAR TO BE DETAILED IN SD-616 (ACHD).

SECTION A-A
N.T.S.

NOTES:

- (A) DESIGN LOAD: AASHTO HS-25 HIGHWAY LOADING AND CLASS 4000 psi CONCRETE.
- (B) ALL REINFORCING STEEL TO BE GRADE 60.
- (C) DETAILED DRAWING OF A PRECAST BOX OR A POURED IN PLACE BOX DESIGN MUST BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
- (D) CONSTRUCT CATCH BASIN PORTION ABOVE BOX LIKE INLET CATCH BASIN, TYPE I FOR CURB APPLICATIONS.
- (E) STEEL ANGLE GRATE AND GRATE FRAME PER SD-609, ~~SD-610~~, AND SD-610A. (ACHD)
- (F) TANK CAPACITY IS APPROXIMATELY 750 GALLONS OR 100 CUBIC FEET.
- (G) BEFORE THESE BOXES ARE USED THE APPLICATION MUST BE APPROVED BY THE OWNER.
- (H) DESIGN MAY BE REVERSED FOR BEST APPLICATION WITH MANHOLE AND CATCH BASIN OPENINGS IN OPPOSITE DIRECTIONS.
- (I) ~~BOX~~ BOX MAY NOT BE SUBSTITUTED FOR TYPE A OR WITHOUT THE APPROVAL OF THE OWNER.

2017 ACHD REVISION

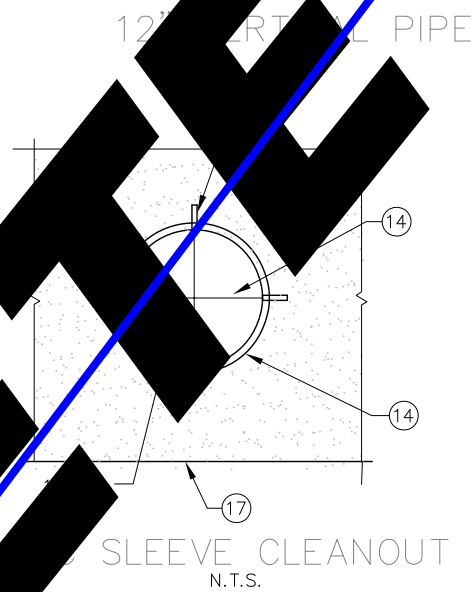
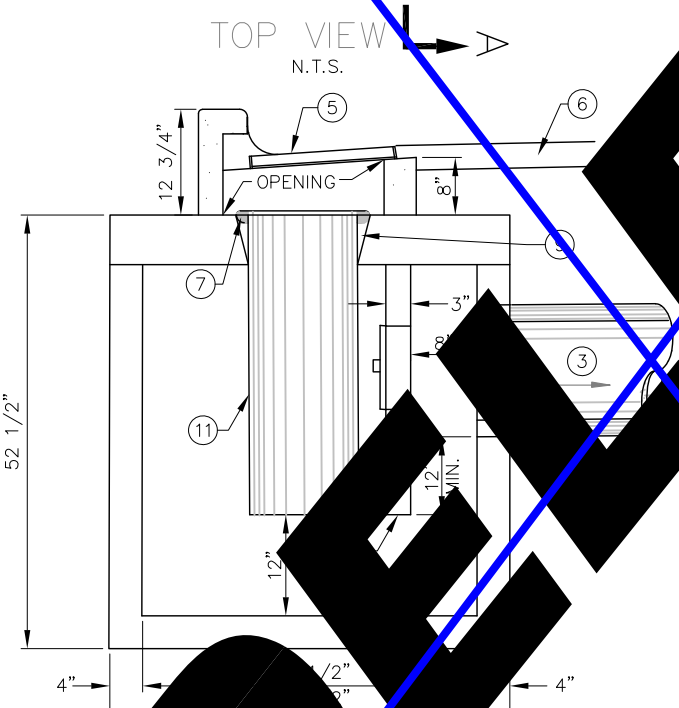
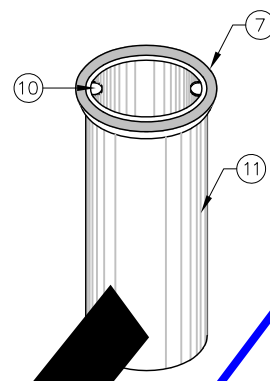
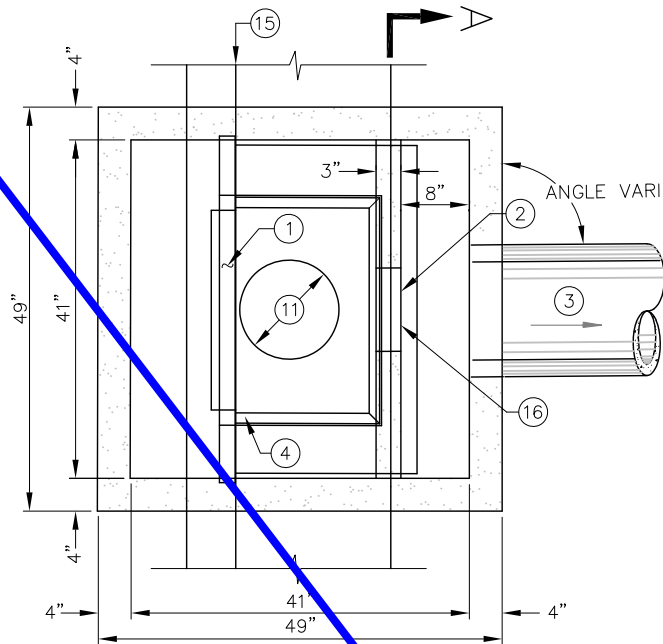
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

SD-610 APPEARS
TO BE DELETED.

CATCH BASIN/
SEDIMENT BOX - TYPE A

TYPE B & C BOX APPEARS TO
HAVE BEEN DELETED.

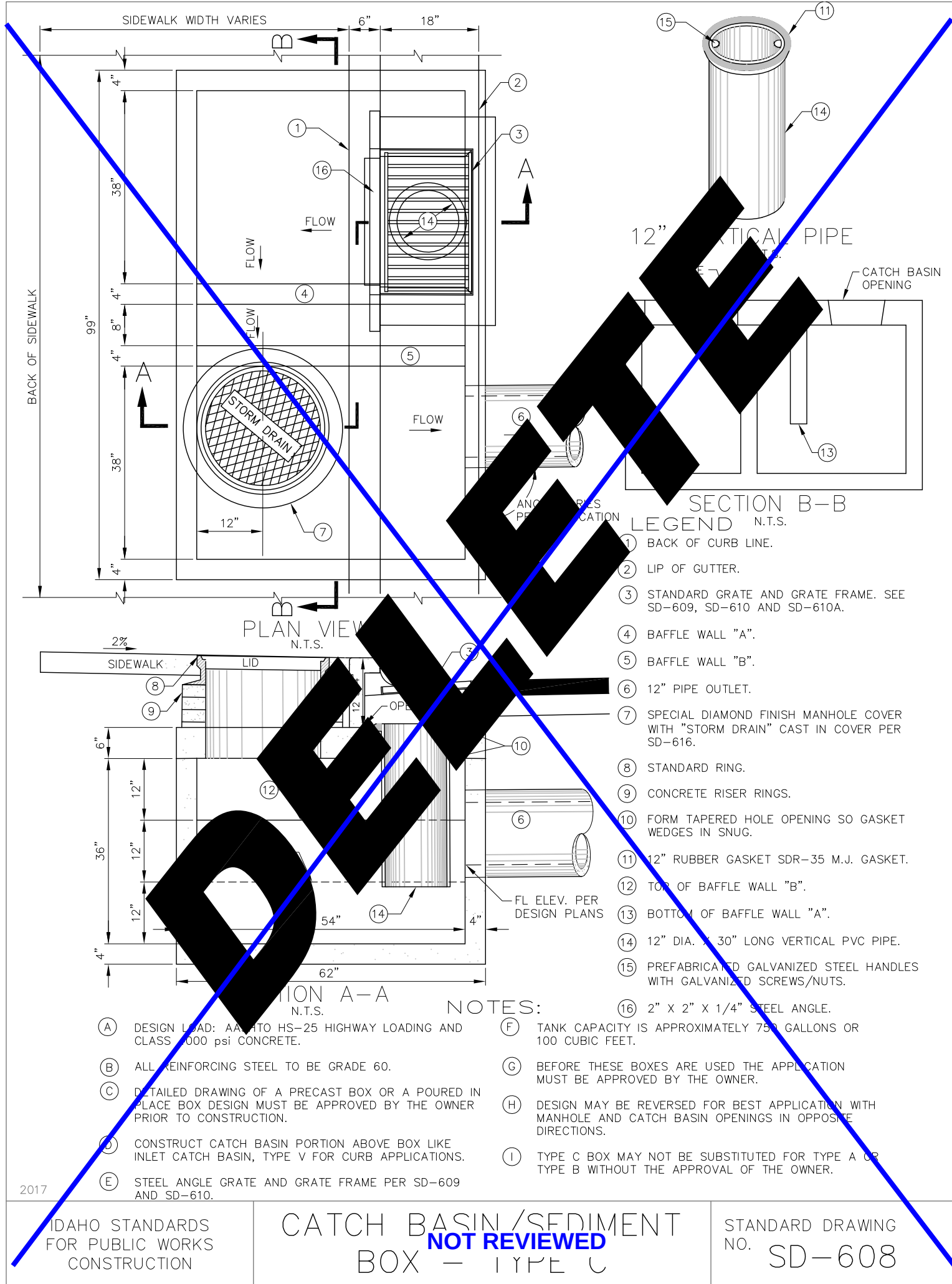
STANDARD DRAWING
SD-606

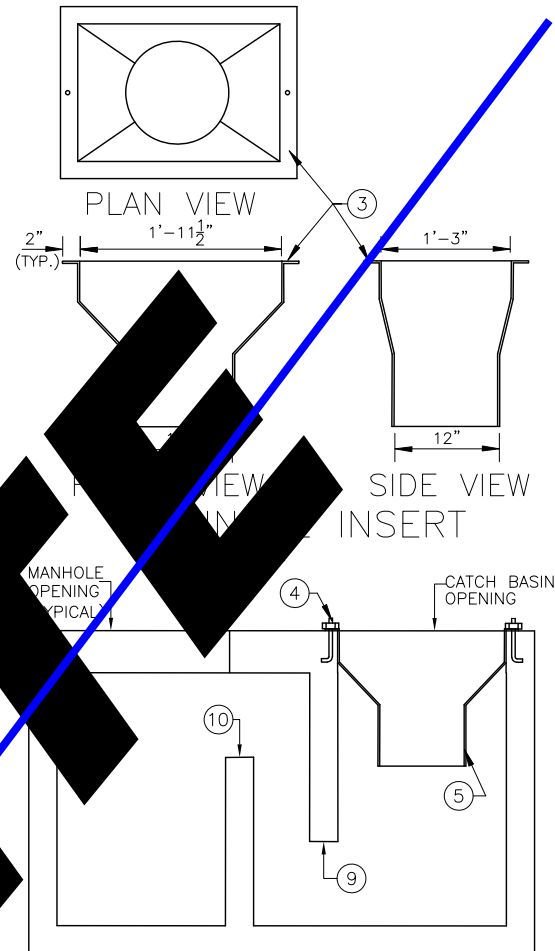
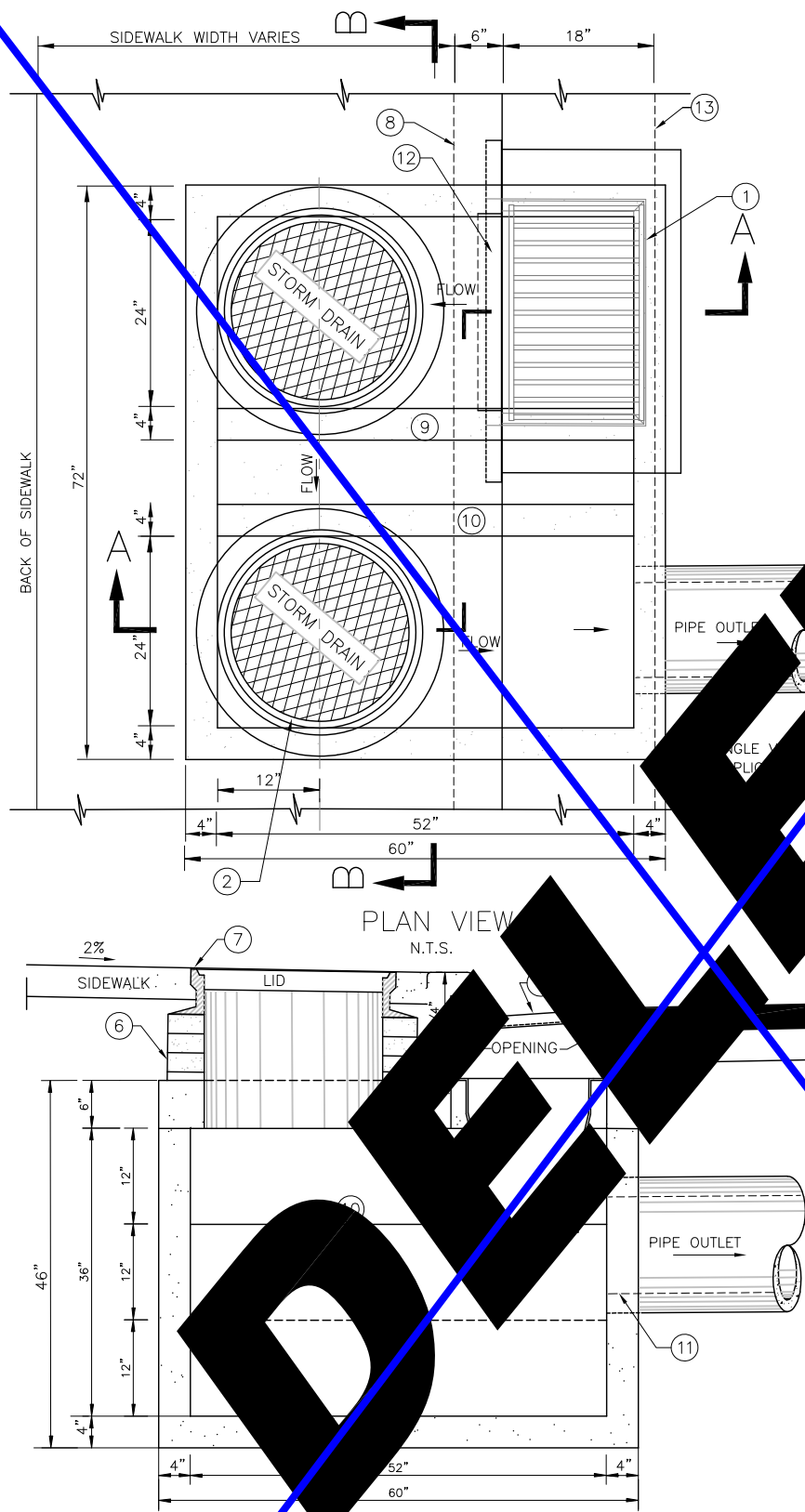


- LEGEND**
- ① 2" X 2" 1/4" STEEL ANGLE.
 - ② BAFFLE WALL.
 - ③ 12" PIPE OUTLET.
 - ④ GRATE FRAME.
 - ⑤ STANDARD FRAME AND GRATE. SEE SD-609, SD-610 AND SD-610A.
 - ⑥ ASPHALT.
 - ⑦ 12" RUBBER GASKET SDR-35 M.J. GASKET.
 - ⑧ FLOWLINE PER DESIGN PLANS.
 - ⑨ FORM TAPERED HOLE OPENING SO GASKET WEDGES ARE SNUG.
 - ⑩ PREFABRICATED GALVANIZED STEEL HANDLES WITH GALVANIZED SCREWS/NUTS.
 - ⑪ 12" DIA. PVC X 30" LONG.
 - ⑫ CAST (4) 3/8" X 3" STEEL STUDS THROUGH PIPE WALL TO SECURE SLEEVE.
 - ⑬ PLACE 10" DIAMETER REMOVABLE PIPE PLUG WITHIN PIPE SLEEVE (CHERNE EXPANSION GRIPPER OR APPROVED EQUAL).
 - ⑭ 10" DIAMETER PVC PIPE SLEEVE CAST INTO BAFFLE WALL ALIGN WITH OUTLET PIPE.
 - ⑮ FACE OF CURB.
 - ⑯ 10" PVC PIPE SLEEVE CLEANOUT WITHIN BAFFLE WALLS. CENTERED ON OUTLET PIPE TO ALLOW BEST ACCESS.
 - ⑰ BOTTOM OF BAFFLE WALL.

- NOTES**
- (A) DESIGN FOR AASHTO HS-25 HIGHWAY LOADING AND CLASS II SURFACE.
 - (B) ALL REINFORCEMENT TO BE GRADE 60.
 - (C) DETAILED DESIGN OF A PRECAST BOX OR A POURED IN PLACE BOX DESIGN MUST BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
 - (D) CONSTRUCT CATCH BASIN PORTION ABOVE BOX LIKE INLET CATCH BASIN, TYPE V FOR CURB APPLICATIONS.
 - (E) STEEL ANGLE GRATE AND GRATE FRAME PER SD-609 AND SD-610.
 - (F) TANK CAPACITY IS APPROXIMATELY 300 GALLONS OR 40 CUBIC FEET.
 - (G) BEFORE THESE BOXES ARE USED THE APPLICATION MUST BE APPROVED BY THE OWNER.

2017





- LEGEND**
- ① STD. GRATE & GRATE FRAME SEE STD. DRAWING.
 - ② SPECIAL DIAMOND FINISH MANHOLE COVER WITH "STORM DRAIN" CAST IN COVER. FRAME PER SD-616 (TYPICAL).
 - ③ 2" LIP TO ATTACH TO TOP OF SED BOX.
 - ④ ATTACH FUNNEL WITH 1/2" GALVANIZED STEEL ANCHOR BOLTS (TYP.).
 - ⑤ 12" POLYETHYLENE REMOVABLE FUNNEL.
 - ⑥ CONCRETE RISER RINGS. (MAX. 12").
 - ⑦ STANDARD RING.
 - ⑧ BACK OF CURB LINE.
 - ⑨ BAFFLE WALL "A".
 - ⑩ BAFFLE WALL "B".
 - ⑪ FL ELEV. PER DESIGN PLANS.
 - ⑫ 2"x2"x1/4" STEEL ANGLE.
 - ⑬ LIP OF GUTTER.

NOTES:

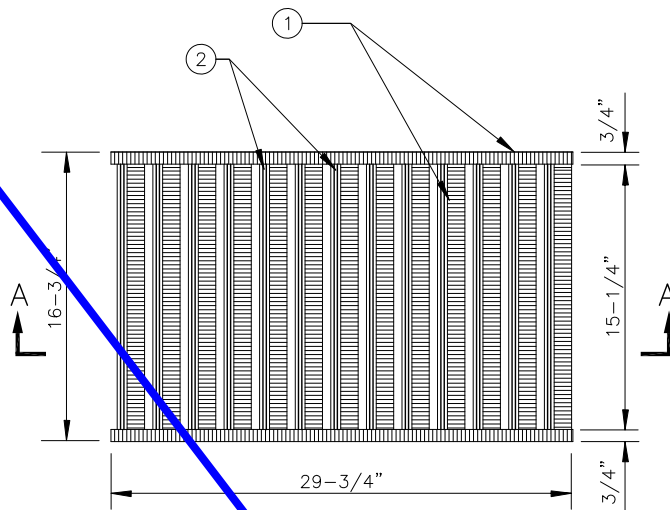
- (A) DESIGN LOAD: AASHTO HS-25 HIGHWAY LOADING AND CL-4000 CONCRETE.
- (B) ALL REINFORCING STEEL SHALL BE GRADE 60.
- (C) DETAILED DRAWING OF A PRECAST BOX OR A POURED IN PLACE BOX DESIGN MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
- (D) CONSTRUCT CATCH BASIN PORTION ABOVE BOX LIKE INLET CATCH BASIN, TYPE V PER STANDARD DRAWING SD-605.
- (E) STEEL ANGLE GRATE AND GRATE FRAME PER SD-605.
- (F) TANK CAPACITY IS APPROXIMATELY 500 GALLONS OR 69 CUBIC FEET.
- (G) BEFORE THESE BOXES ARE USED THE APPLICATION MUST BE APPROVED BY THE ENGINEER.
- (H) RAISE MANHOLES TO MATCH TOP BACK OF CURB ELEVATION. CONCRETE COLLARS ARE REQUIRED AROUND MANHOLES THAT ARE PLACED IN LANDSCAPED AREAS.
- (I) EXTEND 12" POLYETHYLENE FUNNEL 1" BELOW TOP OF BAFFLE WALL "B".

2017

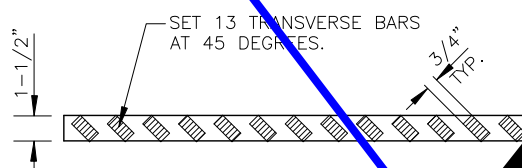
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION

CATCH BASIN / SEDIMENT
BOX - TYPE D

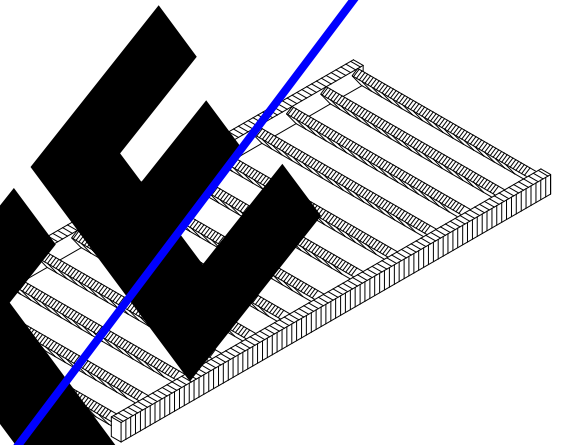
STANDARD DRAWING
NO. SD-608A



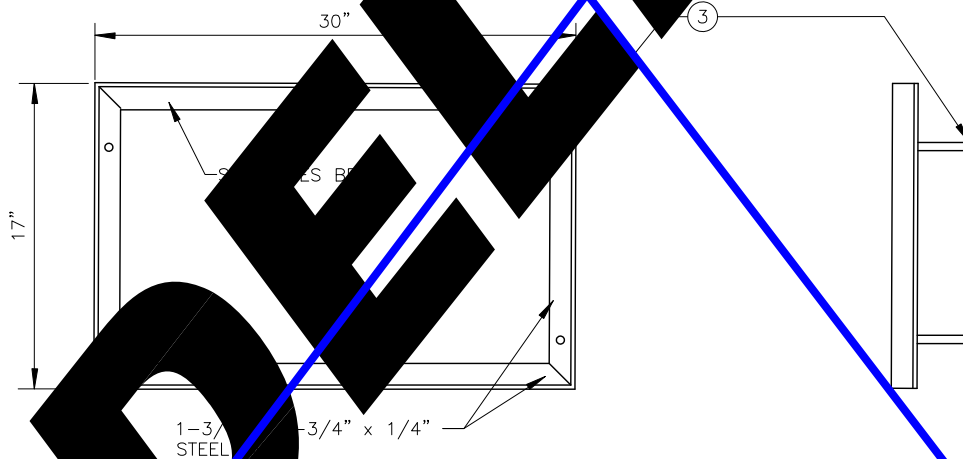
TOP VIEW



SECTION A-A



ISOMETRIC



END VIEW

NOTES

- ① FOUR-SIDED FRAME IS REQUIRED.
- ② CONTRACTOR HAS THE OPTION OF WELDING THE BACK STEEL ANGLE BAR INTO PLACE AFTER SLIP FORMS FOR BOX HAVE BEEN REMOVED. ENSURE GRATE FRAME IS SQUARE BEFORE DOING A FULL PENETRATION WELD TO ATTACH BACK STEEL ANGLE BAR.

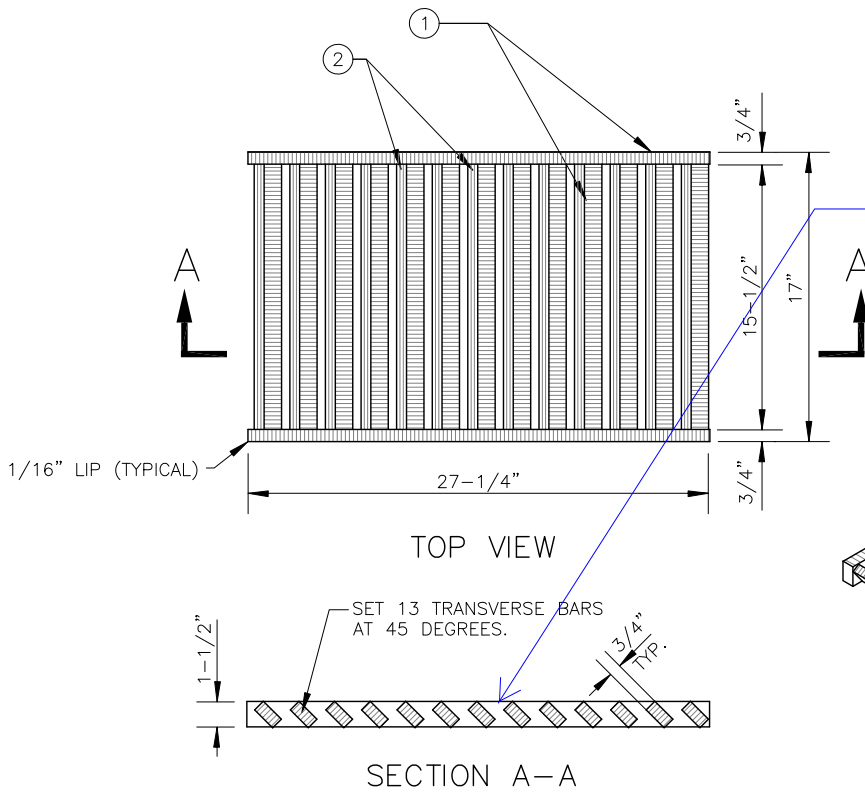
GRATE FRAME DETAIL

N.T.S.

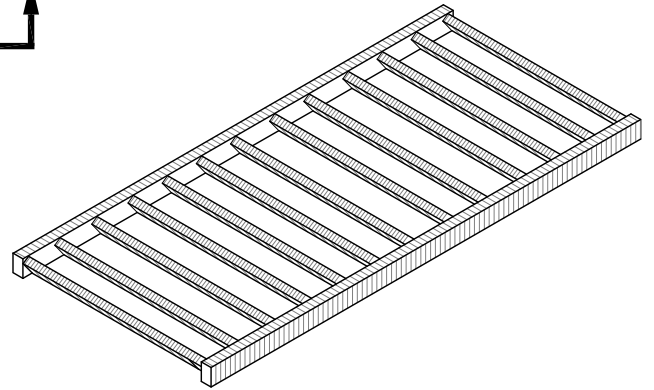
LEGEND

- ① 1-1/2" x 3/4" STEEL BARS (TYP.).
- ② 1/4" FILLET WELD ALL BARS 4 PLACES (TYP.).
- ③ WELD (4) 1/2"x3" STUDS.

2017

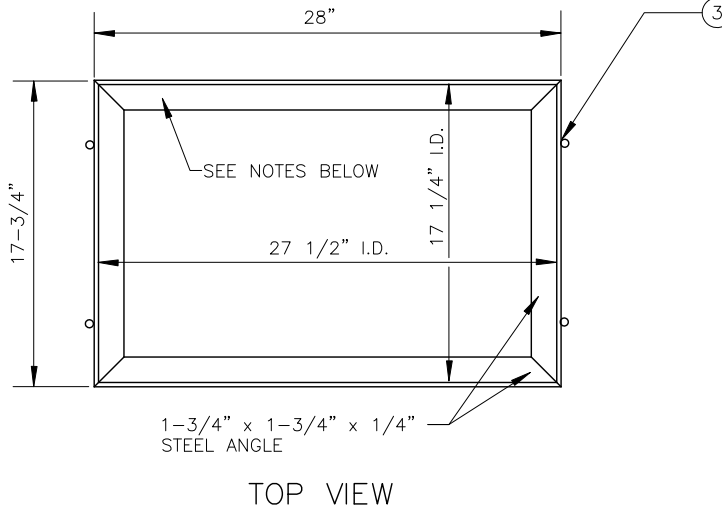


GRATE OPENINGS APPEAR TO BE GREATER THAN 1/2" WIDE. DO NOT PLACE THIS GRATE IN A PEDESTRIAN ACCESS ROUTE DUE TO SIZE OF GRATE OPENINGS. SEE COMMENTS IN TEXT BOX THIS SHEET.



GRATE TYPE

N.T.S.



ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7) RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 1/4" OR 1/2" WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED 1/2" (2011 PROWAG R302.7.3).

GRATE FRAME DETAIL

N.T.S.

NOTES

- ① FOUR-SIDED FRAME IS REQUIRED.

LEGEND

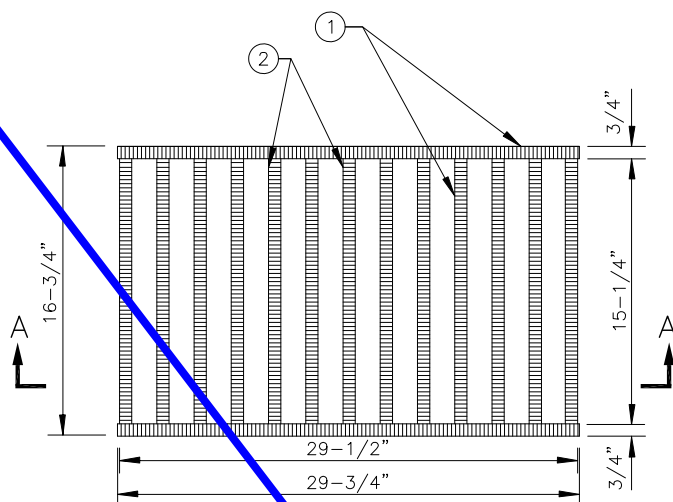
- ① 1-1/2" x 3/4" STEEL BARS (TYP.).
- ② 1/4" FILLET WELD ALL BARS. 4 PLACES (TYP.).
- ③ WELD (4) 1/2"x7" STUDS.

2017 ACHD REVISION

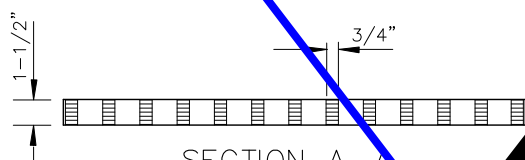
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CATCH BASIN GRATE
TYPE I

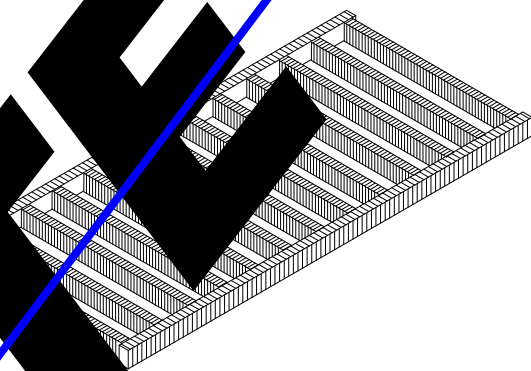
STANDARD DRAWING
NO. SD-609



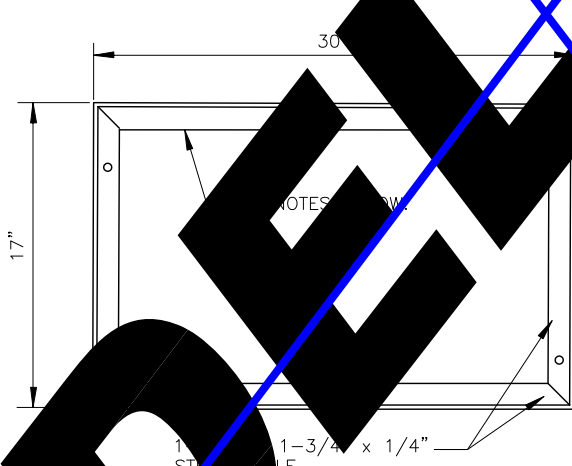
TOP VIEW



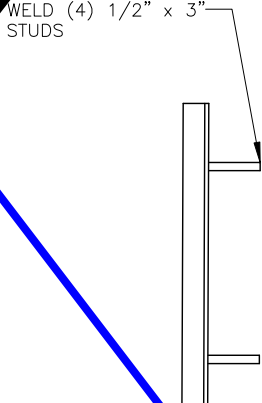
SECTION A-A



ISOMETRIC



TOP VIEW



END VIEW

GRATE FRAME DETAIL

N.T.S.

NOTES

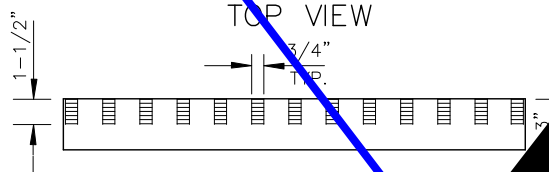
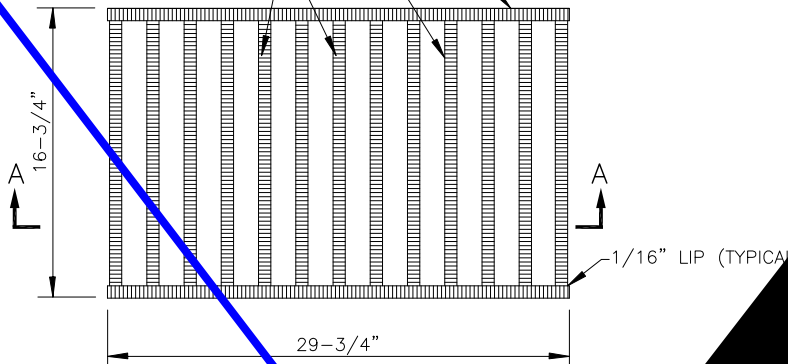
- ① FOUR-SIDED FRAME IS REQUIRED.
- ② CONTRACTOR HAS THE OPTION OF WELDING THE BACK STEEL ANGLE BAR INTO PLACE AFTER SLIP FORMS FOR BOX HAVE BEEN REMOVED. ENSURE GRATE FRAME IS SQUARE BEFORE DOING A FULL PENETRATION WELD TO ATTACH BACK STEEL ANGLE BAR.

LEGEND

- ① 1-1/2" x 3/4" STEEL BARS (TYP.).
- ② 1/4" FILLET WELD ALL BARS 4 PLACES (TYP.).
- ③ WELD (4) 1/2"x3" STUDS.

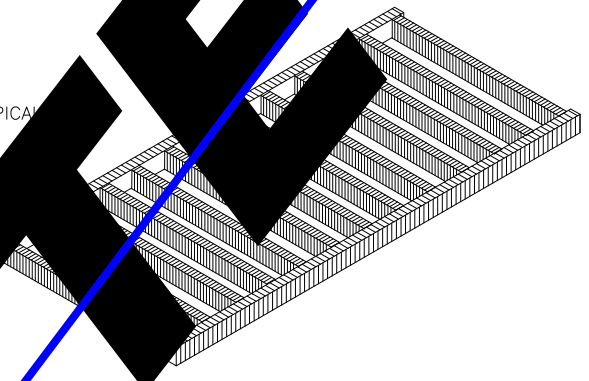
2 BARS 3" x 5/8" x 2'-4 3/4" LONG
13 BARS 1-1/2" x 5/8" x 15-1/4" LONG

1/4" FILLET WELD ALL BARS
4 PLACES (TYP.)

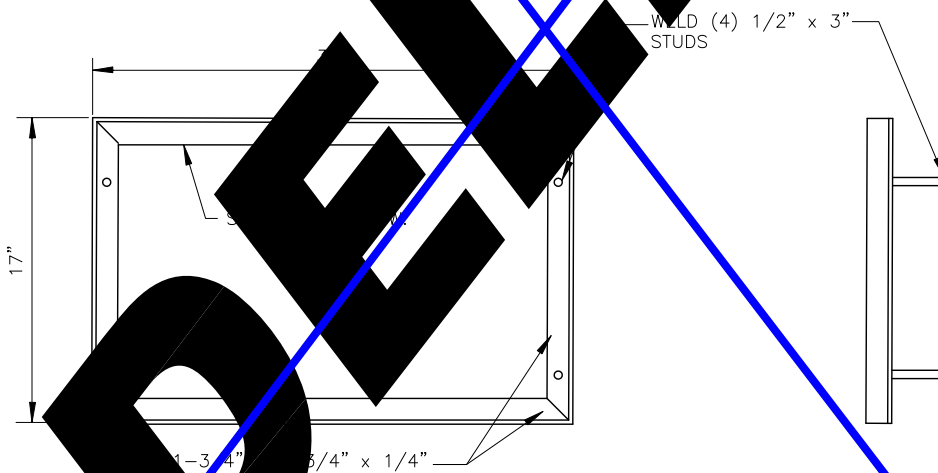


SECTION A-A

TOP VIEW



ISOMETRIC



END VIEW

TOP VIEW

NOTES

- (A) FOUR-SIDED FRAME IS REQUIRED.
- (B) CONTRACTOR HAS THE OPTION OF WELDING THE BACK STEEL ANGLE BAR INTO PLACE AFTER SLIP FORMS FOR BOX HAVE BEEN REMOVED. ENSURE GRATE FRAME IS SQUARE BEFORE DOING A FULL PENETRATION WELD TO ATTACH BACK STEEL ANGLE BAR.

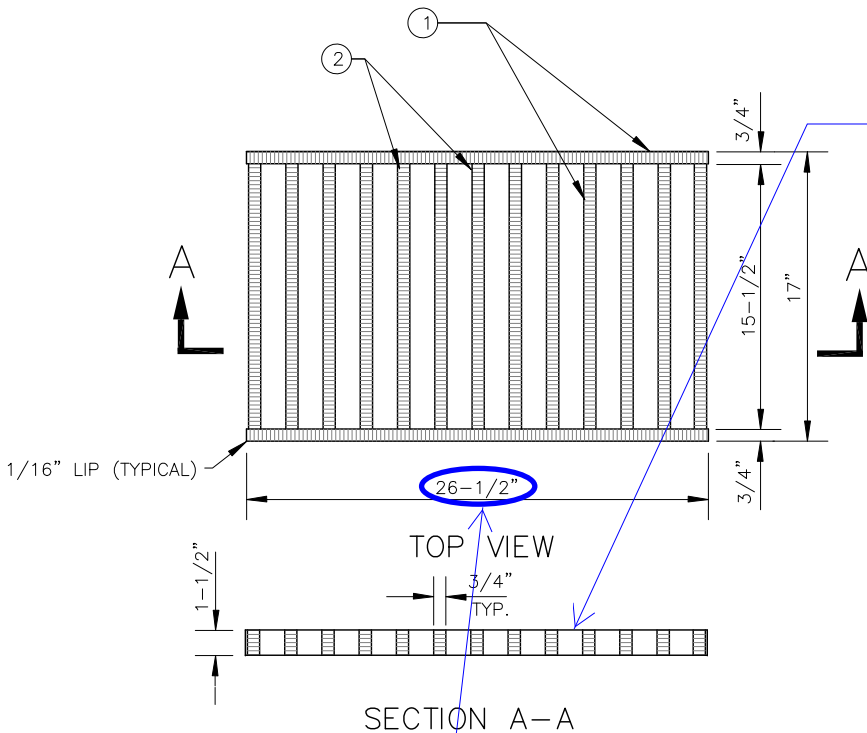
GRATE FRAME DETAIL

2017

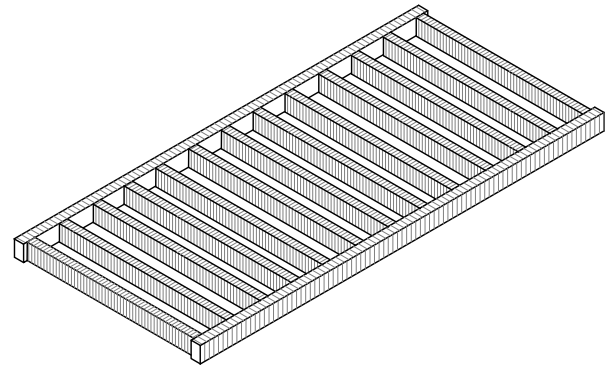
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION

CATCH BASIN GRATE
TYPE III

STANDARD DRAWING
NO. SD-610A



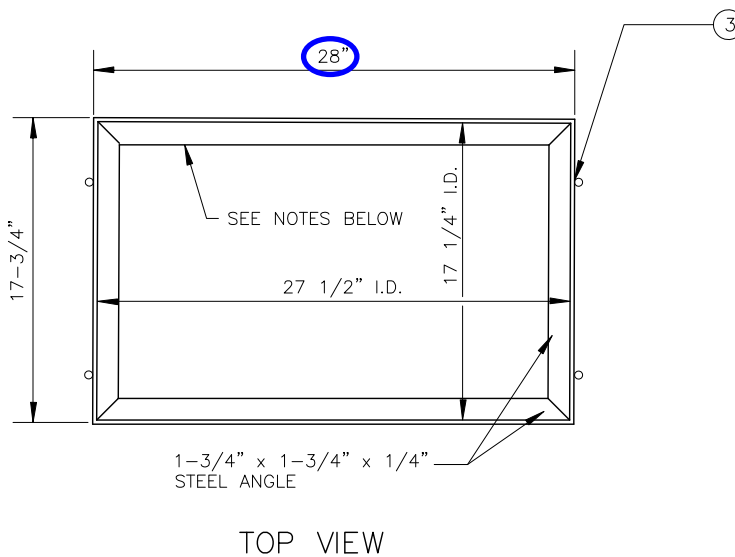
GRATE OPENINGS APPEAR TO BE GREATER THAN 1/2" WIDE. DO NOT PLACE THIS GRATE IN A PEDESTRIAN ACCESS ROUTE DUE TO SIZE OF GRATE OPENINGS. SEE COMMENTS IN TEXT BOX THIS SHEET.



ISOMETRIC

APPEARS TO BE A LARGER GAP BETWEEN THE FRAME AND GRATE THAN SHOWN IN SD-609 (ACHD). CONFIRM WIDTH OF GRATE AND WIDTH OF FRAME (27.5"-26.5"=1" GAP).

GRATE TYPE III



ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7). RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 1/4" OR 1/2" WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/ COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED 1/2" (2011 PROWAG R302.7.3).

NOTES

- (A) FOUR-SIDED FRAME IS REQUIRED.

GRATE FRAME DETAIL

N.T.S.

LEGEND

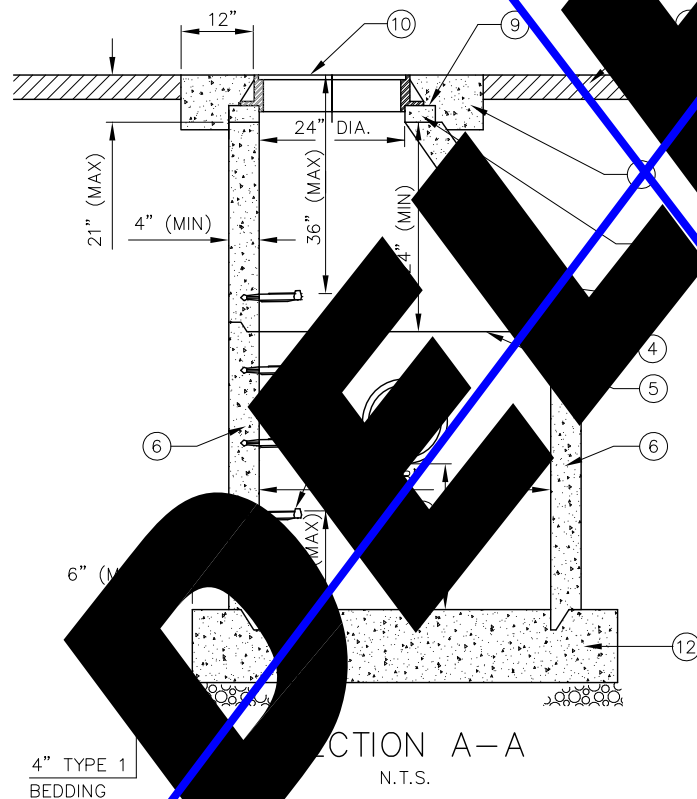
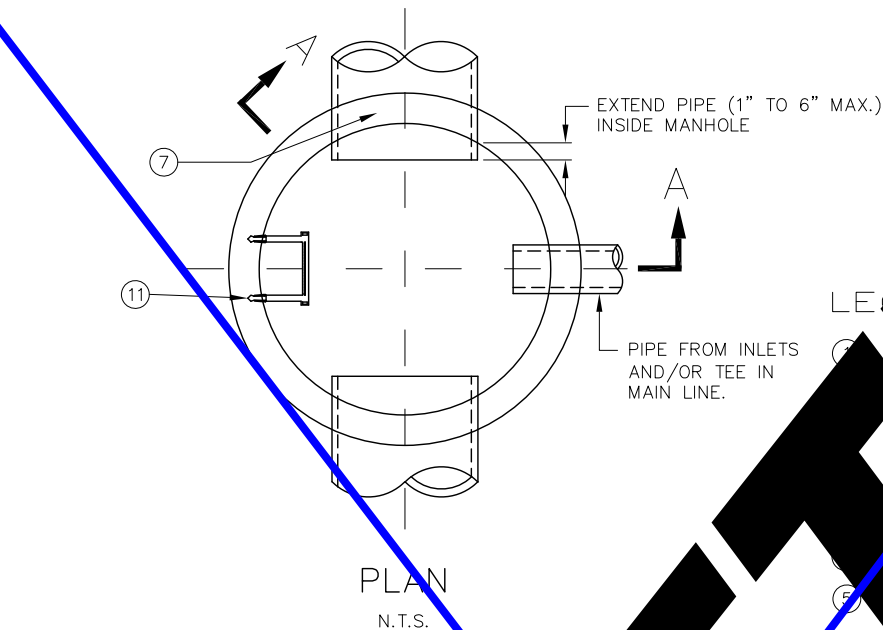
- (1) 1-1/2" x 3/4" STEEL BARS (TYP.).
 (2) 1/4" FILLET WELD ALL BARS. 4 PLACES (TYP.).
 (3) WELD (4) 1/2"x7" STUDS.

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CATCH BASIN GRATE
TYPE III

STANDARD DRAWING
NO. SD-610A



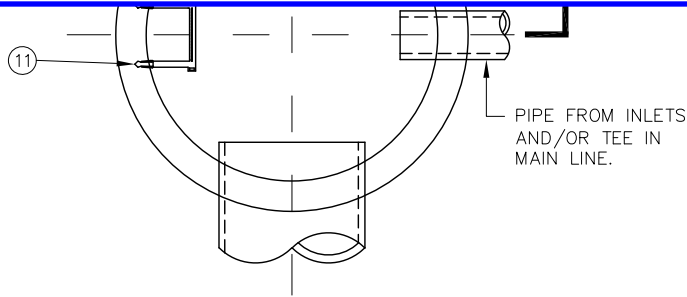
LEGEND

- (1) CONCRETE MANHOLE BASE PER SD-501 OR SD-501A.
- (2) GRADE RINGS TO BE WATERTIGHT IN PLACE, NOT TO EXCEED FINISHED SURFACE TO TOP OF RING.
- (3) PRECAST MONOLITHIC ECCENTRIC CONE SECTION. (REINFORCING BAR NOT SHOWN).
- (4) RUBBER RING OR APPROVED GASKETS AT ALL JOINTS.
- (5) RINGS TO BE FLUSH WITH EXISTING SURFACING.
- (6) PRECAST CONCRETE MANHOLE BARREL SECTION (REINFORCING BAR NOT SHOWN).
- (7) PRECAST GASKETED HUB RING OR RUBBER GASKETED COLLAR.
- (8) SURFACING TO MATCH FLUSH WITH EXISTING SURFACING (AS SHOWN).
- (9) FRAME TO BE GROUTED TO GRADE RINGS.
- (10) FRAME AND COVER PER SD-617.
- (11) MANHOLE STEPS.
- (12) SEE SD-501 FOR CAST IN PLACE MANHOLE BASE. SEE SD-501A FOR PREFABRICATED BASE.

NOTES:

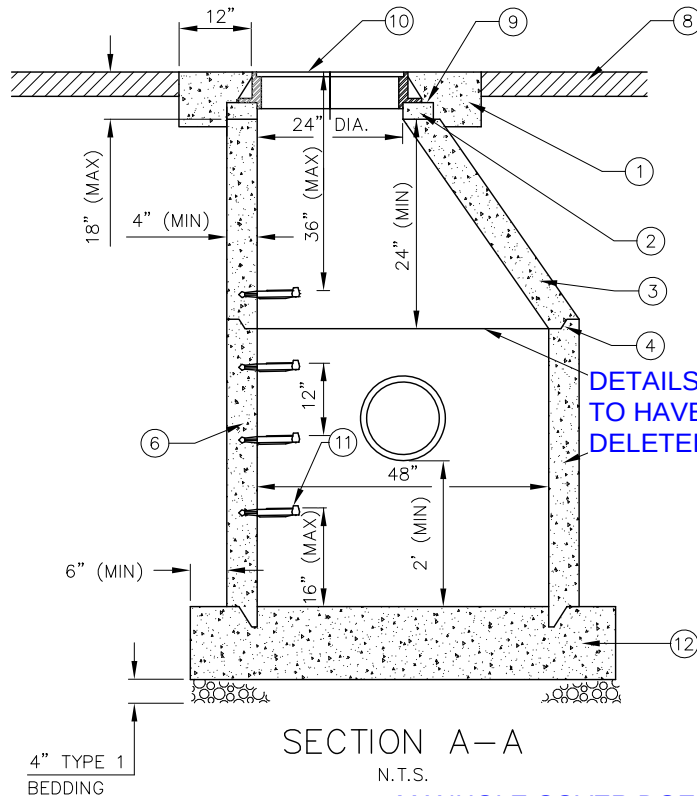
- (A) OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH ENGINEERS APPROVAL, SEE SD-501A.
- (B) PLACE VERTICAL WALL ON UPSTREAM SIDE OF MANHOLE, ROTATED 45 DEGREES.
- (C) FOR INLET PIPE DIAMETER, D, GREATER THAN 24", SEE SD-613 OR SD-614.
- (D) MANHOLE FRAME AND COVER:
 - A. REFER TO DRAWING NO. SD-617.
 - B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
 - C. "STORM DRAIN" ON COVER.
- (E) WHERE PVC PIPE IS UTILIZED, INSTALL A RUBBER RING OR GASKET COLLAR WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.
- (F) EITHER BASE ON SD-501 OR SD-501A MAY BE USED WITH EITHER MANHOLE DESIGN.

ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7) RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).



PLAN

MANHOLE COVER DOES NOT APPEAR TO BE DETAILED IN SD-617 (ACHD).



SECTION A-A

N.T.S.

MANHOLE COVER DOES NOT APPEAR TO BE DETAILED IN SD-617 (ACHD).

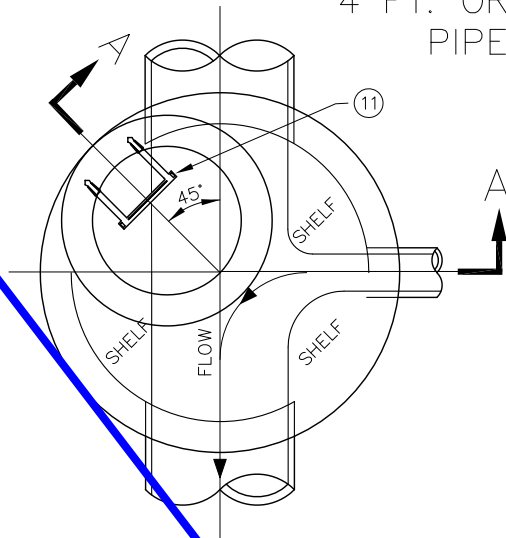
LEGEND

- ① CONCRETE COLLAR IN PAVED STREET SECTIONS PER SD-616. (ACHD)
- ② GRADE RINGS GROUTED WATERTIGHT IN PLACE, NOT TO EXCEED 18" FROM FINISHED SURFACE TO TOP OF CONE.
- ③ PRECAST MONOLITHIC ECCENTRIC CONE SECTION. (REBAR NOT SHOWN).
- ④ RAMNEK OR APPROVED GASKETS AT ALL JOINTS.
- ⑤ PROPERLY ALIGN ALL INTERIOR JOINTS.
- ⑥ PRECAST CONCRETE MANHOLE BARREL SECTION. (REBAR NOT SHOWN).
- ⑦ PRECAST GASKETED HUB RING OR RUBBER GASKETED COLLAR.
- ⑧ SURFACING TO MATCH FLUSH WITH EXISTING SURFACING (AS SHOWN).
- ⑨ FRAME TO BE GROUTED TO GRADE RINGS.
- ⑩ FRAME AND (ACHD)
- ⑪ MANHOLE STEPS.
- ⑫ SEE SD-501 FOR CAST IN PLACE MANHOLE BASE. SEE SD-501A FOR PREFABRICATED BASE.

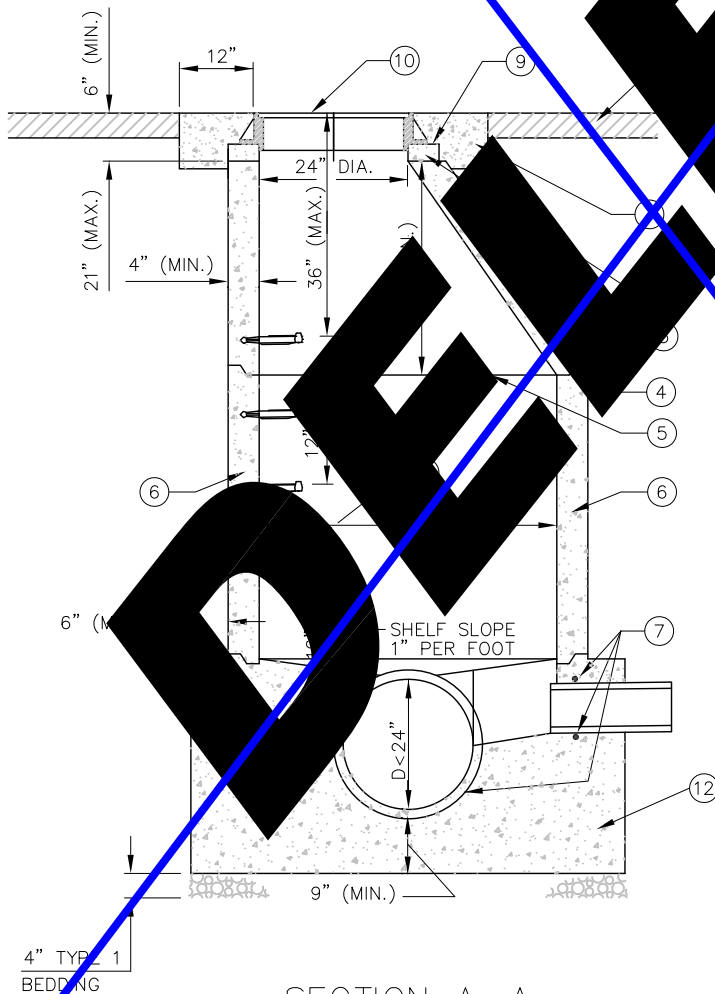
NOTES:

- (A) OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH ENGINEERS APPROVAL, SEE SD-501A.
- (B) PLACE VERTICAL WALL ON UPSTREAM SIDE OF MANHOLE, ROTATED 45 DEGREES.
- (C) FOR INLET PIPE DIAMETER, D, GREATER THAN 24", SEE SD-613 OR SD-614.
- (D) MANHOLE FRAME AND (ACHD)
 - A. REFER TO DRAWING NO. (ACHD)
 - B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
 - C. "STORM DRAIN" ON COVER.
- (E) WHERE PVC PIPE IS UTILIZED, INSTALL A RUBBER RING OR GASKET COLLAR WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.
- (F) EITHER BASE ON SD-501 OR SD-501A MAY BE USED WITH EITHER MANHOLE DESIGN.

4 FT. OR GREATER DEPTH,
PIPE DIA. $\leq 24"$



PLAN
N.T.S.



SECTION A-A
N.T.S.

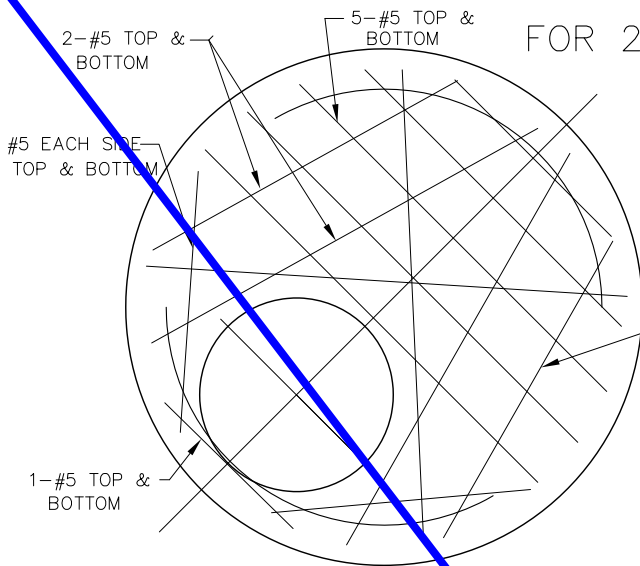
LEGEND

- ① PRECAST MANHOLE FRAME AND COVER FOR PAVED STREET SECTIONS. FRAME AND COVER SHALL BE GROUTED TO GRADE RINGS. FRAME SHALL BE SET TIGHT IN PLACE, NOT TO EXCEED 2" FROM FINISHED SURFACE TO TOP OF COVER.
- ② PRECAST MANHOLE FRAME AND COVER FOR UNPAVED STREET SECTIONS. (REFERENCE NOT SHOWN).
- ③ PRECAST MANHOLE FRAME AND COVER FOR UNPAVED STREET SECTIONS. (REFERENCE NOT SHOWN).
- ④ PRECAST MANHOLE FRAME AND COVER FOR UNPAVED STREET SECTIONS. (REFERENCE NOT SHOWN).
- ⑤ PRECAST MANHOLE FRAME AND COVER FOR UNPAVED STREET SECTIONS. (REFERENCE NOT SHOWN).
- ⑥ PRECAST MANHOLE FRAME AND COVER FOR UNPAVED STREET SECTIONS. (REFERENCE NOT SHOWN).
- ⑦ PRECAST GASKETED HUB RING OR RUBBER GASKETED COLLAR.
- ⑧ SURFACING TO MATCH FLUSH WITH EXISTING SURFACING (AS SHOWN).
- ⑨ FRAME TO BE GROUTED TO GRADE RINGS.
- ⑩ FRAME AND COVER PER SD-617.
- ⑪ MANHOLE STEPS.
- ⑫ CAST-IN-PLACE MANHOLE BASE. SEE SD-501A FOR PREFABRICATED BASE.

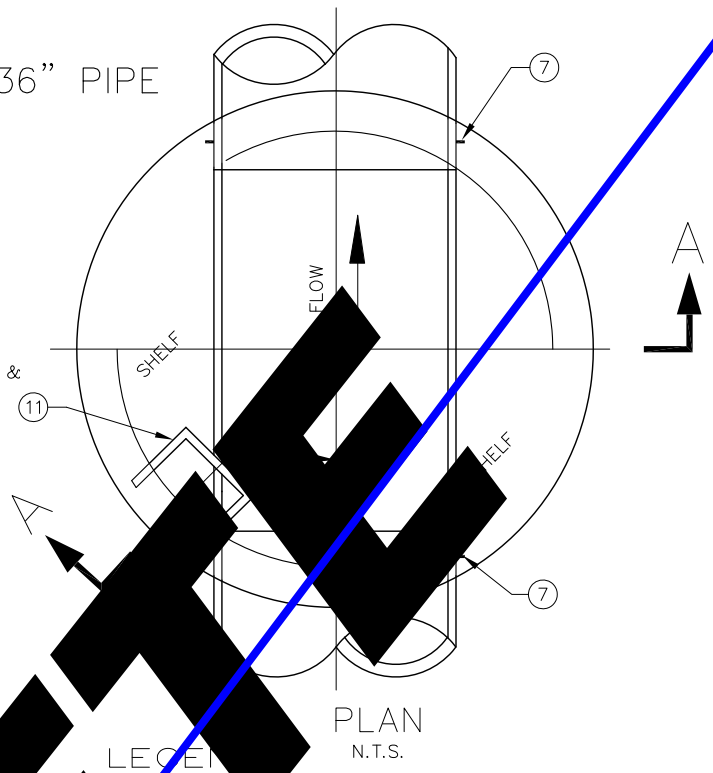
NOTES:

- A. OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH ENGINEER'S APPROVAL, SEE SD-501A.
- B. PLACE VERTICAL WALL ON UPSTREAM SIDE OF MANHOLE, ROTATED 45 DEGREES.
- C. FOR DIAMETER, D, GREATER THAN 24", SEE SD-613 OR SD-614.
- D. MANHOLE FRAME AND COVER:
 - A. REFER TO DRAWING NO. SD-617.
 - B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
 - C. "STORM DRAIN" ON COVER.
- E. WHERE PVC PIPE IS UTILIZED, INSTALL A RUBBER RING OR GASKET COLLAR WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.
- F. EITHER BASE ON SD-501A OR SD-501B MAY BE USED WITH EITHER MANHOLE DESIGN.

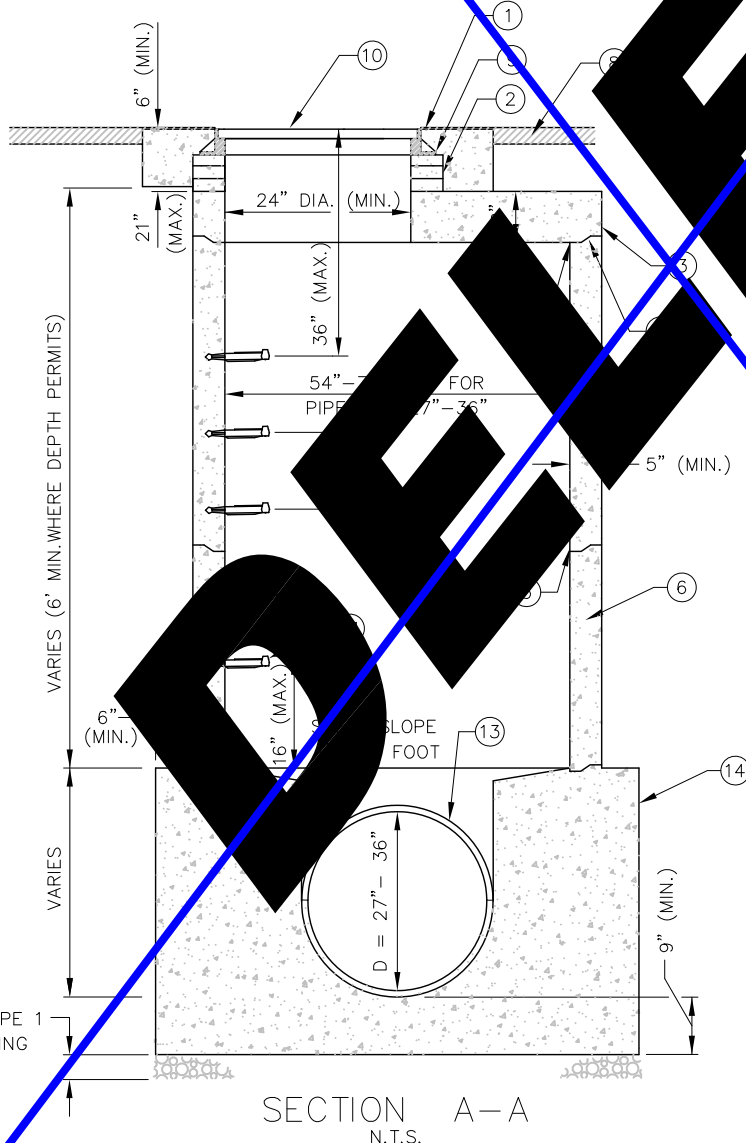
FOR 27" - 36" PIPE



STANDARD REDUCER SLAB
TOP DETAILS
N.T.S.



PLAN
N.T.S.



SECTION A-A
N.T.S.

- 1 CONCRETE COLLAR IN PAVED AND GRAVEL AREAS PER SD-616.
- 2 ABOUT GRADE RINGS WATERTIGHT IN PLACE, TO EXCEED 21" FROM FINISHED SURFACE TO TOP OF CONE.
- 3 REINFORCED CONCRETE REDUCER SLAB.
- 4 RAMNEK OR APPROVED GASKETS AT ALL JOINTS.
- 5 PROPERLY ALIGN ALL INTERIOR JOINTS.
- 6 PRECAST CONCRETE MANHOLE BARREL SECTION (REBAR NOT SHOWN) 54"-72" RCP.
- 7 PRECAST GASKETED HUB RING OR RUBBER GASKETED COLLAR.
- 8 SURFACING TO MATCH FLUSH WITH EXISTING SURFACING (AC SHOWN).
- 9 FRAME TO BE GROUTED TO GRADE RINGS.
- 10 FRAME AND COVER PER SD-617.
- 11 MANHOLE STEPS.
- 12 GROUT SMOOTH ALL INTERIOR JOINTS.
- 13 CUT OUT RCP MANHOLE TO CONFORM TO PIPE.
- 14 CAST-IN-PLACE MANHOLE BASE. SEE SD-502A FOR PREFABRICATED BASE.

NOTES:

- (A) OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH ENGINEERS APPROVAL, SEE SD-502A.
- (B) PLACE VERTICAL WALL ON UPSTREAM SIDE OF MANHOLE, ROTATED 45 DEGREES.
- (C) FOR EXTRA DEPTH MANHOLE, SEE SD-614 "STANDARD MANHOLE TYPE B, DEEP".
- (D) MANHOLE FRAME AND COVER:
 - A. REFER TO DRAWING NO. SD-617.
 - B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
 - C. "STORM DRAIN" ON COVER.
- (E) WHERE PVC IS UTILIZED, INSTALL A RUBBER RING OR GASKET COLLAR WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.

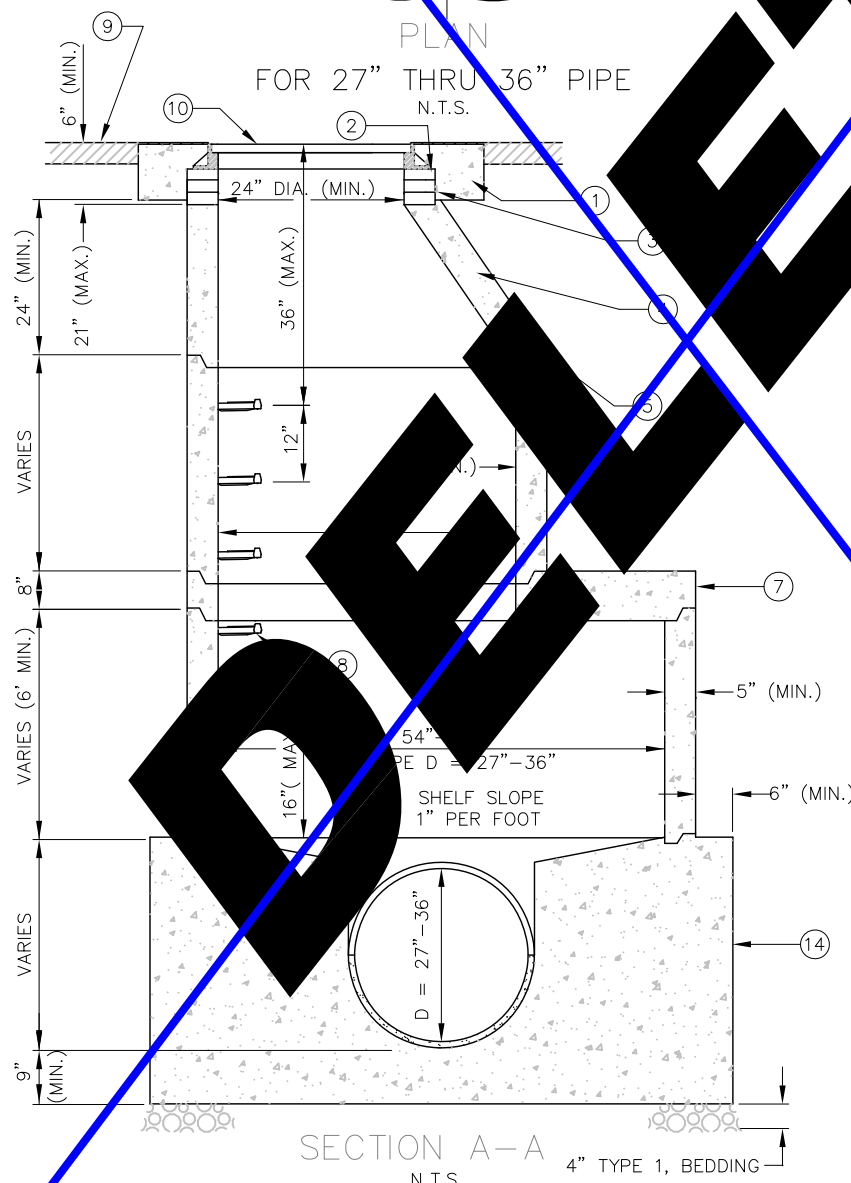
2017

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION

STANDARD MANHOLE
TYPE B

STANDARD DRAWING
NO. SD-613

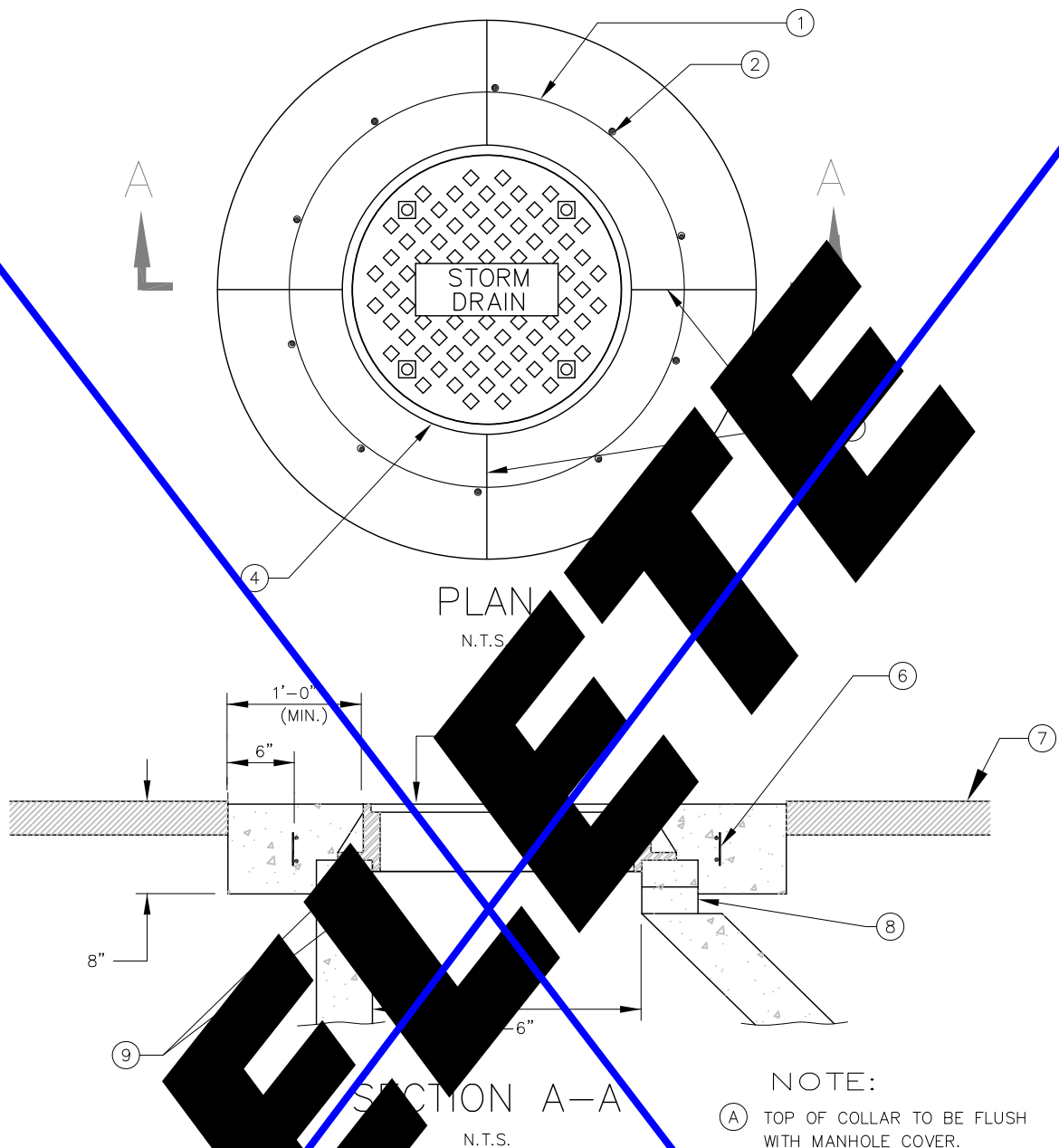
PLAN
FOR 27" THRU 36" PIPE
N.T.S.



- (1) GRAVEL AND GRAVEL
IONS SD-616.
- (2) GRAVEL TO GRADE RINGS.
- (3) GRAVEL MUST WATER TIGHT IN PLACE,
NO TOP LAYER 21" FROM FINISHED SURFACE
TO TOP OF GRAVEL.
- (4) PRECAST MONOLITHIC ECCENTRIC CONE.
- (5) MANNEK OR APPROVED GASKETS AT ALL
JOINTS.
- (6) PROPERLY ALIGN ALL INTERIOR JOINTS.
- (7) REINFORCED CONCRETE REDUCER SLAB AS
APPROVED BY THE ENGINEER.
- (8) MANHOLE STEPS.
- (9) SURFACING TO MATCH FLUSH WITH EXISTING
SURFACING (AC SHOWN).
- (10) FRAME AND COVER PER SD-617.
- (11) 54" RCP THRU 72" PIPE.
- (12) 48" DIAMETER BARREL SECTION.
- (13) GRADE RINGS.
- (14) CAST-IN-PLACE MANHOLE BASE. SEE
SD-502A FOR PREFABRICATED BASE.

NOTES:

- A** OPTIONAL PREFABRICATED MANHOLE BASE WITH APPROVED PIPE CONNECTIONS MAY BE USED WITH ENGINEERS APPROVAL, SEE SD-502A.
- B** PLACE VERTICAL WALL ON UPSTREAM SIDE OF MANHOLE, ROTATED 45 DEGREES.
- C** MANHOLE FRAME AND COVER:
A. REFER TO DRAWING NO. SD-617.
B. FRAME AND COVER SHALL BE FLUSH WITH SLOPE OF PAVEMENT.
C. "STORM DRAIN" ON COVER.
- D** WHERE PVC IS UTILIZED, A RUBBER RING OR GASKET COLLAR IS TO BE INSTALLED WHERE THE PIPE IS IN CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL, IN ORDER TO INSURE A WATERTIGHT SEAL.

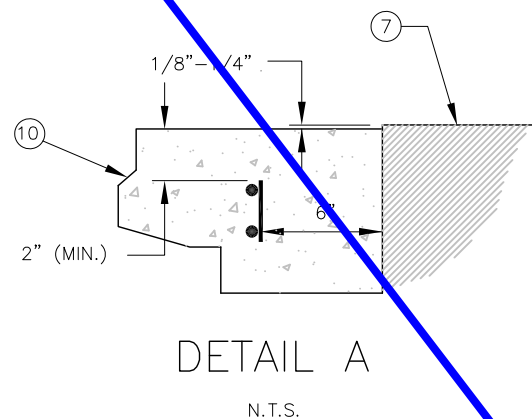


NOTE:

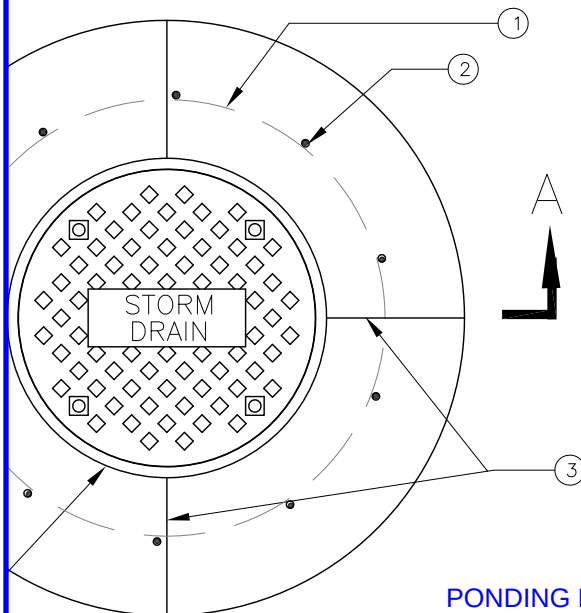
- (A) TOP OF COLLAR TO BE FLUSH WITH MANHOLE COVER.
- (B) FIBER-REINFORCED CONCRETE MAY BE USED IN LIEU OF REBAR WITH ENGINEER'S APPROVAL.

LEGEND

- (1) #4 REBAR (4) SEE SECTION A-A.
- (2) #4 REBAR (4) SPACING.
- (3) SCORES.
- (4) RIM.
- (5) FRAME AND COVER (17).
- (6) SEE "DETAIL A" FOR COLLAR IN COLLAR.
- (7) FINISHED GRADE.
- (8) SEE OTHER STANDARD DRAWINGS OF MANHOLES FOR MAXIMUM HEIGHT.
- (9) GROUT BETWEEN RING AND COVER AND GRADE RINGS.
- (10) FRILLATED POLYPROPYLENE FIBER (ADDED PER MANUFACTURER'S RECOMMENDATIONS) MAY BE USED IN LIEU OF #4 REBAR IN CONCRETE COLLARS.

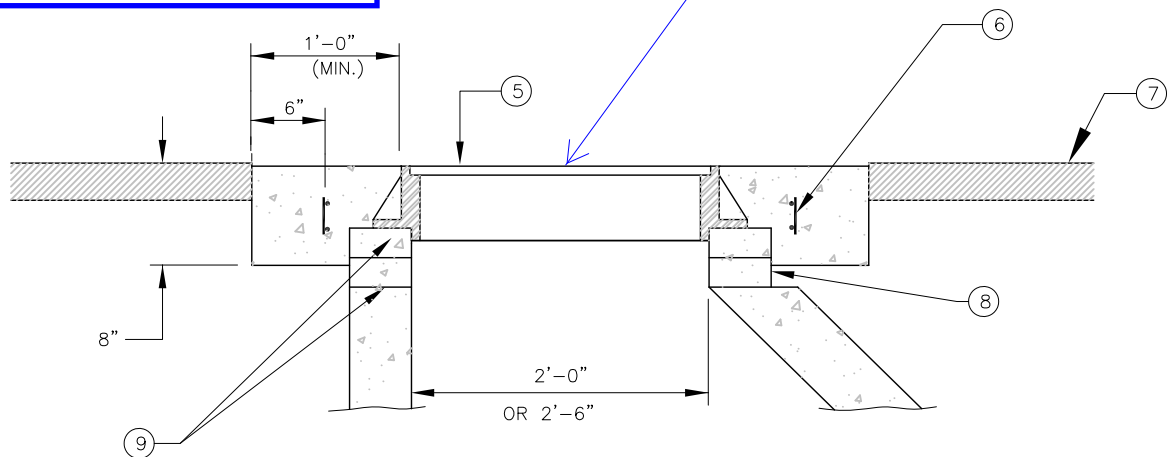


ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7) RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).



PLAN
N.T.S.

PONDING MAY OCCUR IF MANHOLE COVER AND COLLAR ARE $\frac{1}{8}$ " TO $\frac{1}{4}$ " BELOW ADJACENT PAVEMENT.



SECTION A-A
N.T.S.

NOTE:

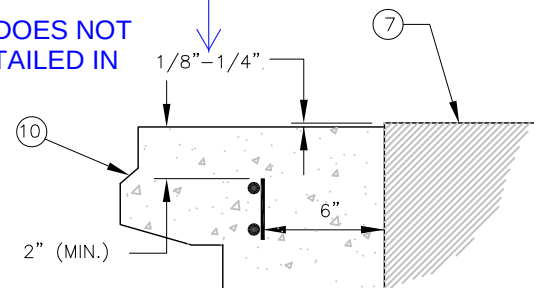
- (A) TOP OF COLLAR TO BE FLUSH WITH MANHOLE COVER.
- (B) 3LB PER CY OF FIBER-REINFORCED CONCRETE MAY BE USED IN LIEU OF REBAR WITH ENGINEER'S APPROVAL.

LEGEND

- (1) #4 REBAR (2 EACH) SEE SECTION A-A).
- (2) #4 REBAR AT 20" SPACING.
- (3) SCORES. ← **DETAIL SCORING**
- (4) RIM.
- (5) FRAME AND ← **(ACHD)**
- (6) SEE "DETAIL A" FOR REBAR IN COLLAR.
- (7) FINISHED GRADE.
- (8) SEE OTHER STANDARD DRAWINGS OF MANHOLES FOR MAXIMUM HEIGHT.
- (9) GROUT BETWEEN RING AND COVER AND GRADE RINGS.
- (10) FRIBILLATED POLYPROPYLENE FIBER (1 1/2 LBS. PER CY) MAY BE USED IN LIEU OF #4 REBAR IN CONCRETE COLLARS.

SEE COMMENTS IN TEXT BOX THIS SHEET.

MANHOLE COVER DOES NOT APPEAR TO BE DETAILED IN SD-617 (ACHD).



DETAIL A
N.T.S.

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(ACHD SUPPLEMENT)

MANHOLE COLLAR

STANDARD DRAWING
NO. SD-616

MINIMUM LETTERING HEIGHT
OF 1", MOLDED INTO TOP
OF COVER

2 TO 4 1" DIA. HOLES
SPACED EQUIDISTANT

STORM
DRAIN

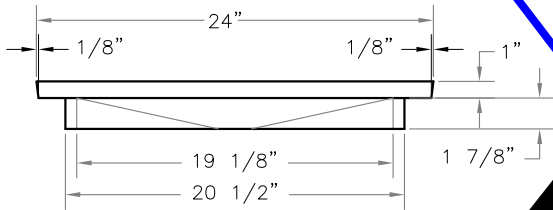
7/16 THROUGH
DRILL TO
ACCOMMODATE
3/8" x 16TPI
1 1/2" - 2 1/2"
BLACKHAWKS
FINISH-FLAT
COUNTERSUNK
SOCKET HEAD
(3) REQ'D. (EQ. SP.)

R11 9/16"
(BOLT CIRCLE)

SECTION A-A
SCALE: X4

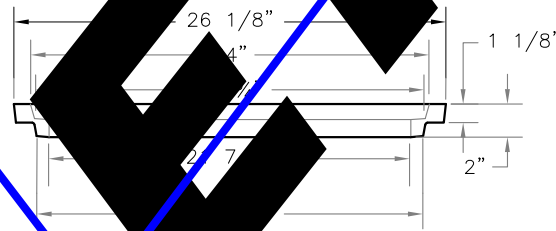
TOP VIEW

MANHOLE COVER & FRAME



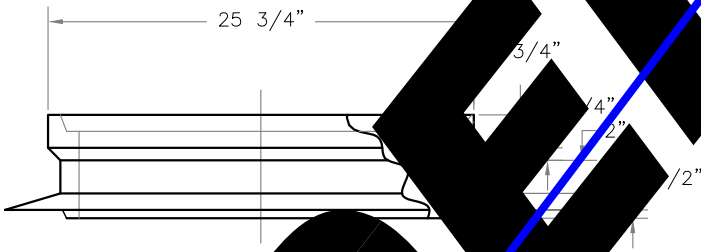
SIDE VIEW

MANHOLE COVER
MIN. WEIGHT 93 LBS



VIEW

MANHOLE RISER

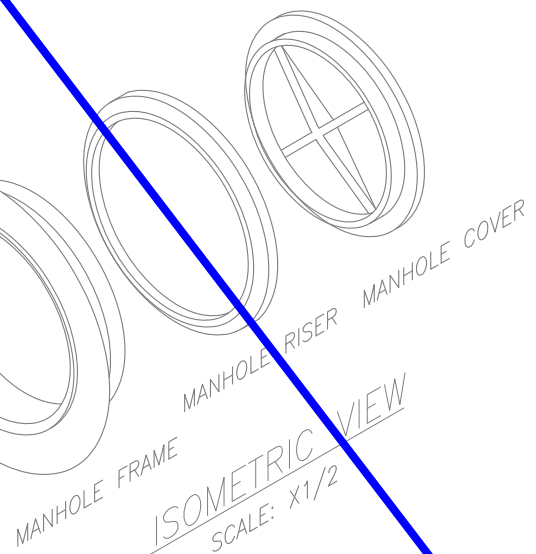


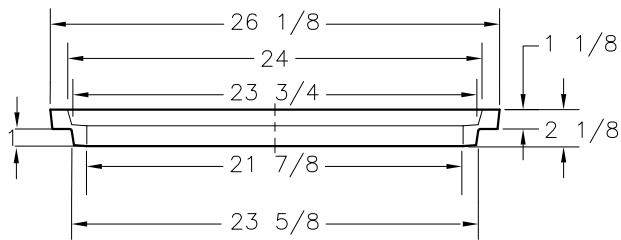
SIDE VIEW

MANHOLE FRAME
MIN. WEIGHT 147 LBS

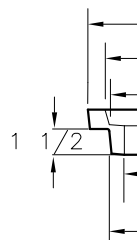
NOTES:

- (A) FIBERGLASS DUST SHALL BE USED ON ALL MANHOLES THAT ARE NOT ON PAVED SURFACES.
- (B) MANHOLE FRAMES & COVERS SHALL HAVE A TOLERANCE OF 1/8"±. COVERS SHALL NOT BE WARPED AND ANY THAT ARE, UPON TRAVEL SHALL BE REPLACED. MACHINE ALL MATCHING SURFACES.
- (C) REFER TO SD-507A FOR MANHOLE COVER AND FLAT FRAME (60" OPENING).

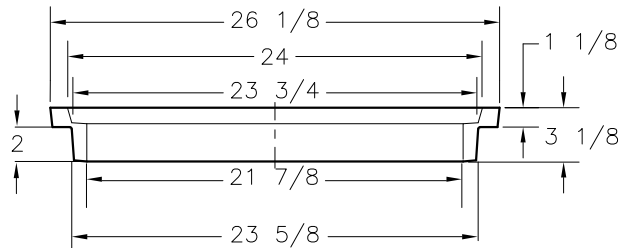




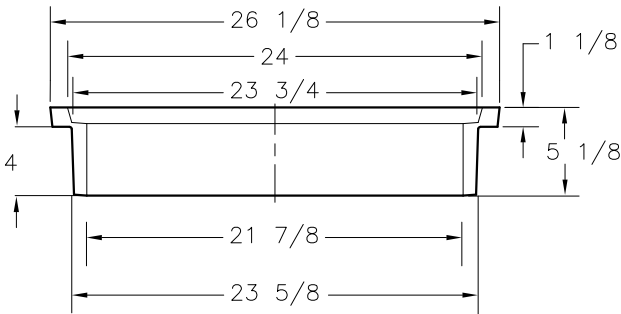
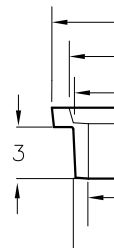
SIDE VIEW
1" Manhole Riser



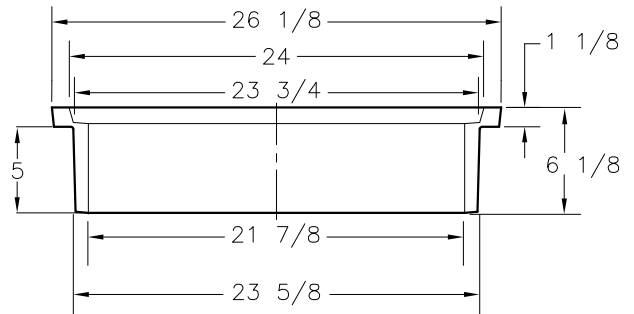
ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7) RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 1/4" OR 1/2" WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED 1/2" (2011 PROWAG R302.7.3).



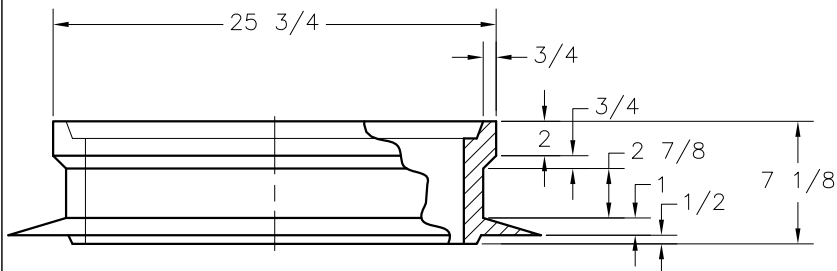
SIDE VIEW
2" Manhole Riser



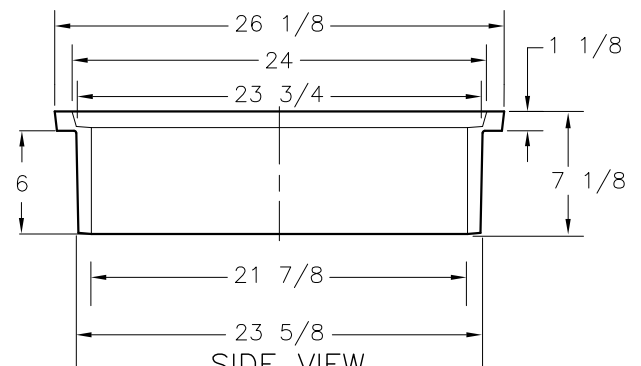
SIDE VIEW
4" Manhole Riser



SIDE VIEW
5" Manhole Riser



SIDE VIEW
Manhole Cover Frame
Min. Weight 147 lbs



SIDE VIEW
6" Manhole Riser

RANGE OF 1/8" TO 1/4" LOWER THAN ADJACENT SURFACE IS SHOWN ON SD-616 (ACHD). SEE COMMENTS IN TEXT BOX THIS SHEET.

- NOTES:
- (A) FIBERGLASS DUST PAN REQUIRED ON ALL MANHOLES THAT ARE NOT ON PAVED STREETS.
 - (B) MANHOLE FRAMES & COVERS SHALL BE SET FLUSH WITH ADJACENT ROADWAY/FACILITY GRADE. COVERS SHALL NOT BE WARPED. ANY WARPED COVERS SHALL BE REPLACED. MACHINE ALL MATCHING SURFACES.
 - (C) ALL UNITS IN INCHES.

PROVIDE DETAIL OF MANHOLE COVER.

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CONSTRUCTION
(ACHD SUPPLEMENT)

STANDARD MANHOLE FRAME,
, AND RISER

STANDARD DRAWINGS
NO. SD-617

3/4" SS ANCHOR BOLTS WITH
4" MIN. EMBEDMENT W/WASHERS
AND REMOVEABLE NUTS
(TYP. OF 4)

LENGTH AND WIDTH OF BOX (TYPICAL)
WALL THICKNESS/2 (TYPICAL)

INSTALL 4 LBS/S.F. EXPANDED
STEEL TOP (TYPICAL)

WELD 2"x1/8" FLAT BAR STEEL
AROUND PERIMETER (TYPICAL)

BOX LID

TOP OF BOX
ELEVATION PER
PLAN/PROFILE

INSTALL SLIDE GATE AT
UP STREAM END OF
PIPE AT REQ'D LOCATIONS

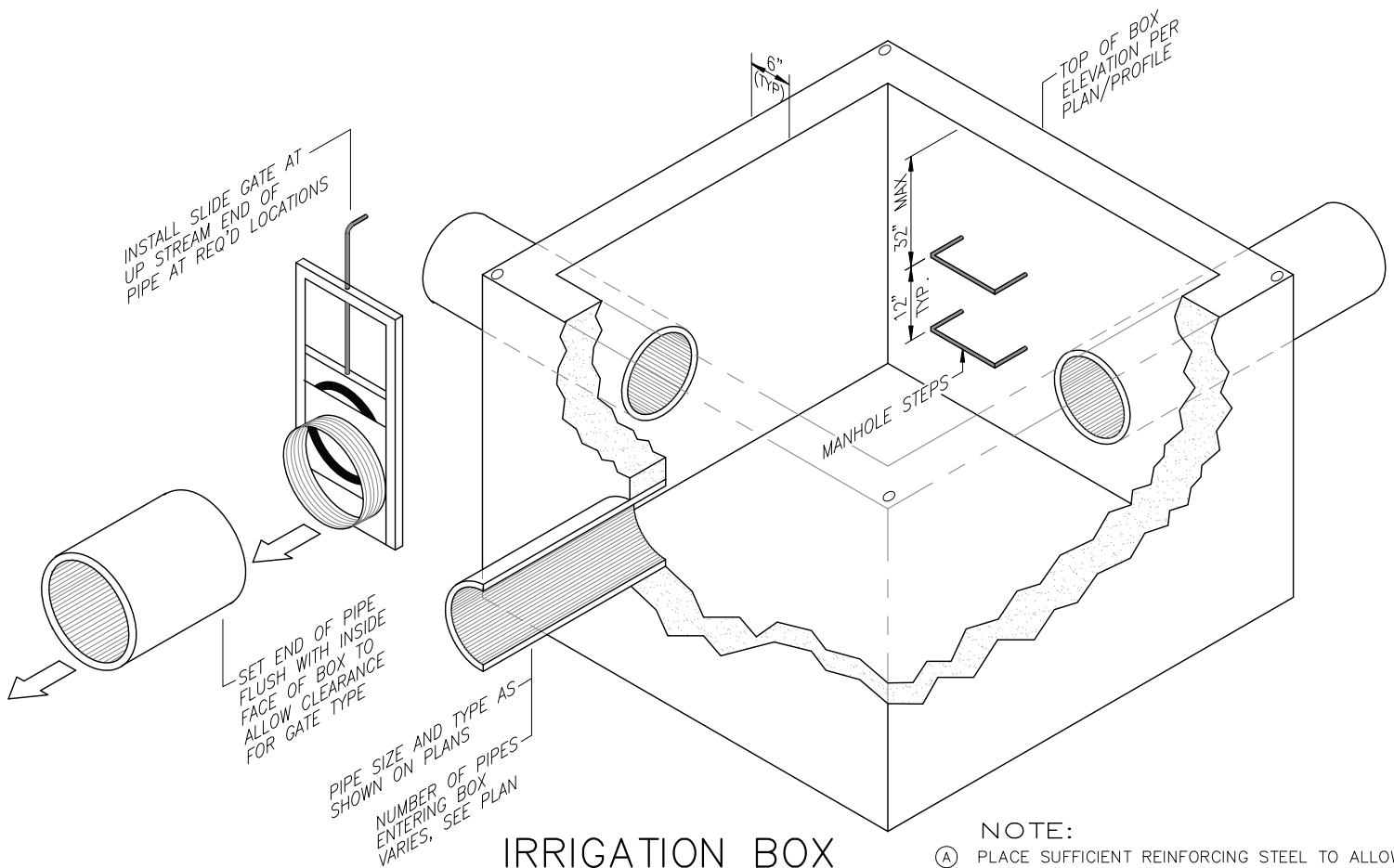
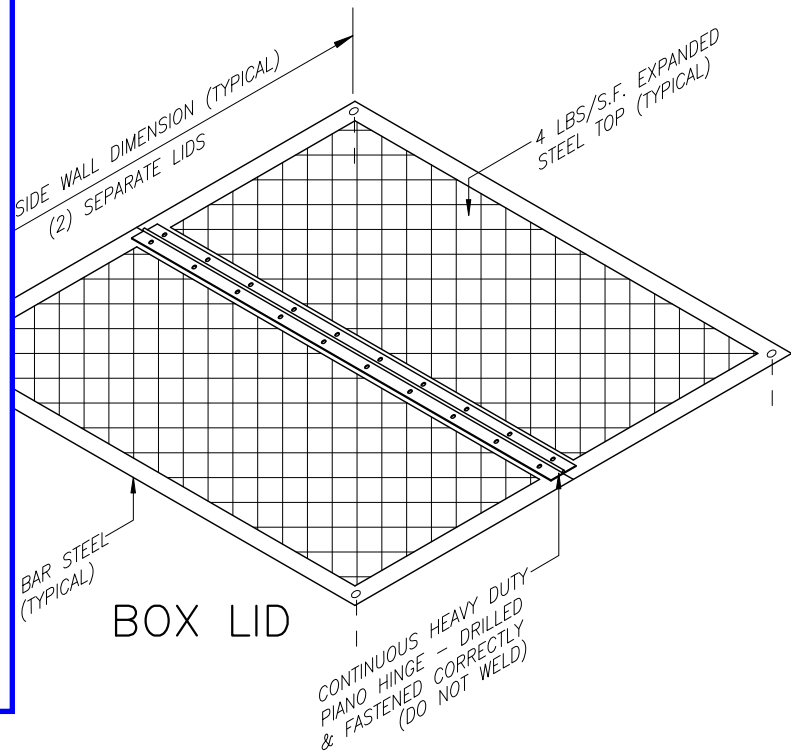
PIPE SIZE AND TYPE AS
SHOWN ON PLANS
NUMBER OF PIPES
ENTERING BOX
VARIES, SEE PLAN

IRRIGATION BOX

NOTE:

- (A) PLACE SUFFICIENT REINFORCING STEEL TO ALLOW FOR SITE SPECIFIC LOADING CONDITIONS AND ACCOMMODATE PIPE PENETRATIONS.
- (B) TYPICAL MANUFACTURER'S SIZING REFERS TO STRUCTURE INTERIOR DIMENSIONS.

ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7) RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).



IRRIGATION BOX

NOTE:

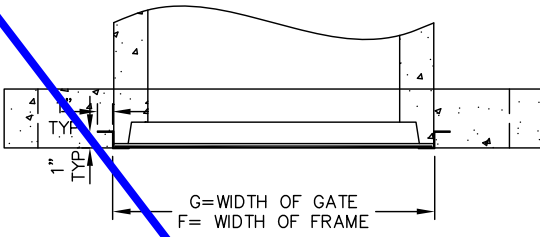
- (A) PLACE SUFFICIENT REINFORCING STEEL TO ALLOW FOR SITE SPECIFIC LOADING CONDITIONS AND ACCOMMODATE PIPE PENETRATIONS.
- (B) TYPICAL MANUFACTURER'S SIZING REFERS TO STRUCTURE INTERIOR DIMENSIONS.
- (C) ONLY INSTALL MANHOLE STEPS IN BOXES 4'X4' (INSIDE DIMENSIONS) OR LARGER AND AT LEAST 4' DEEP MEASURED FROM TOP OF BOX.

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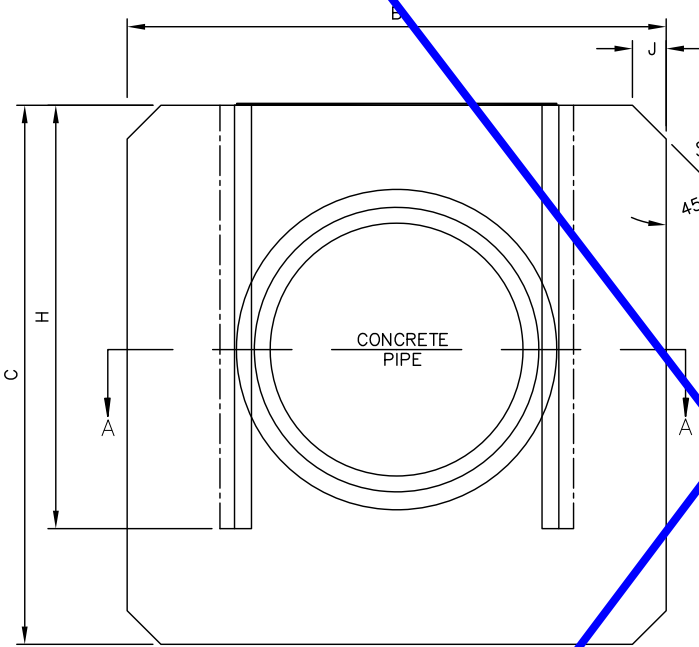
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STANDARD
IRRIGATION BOX

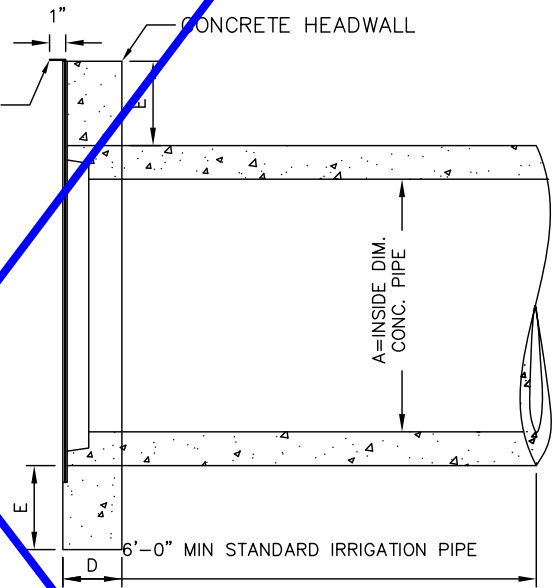
STANDARD DRAWING
NO. SD-619



SECTION A-A



END ELEVATION



SIDE ELEVATION

MINIMUM DIMENSIONS TABLE								
PIPE DIA.	MINIMUM DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H	J
6	15	15	2 1/2	3	8 1/4	8	13	3
8	22	22	3	6	12 1/2	12 1/4	17	4
10	22	22	3	6	12 1/2	12 1/4	17	4
12	27	27	3	7	16 1/4	16	21	5
15	32	32	3 1/2	8	19 1/4	19	25	5
18	36	36	4	9	23 3/4	23 1/2	28	6

NOTES

- Ⓐ SLIDE GATE AND GUIDES SHALL BE 16 GAGE GALVANIZED STEEL.
- Ⓑ DRAWING NOT TO SCALE.

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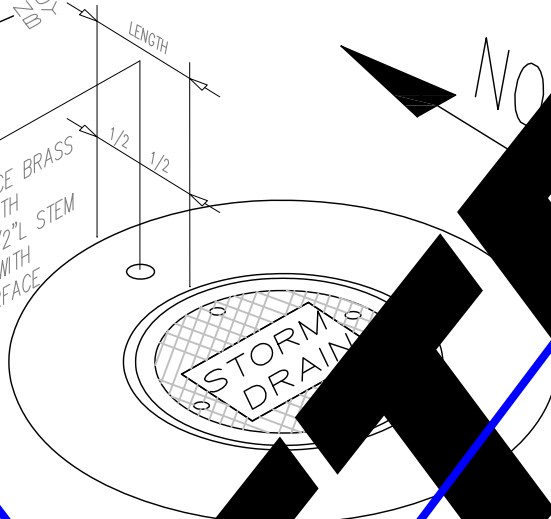
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(ACHD SUPPLEMENT)

PRECAST CONCRETE
NOT REVIEWED
HEADGATE

STANDARD DRAWING
NO. SD-619A



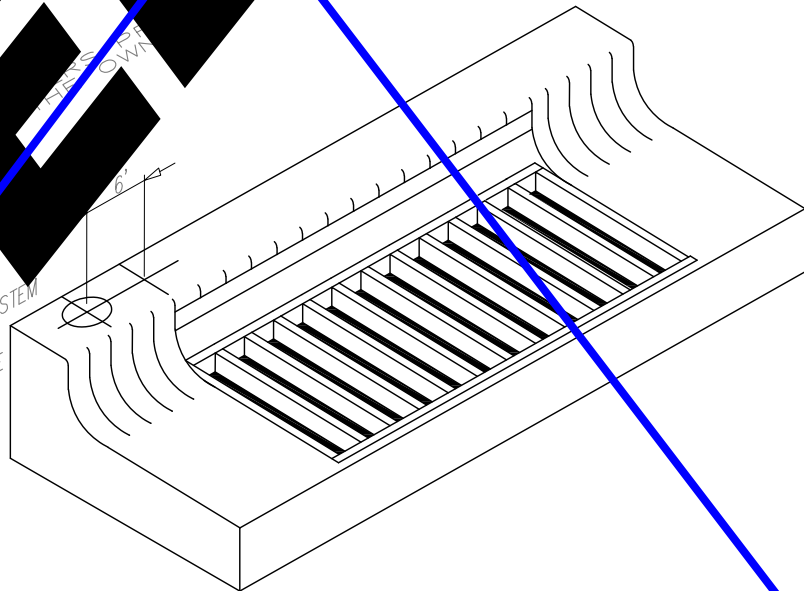
2"Ø FLAT FACE BRASS
MONUMENT WITH
5/8"Ø X 2 1/2" L STEM
PIECE FLUSH WITH
CONCRETE SURFACE



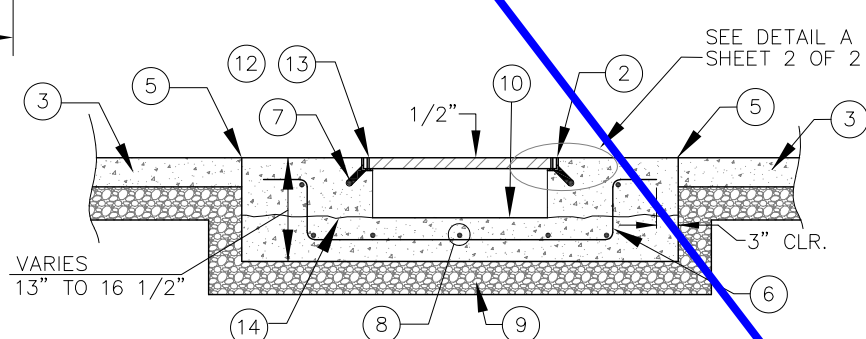
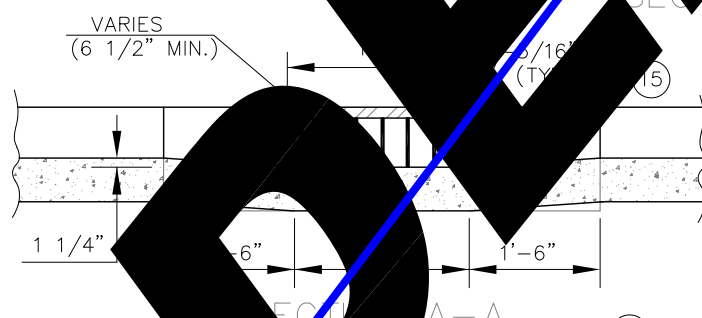
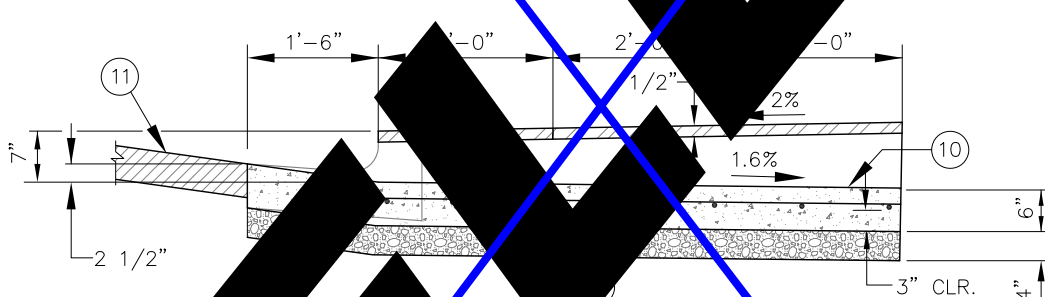
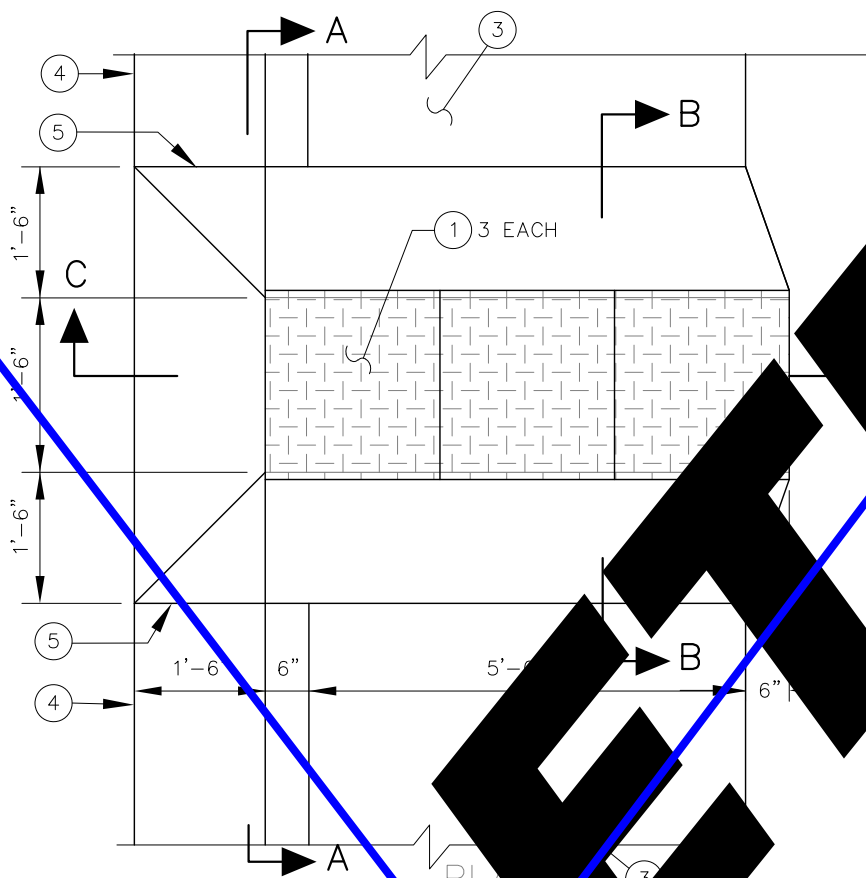
STORM DRAIN MANHOLE



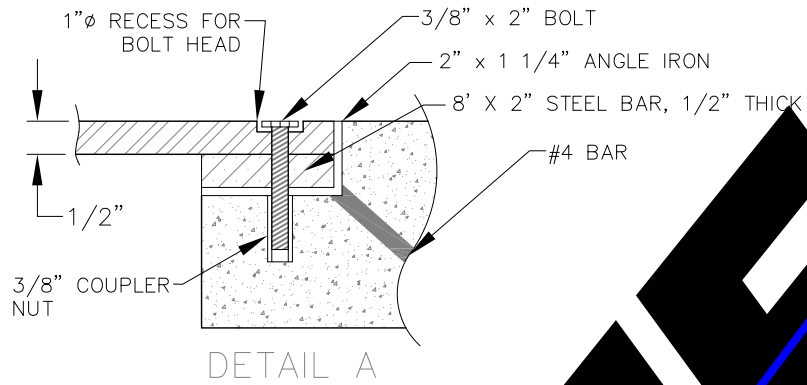
2"Ø FLAT FACE BRASS
MONUMENT WITH
5/8"Ø X 2 1/2" L STEM
PIECE FLUSH WITH
CONCRETE SURFACE



STORM DRAIN INLET



SECTION B-B

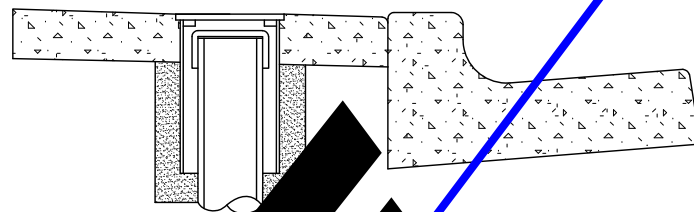
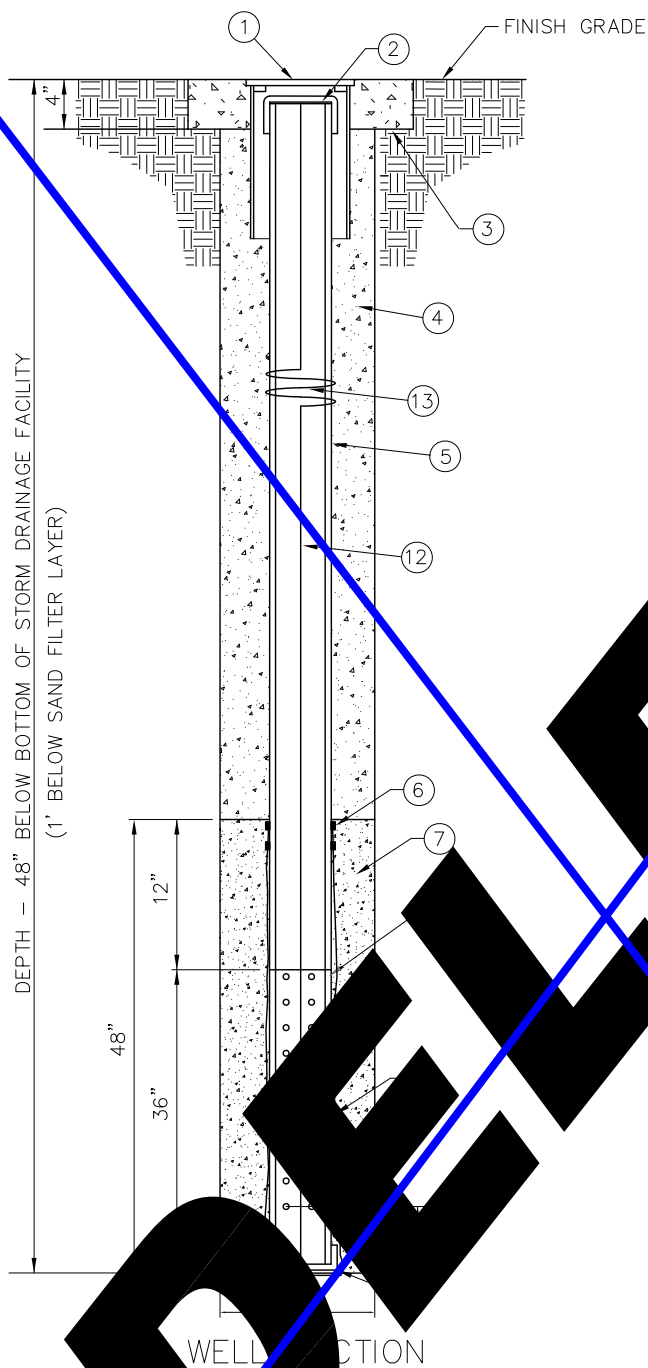


LEGEND

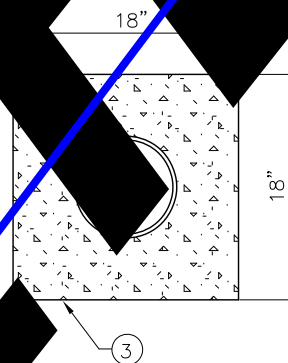
- ① 1-22"Wx24"L 1/2"T STEEL TRENCH COVER (DIAMOND PLATED)
- ② 2" x 1" ANGLE IRON
- ③ CONCRETE SIDEWALK, SEE SD-709
- ④ 6" VERTICAL CURB AND GUTTER, SEE SD-701
- ⑤ 1/2" EXPANSION JOINT (PREFORMED EXPANSION JOINT MATERIAL CONFORMING TO AASHTO M213)
- ⑥ #3 BARS AT 12" O.C.
- ⑦ #4 BAR, 24" LONG, CONNECT CENTER OF BAR TO ANGLE IRON. WELDED AND BEND EACH END AT 45° ANGLE. SPACED @ 24" O.C.
- ⑧ #3 BAR (TYPICAL)
- ⑨ 4-INCHES COMPACTED DEPTH OF 3/4" MINUS CRUSHED AGGREGATE MATERIAL. COMPACTED TO EXCEED 95% OF STANDARD PROCTOR
- ⑩ CONCRETE CL 4000
- ⑪ PAVEMENT SURFACE
- ⑫ 3/8" STAINLESS STEEL BOLTS PER 1" MINIMUM
- ⑬ 3/8" STAINLESS STEEL NUTS WELDED TO BARS @ 12" O.C.
- ⑭ ACCEPTABLE CONSTRUCTION DETAIL LOCATION
- ⑮ #3 BAR WELD TO BARS SPACED MORE THAN 12" APART

NOTES:

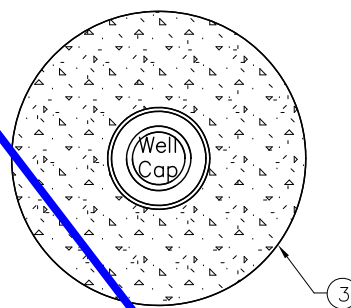
- (A) GRADE AND ELEVATION TO BE DETERMINED BY THE ENGINEER AND PUBLIC AGENCY HAVING JURISDICTION
- (B) MATERIALS SHALL COMPLY WITH I.S.P.W.C. SPECIFICATIONS
- (C) BARS PER SD-706
- (D) ANCHORING SHALL BE GRADE 60
- (E) TRENCH SHALL BE FLOORED AND WALLS. EXPOSED SURFACE TO MATCH ADJACENT SIDEWALK AND CURB



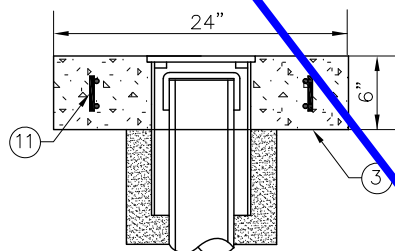
WELL COLLAR SIDEWALK



PLAN VIEW
CONCRETE COLLAR NON-TRAFFIC AREAS



PLAN VIEW
CONCRETE COLLAR - TRAFFIC AREAS



SECTION
CONCRETE COLLAR

2017

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FOR PUBLIC WORKS
CONSTRUCTION

GROUND WATER
OBSERVATION WELL
NOT REVIEWED

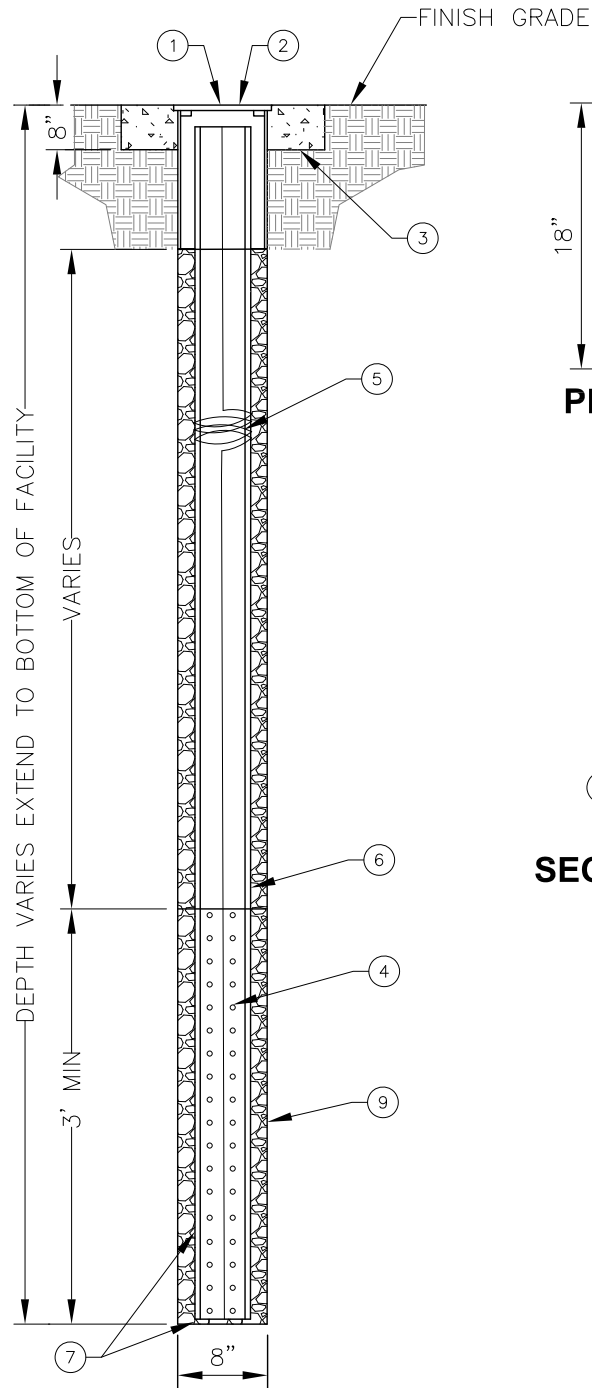
STANDARD DRAWING
NO. SD-627
1 OF 2

LEGEND

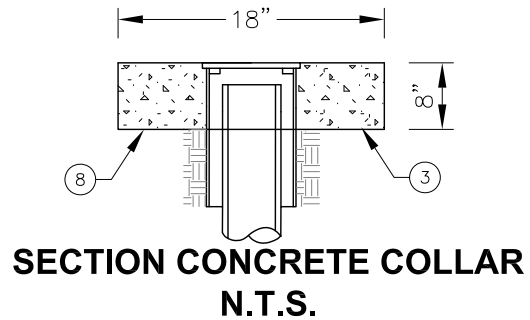
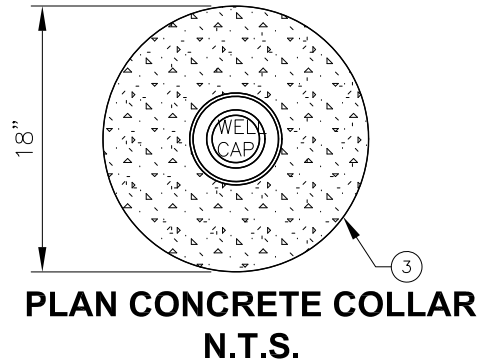
- ① WELL COVER, 8" DIAM. WATERTIGHT GALVANIZED STEEL COVER AND 6" DIA. GASKET.
- ② PVC CAP, GASKETED (WATERTIGHT).
- ③ CONCRETE (COLLAR), CLASS 3000 (ISPCW SECTION 703).
- ④ 3/4" MINUS CRUSHED AGGREGATE FOR BASE (ISPCW SECTION 703) OR MATERIAL REQUIRED FOR STORM DRAINAGE FACILITY (I.E. 3" GRAVEL, ROCK, FILTER SAND).
- ⑤ PVC PIPE, 4" DIAMETER ASTM D-3035 CLASS 35.
- ⑥ 2 - STAINLESS STEEL HOSE CLAMPS, 1/2" DIA. HOLES. SECURE GEOTEXTILE IN PLACE.
- ⑦ FILTER SAND (ISPCW SECTION 801).
- ⑧ PERFORATED PVC PIPE, ASTM D-3035 CLASS 35 - 3/8" DIA. HOLES AT 3" ON CENTER.
- ⑨ DRAINAGE GEOTEXTILE, TYPE I (ISPCW SECTION 703).
- ⑩ PVC CAP, SOLVENT WELD JOINT, GASKETED (WATERTIGHT).
- ⑪ (2) #4 REBAR HOOPS WITH WATERTIGHT GASKET.
- ⑫ NO. 12 AWG. GALVANIZED FIBER OPTIC CABLE.
- ⑬ THREE 6" DIA. HOLES, 1/2" DIA. HOLES.

NOTES:

- (A) WELL TO BE FOR MONITORING OF GROUNDWATER LEVEL NEAR STORM DRAINAGE.
- (B) ALL GROUNDWATER OBSERVATION WELLS SHALL BE APPROVED BY ENGINEER.



**SECTION
N.T.S.**



ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7.2). RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).

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LEGEND

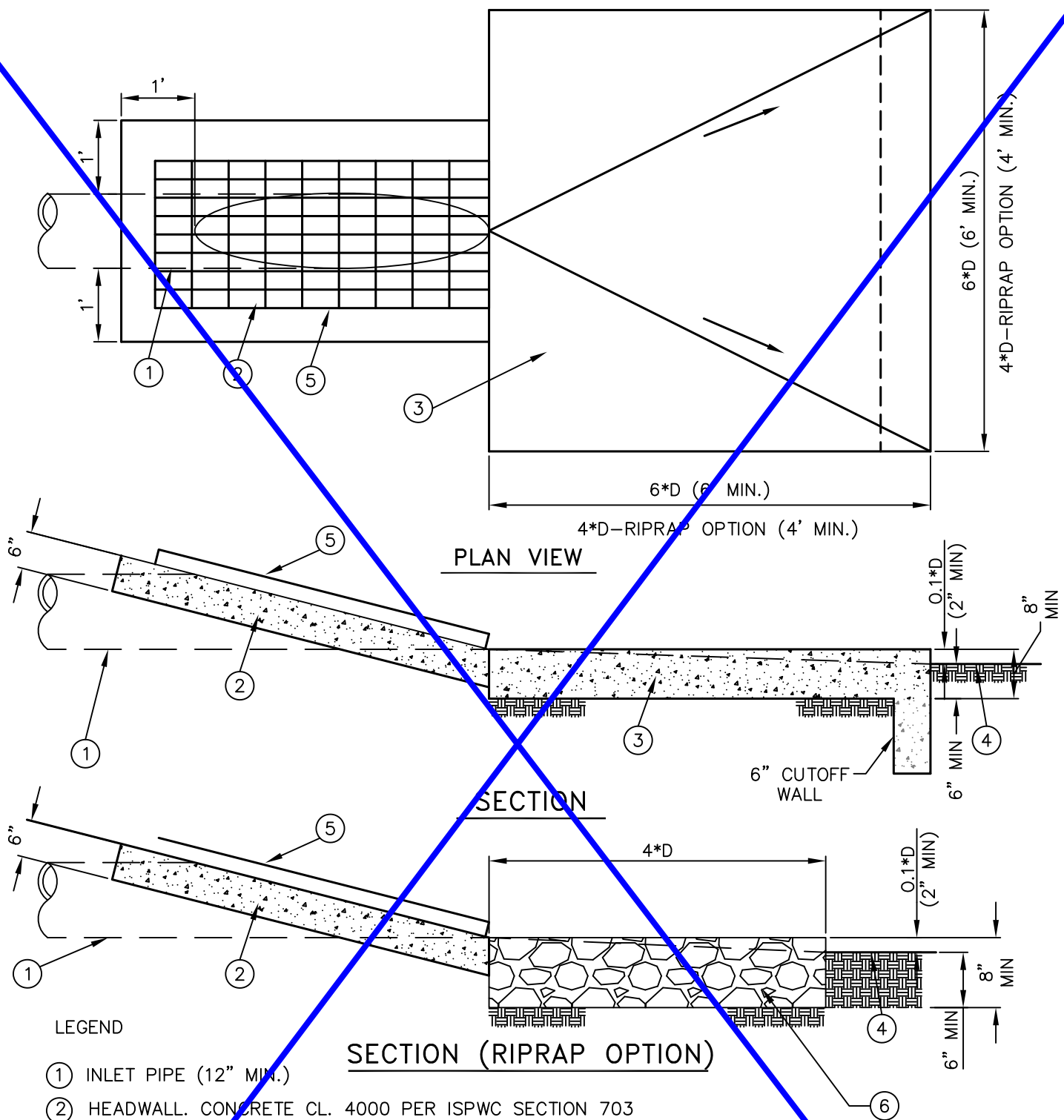
- ① WELL COVER, 8" DIA. WATERTIGHT GALVANIZED STEEL BOLT DOWN COVER AND CANISTER
- ② 2 OR 3 BOLT LID WITH 9/16" HEAD AND SAE THREADS, GASKETED
- ③ CONCRETE (COLLAR), CLASS 3000 (ISPMC SECTION 703)
- ④ 3/8" DIA HOLES OR SLOTS CUT INTO PIPE AT 3" ON CENTER
- ⑤ TRACER WIRE SHALL BE PLACED ON OUTSIDE OF PVC PIPE, MINIMUM 18 GAUGE, INSULATED, SINGLE-CONDUCTOR COPPER WIRE, INSULATION COLOR SHALL BE GREEN WITH THREE 6" DIAMETER COILS
- ⑥ PIPE SHALL BE PERFORATED PVC, ASTM D-3035, SDR 35. WELLS BACKFILLED IN A PIT REQUIRE 6" PIPE. DRILLED WELLS MAY USE 4" PIPE
- ⑦ NONWOVEN FILTER FABRIC AROUND OPENINGS AND BOTTOM, FABRIC OVER CHIPS/DRAIN ROCK
- ⑧ POLYPROPYLENE FIBER REINFORCEMENT AT 1 1/2 LBS/CY
- ⑨ BACKFILL MATERIAL TO MATCH STORAGE MEDIA FOR OBSERVATION WELLS LOCATED WITHIN A BMP FACILITY. USE PIPE BEDDING CHIPS FOR OBSERVATION WELLS LOCATED OUTSIDE BMP FACILITIES

NOTES:

1. GROUNDWATER OBSERVATION WELLS ARE FOR MEASUREMENT OF GROUNDWATER LEVELS WITHIN OR NEAR STORM DRAINAGE FACILITIES
2. THIS DETAIL IS FOR WELLS INSTALLED BY DRILLING OR BY EXCAVATED PITS
3. LOCATION OF GROUNDWATER OBSERVATION WELLS SHALL BE APPROVED BY ACHD
4. OBSERVATION WELLS NOT ALLOWED IN CURB OR VALLEY GUTTER SECTION

ADD NOTES TO ADDRESS THE FOLLOWING: AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS. IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7). RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 1/4" OR 1/2" WITH A 1:2 BEVEL (2011 PROWAG R302.7.2). GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED 1/2" (2011 PROWAG R302.7.3).

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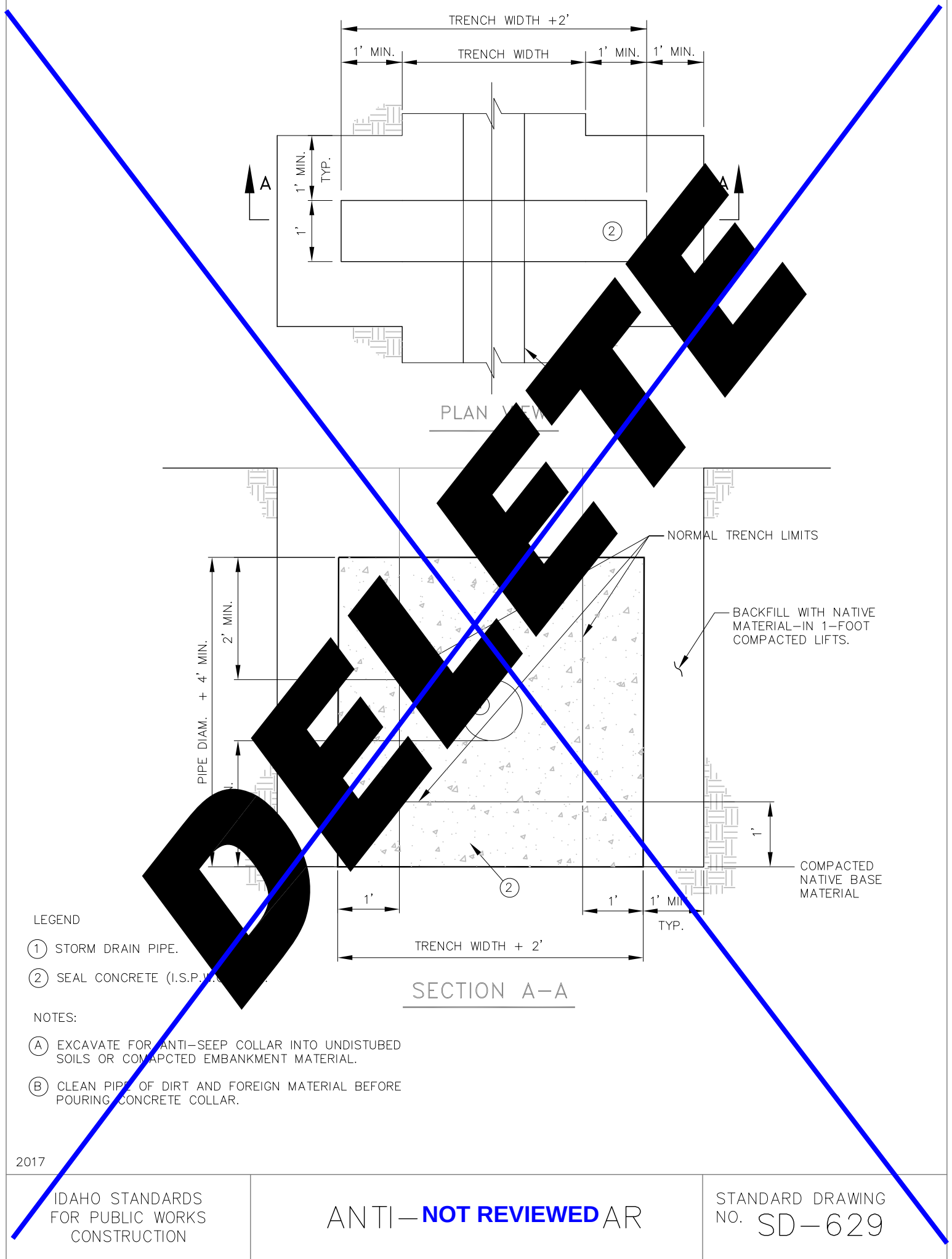


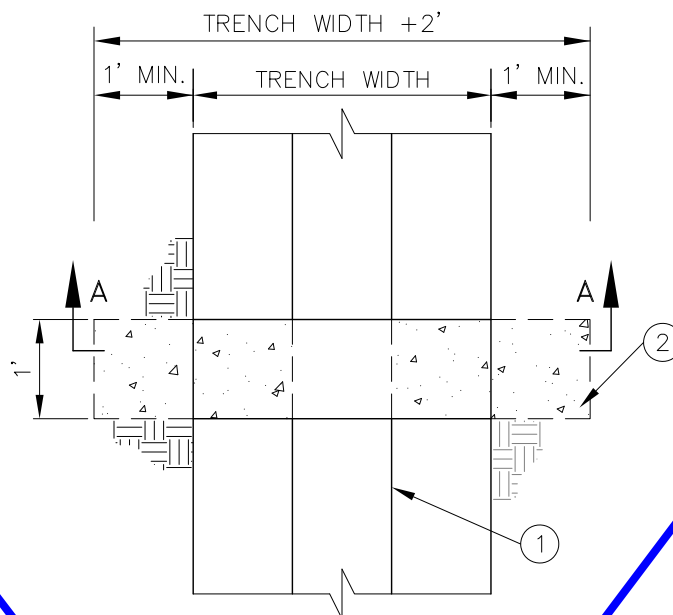
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(ACHD SUPPLEMENT)

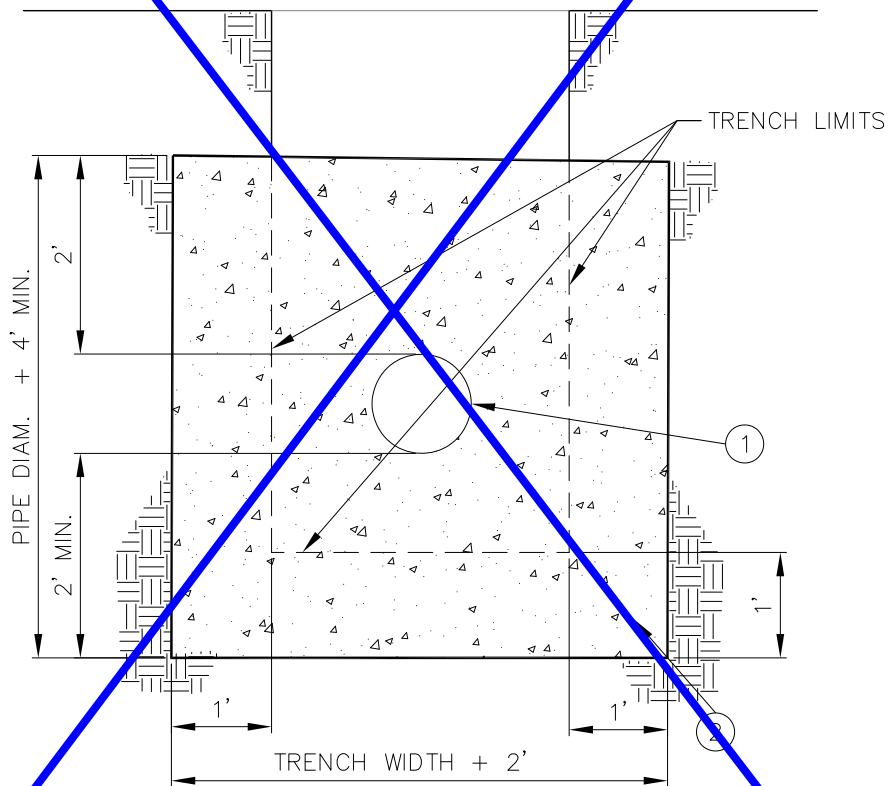
INLET PROTECTION APRON
AND FLOW SPREADER

STANDARD DRAWING
SD-628





PLAN VIEW



SECTION A-A

LEGEND

- (1) STORM DRAIN PIPE
- (2) SEAL CONCRETE (U.S.P.W.C. 703)

NOTES:

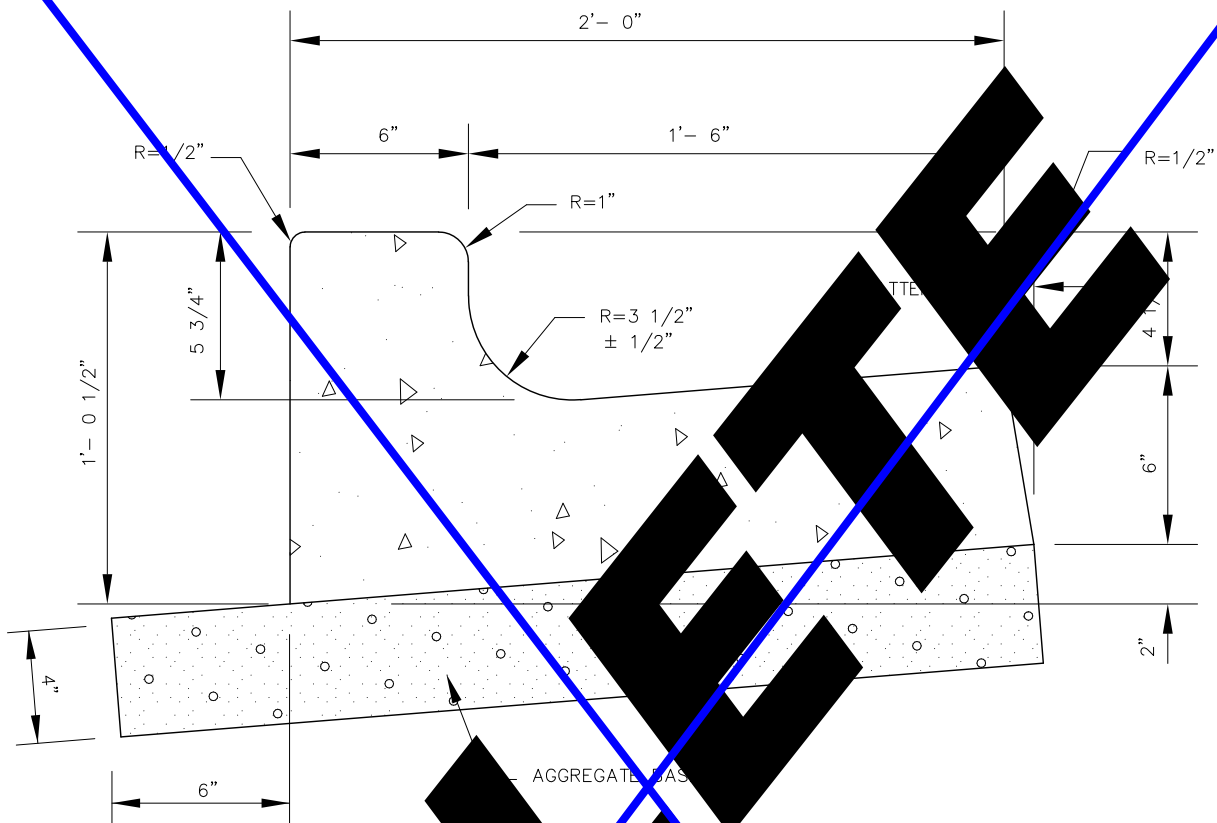
- (A) ANTI-SEEP COLLAR SHALL BE USED IN MAN MADE EMBANKMENTS.
- (B) EXCAVATE FOR ANTI-SEEP COLLAR INTO UNDISTURBED SOILS.
- (C) CLEAN PIPE OF DIRT AND FOREIGN MATERIAL BEFORE POURING CONCRETE COLLAR.

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FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENTS)

ANTI—**NOT REVIEWED** AR

STANDARD DRAWING
SD-629

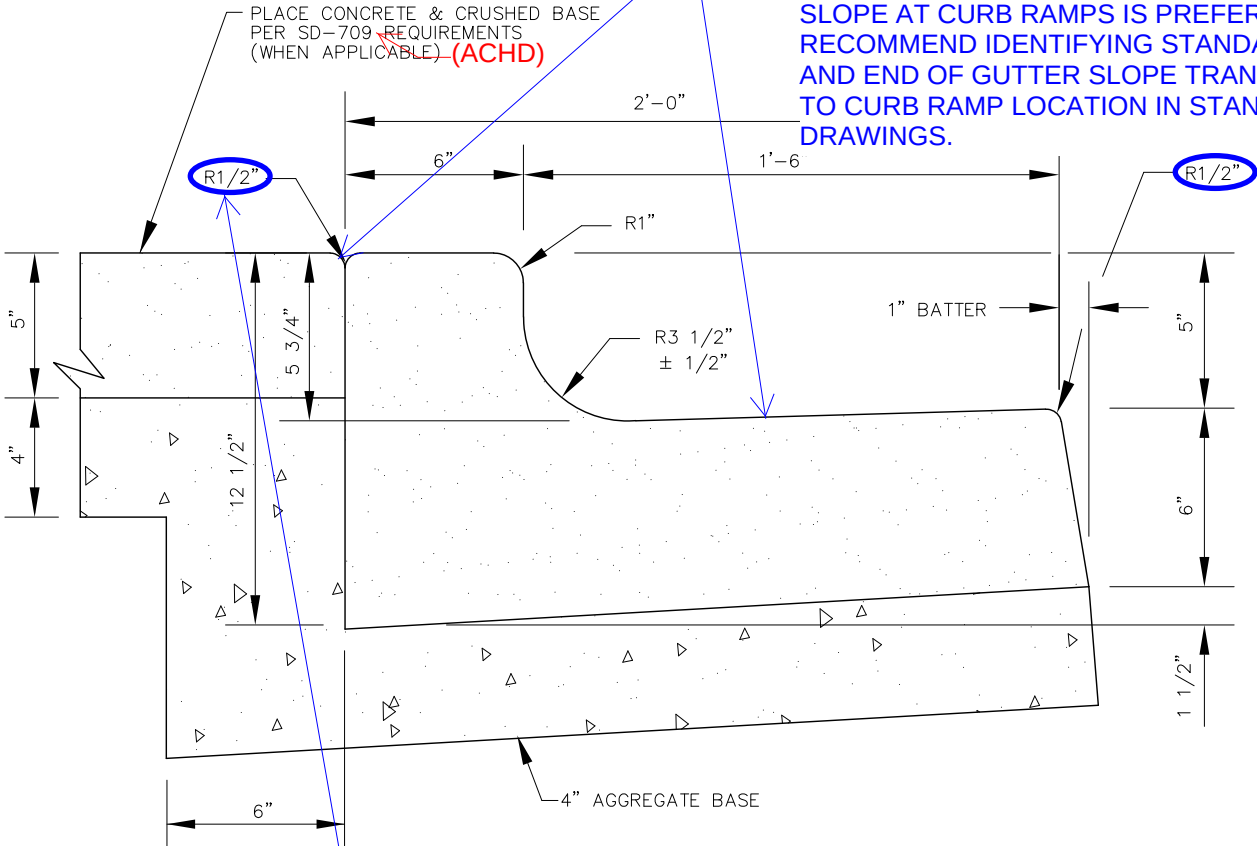


NOTES:

- (A) GRADE AND FINISH TO BE APPROVED OR APPROVED BY THE ENGINEER AND THE PUBLIC WORKS DIVISION.
- (B) BASE COURSE SHALL BE 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS SPECIFIED AND PAVED PER SECTION-802 ISPMC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR.
- (C) CURB SHALL BE PLACED IN PREFERRED, SCORE INTERVALS AT 10-FEET MAXIMUM SPACING (OR ADJUSTED WITH SIDEWALK WIDTH FOR SCORE SPACING).
- (D) MATERIAL SHALL BE IN COMPLIANCE WITH ISPMC SPECIFICATIONS.
- (E) BACKFILL SHALL BE IN-706.
- (F) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (G) STANDARD CURB TO BE USED ON:
 1. COLLECTOR AND ARTERIAL STREETS, UNLESS OTHERWISE INDICATED.
 2. ALL RADII PLUS 5- FEET EACH END WITH 2- FEET TRANSITION TO ROLL CURB.
 3. TO MATCH EXISTING CURBS.
 4. SEE SD-709 FOR CURB CONSTRUCTION WHEN SIDEWALK IS INCLUDED.

IS JOINT FILLER REQUIRED HERE? IF YES, RECOMMEND AN EXPANSION JOINT FILLER THICKNESS OF 1/4" TO ENSURE A JOINT WIDTH OF LESS THAN 0.5 INCHES ACROSS PEDESTRIAN ACCESS ROUTES INCLUDING CURB RAMP. PER 2011 PROWAG R302.7.3, MAXIMUM HORIZONTAL OPENING ALLOWED IN PEDESTRIAN ACCESS ROUTE IS 1/2".

GUTTER SLOPE APPEARS TO BE GREATER THAN 5%. PER 2011 PROWAG R304.5.4, COUNTER SLOPE OF GUTTER AT FOOT OF CURB RAMP SHALL BE 5% MAXIMUM. RECOMMEND THE MAX GUTTER PAN DESIGN SLOPE AT CURB RAMPS TO BE 4.0% MAX (5% MAX FINISHED SURFACE SLOPE) AS INDICATED IN PROPOSED NOTE I BELOW (2% GUTTER PAN SLOPE AT CURB RAMPS IS PREFERRED). RECOMMEND IDENTIFYING STANDARD BEGINNING AND END OF GUTTER SLOPE TRANSITION RELATIVE TO CURB RAMP LOCATION IN STANDARD DRAWINGS.



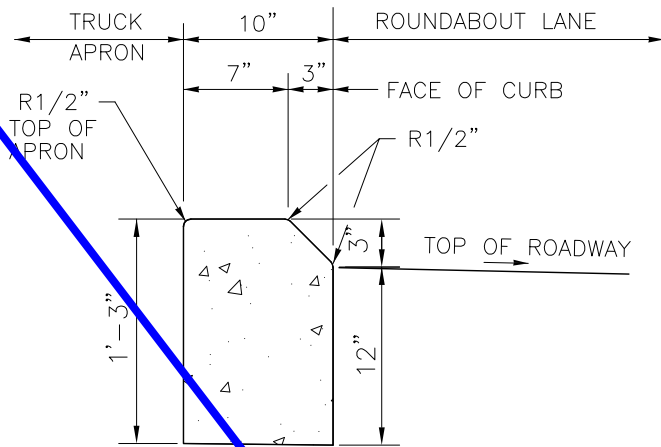
REDUCE 1/2" RADIUS TO 1/8" RADIUS TO PREVENT INSTALLING A JOINT WITH A GAP GREATER THAN 1/2" (PROWAG R302.7.3) IN PEDESTRIAN PATHS OF TRAVEL INCLUDING CURB RAMPS.

DETAIL SCORING AND JOINTING REQUIREMENTS.
RECOMMEND PROVIDING A JOINT AND SCORE SECTION DETAIL.

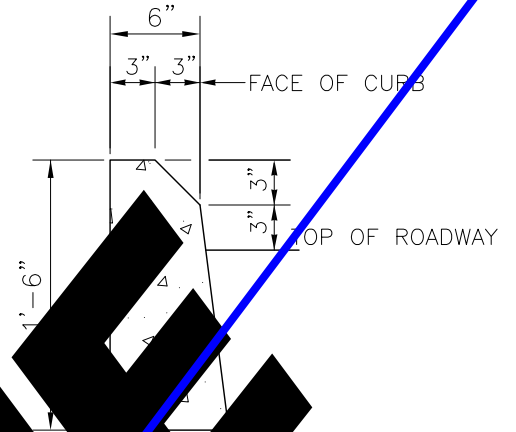
- (A) GRADE AND ALIGNMENT TO BE ESTABLISHED OR APPROVED BY THE ENGINEER AND THE PUBLIC AGENCY HAVING JURISDICTION.
- (B) BASE: 4-INCH COMPACTED DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS SPECIFIED AND PAID UNDER SECTION-802 ISPMC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR.
- (C) SUBBASE: PLACE TO LENGTH BEHIND CURB AS SHOWN IN ABOVE FOR AGGREGATE BASE MATERIAL. PLACEMENT DEPTH PER PLAN OR AS DIRECTED AND PAID UNDER SECTION-801 ISPMC; COMPACTION SHALL MEET REQUIREMENTS OF SECTION 801-ISPMC.
- (D) CONTINUOUS PLACEMENT PREFERRED, SCORE INTERVALS AT 10- FEET MAXIMUM SPACING (OR CONSISTENT WITH 2X SIDEWALK WIDTH FOR SCORE SPACING).
- (E) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPMC SPECIFICATIONS AND ACHD AMENDMENTS.
- (F) BACKFILL AS PER SECTION-706.
- (G) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (H) STANDARD CURB TO BE USED ON:
 - 1. COLLECTOR AND ARTERIAL STREETS, UNLESS OTHERWISE INDICATED.
 - 2. ALL RADII PLUS 5- FEET EACH END WITH 2- FEET TRANSITION TO ROLL CURB.
 - 3. TO MATCH EXISTING CURBS.
 - 4. SEE SD-709 FOR CURB CONSTRUCTION WHEN SIDEWALK IS INCLUDED.

ACROSS THE PEDESTRIAN ROUTE AT CURB RAMP LOCATIONS, THE GUTTER PAN SLOPE SHALL NOT EXCEED 4% (5% MAX FINISHED SURFACE SLOPE).

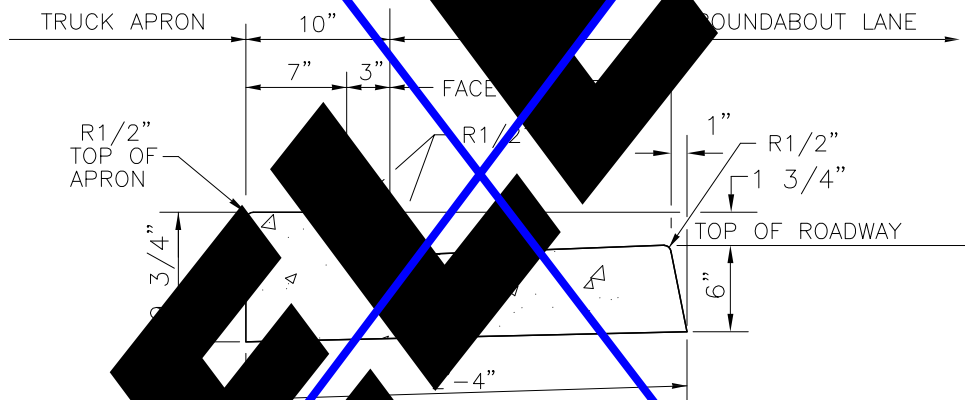
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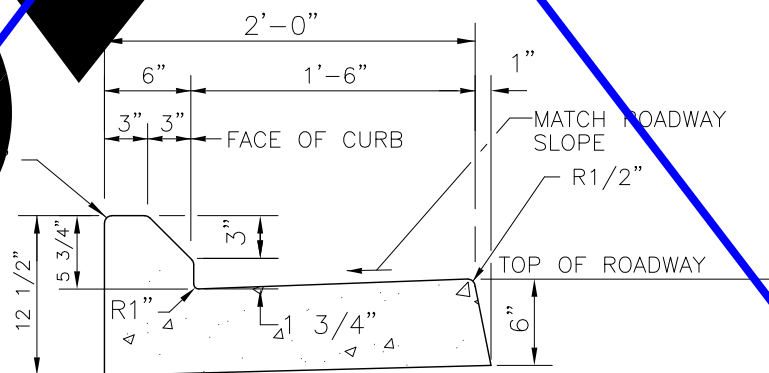
3" MOUNTABLE TRUCK APRON CURB
(NO GUTTER)



6" ROUNDABOUT CURB
(NO GUTTER)

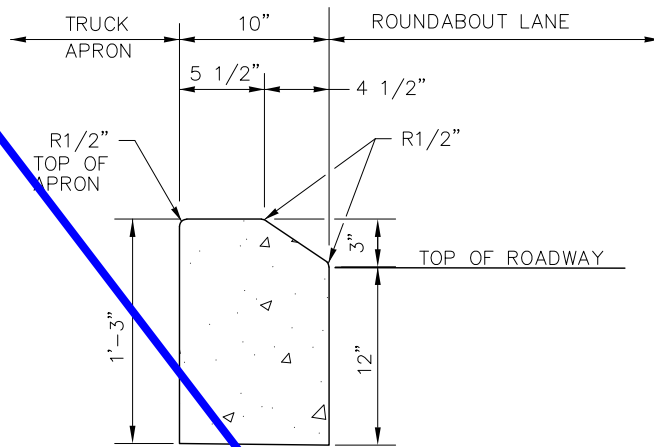


6" MOUNTABLE TRUCK APRON CURB AND GUTTER

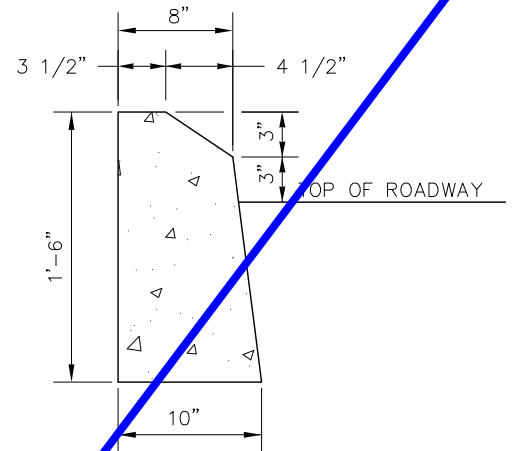


6" ROUNDABOUT CURB AND GUTTER

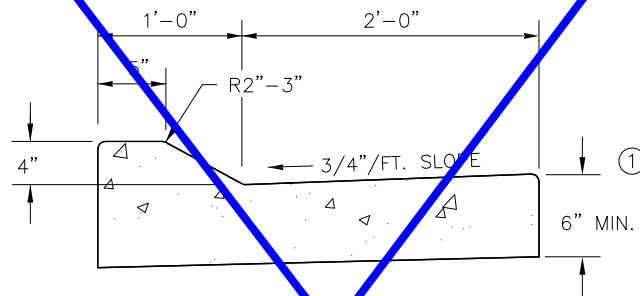
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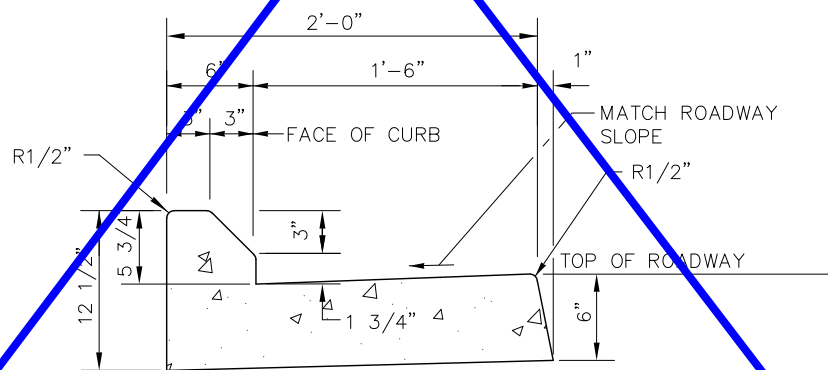
3" MOUNTABLE TRUCK APRON CURB
(NO GUTTER)



6" ROUNDABOUT CURB
(NO GUTTER)



6" MOUNTABLE TRUCK APRON CURB AND GUTTER



6" ROUNDABOUT CURB AND GUTTER

NOTES:

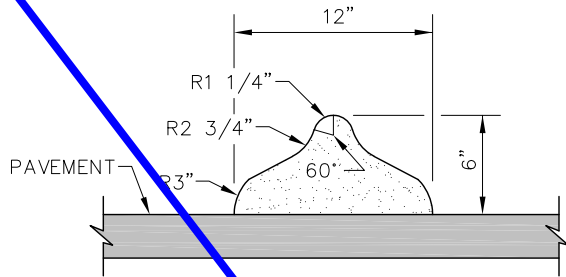
- ① THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER.

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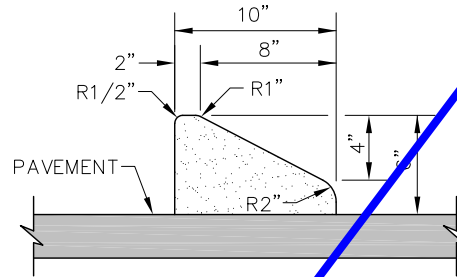
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

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CONSTRUCTION
(ACHD SUPPLEMENT)

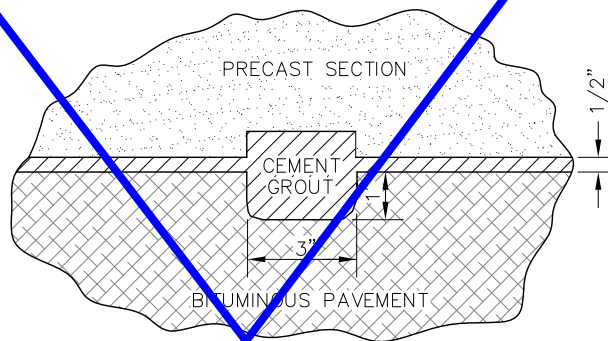
STANDARD DRAWING
NO. SD-701B



INTERSECTION TRAFFIC
SEPARATION CURB



MEDIAN ISLAND CURB



FOR CURB PLACED ON BITUMINOUS PAVEMENT
TYPICAL GROUT JOINT

NOTES:

- ① WHEN CONCRETE CURBS OR TRAFFIC SEPARATORS ARE PLACED ON TOP OF BITUMINOUS PAVEMENT, A KEY APPROXIMATELY 1" DEEP BY 3" WIDE SHALL BE PLACED AT THE CENTERLINE OF THE SECTION FOR ITS ENTIRE LENGTH. WHEN PRECAST CONCRETE SECTIONS ARE PLACED ON THE PAVEMENT, A KEY APPROXIMATELY 1" DEEP BY 3" WIDE SHALL BE PROVIDED IN THE BOTTOM OF THE SECTION. WHEN BITUMINOUS SECTIONS ARE USED, NO KEY IN THE PAVEMENT WILL BE REQUIRED. CURB PIN DOWELS MAY BE PROVIDED AS AN ALTERNATIVE TO PROVIDING A KEY. THE DOWELS SHALL BE #6 DEFORMED REBAR AND SHALL BE INSTALLED AT A MAXIMUM SPACING OF 5'. THE DOWELS SHALL EXTEND 8" BELOW THE FINISHED PAVEMENT SURFACE AND 4" INTO THE CURB. PRECAST CONCRETE CURBS SHALL HAVE A MINIMUM LENGTH OF 6' WITH 2 DOWELS. ANY SECTION LONGER THAN 6' SHALL HAVE A MINIMUM OF 3 DOWELS. NO PRECAST CONCRETE SECTION SHALL EXCEED 10'.
- ② PRECAST OR EXTRUDED CONCRETE CURB AND TRAFFIC SEPARATORS PLACED ON PORTLAND CEMENT SURFACES SHALL BE ATTACHED TO THE SURFACE WITH AN EPOXY BONDING AGENT. NO KEY WILL BE REQUIRED.

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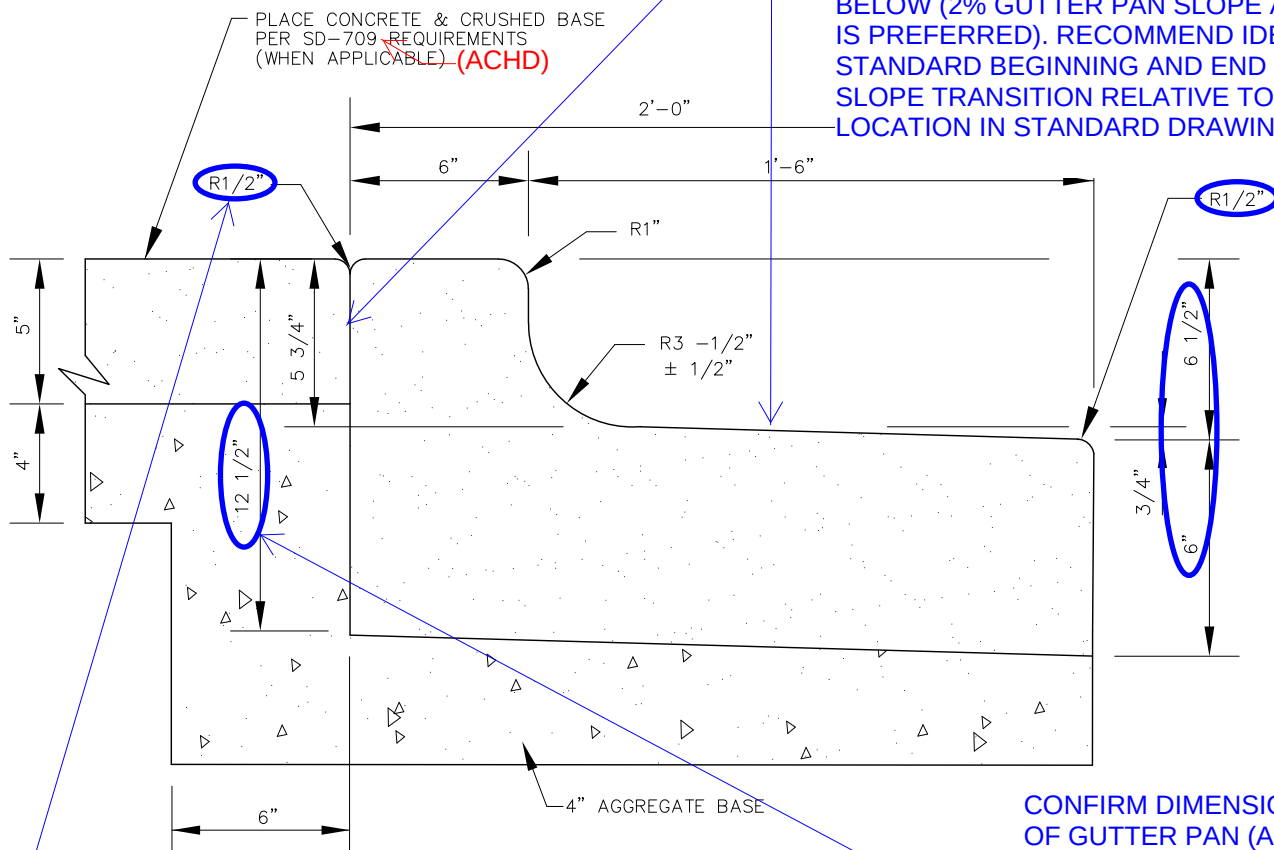
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
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ISLAND AND
INTERSECTION CURBS
NOT REVIEWED

STANDARD DRAWING
NO. SD-701C

IS JOINT FILLER REQUIRED HERE? IF YES, RECOMMEND AN EXPANSION JOINT FILLER THICKNESS OF 1/4" TO ENSURE A JOINT WIDTH OF LESS THAN 0.5 INCHES ACROSS PEDESTRIAN ACCESS ROUTES INCLUDING CURB RAMP. PER 2011 PROWAG R302.7.3, MAXIMUM HORIZONTAL OPENING ALLOWED IN PEDESTRIAN ACCESS ROUTE IS 1/2".

GUTTER SLOPE APPEARS TO BE GREATER THAN 5%. PER 2011 PROWAG R304.5.4, COUNTER SLOPE OF GUTTER AT FOOT OF CURB RAMP SHALL BE 5% MAXIMUM. RECOMMEND THE MAX GUTTER PAN DESIGN SLOPE AT CURB RAMPS TO BE 4.0% MAX (5% MAX FINISHED SURFACE SLOPE) AS INDICATED IN PROPOSED NOTE H BELOW (2% GUTTER PAN SLOPE AT CURB RAMPS IS PREFERRED). RECOMMEND IDENTIFYING STANDARD BEGINNING AND END OF GUTTER SLOPE TRANSITION RELATIVE TO CURB RAMP LOCATION IN STANDARD DRAWINGS.



REDUCE 1/2" RADIUS TO 1/8" RADIUS TO PREVENT INSTALLING A JOINT WITH A GAP GREATER THAN 1/2" (PROWAG R302.7.3) IN PEDESTRIAN PATHS OF TRAVEL INCLUDING CURB RAMPS.

CONFIRM DIMENSIONS. BOTTOM OF GUTTER PAN (ALONG TOP OF BASE) IS NOT SLOPING AS SHOWN IF HEIGHT FROM TOP OF CURB TO BOTTOM OF GUTTER PAN IS THE SAME AT THE FRONT AND BACK OF THE UNIT.

NOTES:

- (A) THIS CURB TYPE IS FOR USE WITH BMP 34 PERMEABLE INTERLOCKING CONCRETE PAVERS (PICP) ONLY.
- (B) BASE: 4-INCH COMPACTED DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS SPECIFIED AND PAID UNDER SECTION-802 ISPWC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR.
- (C) SUBBASE: PLACE TO LENGTH BEHIND CURB AS SHOWN IN ABOVE FOR AGGREGATE BASE MATERIAL. PLACEMENT DEPTH PER PLAN OR AS DIRECTED AND PAID UNDER SECTION-801 ISPWC; COMPACTION SHALL MEET REQUIREMENTS OF SECTION 801-ISPWC.
- (D) CONTINUOUS PLACEMENT REQUIRED UNLESS APPROVED IN WRITING BY ACHD. SCORE INTERVALS AT 10-FEET MAXIMUM SPACING OR 2X SIDEWALK WIDTH PER ISPWC SECT 703.
- (E) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPWC SPECIFICATIONS AND ACHD AMENDMENTS.
- (F) BACKFILL AS PER SECTION-706.
- (G) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.

[H] ACROSS THE PEDESTRIAN ROUTE AT CURB RAMP LOCATIONS, THE GUTTER PAN SLOPE SHALL NOT EXCEED 4% (5% MAX FINISHED SURFACE SLOPE).

ISPWC SECTION 703 DOES NOT APPEAR TO ADDRESS SCORING OR JOINTING OF CURBS. DETAIL SCORING AND JOINTING REQUIREMENTS. RECOMMEND PROVIDING A JOINT AND SCORE SECTION DETAIL.

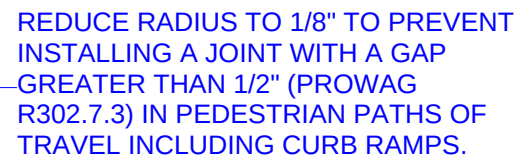
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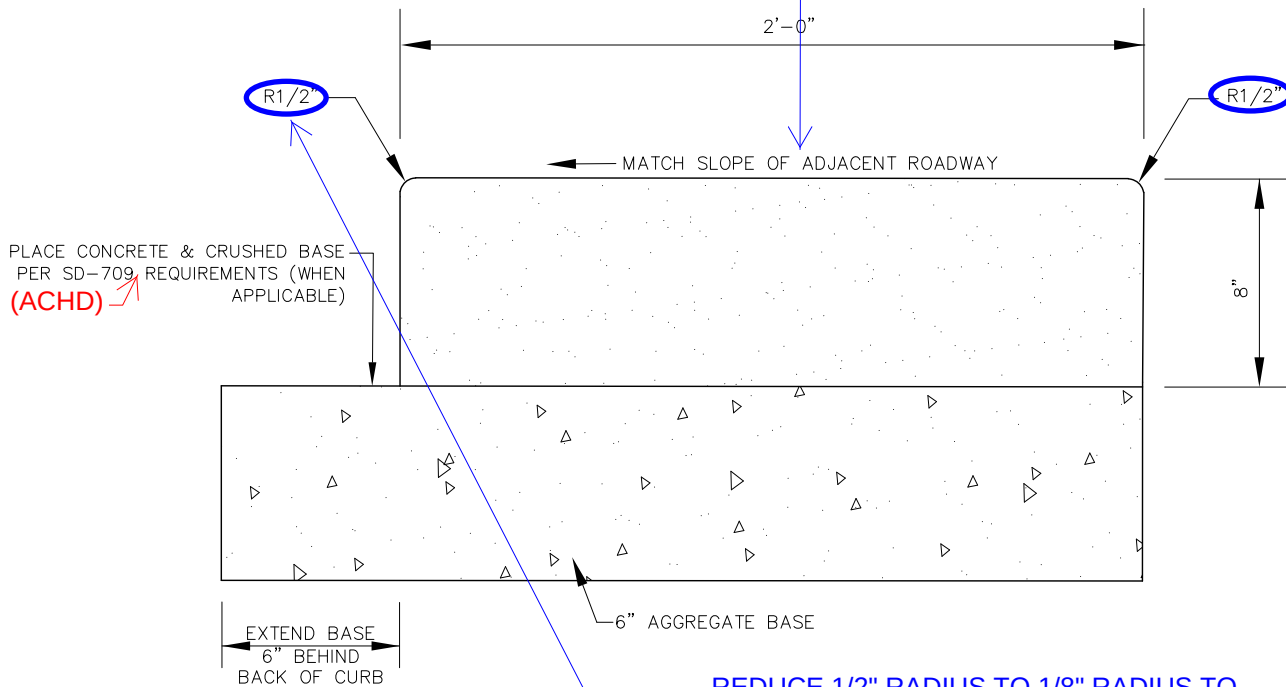
6" REVERSE PAN
VERTICAL CURB

STANDARD DRAWING
NO. SD-701R

- GUTTER SLOPE APPEARS TO BE GREATER THAN 5%. PER 2011 PROWAG R304.5.4, COUNTER SLOPE OF GUTTER AT FOOT OF CURB RAMP SHALL BE 5% MAXIMUM. RECOMMEND THE MAX GUTTER PAN DESIGN SLOPE AT CURB RAMPS TO BE 4.0% MAX (5% MAX FINISHED SURFACE SLOPE) AS INDICATED IN PROPOSED NOTE H BELOW (2% GUTTER PAN SLOPE AT CURB RAMPS IS PREFERRED). RECOMMEND IDENTIFYING
- STANDARD BEGINNING AND END OF GUTTER SLOPE TRANSITION RELATIVE TO CURB RAMP LOCATION IN STANDARD DRAWINGS.



PER 2011 PROWAG R304.5.4, COUNTER SLOPE OF CURB OR GUTTER AT FOOT OF CURB RAMP SHALL BE 5% MAXIMUM. RECOMMEND THE MAX CURB OR GUTTER DESIGN SLOPE AT CURB RAMPS TO BE 4.0% MAX (5% MAX FINISHED SURFACE SLOPE) AS INDICATED IN PROPOSED NOTE H BELOW (2% CURB OR GUTTER SLOPE AT CURB RAMPS IS PREFERRED).



REDUCE 1/2" RADIUS TO 1/8" RADIUS TO PREVENT INSTALLING A JOINT WITH A GAP GREATER THAN 1/2" (PROWAG R302.7.3) IN PEDESTRIAN PATHS OF TRAVEL INCLUDING CURB RAMPS.

NOTES:

- (A) THIS CURB TYPE IS FOR USE WITH BMP 34 PERMEABLE INTERLOCKING CONCRETE PAVERS (PICP).
- (B) BASE: 4-INCH COMPACTED DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS SPECIFIED AND PAID UNDER SECTION-802 ISPMC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR.
- (C) SUBBASE: PLACE TO LENGTH BEHIND CURB AS SHOWN IN ABOVE FOR AGGREGATE BASE MATERIAL. PLACEMENT DEPTH PER PLAN OR AS DIRECTED AND PAID UNDER SECTION-801 ISPMC; COMPACTION SHALL MEET REQUIREMENTS OF SECTION 801-ISPMC.
- (D) CONTINUOUS PLACEMENT REQUIRED UNLESS APPROVED IN WRITING BY ACHD. SCORE INTERVALS AT 10-FOOT MAXIMUM SPACING OR 2X SIDEWALK WIDTH PER ISPMC SECT 703.
- (E) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPMC SPECIFICATIONS. **AND ACHD AMENDMENTS.**
- (F) BACKFILL AS PER SECTION-706.
- (G) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.

[H] ACROSS THE PEDESTRIAN ROUTE AT CURB RAMP LOCATIONS, THE CURB OR GUTTER PAN SLOPE SHALL NOT EXCEED 4% (5% MAX FINISHED SURFACE SLOPE).

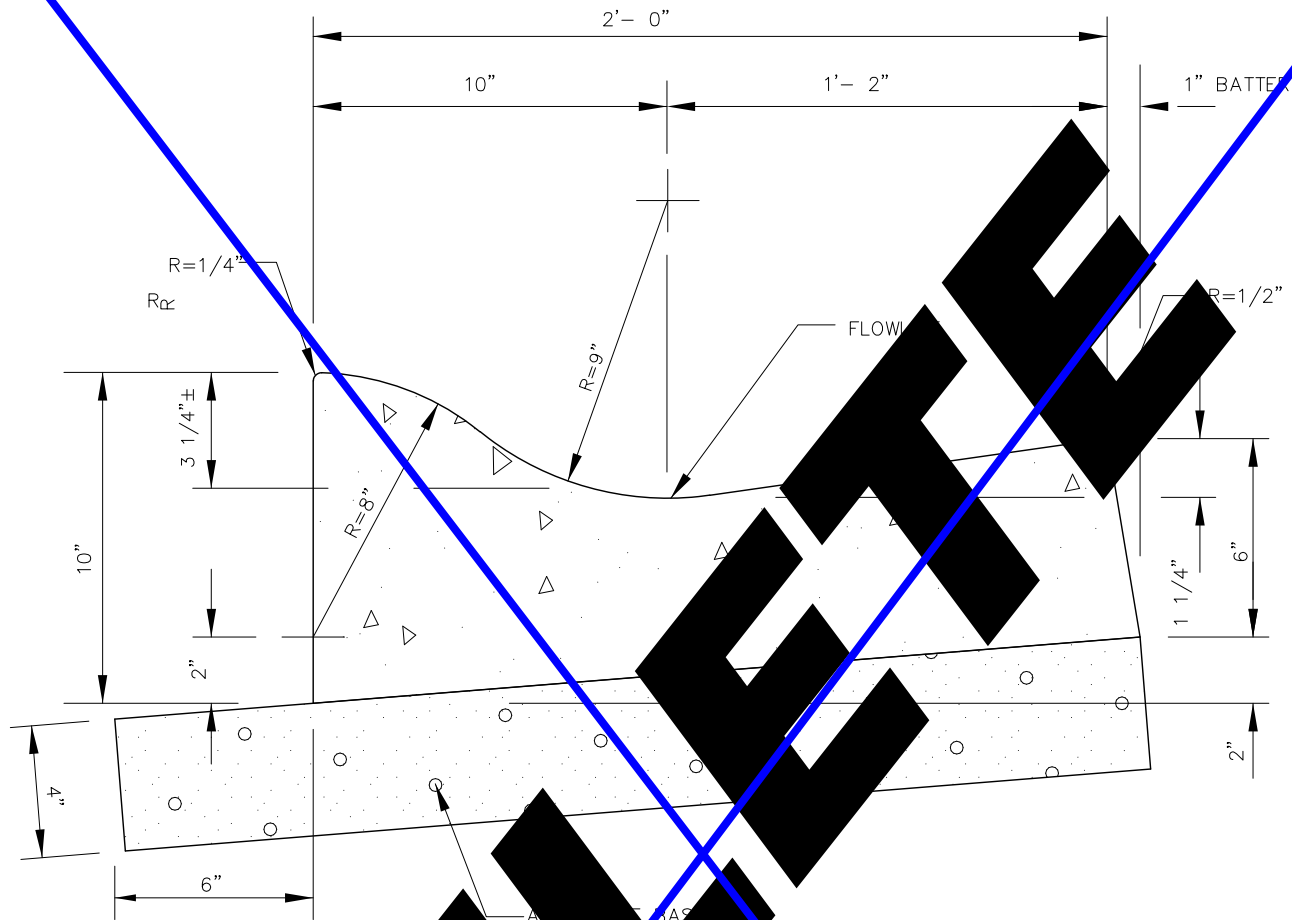
ISPMC SECTION 703 DOES NOT APPEAR TO ADDRESS SCORING OR JOINTING OF CURBS. DETAIL SCORING AND JOINTING REQUIREMENTS. RECOMMEND PROVIDING A JOINT AND SCORE SECTION DETAIL.

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

2' RIBBON CURB

STANDARD DRAWING
NO. SD-703

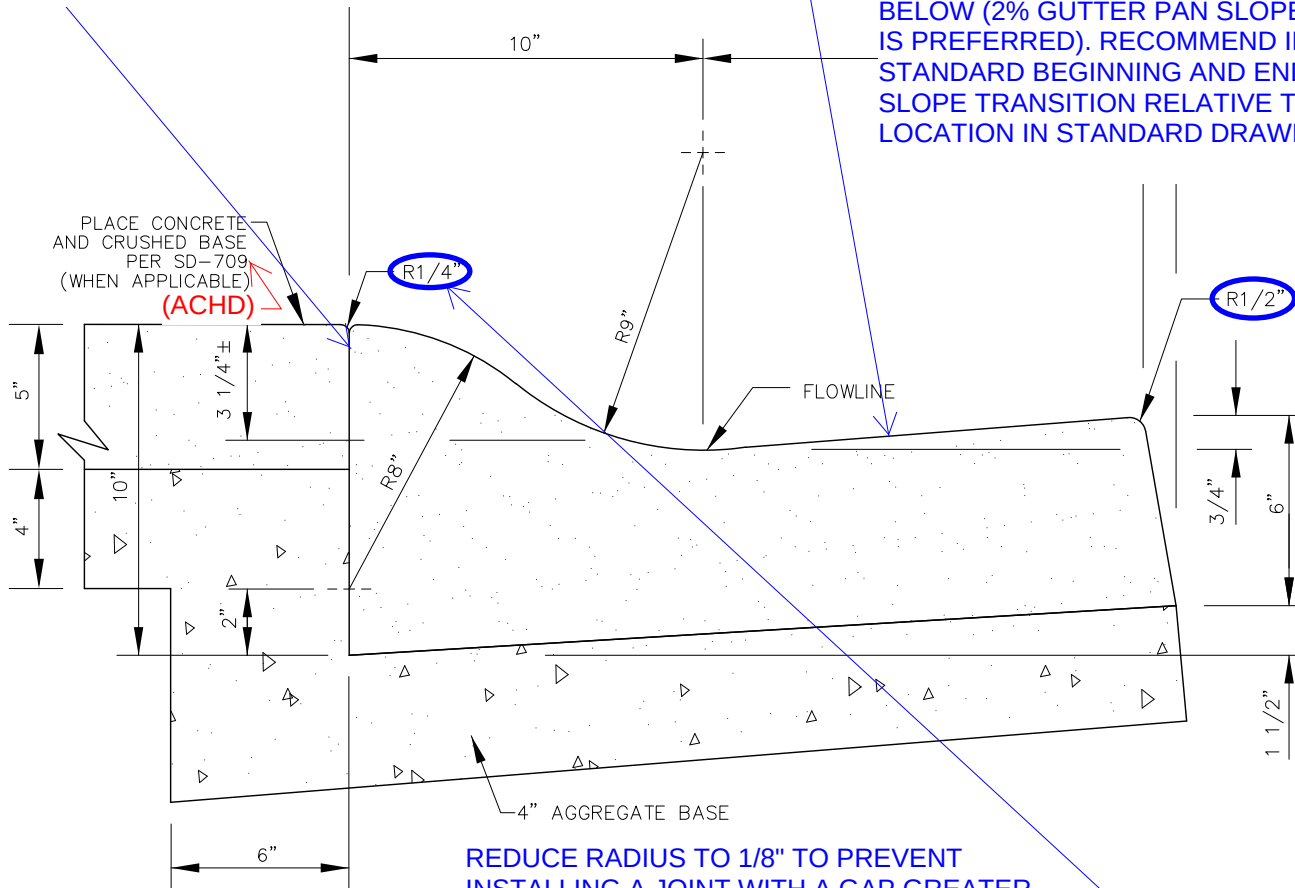


NOTES:

- (A) GRADE AND ALIGNMENT TO BE AS APPROVED BY THE ENGINEER AND THE PUBLIC.
- (B) BASE: 4-INCH DEPTH OF 4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACED AS SPECIFIED IN SECTION 702 ISPC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR.
- (C) CONSTRUCTION PLACEMENT OF CURB, SCORE INTERVALS AT 10-FOOT MAXIMUM SPACING (OR CONSISTENT WITH WALK WIDTH OF SCORE SPACING.)
- (D) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPC SPECIFICATIONS.
- (E) BACKFILL AS SPECIFIED IN SECTION 706.
- (F) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (G) USE ROLLED CURB IN RESIDENTIAL AREAS. WHEN LOCAL JURISDICTION REQUIRES VERTICAL CURB AT INTERSECTIONS VERTICAL CURB LENGTH TO BE FULL RADIUS PLUS 5 FEET AT EACH END. TRANSITION LENGTH FROM ROLLED CURB TO VERTICAL CURB 2 FEET.

IS JOINT FILLER REQUIRED HERE? IF YES, RECOMMEND AN EXPANSION JOINT FILLER THICKNESS OF 1/4" TO ENSURE A JOINT WIDTH OF LESS THAN 0.5 INCHES ACROSS PEDESTRIAN ACCESS ROUTES INCLUDING CURB RAMP. PER 2011 PROWAG R302.7.3, MAXIMUM HORIZONTAL OPENING ALLOWED IN PEDESTRIAN ACCESS ROUTE IS 1/2".

GUTTER SLOPE APPEARS TO BE GREATER THAN 5%. PER 2011 PROWAG R304.5.4, COUNTER SLOPE OF GUTTER AT FOOT OF CURB RAMP SHALL BE 5% MAXIMUM. RECOMMEND THE MAX GUTTER PAN DESIGN SLOPE AT CURB RAMPS TO BE 4.0% MAX (5% MAX FINISHED SURFACE SLOPE) AS INDICATED IN PROPOSED NOTE I BELOW (2% GUTTER PAN SLOPE AT CURB RAMPS IS PREFERRED). RECOMMEND IDENTIFYING STANDARD BEGINNING AND END OF GUTTER SLOPE TRANSITION RELATIVE TO CURB RAMP LOCATION IN STANDARD DRAWINGS.



REDUCE RADIUS TO 1/8" TO PREVENT INSTALLING A JOINT WITH A GAP GREATER THAN 1/2" (PROWAG R302.7.3) IN PEDESTRIAN PATHS OF TRAVEL INCLUDING CURB RAMPS.

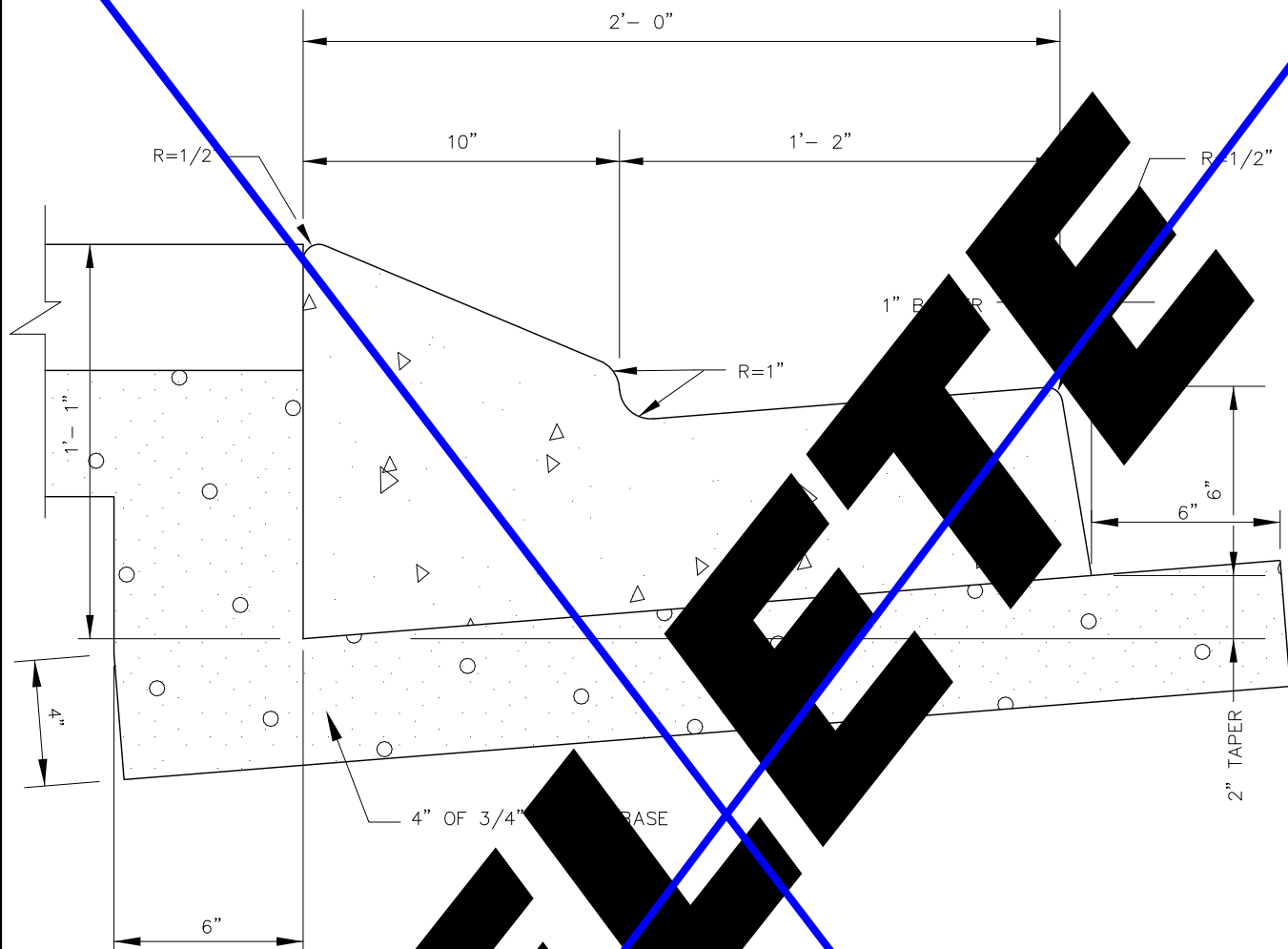
NOTES:

- (A) GRADE AND ALIGNMENT TO BE ESTABLISHED OR APPROVED BY THE ENGINEER AND THE PUBLIC AGENCY HAVING JURISDICTION.
- (B) BASE: 4-INCH COMPACTED DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACED AS SPECIFIED AND PAID UNDER SECTION-802 ISPMC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR.
- (C) SUBBASE: PLACE TO LENGTH BEHIND CURB AS SHOWN IN ABOVE FOR AGGREGATE BASE MATERIAL. PLACEMENT DEPTH PER PLAN OR AS DIRECTED AND PAID UNDER SECTION-801 ISPMC; COMPACTION SHALL MEET REQUIREMENTS OF SECTION 801-ISPMC.
- (D) CONTINUOUS PLACEMENT PREFERRED, SCORE INTERVALS AT 10-FOOT MAXIMUM SPACING (OR CONSISTENT WITH 2x SIDEWALK WIDTH FOR SCORE SPACING.)
- (E) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPMC SPECIFICATIONS AND ACHD AMENDMENTS.
- (F) BACKFILL AS PER ISPMC SECTION-706.
- (G) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (H) USE ROLLED CURB IN RESIDENTIAL AREAS. WHEN LOCAL JURISDICTION REQUIRES VERTICAL CURB AT INTERSECTIONS VERTICAL CURB LENGTH TO BE FULL RADIUS PLUS 5 FEET AT EACH END. TRANSITION LENGTH FROM ROLLED CURB TO VERTICAL CURB 2 FEET.

ACROSS THE PEDESTRIAN ROUTE AT CURB RAMP LOCATIONS, THE GUTTER PAN SLOPE SHALL NOT EXCEED 4% (5% MAX FINISHED SURFACE SLOPE).

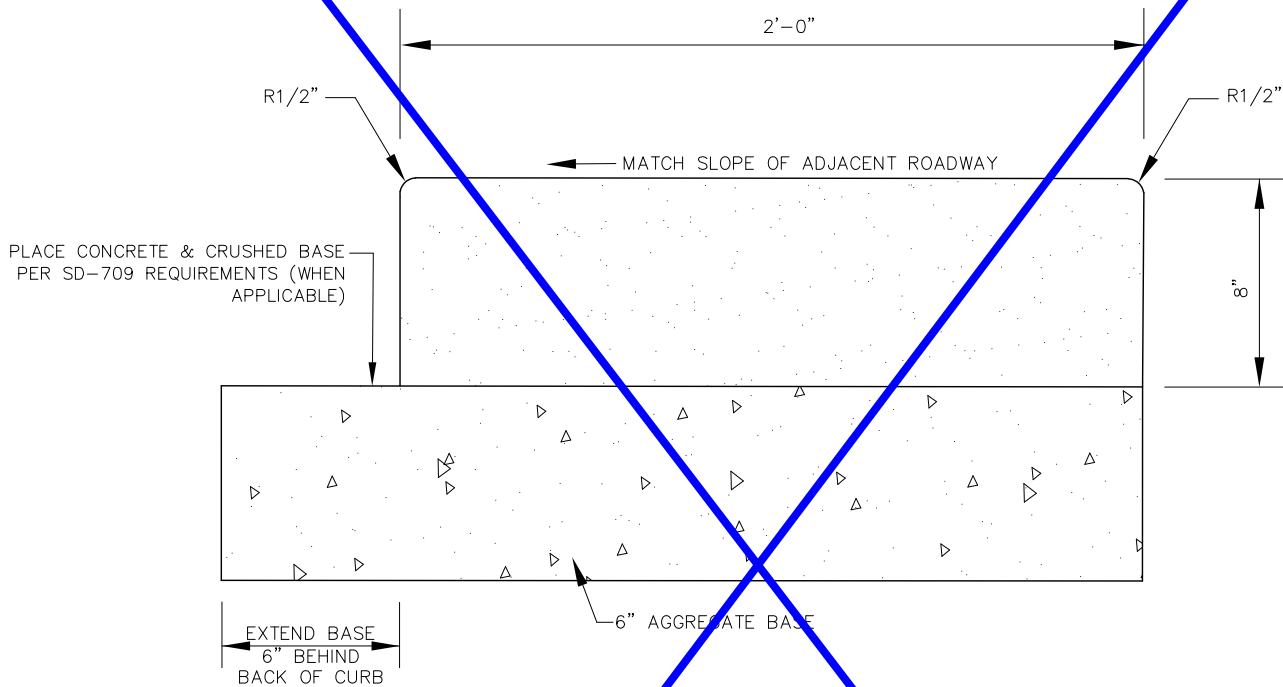
DETAIL SCORING AND JOINTING REQUIREMENTS. RECOMMEND PROVIDING A JOINT

2017 ACHD AND SCORE SECTION DETAIL.



NOTE

- (A) CURB AND GUTTER SHALL BE ESTABLISHED OR APPROVED BY THE ENGINEER AND THE PUBLIC AGENCY JURISDICTION.
- (B) FOR A MINIMUM DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS NOTED AND NOTED UNDER SECTION-802 ISPMC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR MINIMUM WIDTH OF 3-FOOT TO GRADE, PRIOR TO SETTING CURB FORMS.
- (C) CONTINUOUS PLACEMENT PREFERRED, SCORE INTERVALS 10-FOOT MAXIMUM SPACING OR CONSISTENT (2X SIDEWALK WIDTH FOR SCORE SPACING).
- (D) CONSTRUCTION AND CONSTRUCTION IN COMPLIANCE WITH ISPMC SPECIFICATIONS.
- (E) CURB SHALL BE AS PER ISPMC SECTION-706.
- (F) OBTAIN RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (G) WHEN LOCAL JURISDICTION REQUIRES VERTICAL CURB AT INTERSECTIONS, VERTICAL CURB LENGTH TO BE FULL CURVE CIRCUMFERENCE PLUS 5 FEET TANGENT AT EACH END. TRANSITION LENGTH FROM TYPE I CURB TO VERTICAL CURB 2 FEET.



NOTES:

- (A) THIS CURB TYPE IS FOR USE WITH BMP 34 PERMEABLE INTERLOCKING CONCRETE PAVERS (PICP) AND ALLEYS.
- (B) BASE: 4-INCH COMPACTED DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS SPECIFIED AND PAID UNDER SECTION-802 ISPMC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR.
- (C) SUBBASE: PLACE TO LENGTH BEHIND CURB AS SHOWN IN ABOVE FOR AGGREGATE BASE MATERIAL. PLACEMENT DEPTH PER PLAN OR AS DIRECTED AND PAID UNDER SECTION-801 ISPMC; COMPACTION SHALL MEET REQUIREMENTS OF SECTION 801-ISPMC.
- (D) CONTINUOUS PLACEMENT REQUIRED UNLESS APPROVED IN WRITING BY ACHD. SCORE INTERVALS AT 10-FOOT MAXIMUM SPACING OR 2' SIDEWALK WIDTH PER ISPMC SECT 703.
- (E) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPMC SPECIFICATIONS.
- (F) BACKFILL AS PER SECTION-706.
- (G) SECURE RIGHT-OF-WAY

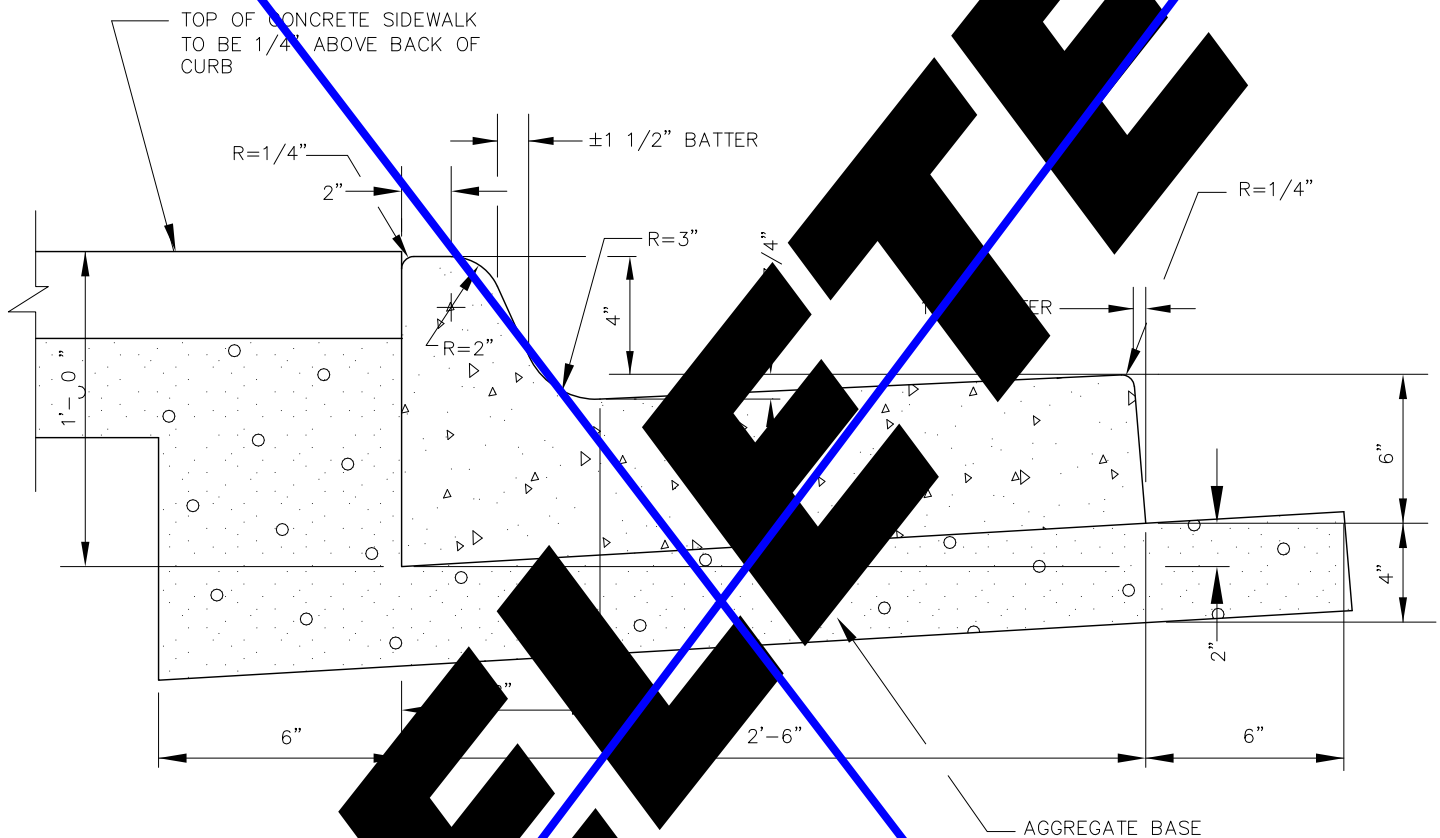
**NOT REVIEWED - 2' RIBBON DETAIL
APPEARS TO BE REPEATED. SEE
COMMENTS ON SD-703 (ACHD) ON
EARLIER SHEET.**

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

2' RIBBON CURB

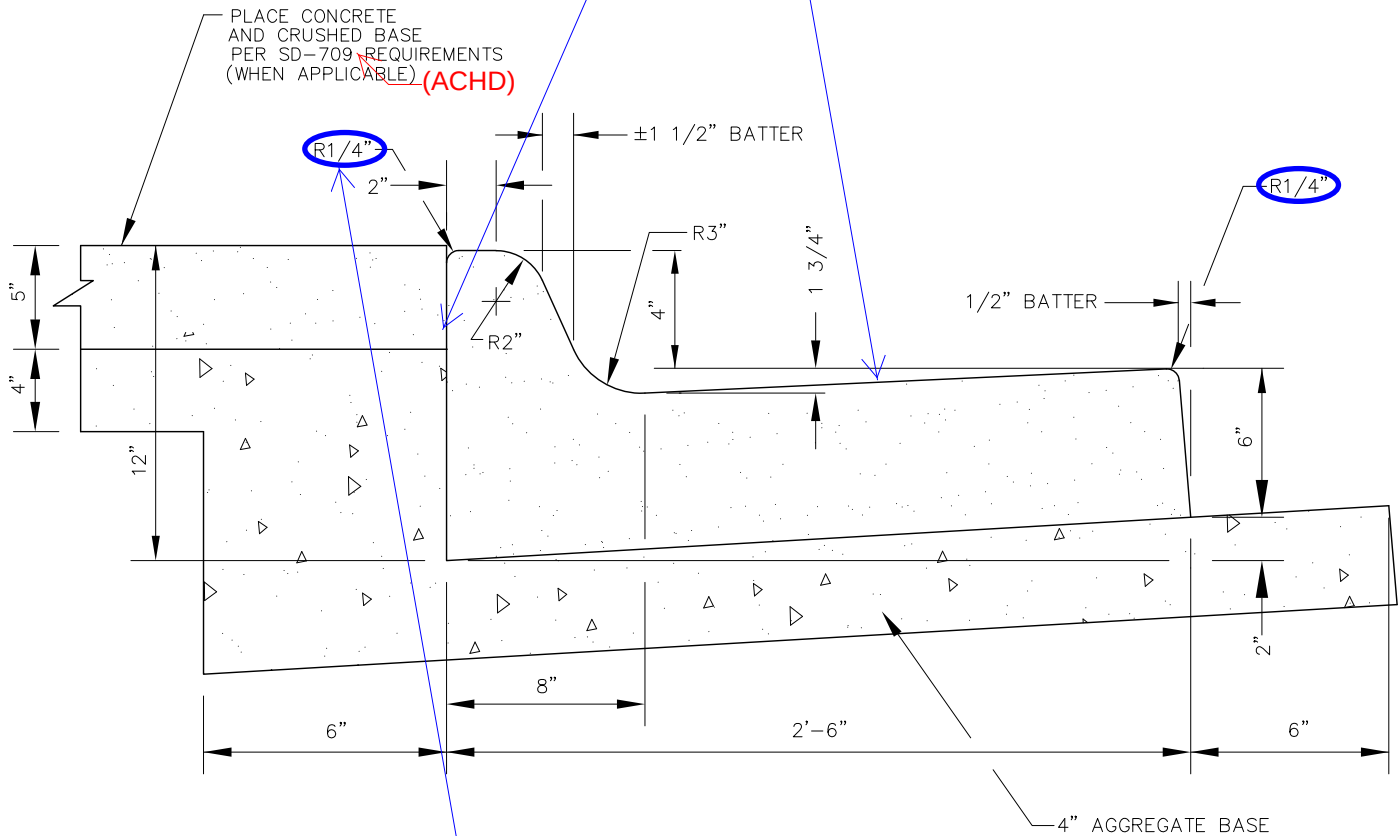
STANDARD DRAWING
NO. SD-703



NOTES:

- (A) GRADE AND ELEVATION TO BE SET OR APPROVED BY THE ENGINEER AND THE PUBLIC WORKS DEPARTMENT.
- (B) BASE COURSE SHALL BE 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS SPECIFIED AND PLACED PER SECTION-802 ISPMC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR; A MINIMUM WIDTH OF 6-INCHES TO GRADE, PRIOR TO SETTING CURB FORMS.
- (C) CONCRETE SHALL BE PLACED IN REFERRED, SCORE INTERVALS 8- FEET MAXIMUM SPACING.
- (D) MATERIAL SHALL BE IN COMPLIANCE WITH ISPMC SPECIFICATIONS.
- (E) BACKFILL SHALL BE IN COMPLIANCE WITH SECTION-706.
- (F) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (G) WHEN LOCAL JURISDICTION REQUIRES VERTICAL CURB AT INTERSECTIONS, VERTICAL CURB LENGTH TO BE FULL CURVE CIRCUMFERENCE PLUS 5 FEET TANGENT AT EACH END. TRANSITION LENGTH FROM TYPE III CURB TO VERTICAL CURB 2 FEET.
- (H) SEE SD-706 FOR TYPE III CURB CUT.

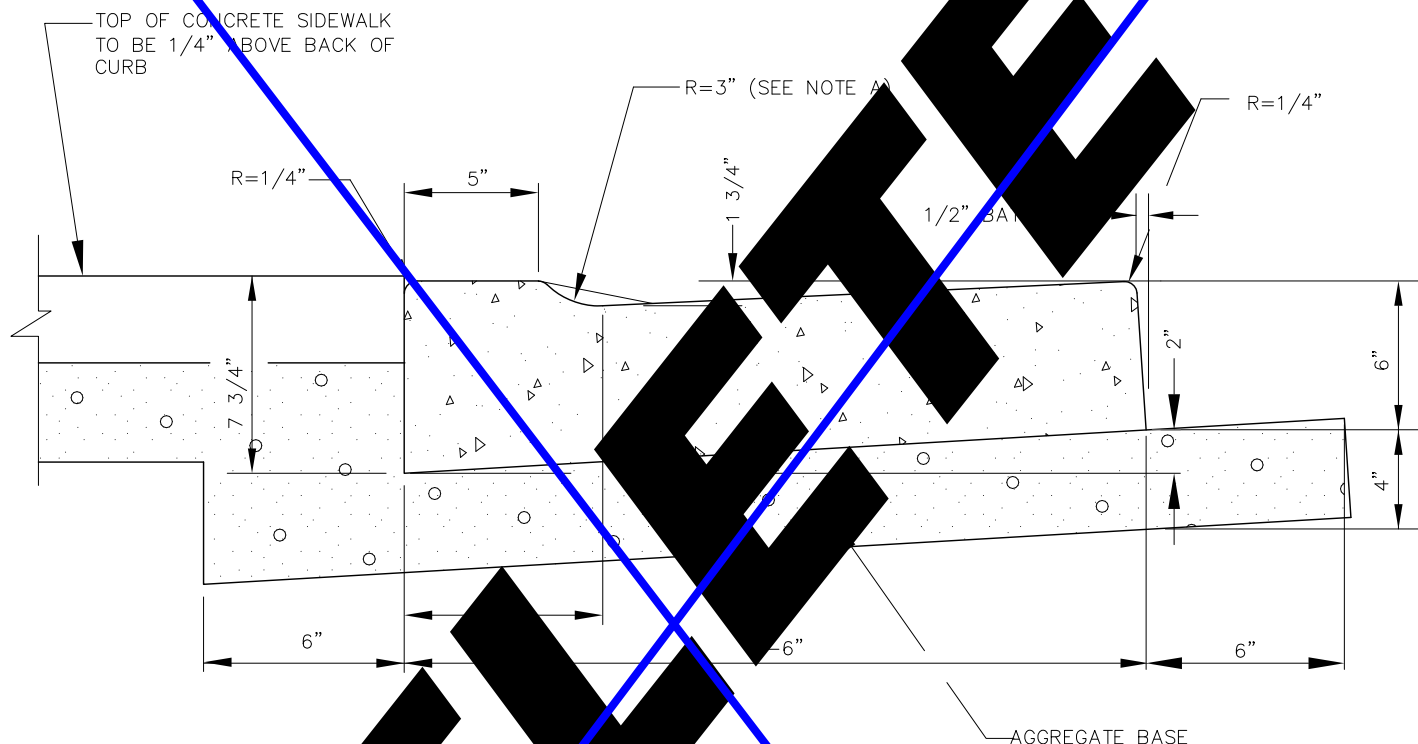
GUTTER SLOPE APPEARS TO BE GREATER THAN 5%. PER 2011 PROWAG R304.5.4, COUNTER SLOPE OF GUTTER AT FOOT OF CURB RAMP SHALL BE 5% MAXIMUM. RECOMMEND THE MAX GUTTER PAN DESIGN SLOPE AT CURB RAMPS TO BE 4.0% MAX (5% MAX FINISHED SURFACE SLOPE) AS INDICATED IN PROPOSED NOTE J BELOW (2% GUTTER PAN SLOPE AT CURB RAMPS IS PREFERRED). RECOMMEND IDENTIFYING STANDARD BEGINNING AND END OF GUTTER SLOPE TRANSITION RELATIVE TO CURB RAMP LOCATION IN STANDARD DRAWINGS.



REDUCE 1/4" RADIUS TO 1/8" RADIUS TO PREVENT INSTALLING
A JOINT WITH A GAP GREATER THAN 1/2" (PROWAG R302.7.3) IN
PEDESTRIAN PATHS OF TRAVEL INCLUDING CURB RAMPS.

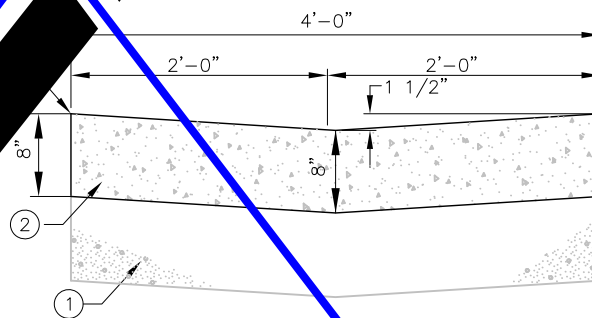
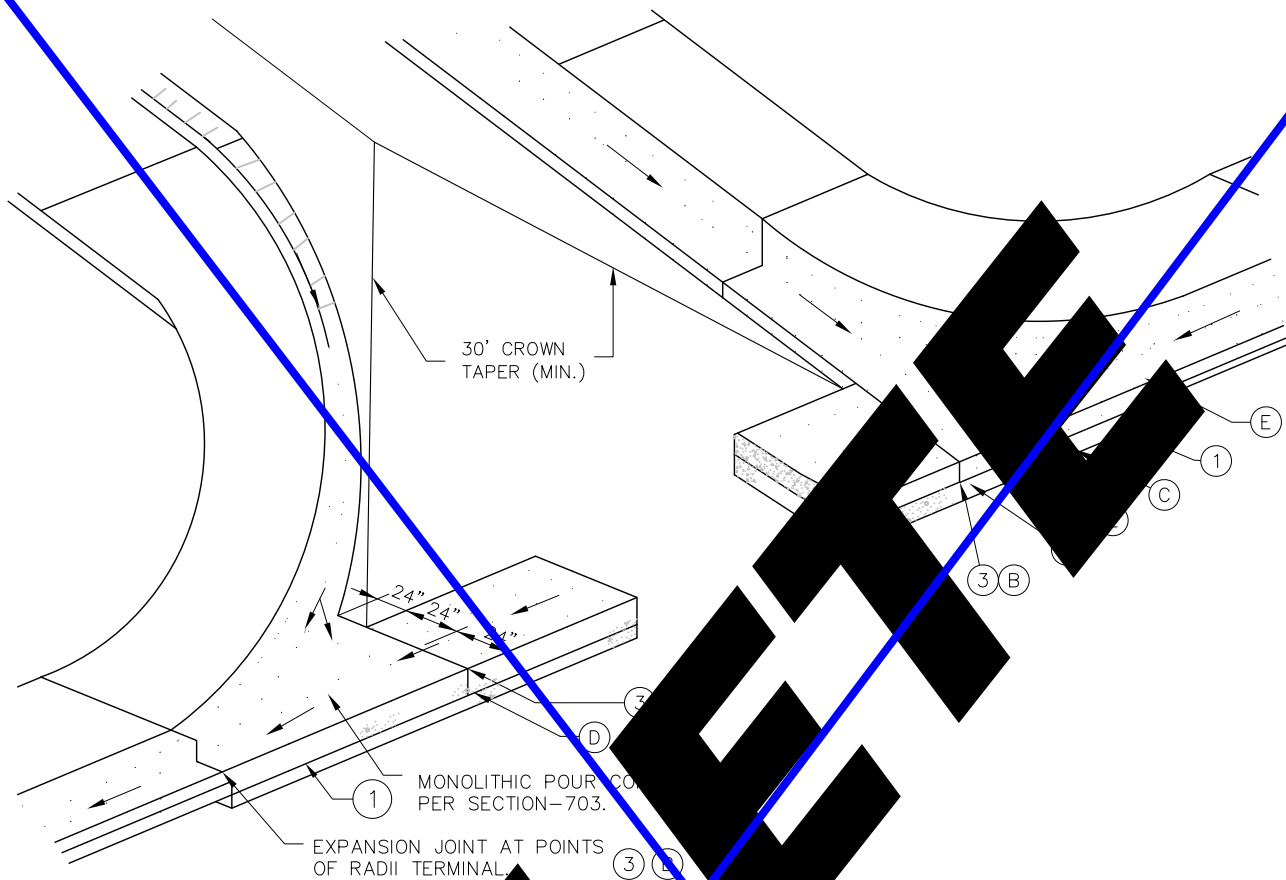
- (A) GRADE AND ALIGNMENT TO BE ESTABLISHED BY THE PUBLIC AGENCY HAVING JURISDICTION.
- (B) BASE: 4-INCH COMPACTED DEPTH OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS SPECIFIED AND PAID UNDER SECTION-802 ISPMC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR; A MINIMUM WIDTH OF 3- FEET 6-INCHES TO GRADE, PRIOR TO SETTING CURB FORMS.
- (C) SUBBASE: PLACE TO LENGTH BEHIND CURB AS SHOWN IN ABOVE FOR AGGREGATE BASE MATERIAL. PLACEMENT DEPTH PER PLAN OR AS DIRECTED AND PAID UNDER SECTION-801 ISPMC; COMPACTION SHALL MEET REQUIREMENTS OF SECTION 801-ISPMC.
- (D) CONTINUOUS PLACEMENT PREFERRED, SCORE INTERVALS 8- FEET MAXIMUM SPACING.
- (E) MATERIALS AND CONSTRUCTION IN COMPLIANCE WITH ISPMC SPECIFICATIONS AND ACHD AMENDMENTS.
- (F) BACKFILL AS PER ISPMC SECTION-706.
- (G) SECURE RIGHT-OF-WAY PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (H) WHEN LOCAL JURISDICTION REQUIRES VERTICAL CURB AT INTERSECTIONS, VERTICAL CURB LENGTH TO BE FULL CURVE CIRCUMFERENCE PLUS 5 FEET TANGENT AT EACH END. TRANSITION LENGTH FROM TYPE III CURB TO VERTICAL CURB 2' FFF.
- (I) SEE SD-706 FOR TYPE III CURB CUT.
- DETAIL SCORING AND JOINTING REQUIREMENTS. RECOMMEND PROVIDING A JOINT AND SCORE SECTION DETAIL.**

J ACROSS THE PEDESTRIAN ROUTE AT CURB RAMP LOCATIONS, THE GUTTER PAN SLOPE SHALL NOT EXCEED 4% (5% MAX FINISHED SURFACE SLOPE).



NOTES:

- (A) GRADE AND ALIGNMENT BE SET, ESTABLISHED OR APPROVED BY THE ENGINEER AND THE PUBLIC AGENCY HAVING JURISDICTION OVER THE STREET.
- (B) BASE COURSE COMPOSED OF 3/4-INCH MINUS CRUSHED AGGREGATE BASE MATERIAL, PLACE AS SPECIFIED AND UNDER SECTION-802 ISPMC; COMPACTED TO EXCEED 95% OF STANDARD PROCTOR; A MINIMUM OF 3-INCHES TO GRADE, PRIOR TO SETTING CURB FORMS.
- (C) CONTINUOUS JOINTS PREFERRED, SCORE INTERVALS 8- FEET MAXIMUM SPACING.
- (D) JOINTS AND CONSTRUCTION IN COMPLIANCE WITH ISPMC SPECIFICATIONS.
- (E) BASE COURSE SHALL BE IN ACCORDANCE WITH ISPMC SECTION-706.
- (F) SECURE A STREET CLOSURE PERMIT BEFORE BEGINNING CONSTRUCTION IN PUBLIC RIGHT-OF-WAY.
- (G) WHEN A JURISDICTION REQUIRES CURB AT INTERSECTIONS, VERTICAL CURB LENGTH TO BE FULL CURVE CIRCUMFERENCE PLUS 5- FEET TANGENT AT EACH END. TRANSITION FROM TYPE III CURB TO VERTICAL CURB 2 FEET.
- (H) FOR PEDESTRIAN RAMPS, CONSTRUCT TRANSITION PER A.D.A. REQUIREMENTS IN LIEU OF 3" RADIUS.



LEGEND

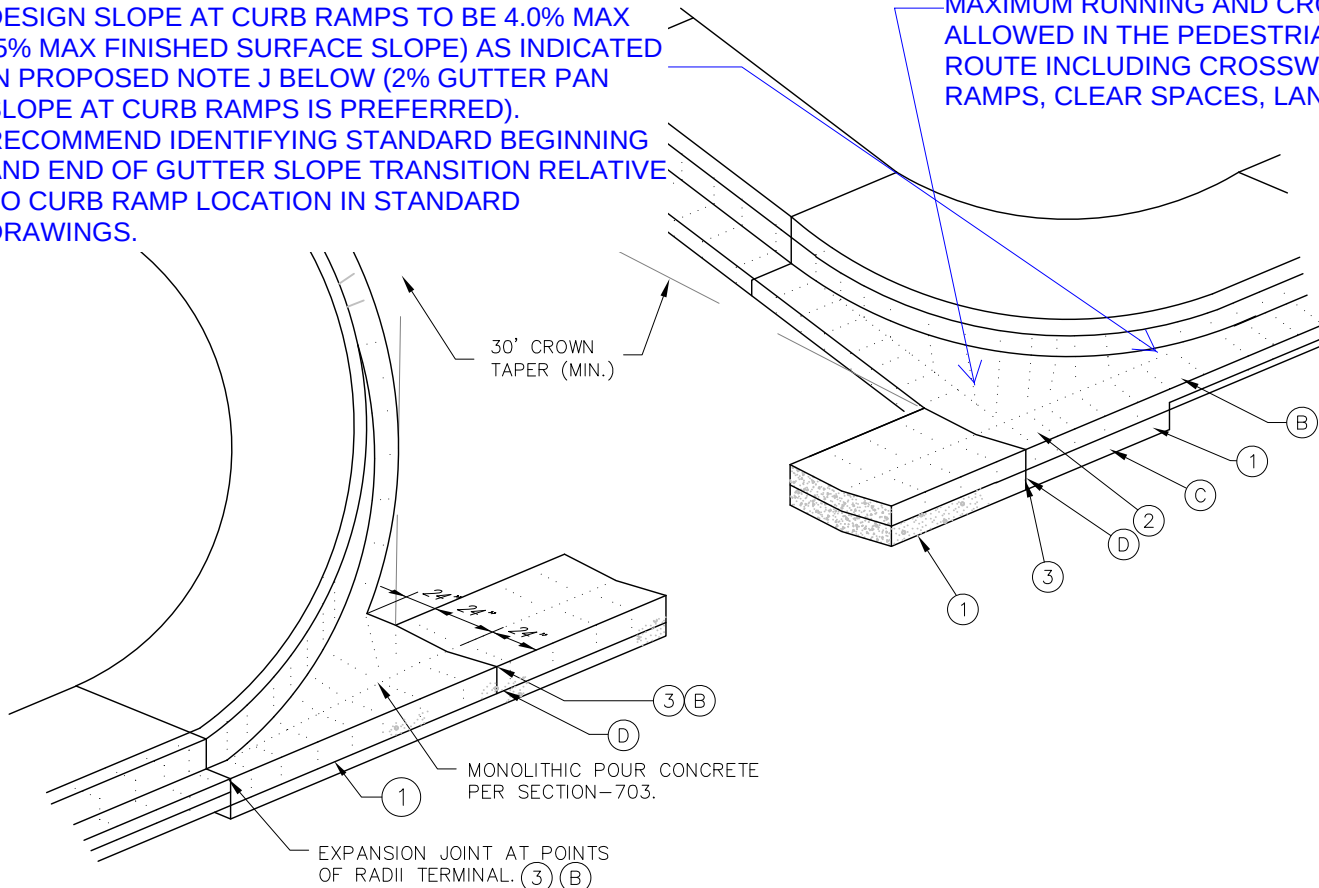
- ① 6" OF AGGREGATE
- ② 1/2" OF PREFORMED JOINT MATERIAL
- ③ 1/2" OF PREFORMED JOINT MATERIAL

NOTES

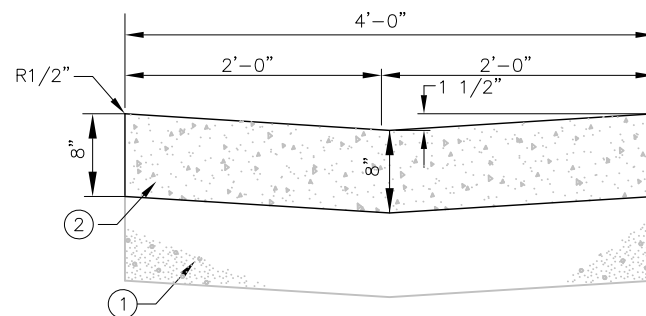
- (A) GRADE OF VALLEY GUTTER MINIMUM 0.4%.
- (B) EXPANSION JOINT 1/2-INCH PREFORMED JOINT MATERIAL (AASHTO M 213).
- (C) FILLET AND BASE SECTION THICKNESS SHALL MATCH THE VALLEY GUTTER, TYPICAL.
- (D) PAY LIMITS FOR VALLEY GUTTER.
- (E) FILLET DETAIL FOR CORNER RADIUS 15 FEET OR LESS.

GUTTER SLOPE APPEARS TO BE GREATER THAN 5%. PER 2011 PROWAG R304.5.4, COUNTER SLOPE OF GUTTER AT FOOT OF CURB RAMP SHALL BE 5% MAXIMUM. RECOMMEND THE MAX GUTTER PAN DESIGN SLOPE AT CURB RAMPS TO BE 4.0% MAX (5% MAX FINISHED SURFACE SLOPE) AS INDICATED IN PROPOSED NOTE J BELOW (2% GUTTER PAN SLOPE AT CURB RAMPS IS PREFERRED). RECOMMEND IDENTIFYING STANDARD BEGINNING AND END OF GUTTER SLOPE TRANSITION RELATIVE TO CURB RAMP LOCATION IN STANDARD DRAWINGS.

COORDINATE THE SLOPES OF THE VALLEY GUTTER AND ADJACENT GRADING IN THIS AREA WITH THE MAXIMUM RUNNING AND CROSS-SLOPES ALLOWED IN THE PEDESTRIAN ACCESS ROUTE INCLUDING CROSSWALKS, CURB RAMPS, CLEAR SPACES, LANDINGS, ETC.



PERSPECTIVE



TYPICAL SECTION

LEGEND:

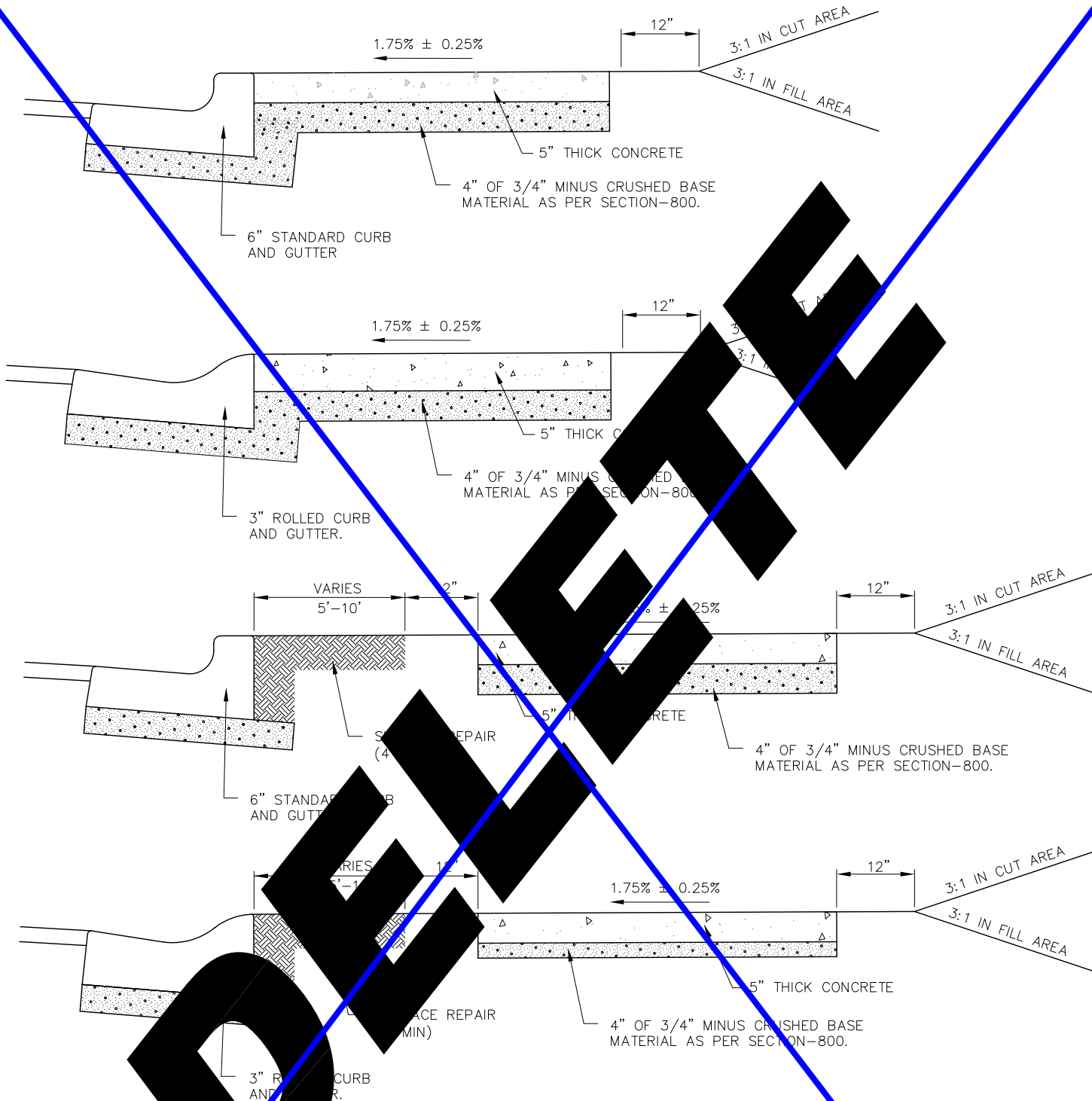
- (1) 6" OF 3/4" MINUS CRUSHED AGGREGATE BASE MINIMUM.
- (2) CONCRETE.
- (3) 1/2" EXPANSION JOINT.

NOTES:

- (A) GRADE OF GUTTER MINIMUM 0.4%.
- (B) FILLET DETAIL FOR CORNER RADIUS 15 FEET OR LESS.
- (C) FILLET AND BASE SECTION THICKNESS SHALL MATCH THE VALLEY GUTTER, TYPICAL.
- (D) PAY LIMITS FOR VALLEY GUTTER.

REVISE WIDTH OF EXPANSION JOINT FILLER TO 1/4" THICK PREFORMED JOINT FILLER IN AREAS OF PEDESTRIAN ACCESS ROUTES INCLUDING CROSSWALKS TO ENSURE A JOINT WIDTH OF LESS THAN 0.5 INCHES. PER 2011 PROWAG R302.7.3, MAXIMUM HORIZONTAL OPENING ALLOWED IN PEDESTRIAN ACCESS ROUTE IS 1/2". RECOMMEND PROVIDING A JOINT AND SCORE SECTION DETAIL.

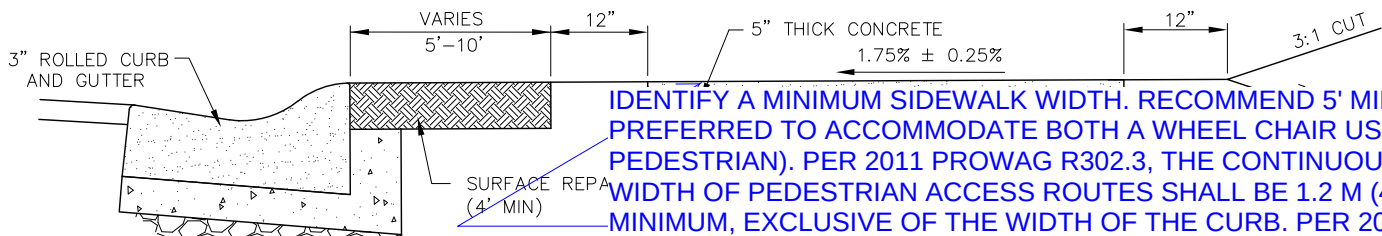
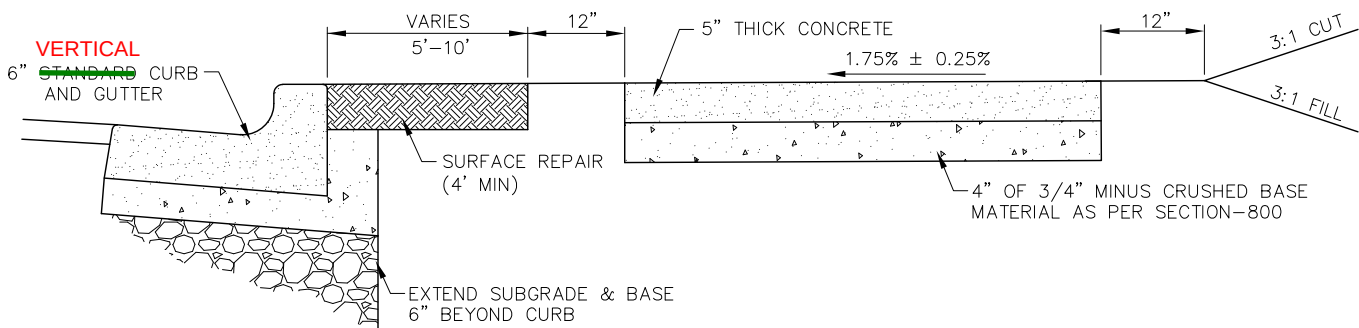
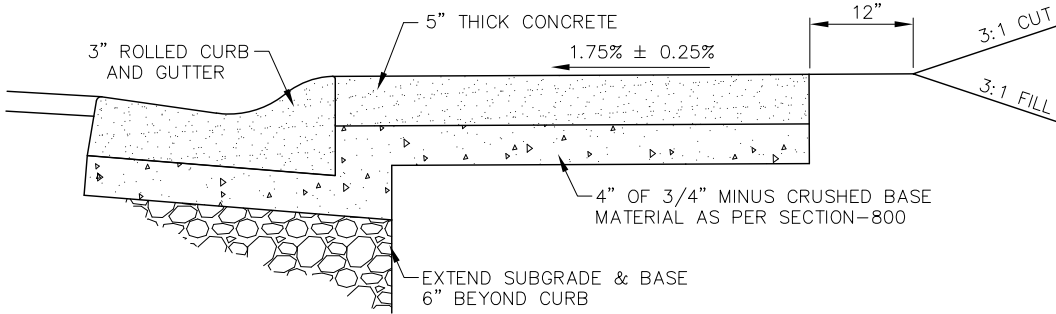
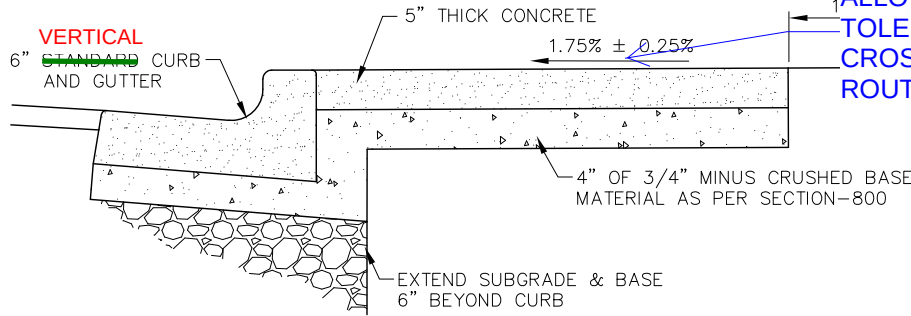
2017 ACHD F



NOTES:

- (A) LOCATION GRADE TO BE ESTABLISHED OR APPROVED BY THE OWNER.
- (B) BASE TO BE COMPACTED TO EXCEED 95% OF STANDARD DENSITY.
- (C) SLOPE SIDEWALK TO THE STREET NOT TO EXCEED 1.75% ± 0.25% UNLESS OTHERWISE SPECIFIED BY THE OWNER.
- (D) SCORE AT INTERVALS TO MATCH WIDTH OF WALK NOT TO EXCEED 5 FEET SPACING.
- (E) 1/2" TRANSVERSE PREFORMED BITUMINOUS JOINTS AT THE TERMINUS POINTS FOR CURB AND WHERE SIDEWALK IS PLACED BETWEEN TWO PERMANENT FOUNDATIONS, PLACE 1/2" EXPANSION JOINT MATERIAL ALONG THE BACK OF WALK THE FULL LENGTH.
- (F) DRIVEWAY APPROACH ACROSS PLANTER STRIP TO BE 5" MINIMUM CONCRETE OVER 4" OF 3/4" MINUS CRUSHED BASE.

IDENTIFY 1.75% AS MAX DESIGN CROSS SLOPE ALLOWING FOR A +/-0.25% CONSTRUCTION TOLERANCE. PER 2011 PROWAG R302.6, THE CROSS SLOPE OF A PEDESTRIAN ACCESS ROUTE SHALL BE 2% MAX.



ADD NOTE TO ADDRESS CONCRETE THICKNESS AT COMMERCIAL DRIVEWAYS (6" PER SD-710 (ACHD)).

IDENTIFY A MINIMUM SIDEWALK WIDTH. RECOMMEND 5' MIN (6' MIN PREFERRED TO ACCOMMODATE BOTH A WHEEL CHAIR USER AND PEDESTRIAN). PER 2011 PROWAG R302.3, THE CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES SHALL BE 1.2 M (4.0 FT) MINIMUM, EXCLUSIVE OF THE WIDTH OF THE CURB. PER 2011 PROWAG R302.4, WHERE THE CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES IS LESS THAN 1.5 M (5.0 FT), PASSING SPACES SHALL BE PROVIDED AT INTERVALS OF 200 FT MAXIMUM. PASSING SPACES SHALL BE 5 FT MINIMUM BY 5 FT MINIMUM.

D SUBGRADE YOND CURB

NOTES:

- LOCATION GRADE AND WIDTH TO BE ESTABLISHED OR APPROVED BY THE OWNER.
- BASE TO BE COMPACTED TO EXCEED 95% OF STANDARD DENSITY.
- SLOPE SIDEWALK TOWARD THE STREET NOT TO EXCEED
- SCORE AT INTERVALS TO MATCH WIDTH OF WALK NOT TO EXCEED 5 FEET SPACING.
- 1/2" TRANSVERSE PREFORMED BITUMINOUS JOINTS AT THE TERMINUS POINTS FOR CURVE AND WHERE SIDEWALK IS PLACED BETWEEN TWO PERMANENT FOUNDATIONS, PLACE 1/2" EXPANSION JOINT MATERIAL ALONG THE BACK OF WALK THE FULL LENGTH.
- DRIVEWAY APPROACH ACROSS PLANTER STRIP TO BE 5" MINIMUM CONCRETE OVER 4" OF 3/4" MINUS CRUSHED BASE.

SEE COMMENT ON MAXIMUM CROSS-SLOPE THIS SHEET.

RECOMMEND PROVIDING A JOINT AND SCORE SECTION DETAIL.

RESIDENTIAL

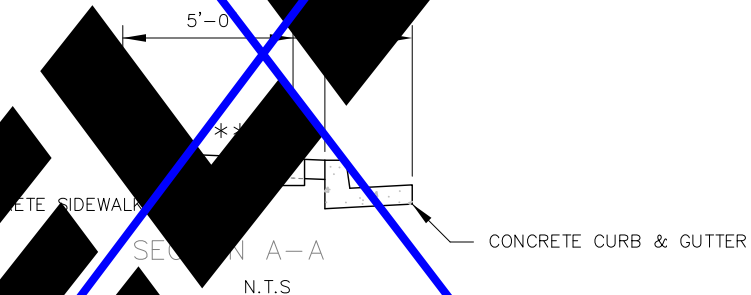
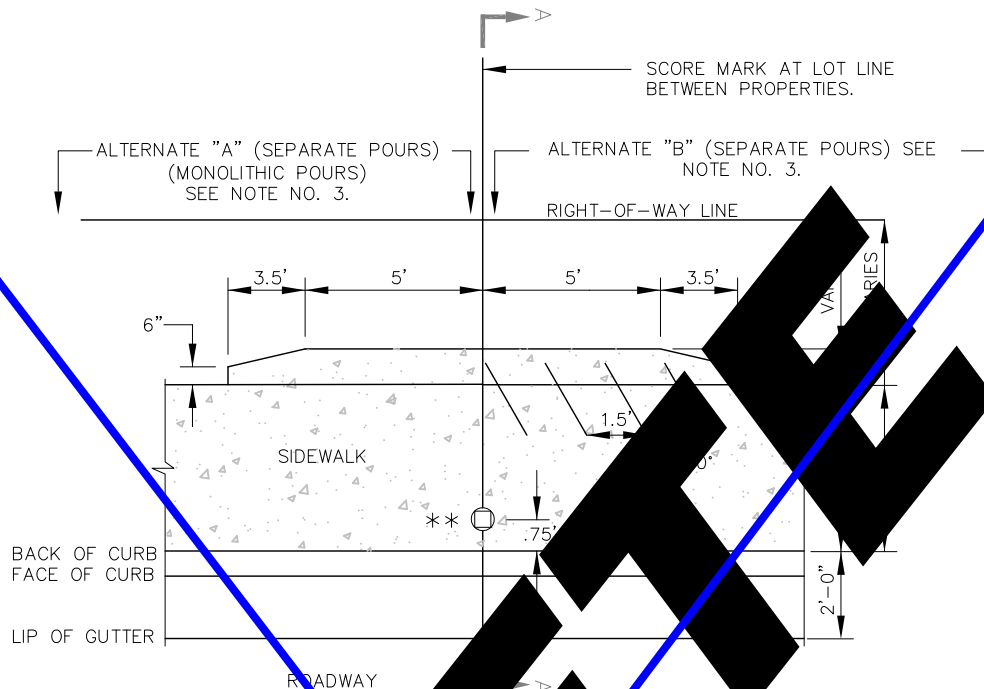
REVISE WIDTH OF EXPANSION JOINT FILLER TO 1/4" THICK PREFORMED JOINT FILLER TO ENSURE A JOINT WIDTH OF LESS THAN 0.5 INCHES. PER 2011 PROWAG R302.7.3, MAXIMUM HORIZONTAL OPENING ALLOWED IN PEDESTRIAN ACCESS ROUTE IS 1/2".

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CONCRETE
SIDEWALK

STANDARD DRAWING
NO. SD-709



USE 4\"/>

NOTES:

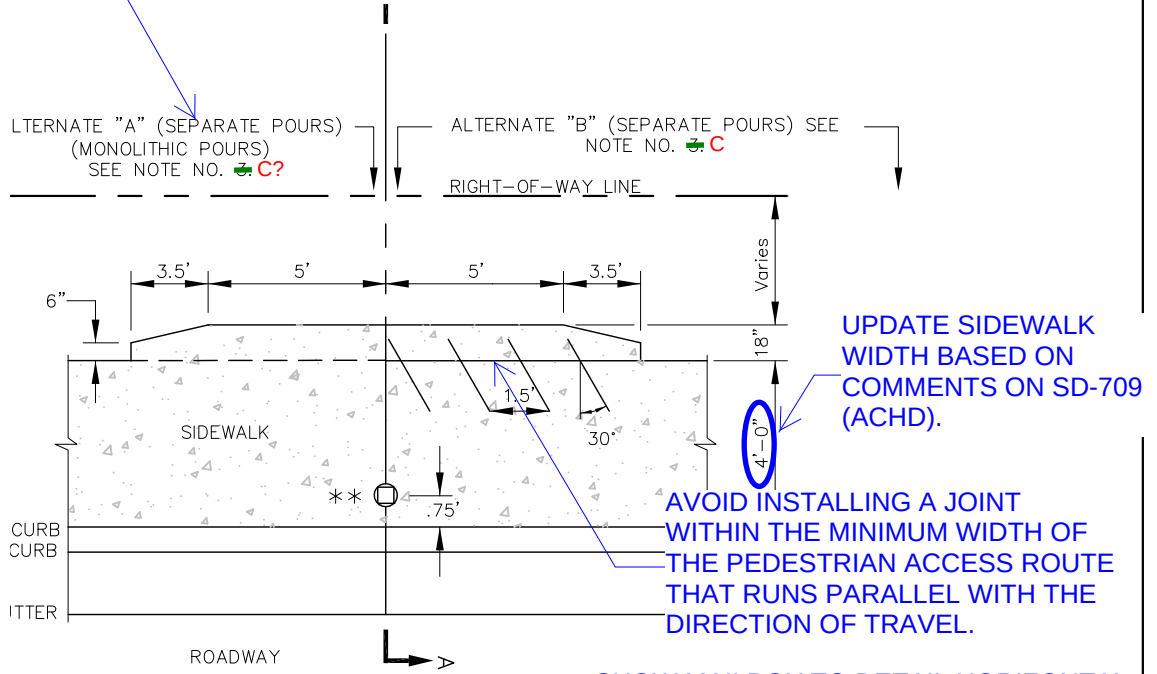
1. LOCATIONS SHOWN ON CONSTRUCTION PLANS.

2. SEE STANDARD SPECIFICATIONS SECTION 700 FOR DETAILS NOT SHOWN.

3. ALL SIDEWALK CONSTRUCTION OF MAILBOX LOCATIONS SHALL BE EITHER BY ALTERNATE "A" OR ALTERNATE "B" CONSTRUCTION. ALTERNATE "B" SHALL INCLUDE PLACEMENT OF 2' x 1/2" (NO. 4) STEEL REINFORCING BARS PLACED 1.5' O.C. DIRECTED TOWARD THE LOT LINE BETWEEN PROPERTIES ON BOTH SIDES OF LOT LINE AT BACK OF WALK AREA. (SEE PLAN VIEW).

RECOMMEND SHOWING A MAILBOX IN BOTH THE PLAN AND SECTION VIEW OF THIS DETAIL. BELOW ARE SOME SELECTED GUIDELINES FOR MAILBOX INSTALLATION FROM USPS (<https://www.usps.com/manage/mailboxes.htm>). **Placing the Mailbox** Position your mailbox 41" to 45" from the road surface to the bottom of the mailbox or point of mail entry. Place your mailbox 6" to 8" back from the curb. If you do not have a raised curb, contact your local postmaster for guidance. **Installing the Post** The best mailbox supports are stable but bend or fall away if a car hits them. The Federal Highway Administration recommends: A 4" x 4" wooden support or a 2"-diameter standard steel or aluminum pipe. Bury your post no more than 24" deep.

CLARIFY NOTE. CONFIRM IF SEPARATE POURS OR MONOLITHIC POURS ARE REQUIRED

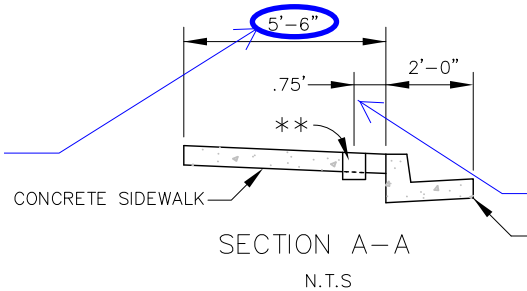


UPDATE SIDEWALK WIDTH BASED ON COMMENTS ON SD-709 (ACHD).

AVOID INSTALLING A JOINT WITHIN THE MINIMUM WIDTH OF THE PEDESTRIAN ACCESS ROUTE THAT RUNS PARALLEL WITH THE DIRECTION OF TRAVEL.

SHOW MAILBOX TO DETAIL HORIZONTAL AND VERTICAL PLACEMENT RELATIVE TO SIDEWALK. PER 2011 PROWAG R210 AND R402, OBJECTS ALONG OR OVERHANGING A PEDESTRIAN CIRCULATION PATH SHALL COMPLY WITH THE PROTRUDING OBJECT REQUIREMENTS. PER PROWAG R402.3, FOR A POST MOUNTED OBJECT BETWEEN 2.25' MINIMUM AND 6.7' MAXIMUM ABOVE THE FINISHED SURFACE, THE OBJECTS SHALL OVERHANG PEDESTRIAN CIRCULATION PATHS BY 4" MAXIMUM MEASURED HORIZONTALLY FROM THE POST. COORDINATE THESE PROTRUDING OBJECT REQUIREMENTS WITH USPS MAILBOX HEIGHT AND PLACEMENT REQUIREMENTS. A TRIANGULAR BRACKET SUPPORTING THE MAILBOX (ON THE PEDESTRIAN ACCESS PATH SIDE) MAY PROVIDE A DETECTABLE EDGE BELOW 2.25'.

ADJUST TOTAL SIDEWALK WIDTH TO ALLOW FOR A 4' MINIMUM CLEAR PEDESTRIAN ACCESS WIDTH BEHIND MAILBOX.



** 8"x6" DIA. PVC PIPE TO BE USED AND BURY AT A LATER TIME.

NOTES:

- LOCATIONS SHOWN ON CONSTRUCTION PLANS.
- SEE STANDARD SPECIFICATIONS
- ALL SIDEWALK CONSTRUCTION OF MAILBOX LOCATIONS SHALL BE EITHER BY ALTERNATE "A" OR ALTERNATE "B" CONSTRUCTION. ALTERNATE "B" SHALL INCLUDE PLACEMENT OF 2' x 1/2" (NO. 4) STEEL REINFORCING BARS PLACED 1.5' O.C. DIRECTED TOWARD THE LOT LINE BETWEEN PROPERTIES ON BOTH SIDES OF LOT LINE AT BACK OF WALK AREA. (SEE PLAN VIEW).
- MINIMUM CLEARANCE REQUIRED BETWEEN BACK OF MAILBOX AND BACK OF SIDEWALK

CLARIFY SECTION REFERENCE. UPDATE TO DIVISION 700 OR SECTION 701 - 706.

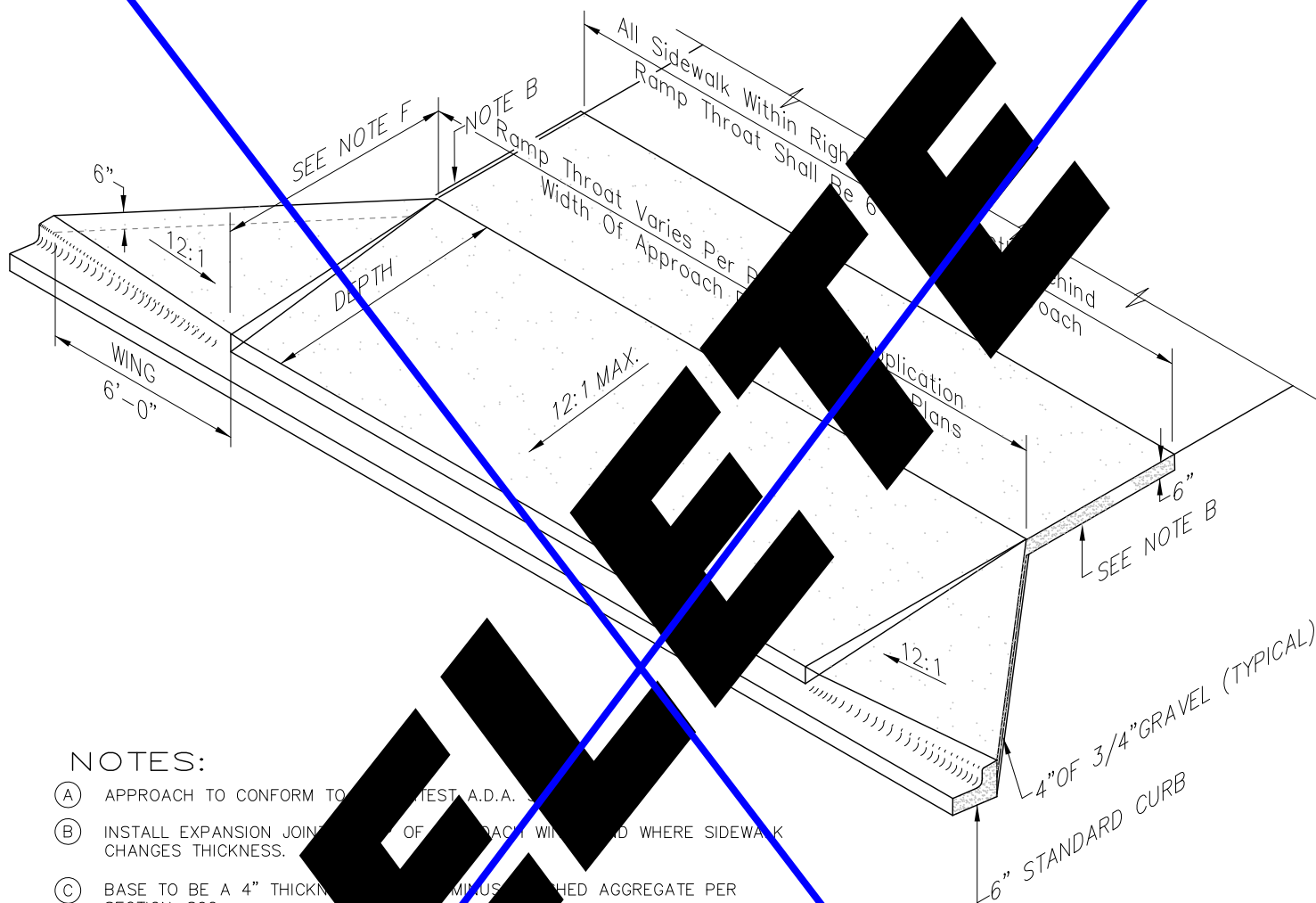
REVISE TO 4' MIN. PER 2011 PROWAG R302.3, THE CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES SHALL BE 4 FT MINIMUM, EXCLUSIVE OF THE WIDTH OF THE CURB. PER 2011 PROWAG R302.4, WHERE THE CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES IS LESS THAN 5 FT, PASSING SPACES SHALL BE PROVIDED AT INTERVALS OF 200 FT MAXIMUM. PASSING SPACES SHALL BE 5 FT MINIMUM BY 5 FT MINIMUM.

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CURBSIDE MAIL BOX STAND

STANDARD DRAWING
NO. SD-709A



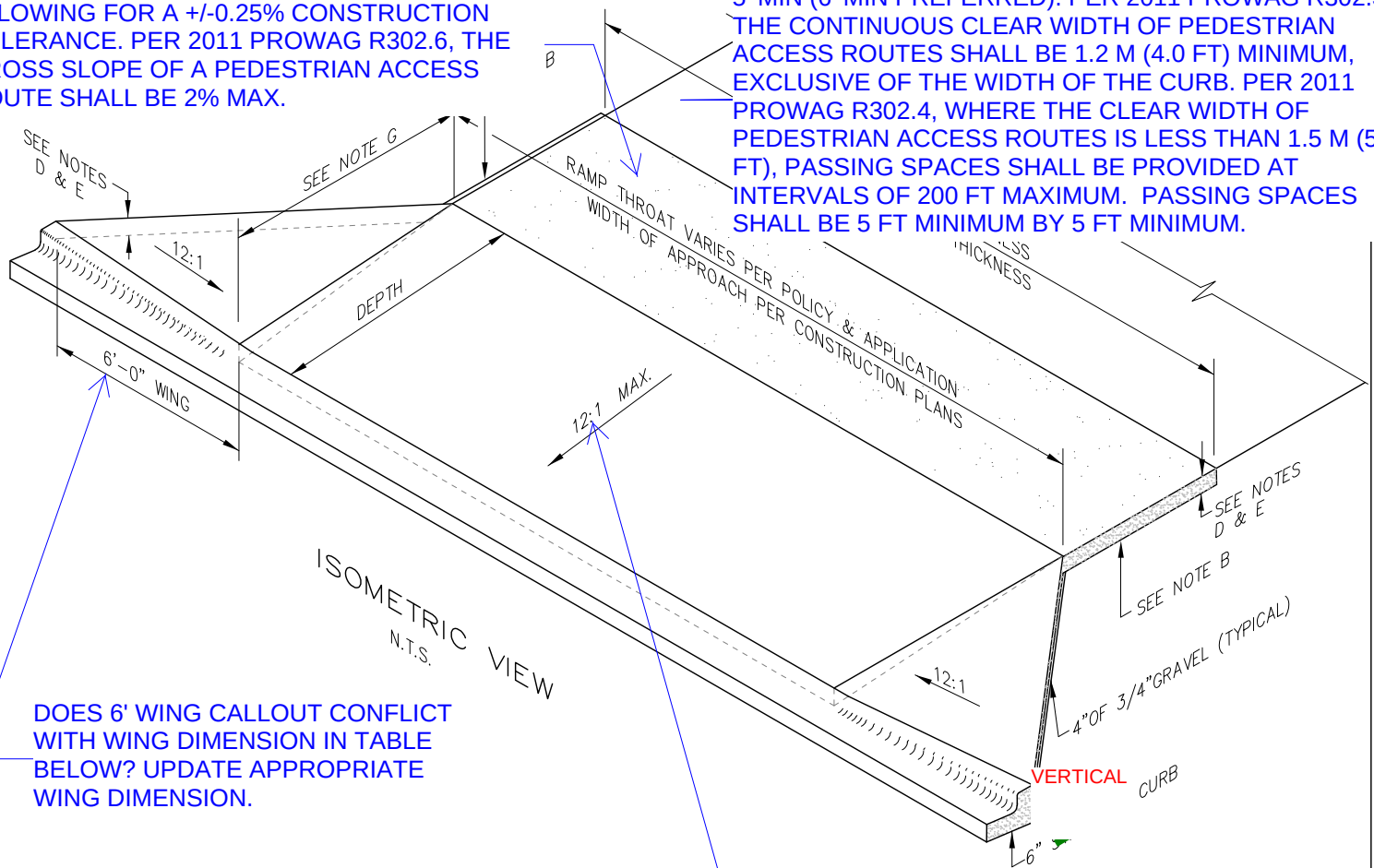
NOTES:

- (A) APPROACH TO CONFORM TO TEST A.D.A.
- (B) INSTALL EXPANSION JOINTS AT END OF APPROACH WING AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" THICKNESS MINUS FINISHED AGGREGATE PER SECTION-802.
- (D) APPROACH THROAT WITH SLOPE PER APPLICATION. ALL CONCRETE TO BE 6" THICK FROM WING TO EXPANSION JOINT. WHEN SIDEWALK IMMEDIATELY BEHIND THE APPROACH CURB, SIDEWALK IMMEDIATELY BEHIND THE APPROACH CURB TO BE 6" THICK ALSO.
- (E) ALL CURBS SHALL BE 3000 PSI PER SECTION-703.
- (F) APPROACH DIMENSIONS ARE BASED ON THE HEIGHT OF THE CURB. SEE TABLE BELOW.

APPROACH DIMENSION TABLE

Curb	3"	4"	5"	6"	7"	8"
Depth	4'	5'	6'	7'	8'	9'
Wing	3'	4'	5'	6'	7'	8'
Throat Per Policy And Application Unless Otherwise Approved by Owner						

IDENTIFY A MINIMUM SIDEWALK WIDTH. RECOMMEND 5' MIN (6' MIN PREFERRED). PER 2011 PROWAG R302.3 THE CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES SHALL BE 1.2 M (4.0 FT) MINIMUM, EXCLUSIVE OF THE WIDTH OF THE CURB. PER 2011 PROWAG R302.4, WHERE THE CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES IS LESS THAN 1.5 M (5.0 FT), PASSING SPACES SHALL BE PROVIDED AT INTERVALS OF 200 FT MAXIMUM. PASSING SPACES SHALL BE 5 FT MINIMUM BY 5 FT MINIMUM.

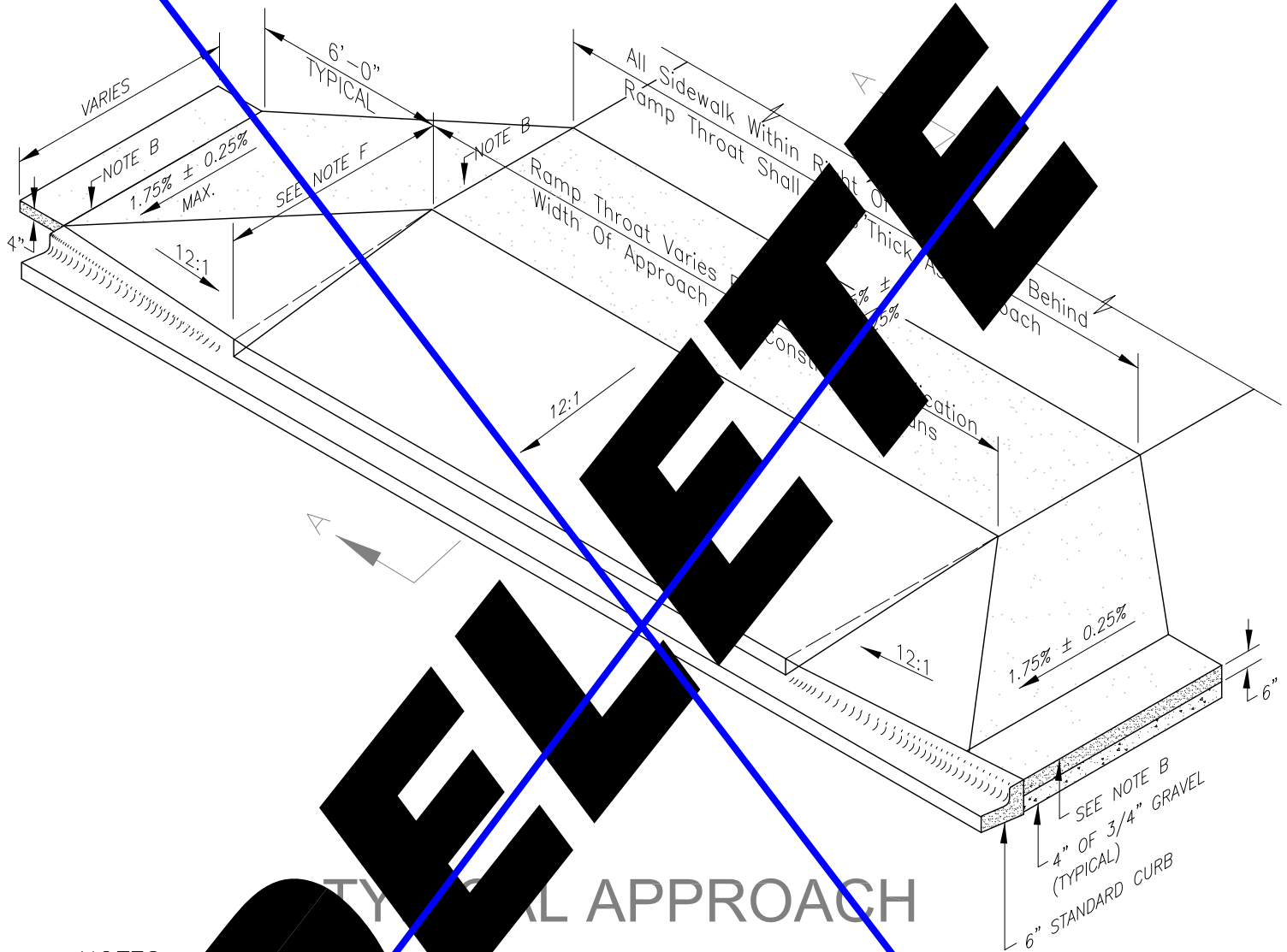


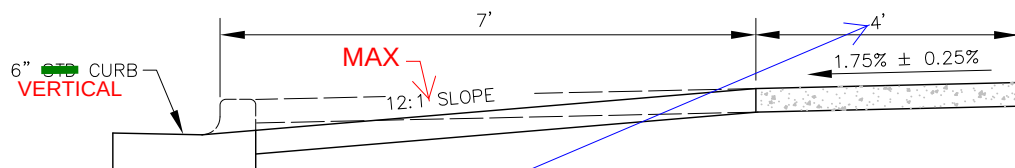
- (A) APPROACH TO CONFORM TO THE LATEST A.D.A. STANDARDS.
- (B) INSTALL EXPANSION JOINT AT TIP OF APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION - 802.
- (D) RESIDENTIAL APPROACHES SHALL BE CONSTRUCTED WITH CONCRETE 5" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 5" THICK ALSO.
- (E) COMMERCIAL APPROACH THROAT WIDTH SET BY POLICY AND APPLICATION. ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (F) ALL CONCRETE SHALL BE CLASS 3000 PER SECTION - 703.
- (G) APPROACH DIMENSIONS ARE BASED ON THE HEIGHT OF THE CURB. SEE TABLE BELOW.

FOR EXPANSION JOINTS IN
SIDEWALK, RECOMMEND WIDTH
OF EXPANSION JOINT FILLER TO
BE 1/4" THICK PREFORMED JOINT
FILLER TO ENSURE A JOINT
WIDTH OF LESS THAN 0.5 INCHES.
PER 2011 PROWAG R302.7.3,
MAXIMUM HORIZONTAL OPENING
ALLOWED IN PEDESTRIAN
ACCESS ROUTE IS
1/2".RECOMMEND PROVIDING A
JOINT AND SCORE SECTION

APPROACH SLOPES REQUIRED IN
TABLE APPEAR TO BE LESS
—STEEP THAN MAX SLOPE
ALLOWED IN ISOMETRIC VIEW.
CLARIFY DETAIL.

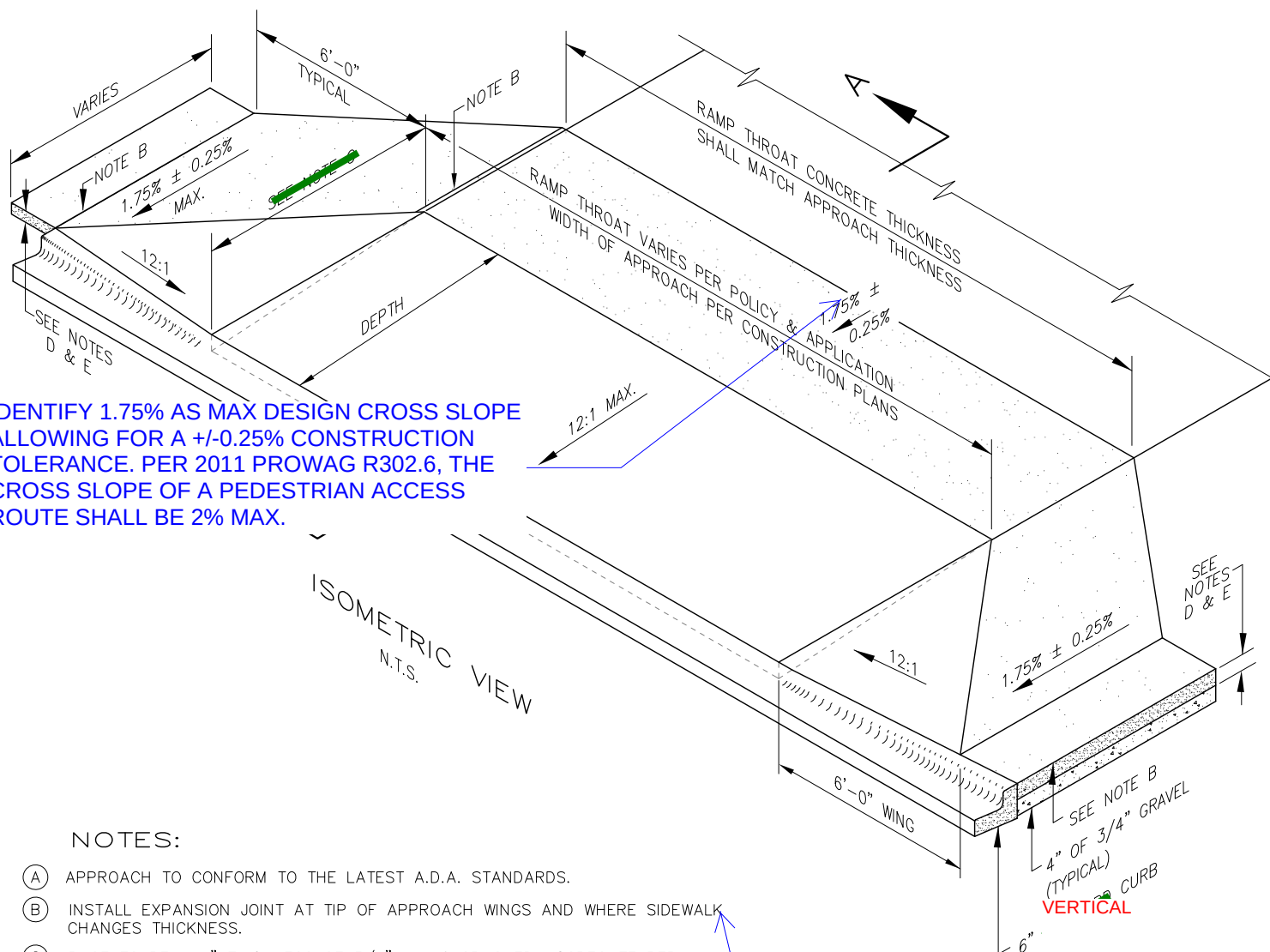
CURB	3"	4"	5"	6"	7"	8"
DEPTH	4'	5'	6'	7'	8'	9'
WING	3'	4'	5'	6'	7'	8'
THROAT PER POLICY AND APPLICATION UNLESS OTHERWISE APPROVED BY OWNER						





UPDATE SIDEWALK WIDTH BASED
ON COMMENTS ON SD-709 (ACHD).

SECTION A-A
N.T.S.



NOTES:

- (A) APPROACH TO CONFORM TO THE LATEST A.D.A. STANDARDS.
- (B) INSTALL EXPANSION JOINT AT TIP OF APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION - 802.
- (D) RESIDENTIAL APPROACHES SHALL BE CONSTRUCTED WITH CONCRETE 5" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 5" THICK ALSO.
- (E) COMMERCIAL APPROACH THROAT WIDTH SET BY POLICY AND APPLICATION. ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (F) ALL CONCRETE SHALL BE CLASS 3000 PER SECTION - 703.
- (G) SIDEWALK WIDTH MAY VARY.

COORDINATE NOTE G WITH
SIDEWALK WIDTH IDENTIFIED IN
SECTION A-A.

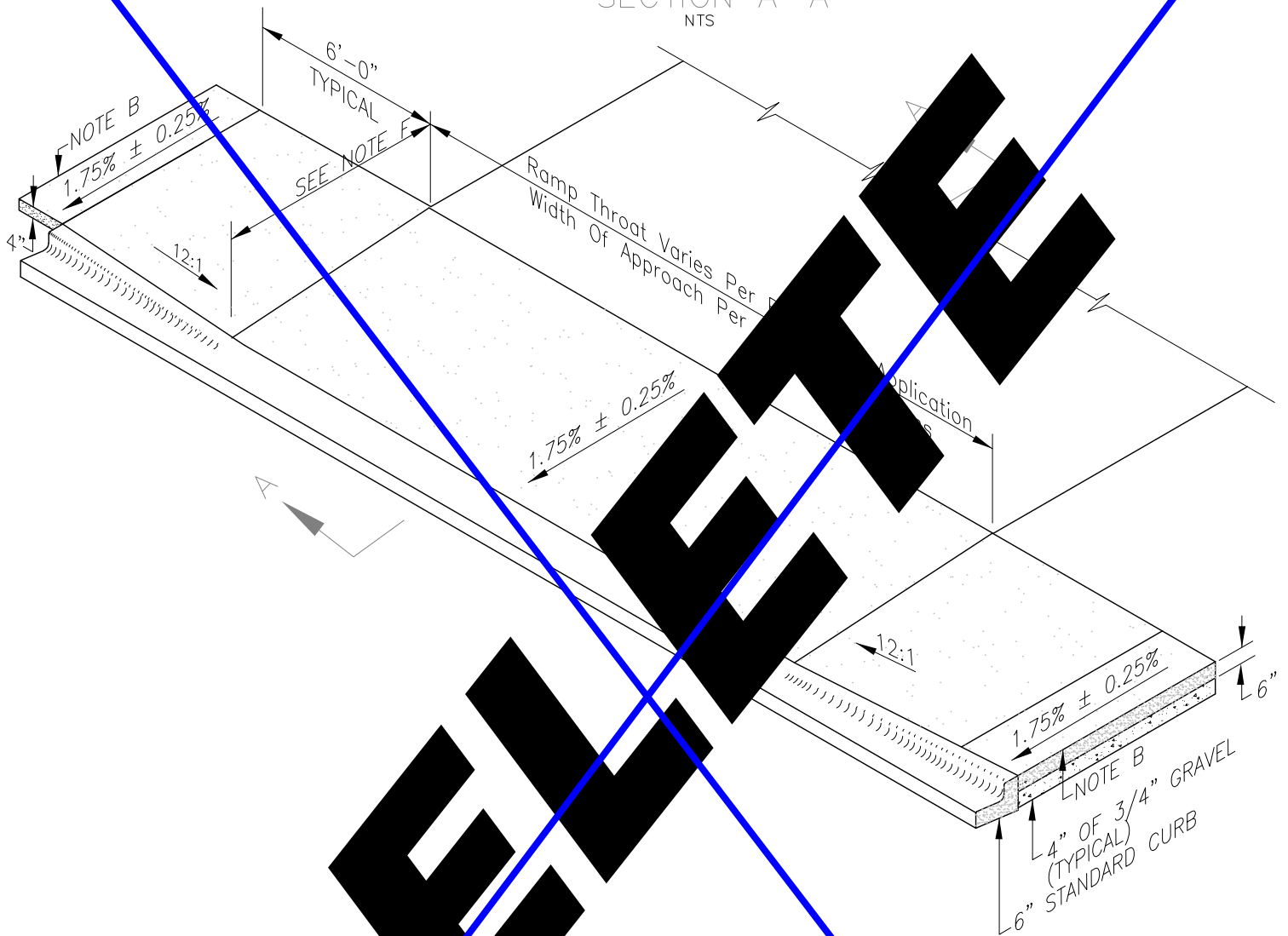
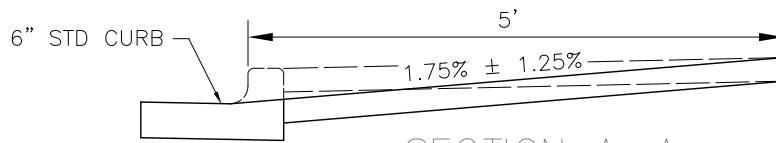
FOR EXPANSION JOINTS IN
SIDEWALK, RECOMMEND WIDTH
OF EXPANSION JOINT FILLER TO
BE 1/4" THICK PREFORMED JOINT
FILLER TO ENSURE A JOINT
WIDTH OF LESS THAN 0.5 INCHES.
PER 2011 PROWAG R302.7.3,
MAXIMUM HORIZONTAL OPENING
ALLOWED IN PEDESTRIAN
ACCESS ROUTE IS
1/2". RECOMMEND PROVIDING A
JOINT AND SCORE SECTION

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CONCRETE DRIVEWAY WITH
SIDEWALK AROUND APPROACH

STANDARD DRAWING
NO. SD-710A



NOTE

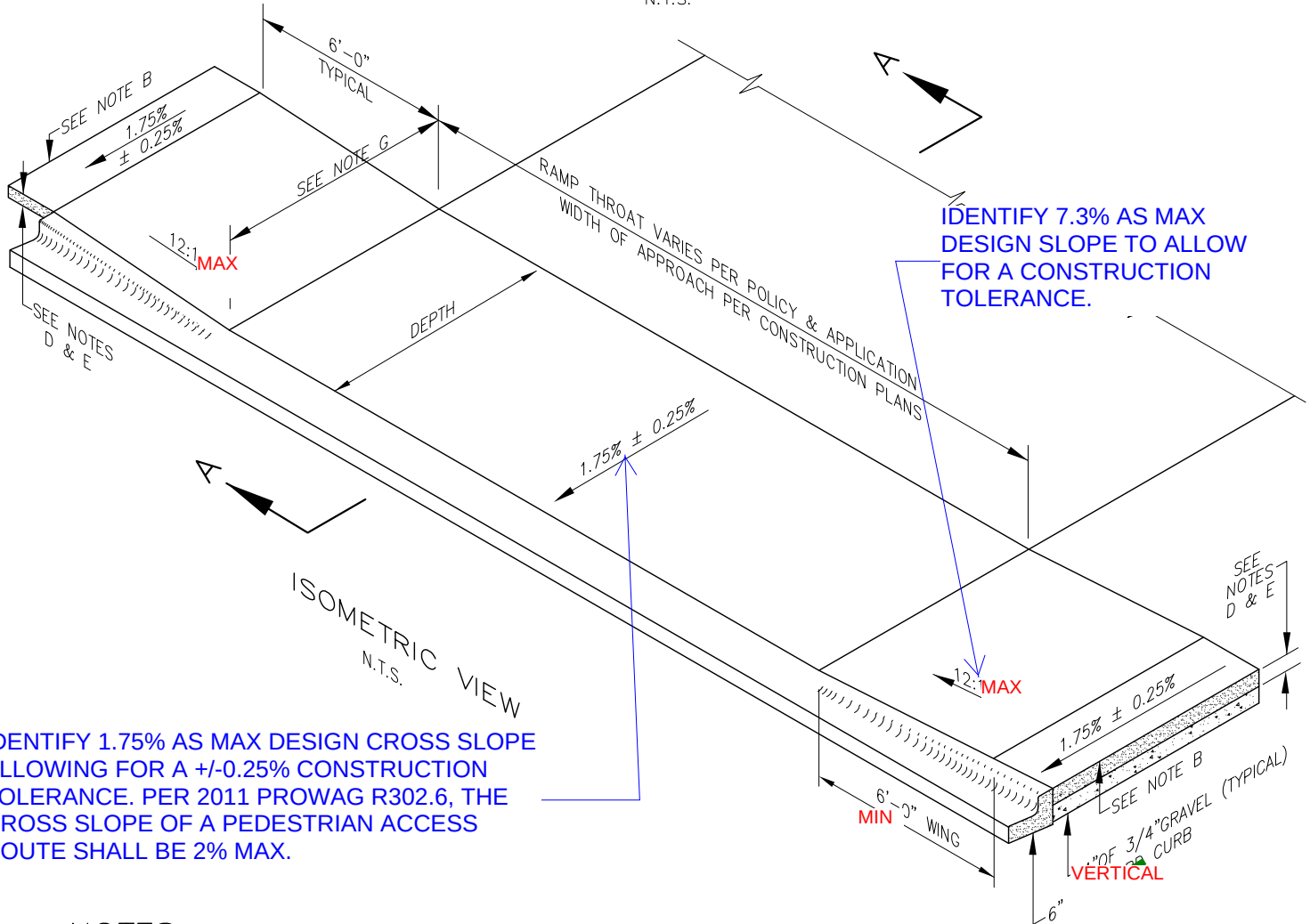
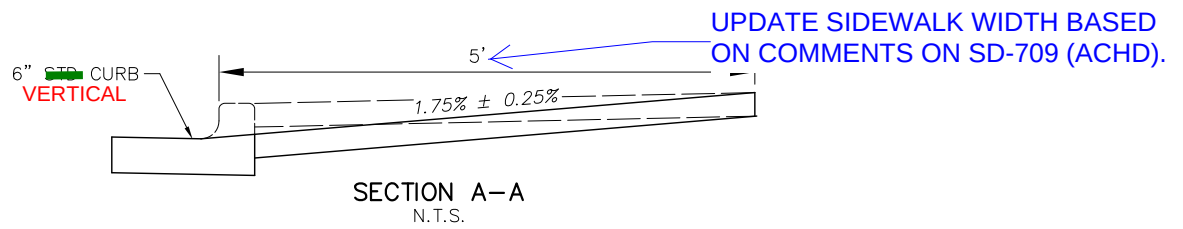
- (A) APPROACH THROAT TO THE CURB SHALL BE PER A.D.A. STANDARDS.
- (B) INSTALL EXPANSION JOINTS AT THE APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" MINIMUM THICKNESS MINUS CRUSHED AGGREGATE PER SECTION - 802.
- (D) APPROACH THROAT WIDTH SHALL BE PER POLICY AND APPLICATION. ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (E) ALL CONCRETE SHALL BE CLASS 3000 PER SECTION - 703.
- (F) SIDEWALK WIDTH MAY VARY.

2017

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION

CONCRETE DRIVEWAY WITH
RAMPED SIDEWALK

STANDARD DRAWING
NO. SD-710B



NOTES:

- (A) APPROACH TO CONFORM TO THE LATEST A.D.A. STANDARDS.
- (B) INSTALL EXPANSION JOINT AT TIP OF APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION - 802.
- (D) RESIDENTIAL APPROACHES SHALL BE CONSTRUCTED WITH CONCRETE 5" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 5" THICK ALSO.
- (E) COMMERCIAL APPROACH THROAT WIDTH SET BY POLICY AND APPLICATION. ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (F) ALL CONCRETE SHALL BE CLASS 3000 PER SECTION - 703.
- (G) SIDEWALK WIDTH MAY VARY.

COORDINATE NOTE G WITH SIDEWALK WIDTH IDENTIFIED IN SECTION A-A.

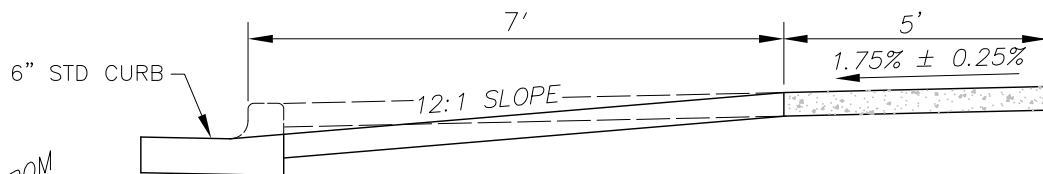
FOR EXPANSION JOINTS IN SIDEWALK, RECOMMEND WIDTH OF EXPANSION JOINT FILLER TO BE 1/4" THICK PREFORMED JOINT FILLER TO ENSURE A JOINT WIDTH OF LESS THAN 0.5 INCHES. PER 2011 PROWAG R302.7.3, MAXIMUM HORIZONTAL OPENING ALLOWED IN PEDESTRIAN ACCESS ROUTE IS 1/2". RECOMMEND PROVIDING A JOINT AND SCORE SECTION

2017 ACHD REVISION

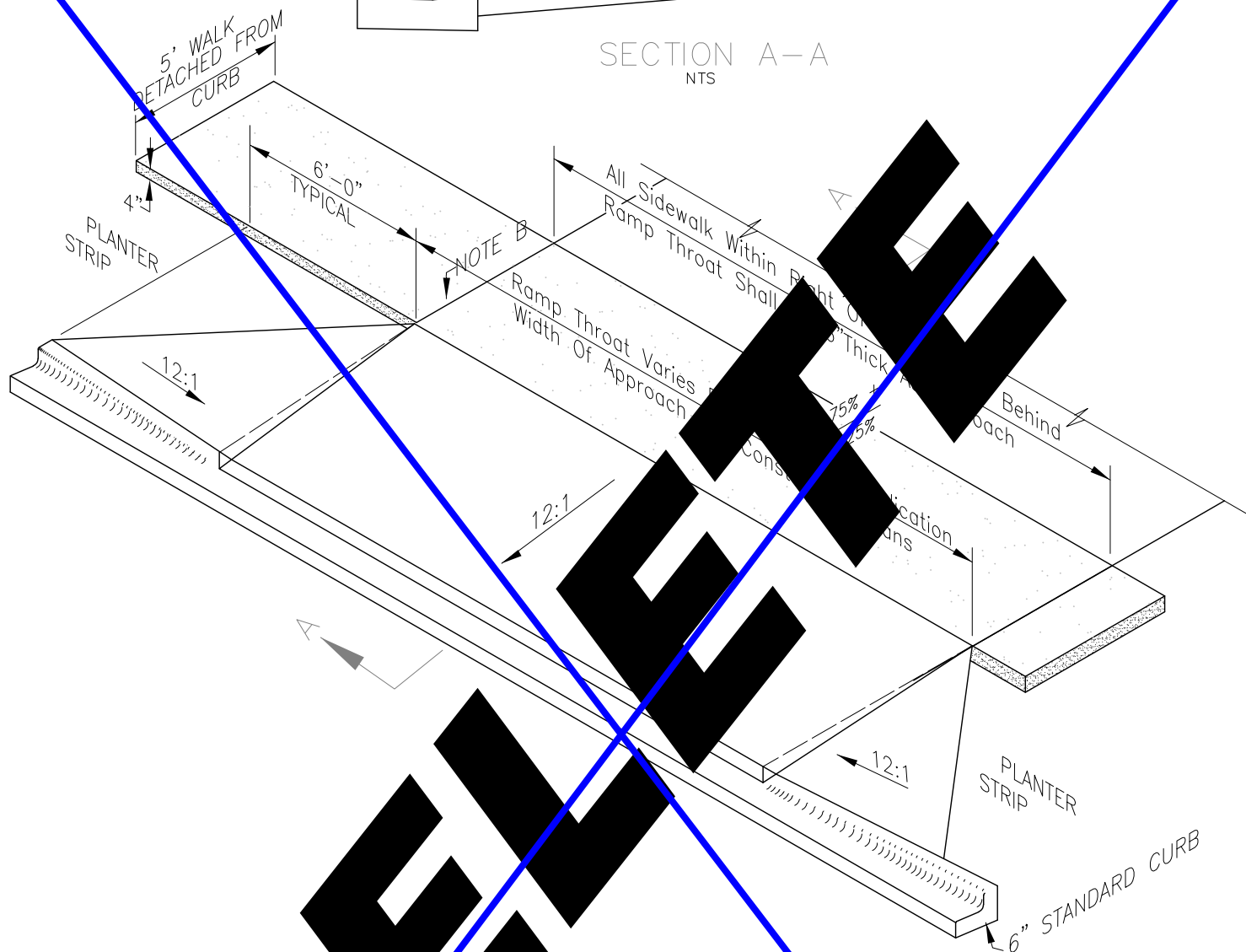
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CONCRETE DRIVEWAY WITH
RAMPED SIDEWALK

STANDARD DRAWING
NO. SD-710B



SECTION A-A
NTS

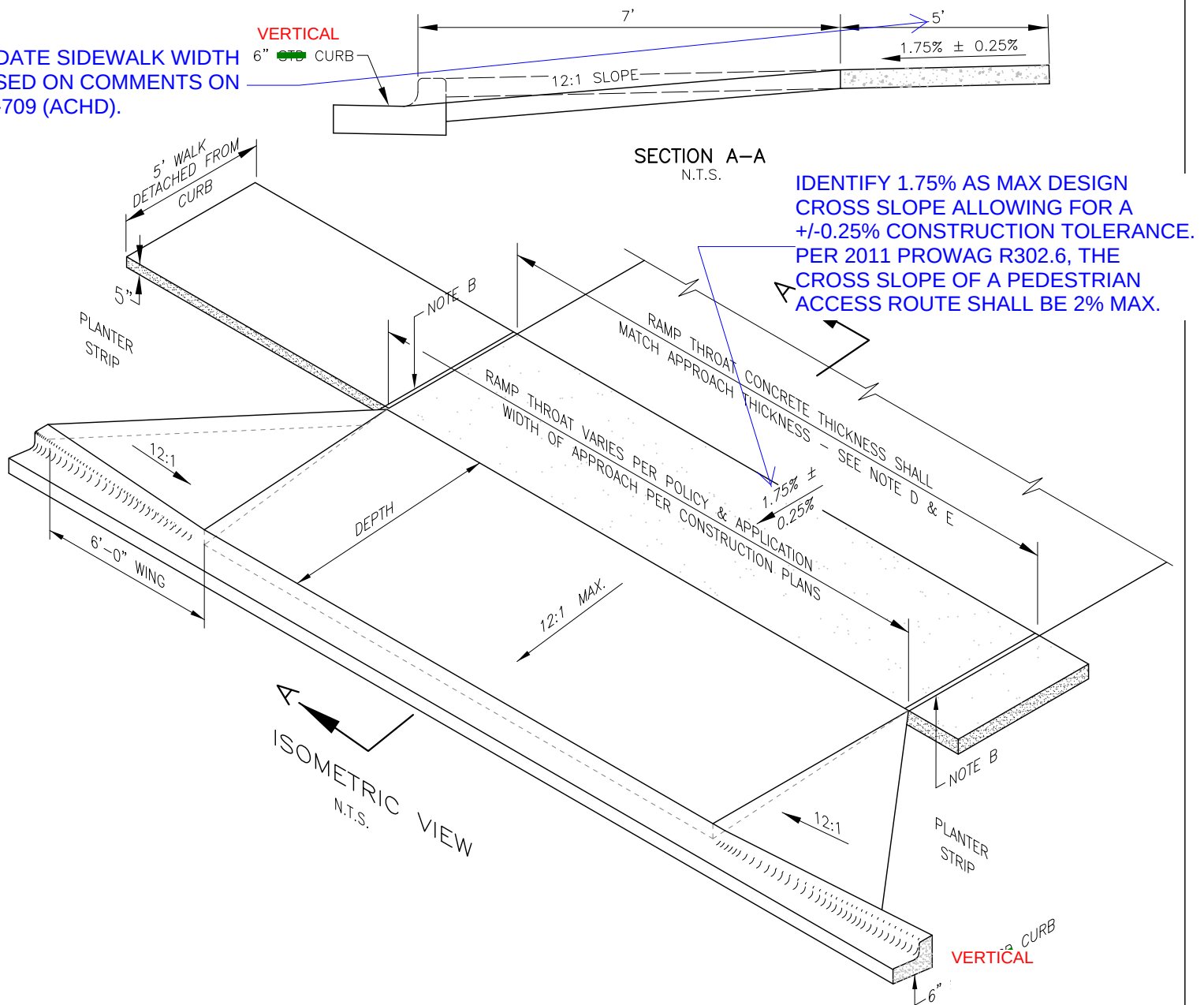


CONCRETE DRIVEWAY WITH DETACHED SIDEWALK

NOTES:

- (A) APPROACH SHALL CONFORM TO THE LATEST A.D.A. STANDARDS.
- (B) INSTALL EXPANSION JOINT AT THE APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4 INCH MINIMUM 1/4" MINUS CRUSHED AGGREGATE PER SECTION - 802.
- (D) APPROACH THROAT WIDTH SHALL BE BY POLICY AND APPLICATION. ALL CONCRETE TO BE 6" THICK FROM TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (E) ALL CONCRETE SHALL BE CLASS 3000 PER SECTION - 703.
- (F) SIDEWALK WIDTH MAY VARY.
- (G) ROUTING OF SIDEWALK AROUND APPROACH IS NOT NECESSARY WHEN THE PLANTING STRIP EQUALS OR EXCEEDS 6 FEET.

UPDATE SIDEWALK WIDTH
BASED ON COMMENTS ON
SD-709 (ACHD).



IDENTIFY 1.75% AS MAX DESIGN CROSS SLOPE ALLOWING FOR A $\pm 0.25\%$ CONSTRUCTION TOLERANCE. PER 2011 PROWAG R302.6, THE CROSS SLOPE OF A PEDESTRIAN ACCESS ROUTE SHALL BE 2% MAX.

NOTES:

- (A) APPROACH TO CONFORM TO THE LATEST A.D.A. STANDARDS.
- (B) INSTALL EXPANSION JOINT AT TIP OF APPROACH WINGS AND WHERE SIDEWALK CHANGES THICKNESS.
- (C) BASE TO BE A 4" THICKNESS OF 3/4" MINUS CRUSHED AGGREGATE PER SECTION - 802.
- (D) RESIDENTIAL APPROACHES SHALL BE CONSTRUCTED WITH CONCRETE 5" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 5" THICK ALSO.
- (E) COMMERCIAL APPROACH THROAT WIDTH SET BY POLICY AND APPLICATION. ALL CONCRETE TO BE 6" THICK FROM TIP OF WING TO TIP OF WING UP TO THE EXPANSION JOINT. WHEN SIDEWALK IS SEPARATE FROM CURB THE SIDEWALK IMMEDIATELY BEHIND THE APPROACH THROAT SHALL BE 6" THICK ALSO.
- (F) ALL CONCRETE SHALL BE CLASS 3000 PER SECTION - 703.
- (G) SIDEWALK WIDTH MAY VARY.

COORDINATE NOTE G WITH SIDEWALK WIDTH IDENTIFIED IN SECTION A-A AND ISOMETRIC VIEW.

FOR EXPANSION JOINTS IN SIDEWALK, RECOMMEND WIDTH OF EXPANSION JOINT FILLER TO BE 1/4" THICK PREFORMED JOINT FILLER TO ENSURE A JOINT WIDTH OF LESS THAN 0.5 INCHES. PER 2011 PROWAG R302.7.3, MAXIMUM HORIZONTAL OPENING ALLOWED IN PEDESTRIAN ACCESS ROUTE IS 1/2". RECOMMEND PROVIDING A JOINT AND SCORE SECTION

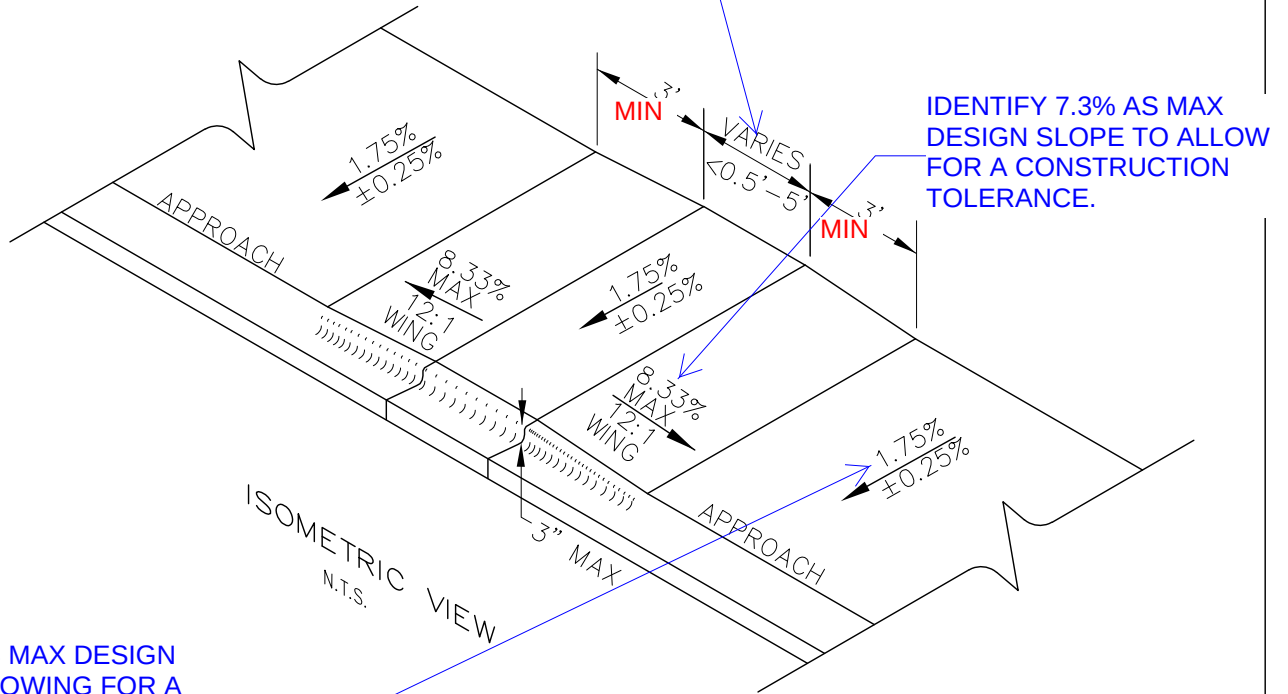
2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CONCRETE DRIVEWAY WITH
DETACHED SIDEWALK

STANDARD DRAWING
NO. SD-710C

A WIDTH LESS THAN 5' MIN BETWEEN RAMPS CREATES A DIFFICULT PATH OF TRAVEL FOR PEDESTRIANS. IDENTIFY 5' MIN BETWEEN DRIVEWAYS TO ALLOW FOR A STANDARD SLOPING SECTION OF SIDEWALK BETWEEN DRIVEWAY RAMPS TO AVOID SEVERE GRADE BREAKS IN SIDEWALK.



IDENTIFY 1.75% AS MAX DESIGN CROSS SLOPE ALLOWING FOR A $\pm 0.25\%$ CONSTRUCTION TOLERANCE. PER 2011 PROWAG R302.6, THE CROSS SLOPE OF A PEDESTRIAN ACCESS ROUTE SHALL BE 2% MAX.

NOTES:

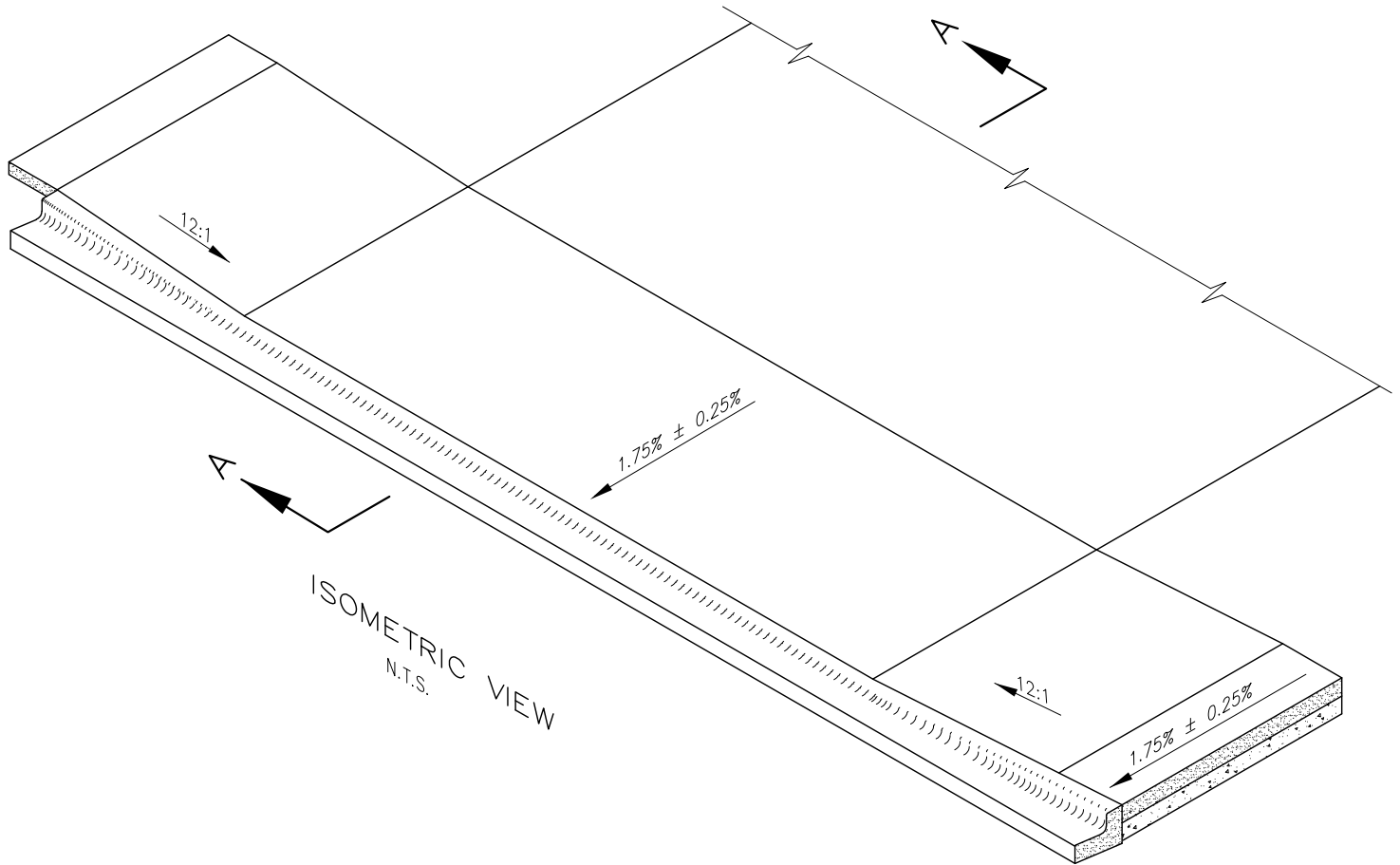
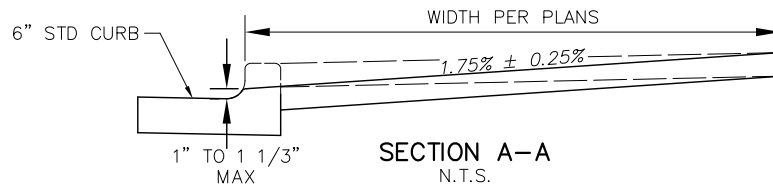
- (A) HALF HEIGHT CURB TO BE USED ONLY BETWEEN DRIVEWAYS WHERE TWO 6' ^{MIN} APPROACH WINGS AND ONE STANDARD 5' SIDEWALK PANEL CANNOT BE DEVELOPED TO STANDARD CURB HEIGHT.
- (B) REFERENCE ISPWC STANDARD DRAWINGS FOR DRIVEWAY APPROACH DETAILS.

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CONCRETE DRIVEWAY TRANSITIONS WITH HALF HEIGHT CURB

STANDARD DRAWING
NO. SD-710D



NOTES:

- (A) ALL CONDITIONS OUTLINED IN THE NOTES SECTION OF SD-710B SHALL BE MET.
(ACHD)

SEE ALL COMMENTS ON SD-710B.

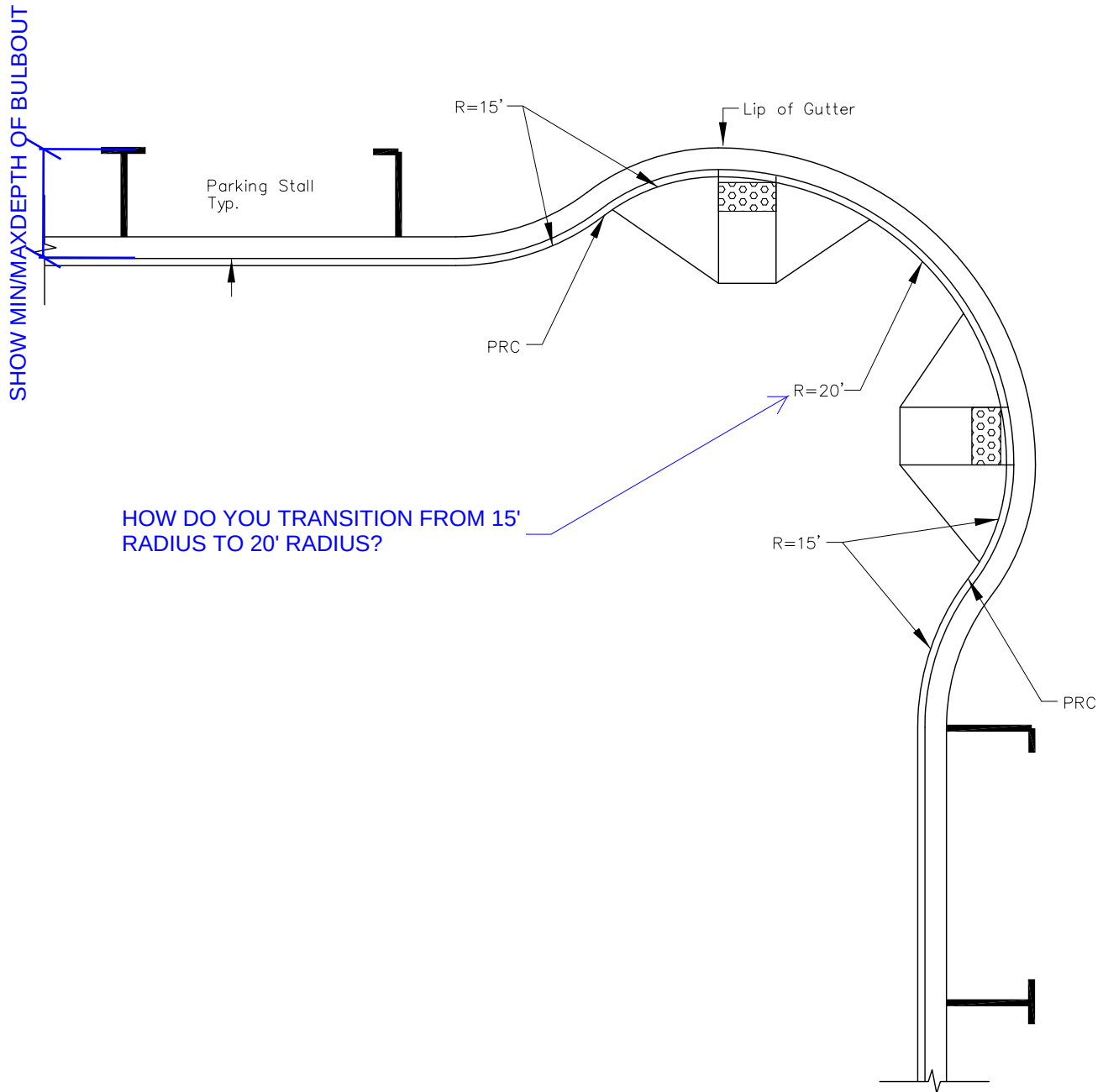
CLARIFY IF 6% SLOPE
IS FOR ROADWAY
CENTERLINE SLOPE.

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CONCRETE DRIVEWAY FOR
GRADES GREATER THAN 6%

STANDARD DRAWING
NO. SD-710E



NOTES:

- ① NO TANGENT SECTION BETWEEN REVERSE CURVES IS REQUIRED, BUT ALLOWED IF NEEDED
- ② THIS DETAIL IS THE MINIMUM RADII ALLOWED FOR REVERSED CURVES AT CURB BULBOUTS, RADII GREATER THAN THE 15' MINIMUM IS ALLOWED IF REQUESTED AND APPROVED BY ACHD.

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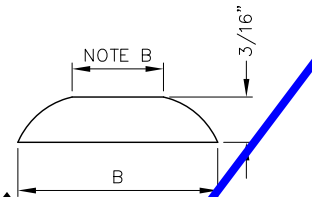
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

MINIMUM CURB RADII FOR
CURB BULBOUTS

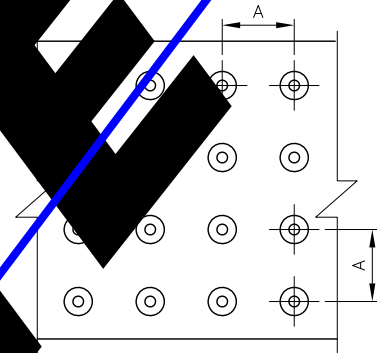
STANDARD DRAWING
NO. SD-710F

NOTES:

- (A) DETECTABLE WARNINGS SHALL BE 24" IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP, LANDING OR BLEND TRANSITION.
- (B) DETECTABLE WARNINGS SHALL HAVE A DIAMETER OF 50% TO 65% OF THE BASE DIAMETER OF DOME.
- (C) DETECTABLE WARNING DOMES SHALL BE PRE-MANUFACTURED UNITS INTEGRALLY CAST INTO CONCRETE RAMP TO ACHIEVE THE TRUNCATED DOME DIMENSIONS AND SPACING SHOWN. INSTALLATION SHALL BE TO MANUFACTURERS SPECIFICATIONS. SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. PRODUCT TO BE USED AND COLORATION MUST BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.

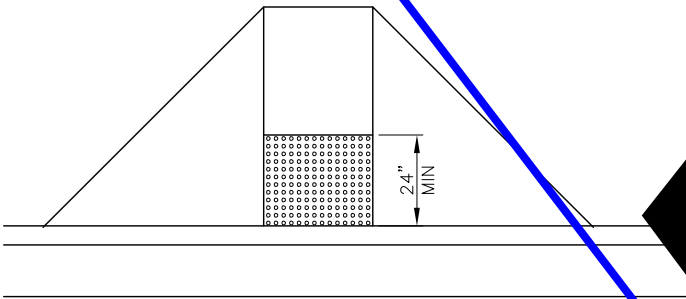


DOME SECTION

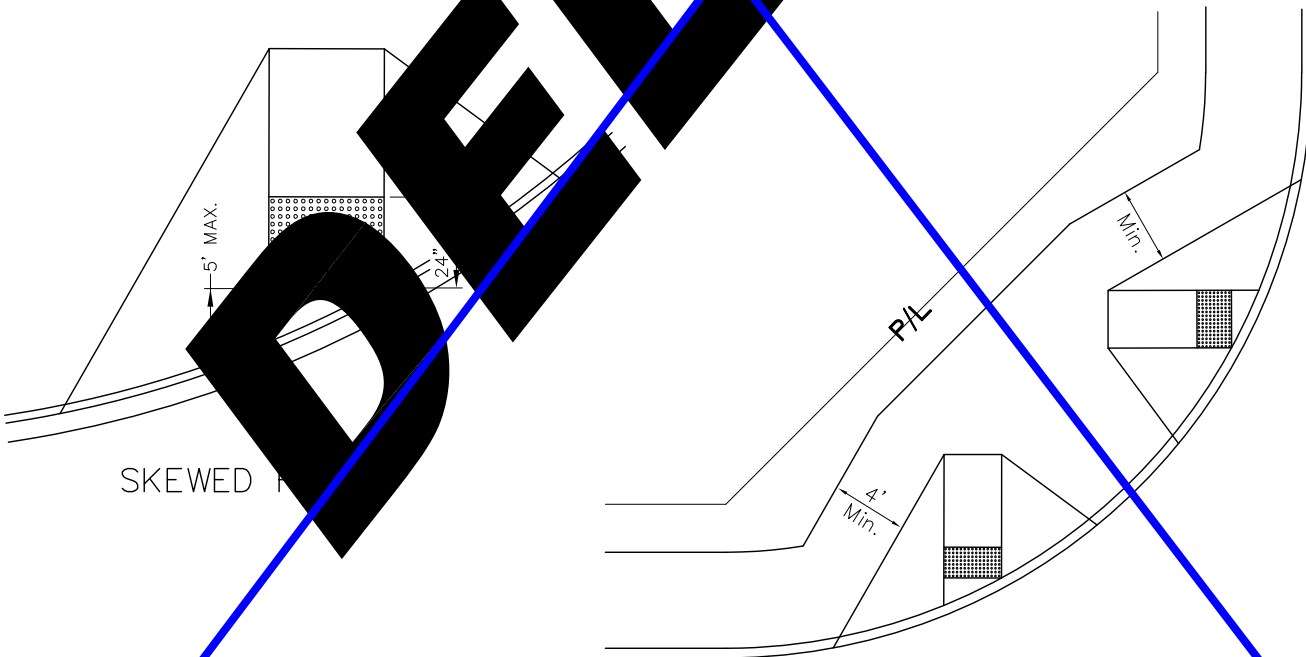


DOME SPACING

	MIN.	MAX.
A	1 5/8"	2 3/8"
B	7/8"	1 7/16"



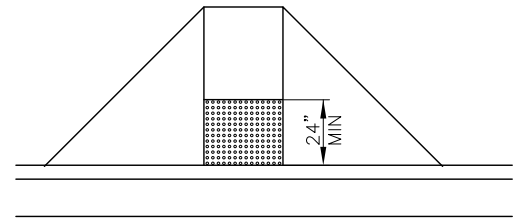
PERPENDICULAR RAMP



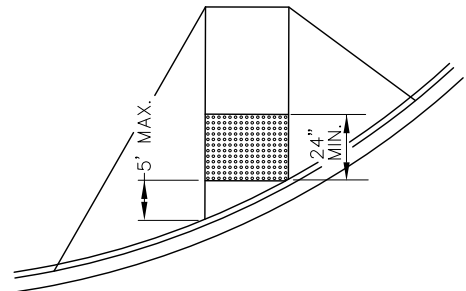
SKEWED RAMP

NOTES:

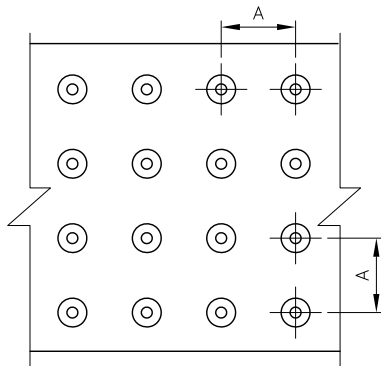
- (A) TO THE MAXIMUM EXTENT POSSIBLE, THE TWS UNITS SHALL BE ORIENTED SUCH THAT THE ROWS OF IN-LINE TRUNCATED DOMES ARE PARALLEL WITH THE DIRECTION OF THE RAMP SURFACE. THE TWS SHALL BE 24" IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP, LANDING OR BLENDED TRANSITION.
- (B) TWS UNITS SHALL BE TAMPED OR VIBRATED INTO FRESH CONCRETE TO ENSURE THAT THERE ARE NO VOIDS OR AIR POCKETS, AND THE FIELD LEVEL OF THE TWS UNIT IS FLUSH TO THE ADJACENT CONCRETE SURFACE. THE TWS UNIT MUST BE PRE-MANUFACTURED AND MEET THE DIMENSIONS AND SPACING SHOWN. INSTALLATION IS TO BE PER MANUFACTURERS SPECIFICATIONS. SURFACE IS TO BE A STANDARD COLOR OF YELLOW.
- (C) THE TWS UNIT SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6" MINIMUM AND 8" MAXIMUM FROM THE CURB FACE. THE TWS MUST SPAN THE FULL WIDTH OF THE RAMP OPENING.
- (D) DETECTABLE WARNING SHALL HAVE A DIAMETER OF 50% TO 65% OF THE BASE DIAMETER OF DOME.



PERPENDICULAR RAMP

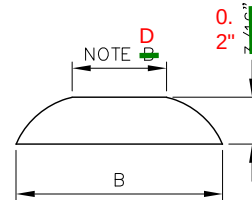


SKEWED RAMP

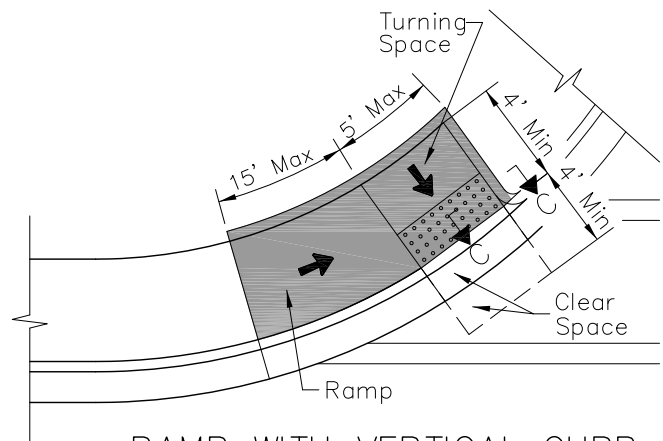
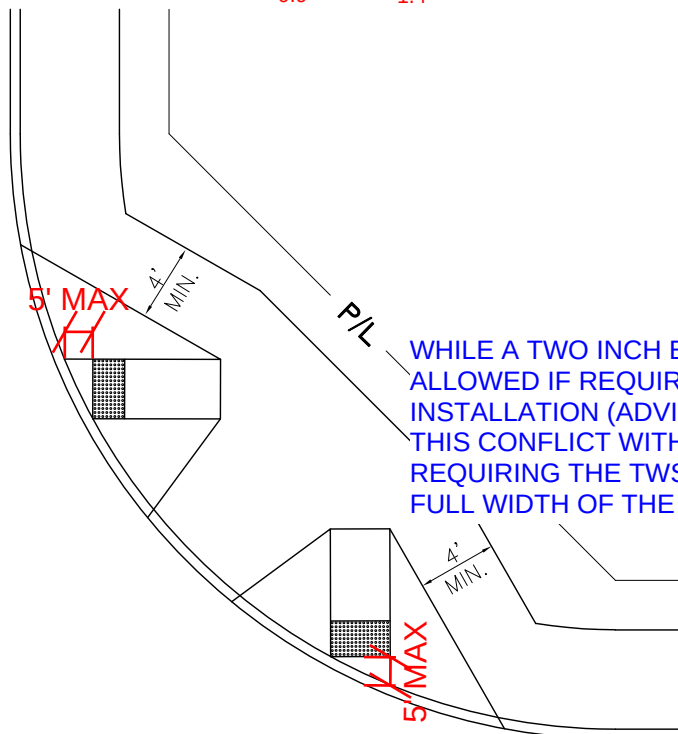


DOMES SPACING

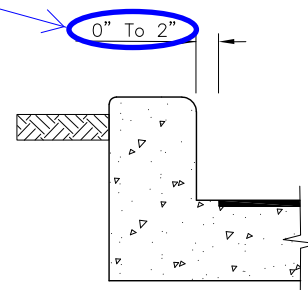
	MIN.	MAX.
A	1 5/8" ✓	2 3/8" ✓
B	7/8" 0.9"	1 7/16" 1.4"



DOMES SECTION

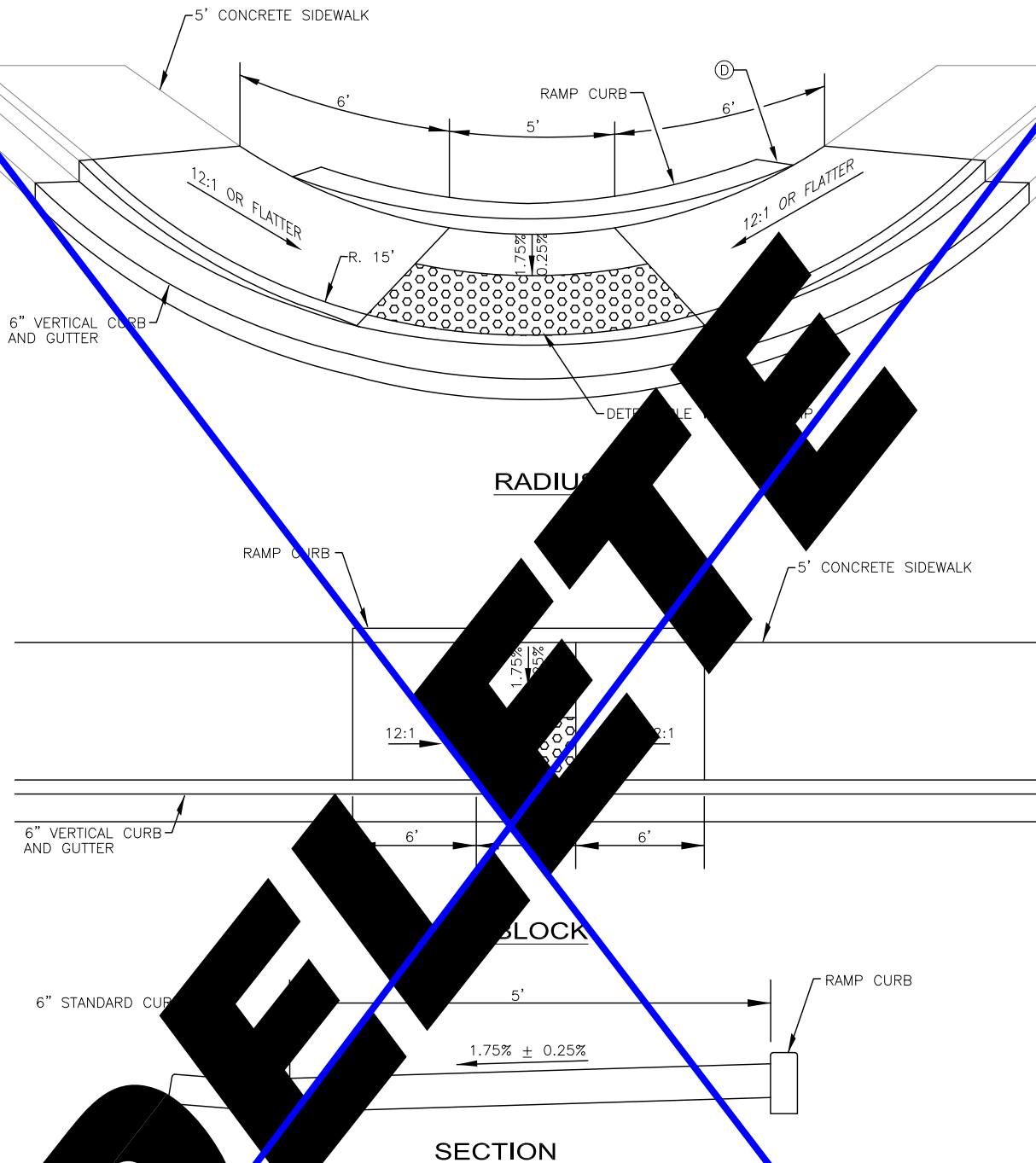


RAMP WITH VERTICAL CURB



SECTION C-C

2017 ACHD REVISION

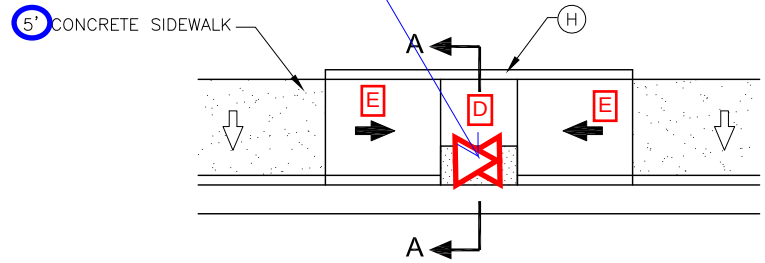
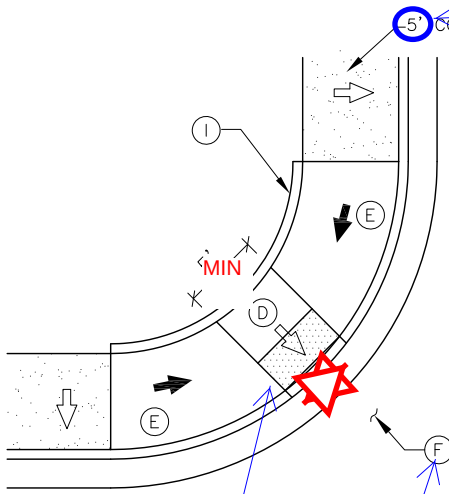


- NOTES:
- (A) TYPE OF RAMP MAY BE USED FOR SIDEWALK IN AREAS THAT DO NOT HAVE LIMITED SPACE AND LANDINGS REQUIRED TO MEET ADA.
- (B) RAMP SLOPE SHALL BE 1.75% ± 0.25% PER ADA REQUIREMENTS.
- (C) ALL SLOPES SLOPING TO PEDESTRIAN RAMP MUST BE 12:1 SLOP TO COMPLY WITH ADA REQUIREMENTS.
- (D) CONCRETE CURB WILL BE PLACED AT THE BACK OF THE RAMP AND ADJOINING SLOPING SIDEWALK. HEIGHT OF CURB WILL BE DETERMINED BY THE ADJACENT PROPERTY BEING TIED INTO. CURB WILL BE 0 INCHES HIGH AT THE SLOPING SIDEWALK.
- (E) ALL CONCRETE ADJOINING THE RADIUS WITHIN AND AROUND THE RAMP SHALL BE 5 INCHES THICK WITH 4 INCHES OF 3/4."
- (F) SLOPES SHOWN ARE MAXIMUMS. THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES.

2017

UPDATE SIDEWALK WIDTH
BASED ON COMMENTS ON
SD-709 (ACHD).

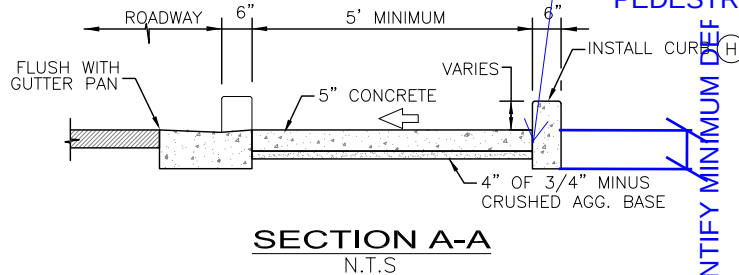
ADD A WHITE ARROW TO
IDENTIFY MAXIMUM
CROSS-SLOPE OF RAMP.



IS JOINT FILLER REQUIRED HERE? IF YES,
RECOMMEND AN EXPANSION JOINT FILLER
THICKNESS OF 1/4" TO ENSURE A JOINT WIDTH
OF LESS THAN 0.5 INCHES ACROSS
PEDESTRIAN ACCESS ROUTES INCLUDING
CURB RAMPS. PER 2011 PROWAG R302.7.3,
MAXIMUM HORIZONTAL OPENING ALLOWED IN
PEDESTRIAN ACCESS ROUTE IS 1/2".

RADIUS
N.T.S.

SHOW OUTLINE OF STREET
SIDE LANDING IN DETAIL.



LEGEND	
	1.5% ± 0.5% (2% Max. Slope)
	3.3% ± 1.0% (8.3% Max. Slope)

CONFLICTS WITH
1.75% CROSS-SLOPE
OF SIDEWALK PER
SD-709 (ACHD).

NON DIRECTIONAL RAMPS

NOTES:

- (A) RAMPS FOR CORNERS WITH A MIN. 15' RADII.
- (B) RAMPS ARE CONTAINED WITHIN THE CURB RADIUS.
- (C) RAMP DIMENSIONS, MINIMUM DIMENSION INDICATED **ACHD** ALSO MEET SLOPE CRITERIA IDENTIFIED ABOVE.

THROAT DEPTH = 5.5' FROM FACE OF CURB
THROAT WIDTH 5' 4" MIN.

RAMP LENGTH ~~MIN~~ = 6' TRAVERSABLE (SEE NOTE E)

- (D) RAMPS REQUIRE A ~~MINIMUM~~ **5'x5'** LANDING IN SIDEWALK @ 1.5% ± 0.5% (2% Max. Slope)

- (E) RAMPS SHALL NOT EXCEED ~~7.5% (8.3%)~~ SLOPE

REVISE TO MATCH DIMENSIONS IN
PLAN AND SECTION VIEW.

- (F) 4'x4' FLAT STREET SIDE LANDING - CONCRETE FILLET MAY BE REQUIRED.
CONCRETE FILLET MUST HAVE A THICKNESS OF 8" AS SHOWN ON SD-708 (ACHD)

- (G) THIS TYPE OF RAMP MAY BE USED FOR SIDEWALKS IN AREAS THAT DO NOT HAVE
ADEQUATE SPACE FOR LANDINGS REQUIRED TO MEET ADA.

- (H) CONCRETE CURB WILL BE PLACED AT THE BACK OF THE RAMP AND ADJOINING SLOPING
SIDEWALK. HEIGHT OF CURB WILL BE DETERMINED BY THE ADJACENT PROPERTY BEING
TIED INTO. CURB HEIGHT WILL START AT 0" AT THE TOP OF THE SLOPING SIDEWALK
AND WILL VARY AS NECESSARY TO RETAIN THE ADJACENT PROPERTY BEHIND THE CURB.

- (I) ALL CONCRETE ADJOINING THE RADIUS WITHIN AND AROUND THE RAMPS SHALL BE 5
INCHES THICK WITH 4 INCHES OF 3/4" **MINUS CRUSHED AGGREGATE BASE MATERIAL.**

- (J) THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT
EXCEEDING THE MAXIMUM SLOPES ALLOWED BY ADA.

ADJUST MAX SLOPE TO MATCH SLOPE ASSOCIATED WITH BLACK ARROW IN LEGEND. PER 2011 PROWAG
R304.3.2, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 5 PERCENT MINIMUM AND 8.3 PERCENT
MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FT MINIMUM. ADD A NOTE TO
ADDRESS LENGTH OF RAMP.

PER 2011 PROWAG R207.2, A SINGLE RAMP SERVING BOTH CROSSINGS IS ONLY ALLOWED IN ALTERATIONS
WHERE INSTALLATION OF ONE RAMP PER CROSSING (2 RAMPS PER CORNER) IS PREVENTED BY EXISTING
PHYSICAL CONSTRAINTS. ADD A NOTE TO THIS DETAIL INDICATING ITS RESTRICTED USE AND PROVIDE A DETAIL
FOR TWO CURB RAMPS AT A CORNER.

2017 A

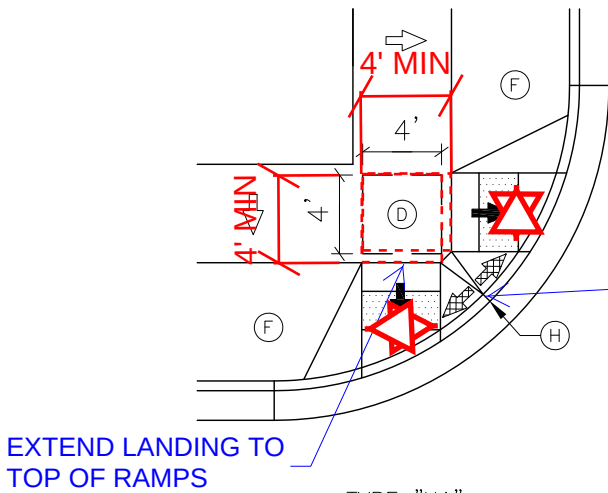
CONSTRUCTION
(ACHD SUPPLEMENT)

PEDESTRIAN RAMP TYPE G

NO. SD-712G

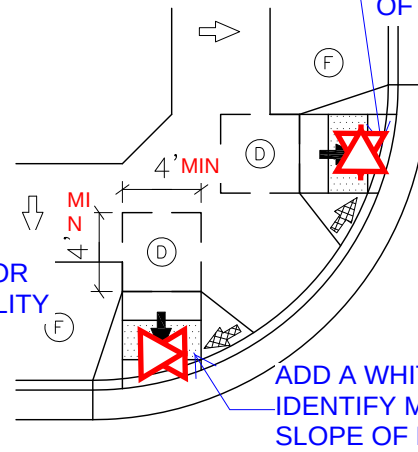
DETACHED SIDEWALKS

SHOW G OR MINIMUM REQUIRED CLEAR SPACE AT BOTTOM OF RAMP.



TYPE "H1"

RECOMMEND 1' SEPARATION FOR CONSTRUCTIBILITY



TYPE "H2"

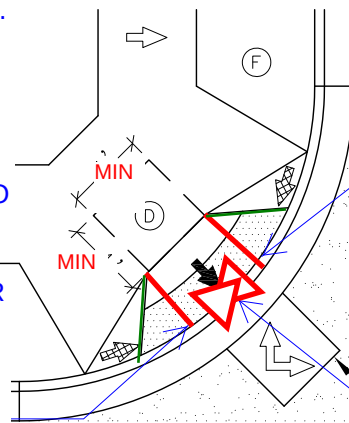
LEGEND

- 1.5% ± 0.5% (2% Max. Slope)
- 7.3% ± 1.0% (8.3% Max. Slope)
- 9% ± 1.0% (10% Max. Slope)

DIRECTIONAL RAMPS - STANDARD DOMES

ADJUST MAX SLOPE TO MATCH SLOPE ASSOCIATED WITH ARROWS IN LEGEND. PER 2011 PROWAG R304.3.2, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 5 PERCENT MINIMUM AND 8.3 PERCENT MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FT MINIMUM. ADD A NOTE TO ADDRESS LENGTH OF RAMP.

ADJUST LAYOUT OF PERPENDICULAR CURB RAMP. PER 2011 PROWAG R304.2.2, THE RUNNING SLOPE OF THE CURB RAMP SHALL CUT THROUGH OR SHALL BE BUILT UP TO THE CURB AT RIGHT ANGLES OR SHALL MEET THE GUTTER GRADE BREAK AT RIGHT ANGLES WHERE THE CURB IS CURVED.



TYPE "H3"

DIRECTIONAL RAMPS W/ RADIAL CURB

SHOW TYPICAL CROSS SECTION OF RAMP. WHAT IS GUTTER SLOPE IN FRONT OF CURB RAMP? SHOW LIMITS OF TRANSITION FROM STEEP GUTTER SLOPE (>5%) TO SHALLOWER GUTTER SLOPE (<5%) IN FRONT OF RAMP. COORDINATE WITH GRADES REQUIRED PER NOTE G.

PER 2011 PROWAG R207.2, A SINGLE RAMP SERVING BOTH CROSSINGS IS ONLY ALLOWED IN ALTERATIONS WHERE INSTALLATION OF ONE RAMP PER CROSSING (2 RAMPS PER CORNER) IS PREVENTED BY EXISTING PHYSICAL CONSTRAINTS. ADD A NOTE TO THIS DETAIL INDICATING ITS RESTRICTED USE AND PROVIDE A DETAIL FOR TWO CURB RAMPS AT A CORNER.

NOTES:

- (A) RAMPS FOR CORNERS WITH A MIN. 15' RADII AND UTILIZING ROLLED CURB.
- (B) RAMPS ARE CONTAINED WITHIN THE CURB RADIUS.
- (C) RAMP DIMENSIONS, MINIMUM DIMENSION INDICATED MUST ALSO MEET SLOPE CRITERIA IDENTIFIED ABOVE.
CURB TYPE = STANDARD 3" ROLLED PER ISPWC SD-702 (ACHD)
THROAT DEPTH = 4' FROM FACE OF CURB
THROAT WIDTH = 4' MIN.
WING = 3' TRAVERSABLE - MIN
WING = NON TRAVERSABLE
- (D) RAMPS REQUIRE A MINIMUM 4'x4' LANDING IN SIDEWALK @ 1.5% ± 0.5% (2% Max. Slope)
- (E) RAMPS SHALL NOT EXCEED ~~7.3% (8.3%)~~ SLOPE & TRAVERSABLE WINGS ~~10% (12%)~~
- (F) NON TRAVERSABLE AREA - PATTERNED CONCRETE\LAWN\GRAVEL\ETC.
- (G) 4'x4' FLAT STREET SIDE LANDING - CONCRETE FILLET IS REQUIRED (AS SHOWN) CONCRETE FILLET MUST HAVE A THICKNESS OF 8" AS SHOWN ON SD-708
- (H) CURB IS NOT REQUIRED TO BE FULL-HEIGHT

ADD NOTE EXTENDING LANDING LENGTH TO 5' MIN IF CONSTRAINED AT BACK OF WALK. PER 2011 PROWAG R304.2.1, IF A TURNING SPACE IS CONSTRAINED AT THE BACK OF WALK, THE DIMENSION OF THE TURNING SPACE IN THE DIRECTION OF THE RAMP RUN SHALL BE 5' MINIMUM.

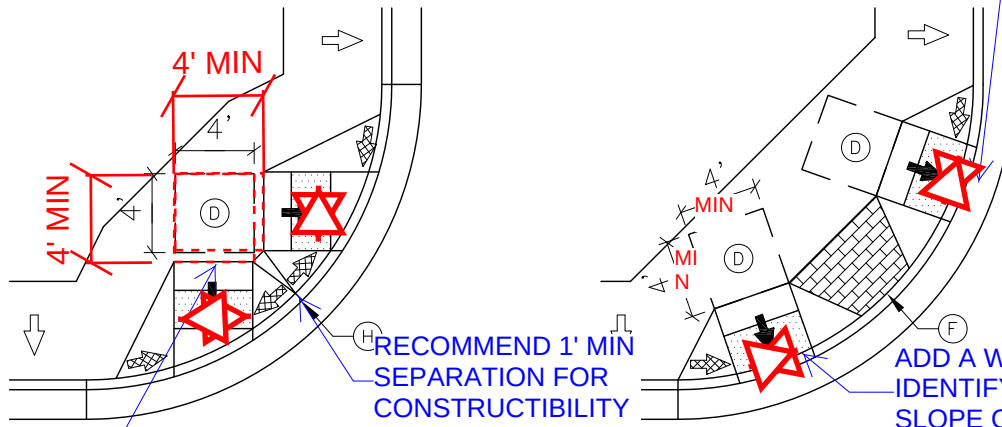
ADD TO NOTE G THAT CLEAR SPACE IS TO BE LOCATED OUTSIDE OF TRAVEL LANE. PER 2011 PROWAG R304.5.5, BEYOND THE BOTTOM GRADE BREAK, A 4' MIN x 4' MIN CLEAR SPACE SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.

201

3

ATTACHED SIDEWALKS

SHOW G OR MINIMUM REQUIRED CLEAR SPACE AT BOTTOM OF RAMP.



EXTEND LANDING TO TOP OF RAMPS

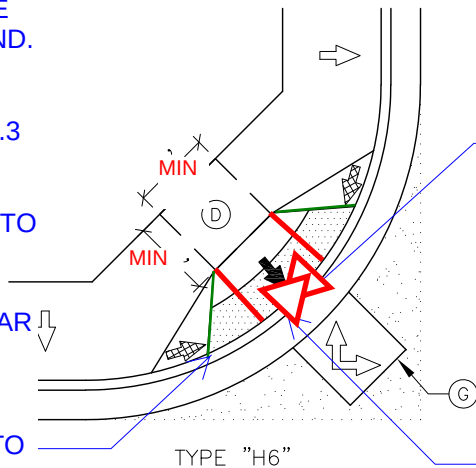
DIRECTIONAL RAMPS - STANDARD DOMES

LEGEND	
	1.5% ± 0.5% (2% Max. Slope)
	7.3% ± 1.0% (8.3% Max. Slope)
	9% ± 1.0% (10% Max. Slope)

ADJUST MAX SLOPE TO MATCH SLOPE ASSOCIATED WITH ARROWS IN LEGEND. PER 2011 PROWAG R304.3.2, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 5 PERCENT MINIMUM AND 8.3 PERCENT MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FT MINIMUM. ADD A NOTE TO ADDRESS LENGTH OF RAMP.

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DIRECTIONAL RAMPS W/ RADIAL

PER 2011 PROWAG R207.2, A SINGLE RAMP SERVING BOTH CROSSINGS IS ONLY ALLOWED IN ALTERATIONS WHERE INSTALLATION OF ONE RAMP PER CROSSING (2 RAMPS PER CORNER) IS PREVENTED BY EXISTING PHYSICAL CONSTRAINTS. ADD A NOTE TO THIS DETAIL INDICATING ITS RESTRICTED USE AND PROVIDE A DETAIL FOR TWO CURB RAMPS AT A CORNER.

- (A) RAMPS FOR CORNERS WITH A MIN. 15' RADII AND UTILIZING ROLLED CURB.
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- (C) RAMP DIMENSIONS, MINIMUM DIMENSION INDICATED MUST ALSO MEET SLOPE CRITERIA IDENTIFIED ABOVE.
CURB TYPE = STANDARD 3" ROLLED PER ISPPC SD-702 (ACHD)
THROAT DEPTH = 4' FROM FACE OF CURB
THROAT WIDTH = 4' MIN.
WING = 3' TRAVERSABLE MIN
WING = 3' NON TRAVERSABLE
- (D) RAMPS REQUIRE A MINIMUM 4'x4' LANDING IN SIDEWALK @ 1.5% ± 0.5% (2% Max. Slope)
- (E) RAMPS SHALL NOT EXCEED ~~7.3%~~ (8.3%) SLOPE & TRAVERSABLE WINGS ~~7.3%~~ (8.3%)
- (F) NON TRAVERSABLE AREA - PATTERNED CONCRETE\LAWN\GRAVEL\ETC.
- (G) 4'x4' FLAT STREET SIDE LANDING - CONCRETE FILLET IS REQUIRED (AS SHOWN) CONCRETE FILLET MUST HAVE A THICKNESS OF 8" AS SHOWN ON SD-708
- (H) CURB IS NOT REQUIRED TO BE FULL-HEIGHT

RECOMMEND USE OF RETURNED CURB TO PROVIDE DIRECTIONAL CUE AND TO AVOID CONFUSION OVER MAXIMUM ALLOWED WING SLOPES.

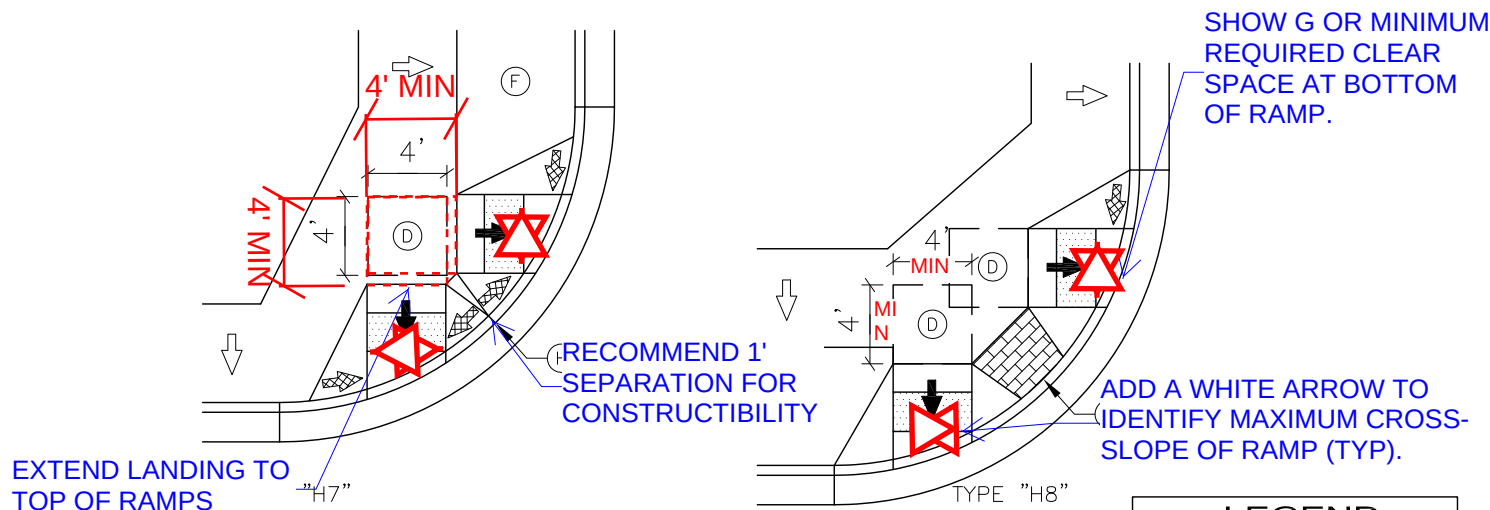
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ADD TO NOTE G THAT CLEAR SPACE IS TO BE LOCATED OUTSIDE OF TRAVEL LANE. PER 2011 PROWAG R304.5.5, BEYOND THE BOTTOM GRADE BREAK, A 4' MIN x 4' MIN CLEAR SPACE SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.

2017

3

ATTACHED & DETACHED SIDEWALKS



DIRECTIONAL RAMPS - STANDARD DOMES

ADJUST MAX SLOPE TO MATCH SLOPE ASSOCIATED WITH ARROWS IN LEGEND. PER 2011 PROWAG R304.3.2, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 5 PERCENT MINIMUM AND 8.3 PERCENT MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FT MINIMUM. ADD A NOTE TO ADDRESS LENGTH OF RAMP.

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ONAL RAMPS W/ RADIAL

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CURB TYPE = STANDARD 3" ROLLED PER ISPOC SD-702(ACHD)
THROAT DEPTH = 4' FROM FACE OF CURB
THROAT WIDTH = 4' MIN.
WING = 3' TRAVERSABLE MIN
WING = 4' NON TRAVERSABLE
- (D) RAMPS REQUIRE A MINIMUM 4'x4' LANDING IN SIDEWALK @ 1.5% ± 0.5% (2% Max. Slope)
- (E) RAMPS SHALL NOT EXCEED 12% (0.7%) SLOPE & TRAVERSABLE WINGS 10% (0.6%)
- (F) NON TRAVERSABLE AREA - PATTERNED CONCRETE\LAWN\GRAVEL\ETC.
- (G) 4'x4' FLAT STREET SIDE LANDING - CONCRETE FILLET IS REQUIRED (AS SHOWN) CONCRETE FILLET MUST HAVE A THICKNESS OF 8" AS SHOWN ON SD-708
- (H) CURB IS NOT REQUIRED TO BE FULL-HEIGHT

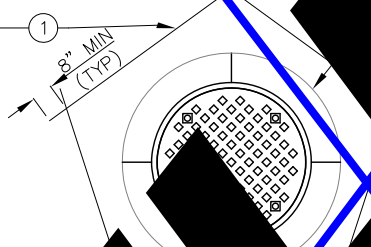
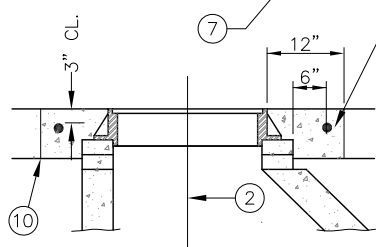
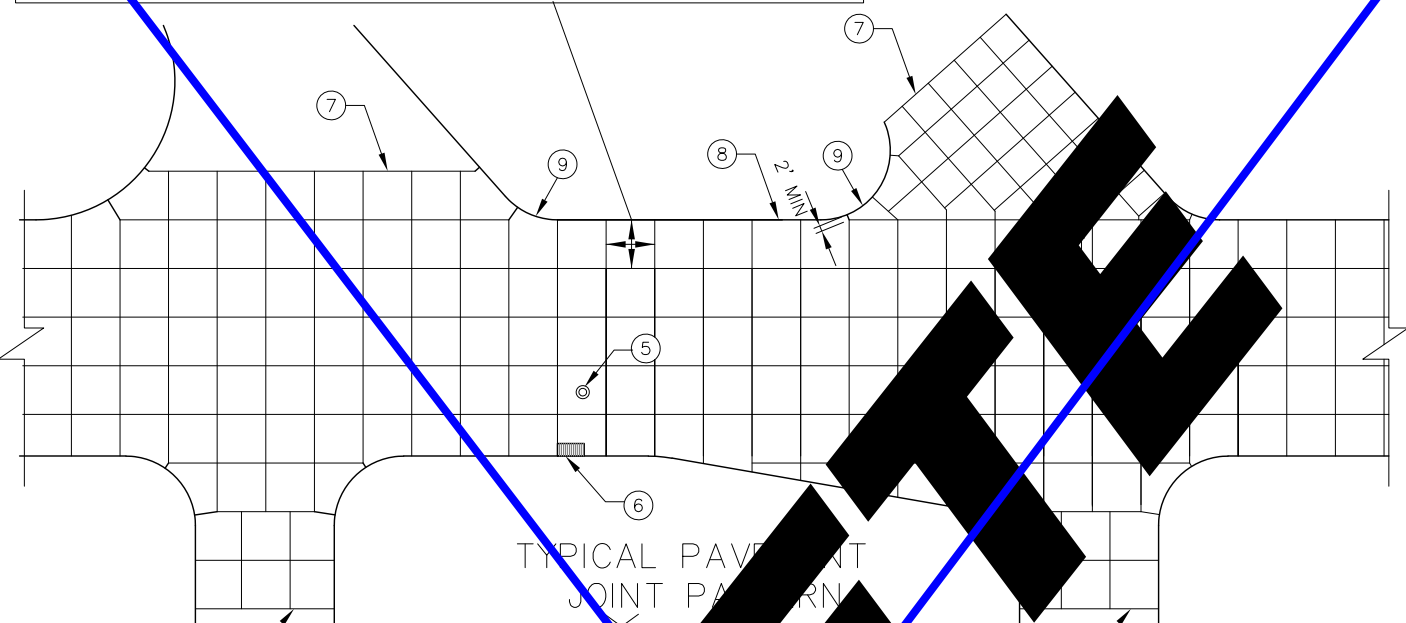
RECOMMEND USE OF RETURNED CURB TO PROVIDE DIRECTIONAL CUE AND TO AVOID CONFUSION OVER MAXIMUM ALLOWED WING SLOPES.

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2017

MAXIMUM AND NORMAL TRAVERSE JOINT SPACING IS 15'. THE MINIMUM TRAVERSE JOINT SPACING IS 9'. ALL TRAVERSE JOINTS MUST CONNECT ACROSS THE PAVEMENT. NORMAL LONGITUDINAL JOINT SPACING IS 12' AND THE MAXIMUM IS 15'. THE LONGITUDINAL JOINTS SHALL BE COINCIDENTAL WITH THE LANE LINES. THE MAXIMUM TIED WIDTH IS 38'. ALL CONSTRUCTION JOINTS SHOULD BE TIED. UNTIED CONSTRUCTION JOINTS SHALL HAVE A KEYWAY CONSTRUCTION WHEN THE PAVEMENT IS 9" OR THICKER.



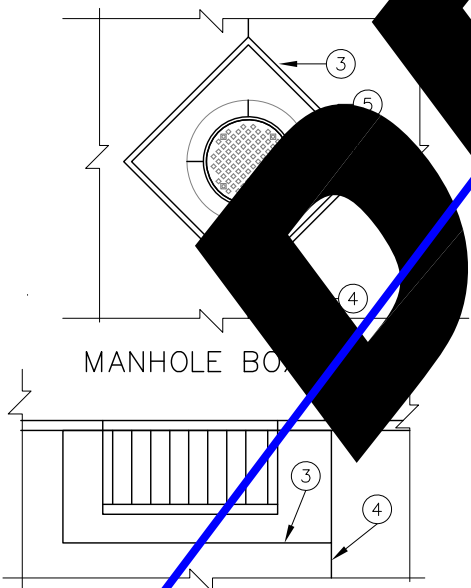
LEGEND

(1) FORCING BAR (NO. 4).	(6) CATCH BASIN.
(2) MANHOLE RING AND COVER.	(7) END CONCRETE PAVEMENT.
(3) KEYED CONSTRUCTION JOINT - TYPE C.	(8) CURB.
(4) TRANSVERSE JOINT.	(9) 2' MIN. RADIUS ON RETURNS.
(5) MANHOLE.	(10) ISOLATION JOINT-ROOFING FELT OR FULL DEPTH FIBER.

NOTES

- (A) THE TYPICAL PAVEMENT JOINT PATTERN SHOWN IS FOR ILLUSTRATION PURPOSE ONLY. USE AS A GUIDE IN DEVELOPING THE JOINT PATTERN FOR THE PROJECT. PREPARE A PAVEMENT JOINT PATTERN FOR THE PROJECT FOR APPROVAL BY THE ENGINEER.
- (B) WHEN POSSIBLE, PLACE MANHOLES AWAY FROM JOINTS. JOINT SPACING MAY BE ADJUSTED NEAR MANHOLES, WITHIN THE STANDARD LIMITS. PLACE MANHOLES AT LEAST TWO FEET FROM A JOINT. IF THIS IS NOT FEASIBLE, CENTER MANHOLE ON JOINT. WHEN A MANHOLE IS LOCATED TWO TO FOUR FEET FROM A JOINT, SPECIAL REINFORCEMENT AROUND THE MANHOLE IS REQUIRED, AS SHOWN.
- (C) WHEN MANHOLE OR CATCH BASIN FRAMES ARE BOXED OUT AND THE PAVEMENT PLACED AROUND THE FRAME AS A SEPARATE OPERATION, PLACE ISOLATION JOINTS AS SHOWN IN BOX OUT DETAIL.
- (D) JOINTS IN THE CURBS TO COINCIDE WITH TRANSVERSE JOINTS IN THE PAVEMENT.
- (E) SEE STANDARD DRAWINGS SD-701 TO SD-709 FOR ADDITIONAL NOTES ON REQUIREMENTS FOR CURB AND GUTTER CONSTRUCTION.
- (F) CONSTRUCT SAWED JOINTS 3/16"-5/8" WIDE AND FILL WITH 1/4" SWADDLE WITH HOT POURED ELASTOMERIC JOINT FILLER MEETING REQUIREMENTS OF ASTM D-3405 OR D-3406.

SPECIAL REINFORCEMENT DETAIL



CATCH BASIN BOX OUT BOX OUT DETAILS

2017

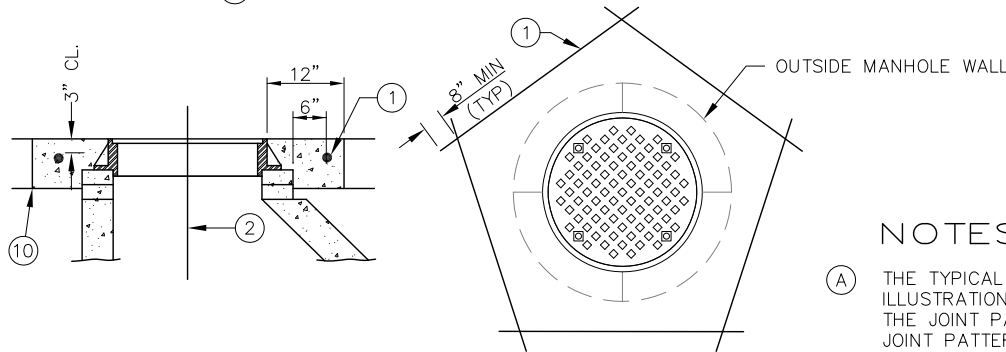
TRANSVERSE

ALL TRANSVERSE JOINTS MUST CONNECT ACROSS THE PAVEMENT. NORMAL LONGITUDINAL JOINT SPACING IS 12' AND THE MAXIMUM IS 15'. THE LONGITUDINAL JOINTS SHALL BE COINCIDENTAL WITH THE LANE LINES. THE MAXIMUM TIED WIDTH IS 38'. ALL CONSTRUCTION JOINTS SHOULD BE TIED. UNTIED CONSTRUCTION JOINTS SHALL HAVE A KEYWAY CONSTRUCTION WHEN THE PAVEMENT IS 9" OR THICKER.

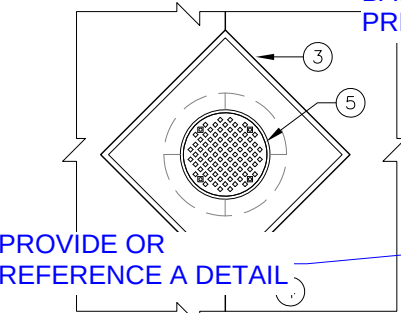
TRANSVERSE JOINT SPACING CONFLICTS WITH ISPWC SPECIFICATION SECTION 705, PART 3.6.B.5.

SHOW TIE BARS AT LONGITUDINAL JOINTS AND DOWEL BARS AT TRANSVERSE JOINTS PER ISPWC SPECIFICATION SECTION 705, PART 3.6.B.6. SPECIFY OR REFERENCE REQUIRED TIE BAR AND DOWEL BAR SIZES.

TYPICAL PAVEMENT JOINT PATTERN

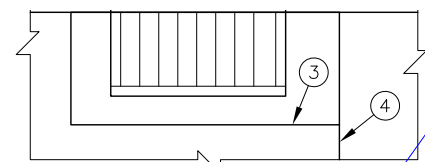


SPECIAL REINFORCEMENT DETAIL



MANHOLE BOX OUT

PROVIDE OR REFERENCE A DETAIL



CATCH BASIN BOX OUT

LEGEND

- ① REINFORCING BAR (NO. 4).
- EPOXY COATED
- ② ϕ MANHOLE RING AND COVER.
- ③ KEYED CONSTRUCTION JOINT
- TYPE C.
- ④ TRANSVERSE JOINT.
- ⑤ MANHOLE.
- ⑥ CATCH BASIN.
- ⑦ END CONCRETE PAVEMENT.
- ⑧ CURB
- ⑨ 2' MIN. RADIUS ON RETURNS.
- ⑩ ISOLATION JOINT-ROOFING
FELT OR FULL DEPTH FIBER.

CONFIRM MIN RADIUS. 15' MIN RADIUS CURB RETURN, PER SD-712H (ACHD).

DETAIL ISOLATION JOINT. FOR JOINTS IN PEDESTRIAN ACCESS ROUTE INCLUDING CROSS-WALKS, RECOMMEND AN EXPANSION JOINT FILLER THICKNESS OF 1/4" TO ENSURE A JOINT WIDTH OF LESS THAN 0.5 INCHES ACROSS PEDESTRIAN ACCESS ROUTES INCLUDING CURB RAMPS. PER 2011 PROWAG R302.7.3, MAXIMUM HORIZONTAL OPENING ALLOWED IN PEDESTRIAN ACCESS ROUTE IS 1/2".

NOTES

- (A) THE TYPICAL PAVEMENT JOINT PATTERN SHOWN IS FOR ILLUSTRATION PURPOSE ONLY. USE AS A GUIDE IN DEVELOPING THE JOINT PATTERN FOR THE PROJECT. PREPARE A PAVEMENT JOINT PATTERN FOR THE PROJECT FOR APPROVAL BY THE ENGINEER.
- (B) WHEN POSSIBLE, PLACE MANHOLES AWAY FROM JOINTS. JOINT SPACING MAY BE ADJUSTED NEAR MANHOLES, WITHIN THE STANDARD LIMITS. PLACE MANHOLES AT LEAST TWO FEET FROM A JOINT. IF THIS IS NOT FEASIBLE, CENTER MANHOLE ON JOINT. WHEN A MANHOLE IS LOCATED TWO TO FOUR FEET FROM A JOINT, SPECIAL REINFORCEMENT AROUND THE MANHOLE IS REQUIRED, AS SHOWN.
- (C) WHEN MANHOLE OR CATCH BASIN FRAMES ARE BOXED OUT AND THE PAVEMENT PLACED AROUND THE FRAME AS A SEPARATE OPERATION, PLACE
- (D) JOINTS IN THE CURBS TO CC THE PAVEMENT.
- (E) SEE STANDARD DRAWINGS FOR ADDITIONAL NOTES ON REQUIREMENTS FOR CURB AND GUTTER CONSTRUCTION.
- (F) CONSTRUCT SAWED JOINTS 3/16" - 5/16" WIDE AND FILL WITH WITH HOT POURED ELASTOMERIC JOINT FILLER MEETING REQUIREMENTS OF ASTM D-3405 OR D-3406.
- (G) INSTALL SMOOTH, ROUND 1" DIAMETER X 18" LONG DOWELS AT 12" ON CENTER AT CONTRACTION JOINTS, LIGHTLY SET IN A DOWEL BASKET.

ISOLATION JOINTS (10) NOT SHOWN IN BOX OUT DETAIL.

DIMENSION PER ISPWC SD-714A

5/16"

5/16"

5/16"

5/16"

5/16"

5/16"

5/16"

5/16"

5/16"

5/16"

5/16"

5/16"

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5/16"

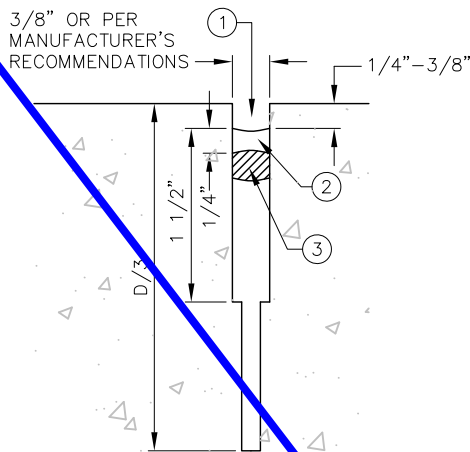
5/16"

2017 ACHD REVISION

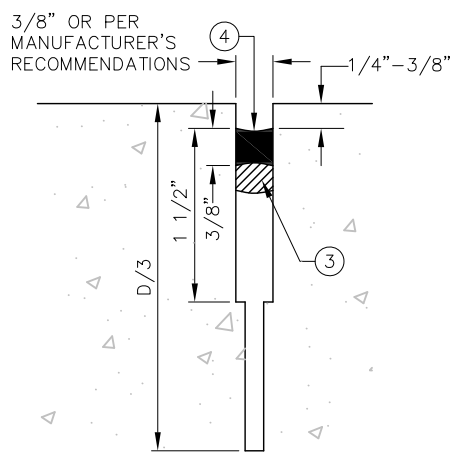
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

JOINTING CRITERIA

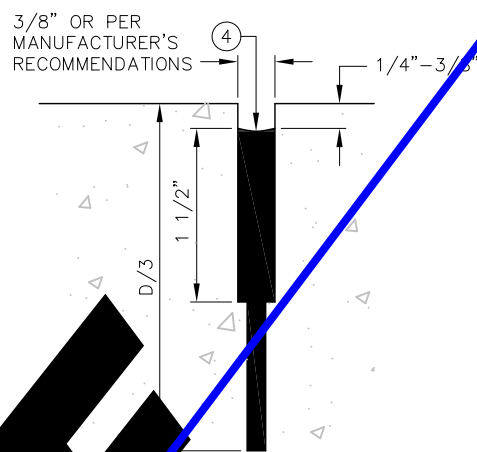
SD-714



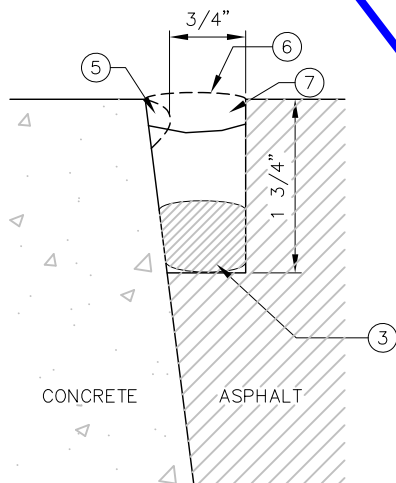
SILICONE SEALANT



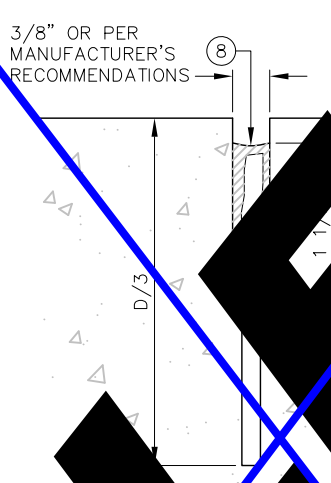
HOT APPLIED SEALANT
W/BACKER ROD



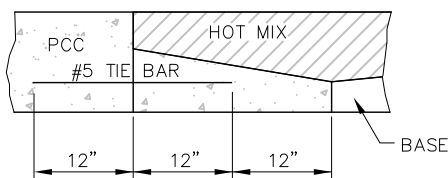
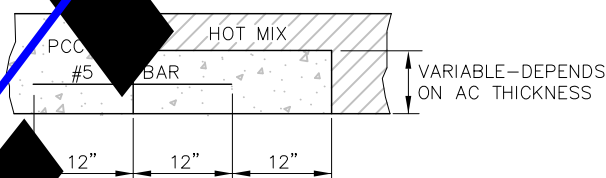
HOT APPLIED SEALANT
W/BACKER ROD



CONCRETE TO ASPHALT



CONCRETE TO ASPHALT TRANSITIONS



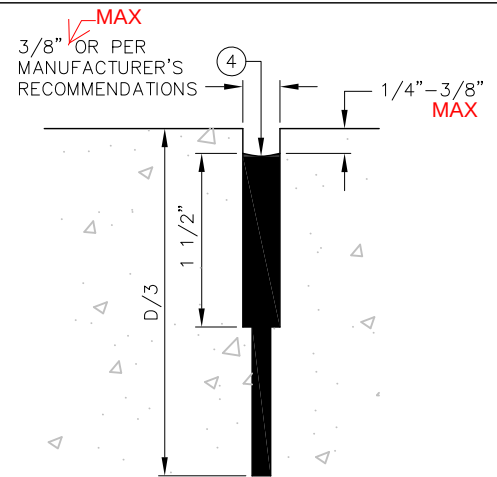
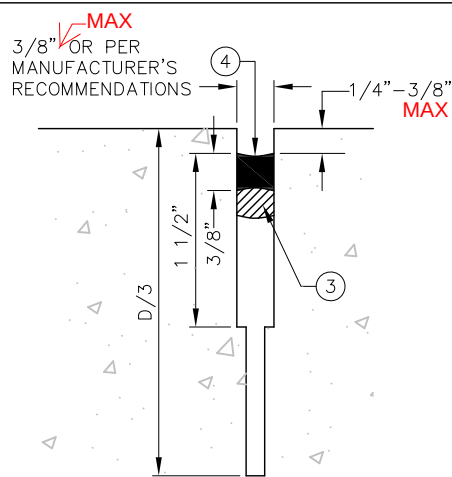
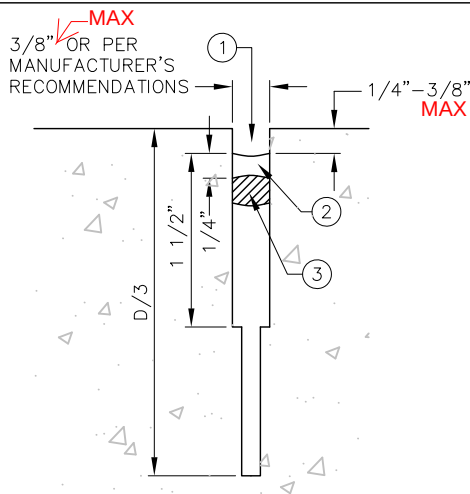
CONCRETE TO ASPHALT TRANSITIONS

LEGEND

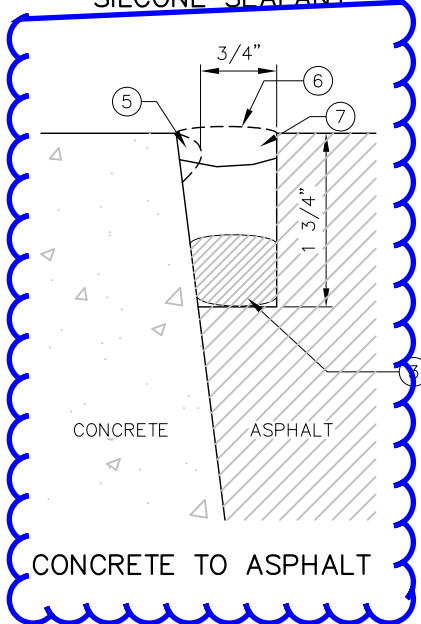
- (1) TOOLED SURFACE OF CONCRETE FOR LEVELING TYPE JOINT.
- (2) APPROVED SEALANT.
- (3) THE BACKER ROD SHALL BE COMPATIBLE WITH THE SEALANT AND CAPABLE TO RESIST MOVEMENT DURING JOINT OPERATION.
- (4) HOT APPLIED SEALANT - ASTM D 3405.
- (5) ANY PAVEMENT ADHESION ON THE CONCRETE FACE AFTER SAWING SHALL BE REMOVED.
- (6) HOT POURED SEALANT - ASTM D 3405 FLUSH WITH SURFACE.
- (7) APPROVED SILICONE SEALANT 1/4" - 3/8" BELOW SURFACE.
- (8) PREFORMED COMPRESSION SEAL - ASTM D 2628.

NOTES

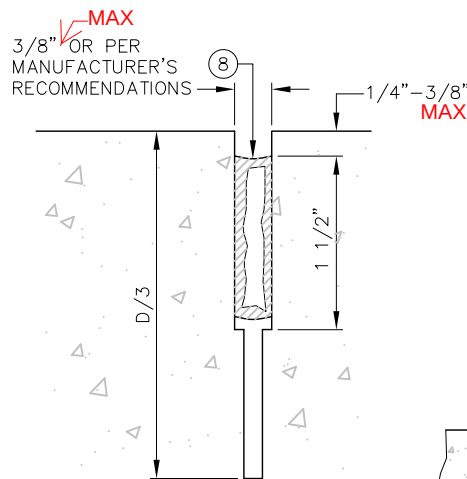
- (A) THE PAVEMENT EDGE IS TO BE PLACED APPROXIMATELY VERTICAL.
- (B) A CONSTRUCTION JOINT SHALL BE AT LEAST 2' FROM A SAWED JOINT.
- (C) TRAVERSE AND LONGITUDINAL JOINT SHALL BE SAWED JOINTS.
- (D) SEALANTS AND PREFORMED SEALS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
- (E) MAKE A VERTICAL SAW CUT IN THE ASPHALT TO SERVE AS A FORM FOR THE END OF THE CONCRETE PAVEMENT.
- (F) PREFERRED PRACTICE IS TO PLACE THE CONSTRUCTION JOINT AT THE LOCATION OF A PLANNED CONTRACTION JOINT AND USE DOWEL BARS PER STANDARD TRANSVERSE JOINT DETAILS.
- (G) DIMENSIONING REFERS TO SEALANT RESERVOIR ONLY. SAW CUT TO CONTROL SLAB CRACKING SHALL BE D/3 DEEP. "D" EQUALS DESIGN DEPTH OF CONCRETE PAVEMENT.



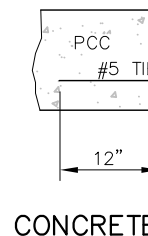
SILICONE SEALANT



HOT APPLIED SEALANT W/BACKER ROD



COMPRESSION SEAL



CONSIDER THE FOLLOWING REGARDING ALL JOINTS IN PEDESTRIAN ACCESS ROUTES INCLUDING SIDEWALKS AND CROSSWALKS: PER 2011 PROWAG R302.7.2, VERTICAL SURFACE DISCONTINUITIES SHALL BE 13 MM (0.5 IN) MAXIMUM. VERTICAL SURFACE DISCONTINUITIES BETWEEN 6.4 MM (0.25 IN) AND 13 MM (0.5 IN) SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 50 PERCENT. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE VERTICAL SURFACE DISCONTINUITY. PER 2011 PROWAG R302.7.3, HORIZONTAL OPENINGS IN JOINTS SHALL NOT PERMIT PASSAGE OF A SPHERE MORE THAN 13 MM (0.5 IN) IN DIAMETER. ELONGATED OPENINGS IN GRATINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

LEGEND

- (1) TOOLED SURFACE REQUIRED EXCEPT FOR SELF LEVELING TYPE SEALANT.
- (2) APPROVED SILICONE SEALANT.
- (3) THE BACKER ROD MUST BE COMPATIBLE WITH THE SEALANT AND SLIGHTLY OVERSIZED TO RESIST MOVEMENT DURING SEALING OPERATION.
- (4) HOT APPLIED SEALANT - ASTM D 3405.
- (5) ANY PAVEMENT ADHERING TO THE CONCRETE FACE AFTER SAWING SHALL BE REMOVED.
- (6) HOT POURED SEALANT - ASTM D 3405 FLUSH WITH SURFACE.
- (7) APPROVED SILICONE SEALANT 1/4" - 3/8" BELOW SURFACE.
- (8) PREFORMED COMPRESSION SEAL - ASTM D 2628.

NOTES

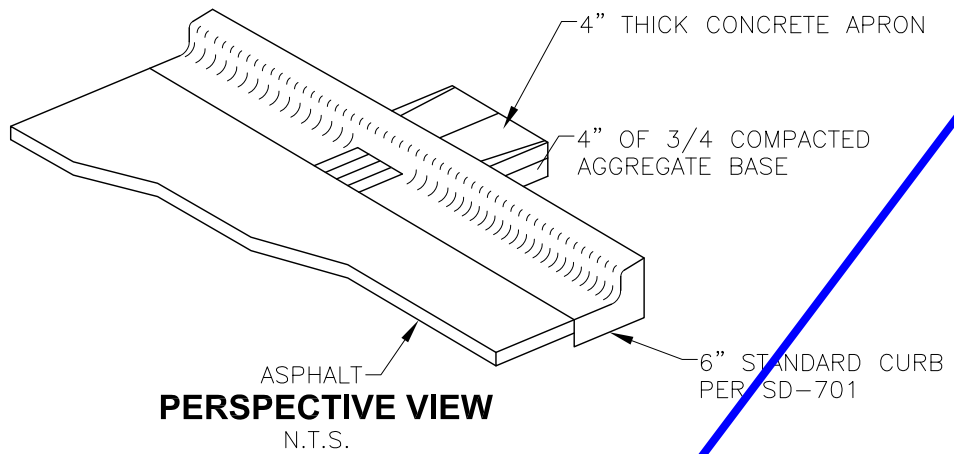
- (A) THE PAVEMENT EDGE IS TO BE PLACED APPROXIMATELY VERTICAL.
- (B) A CONSTRUCTION JOINT SHALL BE AT LEAST 2' FROM A SAWED JOINT.
- (C) TRAVERSE AND LONGITUDINAL JOINT SHALL BE SAWED JOINTS.
- (D) SEALANTS AND PREFORMED SEALS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
- (E) MAKE A VERTICAL SAW CUT IN THE ASPHALT TO SERVE AS A FORM FOR THE END OF THE CONCRETE PAVEMENT.
- (F) PREFERRED PRACTICE IS TO PLACE THE CONSTRUCTION JOINT AT THE LOCATION OF A PLANNED CONTRACTION JOINT AND USE DOWEL BARS PER STANDARD TRANSVERSE JOINT DETAILS.
- (G) DIMENSIONING REFERS TO SEALANT RESERVOIR ONLY. SAW CUT TO CONTROL SLAB CRACKING SHALL BE D/3 DEEP. "D" EQUALS DESIGN DEPTH OF CONCRETE PAVEMENT.

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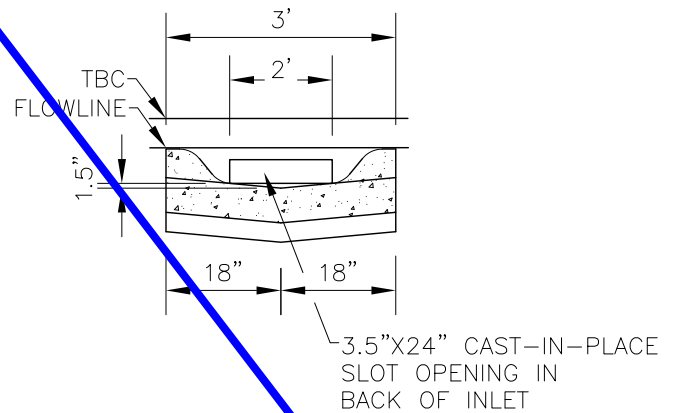
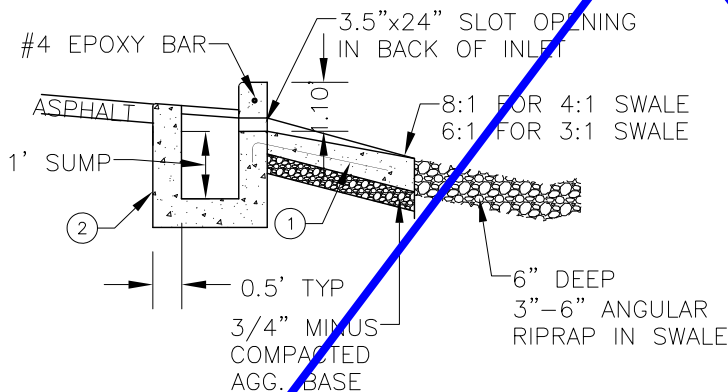
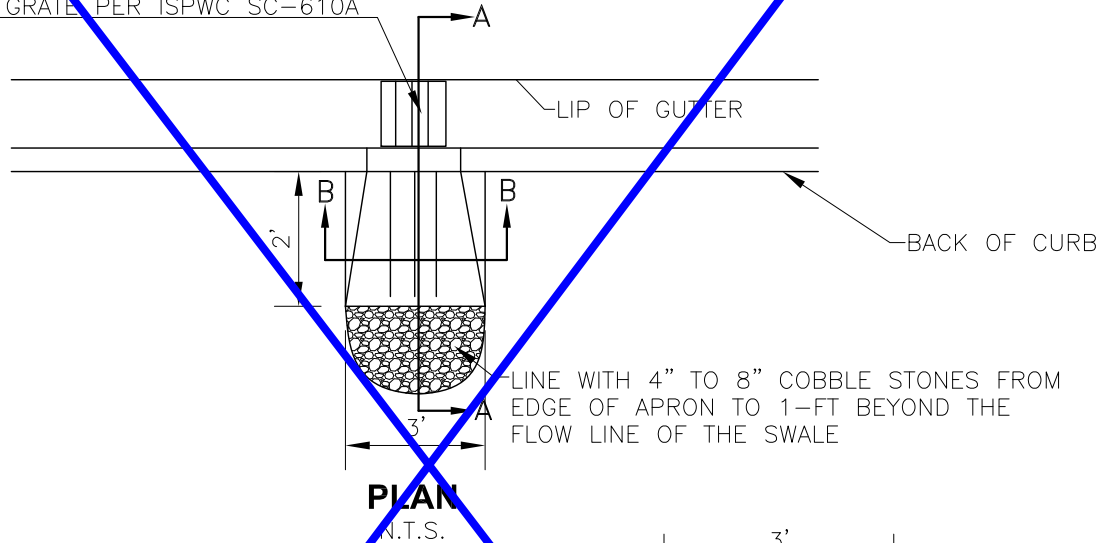
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CONCRETE PAVEMENT
SAWED JOINTS

STANDARD DRAWING
NO. SD-714B



STANDARD FRAME AND GRATE PER ISPWC SC-610A



LEGEND:

- ① 3 EA #4 BARS 2-FT LONG AT MID DEPTH OF CONCRETE SPACE EQUALLY ACROSS CURB OPENING
- ② STANDARD TYPE 1 INLET PER SD-601 OF ISPWC/ACHD SUPPLEMENTAL WITH THESE MODIFICATIONS.
FRAME & GRATE PER ISPWC/ACHD SUPPLEMENTAL SD-609/610A

NOTES:

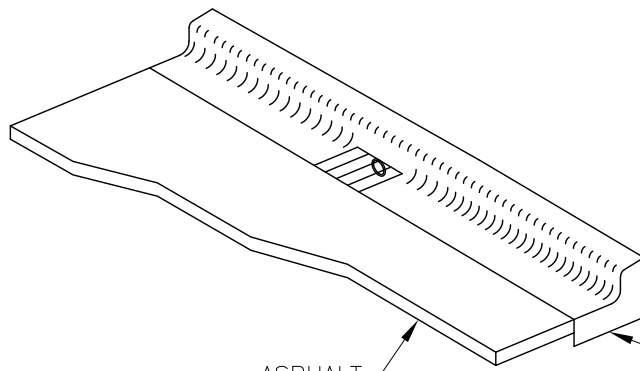
1. REQUIRED WITH INFILTRATION SWALE DESIGN FOR DETACHED SIDEWALK
2. CONCRETE APRON SHALL TO REMAIN FREE OF ALL OBSTRUCTIONS INCLUDING GRASS AND OTHER VEGETATION

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IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

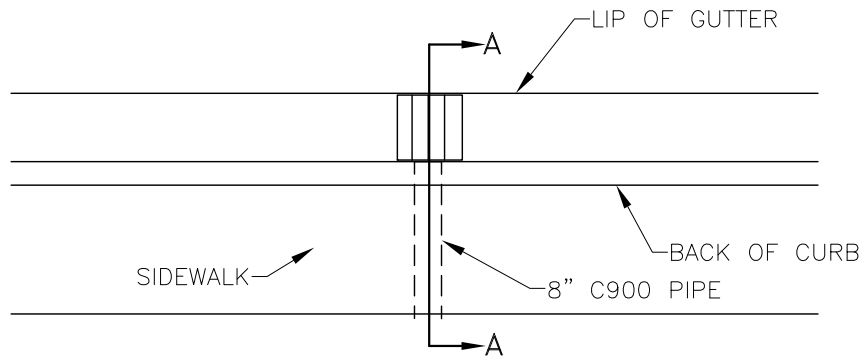
SHALLOW INLET
DETACHED
NOT REVIEWED

STANDARD DRAWING
SD-715



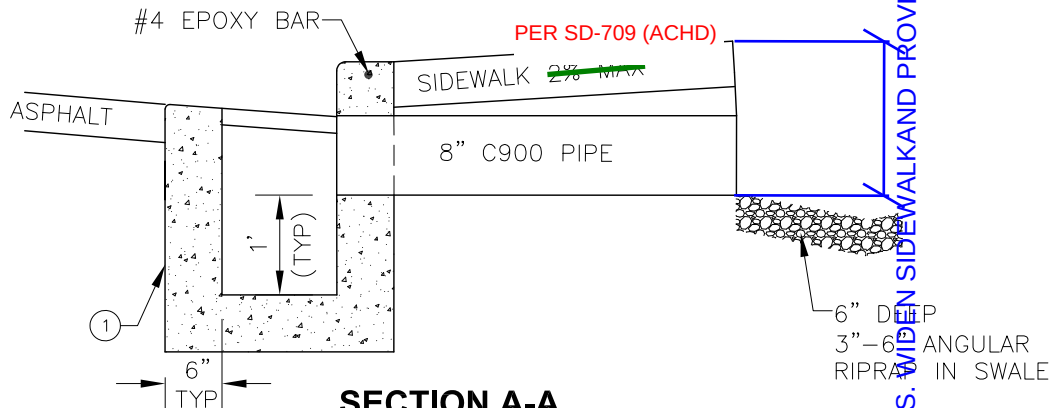
PERSPECTIVE VIEW

N.T.S.



PLAN

N.T.S.



SECTION A-A

N.T.S.

LEGEND:

CATCH BASIN

- ① STANDARD TYPE 1 ~~INLET~~ PER [REDACTED] OF ISPWC/ACHD SUPPLEMENTAL WITH THESE MODIFICATIONS.
FRAME & GRATE PER ISPWC/ACHD SUPPLEMENTAL [REDACTED]

NOTES:

1. REQUIRED WITH INFILTRATION SWALE DESIGN FOR ATTACHED SIDEWALK
2. [REDACTED]

SEE COMMENTS ON ACHD'S
SD-601 AND SD-609/610A
REGARDING PLACEMENT IN
PEDESTRIAN ACCESS PATH.

WHERE? REFERENCE MANUAL OR STANDARDS
WHERE THESE DETAILS ARE LOCATED.

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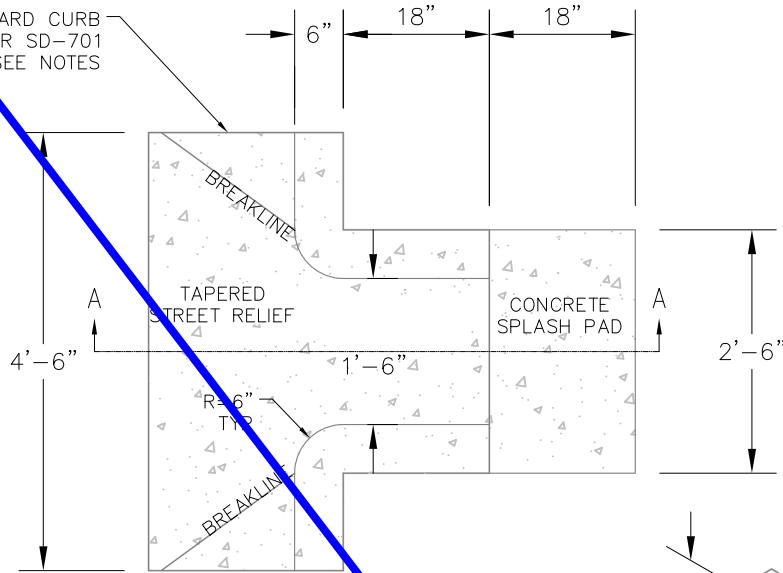
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

SHALLOW INLET
ATTACHED WALK

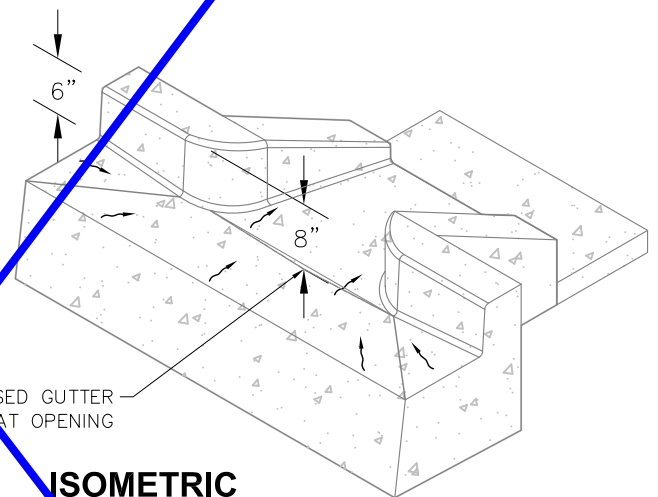
STANDARD DRAWING
SD-715A

WIDER SIDEWALK AND PROVIDE GUARD OR RAILING DEPENDING ON HEIGHT OF DROP AT BACK OF

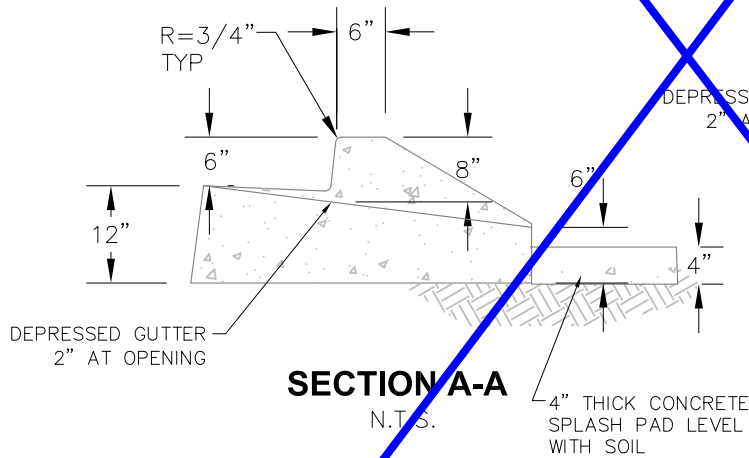
6" STANDARD CURB
PER SD-701
SEE NOTES



PLAN
N.T.S.



ISOMETRIC
N.T.S.



SECTION A-A
N.T.S.

NOTES:

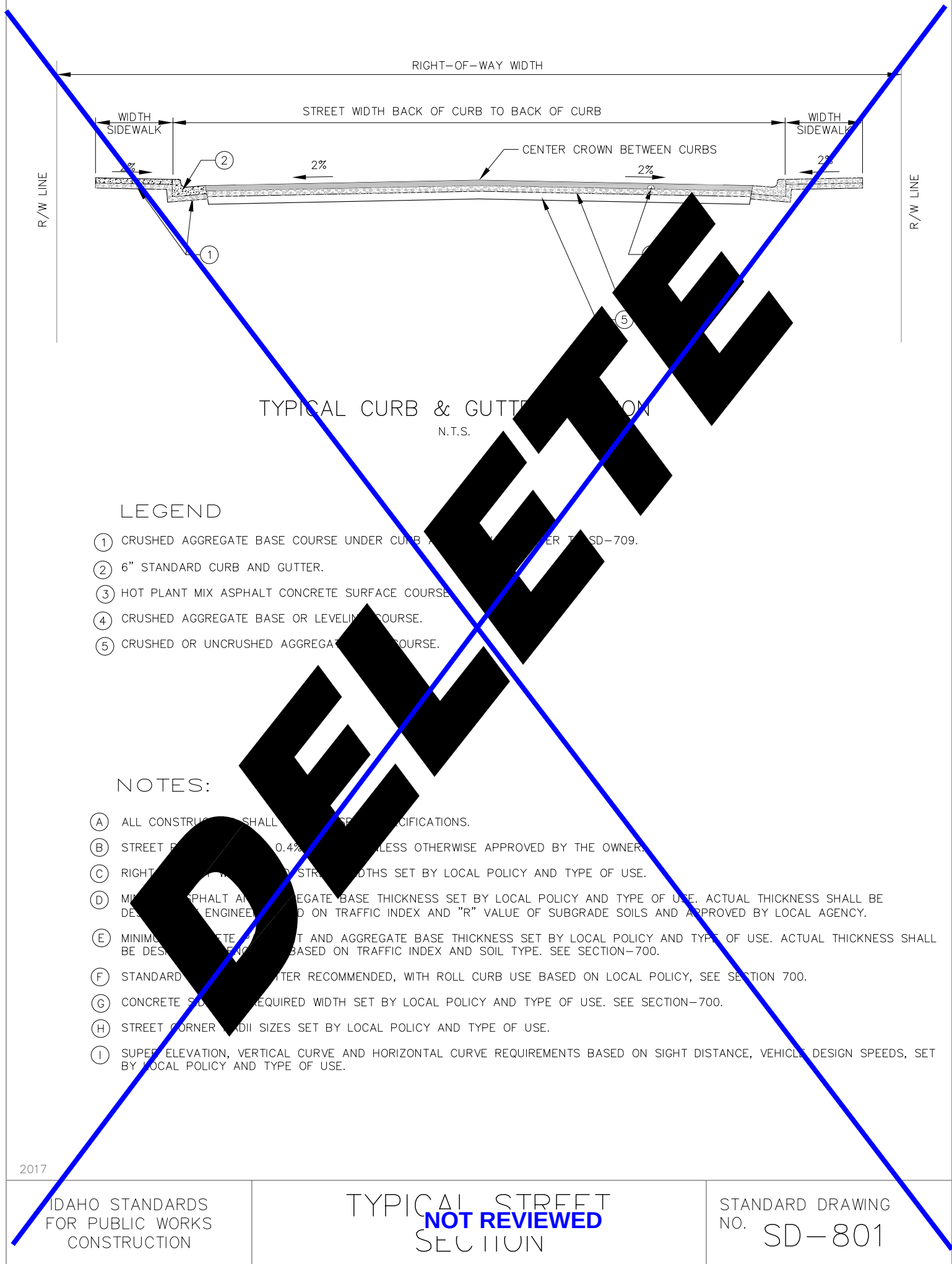
1. USE OF SD-716 CURB OPEN INLET REQUIRES ACHD APPROVAL TO BE USED FOR LOW FLOW APPLICATIONS ON SWALES NOT MAINTAINED BY ACHD. NOT ALLOWED ON ARTERIAL ROADWAYS.
2. CONCRETE APRON SHALL TO REMAIN FREE OF ALL OBSTRUCTIONS INCLUDING GRASS AND OTHER VEGETATION.
3. CURB/GUTTER, BASE AND SUBBASE MATERIAL MUST BE PLACED PER CURRENT ISPMC/ACHD SUPPLEMENT.

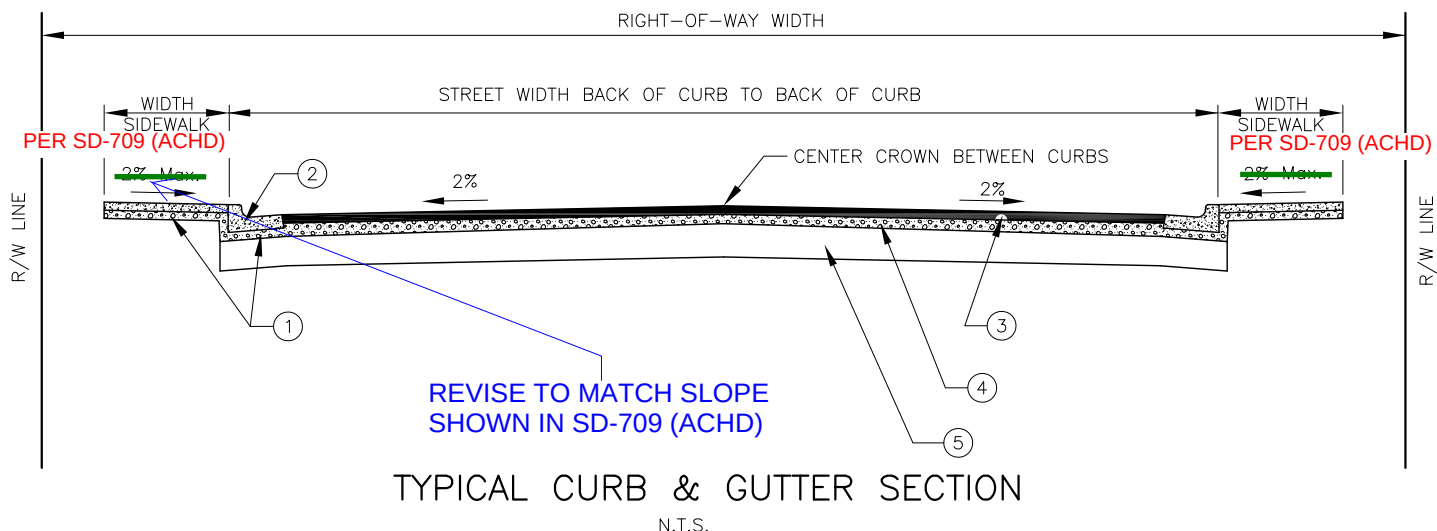
2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

CURB OPENING
NOT REVIEWED
INLET

STANDARD DRAWING
SD-716





LEGEND

- (1) CRUSHED AGGREGATE BASE COURSE UNDER CURB AND SIDEWALK. REFER TO SD-709(ACHD)
- (2) 6" ~~STANDARD~~ CURB AND GUTTER ~~PER SD-701 (ACHD)~~
- (3) HOT PLANT MIX ASPHALT CONCRETE SURFACE COURSE.
- (4) CRUSHED AGGREGATE BASE OR LEVELING COURSE.
- (5) CRUSHED OR UNCRUSHED AGGREGATE BASE COURSE.

NOTES:

- (A) ALL CONSTRUCTION SHALL BE PER ISPMC SPECIFICATIONS ~~WITH ACHD SUPPLEMENTS~~
- (B) STREET PROFILE GRADES 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE OWNER.
- (C) RIGHT-OF-WAY WIDTHS AND STREET WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (D) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
- (E) MINIMUM CONCRETE PAVEMENT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND SOIL TYPE. SEE ~~SECTION~~ 700.
- (F) ~~STANDARD~~ CURB AND GUTTER RECOMMENDED, WITH ROLL CURB USE BASED ON LOCAL POLICY, SEE ~~SECTION~~ 700.
- (G) CONCRETE SIDEWALK REQUIRED WIDTH SET BY LOCAL POLICY AND TYPE OF USE. SEE ~~SECTION~~ 700.
- (H) STREET CORNER RADII SIZES SET BY LOCAL POLICY AND TYPE OF USE.
- (I) SUPER ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE DESIGN SPEEDS, SET BY LOCAL POLICY AND TYPE OF USE.

CLARIFY. ADD MINIMUM RADIUS REQUIREMENT. SD-712H (ACHD) INDICATES A MINIMUM CURB RETURN RADIUS OF 15'.

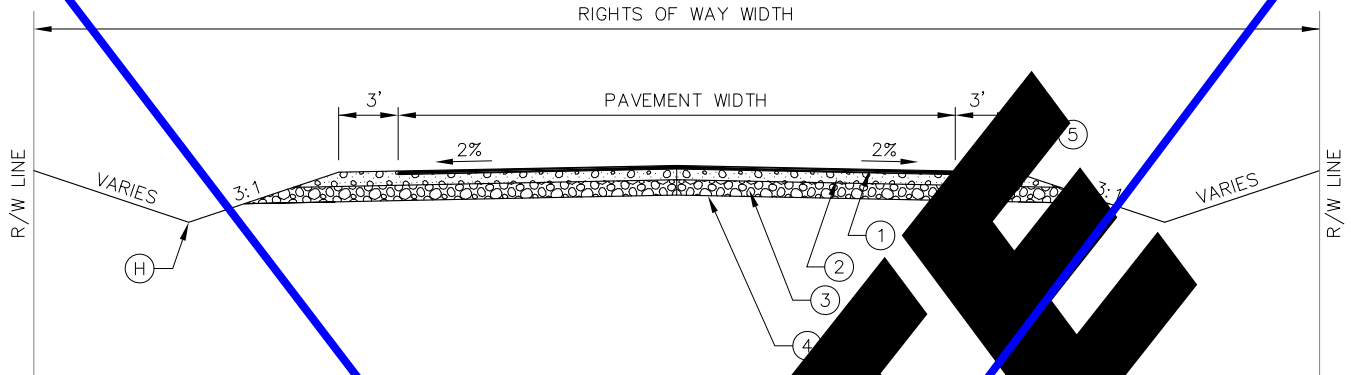
CLARIFY. ADD MINIMUM WIDTH REQUIREMENT. SEE COMMENTS ON SD-709 (ACHD).

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

TYPICAL STREET
SECTION

STANDARD DRAWING
NO. SD-801



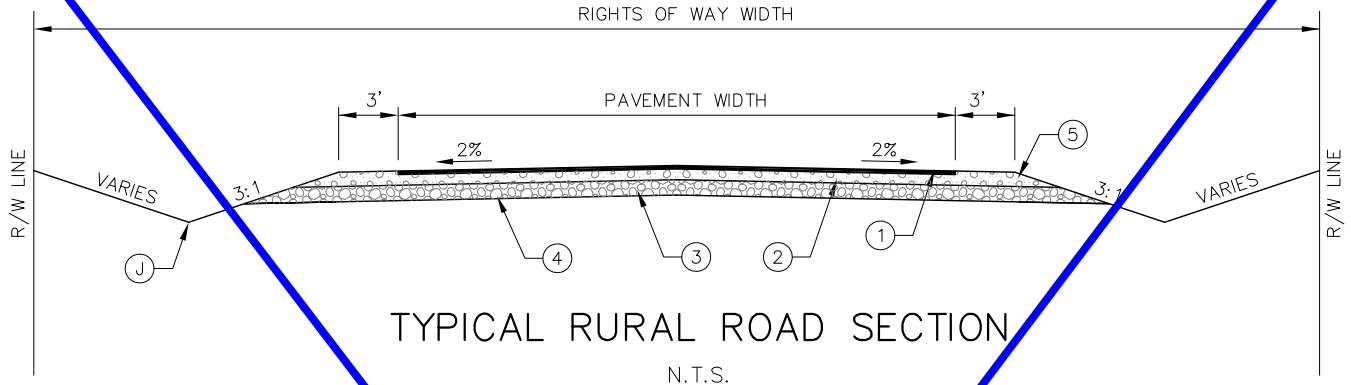
TYPICAL RURAL ROAD SECTION

LEGEND

- ① HOT PLANT MIX ASPHALT CONCRETE SURFACE COURSE
- ② CRUSHED AGGREGATE BASE OR LEVELING COURSE
- ③ CRUSHED OR UNCRUSHED AGGREGATE BASE COURSE
- ④ SUBGRADE.
- ⑤ CRUSHED AGGREGATE SHOULDER

NOTES:

- (A) RURAL STREET SECTION DESIGNED FOR AVERAGE TRAFFIC VOLUMES, AND RESIDENTIAL TYPE STREETS IN THE AREAS OUTSIDE OF ESTABLISHED SUBURBAN AREAS. THE USE OF THIS SECTION SUBJECT TO LOCAL POLICY AND TYPE OF USE.
- (B) ALL CONSTRUCTION SHALL FOLLOW IDOT/SPWC SPECIFICATIONS.
- (C) STREET PROFILE SHALL BE MINIMUM 1% UNLESS OTHERWISE APPROVED BY THE OWNER.
- (D) RIGHT-OF-WAY WIDTH AND STREET WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (E) MINIMUM PAVEMENT BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF TRAFFIC. PAVEMENT THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND SUBGRADE STRENGTH AND APPROVED BY LOCAL AGENCY.
- (F) STREET CORNER RADIUS SIZES FOR EDGE OF PAVEMENT SET BY LOCAL POLICY AND TYPE OF USE.
- (G) ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE AND DESIGN SPEEDS, SET BY LOCAL POLICY AND TYPE OF USE.
- (H) BORROW PITS SHALL HAVE A MINIMUM 3:1 FORE SLOPE WITH 4:1 SLOPE RECOMMENDED. THE SLOPE OF BORROW DITCH SHALL BE MINIMUM 1:1 BACK SLOPE WITH 4:1 BACK SLOPE RECOMMENDED. THE FLOW LINE OF THE DITCH SHALL BE MINIMUM 6" BELOW THE LOWEST AGGREGATE BASE COURSE TO ENCOURAGE DRAINAGE. PIPING DITCH UNDER DRIVEWAY REQUIRED WITH APPROVED LENGTH AND TYPE.



LEGEND

- ① HOT PLANT MIX ASPHALT CONCRETE SURFACE COURSE.
- ② CRUSHED AGGREGATE BASE OR LEVELING COURSE.
- ③ CRUSHED OR UNCRUSHED AGGREGATE BASE COURSE.
- ④ SUBGRADE.
- ⑤ CRUSHED AGGREGATE SHOULDERS.

NOTES:

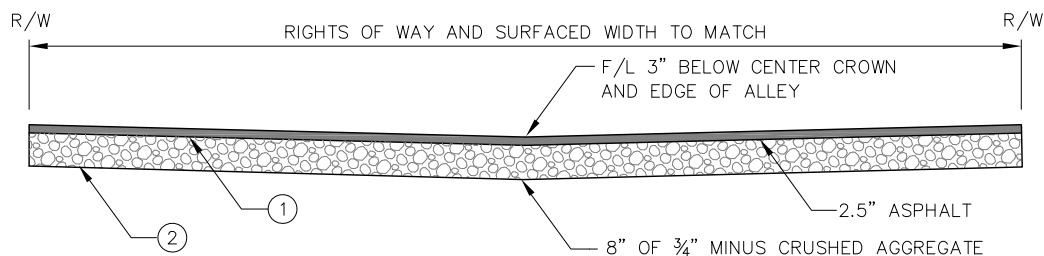
- (A) THE ACHD STANDARD MATERIAL FOR ROADWAY LEVELING COURSE ON TOP OF UNCRUSHED 6 OR 8-INCH PITRUN BASES IS TYPE 1 AGGREGATE PER TABLE 1 OF SECTION 801 UNLESS OTHERWISE APPROVED IN WRITING.
- (B) THE ACHD STANDARD MATERIAL FOR GRANULAR ROADWAY BASE IS 6 OR 8-INCH PITRUN PER TABLE 1 OF SECTION 802 UNLESS OTHERWISE APPROVED IN WRITING.
- (C) RURAL STREET SECTION USED FOR ARTERIAL, COLLECTOR, AND RESIDENTIAL TYPE STREETS IN THE AREAS OUTSIDE THE ESTABLISHED URBAN AREAS THE USE OF THIS SECTION SUBJECT TO LOCAL POLICY AND TYPE OF USE.
- (D) ALL CONSTRUCTION SHALL BE PER ISPC SPECIFICATIONS.
- (E) STREET PROFILE GRADES 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE OWNER.
- (F) RIGHT-OF-WAY WIDTHS AND STREET WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (G) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
- (H) STREET CORNER RADII SIZES FOR EDGE OF PAVEMENT SET BY LOCAL POLICY AND TYPE OF USE.
- (I) SUPER ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE DESIGN SPEEDS, SET BY LOCAL POLICY AND TYPE OF USE.
- (J) BORROW DITCHES SHALL HAVE A MAXIMUM 3:1 FORE SLOPE WITH 4:1 SLOPE RECOMMENDED. THE BACK SLOPE OF BORROW DITCH SHALL BE MAXIMUM 1:1 BACK SLOPE WITH 4:1 BACK SLOPE RECOMMENDED. THE FLOW LINE OF THE DITCH SHALL BE MINIMUM 6" BELOW THE LOWEST AGGREGATE BASE COURSE TO ENCOURAGE DRAINAGE. PIPING DITCH UNDER DRIVEWAYS REQUIRED WITH APPROVED LENGTH AND TYPE.

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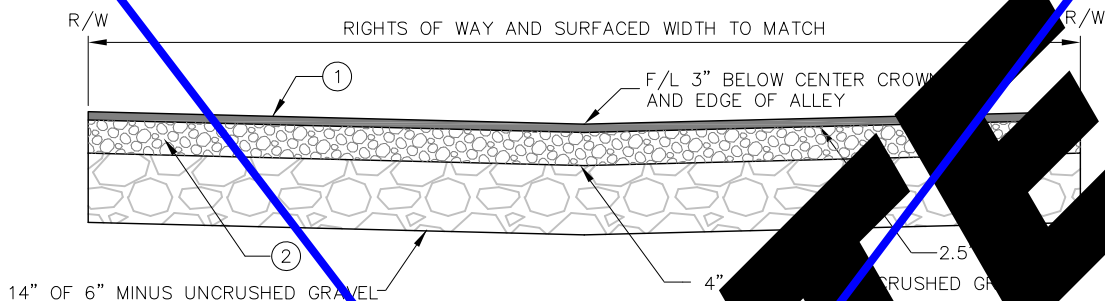
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

TYPICAL RURAL
STREET SECTION
NOT REVIEWED

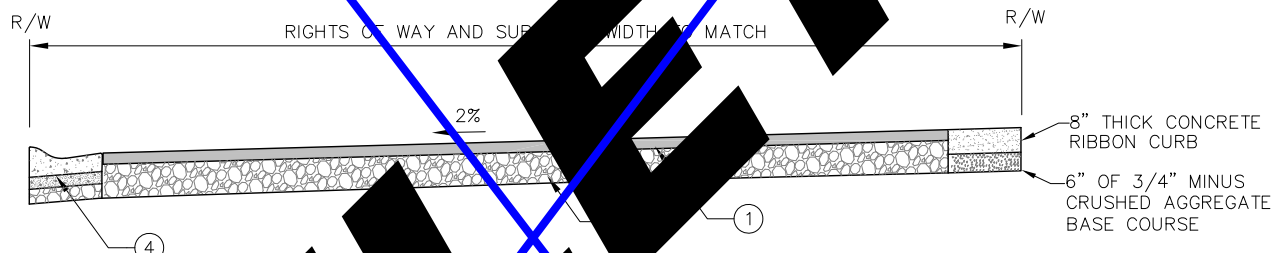
STANDARD DRAWING
NO. SD-802



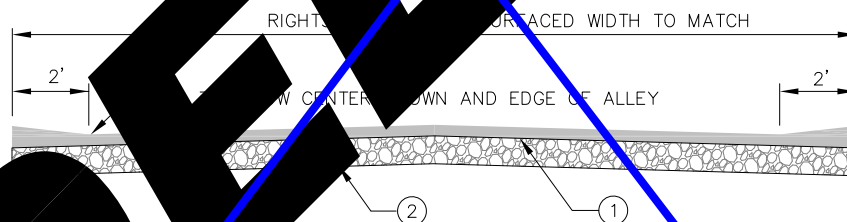
TYPE I EXISTING GRAVEL ALLEYS NEW ALLEYS



TYPE II FOR NEW ALLEYS



TYPE III - NEW ALLEYS

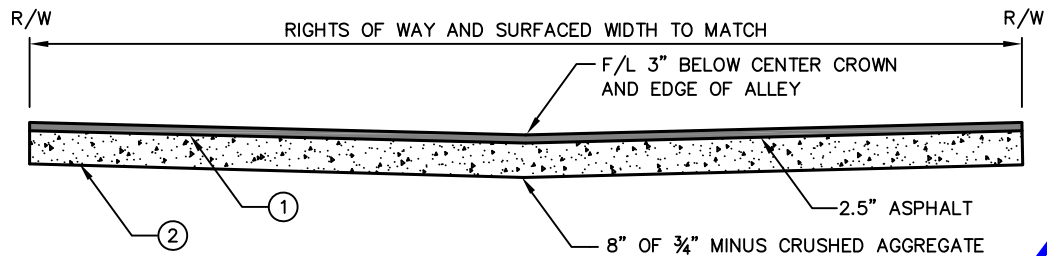


TYPE IV - NEW ALLEYS

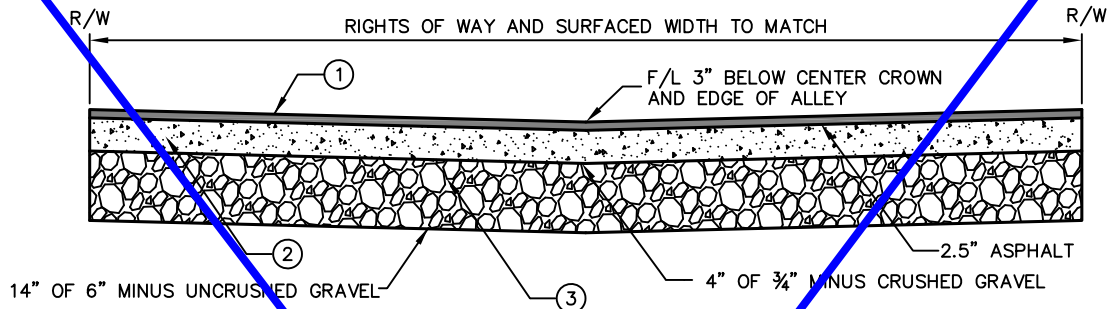
- ① 3\"/>

NOTES:

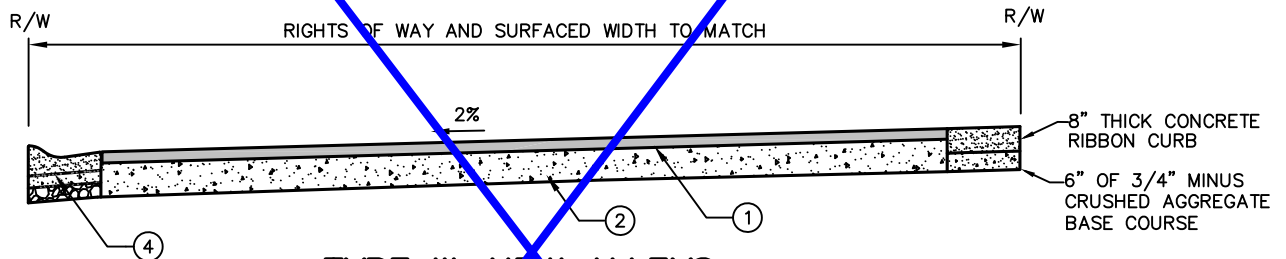
- (A) ALL CONSTRUCTION SHALL BE PER ISPMC SPECIFICATIONS.
- (B) ALLEY PROFILE GRADES 0.4% MINIMUM WITH CONCRETE GUTTER, 1% MINIMUM ON ASPHALT.
- (C) RIGHT-OF-WAY WIDTHS AND ALLEY WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (D) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
- (E) SUPER ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE DESIGN SPEEDS, SET BY LOCAL POLICY AND TYPE OF USE.



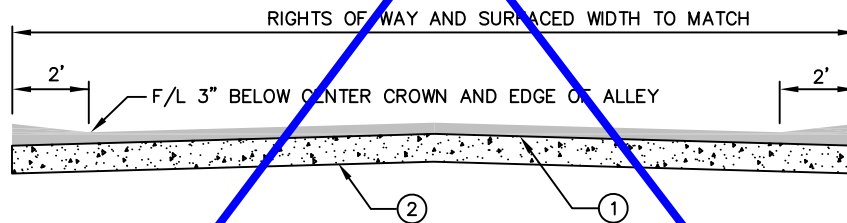
TYPE I-NEW ALLEYS



TYPE II-NEW ALLEYS



TYPE III-NEW ALLEYS



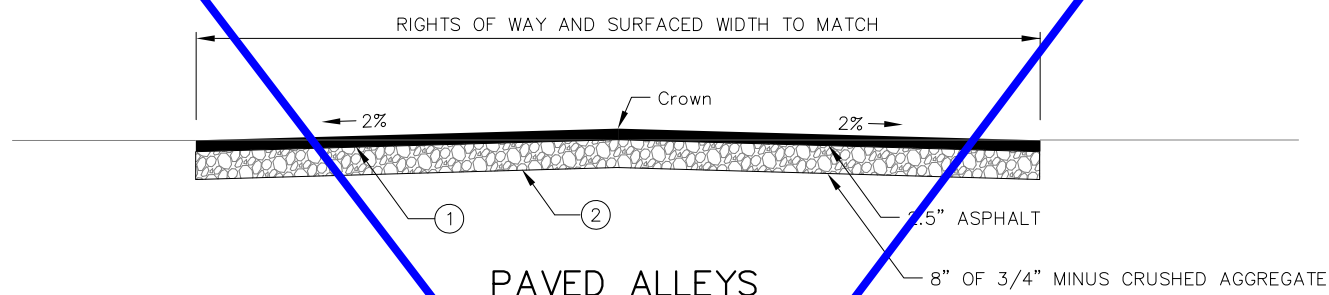
TYPE IV-NEW ALLEYS

LEGEND

- ① HOT PLANT MIX ASPHALT CONCRETE COURSE.
- ② CRUSHED AGGREGATE BASE COURSE.
- ③ 6" MINUS UNCRUSHED GRAVEL
- ④ 3" ROLLED CURB AND GUTTER OR VALLEY GUTTER

NOTES:

- (A) ALL CONSTRUCTION SHALL BE PER ISPMC SPECIFICATIONS.
- (B) ALLEY PROFILE GRADES 0.4% MINIMUM WITH CONCRETE GUTTER, 1% MINIMUM ON ASPHALT.
- (C) RIGHT-OF-WAY WIDTHS AND ALLEY WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (D) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
- (E) SUPER ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE DESIGN SPEEDS, SET BY LOCAL POLICY AND TYPE OF USE.



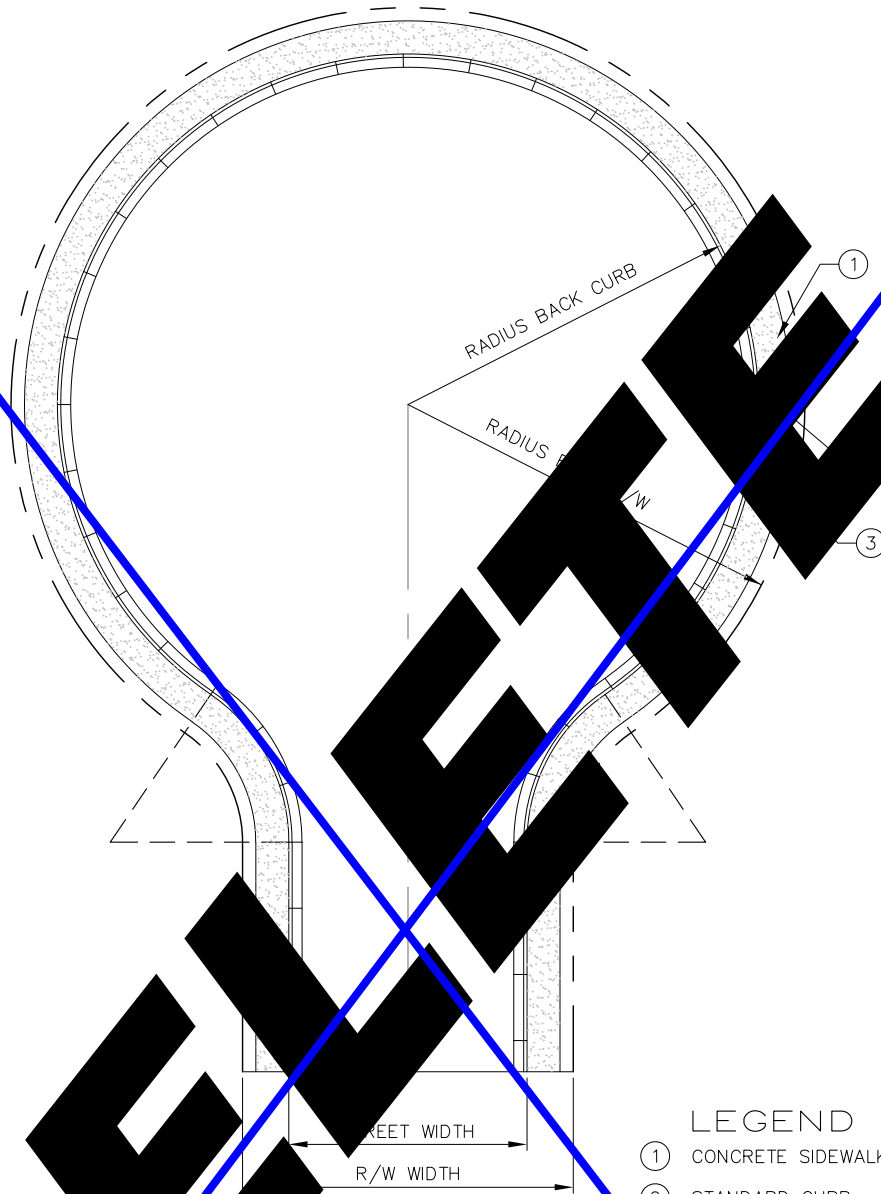
LEGEND

- ① HOT PLANT MIX ASPHALT CONCRETE COURSE.
- ② CRUSHED AGGREGATE BASE COURSE.

NOTES:

- (A) ALL CONSTRUCTION SHALL BE PER ISPMC SPECIFICATIONS.
- (B) ALLEY PROFILE GRADES 0.4% MINIMUM WITH CONCRETE GUTTER, 1% MINIMUM ON ASPHALT.
- (C) RIGHT-OF-WAY WIDTHS AND ALLEY WIDTHS VARY BY LOCATION.
- (D) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.

2017

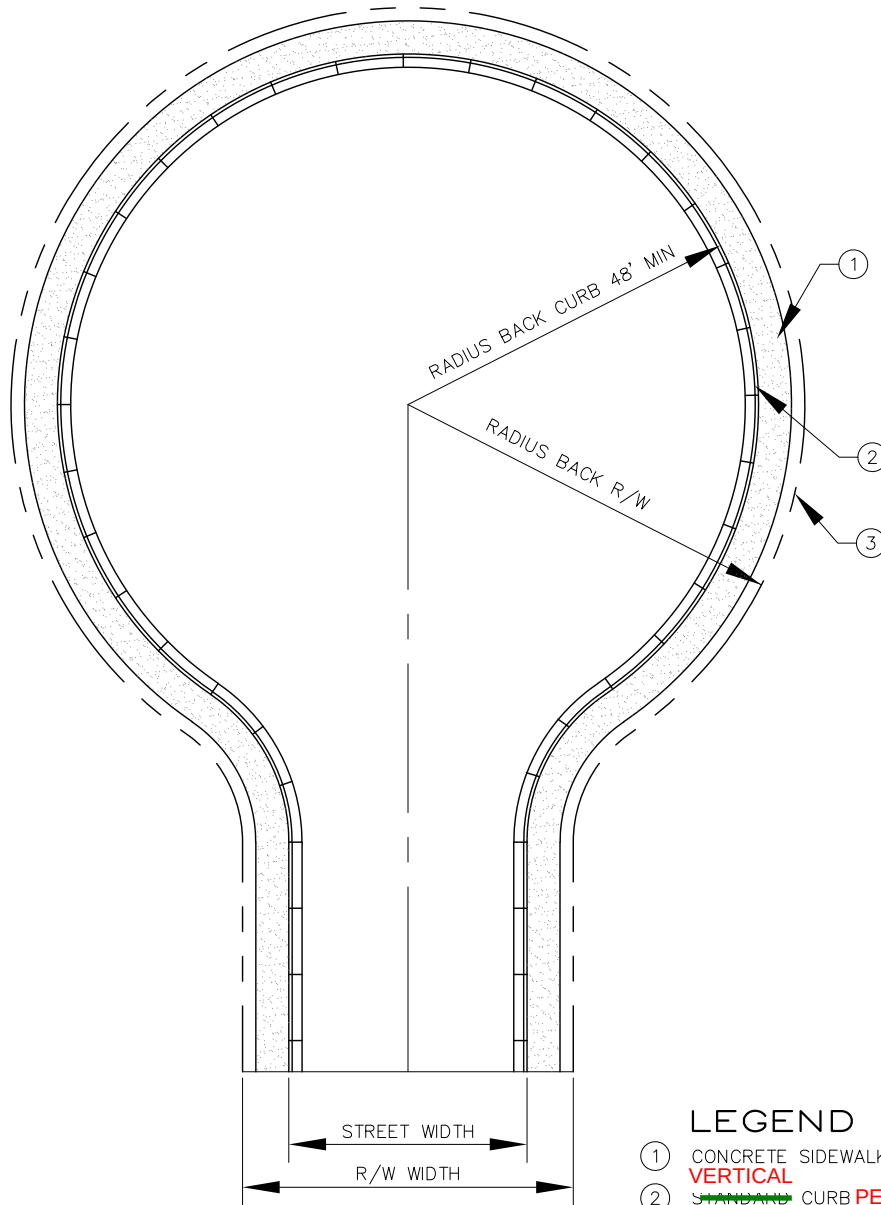


LEGEND

- ① CONCRETE SIDEWALK.
- ② STANDARD CURB.
- ③ RIGHT-OF-WAY LINE.

- NO
- (A) ALL MATERIALS SHALL BE IN ACCORDANCE WITH SPWC SPECIFICATIONS.
 - (B) STREET PROFILE SHALL BE 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE OWNER.
 - (C) STREET-OF-WAY STREET WIDTHS AND DIAMETER SET BY LOCAL POLICY AND TYPE OF USE.
 - (D) MINIMUM ASPHALT PAVEMENT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
 - (E) MINIMUM ASPHALT PAVEMENT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND SOIL TYPE. SEE SECTION-700.
 - (F) STANDARD CURB AND GUTTER RECOMMENDED, WITH ROLL CURB USE BASED ON LOCAL POLICY, SEE SECTION-700.
 - (G) CONCRETE SIDEWALK REQUIRED WIDTH SET BY LOCAL POLICY AND TYPE OF USE. SEE SECTION-700.
 - (H) STREET CORNER RADII SIZES SET BY LOCAL POLICY AND TYPE OF USE.
 - (I) CUL-DE-SAC RADIUS REQUIRED DETERMINED BY MINIMUM TURNAROUND RADIUS FOR MOTOR VEHICLES. ACTUAL RADIUS SET BY LOCAL POLICY AND TYPE OF USE.
 - (J) CUL-DE-SAC MAY BE OFFSET TO THE LEFT OR RIGHT SO THAT APPROACH STREET CURB IS TANGENT WITH CUL-DE-SAC CIRCLE.

2017



LEGEND

- ① CONCRETE SIDEWALK **PER SD-709 (ACHD)**
VERTICAL
- ② **STANDARD** CURB **PER SD-701 (ACHD)**
- ③ RIGHT-OF-WAY LINE

NOTES:

- (A) ALL CONSTRUCTION SHALL BE PER ISPWC SPECIFICATIONS **WITH ACHD SUPPLEMENTS**
- (B) STREET PROFILE GRADES 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE OWNER.
- (C) RIGHT-OF-WAY STREET WIDTHS AND DIAMETER SET BY LOCAL POLICY AND TYPE OF USE.
- (D) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
- (E) MINIMUM CONCRETE PAVEMENT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND SOIL TYPE. SEE **SECTION 700. VERTICAL**
- (F) **STANDARD** CURB AND GUTTER RECOMMENDED, WITH ROLL CURB USE BASED ON LOCAL POLICY, SEE **SECTION 700. DIVISION**
- (G) CONCRETE SIDEWALK REQUIRED WIDTH SET BY LOCAL POLICY AND TYPE OF USE. SEE **SECTION 700. DIVISION**
- (H) STREET CORNER RADII SIZES SET BY LOCAL POLICY AND TYPE OF USE.
- (I) CUL-DE-SAC RADIUS REQUIRED DETERMINED BY MINIMUM TURNAROUND RADIUS FOR MOTOR VEHICLES. ACTUAL RADIUS SET BY LOCAL POLICY AND TYPE OF USE.
- (J) CUL-DE-SAC MAY BE OFFSET TO THE LEFT OR RIGHT SO THAT APPROACH STREET CURB IS TANGENT WITH CUL-DE-SAC CIRCLE.

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R/W LINE

EXISTING RIGHT-OF-WAY WIDTH

EXISTING IMPROVEMENTS

REQUIRED NEW IMPROVEMENTS

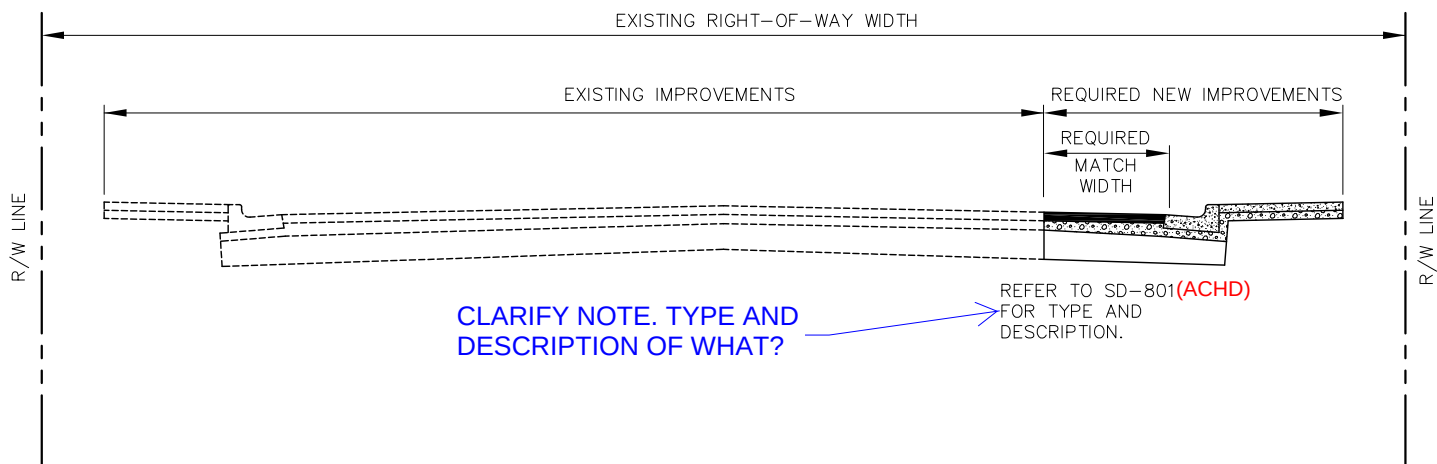
REQUIRED
MATCH
WIDTH

REFER TO SD-801
FOR CURB AND
GUTTER

R/W LINE

NOTES:

- (A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS, AS ADOPTED BY THE BOARD OF PUBLIC WORKS.
- (B) STREET PROFILE GRADES 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE OWNER.
- (C) RIGHT-OF-WAY WIDTHS AND STREET WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (D) MINIMUM ASPHALT AND CONCRETE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DETERMINED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROPRIATE LOCAL POLICY.
- (E) MINIMUM CONCRETE PAVEMENT AND BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DETERMINED BY ENGINEER BASED ON TRAFFIC INDEX AND SOIL TYPE. SEE SECTION 700.
- (F) STANDARD CURB AND GUTTER RECOMMENDED, WITH ROLL CURB USE BASED ON LOCAL POLICY, SEE SECTION 700.
- (G) CONCRETE WALK RAIL WIDTH SET BY LOCAL POLICY AND TYPE OF USE. SEE SECTION 700.
- (H) STREET CLOSURE WIDTH SET BY LOCAL POLICY AND TYPE OF USE.
- (I) SUPER ELEVATION, CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE SPEEDS, MATCHING EXISTING IMPROVEMENTS AND SET BY LOCAL POLICY AND TYPE OF USE.
- (J) ASPHALT MATCH SHALL DRAIN TOWARD EDGE OF PAVEMENT OR CONCRETE CURB AND SHALL HAVE A MINIMUM CROSS SLOPE OF 1% WITH 2% RECOMMENDED. CROSS SLOPE OF 4% MAXIMUM IN TRAFFIC LANE WITH 8% MAXIMUM IN PARKING AREA.
- (K) EXISTING ASPHALT SHALL BE CUT TO A NEAT STRAIGHT LINE PARALLEL AND/OR PERPENDICULAR TO THE CENTERLINE OF THE STREET AND SEALED WITH AN ASPHALT TACK COAT BEFORE PAVING.



REVISE MAXIMUM SLOPE OF PARKING AREA TO LESS THAN 5% TO ENSURE THE MAXIMUM RUNNING SLOPE OF A CROSSWALK IS 5%. PER 2011 PROWAG R302.5.1, WHERE PEDESTRIAN ACCESS ROUTES ARE CONTAINED WITHIN PEDESTRIAN STREET CROSSINGS, THE GRADE OF THE PEDESTRIAN ACCESS ROUTE SHALL BE 5 PERCENT MAXIMUM.

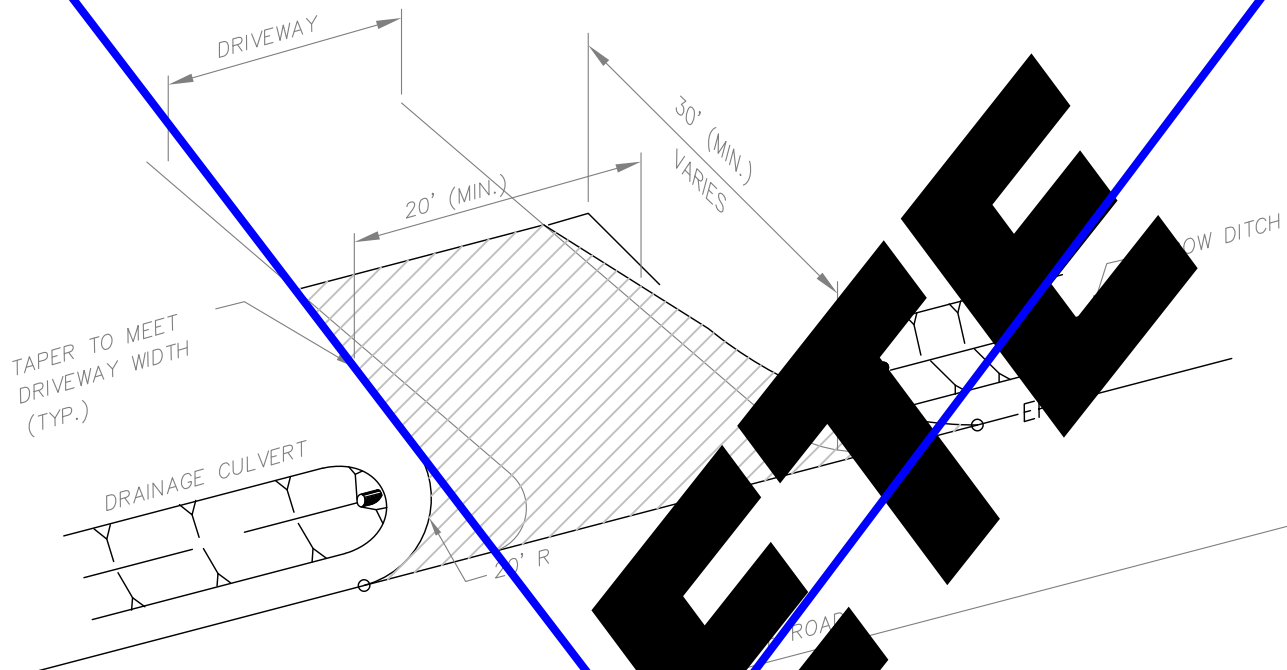
NOTES:

- (A) ALL CONSTRUCTION SHALL BE PER ISPWC SPECIFICATIONS **WITH ACHD SUPPLEMENTS**
- (B) STREET PROFILE GRADES 0.4% MINIMUM UNLESS OTHERWISE APPROVED BY THE OWNER.
- (C) RIGHT-OF-WAY WIDTHS AND STREET WIDTHS SET BY LOCAL POLICY AND TYPE OF USE.
- (D) MINIMUM ASPHALT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND "R" VALUE OF SUBGRADE SOILS AND APPROVED BY LOCAL AGENCY.
- (E) MINIMUM CONCRETE PAVEMENT AND AGGREGATE BASE THICKNESS SET BY LOCAL POLICY AND TYPE OF USE. ACTUAL THICKNESS SHALL BE DESIGNED BY ENGINEER BASED ON TRAFFIC INDEX AND SOIL TYPE. SEE **SECTION 700.**
- (F) **VERTICAL DIVISION** ~~STANDARD~~ CURB AND GUTTER RECOMMENDED, WITH ROLL CURB USE BASED ON LOCAL POLICY, SEE **SECTION 700.**
- (G) CONCRETE SIDEWALK REQUIRED WIDTH SET BY LOCAL POLICY AND TYPE OF USE. SEE **DIVISION** ~~SECTION 700.~~
- (H) STREET CORNER RADII SIZES SET BY LOCAL POLICY AND TYPE OF USE.
- (I) SUPER ELEVATION, VERTICAL CURVE AND HORIZONTAL CURVE REQUIREMENTS BASED ON SIGHT DISTANCE, VEHICLE DESIGN SPEEDS, MATCHING EXISTING IMPROVEMENTS AND SET BY LOCAL POLICY AND TYPE OF USE.
- (J) ASPHALT MATCH SHALL DRAIN TOWARD EDGE OF PAVEMENT OR CONCRETE CURB AND SHALL HAVE A MINIMUM CROSS SLOPE OF 1% WITH 2% RECOMMENDED. CROSS SLOPE OF 4% MAXIMUM IN TRAFFIC LANE WITH **0% MAXIMUM** IN PARKING AREA.
- (K) EXISTING ASPHALT SHALL BE CUT TO A NEAT STRAIGHT LINE PARALLEL AND/OR PERPENDICULAR TO THE CENTERLINE OF THE STREET AND SEALED WITH AN ASPHALT TACK COAT BEFORE PAVING.

CLARIFY. ADD MINIMUM RADIUS REQUIREMENT. SD-712H (ACHD) INDICATES A MINIMUM CURB RETURN RADIUS OF 15'.

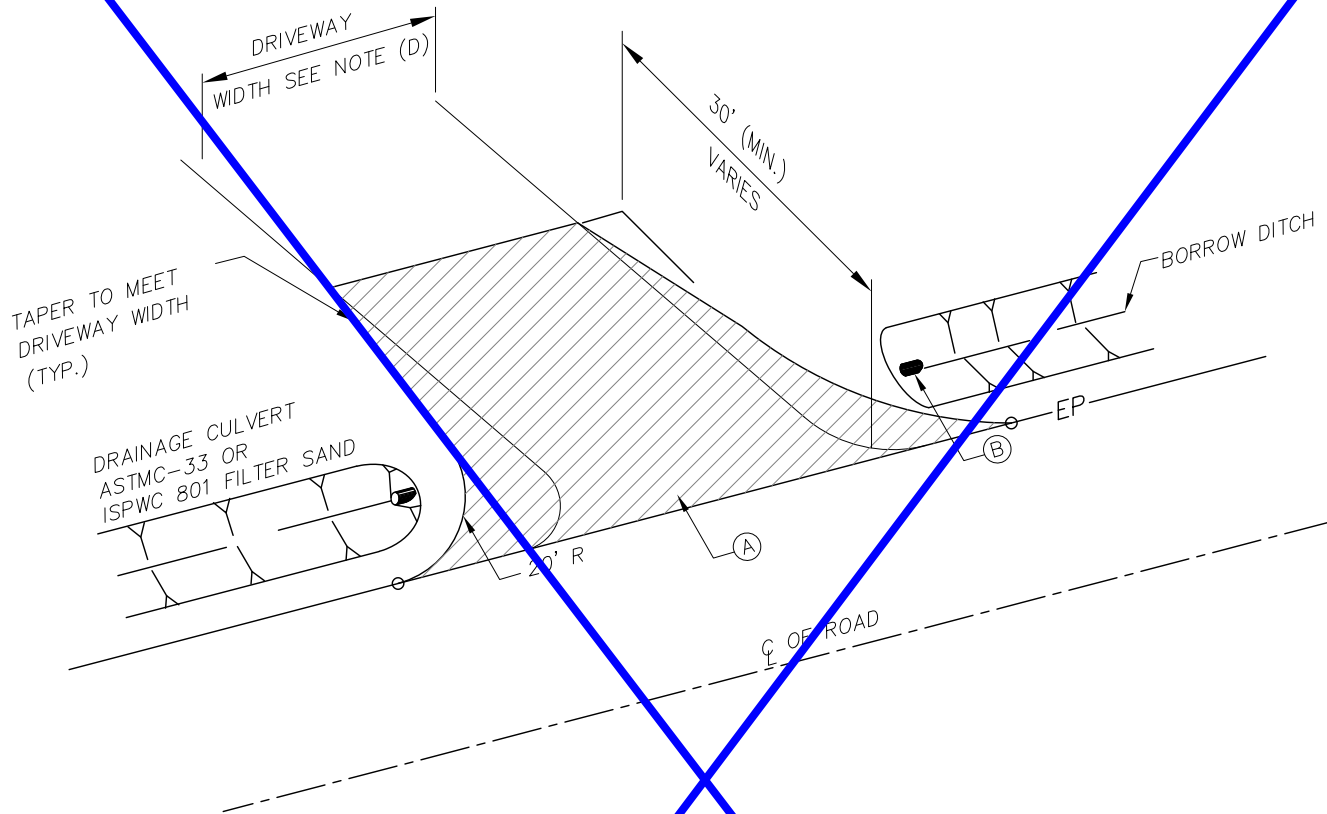
CLARIFY. ADD MINIMUM WIDTH REQUIREMENT. SEE COMMENTS ON SD-709 (ACHD).

2017 ACHD REVISION



NOTES:

- (A) INSTALL 12" MINUS 1/2" GATE BASE WITH 2 1/2" OF HOT PLANT MIX PAVEMENT.
- (B) INSTALL 12" MINUS 1/2" GATE BASE WITH 2 1/2" OF HOT PLANT MIX PAVEMENT.
- (C) AMOUNT OF DRIVEWAY APPROACH VARIES BASED ON GRADE CHANGE. USE 30' AS A MINIMUM.



NOTES:

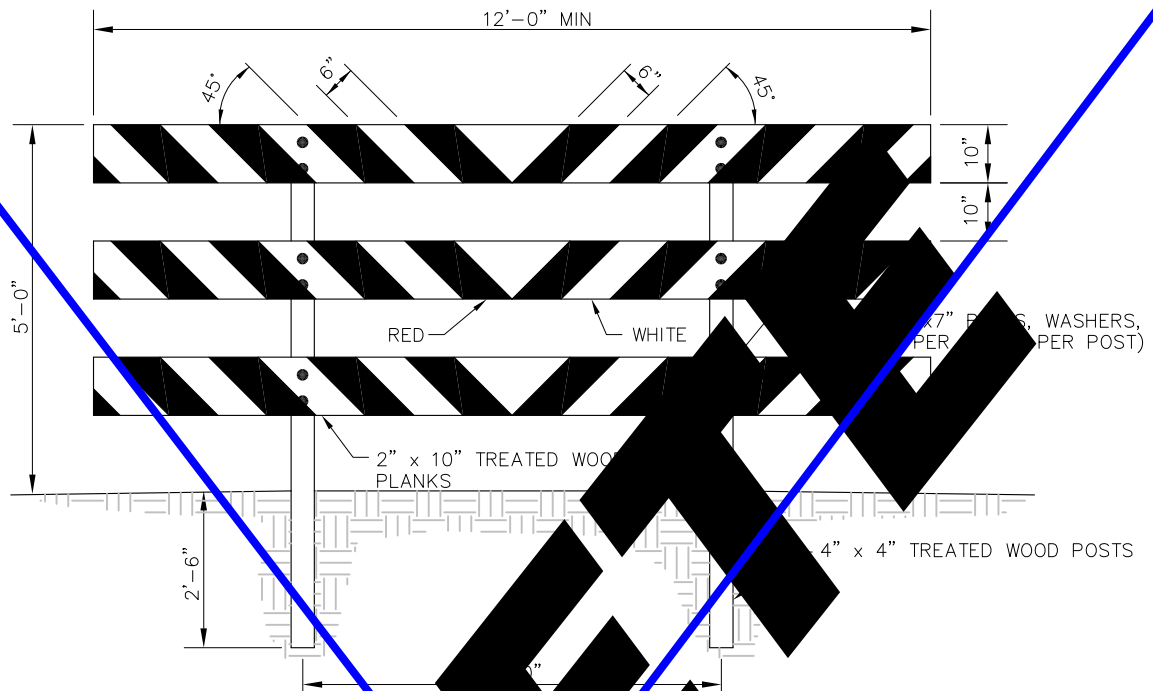
- (A) INSTALL 3/4" MINUS CRUSHED AGGREGATE BASE, WITH HOT PLANT MIX PAVEMENT AT THICKNESS SPECIFIED ON APPLICABLE PROJECT PLANS.
- (B) INSTALL 12" MINIMUM DIAMETER PIPE CULVERT TO CONTINUE BORROW DITCH DRAINAGE WHERE APPLICABLE.
- (C) AMOUNT OF DRIVEWAY REPAIR VARIES BASED ON GRADE CHANGE. USE 30' AS A MINIMUM.
- (D) DRIVEWAY WIDTH WILL NEED APPROVAL FROM ACHD'S DEVELOPMENT SERVICES

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

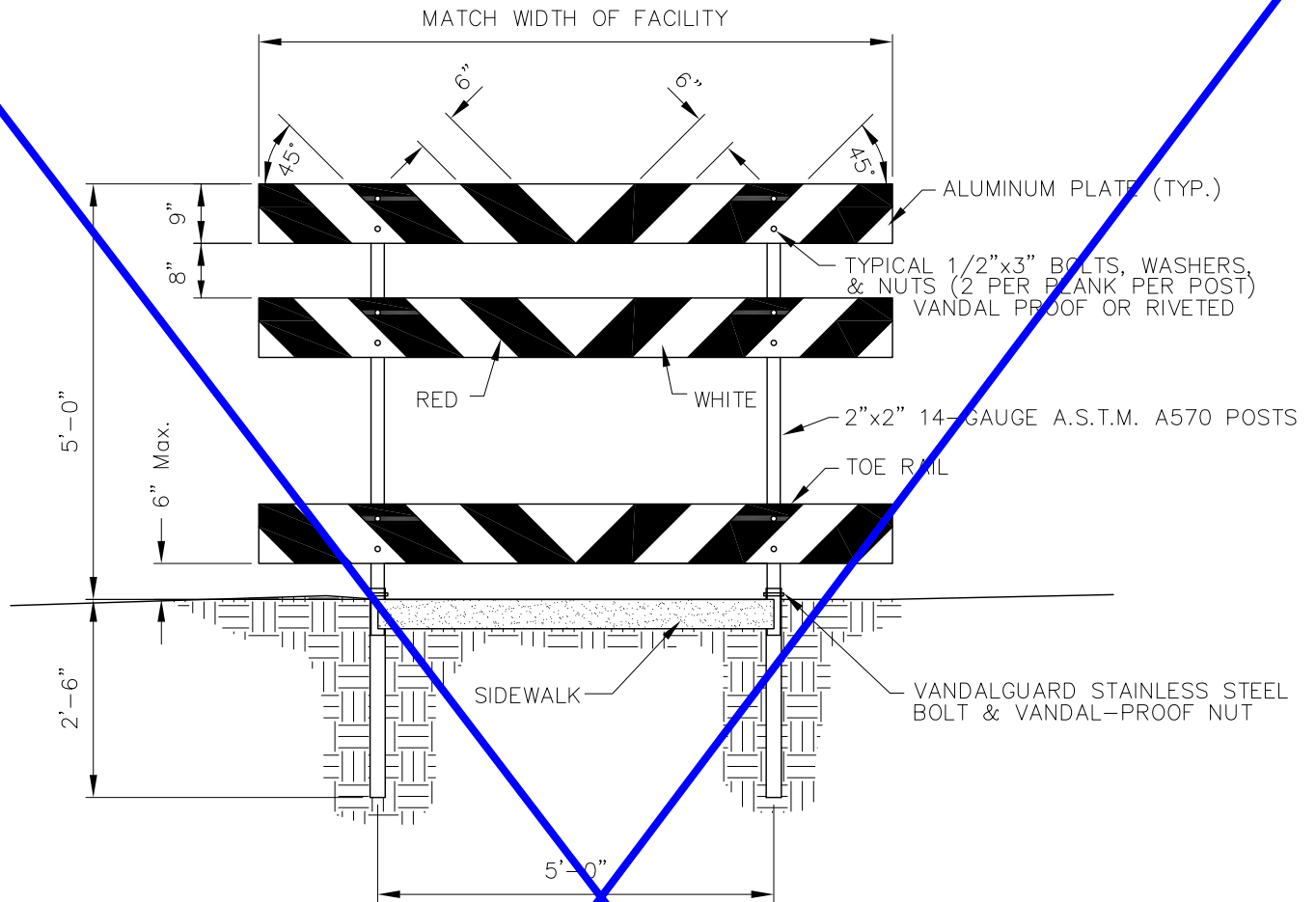
RURAL DRIVEWAY
APPROACH

STANDARD DRAWING
NO. SD-809



NOTES:

- (A) THE ABOVE BARRICADE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR WHERE CALLED FOR ON THE PLANS.
- (B) MARKINGS FOR BARRICADES SHALL BE RED AND WHITE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION OF TRAFFIC).
- (C) WHERE THE BARRICADE SPANS A CROSS ROADWAY, IT IS DESIRABLE THAT THE STRIPES SLOPE DOWNWARD IN THE DIRECTION OF TRAFFIC AT EACH TURN IN DETOURING. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED FOR THE ROADWAY, THE STRIPES SHOULD SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE.
- (D) THE RED AND WHITE STRIPES SHALL BE REFLECTORIZED SO AS TO BE VISIBLE UNDER NORMAL AMBIENT CONDITIONS FROM A MINIMUM DISTANCE OF 1,000 FEET WHEN ILLUMINATED BY THE LOW BEAMS OF STREET AUTOMOBILE HEADLIGHTS.
- (E) FREE END BARRICADES SHALL BE BUILT SIMILAR, BUT 4"x4" POSTS SHALL BE 5'-0" LONG AND SHALL HAVE 2" x 6" BRACKET SUPPORTS SET 90° TO AND CENTERED ON POST FOR SUPPORT AND ATTACHED WITH 2-1/2"x7" BOLTS AND NUTS.
- (F) ALL SURFACES SHALL BE PAINTED WITH MINIMUM TWO COATS OF WHITE OIL BASE PAINT. ALL PAINTS SHALL BE REFLECTORIZED.



NOTES:

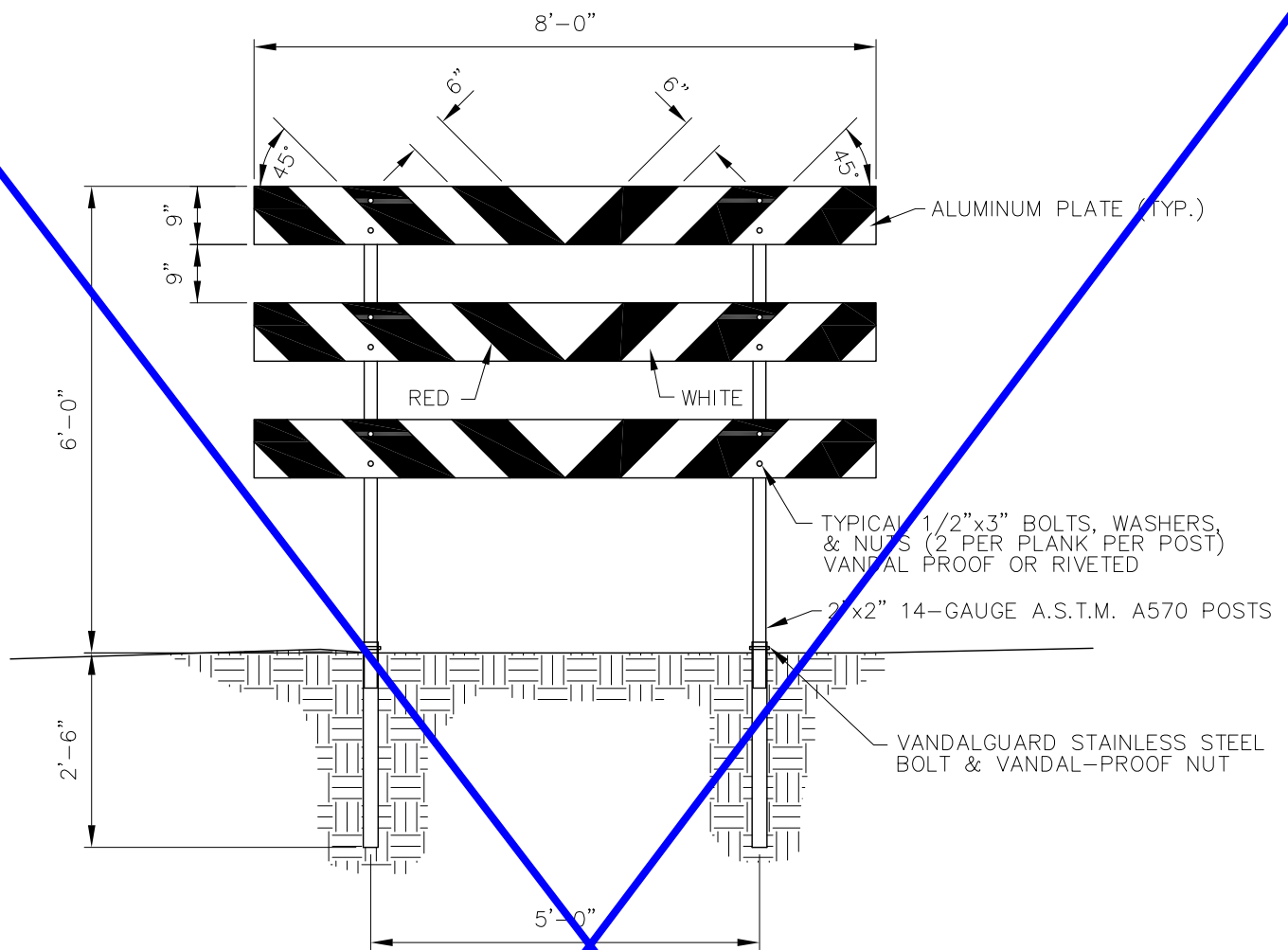
- (A) THE ABOVE BARRICADE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR WHERE CALLED FOR ON THE PLANS.
- (B) MARKINGS FOR BARRICADE RAILS SHALL BE RED AND WHITE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS).
- (C) THE CHEVRON STRIPING ORIENTATION SHALL MEET THE REQUIREMENTS OUTLINED IN THE MUTCD.
- (D) THE ENTIRE AREA OF RED AND WHITE STRIPES SHALL BE REFLECTORIZED SO AS TO BE VISIBLE UNDER NORMAL ATMOSPHERIC CONDITIONS FROM A MINIMUM DISTANCE OF 1,000 FEET WHEN ILLUMINATED BY THE LOW BEAMS OF STANDARD AUTOMOBILE HEADLIGHTS.
- (E) FREE STANDING BARRICADES SHALL BE BUILT SIMILAR, BUT 2"x2" POSTS SHALL BE 5'-0" LONG AND SHALL HAVE 2" x 6" x 4'-0" LONG SUPPORTS SET 90° TO AND CENTERED ON POST FOR SUPPORT AND ATTACHED WITH (2) 1/2"x7" BOLTS WITH WASHERS AND NUTS.
- (F) ALL SURFACES SHALL BE COVERED WITH PRISMATIC HIGH INTENSITY SHEETING.
- (G) ALUMINUM PLATE SHALL BE A MIN. 11 GAUGE WITH 1" THICKENED EDGE (MIN. 2 GAUGE) ON BOTH TOP AND BOTTOM.

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

TERMINUS BARRICADE
Type II

STANDARD DRAWING
NO. SD-1132A



NOTES:

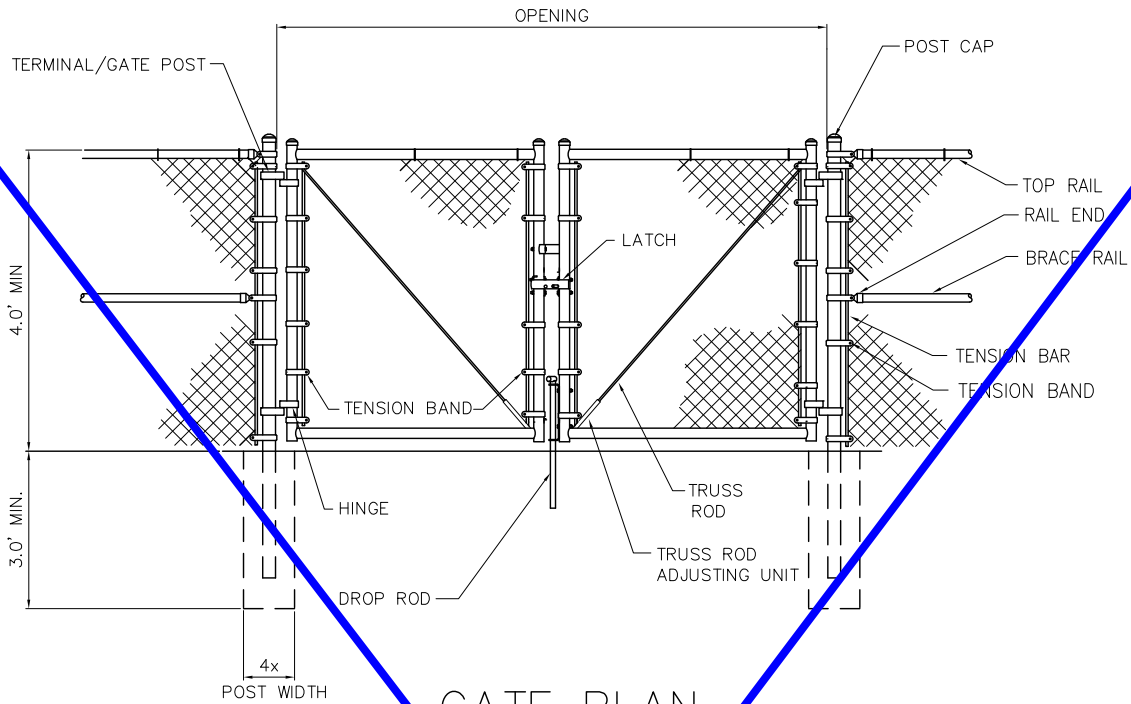
- (A) THE ABOVE BARRICADE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR WHERE CALLED FOR ON THE PLANS.
- (B) MARKINGS FOR BARRICADE RAILS SHALL BE RED AND WHITE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS).
- (C) THE CHEVRON STRIPING ORIENTATION SHALL MEET THE REQUIREMENTS OUTLINED IN THE MUTCD.
- (D) THE ENTIRE AREA OF RED AND WHITE STRIPES SHALL BE REFLECTORIZED SO AS TO BE VISIBLE UNDER NORMAL ATMOSPHERIC CONDITIONS FROM A MINIMUM DISTANCE OF 1,000 FEET WHEN ILLUMINATED BY THE LOW BEAMS OF STANDARD AUTOMOBILE HEADLIGHTS.
- (E) FREE STANDING BARRICADES SHALL BE BUILT SIMILAR, BUT 2"x2" POSTS SHALL BE 6'-0" LONG AND SHALL HAVE 2" x 6" x 4'-0" LONG SUPPORTS SET 90° TO AND CENTERED ON POST FOR SUPPORT AND ATTACHED WITH (2) 1/2"x7" BOLTS WITH WASHERS AND NUTS.
- (F) ALL SURFACES SHALL BE COVERED WITH PRISMATIC HIGH INTENSITY SHEETING.
- (G) ALUMINUM PLATE SHALL BE A MIN. 11 GAUGE WITH 1" THICKENED EDGE (MIN. 2 GAUGE) ON BOTH TOP AND BOTTOM.

2017 ACHD REVISION

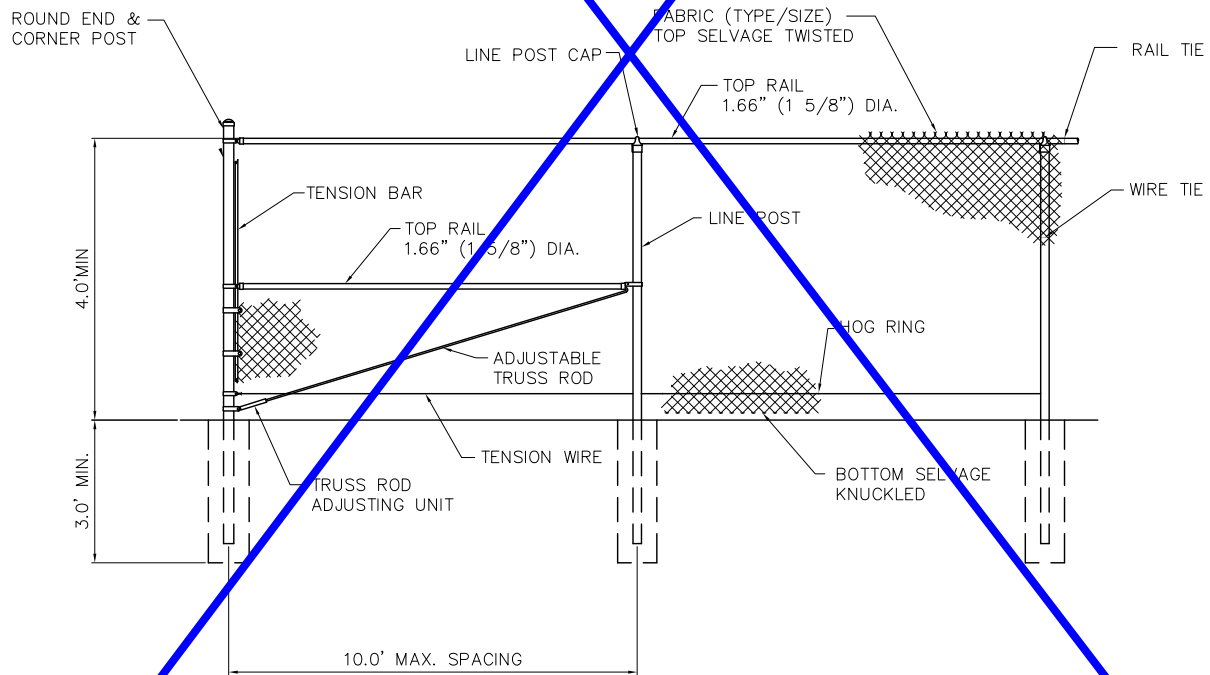
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

TERMINUS BARRICADE
Type III
NOT REVIEWED

STANDARD DRAWING
NO. SD-1132B



GATE PLAN
NTS



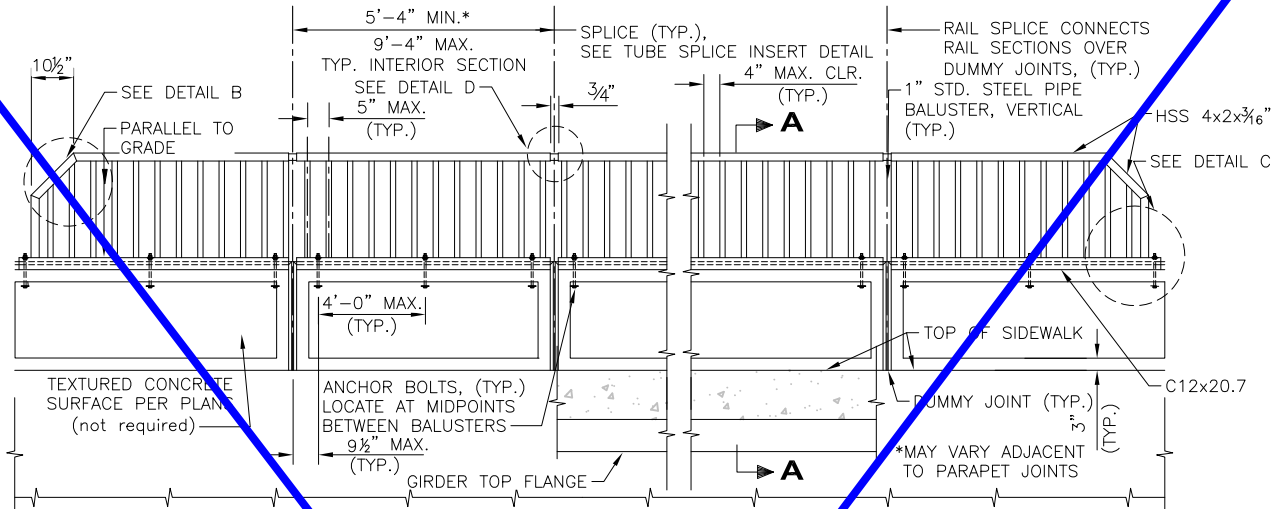
FENCE - TYPE 4

2017 ACHD REVISION

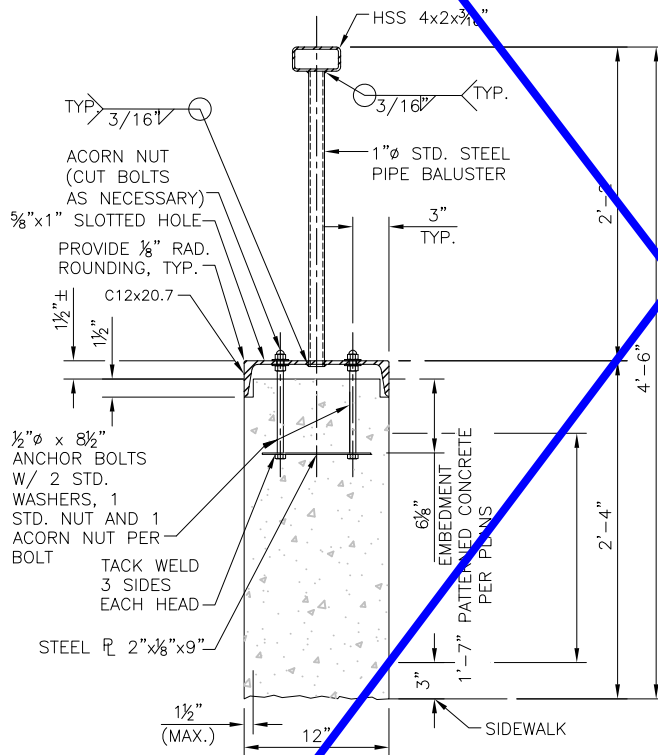
IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

STANDARD FENCE - TYPE 4
CHAIN **NOT REVIEWED**

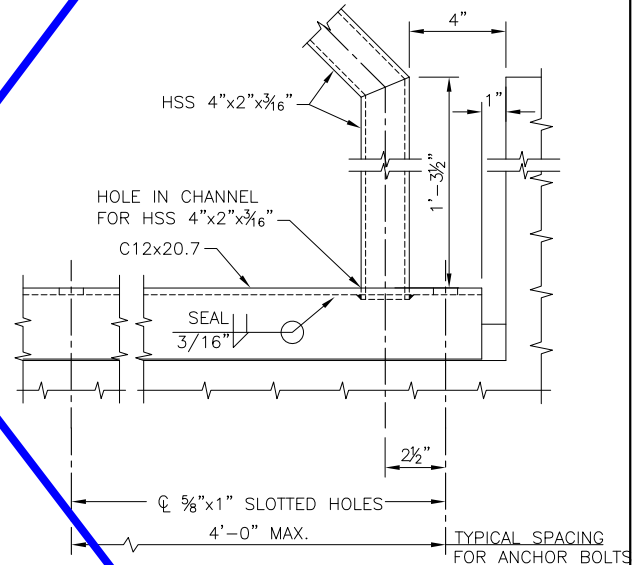
STANDARD DRAWING
NO. SD-2040J



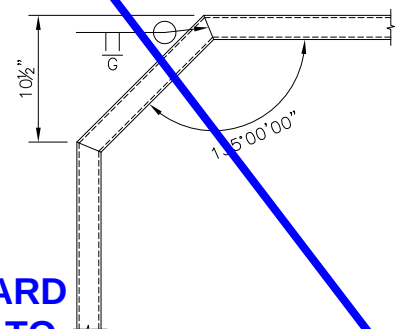
ELEVATION
N.T.S.



SECTION A-A
N.T.S.



DETAIL C
N.T.S.



DETAIL B
N.T.S.

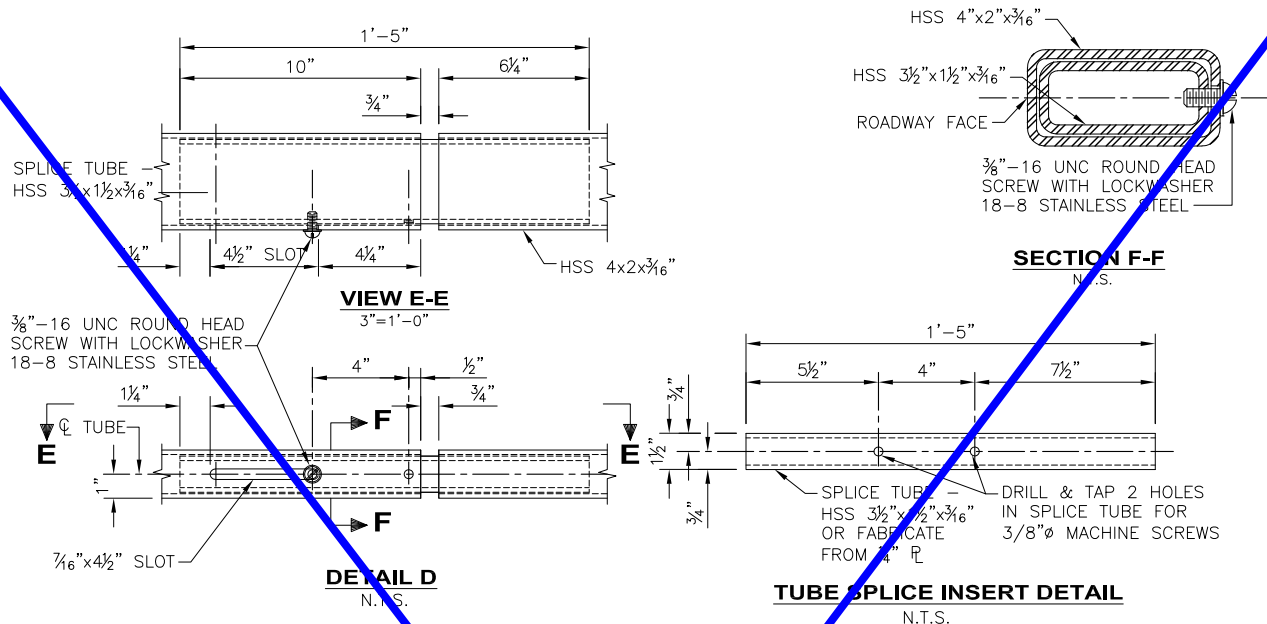
**NOT REVIEWED - THIS STANDARD
DRAWING DOES NOT APPEAR TO
BE A HANDRAIL DETAIL.**

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

COMBINATION PEDESTRIAN
BICYCLE & TRAFFIC RAILING DETAILS

STANDARD DRAWING
NO. SD-2040K
1 of 2



GENERAL NOTES

MATERIALS

1. ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM WITH A.S.T.M. F-1554 GRADE 36.
2. STRUCTURAL STEEL TUBING SHALL CONFORM WITH A.S.T.M. A-500 GRADE B OR A.S.T.M. A501.
3. STRUCTURAL STEEL PLATES AND SLEEVES SHALL CONFORM WITH AASHTO M270 GRADE 36.

GALVANIZING/POWDER COATING.

4. ALL STEEL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH A.S.T.M. A-123 AND A.S.T.M. A-385.
5. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-153.
6. ALL GALVANIZED SURFACES SHALL BE FREE OF FINS, ABRASIONS, ROUGH OR SHARP EDGES, OR OTHER SURFACE DEFECTS.
7. THE RAILING SYSTEM SHALL BE POWDER COATED AFTER GALVANIZING WITH A MINIMUM THICKNESS OF 3 MILS. THE COLOR SHALL BE FEDERAL STANDARD 595 NUMBER 17038 (BLACK). A COLOR SAMPLE SHALL BE SUBMITTED FOR APPROVAL.
8. POWDER COATING SHOP PROCEDURES FOR PREPARATION OF THE GALVANIZED SURFACES AND APPLICATION PROCESS OF THE POWDER COATING SHALL BE SUBMITTED FOR APPROVAL.
9. SCRATCHES, PITS, AND OTHER DEFECTS SHALL BE REPAIRED IN ACCORDANCE WITH THE POWDER COATING MANUFACTURER'S WRITTEN INSTRUCTIONS.

FABRICATION AND ERECTION

10. FABRICATION AND ERECTION OF THE RAILING SHALL CONFORM WITH THE CURRENT EDITION OF AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES AND ITS STANDARD SPECIFICATIONS.
11. THE RAILING SHALL BE FABRICATED IN A PLANT EXPERIENCED IN PRODUCING RAILINGS AND ARCHITECTURAL METAL WORK AND SHALL BE ERECTED BY SKILLED WORKMEN EXPERIENCED IN THIS TYPE OF WORK.
12. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER ELECTRONICALLY IN PDF FORMAT AND SHALL INCLUDE COMPLETE DIMENSIONS AND DETAILS OF FABRICATION INCLUDING AN ERECTION DIAGRAM. MATERIALS BEING USED SHALL BE CLEARLY SPECIFIED. BEFORE PROJECT COMPLETION, THE CONTRACTOR SHALL FURNISH THE ENGINEER ELECTRONIC AS-BUILT SHOP DRAWINGS IN PDF FORMAT.
13. ALL POSTS SHALL BE PLUMB.
14. ALL ENDS OF TUBE SECTIONS AND BASE PLATES AT SPLICES SHALL BE SAWED OR MILLED. CUT ENDS SHALL BE TRUE, SMOOTH AND FREE FROM BURRS OR RAGGED EDGES.
15. VENT HOLES FOR GALVANIZING SHALL BE PROVIDED AS REQUIRED AND SHOWN ON THE SHOP DRAWINGS. VENT HOLES SHALL BE DRILLED AWAY FROM TRAFFIC FACE AND NOT ON THE TOP SURFACE OF THE HORIZONTAL TUBE.
16. RAILING SYSTEM SHALL BE CONTINUOUS. EACH JOINT IN A RAIL LENGTH SHALL BE LOCATED AT THE SAME POSITION IN THE SECTION AND SHALL BE SPLICED AS DETAILED.
17. ALTERNATE **NOT REVIEWED - THIS STANDARD DRAWING DOES NOT APPEAR TO BE A HANDRAIL DETAIL.** DRAWINGS.

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

COMBINATION PEDESTRIAN
BICYCLE & TRAFFIC RAILING DETAILS

STANDARD DRAWING
NO. SD-2040K
2 of 2

GENERAL NOTES

MATERIALS

1. ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM WITH A.S.T.M. F-1554 GRADE 36.
2. STRUCTURAL STEEL TUBING SHALL CONFORM WITH A.S.T.M. A-500 GRADE B OR A.S.T.M. A501.
3. STRUCTURAL STEEL PLATES AND SLEEVES SHALL CONFORM WITH AASHTO M270 GRADE 36.

GALVANIZING/POWDER COATING

4. ALL STEEL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH A.S.T.M. A-123 AND A.S.T.M. A-385.
5. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-153.
6. ALL GALVANIZED SURFACES SHALL BE FREE OF FINS, ABRASIONS, ROUGH OR SHARP EDGES, OR OTHER SURFACE DEFECTS.
7. THE RAILING SYSTEM SHALL BE POWDER COATED AFTER GALVANIZING WITH A MINIMUM THICKNESS OF 3 MILS. THE COLOR SHALL BE FEDERAL STANDARD 595 NUMBER 17038 (BLACK). A COLOR SAMPLE SHALL BE SUBMITTED FOR APPROVAL.
8. POWDER COATING SHOP PROCEDURES FOR PREPARATION OF THE GALVANIZED SURFACES AND APPLICATION PROCESS OF THE POWDER COATING SHALL BE SUBMITTED FOR APPROVAL.
9. SCRATCHES, PITS, AND OTHER DEFECTS SHALL BE REPAIRED IN ACCORDANCE WITH THE POWDER COATING MANUFACTURER'S WRITTEN INSTRUCTIONS.

FABRICATION AND ERECTION

10. FABRICATION AND ERECTION OF THE RAILING SHALL CONFORM WITH THE CURRENT EDITION OF AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES AND ITD STANDARD SPECIFICATIONS.
11. THE RAILING SHALL BE FABRICATED IN A PLANT EXPERIENCED IN PRODUCING RAILINGS AND ARCHITECTURAL METAL WORK AND SHALL BE ERECTED BY SKILLED WORKMEN EXPERIENCED IN THIS TYPE OF WORK.
12. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER ELECTRONICALLY IN PDF FORMAT AND SHALL INCLUDE COMPLETE DIMENSIONS AND DETAILS OF FABRICATION INCLUDING AN ERECTION DIAGRAM. MATERIALS BEING USED SHALL BE CLEARLY SPECIFIED. BEFORE PROJECT COMPLETION, THE CONTRACTOR SHALL FURNISH THE ENGINEER ELECTRONIC AS-BUILT SHOP DRAWINGS IN PDF FORMAT.
13. ALL POSTS SHALL BE PLUMB.
14. ALL ENDS OF TUBE SECTIONS AND BASE PLATES AT SPLICES SHALL BE SAWED OR MILLED. CUT ENDS SHALL BE TRUE, SMOOTH AND FREE FROM BURRS OR RAGGED EDGES.
15. VENT HOLES FOR GALVANIZING SHALL BE PROVIDED AS REQUIRED AND SHOWN ON THE SHOP DRAWINGS. VENT HOLES SHALL BE DRILLED AWAY FROM TRAFFIC FACE AND NOT ON THE TOP SURFACE OF THE HORIZONTAL TUBE.
16. RAILING SYSTEM SHALL BE CONTINUOUS. EACH JOINT IN A RAIL LENGTH SHALL BE LOCATED AT THE SAME POSITION IN THE SECTION AND SHALL BE SPLICED AS DETAILED.
17. ALTERNATE SPLICE DETAILS MAY BE SUBMITTED FOR APPROVAL ON THE SHOP DRAWINGS.

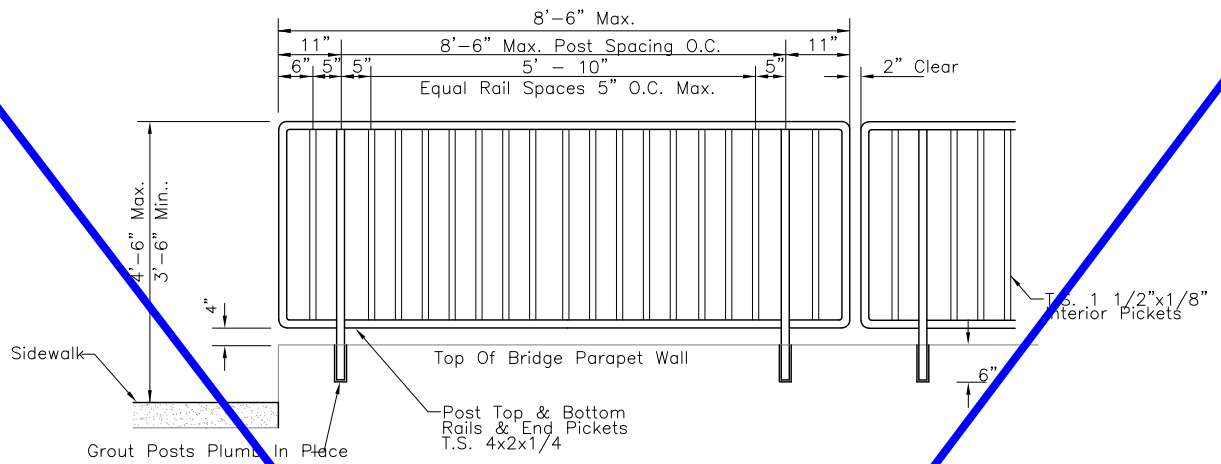
**NOT REVIEWED - THIS STANDARD
DRAWING IS FOR A BIKE RAILING
NOT COVERED BY PROWAG.
GUARDS SHALL BE REVIEWED
AGAINST LOCAL BUILDING
REQUIREMENTS.**

BIKE RAILING

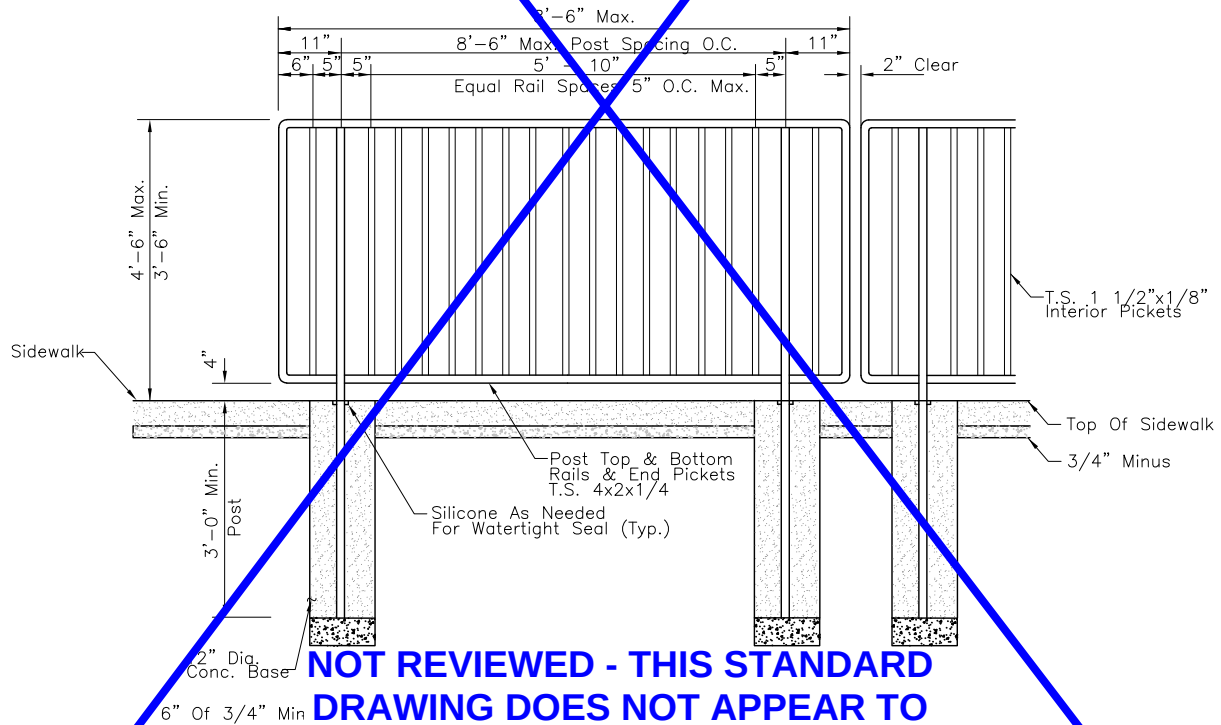
2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

STANDARD DRAWING
NO. SD-2040L
2 Of 2



Parapet Installation
N.T.S.



**NOT REVIEWED - THIS STANDARD
DRAWING DOES NOT APPEAR TO
BE A HANDRAIL DETAIL AND IS
NOT COVERED BY PROWAG.
GUARDS SHALL BE REVIEWED
AGAINST LOCAL BUILDING
REQUIREMENTS.**

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

BRIDGE RAILING DETAIL

STANDARD DRAWING
NO. SD-2040M
1 of 2

GENERAL NOTES

MATERIALS

1. ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM WITH A.S.T.M. F-1554 GRADE 36.
2. STRUCTURAL STEEL TUBING SHALL CONFORM WITH A.S.T.M. A-500 GRADE B OR A.S.T.M. A501.
3. STRUCTURAL STEEL PLATES AND SLEEVES SHALL CONFORM WITH AASHTO M270 GRADE 36.

GALVANIZING/POWDER COATING

4. ALL STEEL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH A.S.T.M. A-123 AND A.S.T.M. A-385.
5. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-153.
6. ALL GALVANIZED SURFACES SHALL BE FREE OF FINS, ABRASIONS, ROUGH OR SHARP EDGES, OR OTHER SURFACE DEFECTS.
7. THE RAILING SYSTEM SHALL BE POWDER COATED AFTER GALVANIZING WITH A MINIMUM THICKNESS OF 3 MILS. THE COLOR SHALL BE FEDERAL STANDARD 595 NUMBER 17038 (BLACK). A COLOR SAMPLE SHALL BE SUBMITTED FOR APPROVAL.
8. POWDER COATING SHOP PROCEDURES FOR PREPARATION OF THE GALVANIZED SURFACES AND APPLICATION PROCESS OF THE POWDER COATING SHALL BE SUBMITTED FOR APPROVAL.
9. SCRATCHES, PITS, AND OTHER DEFECTS SHALL BE REPAIRED IN ACCORDANCE WITH THE POWDER COATING MANUFACTURER'S WRITTEN INSTRUCTIONS.

FABRICATION AND ERECTION

10. FABRICATION AND ERECTION OF THE RAILING SHALL CONFORM WITH THE CURRENT EDITION OF AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES AND ITD STANDARD SPECIFICATIONS.
11. THE RAILING SHALL BE FABRICATED IN A PLANT EXPERIENCED IN PRODUCING RAILINGS AND ARCHITECTURAL METAL WORK AND SHALL BE ERECTED BY SKILLED WORKMEN EXPERIENCED IN THIS TYPE OF WORK.
12. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER ELECTRONICALLY IN PDF FORMAT AND SHALL INCLUDE COMPLETE DIMENSIONS AND DETAILS OF FABRICATION INCLUDING AN ERECTION DIAGRAM. MATERIALS BEING USED SHALL BE CLEARLY SPECIFIED. BEFORE PROJECT COMPLETION, THE CONTRACTOR SHALL FURNISH THE ENGINEER ELECTRONIC AS-BUILT SHOP DRAWINGS IN PDF FORMAT.
13. ALL POSTS SHALL BE PLUMB.
14. ALL ENDS OF TUBE SECTIONS AND BASE PLATES AT SPLICES SHALL BE SAWED OR MILLED. CUT ENDS SHALL BE TRUE, SMOOTH AND FREE FROM BURRS OR RAGGED EDGES.
15. VENT HOLES FOR GALVANIZING SHALL BE PROVIDED AS REQUIRED AND SHOWN ON THE SHOP DRAWINGS. VENT HOLES SHALL BE DRILLED AWAY FROM TRAFFIC FACE AND NOT ON THE TOP SURFACE OF THE HORIZONTAL TUBE.
16. RAILING SYSTEM SHALL BE CONTINUOUS. EACH JOINT IN A RAIL LENGTH SHALL BE LOCATED AT THE SAME POSITION IN THE SECTION AND SHALL BE SPLICED AS DETAILED.
17. ALTERNATE SPLICE DETAILS MAY BE SUBMITTED FOR APPROVAL ON THE SHOP DRAWINGS.

**NOT REVIEWED - THIS STANDARD
DRAWING DOES NOT APPEAR TO
BE A HANDRAIL DETAIL AND IS
NOT COVERED BY PROWAG.
GUARDS SHALL BE REVIEWED
AGAINST LOCAL BUILDING
REQUIREMENTS.**

2017 ACHD REVISION

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION
(ACHD SUPPLEMENT)

BRIDGE RAILING DETAIL

STANDARD DRAWING
NO. SD-2040M
2 of 2

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Standard Special Provisions

January 2017



ADA COUNTY HIGHWAY DISTRICT

3775 Adams Street
Garden City, Idaho 83714
208.387.6100
www.achdidaho.org

These Standard Special Provisions (SSP) cover those construction and bid items not addressed by the currently adopted version of the Idaho Standards for Public Works Construction (ISPWC). These provisions are to be used whenever any of these individual items are listed in any ACHD bid proposal document, unless otherwise approved in writing by authorized ACHD staff.

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1. SSP 02020 Gravel Repair

Description: This item shall include all costs associated with the repair of existing gravel driveway accesses abutting the project to match the grades of new back of sidewalk and existing gravel. Locations for repairs are shown on the plans or as directed in the field by the Engineer.

Materials & Workmanship: This item shall include excavation and/or borrow, construction of necessary embankment, labor, equipment, and materials necessary to complete placement of a 6-inch thickness of $\frac{3}{4}$ " aggregate base course, on a compacted subgrade. Materials shall meet the requirements of Section 802.

Measurement and Payment:

Payment for this item will be made under:

SSP 02020 Gravel Repair Per Square Yard

2. SSP 06007 Abandon Existing Domestic Well

Description: This item shall include all costs required to abandon an existing potable water well in accordance with the requirements of the Idaho Department of Water Resources.

Materials & Workmanship: All existing wells designated to be abandoned shall be permanently abandoned in accordance with IDAPA 37.03.09.025.12 Well Construction Standards Rules of Idaho Administrative Code. At a minimum all existing pumping equipment shall be removed, the well casing filled with bentonite granules as required to stop the upward or downward movement of water. The well casing shall be cut off 2 feet below subgrade or at a level that does not interfere with the new roadway improvements. The contractor shall prepare a written plan of the method he proposes to use to abandon the well and shall submit the plan to ACHD and the Idaho Department of Water Resources for approval prior to construction. The Contractor shall submit any forms and pay for any fees as required by the Idaho Department of Water Resources to abandon the well.

Measurement and Payment: Abandon Existing Well will be measured per each and shall include all labor, equipment and material necessary for the completion of the bid item. The accepted quantity of Abandon Existing Well will be paid at the contract unit price for the item listed below.

Payment for this item will be made under:

SSP 06007 Abandon Existing Domestic Well Per Each

3. SSP 06012

Fuel Escalation Clause

- A. **Description.** This item consists of adjustment to compensation due the Contractor based on certain market fuel price changes during the life of the project. Fuel Price Adjustments will be applied to partial and final payments for contract items categorized in Section B, as a payment to the Contractor or a credit to the Owner. Work performed by the Contractor at its own expense will not be eligible for fuel price adjustments.
- B. **Categories of Bid Items.** The following fuel usage rates for the applicable items will be used to determine fuel price adjustments:

Item Description Categories	Fuel Usage Rate English Gal/Unit
Excavation including topsoil	0.29 CY
Excavation – Rock (must be specifically identified as such in contract)	0.39 CY
Borrow	0.29 CY
Base	0.63 Ton
Surface treatments including sealcoats	0.02 SY; 1.47 Ton
Concrete Pavements	0.03 SY per inch of depth
Concrete (all concrete paid by the CY)	0.98 CY
Concrete – Sidewalk	0.12 SY
Concrete – Curb & Gutter	0.05 LF
Plantmix pavements	2.6 Ton
Piledriving	0.12 gal per ft
Rotomilling / Pulverizing / Mixing	0.02 SY per inch of depth
Pipe, guardrail	19.0 / \$1000
MSE Retaining Wall	19.0 / \$1000

- C. **Fuel Index.** A current fuel index (CFI) will be established by the Owner for each month. The following web page will be used to determine the index values:

<http://itd.idaho.gov/highways/Construction/construction.htm>

As found at this website, the CFI will be the price of number two (No. 2) diesel fuel, low sulfur clear, as reported in the Idaho Transportation Department (ITD) Fuel Index for Boise. The ITD Fuel Index posting dates are the first Monday of the month. The base fuel index (BFI) will be the CFI for the month the contract was awarded.

- D. **Computing the Fuel Price Adjustment.** If the ratio of CFI/BFI falls between 0.80 and 1.20 inclusive, no fuel adjustment will be made for that pay estimate. If the ratio is less than 0.80 a credit to the Owner will be computed. If the ratio is greater than 1.20, additional payment to the Contractor will be computed. Credits and payments are computed as follows:

- i. The quantity of work done for each pay estimate for the contract items identified in Section B is identified from the pay estimate.
- ii. The gallons of fuel used for that pay estimate are computed for each of the contract items identified in Section B by applying the unit fuel usage factors categorized in Section B to the quantity of work performed.
- iii. The total gallons (Q) of fuel used for that pay estimate will be summed for the applicable contract items, as determined, in Section B.
- iv. The Fuel Price Adjustment credit or payment is computed from the following formulas:
Contractor Payment: $FA = ((CFI/BFI)-1.20) \times Q \times BFI$
District Credit: $FA = ((CFI/BFI)-0.80) \times Q \times BFI$
Where: FA = Fuel Price Adjustment
CFI = Current Fuel Index
BFI = Base Fuel Index
Q = Total gallons of fuel used for the pay estimate

- E. **Basis of Payment.** A Fuel Price Adjustment payment to the Contractor will be made as a dollar amount for each pay estimate. A Fuel Price Adjustment credit to the Owner will be deducted as a dollar amount for each pay estimate from any sums due to the Contractor.
- F. **Final Fuel Price Adjustment.** Upon completion of the work under the contract, any difference between the estimated quantities and the final quantities will be determined. An average CFI, calculated from the CFI for all the pay estimates that the fuel price adjustment was applied, is used in accordance with the procedure set forth in Section D. A final fuel price adjustment will be made on the final estimate.

Payment for this item will be made under:

SSP 06012 Fuel Escalation Clause Per Lump Sum

4. **SSP 06013 Stormwater Management Plan Preparation & Approval**

Description: This item shall consist of all work associated with contractor plan preparation and approvals to meet the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) and/or the Construction Site Discharge Control (CSDC) Program as required. The contractor is considered an operator having day-to-day control as defined in the EPA CGP; therefore, the contractor is a co-permittee with ACHD in the implementation of the CGP requirements. A Stormwater Pollution Prevention Plan (SWPPP) will be accepted by ACHD in lieu of the CSDC Plan provided that the SWPPP meets the CSDC Program requirements listed in 8305 and 8306 of the ACHD Policy Manual.

Workmanship: The contractor is responsible for the completion, submittal, and implementation of the ACHD provided SWPPP drawing and narrative, filing of the Notice of Intent (NOI), and filing of the Notice of Termination (NOT). The CGP and instructions for completing the NOI and NOT forms can be found on the EPA website: <http://www.epa.gov/npdes/stormwater/cgp>. The SWPPP shall have been prepared and submitted to ACHD for acceptance prior to the filing of the NOI. Prior to filing the NOT, the conditions listed in Part 5 of the CGP shall be met.

Once a SWPPP has been prepared, the Contractor and ACHD shall both submit an electronic NOI on the website listed above. There is a fourteen calendar day wait after the acknowledgement of receipt has been posted on the EPA website for the SWPPP to be considered approved and construction allowed to commence.

Prior to starting construction, the ACHD accepted SWPPP/CSDC Plan must be implemented. No Construction Activity or Land Disturbing Activity will be allowed to commence until the Contractor has fully implemented the accepted SWPPP/CSDC Plan as required by the District and set forth in the ACHD Policy Manual.

Additionally the contractor is responsible for installing, maintaining, and removing all Best Management Practices (BMPs) and for all documentation required to keep the SWPPP current. For compliance with the District's CSDC Program, the SWPPP/CSDC Plan should address all potential pollutants outlined in the ACHD Policy Manual.

A Rainfall Erosivity Waiver is available and defined in Appendix D, Part A of the CGP. If the waiver is utilized, and the conditions on which the waiver is based change, the contractor is responsible for updating the waiver and/or development and implementation of a SWPPP.

BMPs for controlling pollutant transport from the construction site can be found in a number of publications including, but not limited to:

- a) Idaho Department of Environmental Quality, Catalog of Storm Water Best Management Practices for Idaho Cities and Counties; Phone: (208) 373-0502 or on the internet: http://www.deq.state.id.us/water/stormwater_catalog/index.asp
- b) United States Environmental Protection Agency – Region 10: (800) 424-4372 or on the internet at: www.epa.gov/r10earth/stormwater.htm
- c) Boise City Planning and Development Services: phone: (208) 395-7818
- d) Idaho Transportation Department, Erosion and Sediment Control Manual, phone: (208) 334-8476

Measurement and Payment: Payment for work items to implement the SWPPP or CSDC shall be per other specific bid items noted in this contract.

Payment for this plan preparation and approval item will be made under:

SSP 06013 Stormwater Management Plan Preparation & Approval Per Lump Sum

5. SSP 06017 Conflict Manhole

Description: This item shall consist of constructing either a pre-cast or cast-in-place conflict manhole at the location and grades detailed in the plans and detail sheets.

Materials: Materials for the Conflict Manhole shall conform to the requirements of the Idaho Standards for Public Works Construction (ISPWC) and all approved ACHD Supplemental Specifications

Workmanship: Conflict Manhole construction shall conform to the requirements of the Idaho Standards for Public Works Construction (ISPWC) and all approved ACHD Supplemental Specifications, Division 602 - Storm Drain Inlets, Catch Basins, Manholes and Gravity Irrigation Structures. The contractor shall adjust, raise or lower, the manhole frame, rings, and covers as necessary to match the finished surface. Work shall include making necessary pipe connections, and support the existing irrigation pipe during construction.

Measurement and Payment: Conflict Manhole shall be measured per each manhole, complete in place, which includes all labor and materials necessary for a complete installation, including furnishing the manhole frame, cover and adjustment rings.

Excavation, Structure Excavation, existing pipe support, bedding and backfill materials, and compacting backfill will not be measured or paid for separately, and is included in the unit bid price for the Conflict Manhole.

Payment for this item will be made under:

SSP 06017 Conflict Manhole..... Per Each

6. SSP 06018 Install New Domestic Water Well

Description: This item shall include all work and costs associated with installation of a new domestic water well as shown on the plans.

Materials & Workmanship: The new domestic water well shall be completed within the first 45 days of the construction schedule, unless otherwise approved by the Engineer. This work shall be coordinated so that Bid Item 504.4.1.D.1 Sewer Service Connection to Main - Size 4 Inch is completed at the same time.

Contractor will be required to reconnect the residence to the new well reusing the existing well pump and appurtenances.

Contractor is required to contact property owner 14 days in advance to coordinate the timing for the installation of the new domestic water well.

Contractor is to obtain any permits necessary for the installation of a New Domestic Water Well.

Also included in this item is the removal of all drilling waste and restoration of the existing area.

Measurement and Payment: Install New Domestic Water Well will be measured per each and shall include all labor, equipment and material necessary for the completion of the bid item. The accepted quantity of Install New Domestic Water Well will be paid at the contract unit price for the item listed below.

Payment for this item will be made under:

SSP 06018 Install New Domestic Water Well..... Per Each

7. **SSP 06020 Underground Stormwater Chamber**

Description: This item shall consist of constructing an underground stormwater chamber at the location and grades detailed in the plans and detail sheets.

Materials: Underground stormwater chambers shall be Storm Tech SC-740 or approved equal.

Workmanship: Drainage beds shall be constructed per ISPWC Standard Drawing ACHD-646 and per Manufacturer's recommendations. Construction of drainage beds must include specification approved materials for bedding, geotextile fabrics and backfill.

Measurement and Payment: Per linear foot as measured per individual row of chambers, including all costs associated with providing and installing Underground Stormwater Chamber as shown on the project plans including, but limited to excavation, drain rock and geotextile fabric.

Payment for this item will be made under:

SP 06020 Underground Stormwater Chamber.....Per Linear Foot

8. **SSP 06050 Sand Window**

Description: This item shall consist of constructing a sand window at the location and grades detailed in the plans and detail sheets

Materials & Workmanship: Sand shall consist of ISPWC 801 or ASTM C33 filter sand as shown on the plan sheets. The sand window shall be over excavated to free draining material not to exceed 10-feet and backfilled with pitrun.

Measurement and Payment:

Payment for this item will be made under:

SSP 06050 Sand Window.....Per Lineal Foot

9. SSP 07005 Extruded Cement Concrete Curb

Description: This item shall consist of constructing an extruded cement concrete curb at the location detailed in the plans and detail sheets.

Materials & Workmanship: The curb shall conform to the details shown on the plans and in conformance with Division 700 of the ISPWC. Concrete shall be Class 3000.

Extruded cement concrete curb shall be placed, shaped, and compacted true to line and grade. The pavement shall be dry and cleaned of loose and deleterious material prior to curb placement. Joints in the curb shall be cut vertically and spaced at 5-foot intervals.

Measurement and Payment:

Payment for this item will be made under:

SSP 07005 Extruded Cement Concrete Curb..... Per Linear Foot

10. SSP 07009 Extruded Median Curb

Description: This item shall include all costs associated with constructing a new concrete median curb, as shown on the plans or as directed by the engineer.

Materials & Workmanship: Raised channelization shall be constructed per Division 700 - Concrete of the ISPWC Specifications and in accordance with ITD Standard Drawing H-1. Concrete shall be Class 3000.

Measurement and Payment:

Payment for this item will be made under:

SSP 07009 Extruded Median Curb Per Linear Foot

11. SSP-07010 Jersey Barrier

Description: This item shall include all costs associated with installing concrete jersey rail in the location shown on the plans or as directed by the Engineer.

Measurement and Payment:

Payment for this item will be made under:

SSP 07010 Jersey Barrier Per Linear Foot

12. SSP 07013 Patterned Concrete

Description: This item shall consist of constructing patterned concrete at the location and grades detailed in the plans and detail sheets.

Materials: Concrete shall be Class 3000 and shall meet all applicable requirements of Division 700 of the ISPWC. The Contractor shall submit pattern samples for approval prior to construction.

Workmanship: The pattern shall be Brick Basket Weave or approved equal or approved equal. When the concrete is still in the plastic stage of set, imprinting tools shall be applied to make the approved patterned surface. The pattern shall be formed with 3/8-inch maximum depth grooves and be placed simultaneously with the adjacent concrete sidewalk. No cold joints are allowed for the placement of the patterned concrete between the patterned concrete and the smooth section of sidewalk.

Measurement and Payment: All costs associated with construction of the patterned sidewalk, including concrete, imprinting tools, curing, and sealing, shall be included in the unit price bid for this item.

Payment for this item will be made under:

SSP 07013 Patterned Concrete Per Square Yard

13. SSP 07014 Detectable Warning Devices

Description: This item consists of furnishing and installing composite wet set tactile warning surface (TWS) units, in an in-line truncated dome pattern, embedded in all curb ramps at the locations shown in the Plans and according to ISPWC Standard Drawing SD-712.

Materials: TWS units shall be manufactured using a matte finish exterior grade homogenous glass and carbon reinforced polyester based SMC composite material. Color shall contrast visually with adjacent walking surfaces, either light-on-dark, or dark-on-light. Methods for construction and coloration must be approved by ACHD prior to construction.

Color shall contrast visually with adjacent walking surfaces, either light-on-dark, or dark-on-light. Methods for construction and coloration must be approved by ACHD prior to construction.

Workmanship: TWS product shall be installed per manufacturer's instruction. To the maximum extent possible, the TWS units shall be oriented such that the rows of in-line truncated domes are parallel with the direction of the ramp. The TWS unit shall be located so that the edge nearest the curb line is 6" minimum and 8" maximum from the curb line. The TWS units shall be tamped or vibrated into the fresh concrete to ensure that there are no voids or air pockets, and the field level of the TWS unit is flush to the adjacent concrete surface. Upon curing (allow 24 to 48 hours) remove protective plastic covering. Protect TWS unit against damage during the construction period.

Measurement and Payment: Detectable Warning Devices shall be measured per each and shall include all labor, materials and equipment necessary for installation. Payment for furnishing and

placement of crushed aggregate and concrete shall be paid for separately as indicated on the plan drawings and in these special provisions.

Payment for this item will be made under:

SSP 07014 Detectable Warning Devices – New Ramps..... Per Each

14. SSP 07016 Sidewalk Trip Hazard Removal Via Cutting

Description: This item shall include all costs associated with the cutting existing concrete sidewalk to remove trip hazards.

Materials & Workmanship: This item shall include labor, material, and equipment necessary to complete cutting to meet ADA compliance meeting the following criteria:

- a) All trip hazards will be saw cut in accordance with the requirements of the Americans with Disabilities Act. Each offset between ¼" and ½" will be tapered at a ~~1:1~~^{1:2} slope or flatter and each offset greater than ½" will be tapered at a 1:12 slope or flatter and shall have smooth uniform appearance and texture. The method of trip hazard mitigation shall entail precise saw **cutting/trimming** of the concrete only. Grinding, grooving or pulverization of the concrete is NOT acceptable or allowed.
- b) All saw work shall be done with equipment capable of cutting at any angle and able to remove the concrete completely to all edges of the trip hazard and around obstacles that may be encountered.
- c) All saw cutting shall be taken to an absolute zero point of the adjacent opposing panel, and to both edges of the sidewalk panel to mitigate the trip hazard in its entirety over the full width of the sidewalk panel as needed. Some panels may not require the full width of the sidewalk panel to be mitigated.
- d) The adjacent sidewalk panel, along with any wall and/or obstacles butting up to the sidewalk panel, shall not be cut into or marked in any way. Cutting into any landscaping (i.e. grass, rocks, walls, etc) is not permitted.
- e) Final mitigated surface shall be smooth and free of any grooves greater than that of a fine broom finish.
- f) Dust shall be collected using a high powered vacuum dust control system, eliminating the dust from entering into the atmosphere. The suction device shall be attached to the cutting equipment or positioned to assure a maximum amount of dust will be collected before it can be released into the atmosphere.
- g) All debris and concrete dust that remain on the sidewalk shall be completely cleaned from the surface as well as the surrounding area (i.e. landscaping, walls, etc.) and be hauled off and

dumped at an approved site. All costs incurred for disposal of waste material shall be included in unit cost and will not be paid for separately.

h) The maximum height of a trip hazard allowed for repair is 2". This will be cut at a slope of 1:12 or flatter.

Measurement and Payment: Per Inch-Feet. Inch-feet shall be calculated by multiplying the average depth of the cut by the length of the cut measured perpendicular to the trip hazard. Example: If a joint is cut 1" on one side and tapered to 0" on the other a full 4-foot width of the sidewalk, it shall be calculated as follows:

$$\frac{1" + 0"}{2} \times 4' = 2 \text{ inch} - \text{feet}$$

Payment for this item will be under:

SSP 07016 Sidewalk Cutting Per Inch Foot Cut

15. **SSP 08105 Temporary Paving**

Description: This item shall consists of furnishing all labor, equipment and material necessary to construct temporary asphalt plant mix pavement at locations required to accommodate construction traffic control or as directed by ACHD. This item includes the removal and disposal of the temporary pavement when it is no longer needed.

Materials: Plant mix pavement for temporary pavement shall be Class III, ½" aggregate mix, with PG 58-28 asphalt and additive.

Workmanship: Saw cut existing pavement adjacent to temporary pavement areas. Place and compact a minimum of 2-inch thickness of plant mix pavement on a minimum of 6-inch thickness of compacted Crushed Aggregate for Base Type 1 on compacted subgrade. Compact the area to Class A compaction requirements. After temporary paving is complete, remove and dispose of the temporary pavement and base.

An asphalt tack coat shall be applied on the edges of existing plant mix pavement

Measurement and Payment: Temporary Paving will be measured by the square yard and shall include all labor, equipment and material necessary for the completion of the bid item.

Payment for this item will be made under:

SSP 08105 Temporary Paving Per Square Yard

NOT REVIEWED

16. SSP 08115

Rotomill

Description: This item consists of furnishing all labor, materials and equipment necessary to mill and remove the existing asphalt pavement as shown on the plans or as directed by ACHD.

Materials: The equipment for rotomilling the pavement surface shall be a power operated self-propelled planing machine or grinder capable of removing, in one pass, a thickness of asphalt pavement necessary to provide the desired profile and cross slope. The planed surface shall provide a smooth surface, free from gouges greater than 3/8-inch in depth. The equipment shall be self-propelled with sufficient power, traction and stability (rigid suspension, non-pneumatic tired) to maintain accurate depth of cut and slope. The equipment shall be capable of accurately and automatically establishing profile grades along each edge of the machine (within +/- 1/8-inch) by referencing from existing pavement by means of a ski or matching shoe unless otherwise directed by the Engineer. The rotomill shall be equipped with a floating mold board cutting device behind the cutting mandrel. The mold board shall have an infinitely variable down pressure from 0-2000 psi and shall be equipped with means to control dust and other particulate matter created by the cutting action.

Workmanship: The Engineer may direct the Contractor to modify the rotomilling operation or equipment to protect the existing roadway from damage caused by rotomilling activity. The modifications shall include, but shall not be limited to, equipment track velocity, cutting drum revolutions per minute and total depth of cut by the rotomilling equipment. The modifications directed by the Engineer shall be considered incidental to the bid, and no additional payment shall be made therefore.

If the Contractor is unable to remove all of the existing pavement adjacent to curbs, water valves, gas valves, traffic control boxes, manholes, intersections or any other item not specifically identified herein, with the rotomilling equipment, he shall remove the remaining pavement by another mechanical process approved by the Engineer.

After completion of the rotomilling operation, and prior to allowing traffic to pass though the project site, the surface shall be broomed and any excess material removed from the project site.

Measurement and Payment: Rotomill areas will be measured per square yard of surface area rotomilled and shall include all labor, equipment and material necessary for the completion of the bid item. Brooming, loading, hauling, and disposal shall be considered as incidental and no separate payment will be made. Areas to be removed under another process (Along valves, manholes, etc.) shall be paid at the unit price for Rotomill.

Payment for this item will be made under:

SSP 08115 Rotomill..... Per Square Yard

17. SSP 08120

Asphalt Repair – Arterial & Collector

Description: This item shall include all work and costs associated with the repair of the existing asphalt roadway to match the grade of curbs, sidewalks, driveway approaches and existing asphalt.

Materials: This item shall include placement of a 6" (inch) thickness of 3/4" (inch) aggregate base course in accordance with Section 802 – Crushed Aggregates of the ISPWC, on a compacted sub-grade, and a 5" (inch) thickness of 1/2" Plant Mix Asphalt in accordance with Section 814 of the ISPWC. The asphalt cement performance grade shall be SP 3 PG 64-28 (Collector Roadways) or SP-5 PG 64-28 (Arterial Roadways) and shall contain 1/2% of heat-stable anti-stripping agent per ton of asphalt cement added immediately prior to use at the location of the asphalt batch plant. Asphalt tack material shall be a SS-1 emulsified asphalt diluted as specified in accordance with ISPWC Division 800 – Aggregate and Asphalt.

Workmanship: This item shall also include excavation, labor, equipment necessary to complete the repair of the existing asphalt roadway to match the grade of curbs, sidewalks, driveway approaches and existing asphalt.

Measurement and Payment:

Material costs associated with the furnishing and placement of an asphalt tack coat on the lip of the gutter and on the edges of previously placed asphalt are considered incidental to this item.

Payment for this item will be made under:

SSP 08120 Asphalt Repair-Arterial & Collector..... Per Square Yard

18. SSP 08125

Asphalt Repair - Other

Description: This item shall include all work and costs associated with the repair of existing local roads, asphalt driveways, parking lots, and sidewalks abutting the project to match the grade of curbs, sidewalks, driveway approaches, and existing asphalt.

Materials: This item shall include excavation, labor, equipment, and materials necessary to complete placement of a 4" (inch) thickness of 3/4" (inch) aggregate base course, on a compacted sub-grade, and a 3" (inch) thickness of 1/2" SP-3 Plant Mix Asphalt in accordance with Section 814 of the ISPWC. The asphalt cement performance grade shall be PG 58-28 and shall contain 1/2% of heat-stable anti-stripping agent per ton of asphalt cement added immediately prior to use at the location of the asphalt batch plant. Asphalt tack material shall be a SS-1 emulsified asphalt diluted as specified in accordance with ISPWC Division 800 – "Aggregate and Asphalt."

Workmanship: This item shall also include all costs associated with the furnishing and placement of an asphalt tack coat on the lip of the gutter and on the edges of previously placed asphalt.

Measurement and Payment:

Payment for this item will be made under:

SSP 08125 Asphalt Repair - Other..... Per Square Yard

19. **SSP 08133 Scrub Coat**

Description: This item shall include all costs associated with repair of any areas where the pavement has been totally removed as a result of the rotomilling operation.

Materials: All gravel shall conform to Section 802 – Aggregates and all asphalt shall conform to Section 805 – Asphalt of the ISPWC.

Workmanship: Required work shall include, but not necessarily be limited to, excavation of the exposed rotomilled area to a depth of 2-inches below the rotomilled surface; providing any necessary 3/4-inch minus gravel; compaction of the gravel; tack coat; 2-inch thick asphalt repair; cleaning of the work area; labor, tools and any other incidentals, including traffic control, necessary to complete the work.

As part of this effort the contractor is required to have all scrub coating completed within 24 hours after rotomilling operations have exposed the area of repair.

This item shall only be used as directed by the Engineer.

Item 29 "Variations in Quantities," page GC-16 of the General Conditions, second paragraph, shall not apply to this item.

Measurement and Payment:

Payment for this item shall be made under:

SSP 08133 Scrub Coat.....Per Square Yard

20. **SSP 09011 Orchard Valve**

Description: This item shall include all work and costs associated with furnishing and installing new orchard (lawn) valves at locations shown on the plans.

Materials: The tee shall be an ASTM D3034 PVC tee matching the main line size with a branch line size. The riser pipe between the tee and orchard valve shall be ASTM D3034, SDR 35 PVC pipe. The orchard valve shall be a Fresno Series 2000 Clover valve designed for use with SDR 35 PVC pipe, or an approved equal.

Workmanship: The orchard valve shall be installed so that the valve opening is flush with the adjoining natural ground surface following completion of construction and regrading of the area.

Measurement and Payment: Orchard Valve will be measured per each and shall include all labor, equipment and material necessary for the installation as shown on the project plans including all excavation, backfill, the tee for connection to the irrigation supply line, the riser pipe and the lawn valve.

NOT REVIEWED

Payment for this item will be made under:

SSP 09011A 6" Diameter Orchard Valve.....Per Each

SSP 09011B 8" Diameter Orchard Valve.....

DOES THIS INCLUDE TEMP
PEDESTRIAN SIGNAL AS
NOTED IN ACHD'S GENERAL
SPECIAL PROVISIONS FOR TTC
PLANS?

21. SSP 11001 Temporary Traffic Signal

Description: This item consists of furnishing all labor, materials and equipment necessary to install a temporary traffic signal or make modifications to the existing traffic signal at the designated intersection(s) shown on the plans to accommodate the approved construction traffic control phasing for the project duration. This item includes the removal and disposal or salvage to ACHD as required of the temporary traffic signal equipment when it is no longer needed.

Materials: Materials and workmanship shall meet the requirements of the ACHD Supplemental Provisions to ISPWC Division 1100.

Workmanship: The Contractor shall modify the existing traffic signal systems or the proposed traffic signal systems shown on the plans to accommodate traffic operations required for the construction phasing. The contractor shall install the video detection cabling. The Contractor shall coordinate with ACHD for the proposed camera locations, and shall coil 10 feet of cabling at the proposed camera locations and in the signal cabinet. ACHD will furnish the signal equipment for a permanent traffic signal installation, including the video detection processing unit, cameras, mounting brackets, cabling and other equipment required for operation. ACHD will install the cameras, terminate cabling, orient the camera, establish detection zones and calibrate the system for operation. The contractor is required to provide ACHD a minimum of 48 hours advanced notice prior to temporary traffic signal installation.

Measurement and Payment: Temporary Traffic Signal will be measured by the lump sum and shall include all labor, equipment and material necessary for the completion of the bid item regardless of the number of times the signal items have to be adjusted during construction.

Payment for this item will be made under:

SSP 11001 Temporary Traffic Signal.....Per Lump Sum

22. SSP 11002

Portable Changeable Message Sign

Description: This item consists of furnishing all labor, materials and equipment necessary to provide and operate a Portable Changeable Message Sign (PCMS) at the location shown on the plans or as directed by the Engineer.

Materials: PCMS shall be of modular design for ease of maintenance and cost effective repairs. The sign cabinet shall be constructed of seamless aluminum extrusion with continuous welded corners and shall be an all-weather cabinet appropriately sealed to withstand all types of weather conditions. The sign and all of its elements and systems shall be manufactured to operate in an ambient air temperature range of -20°F to +160°F. The PCMS shall consist of message sign panel, control system, power source, and mounting and transportation trailer as follows:

Message Sign Panel - Message sign panel shall be capable of displaying a minimum of three message lines each consisting of a minimum of eight characters per line. Each character module shall have an 18 inch minimum height and shall use, as a minimum, a five wide-pixel by seven high-pixel matrix with a minimum of 3 inches between characters. Each character module shall be completely interchangeable with all other character modules. The message sign panel background shall be black. The front face of the message sign panel shall be covered with a UV stable, impact resistant, non-glare protective material. Each sign message shall be legible from a distance of zero to 900 feet. The viewing angle left and right of center shall be a minimum of 17 degrees. Light emitting diodes (LEDs) used for the character module pixel matrix, shall operate at a dominant wavelength between 590 nm and 650 nm as defined in the 1931 CIE Chromaticity Diagram. Under low light level conditions, the sign shall automatically adjust its light source so as to meet the legibility requirements and not impair the drivers' vision. If a Flip Disc system is used, either as a supplement to (LEDs) in a Hybrid PCMS or as the sole display element of the PCMS, colors shall be retroreflective fluorescent yellow. All other minimum requirements for character and message display stated above shall be met. The sign panel shall have the capability to rotate about its vertical axis 360 degrees plus or minus one degree.

Power Source - The PCMS shall be equipped with a primary power source (Battery or Internal Combustion) and a Solar or battery backup to provide continuing operation when failure of the primary power source occurs. All batteries shall be Marine/RV deep cycle. The unit shall be equipped with a weatherproof 120 VAC standard receptacle to allow for connection to an external power source and must have a built-in temperature stable battery charger to allow for the maintenance of a full charge in the Marine/RV battery source.

Control System - The control system shall include keyboard, display screen, software, backup battery and any other hardware necessary for complete programming and operation of the sign. The software shall have in memory a minimum of fifty (50) standard MUTCD messages and symbols and must provide for at least fifty (50) custom messages and symbols created by the user. The software system must also allow for download by the user of system software and the MUTCD message and symbol library upgrades. The software must be a multiple site license to

allow for installation of sign panel programming by more than one laptop computer or by an off-site computer via modem. The control system shall incorporate a modem that is compatible with the Department's existing equipment to allow for remote operation by computer and cellular phone and emergency notification via computer, cellular phone and pager. Software shall also allow for checking battery charge level. The software system shall be capable of showing the message on the display screen before displaying the message on the sign panel. The software system shall be capable of providing an automatic programmed default message for low battery conditions and emergency notification if an operational failure occurs. Emergency notification shall be available by both cellular phone and pager. The system shall be capable of maintaining continuous memory via a backup battery when power is unavailable.

Mounting and Transportation Trailer - The entire PCMS system shall be mounted on a transportation trailer with standard ball type hitch, safety chains and an easily removable or collapsible tongue. The solar panel should be angled to prevent the accumulation of rain or snow. An internal combustion engine, if part of the system, shall be securely mounted to prevent vibration of the rest of the assembly and a fuel gauge shall be included. The trailer shall be equipped with a battery charge level indicator, as a minimum and additional ammeter gauges if powered by an internal combustion power source. The message sign panel mounting apparatus shall be extendible so that the panel can operate at a minimum height of 7 feet from the roadway surface to bottom of the panel. The PCMS and the solar panel shall be capable of withstanding wind gusts up to 80 mph when in operating position with outriggers in place. The trailer wire harness shall extend a minimum of 24 inches beyond the hitch ball and shall be equipped with an automotive style trailer plug to match the Department's specifications.

Workmanship: The Contractor shall be responsible for furnishing, erecting, programming, and maintaining the PCMS. The Contractor shall also be responsible for changing display messages and relocating the PCMS as shown on the approved traffic control plans or as otherwise directed by ACHD, for the duration of the project. The PCMS shall be capable of being operated 24 hours per day during construction operations in accordance with American Traffic Safety Service Association (ATSSA) Guidelines for the Use of Portable Changeable Message Signs and in accordance with Part VI of the Manual on Uniform Traffic Control Devices (MUTCD) as adopted by the State of Idaho.

Measurement and Payment: Portable Changeable Message Sign will be measured by the hour of sign operation for each sign and shall include all labor, equipment and material as necessary for completion of the bid item. Contractor shall weekly submit a detailed usage report including location, date and hours used.

ITEM 29, "VARIATIONS IN QUANTITIES", ON PAGE GC16 OF THE ACHD GENERAL CONDITIONS, SECOND PARAGRAPH, shall not apply to this bid item.

The accepted quantity for Portable Changeable Message Sign will be paid at the contract unit price for the item listed below.

Payment for this item will be made under:

SSP 11002 Portable Changeable Message Sign.....Per Hour

23. SSP 11008 Portable Flood Lights

Description: This item shall include all costs associated with the installation, operation, movement and maintenance of portable flood lights at the locations shown on the plans or as directed by the Engineer. Contractor shall weekly submit a detailed usage report including location, date and hours used.

Measurement and Payment:

Payment for this item will be made under:

SSP 11008 Portable Flood Lights Per Hour

24. SSP 11101 2" Diameter Schedule 40 PVC Signal Conduit

Description: This item shall consist of all work and costs associated with installing 2" Diameter Schedule 40 PVC conduit material including excavation, backfill, adhesive and any other material and equipment needed to install conduit as shown on the plans. The PVC conduit shall be installed and tested so all connections are watertight.

Materials: All conduits shall conform to ASTM D 1784, NEMA TC-2 (EPC-40) and U.L. Std. 651.

Workmanship: All work shall be done in accordance with the ISPWC and adopted supplements, including the Ada County Highway District Division 1100 supplement to the ISPWC.

Measurement and Payment:

Payment for this item will be made under:

SSP 11101 2" Dia. Schedule 40 PVC Signal Conduit.....Per Linear Foot

25. SSP 11230 Information Sign

Description: This item shall include all work and costs associated with the installation of the information signs at the locations shown on the plans or as directed by the Engineer.

Materials & Workmanship: The information signs shall be installed at locations as shown on the plans. Information Signs shall be constructed per Division 2000 – Miscellaneous of the ISPWC Specifications and in accordance with Standard Drawing SD-2010A and SD-2010B.

Measurement and Payment:

Payment for this item will be made under:

SSP 11230 Information Sign Per Each

26. SSP 11235 Video Detection Camera

Description: This item shall include all costs associated with the installation of video detection cameras and associated wiring onto existing signal systems as shown on the plans or as directed by the engineer.

Materials: ACHD shall provide the cameras, associated hardware and special cable

Workmanship: All work shall be in accordance with Section 1131.03 of the ACHD Supplemental Traffic Provisions. The contractor shall install the cameras and pull the cables from the cameras into the controller cabinet.

ACHD Traffic personnel will be responsible to make all required connections at the controller cabinet and at the camera once the cables have been installed. ACHD Traffic personnel will require a minimum of 24-hours advance notice so that they can be onsite to monitor layout and provide inspections when the cameras and cables are installed.

One camera will be installed for each direction as shown on the project drawings.

Contact Mr. Tony Kinch at 387-6190 to coordinate with the ACHD Traffic Operations.

For tax purposes use the use tax table that can be obtained from the Traffic Engineering Department” On June 16, 2010, Ada County Highway District (ACHD) received guidance from the Idaho Division of Building Safety concerning the installation of Video Detection Cameras. The guidance requires camera installations to be completed by a journeyman electrician licensed in the State of Idaho. The guidance also requires that subcontractor to be in possession of a 26700 Communications Specialty Public Works license. ACHD requires all Bidders to list the information required to comply with Idaho Code 67-2310 in the matrix provided under Paragraph 13 of the Proposal Form contained within the Contract Documents. Failure to name subcontractors as required by this section and Idaho Code shall render any bid submitted by the Bidder as unresponsive and void.

Measurement and Payment:

Payment shall be on a per each camera installed basis.

SSP 11230 Video Detection Camera Per Each

27. SSP 11450 Temporary Pavement Markings

Description: This item consists of furnishing all labor, materials and equipment necessary to survey and to establish temporary pavement markings.

Materials: The Contractor shall record the location of existing pavement markings on plans or sketches and produce a report explaining the recording procedure for submittal to ACHD. The Contractor shall also place field reference stakes that show offsets to those existing pavement markings to facilitate their replacement. Temporary pavement markings shall consist of reflective adhesive traffic tape accepted by the Engineer.

Workmanship: All plans or sketches, and report shall be the responsibility of the Contractor. These plans or sketches shall be produced to scale. All reports shall be comprehensible and complete with details sufficient to replace all existing pavement markings that are within the project limits. Two copies of the plans, sketches and report shall be delivered to ACHD prior to the start of any construction activity that would affect the existing pavement markings. The re-establishment of pavement markings shall be the placement of reference spots using paint and temporary tape. The paint or tape used to reestablish pavement markings should match the color of the corresponding pavement markings.

It shall be the contractor's responsibility for accomplishing the re-establishment of the temporary pavement markings on each course of each day prior to allowing the traffic to travel on the roadway.

On each lane line, a reference spot shall be placed a distance no greater than 50 foot intervals. On tapers, the interval shall be 25 feet. The beginning and end of no passing zones shall be marked by placing 2 spots to the right of the lane line spot to signify the beginning of a no passing zone, and placing 1 spot to the right of the lane line spot at the end of the no passing zone. All arrows and miscellaneous message markings shall be marked to indicate the center line location of each item.

Measurement and Payment: Temporary Pavement Markings will be paid for by the lump sum and shall include all labor, equipment and material necessary for the completion of the bid item.

Payment for this item will be made under:

SSP 11450 Temporary Pavement Markings Per Lump Sum

28. SSP 20003 Temporary Construction Fencing

Description: This item consists of furnishing all labor, equipment and material necessary to construct and maintain temporary construction fencing at the locations shown on the plans or as directed by ACHD. This item also includes removing and disposing of the fencing after completion of construction or when directed by ACHD.

Materials: Temporary construction fencing shall be safety orange plastic construction fencing four (4) feet in height, such as DG Industries PSF Series Plastic Fence or approved equal.

NOT REVIEWED

Workmanship: Temporary construction fencing shall be attached to steel posts at a maximum spacing of eight (8) feet on center and plumb. The fencing shall be installed in a manner to contain children and pets on the properties adjacent to the construction area.

Measurement and Payment: Temporary Construction Fencing will be measured per linear foot of fence constructed and shall include all labor, equipment and material necessary for the completion of the bid item. Routine maintenance of the temporary construction fencing shall be necessary and is considered incidental to this item. The costs for fence maintenance and removal and disposal of the fence are incidental to this bid item.

Payment for this item will be made under:

SSP 20003 Temporary Construction Fencing.....Per Linear Foot

29. SSP 20006 Raised Channelization

Description: This item shall include all work and costs associated with the construction of the raised channelization as shown on the plans.

Materials & Workmanship: Raised channelization shall be constructed per Division 700 - Concrete of the ISPWC Specifications and in accordance with JTD Standard Drawing H-1.

Measurement and Payment:

Payment for this item will be made under:

SSP 20006 Raised Channelization.....Per Linear Foot

30. SSP 20020 Install Removable Bollards

Description: This item consists of furnishing all labor, equipment and material necessary for providing and installing removable bollards where indicated on the plans or as directed by the Engineer.

Materials: Bollards are to be constructed of (material to be determined).

Workmanship: Bollards shall be placed at the locations shown on the plans. Bollards at entrances to driveways or roadways shall be spaced 6 feet center to center. Refer to the plan details for additional information.

Measurement and Payment:

Payment for this item will be made under:

SSP 20020 Install Removable Bollards.....Per Each

31. SSP 20105.01A Metal Guardrail Terminal Type 1A

Description: This item shall include all costs associated with furnishing and installing a Type 1A terminus in reasonably close conformity to where shown on the plans or as directed by the Engineer.

Materials & Workmanship: Terminal section shall be installed per *ITD Specifications and Standard Drawing G-1-E and G-1-B*.

Measurement and Payment: This item shall include guardrail, guardrail posts, guardrail transition sections, and related hardware required for the installation as shown on the plans.

Payment for this item will be made under:

SSP 20105.01A Metal Guardrail Terminal Type 1A..... Per Each

32. SSP 20105.03 Metal Guardrail Terminal Type 3

Description: This item shall include all costs associated with furnishing and installing a Type 3 terminus in reasonably close conformity to where shown on the plans or as directed by the Engineer.

Materials & Workmanship: Terminal section shall be installed per *ITD Specifications and Standard Drawing G-1-E and G-1-B*.

Measurement and Payment: This item shall include guardrail, guardrail posts, guardrail transition sections, and related hardware required for the installation as shown on the plans.

Payment for this item will be made under:

SSP 20105.03 Metal Guardrail Terminal Type 3 Per Each

33. SSP 20105.07 Metal Guardrail Terminal Type 7

Description: This item shall include all costs associated with furnishing and installing a Type 7 terminus in reasonably close conformity to where shown on the plans or as directed by the Engineer.

Materials & Workmanship: Terminal section shall be installed per *ITD Specifications and Standard Drawing G-1-E and G-1-B*.

Measurement and Payment: This item shall include guardrail, guardrail posts, guardrail transition sections, and related hardware required for the installation as shown on the plans.

Payment for this item will be made under:

SSP 20105.07 Metal Guardrail Terminal Type 7 Per Each

34. SSP 20105.08 Metal Guardrail Terminal Type 8

Description: This item shall include all costs associated with furnishing and installing a Type 8 terminus in reasonably close conformity to where shown on the plans or as directed by the Engineer.

Materials & Workmanship: Terminal section shall be installed per *ITD Specifications and Standard Drawing G-1-E and G-1-B*.

Measurement and Payment: This item shall include guardrail, guardrail posts, guardrail transition sections, and related hardware required for the installation as shown on the plans.

Payment for this item will be made under:

SSP 20105.08 Metal Guardrail Terminal Type 8 Per Each

35. SSP 20105.010 Metal Guardrail Terminal Type 10

Description: This item shall include all costs associated with furnishing and installing a Type 10 terminus in reasonably close conformity to where shown on the plans or as directed by the Engineer.

Materials & Workmanship: Terminal section shall be installed per *ITD Specifications and Standard Drawing G-1-E and G-1-B*.

Measurement and Payment: This item shall include guardrail, guardrail posts, guardrail transition sections, and related hardware required for the installation as shown on the plans.

Payment for this item will be made under:

SSP 20105.010 Metal Guardrail Terminal Type 10 Per Each

36. SSP 20105.011 Metal Guardrail Terminal Type 11

Description: This item shall include all costs associated with furnishing and installing a Type 11 terminus in reasonably close conformity to where shown on the plans or as directed by the Engineer.

Materials & Workmanship: Terminal section shall be installed per *ITD Specifications and Standard Drawing G-1-E and G-1-B*.

Measurement and Payment: This item shall include guardrail, guardrail posts, guardrail transition sections, and related hardware required for the installation as shown on the plans.

Payment for this item will be made under:

SSP 20105.011 Metal Guardrail Terminal Type 11 Per Each

37. SSP 20105.A W Beam Guardrail for Minor Structures (One Post Missing Option)

Description: This item shall include all costs associated with furnishing and installing one W Beam Guardrail Installation for Minor Structures (One Post Missing Option) in reasonably close conformity to where shown on the plans or as directed by the engineer.

Materials & Workmanship: W Beam Guardrail for Minor Structures (One Post Missing Option) shall be installed per the plans, ITD specifications Section 612, and ITD Standard Drawing G-1-L. Guardrail slope treatment Type B shall apply for post installation.

Measurement and Payment: W Beam Guardrail for Minor Structures (One Post Missing Option) will be measured per each and shall include all labor, equipment and material necessary for the completion of the bid item.

Payment for this item will be made under:

SSP 20105.A W Beam Guardrail for Minor Structures (One Post Missing Option).....Per Each

38. SSP 20105.B W Beam Guardrail for Minor Structures (Two Posts Missing Option)

Description: This item shall include all costs associated with furnishing and installing one W Beam Guardrail Installation for Minor Structures (Two Post Missing Option) in reasonably close conformity to where shown on the plans or as directed by the engineer.

Materials & Workmanship: W Beam Guardrail for Minor Structures (Two Posts Missing Option) shall be installed per the plans, ITD specifications Section 612, and ITD Standard Drawing G-1-L. Guardrail slope treatment Type B shall apply for post installation.

Measurement and Payment: W Beam Guardrail for Minor Structures (Two Posts Missing Option) will be measured per each and shall include all labor, equipment and material necessary for the completion of the bid item.

Payment for this item will be made under:

SSP20105.B W Beam Guardrail for Minor Structures (Two Posts Missing Option).....Per Each

39. SSP 20105.C W Beam Guardrail for Minor Structures (Three Posts Missing Option)

Description: This item shall include all costs associated with furnishing and installing one W Beam Guardrail Installation for Minor Structures (Three Post Missing Option) in reasonably close conformity to where shown on the plans or as directed by the engineer.

Materials & Workmanship: W Beam Guardrail for Minor Structures (Three Posts Missing Option) shall be installed per the plans, ITD specifications Section 612, and ITD Standard Drawing G-1-L. Guardrail slope treatment Type B shall apply for post installation.

Measurement and Payment: W Beam Guardrail for Minor Structures (Three Posts Missing Option) will be measured per each and shall include all labor, equipment and materials to completion of the bid item.

Payment for this item will be made under:

SSP20105.C W Beam Guardrail for Minor Structures (Three Posts Missing Option).....Per Each

40. SSP 20109

Pedestrian Bridge Railing

REVISE TO MATCH NAME
OF STANDARD DRAWING
SD-2040M (ACHD)

Description: This item consists of furnishing and installing the pedestrian rail on the bridge at locations shown on the drawings.

Materials & Workmanship: All joints shall be welded unless the Engineer specifically approves other fastening methods. Finish exposed welds flush and smooth. Accurately set and securely attach work plumb and level.

This item shall include furnishing and applying paint in accordance with the manufacturer's recommendations and ITD Standard Specification, Section 627.03, Part C. The railing shall be painted with No. D Paint System, Powder Coating for New Steel Bridge Rails.

Primer – Generic Type, Zinc-rich epoxy powder coating

Topcoat – Generic Type, TGIC – Polyester powder coating. Color – Black

Special Requirements for Paint System D.

Coating shall have the following minimum thicknesses:

<u>Coat</u>	<u>Formula</u>	<u>Minimum Dry Film Thickness</u>
Prime	Zinc-rich epoxy powder coating	3 mils
Topcoat	TGIC-Polyester powder coating	2 mils

Coating shall conform to the following performance criteria:

Property	Reference
Adhesion	ASTM Designation: D 3359B
Pencil hardness	ASTM Designation: D 3363
Flexibility	ASTM Designation: D 522

Impact resistance	ASTM Designation: D 2794, Modified
Abrasion resistance	ASTM Designation: D 4060, Modified
Salt spray resistance	ASTM Designation: B 117
Humidity resistance	ASTM Designation D 2247

Measurement and Payment:

Payment for this item will be made under:

SSP 20109 Pedestrian Bridge Railing.....Per Linear Foot

41. SSP 20113 Block Retaining Wall

Description: This item shall include all work and costs associated with the design and construction of block retaining wall in accordance with the lines, grades, details and dimensions shown on the plans. Preliminary dimensions are given for estimating purposes only. The Contractor is responsible for producing a design, in accordance with AASHTO Standards, which will provide for a complete installation including leveling pad requirements, backfill material quality and density requirements.

Materials: The Genesis Wall System composed of the Keystone Retaining Wall System or approved equal is approved for this project.

Workmanship: The wall surface shall be constructed within a tolerance of 3/4" per 10 feet of wall length. The exposed surface of the wall units shall be sound, imperfections when viewed from a distance of 20 feet. Acceptable color for the wall units is as shown on the plans, standard gray or as directed by the Engineer.

At least three weeks prior to the beginning of construction of the wall the Contractor shall provide six sets of design drawings and details and complete design calculations stamped by a professional engineer licensed in the State of Idaho for the mechanically stabilized earth retaining wall system to be constructed. The wall shall be designed in accordance with the 17th Edition (2002) AASHTO Standard Specifications for Highway Bridges, Division 1-Design, Section 5 – Retaining Walls, Parts A & B and any current revisions to the AASHTO Specifications. The drawings shall include all details, dimensions, quantities and cross sections necessary to construct the wall. Construction cannot begin without the review and approval of the drawings by the owner. The plans shall include, but not be limited to, plan, elevation and detail sheets containing the following:

NOT REVIEWED

- An elevation view indicating the elevations at all the break points in the top of the wall and the leveling pad, distances along the face of the wall to each break point and panel designation.
- A plan view of the wall with dimensions, stations and offsets tying it to the centerline of the road and with station and offsets to the excavation limits. The excavation limits will be based upon the cross sections in the plans or on field data developed by the Contractor.
- A materials takeoff shall be submitted with the calculations that include quantities for the excavation and backfill within the reinforced zone.
- All details for the leveling pad, dimensions of the blocks and reinforcement placement plans. Reinforcement placement plans need to reflect angled straps at locations required due to the skew of the abutment walls.
- Details of the cast-in-place concrete cap (sidewalk and ramp).

Measurement and Payment: The unit of measurement for furnishing all materials, fabricating, constructing and erecting the concrete block units, attachment devices, fasteners, bearing blocks and shims, excavation, leveling pad and backfill and concrete cap including all labor, materials, equipment and incidentals for a complete installation, shall be the square foot of wall surface area constructed, measured from the top of the leveling pad to the top of the wall units, over the length of the wall. Measurement shall be along the exterior face of the wall.

ITEM 29, "VARIATIONS IN QUANTITIES," ON PAGE GC16 OF THE ACHD GENERAL CONDITIONS, SECOND PARAGRAPH, shall not apply to this item.

Payment for this item will be made under:

SSP 20113 Block Retaining Wall.....Per Square Foot

42. SSP 20114 Mechanically Stabilized Earth (MSE) Retaining Wall

Description: This item shall include all work and costs associated with the design and the construction of mechanically stabilized earth (MSE) retaining walls in accordance with the lines, grades, details and dimensions shown on the plans. Preliminary dimensions are given for estimating purposes only.

Materials: The Contractor, based upon his chosen proprietary system, is responsible for producing a design which will establish soil reinforcing configuration and length and connection to precast concrete wall facing units, leveling pad requirements and reinforcing zone backfill material quality and density requirements. The wall system shall also be designed for all loads from the cap/sidewalk, cap/ramp, and railing. The cast-in-place concrete cap/sidewalk and the metal railing at the top of the wall are not included in this item.

This item includes excavation for the MSE wall at the toe of the wall. The excavation pay limits are shown on the plans.

This item includes providing the required exposed aggregate texture to the exposed faces of the wall as called out on the plans. It also includes applying a urethane anti-graffiti finish to the exposed faces of the concrete cap.

Workmanship: The Contractor shall be responsible to conduct soils investigations and tests to determine the properties of the material source and to provide suitable material for the reinforced backfill zone as required by the design of the MSE wall and these specifications. Two copies of all test results shall be submitted to the Engineer at least three weeks prior to the beginning of the construction of the wall.

At least three weeks prior to the beginning of construction of the wall the Contractor shall provide six sets of design drawings and details and complete design calculations stamped by a professional engineer licensed in the State of Idaho for the mechanically stabilized earth retaining wall system to be constructed. The drawings shall include all details, dimensions, quantities and cross sections necessary to construct the wall. Construction cannot begin without the review and approval of the drawings by the owner. The plans shall include, but not be limited to, plan, elevation and detail sheets containing the following:

- An elevation view indicating the elevations at all the break points in the top of the wall and the leveling pad, distances along the face of the wall to each break point and panel designation.
- A plan view of the wall with dimensions, stations and offsets tying it to the centerline of the road and with station and offsets to the excavation limits. The excavation limits will be based upon the cross sections in the plans or on field data developed by the Contractor.
- A materials takeoff shall be submitted with the calculations that include quantities for the excavation and backfill within the reinforced zone.
- All details for the leveling pad, dimensions of the panels or modules and reinforcement placement plans. Reinforcement placement plans need to reflect angled straps at locations required due to the skew of the abutment walls.
- Details of the cast-in-place concrete cap (sidewalk and ramp).

The Contractor shall furnish the Engineer a Certificate of Compliance certifying that the materials installed comply with these specifications and the requirements of the designer and supplier of the wall components.

APPROVED WALL SYSTEMS

The following mechanically stabilized earth retaining wall systems are approved for this project:

- a) A reinforced earth wall as designed by THE REINFORCED EARTH COMPANY.
- b) A retained earth wall as designed by VSL CORPORATION.

DESIGN PARAMETERS

Design Life: The MSE retaining wall shall be designed and constructed to provide a minimum SERVICE LIFE of 75 years and an ULTIMATE LIFE in excess of 100 years in conformance with FHWA GEOTECHNICAL ENGINEERING NOTEBOOK Chapter 5, Section 3, and Subsection 4 "SERVICE LIFE OF MECHANICALLY STABILIZED EMBANKMENTS."

Design Loads: The MSE retaining wall shall be designed in accordance with the latest edition and interim of the AASHTO Standard Specifications for Highway Bridges.

The MSE retaining wall shall be designed for an HS-25 traffic load at the top of the wall, which may be represented by a 2.5-ft. thick layer of soil surcharging the top of the wall.

Where the MSE wall is placed against the bridge abutments with angles less than 90 degrees, the walls shall be designed using skewed straps.

The MSE retaining wall shall be designed for loads from the cap/sidewalk, cap/ramp and railing.

Geotechnical Parameters: The leveling pads and the wall toe pressure shall be designed for a maximum allowable bearing pressure of 10,000 pounds per square foot. The leveling pads shall have a minimum width of 12 inches, or a width determined by the designer of the wall, whichever is larger.

Backfill: The backfill material, gradation, compaction requirements and methods of compaction within the reinforced soil zone shall be in accordance with the requirements of the manufacturer of the wall components and these minimum specifications. The backfill material in the reinforced soil zone shall have a maximum aggregate size of 3 inches. The backfill material in the reinforced soil zone shall be compacted to at least 95% of maximum dry density determined according to AASHTO T-99 or 60% relative density based on ASTM D4253 and D4254.

The backfill within the reinforced soil zone shall meet the following additional requirements:

- a) The fraction finer than 15 microns, as determined by AASHTO T-88, shall not exceed 15%
- b) Plasticity Index (P.I.) as determined in AASHTO T-90 shall not exceed 6
- c) Organic Content shall not exceed 0.2% per AASHTO T 267-86
- d) pH shall be between 5 and 10 per ASTM G51-77
- e) Resistivity shall be equal to or greater than 3000 ohm-centimeters per ASTM G57-78
- f) Chlorides shall be less than 100 parts per million per ASTM D512-88 or D4327
- g) Sulfates shall be less than 200 parts per million per ASTM D516 (B) or D4327.
- h) Soundness: Magnesium sulfate loss shall be less than 30% after 4 cycles per AASHTO T104
- i) No shale or soft, poor durability materials shall be included.
- j) The backfill at the toe of the wall and behind the reinforced soil zone except bridge abutments shall be 8 inch minus uncrushed aggregate. The material and construction of this backfill shall conform to Section 800 of the ISPWC.

CONSTRUCTION REQUIREMENTS

Field Representative: The Contractor shall have a field representative from the supplier of the wall components and a field representative from the supplier of the soil reinforcing, if different from the supplier of the wall components, on site at the beginning of the erection of the wall. The representatives shall be fully knowledgeable in the specific design and construction requirements of the MSE wall to be constructed. As a minimum, the representatives shall stay on site assisting the fabricator, Contractor and Engineer during the initial three days of wall construction. The MSE wall erection shall begin only if the representatives are on site. In addition, the field representatives shall be available for consultation as required during the entire erection process. The costs of the services of the field representatives shall be incidental to the cost of the wall.

Stepped Footings: The elevations of the bottom of the footings to provide a minimum cover are shown on the plans. The footings shall be stepped to meet the configuration of the wall system selected and shall maintain the minimum cover as shown on the plans.

Wall Configuration: The top of the wall shall be constructed and finished to the elevations shown on the plans. The top of the wall shall be capped with a cast-in-place concrete cap. The pattern of the wall joints shall be set vertical and horizontal. This may require the tops of wall panels to be fabricated on a slope. The wall face shall be vertical. The wall surface shall be constructed within a tolerance of 3/4 of an inch per 10 feet of wall height or length. Soil reinforcement straps will need to be attached at the appropriate skew angle shown on the plans for panels adjacent to the abutment walls. The wall edges next to the abutments shall be beveled to match the joining angle.

Joint Materials: Bearing pads, joint filler and joint cover shall be as required on the approved plans. All joints between wall panels shall be covered with a minimum 18 inch wide strip of geotextile filter fabric material. The geotextile filter fabric material shall be attached to the back of the wall panels with an adhesive approved by the wall supplier. Overlaps between strips of geotextile shall be at least 4 inches.

Wall Finish: The exposed surface of the wall units shall be sound, free of cracks, chips or other imperfections when viewed from a distance of 10 ft.

The exposed surface of the wall shall be textured as shown on the plans.

Urethane Coating: The exposed surfaces of the wall, concrete cap, and parapet shall be coated with a urethane clear finish.

The urethane clear finish shall be: Benjamin Moore & Co. M74-00/M75 aliphatic acrylic urethane gloss clear finish available through Boise Paint & Glass; or Kemiko "Wipe-out" urethane clear finish available through Pioneer Coatings; or an approved equal.

The urethane clear finish shall be applied in accordance with the manufacturer's recommendations to achieve a minimum wet film thickness of 4 mils. Textured surfaces such as fractured fin or exposed aggregate will require two full finish coats or a total of 5 to 6 mils wet film thickness.

Measurement and Payment:

MSE Wall: The unit of measurement for designing, furnishing all materials, fabricating, constructing and erecting the MSE wall, including footings, concrete wall units, soil reinforcements, attachment devices, fasteners, bearing blocks and shims, joint materials, leveling pad and backfill within the reinforced soil zone, including all labor, materials, equipment and incidentals for a complete installation, shall be by the square foot of wall surface area constructed, measured from the top of the leveling pad to the top of the wall units including any wall cap, over the length of the wall. Measurement shall be along the exterior face of the wall.

MSE Wall Excavation and Backfill: All excavation and backfill required for construction of the MSE wall is included in the MSE wall quantity and shall be considered incidental to Item SSP 20114, MSE Retaining Wall. Any excavation and over excavation beyond the limits shown on the plans or for the Contractor's convenience shall be at the Contractor's expense.

Urethane Coating: All costs incurred for the urethane coating shall include all materials equipment, labor, and incidentals complete and shall be considered incidental to the MSE wall and no additional payment made therefore.

ITEM 29, "VARIATIONS IN QUANTITIES," ON PAGE GC26 OF THE ACHD GENERAL CONDITIONS, SECOND PARAGRAPH, shall not apply to this bid item.

Payment for this item will be made under:

SSP 20114 *Mechanically Stabilized Earth (MSE) Retaining Wall.....Per Square Foot*

43. SSP 20200 – Salvage Topsoil

Description: This item shall include all costs associated with salvaging suitable on site topsoil from within the project limits, if available, and storing in stockpiles for later use in the project.

Materials: Topsoil shall consist of fertile, friable soil of loamy character that contains an amount of organic matter normal to the region. Obtain topsoil from well-drained arable land, reasonably free from subsoil, refuse, roots, heavy or stiff clay, large stones, coarse sand, sticks, brush, litter, and other deleterious substances. Incorporate vegetative matter into topsoil, except brush, trees, and noxious weeds.

As determined by the Engineer, provide microorganism inoculants that contain a diverse mix of regional specific mycorrhizal species for specific condition, provide macronutrients and micronutrients to plants that are tolerant of chemical imbalances in the soil, produce humic compounds and binding compounds, and improve soil structure.

Workmanship: Excavate to a depth of at least 6 in, unless otherwise Engineer directed. Place topsoil excavated from the roadway directly on cut and fill slopes or other specified areas without

use of stockpiles whenever conditions and the progress of construction permit. Where this procedure is not possible, excavate topsoil, and stockpile along the project.

Stockpile topsoil so as not to interfere with natural drainage or cause off-site sediment damage. Surround topsoil stockpile with sediment controls. Treat topsoil stockpile with temporary soil stabilization measures immediately upon stockpile completion.

Ensure topsoil stockpiles do not exceed 4 ft in height unless otherwise Engineer approved. If the stockpile is undisturbed for longer than 3 months, mix the top 1 ft with the remainder of the stockpile to ensure that living organisms are distributed throughout at the time of final placement, or add microorganism inoculants, after final placement, in accordance with manufacturer recommendations. Apply microorganism inoculants as dry granular mixes, tablets, or injectable soluble.

Topsoil shall not be placed in its final position until the areas to be covered have been properly prepared. Place topsoil at locations shown on the plans to a depth of 6 inches and key into the underlying material by the use of harrows, rollers, or other equipment suitable for the purpose.

Measurement and Payment: Payment shall be on a cubic yard basis.

SSP-20200 *Salvage Topsoil*..... *Per Cubic Yard*

44. **SSP 20201- Bioretention Soil Mix (BSM)**

Description: This item shall include all costs associated with providing and installing the BSM at locations shown on the plans

Materials: The BSM shall be a mixture of A. **60% Fine Aggregate Sand** (ASTM C33 Spec); B. **20% Loamy Sand** (USDA Soil Classification); C. **20% Compost**.

1. All required analytical lab tests, data, lab interpretive reports and lab contact information for

1) Fine Aggregate Sand: chemical analysis and particle size analysis 2) Loamy Sand: comprehensive soil analysis including: TEC; pH; ECe as dS/m; Major & Minor Nutrients; Half Saturation; Sodium SAR; % Organic Matter 3) Compost: lab analysis.

2. A description of the equipment and methods used to completely mix the three components of the BSM and the delivery to the project site.

3. Tests should be conducted no more than 120 days prior to the delivery date of the BSM to the project site. Batch-specific test results and certification will be required for projects installing more than 100 cubic yards of BSM.

4. The Contractor shall submit the following to the Engineer for approval if requested:

A. A one gallon sample of mixed BSM.

- B. Grain size analysis results of the sand component performed in accordance with American Society for Testing and Materials (ASTM) D422, Standard Test Method for Particle Size Analysis of Soils.
- C. Grain size analysis results of loamy sand soil component performed in accordance with ASTM D422, Standard Test Method for Particle Size Analysis of Soils.
- D. Grain size analysis results of compost component performed in accordance with ASTM D422, Standard Test Method for Particle Size Analysis of Soils.
- E. Organic matter content test results of compost. Organic matter content tests should be performed in accordance with ASTM F 1647, Standard Test Methods for Organic Matter Content of Athletic Field Rootzone Mixes or Testing Methods for the Examination of Compost and Composting (TMECC) 05.07A, Loss-On-Ignition Organic Matter Method.
- F. A description of the equipment and methods used to mix the sand, sandy loam, and compost to produce BSM.
- G. Constant head permeability results of the mixed BSM. Constant head permeability testing in accordance with ASTM D2434, Standard Test Method for Permeability of Granular Soils (Constant Head) should be conducted on a minimum of two samples with a 6-inch mold and vacuum saturation.
- H. Provide the following information about the testing laboratory(ies) including:
- 1) Name of laboratory(ies)
 - 2) Contact person(s)
 - 3) Address(es)
 - 4) Phone contact(s)
 - 5) Email address(es)
 - 6) Qualifications of laboratory(ies), including use of ASTM and U.S. Department of Agriculture (USDA) method of standards

A - Fine Aggregate Sand (60% of BSM)

General: Sand shall be washed and free of wood, waste, coating such as clay, stone dust, carbonate or any other foreign deleterious material.

Lab Analysis for chemistry: A soil analysis to test for excess salinity (above 3.0 ECe-dS/m), excess boron (above .80 ppm by Saturated Extract) and excess sodium –SAR(above 2.0) is required.

Lab Analysis for Particle Size: The Fine Aggregate Sand for the BSM shall be analyzed using #100, #50, #30, #16, #8, #4, and 3/8 inch sieves Particle Size Analysis in accordance with ASTM D422(standard test method) or as approved by ACHD, and meet the following gradation limits for ASTM C33 Fine Aggregate Specification as follows:

<u>Sieve/mm</u>	<u>Cumulative % Passing</u>	<u>Cumulative % Retained</u>
• 3/8" / 9.5	100	0
• #4 / 4.75	90-100	0-10
• #8 / 2.36	70-100	0-30

• #16 / 1.18	40-95	5-60
• #30 / .60	15-70	30-85
• #50 / .30	5-55	45-95
• #100 / .15	0-15	85-100

B – Loamy Sand (20% of BSM)

General: The Loamy Sand component of the BSM shall be free of: weeds (roots, stems, and seeds); construction materials; industrial contaminants including heavy metals; and all other foreign materials.

A one quart sample of the Loamy Sand shall be submitted to ACHD for independent testing within 14 business days of installation date, this is in addition to the laboratory work described below required by the contractor.

- Lab Analysis for chemistry: A soil analysis to test for phosphorus content (15-60 mg/kg P by Mehlich3) is required.
- Lab Analysis for physical properties: A lab analysis shall be required including: moisture capacity; total porosity; free porosity; dry Bulk Density; and particle size analysis from Gravel ; Sand (course/medium/fine %) ; Silt and Clay percentages. (USDA Classification “Loamy Sand” requires the following range of percentages of the following Sand, Silt, and Clay components :

- **USDA Classification “Loamy Sand”**

<u>Component / mm</u>	<u>Min %</u>	<u>Max %</u>
• Sand / 2.0 - .05	70%	90%
• Silt / .05 - .002	0%	30%
• Clay / less than .002	10%	20%

- ACHD reserves the right to request additional samples of loamy sand from the contractor based on the lab analysis and reports.

C - Compost (20% of BSM)

- General: The Compost shall be a mature, well decomposed, weed free, herbicide free, pesticide free, and absent of inert garbage. Organic matter source shall be derived from waste (feedstock) including yard debris, wood waste, crop by-products. This product shall not include straight manure or bio-solids. The product shall be stable with regard to oxygen consumption and carbon dioxide generation as can be determined by a Solvita™ test.

- Organic Amendment Analysis: A one gallon sample of the Compost shall be submitted to ACHD for independent review within 10 business days of the contract date. This is in addition to the testing required by the contractor to include a minimum of the following chemical and physical properties and parameters (i.e. specifications) required for the Organic Amendment:

- a) 100 percent of the material must pass through a half-inch screen

- b) The pH of the material shall be between 6 and 8
- c) Manufactured inert material (plastic, concrete, ceramics, metal, all and any trash) shall be less than 1.0% by dry weight of the product.
- d) The Organic Matter content shall be between 35 percent and 65 percent
- e) Soluble Salt as expressed as dS/m (mmhos/cm) shall be no higher than 6.0
- f) The moisture content shall be between 35 percent and 65 percent
- g) Stability shall be 7 mg CO₂-C/g OM/day or less; or > 5 Solvita [™] Index Value
- h) Carbon / Nitrogen (C/N) ratio shall be no less than 15:1 C/N and no more than 35:1 C/N
- i) Dry Bulk Density of the material shall be between 1080 lbs./Cubic Yard – 1400 lbs./Cubic Yard
- j) Material shall be free of human pathogens (Salmonella < 3 MPN/4 grams or TS; Coliform < 1000 MPN/gram
- k) A range of 4-6% by volume of product must pass a #200 (.075mm) screen (this equals 1.0 -1.5 C.F./C.Y of product)*

Workmanship: After excavation to subgrade, the BSM shall be placed over the surface of the specified area to the limits as shown on the plans.

A. Erosion and sediment control practices during construction should be employed to protect the long-term functionality of the bioretention. The following practices shall be followed for this reason:

- 1) Provide erosion control in the contributing drainage areas to the facility and stabilize upslope areas.
- 2) Facilities should not be used as sediment control facilities, unless installation of all bioretention-related materials are withheld towards the end of construction, allowing the temporary use of the location as a sediment control facility, and appropriate excavation of sediment is provided prior to installation of bioretention materials.

B. Do not excavate, place soils, or amend soils during wet or saturated conditions.

C. Operate equipment adjacent to the facility. Equipment operation within the facility should be avoided to prevent soil compaction. If machinery must operate in the facility, use lightweight, low ground-contact pressure equipment.

D. If constructing an infiltrating facility, the subgrade should be ripped or scarified to a minimum depth of 9 inches to promote greater infiltration.

E. The BSM should be mixed prior to being delivered to the site.

F. Place soil in 6- to 12-inch lifts with machinery adjacent to the facility (to ensure equipment is not driven across soil). If working within the facility, to avoid over-compacting, place first lifts at far end from entrance and place backwards towards entrance.

G. Allow BSM lifts to settle naturally, lightly water to provide settlement and natural compaction between lifts. After lightly watering, allow soil to dry between lifts. Soil cannot be worked when saturated, so this method should be used with caution to ensure dry conditions. After all lifts are placed, wait two days to check for settlement, and add additional media as needed. No mechanical compaction is allowed.

H. The long-term hydraulic conductivity rate should not be less than 5 inches per hour when tested with a double ring infiltrometer (in accordance with ASTM D3385, *Standard Test Method for Infiltration Rate of Soils in Field Using Double Ring Infiltrometer*), a single ring infiltrometer, a Modified Philip-Dunne Infiltrometer, or other approved methods.

I. Vehicular traffic and construction equipment **shall not drive on, move onto, or disturb the BSM once placed and water-compacted.**

J. Rake bioretention soil as needed to level out. Verify BSM elevations before applying mulch or installing plants.

Measurement and Payment: Payment shall be on a cubic yard quantity basis. No final measurement will be made.

SSP 20201 - The Bioretention Soil Mix.....Per Cubic Yard

45. SSP-20202 Soil Amendments

Description: This item shall include all costs associated with providing and incorporating soil amendments in areas shown on the plans.

Materials: Soil amendments are organic soil- applied compost or manufactured organic soil amendments. Compost shall be weed-free, aerobically composted organic compost derived from a variety of feed stocks including forestry, food, leaf and yard trimmings, manure and tree wood with no substances toxic to plants.

Soil Amendments shall be in compliance with the standards set by the **US Composting Council**, 5400 Grosvenor Lane, Bethesda, MD 20814.

Measurement and Payment: Payment for these items will be made under the following:

SSP-20202 SOIL AMENDMENTS.....Per Cubic Yard

46. SSP-2020X – Plant Material

Description: This item shall include all costs associated with providing and planting trees, shrubs, vines and ground cover.

Materials: Provide plants that meet the applicable requirements of the American Standard for Nursery Stock. Ensure plants are true to type and name in accordance with Standardized Plant

Names prepared by the American Joint Committee on Horticultural Nomenclature. Provide plants that are sound, healthy, vigorous, well branched, and densely foliated when leaves are present, and without disease or insects including adult eggs, pupae, or larvae. Provide plants without disfiguring limbs, knots, limb scars, sun scald, abrasions of the bark, wind or freezing damage, or other disfigurements. Do not cut back plants from larger sizes to meet specified sizes. The Engineer will reject plants with the presence of noxious weeds in the containers or at the source.

Provide nursery grown plants unless collected plants are specified. Grow or condition plants to an environment similar to the project site including elevation, site and soil conditions, and climate.

The term “nursery grown” consists of natural seedling trees and shrubs, provided such trees and shrubs have been growing continuously in one nursery for the minimum periods of time specified in table below.

Plant Age

Plant Material	Time in Nursery
Trees	2 growing seasons
Shrubs, Evergreens	2 growing seasons
Shrubs, Deciduous	1 growing season
Wetland Plants	2 growing seasons
Vines	1 growing season

Provide trees with straight trunks, well branched with symmetrical tops and no unhealed scars more than ¾ in diameter.

Provide well established containerized plants with a root system sufficiently developed to retain its shape and hold together when removed from the container. The Engineer may reject plants that are pot bound, or have kinked, circling, or bent roots.

Provide plants in pots or containers of a size shown on the plans.

Deciduous plants may be supplied bareroot (B.R.) unless specified otherwise.

Provide B.R. plants that are one size group larger than the sizes specified before pruning and are packed in moisture retaining material.

Provide broadleaf evergreen plants and conifers Balled and Burlapped (B&B) or in suitable containers. Pack B&B plants, except seedlings, with a firm ball of earth surrounded with burlap firmly held in place by a cord or wire wrapping. Provide B&B plants with firm, natural earth balls

of standard size in accordance with the American Standard for Nursery Stock and the root collar located within the top two inches of the soil ball. Handle B&B plants by the earth ball only and protect against drying and freezing. The Engineer will reject broken or loose balls or plants without an adequate root system.

Pack and ship the plants in accordance with the American Standard for Nursery Stock.

File required state and federal inspection certificates for plant shipments with the Engineer.

Do not substitute plant materials unless previously authorized and approved by the Engineer.

Label plants according to size and scientific plant name with durable and legible tags. Deliver plants with labels securely attached to plants, bundles, and containers of plant materials. Provide actual certificate of inspection, or a copy, for injurious insects, plant diseases, and other plant pests for each shipment or delivery of plant materials. Indicate the name, address and the source of the stock on the certificate.

Leave the labels on at least one plant of a group of the same species and on each plant for individual planting during and after planting operations within the same area.

Workmanship: Ensure adequate and proper care of plant material. Adequate and proper care includes keeping plant materials in a healthy, growing condition by appropriate handling, storing, watering, cultivating, pruning and spraying.

Unless otherwise approved by the Engineer, perform planting operations between May 15 and September 15, and take advantage of favorable planting conditions. Plant bare root plants before the leaves open or new needles have started forming.

Grade and/or level both the irrigated and sodded area(s) to be planted before staking or marking planting locations. Disk natural or unmaintained area(s) or leave in a roughened condition before staking planting locations. Mark out and stake tree locations and the general layouts of planting areas for shrubs, vines, and ground cover. Do not begin planting until the area(s), tree locations and general layouts of the planting site(s) are approved by the Engineer.

Cultivate planting areas for shrubs and vines to at least 4 inches deep. Remove and dispose of weeds and other vegetative growth, large clods, rocks, and other debris encountered in the cultivating work.

When excavating holes for planting, keep topsoil separate from subsoil and make loose and friable. Remove and dispose of soils containing a pH greater than 8, a pH less than 4, gravel, stones, or other detrimental material encountered during excavation. A soil auger may be used if approved by the Engineer. Sufficiently roughen glazed surfaces inside planting holes before backfilling.

Remove plants from plastic, metal, or biodegradable containers before planting.

Take care to prevent disturbance of the root systems or earth. For bare-root plants, spread out their roots in a natural position, without bunching, kinking or circling.

Mulch planted areas immediately after planting work in each area is complete and the ground is smooth and clean. Place mulch 3 to 4 inches thick using wood chips or small bark. Cover the entire area of shrub and vine root systems as well as around trees as shown on the plans.

Remove mulch from plants, structures, roadway areas and grassed areas not to be covered.

Thoroughly water trees, shrubs, vines and ground cover during and immediately after planting. Repeat watering as often as necessary during the established period until the work is accepted by the Engineer. Exercise care to prevent puddled soil conditions and avoid compaction around the plants after watering.

Prune trees and shrubs when planting and remove broken or damaged twigs, branches, or roots in a manner that retains or encourages plants natural growth characteristics. Paint cut surfaces with a diameter of 1 inch or greater immediately with approved tree wound dressing.

Ensure the establishment of plantings by watering, cultivating, replacing plants or mulch, and other work necessary to maintain the plants in a healthy condition, throughout the plant establishment period.

If herbicides are used to control weeds, replace and maintain plants and lawn damaged by its use at no additional cost to ACHD.

At completion of the original planting, the Engineer will perform an inspection with the Contractor of plant material to note and correct discrepancies. The Contractor shall remove and replace dead plants at no additional cost. Plants that do not show expected growth, but retain green leaves, stems, or buds and the Engineer will inspect again during the plant establishment period.

After the original planting the Engineer will periodically inspect the condition of plants and planting areas. The Engineer will notify the Contractor of apparent defects, faults and conditions, and dead plants discovered by the inspection. All replacement plants shall be of the same species and quality as the plants they replace. Plants may vary in size reflecting one season of growth should the Contractor elect to hold plant material under nursery conditions for an additional year to serve as replacement plants. Correct apparent defects, faults and conditions, and remove, dispose and replace dead plants within 10 days after notification or as directed by the Engineer.

If immediate replacement of dead or rejected plants is impossible due to seasonal conditions or the lack of specified plants, place a marker at the spot of replacement and replace plants next planting season. ACHD will require a plant establishment period of six months for replacement plants. Ensure the establishment of the new plantings as specified.

If infestation by insects or disease occurs, treat plants using effective remedial measures that are good horticultural practices and in accordance with best management practices.

ACHD will make progress payments for plants at 80 percent of the contract unit price at the completion of the original planting. ACHD will pay the remaining 20 percent at the completion of the plant establishment period when defective plants have been replaced.

Measurement and Payment: Payment for these items will be made under the following:

SSP-20203 Planting Trees (Seedlings or Container) Per Each

SSP-20204 Planting Shrubs (Bare-root or Container).....Per Each

SSP-20205 Planting Vines (Bare-root or Container) Per Each

SSP-20206 Planting Ground Cover.....Per Each

47. SSP-202XX Seeding

Description: This item shall include all costs associated with applying seed including: seed bed preparation, seeding, soil amendments, mulch mixtures, mulching, mulch anchoring (mechanical or tackifiers), hydraulically applied erosion control products, erosion blankets, and watering.

Materials: Provide materials as specified in:

USE TAX TABLE

Item No.	Quantity	Supplied By	Description
SSP-202XX		ACHD	

Workmanship:

A. General. Perform seeding operations as specified.

Perform seeding between Oct 15 and Nov 15, except for seeding used as a temporary erosion and sediment control measure.

Do not perform seeding when soil is too wet or dry, frozen or otherwise untillable.

B. Seedbed Preparation. Maintain areas to be seeded reasonably free of weeds throughout the growing season using mechanical methods, or by applying appropriate chemicals, or both until seeding time. Keep weeds from going to seed. Apply chemicals for treating weeds in accordance with manufacturer recommendations.

Cultivate areas to be broadcast seeded immediately before seeding at least 3 inches deep and leave in a rough condition, similar to that obtained by walking a cleated-crawler tractor up and down the slopes. Where slopes are benched or serrated, ACHD will not require additional preparation.

Roughen and serrate or cross-rip slopes in a horizontal direction for slopes 3:1 or flatter that includes topsoil application before placement of the topsoil. After topsoil has been spread, prepare the surface for seeding.

On areas subject to severe erosion, ensure the extent of seedbed preparation does not exceed the area on which the entire seeding and mulching can be applied within a one-day operation. If conditions occur that prevent seeding at specified furrow depths, or if the roughened condition is destroyed, prepare the seedbed again at no cost to the District.

C. Seeding. Unless otherwise specified, ACHD will provide seed at no cost to the Contractor. Use the mix and rate of seeding specified. Apply native shrub and forb species separately from grass species. Rake the soil or mechanically roughen the soil before applying seed, mulch mixture, or both.

Apply seed uniformly over the seeded area by the most appropriate method (as determined by slope, soil or site conditions) using one of the following methods:

1. Broadcast seeding:

a. Hydro-seeder.

b. Dry (whirlwind) - for embankment slopes or cut slopes as approved by the Engineer.

Broadcast the seed using a hydro-seeder or dry broadcast equipment as specified. Apply seed, fertilizer, mulch or combined fertilizer and mulch in separate applications. Do not mix fertilizer with the seed in the hydro-seeder. Apply seed to the seeded area first followed by the mulch, or fertilizer mulch combined application second. Ensure agitation of seed in hydro-seeder does not exceed 12 minutes. Do not apply hydroseeding mixture if rainy conditions are anticipated outside manufacturer's application recommendations. In the event of unanticipated rainy conditions, re-apply the hydroseeding mixture to uncured areas at no additional cost to the District.

Perform hydro-applications involving combinations of seeding, fertilizing, soil amendments, mulch mixtures, mulching, mulch anchoring (tackifier), and hydraulically applied mulch, with hydro-application equipment, equipped with appropriate pump (preferably centrifugal) and engine size, mechanical agitation (preferably paddle-type) and independent liquid bypass circulation capable of handling and applying a thick homogenous slurry.

Do not allow trucks or equipment to drive on the area after seed is in place.

Inspection of seeded areas will be made upon completion of seeding. The work in any area will not be measured for payment until a uniform distribution of the materials is accomplished at the specified rate. Areas that have not received a uniform application of seed, fertilizer, or mulch at the specified rate, as determined by the Engineer, shall be re-seeded, re-fertilized, or re-mulched at the Contractor's expense prior to payment.

D. Mulch, Mulch Anchoring, and Hydraulically Applied Erosion Control Products.

1. Mulch

Do not use hydro-mulch applications on slopes flatter than 3:1 or in conjunction with drill seeding applications. Do not perform mulching when wind interferes with mulch placement. Apply straw, grass hay, wood fiber, soil amendments, mulch mixture, or any combination of these materials as Engineer directed. Ensure material applied to the ground allows for the absorption and percolation of moisture. Apply at the following rates:

- a. Straw or grass hay (air dry). 2 Ton/Acre
- b. Wood fiber. 1 Ton/Acre
- c. Soil Amendments..... As specified

2. Mulch Anchoring

a. Mechanical. Use mechanical mulch anchoring on slopes 3:1 or flatter as Engineer directed. Anchor mulch into the soil by use of a heavy disc with flat scalloped discs approximately ¼ inch thick, having dull edges and spaced at least 9 in apart. Ensure anchoring to a depth of at least 2 inches with no more than one pass of the equipment on the same surface.

Install mechanical anchoring in a horizontal to the slope face.

b. Tackifier. Use mulch tackifiers on slopes 2:1 or steeper. Anchor mulch using a tackifier applied in accordance with the manufacturer's written instructions and at a rate for the material, soil types, conditions, and degree of slope.

If applied separately, incorporate a method to differentiate between the tackifier and mulch material, by color or tracer material, during tacking operations. Do not apply tacking when wind interferes with tackifier placement.

3. Hydraulically Applied Erosion Control Product

Provide a mixture that is nontoxic to animals, soil microorganisms, aquatic and plant life. Ensure the hydraulically applied erosion control product does not interfere with or impede seed germination or vegetative growth and establishment.

a. Hydraulic Mulch. Mix and apply the mixture, in accordance with the manufacturer's written instructions and at a rate for the soil type, roughness of surface, conditions and degree of slope.

b. Stabilized Mulch Matrix. Mix and apply the mixture, in accordance with the manufacturer's written instructions and at a rate for the soil type, roughness of surface, conditions and degree of slope.

c. Bonded Fiber Matrix. Mix and apply in accordance with the manufacturer's written instructions and at a rate for the soil type, roughness of surface, conditions and degree of slope.

d. Fiber Reinforced Matrix. Mix and apply the mixture, in accordance with the manufacturer's written instructions and at a rate for the soil type, roughness of surface, conditions and degree of slope.

E. Erosion Blankets. Install erosion blankets on slopes in a vertical direction and in accordance with the manufacturer's recommendations or as Engineer directed.

F. Watering. Provide a temporary water delivery system by use of either sprinklers or trucks.

Provide an approved source for irrigation water that is without oil, acid, salt, or other substances harmful to plants. Reclaimed water shall not be used for irrigation.

Apply water when directed by the Engineer. Keep pipe connections tight to avoid leakage and washing. Maintain sprinklers in proper working order. Should runoff begin, stop watering and apply the balance after initial watering has penetrated the soil. ACHD considers the standard application rate to be 16,000 gal/acre. This constitutes the quantity of water that saturates the soil to a depth of 4 inches under average conditions.

The Engineer will inspect for the 4 inch depth of saturation by excavating to a depth of 4 inches and observing wetness. ACHD intends that the locations of inspection for wetness be reasonable and not on "slick spots" or in unrepresentative areas.

G. Weeding. ACHD considers weed control the responsibility of the Contractor during the establishment period, and to be provided at no additional cost to ACHD. Obtain the Engineer's approval for the method of weed control.

Measurement and Payment: Payment for these items will be made under the following:

SSP 20207	Seedbed Preparation	Per Acre
SSP 20208	Seed.....	Per Acre
SSP 20209	Seeding.....	Per Acre
SSP 20210	Mulch.....	Per Acre
SSP 20211	Mulch Anchoring (Mechanical).....	Per Acre

SSP 20212	Mulch Anchoring (Tackifier).....	Per Acre
SSP 20213	Soil Amendments	Per Acre
SSP 20214	Mulch Mixture.....	Per Acre
SSP 20215	Mulch plus Tackifier.....	Per Acre
SSP 20216	Hydraulically Applied Erosion Control Products.....	Per Acre
SSP 20217	Erosion Blanket.....	Per Square Yard
SSP 20218	Fertilizing.....	Per Acre

48. SSP-20220 – Fertilizer (Commercial)

Description: This item shall include all costs associated with providing and applying commercial fertilizer to areas specified.

Materials: Fertilizer shall be slow-release or controlled-release fertilizer in a pelleted or granular form, with a nutrient release over an 8 to 12 month period. Provide fertilizer in containers marked with the weight, volume or both along with the manufacturer's guaranteed analysis of the contents. Ensure dry fertilizers are free from lumps or cakes.

Provide the type and application rate of fertilizer as specified by soil analysis results.

Workmanship: Dry fertilizers may be applied directly to the soil and lightly incorporated into the soil surface (not for slopes greater than 3:1), followed by the seed application. Apply fertilizer when average noontime temperatures are 60°F or lower on established stands.

Measurement and Payment: Payment for these items will be made under the following:

SSP-20220 Fertilizer (Commercial)..... Per Pound

49. SSP-20219 Watering

Description: The work under this section shall consist of furnishing all water required for establishing vegetation within the project limits, during the establishment period. This work shall include securing and transporting water to the project site. All costs, and all labor, equipment, and materials required to secure, transport, and furnish water to the project limits, shall be considered as included in the work.

The Contractor shall be responsible for maintaining the desired level of moisture necessary to maintain vigorous and healthy growth.

Materials: Water used for the irrigation of revegetated areas shall be free of pollutants that will have a detrimental effect on the plants.

Workmanship:

Revegetated areas shall require irrigation coverage of 100%. The Contractor shall water the planted areas as necessary, using a suitable fine spray which shall not disturb the vegetation and which will not cause any erosion.

The Contractor shall ensure that the planted area receives the minimum amount of water per the table below. The total monthly amount from the table shall be equally dispersed per week of the entire month and shall be applied uniformly over the whole area.

Inches/month	May	June	July	August	Sept
Long season range grasses	2.48	4.20	4.96	3.10	0.90

Measurement and Payment: Payment for these items will be made under the following:

SSP-20219 Watering.....Per Lump Sum

50. SSP-20221 Plant Establishment Plan

Description: This item includes all costs to prepare and implement a plant establishment plan.

Workmanship: From the time of installation, during construction, and throughout the establishment period the Contractor shall maintain all plant material and seeded areas in a healthy and vigorous growing condition, and ensure the successful establishment of vegetation. This includes performing establishment, replacement work, and landscape maintenance work as described below.

The Contractor shall submit a first-year plant establishment plan, for approval by the Engineer. The first year of plant establishment shall begin immediately upon written notification from the Engineer of the completion of initial planting for the project. The first year plant establishment period shall be a minimum of 1 calendar year. During the first-year plant establishment period, the Contractor shall perform all Work necessary to ensure the growth of the planted material. This care shall include, but not be limited to, labor and materials necessary for removal of foreign, dead, or rejected plant material, maintaining a weed-free condition, the replacement of all unsatisfactory plant material planted under the Contract, and periodic watering as required for proper plant establishment. If plants are stolen or damaged by the acts of others, ACHD will pay invoice cost only for the replacement plants with no mark-up and the Contractor will be responsible for the labor to install the replacement plants.

During the plant establishment period, the Contractor shall meet with the Engineer between April and October for the purpose of joint inspection of the planting material on a mutually

agreed upon schedule. The Contractor shall correct all conditions unsatisfactory to the Engineer within a 10-day period immediately following the inspection.

1. Live Plants

If plant replacement is required, the Contractor shall, within the 10-day period, submit a plan and schedule for the plant replacement to occur immediately at the beginning of the planting period. At the end of the plant establishment period, plants that do not show normal growth shall be replaced.

The Contractor shall water, cultivate, and prune the plants as required or directed by the Engineer. The Contractor shall reshape plant saucers, repair washouts and gullies, replace lost wood chip mulch, keep all planting sites free from weeds and do other work necessary to maintain the plants in a healthy and vigorous growing condition. This includes seasonal spraying or deep root watering with approved insecticides or fungicides as required.

2. Seeded Areas

The Contractor shall restore and reseed eroded areas and areas of poor establishment. Payment for water used to water in plants, or hand watering of plant material or lawn areas unless otherwise specified, is the responsibility of the Contractor during the first-year plant establishment period. Subsequent year plant establishment periods, when included in the Contract, shall begin immediately at the completion of the preceding year's plant establishment period. Each subsequent year plant establishment period shall be one (1) full calendar year in duration.

Measurement and Payment: Payment for these items will be made under the following:

SSP-20221 Plant Establishment Plan.....Per Year

51. SSP 20225 Stormwater Tree Cell

Description: This item shall include all materials, work and costs associated with installation of a structural tree trench in the areas as shown on the plans.

Materials & Workmanship: Structural Tree Trenches shall be constructed per the ISPWC and ACHD BMP 33 Tree Stormwater Tree Cells

Measurement and Payment:

Stormwater Tree Cell will be measured by the square foot complete in place. Backfill is considered incidental to this item.

Payment for this item will be made under:

SSP 20225 Stormwater Tree Cell Per Square Foot

52. SSP 25020

Erosion Control Mat

Description: This work consists of furnishing and installing Erosion Control Mat (ECM) on the bottoms and side slopes of embankments, channels or as shown on the plans or as directed by the Engineer.

Materials: The ECM shall conform to the following properties:

Geotextile Property	Test Method	Typical
Thickness:	ASTM D-6525	0.4 in
Resiliency:	ASTM D-6524	80%
Mass per Unit Area:	ASTM D-6566	12.5 oz/yd ²
Tensile Strength:	ASTM D-6818	4000x3000 lbs/ft
Tensile Elongation:	ASTM D-6818	65%
Light Penetration	ASTM D-6567	10%
Flexibility/Stiffness:	ASTM D-6575	0.534 in-lbs
UV Resistance:	ASTM D-4355	90% at 6000 hrs

The ECM shall be constructed of a three-dimensional matrix of polypropylene yarns designed in a uniform, dimensionally stable and homogenous configuration of pyramid-like structures.

Workmanship: In areas where ECM is to be installed, the Contractor shall prepare the topsoil by removing all rocks, clods, vegetation or other obstructions so that the installed ECM will have direct contact with the soil surface. Lay the ECM loose to maintain direct contact with the soil and anchor as specified by manufacturer for the specific application (banks or channel bottom). Apply seed and fertilizer as specified in SSP 29060 Hydroseeding. After seeding, spread and rake ½ inch of fine topsoil into the ECM and completely fill the voids. Use the backside of a rake or other flat tools to ensure a smooth soil-filled surface. Use shovels, rakes or brooms for fine grading and finishing. Smooth soil fill in order to just expose the top of the ECM matrix.

After completion of the work, the Contractor shall request an inspection by the engineer. The Contractor shall correct all conditions unsatisfactory to the Engineer within a 5-day period immediately following the inspection.

Measurement and Payment: ECM will be measured by the square yard complete in place, including but not limited to preparation of the topsoil base and topsoil filling. Placement of ECM shall be limited to the areas defined on the plans, or as directed by the Engineer.

Payment for this item will be made under:

SSP 25020 Erosion Control Mat Per Square Yard

53. SSP 25030 Demolish & Remove Existing Building

Description: This item shall include all work and costs associated with building demolition and removal in the areas as shown on the plans.

Materials & Workmanship: These removals shall be completed within the first 30 days of the construction schedule, unless otherwise approved by the Engineer. Contact the ACHD Utility Coordinator at 387-6258 prior to building demolition to coordinate the capping of existing utilities. The cost to cap the utilities to the individual properties is included in this item. Contractor is required to schedule an inspection with city inspector to verify that the utilities have been capped. Contractor is required to provide a copy of the city certification that the utilities have been capped to ACHD Property Manager.

Contractor is to obtain any permits necessary to demolish the structure, including but not limited to asbestos/hazard materials.

The Contractor shall entirely remove all structures, foundations, slabs, underground tanks, or other appurtenances both above and below ground.

Also included in this item are the following: Removal of all asphalt and gravel, placement of backfill to fill cavities left by removal of items to the level of the surrounding ground, and scarification of the entire work area to a depth of 12 inches to loosen existing material. The parcel shall be finished graded to present a pleasing appearance with slopes rounded and flattened to blend naturally with the adjacent topography.

Backfill shall be 8" Minus Uncrushed Aggregate conforming to ISPWC Division 800 compacted to 95 % maximum density as determined by T-99.

Four (4) inches of topsoil conforming to SSP 25050, hydro-seed with wood mulch and tackifier shall be placed on graded areas outside the roadway section adjacent to the building removal.

Measurement and Payment:

Backfill is considered incidental to this item. Topsoil, hydro-seed, wood fiber, and tackifier shall be paid for under those respective items outlined in the contract.

Payment for this item will be made under:

SSP 25030 Demolish & Remove Existing Building Per Each

54. SSP 25049 Manufactured Topsoil

Description: This item shall include all costs associated with lining the inside surface of the storm water detention pond with one-foot of manufactured topsoil material.

Materials: The manufactured topsoil shall meet the following specifications:

- 50% coarse sand by volume
- 20% sandy loam
- 30% compost
- Less than 10% fines passing #200 sieve
- No clay

Workmanship: After the pond is excavated to subgrade, the manufactured topsoil shall be placed over the surface of the pond to the limits as shown on the plans.

Measurement and Payment: Payment shall be on a cubic yard, plan unit quantity basis. No final measurement will be made. The quantity shown in the bid schedule is based upon the design calculations and is an estimate for bidding purposes only. The Contractor shall perform an independent estimate of the quantity to be encountered during construction prior to bidding and shall base his total bid amount upon his independent analysis.

Payment for this item will be made under:

SSP25049 *Manufactured Topsoil..... Per Cubic Yard*

55. SSP 25050 4" Topsoil

Description: This item shall include all work and costs associated with installing 4" of compacted topsoil in the areas as shown on the construction plans or as directed by the Engineer.

Materials: Topsoil shall be friable, fertile, agricultural soil, containing normal amounts of macro and micro nutrients capable of sustaining vigorous plant growth. It shall be of uniform composition throughout, without admixture of subsoil. It shall be free of stones 1" (one inch) or larger, lumps, sticks, live plants and their root, and other extraneous matter. It shall not be infested with nematodes or other pest or disease organisms. It shall be free of seed of noxious weeds and other material detrimental to vegetative growth. ACHD reserves the right to request soil samples be tested at the Contractor's expense to verify the topsoil is capable of sustaining vigorous plant growth.

Workmanship: Topsoil shall not be placed in its final position until the areas to be covered have been properly prepared and grading operations in the area have been substantially complete. Topsoil shall be placed and spread at locations shown on the plans and thickness of topsoil placement shall be 4" (four inches) when compacted.

Measurement and Payment: ITEM 29, "VARIATIONS IN QUANTITIES," ON PAGE GC16 OF THE ACHD GENERAL CONDITIONS, SECOND PARAGRAPH, shall not apply to this bid item.

Payment for this item will be made under:

SSP 25050 *4" Topsoil Per Square Yard*

56. SSP 25060

Property Owner Meeting

Description: This item shall include all work and costs associated with conducting property owner meetings as directed by the Engineer.

Workmanship: The contractor shall arrange to have a meeting with all interested property owners at least once a month during the contract period to inform them of work that has been completed and what work is expected to be completed before the next scheduled meeting.

At each meeting, the contractor shall answer all questions and complaints by concerned property owners. The contractor shall provide a flyer that is to be delivered to properties along the project corridor. This flyer, at a minimum, shall designate the location and time of the property owner meetings, construction phases or milestones, detour routes, and a contact person for the contractor. The flyer must be approved by the Engineer and distributed to the affected property owners and/or residents and ACHD's Business Relations contact person before the start of any construction activities on site. These meetings shall be held at the same location and time as established on the contractor's initial flyer to the property owners. The contractor shall provide a representative (and phone number) for the duration of the project that the property owners along the project corridor may contact if they have questions.

Measurement and Payment:

Payment for this item will be made under

SSP 25060

Property Owner Meeting.....

COMMUNICATION REQUIREMENTS SHOULD BE COORDINATED WITH ACHD'S UPDATED ACCESSIBILITY POLICY ON COMMUNICATION AND ACCESSIBILITY REQUESTS. ACCOMMODATIONS AND ALTERNATE COMMUNICATION METHODS MAY BE REQUIRED. REVISE WORDING ACCORDINGLY.

57. SSP 25062

Remove Underground Septic Tank

Description: This item shall include all work and costs associated with removing an underground septic tank as identified on the construction plans, or as may be encountered during construction.

Workmanship: The Contractor shall remove the septic tank and backfill the hole with pit run gravel material and compacted to 95%. The septic drain field shall be abandoned in accordance with Central District Health Department requirements. The Contractor shall field verify the location of the tank and drain field. Any permits required to complete this work shall be obtained by the contractor and shall be included in the unit bid price for this

Measurement and Payment:

Payment for this item will be made under

SSP 25062

Remove Underground Septic Tank..... Per Each

NOT REVIEWED

58. SSP 25080 Remove & Reset Mailbox

Description: This item consists of furnishing all labor, equipment and material necessary to remove existing mailboxes and supports, make temporary arrangements to assure uninterrupted mail service during construction, and install new mailboxes and supports as shown on the plans or as directed by the ACHD.

Materials: All materials shall conform to the ISPWC and the ACHD ADOPTED REVISIONS AND SUPPLEMENTS except as noted herein. Mailbox post support and foundation shall conform to Section 1105 for a D-1 (4-inch by 4-inch) wood post. Mailboxes shall be Postmaster General approved.

SHOW REQUIREMENT IN DETAIL SD-709A (ACHD).

Workmanship: The existing mailbox and support shall be removed and returned to the owner. A new mailbox, the same size and shape as existing, shall be furnished and installed on a wood post support and foundation. The name and address as shown on the existing mailbox shall be placed on the new mailbox. Should the owner be satisfied with the condition of the existing mailbox, the Contractor may reinstall the existing mailbox at the end of construction. The final location shall be marked in the field by the Engineer.

Mail service shall not be disrupted. Access to mailbox shall be provided at all times. An acceptable temporary mailbox stand may be installed by the Contractor during construction operations prior to installation of the new mailbox and support.

Measurement and Payment: Remove and Reset Mailbox will be measured per each new and final post installation and shall include all labor, equipment and material necessary for the completion of the bid item, including all work necessary to assure uninterrupted mail service during construction. The accepted quantity for Remove and Reset Mailbox will be paid at the contract unit price for the item listed below. The cost of the temporary mailbox and support is considered incidental to this bid item and no additional payment will be made.

Payment for this item will be made under:

SSP 25080 Remove & Reset Mailbox..... Per Each

59. SSP 25115 Temporary Cofferd Dam

Description: This item includes all material, labor, and equipment necessary to provide and a temporary coffer dam at the locations specified and detailed on project plans.

Materials & Workmanship: Any other variation of the specified coffer dam must be approved by ACHD prior to utilization and may require the 404 permit to be revised. No additional time shall be granted for any delay to a revision of the 404 permit. All items to construct the Cofferd dam and a stilling basin, including any pipe or pumping shall be covered under this item and no additional compensation shall be granted.

NOT REVIEWED

Measurement and Payment: All material, labor and equipment necessary to construct, install and maintain the coffer dam, including any piping or pumps, will be considered incidental to this bid item and no additional compensation will be considered.

Payment for this item will be made under:

SSP 25115 *Temporary Cofferdam* Per Lump Sum

60. SSP 29050 Temporary Soil Stabilization

Description: This item shall include all work and costs associated with the application of Temporary Soil Stabilization as shown on the plans or as directed by the Engineer.

Materials: Temporary soil stabilization shall consist of applying the following:

- Wood fiber mulch and tackifier (hydro-applied)
- Soilbinders or tackifiers in combination or alone (hydro-applied)

The hydro-application should be mixed and hydro-applied as follows:

1. Plant-derived soil binder or tackifier containing psyllium or guar gum in accordance with the manufacturer's written instruction for the soil types, conditions and degree of slope.
2. Bonding fibers at 20 lb/ac.
3. Wood fiber mulch at 500 lb/ac. to 1000 lb/ac.

Workmanship: The Contractor is responsible for erosion and sediment control until permanent measures are applied. Prior to application the contractor shall provide documentation describing the soil binder or tackifier, bonding fibers and wood fiber mulch for review and approval. The contractor shall also provide certification from the manufacturer that the materials are noxious weed free, nontoxic to animals, soil microorganisms, aquatic and plant life. The soil binder or tackifier, bonding fibers and wood fiber mulch will not interfere with or impede seed germination or vegetative growth/establishment.

All materials should be thoroughly mixed in water slurry using mechanical and liquid bypass agitation and applied uniformly to avoid runoff of the applied product. Temporary surface/soil stabilization, unless otherwise specified, shall take place within five (5) calendar days following the last construction activity within the designated area, or in accordance with the SWPPP. The time limit may be extended to 14 calendar days during the seasonal dry period (June 15 to October 15).

The Contractor shall make field adjustments as necessary to ensure proper performance. Conduct reapplications in the same manner as the original application. If permanent seeding is to be performed on areas where temporary surface/soil stabilization materials have been applied, the Contractor shall reapply mulch to permanent levels.

Measurement and Payment: ITEM 29, "VARIATIONS IN QUANTITIES," ON PAGE GC16 OF THE ACHD GENERAL CONDITIONS, SECOND PARAGRAPH, shall not apply to this bid item.

Payment for this item will be made under:

61 SSP 29060 Hydroseeding

Description: This item shall include all work and costs associated with hydroseeding in the areas designated on the plans or as directed by ACHD.

Materials: Hydroseeding shall consist of furnishing and installing, seed, fertilizer, mulch, and water using the hydroseeding method. Seed shall be a dry land grass mixture prepared by a local nursery appropriate for the Treasure Valley. Application rate of the seed mixture shall be 30 lbs/acre.

Each variety of seed shall be tested seed from the latest crop available, and shall be delivered in standard sealed containers labeled in accordance with State and Federal Laws. The label shall show the variety of seed, the percentage of germination, purity and weed content. All varieties of seed shall have a minimum tested germination of 85% and contain a minimum of 80% pure seed by weight. Seed shall not be agitated in the hydro-seeder over 30 minutes.

Fertilizer shall be of any standard brand suitable for use with the hydroseeding method, furnished in moisture proof bags. Each bag shall be marked with the weight and manufacturer's analysis of the ingredients. Fertilizer shall contain a minimum of 22% available nitrogen. Fertilizer shall be applied uniformly at 440 pounds per acre. Fertilizer shall not be mixed with the seed in the hydro-seeder.

Mulch shall be a wood fiber mulch commonly used in the hydroseeding process. Mulch shall be applied at a rate of 2,000 lbs/acre.

Contractor shall provide certification for hydraulically applied erosion control products from the manufacturer that the materials are nontoxic to animals, soil microorganisms, aquatic and plant life, and will not interfere with or impede seed germination or vegetative growth and establishment.

Workmanship: Seeding shall be performed only at times when local weather conditions are favorable for growth, which normally will occur between September 15 and November 30, or between February 15 and May 15. The Contractor shall be responsible to protect and maintain the seeded areas until germination, including watering if necessary.

Measurement and Payment: Construction limits for this item shall be as shown on the plans. Any hydroseeding restoration required beyond the specified construction limits shall be made by the Contractor at his expense and no separate payment will be made, unless additional areas are as directed by the Engineer.

Hydroseeding will be measured per square yard and shall include all labor, equipment and material necessary for the completion of the bid item. The accepted quantity of Hydroseeding will be paid at the contract unit price for the item listed below. ITEM 29, "VARIATIONS IN

QUANTITIES," ON PAGE GC16 OF THE ACHD GENERAL CONDITIONS, SECOND PARAGRAPH, shall not apply to this bid item.

Payment for this item will be made under:

SSP 29060 Hydroseeding Per Square Yard

SSP 29065 Sod Repair

Description: This item consists of furnishing all labor, equipment and material necessary to repair lawn areas with sod as shown on the plans or as directed by ACHD.

Materials: Topsoil shall be per SSP 25050.

Fertilizers shall comply with the following chemical analysis:

15% to 20%	Nitrogen (N)
20% to 25%	Phosphorous (P ₂ O ₅)
2% to 10%	Potassium (K ₂ O)

Sod shall consist of Merrion, Parks, Delta or Windsor Kentucky Bluegrass or combinations of approved fine textured grasses suitable for the area to be sodded and closely matching adjacent grass.

Sod repair shall take place only on those disturbed areas which currently have established lawns, or as shown on the project plans or directed by the Engineer.

Workmanship: The lawn areas shall be tilled to a minimum depth of 6 inches by such means as will loosen the soil and bring it to condition suitable for fine grading. Prior to and during the operation, the surface shall be made free of vegetative growth. All stones, hard clods, roots, sticks, debris and other matter encountered during tilling which are detrimental to the preparation of a good seed bed, or which are toxic to the growth of grass, shall be removed. Four inches of topsoil shall then be placed under the areas to receive sod.

The area shall be floated and rolled to bring it to the finished grade. All irregularities in the surface that form pockets where water will stand shall be smoothed out to provide good drainage. The finished grade of lawn area adjacent to walks, curbs, driveways and pavements shall be approximately 1 inch below adjacent grades.

Fertilizers shall be spread evenly over the cultivated areas at a rate of 4 pounds per 1,000 square feet and shall be uniformly incorporated into the upper 3 inches of the soil, after which the areas shall be worked as necessary to provide a smooth, firm but friable lawn bed at the established grades.

Sod shall be placed in straight strips. The joints between strips shall be butted together, tight and without gaps. Sod shall be placed in a manner to stagger the end joints of the rolls. The sod shall be rolled with a 100-pound roller after placement. The surface of the finished sod shall be smooth, uniform and mowable.

The Contractor shall supply a letter to the property owner once the sod is installed notifying them the sod is installed and giving them a suggested watering schedule. Contractor shall notify property owner in writing if property owner is not following the suggested watering schedule. A copy of the letter will be forwarded to the Engineer.

Measurement and Payment: Lawn areas outside the construction limits that are damaged by the Contractor shall be repaired in accordance with this special provision at the Contractor's expense.

Sod Repair will be measured per square yard of ground surface on which sod is installed and shall include all labor, equipment and material necessary for the completion of the bid item. Topsoil shall be measured and paid as a separate bid item.

ITEM 29, "VARIATIONS IN QUANTITIES", ON PAGE GC16 OF THE ACHD GENERAL CONDITIONS, SECOND PARAGRAPH, shall not apply to this bid item.

Payment for this item will be made under:

SSP 29065 Sod Repair Per Square Yard

62. SSP 29090 Trim Tree

Description: This item consists of furnishing all labor, equipment and material necessary to trim existing tree branches and prune roots at the location shown on the plans, as directed in these specifications, or as directed by the Engineer. In general, tree trimming shall be kept to a minimum to establish clearance for sidewalks, bike lanes, and travel lanes, and to provide a balanced looking tree when completed.

Materials & Workmanship: The Contractor shall coordinate the work with the Engineer prior to commencing trimming. Tree trimming and root pruning shall be performed under the direct on-site supervision of a licensed arborist.

Trim existing tree branches that hang over the sidewalk areas that are less than eight-feet above the finished elevation. Prune tree roots within 3 inches of the back of curb to a depth of 18 inches. Trees to be trimmed and pruned will be identified on the plans or identified by the Engineer.

Measurement and Payment: Trim Tree will be measured per each tree trimmed and shall include all labor, equipment and material necessary for the completion of the bid item.

ITEM 29, "VARIATIONS IN QUANTITIES," ON PAGE GC-16 OF THE ACHD GENERAL CONDITIONS, SECOND PARAGRAPH, shall not apply to this bid item.

Payment for this item will be made under:

SSP 29090 Trim Tree.....Per Each

63. SSP 29093 Remove Tree 6"+

Description: This item shall include all work and costs associated with the removal of trees measuring 6 inches or more in diameter, measured 2 feet above the ground.

Workmanship: The entire tree shall be removed, including the stump and roots, or if removal of the roots could damage nearby structures or utilities, the Contractor shall grind up the stump and shallow roots. Grinding operations shall be included in the unit contract price for this item.

Measurement and Payment: The removal of trees less than 6 inches in diameter and all stumps will not be paid for separately, but shall be considered as incidental to the work of removal of obstructions. Trees for removal shall be marked in the field by the Engineer prior to removal.

Payment for this item will be made under:

SSP 29093 Remove Tree 6"+.....Per Each

64. SSP 29101 Remove & Reset Sprinkler System

Description: This item consists of furnishing all labor, equipment and material necessary to remove existing sprinkler systems, install and maintain temporary sprinkler systems during construction, adjust/relocate existing sprinkler systems, or install new sprinkler systems at the locations shown on the plans or as directed by the Engineer.

Materials: All materials shall conform to the ISPWC and all ACHD ADOPTED SUPPLEMENTS and shall be equal to, or of better quality than, existing materials.

Workmanship: Prior to commencement of construction, the Contractor shall document the locations of existing sprinkler systems within the construction zone. Documentation shall include, but is not limited to, type and location of existing sprinkler heads, pipe, controllers, valves and control wires. Documentation shall be provided to the Engineer prior to demolition of existing sprinkler systems. Costs associated with providing documentation of existing sprinkler systems shall be considered incidental to this item.

Adjusted/relocated sprinklers shall be installed to restore adequate coverage to remaining landscape areas and new sod areas. Over-spray onto the roadway and sidewalks will not be allowed. Unimpacted existing sprinklers in the project area shall be adjusted to prevent over-spray onto the roadway and sidewalks as directed by the Engineer.

The Contractor shall maintain all sprinkler systems outside of the construction zone that are impacted by the Contractor's activities. This may require the Contractor to install temporary

sprinkler main lines around the construction zone. All costs associated with installing and maintaining temporary sprinkler systems and providing temporary water during construction shall be considered incidental to this item. Contractor shall cut and cap existing lines and supplement existing systems with additional materials as necessary.

Measurement and Payment: Remove and Reset Sprinkler System shall be measured by the linear foot of mainline pipe that is adjusted/relocated or newly installed, and shall include all labor, equipment and material as necessary for completion of the bid item. Providing and adjusting of individual sprinkler heads shall be measured as ten linear feet each. Adjusting of individual sprinkler heads not impacted by the project shall be measured as two linear feet each.

ITEM 29, "VARIATIONS IN QUANTITIES", ON PAGE GC16 OF THE ACHD GENERAL CONDITIONS, SECOND PARAGRAPH, shall not apply to this bid item.

Payment for this item will be made under:

SSP 29101 Remove & Reset Sprinkler System Per Linear Foot

65. **SSP 29110** **Groundwater Observation Well**

Description: This item shall consist of furnishing all labor; material, and equipment necessary to construct a groundwater observation well at the location shown on the plans or as directed by the Engineer in accordance with ISPWC Standard Drawing SD-627.

Materials: Groundwater observation wells shall consist of 4" diameter non-perforated PVC from finished surface to the top of the drain trench, and 4" diameter perforated PVC pipe from the top of the drain trench to the bottom of the sand bed as detailed on the plans.

Workmanship: A PVC cap shall be placed on the bottom of the perforated PVC pipe and a 8"x12" watertight manhole with 12" galvanized skirt, Item number 318101201 as manufactured by Morris Industries, 777 Route 23, Prompton Plains, NH 07044, (800) 835-8777, or approved equal, shall be set flush with the finished surface on the top of the non-perforated PVC pipe. The pipe shall be set straight and plumb. The cast iron cover shall be set flush with the finish surface in a concrete collar.

Measurement and Payment: Groundwater observation wells shall be placed in the locations indicated on the plans.

Payment for this item will be made under:

SSP 29110 Groundwater Observation Well Per Each

66. SSP 29800

Abandon Existing Septic System

Description: This item shall include all work and costs associated with abandoning of an existing septic tank in the location shown on the plans.

Materials & Workmanship: These removals shall be completed within the first 45 days of the construction schedule, unless otherwise approved by the Engineer. This work shall be coordinated so that Bid Item 504.4.1.D.1 Sewer Service Connection to Main – Size 4 Inch is completed at the same time.

Contractor is required to contact property owner 14 days in advance to coordinate the timing for the abandonment of the septic tank.

Contractor is to obtain any permits necessary to abandon existing septic tank.

Contractor shall punch holes in the bottom of the tank to facilitate drainage and then backfill the tank with sand conforming to SPWC Division 800.

The area shall be finished graded to present a pleasing appearance with slopes rounded and flattened to blend naturally with the adjacent topography.

Four (4) inches of topsoil conforming to SSP 25050 and hydro-seed shall be placed on graded areas.

Backfill, topsoil and hydro-seed are considered incidental to this item.

Measurement and Payment: Abandon Existing Septic System will be measured per each and shall include all labor, equipment and material necessary for the completion of the bid item. The accepted quantity of Abandon Existing Septic System will be paid at the contract unit price for the item listed below.

Payment for this item will be made under:

SSP29800 *Abandon Existing Septic System* Per Each

67. SSP-29901

Towing

Description: This item shall include all costs associated with the towing of a vehicle out of the area of construction.

Measurement and Payment:

Payment for this item will be made under:

SSP 29901 *Towing* Per Each

68. SSP 70015

Concrete Canal Lining

Description: This item shall consist of furnishing new concrete canal lining on the canal banks at the location and grades shown on the plans or as directed by the Engineer.

Materials: Concrete for concrete canal lining shall be Class 4000B meeting the requirements of Division 700 of the ISPWC. Welded wire fabric for reinforcing shall conform to the requirements of Section 708.02 - Reinforcing Steel of the ITD Standard Specifications for Highway Construction.

Pre-formed expansion joint fillers shall conform to AASHTO M 213.

Workmanship: Existing concrete canal lining shall be saw cut and removed to the lines shown on the plans. The canal bank and aggregate base on which the concrete canal lining is to be placed shall be graded to the lines shown on the plans and compacted in accordance with ISPWC Division 800 Aggregates and Division 700 Concrete.

Construction joints shall be constructed at 8-foot maximum spacing in any direction. Joints shall be formed by edging a ½" radius at each edge of poured concrete at the joint, or by scoring to a depth of 1". Scored joints shall be formed by a tool which will leave rounded corners and destroy aggregate interlock to a depth of 1-inch.

All joints where canal lining matches existing lining shall be sealed by scoring a ½" wide by 1" deep groove into the new concrete canal lining, installing 5/8" backer rod, and sealing the joint with a silicone sealant. Silicone sealant shall be Dow Corning 902, Watson Bowman silicone sealant, or approved equal.

Adjacent abutment piling and abutment and wingwall concrete shall be in place prior to placement of the canal lining in order to protect the integrity of the new canal lining.

Measurement and Payment: This item shall consist of furnishing all labor, material, and equipment necessary to construct new concrete canal lining on the canal banks at the location and grades shown on the plans or as directed by ACHD

Payment for this item will be made under:

SSP 70015 Concrete Canal Lining Per Square Yard

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SECTION 3100 – DEVELOPMENT OF PROJECTS

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3100 DEVELOPMENT OF PROJECTS

This section outlines various phases of project development.

3101 PROJECT OVERVIEW

The development of construction projects involves a considerable amount of time and effort. Construction projects must be necessary, cost effective and within the approved policies of the District.

A construction program is to be designed based on selected projects, and priorities established by needs, studies and long range planning.

3102 PROJECT NEED AND CONCEPT

A project need is based on considerations such as limited capacity for current traffic volumes, physical condition, safety and public sentiment, and conformance with area planning.

Normally, the need for projects develops over a period of one to six years. When the need for a project has been established and documented, District staff is responsible for recommending projects for the Highway District's Five Year Work Program (FYWP). They should help set priorities and changes to the FYWP. Proposed changes should include documentation of statistical data on pavement condition, structure condition, signal needs, hazard reduction potential, and capacity needs. Documentation should also address the existing deficiencies, possible alternatives and an estimated cost. Documentation may be supported by a preliminary project concept report (Exhibit 2). It will be circulated to all appropriate sections and management. Proposed changes not approved by management will be returned.

3103 PROJECT ESTIMATED COSTS

Under 3101 PROJECT OVERVIEW, a preliminary project cost summary sheet (Exhibit 3) shall be completed and submitted on all projects except the following:

- Overlays;
- Miscellaneous projects (i.e., miscellaneous concrete, guardrail installation, chip seals and other types of sealing projects);
- Maintenance and Operations projects;
- Traffic Maintenance projects.
- CURB RAMPS OR BARRIER REMOVALS REQUESTED BY PUBLIC

3104 PROJECT FIELD REVIEW

A preliminary project concept report (Exhibit 2) shall be completed and submitted for all projects that include widening, reconstruction, rehabilitation for capacity related projects, and any other projects not identified in the list of exceptions in item 3103.

3105 PRELIMINARY DESIGN

The flow of project development for each project may or may not follow the project checklist (Exhibit 1). Checkpoints have been established at various stages that require approval of specific project information. These checkpoints are:

1. Approval of Preliminary Project Concept (Exhibit 2);
2. Preliminary Design Review;
3. Public Information Meetings;
4. Final Design;
5. Contract Advertisement.

This assures that each project has had the proper reviews and that money is available. The project should meet management policies and design requirements.

The minimum design guidelines and specifications to be used are outlined in Section 3003. Variance from these requirements requires District approval before the next stage of work begins.

The preliminary design phase should include, but not be limited to, the following:

1. Topographic surveys;
2. Completed materials information;
3. Traffic volumes - present and future;
4. Projected number of traffic lanes, bike lanes, and parking lanes;
5. Mapping of project area;
6. Preliminary environmental evaluation;
7. Contact with local government agencies;
8. Review of alignment options;
9. Preliminary pavement and gravel base recommendations;
10. Preparation of preliminary project plans;
11. Review of impending right-of-way impacts;
12. Conducting informational project meetings;
13. Getting information from utilities.
14. Review of drainage and irrigation issues.
15. Land surveying information of P-line to land corners.
16. IDENTIFYING RECOMMENDED ACCESSIBILITY IMPROVEMENTS.

3105.1 Traffic Information

Traffic volume information shall be prepared based on counts from the District, Ada Planning Association (APA), and/or actual on-site counts. The traffic study shall consider current counts, turning movements, accident history, projected future volumes, current and future land development, among others.

A traffic report shall be prepared that projects the traffic volumes for twenty years or more beyond the expected construction year. The traffic report will recommend traffic lanes, bike lanes, parking lanes, sidewalks, length of turn lanes, traffic signal types and locations, with other related information.

↑
INCLUDE PEDESTRIAN SIGNALS.

3105.2 Preliminary Design Analysis

Design standards and conditions for a project need to be established as early as possible. Standards for a project include, but are not limited to, design speed, roadway width, horizontal and vertical alignments, grade, clear zone width, super elevation, design vehicle, minimum vertical clearance, level of service, functional street classification, and traffic volumes. **AND ACCESSIBILITY**

INCLUDING BIKE AND PEDESTRIAN VOLUMES REQUIREMENTS.

Traffic volumes shall be determined for the current year, and for twenty years from the proposed construction year. These projections shall consider current and future land use.

Design speed for the project shall be the current posted speed limit plus 10 miles per hour, unless otherwise approved by the District. After design speed is selected, the required stopping sight distance, vertical alignment widths, maximum grades and clear zone can be determined. Existing conditions need to be reviewed to determine the horizontal alignment.

The Level of Service for District projects shall be a minimum of "C." In some cases, the cost of construction for the recommended level of service becomes prohibitive. Then, a lower level of service may be acceptable for economic or property impact reasons. Justification for the **INCLUDE MINIMUM DIMENSIONS FOR SIDEWALKS AND CURB RAMPS AS SHOWN IN ACHD SUPPLEMENT TO ISPWC STANDARDS.**

The District has adopted the AASHTO publication "A Policy on Geometric Design of Highways and Streets", latest edition. This must be used for new and reconstruction projects on roadway systems. It is a District policy that all design criteria will be met. Where both minimum and desirable values are provided, every reasonable effort shall be made to achieve the desirable standards. The roadway widths adopted by the District shall be used. If the proposed width or other standard is less than the AASHTO standards, it must be documented, justified and approved by the District.

In addition to the AASHTO Geometric Design Standards, the AASHTO Roadside Design Guide shall be used in the concept analysis and actual project design.

3105.3 Environmental Evaluation

Environmental documentation starts with the concept or initial step of project development. This documentation must use existing studies pertaining to social, economic and environmental impacts of the project activities. Preliminary engineering, surveys, soil surveys, and location decision documentation can be completed before or at the same time as the environmental evaluation document (Exhibit 4).

All interested parties, agencies or jurisdictions must be identified and involved early in the environmental process. The governmental agencies shall be involved in data collection, impact assessment and identification of such issues as bikeways, wetlands, landscaping, and noise mitigation, when appropriate. Decision making will be in the best interest of the public.

ACCESSIBILITY,

Environmental documentation for a project may be governed by the following materials.

1. National Environmental Policy Act (NEPA) of 1969;
2. "Council on Environmental Quality Regulations for Implementing NEPA" 40 CFR Parts 1500-1508, November 29, 1978;
3. "Federal Highway Administration - Urban Mass Transportation Administration", 23 CFR Part 771, "Environmental Impact and Related Procedures".

Additional information may be gained by referring to Section 14-320, Project Environmental Documentation, 14-321 Definitions, 14-322 Classification, 14-322 Project Classification, and 14-323 through 14-325 Classes of Environmental Documents of the Idaho Department of Transportation Design Manual.

3105.4 Preliminary Plans

The minimum information required on preliminary plans shall be complete enough to show location and general design features of all existing and planned facilities. Some of these items are: signing, illumination, intersection data and features, ~~grade, line, and other related items that will affect project design.~~ CURB RAMPS, — These plans should be at 75% complete at a minimum.

The following is a checklist for materials required for preliminary design review. The list is general and is not intended to be limiting. Any important project information shall be submitted for review, whether or not it is specifically identified. The plans shall be used as part of the presentation for the public information meeting.

3105.4.1 Roadway

1. Title sheet with vicinity map;
2. Cross section sheets;
3. Typical roadway sections;
4. Plan and profile sheets
 - a. Topography
 - b. Existing and proposed property lines
 - c. Existing and proposed drainage and irrigation
 - d. Horizontal and vertical alignment and grade
 - e. Construction notes
 - f. Utility locations
 - g. Proposed roadway
 - h. CURB RAMP LAYOUT AND GRADING DETAILS
5. Structure detail sheets
6. Preliminary cost estimate.

3105.4.2 Traffic

1. Signal layout; (INCLUDING PEDESTRIAN SIGNALS)
2. Lighting
3. Construction traffic control plan;
4. Striping layout; (INCLUDING CROSSWALKS)
5. Turn bays;
6. Transition lengths (taper lengths);
7. Signing;
8. Signal warrant worksheet.

3105.4.3 Bridges

1. Title sheet with vicinity map;
2. Bridge plan detail sheet;
3. Foundation investigation sheet;
4. Structure details;
5. Roadway approaches on plan and profile sheet(s);
 - a. Topography
 - b. Existing and proposed property lines
 - c. Existing and proposed drainage and irrigation
 - d. Horizontal and vertical alignment and grade
 - e. Construction notes
 - f. Utility locations
 - g. Proposed roadway
 - h. PEDESTRIAN SIDEWALKS

3105.5 Government Permits

A project may require one or more permits from State, Federal and Local agencies. This section presents a list of regulatory permits and approvals. Permits normally require an application process. Project approvals are obtained through coordination and negotiation with the approving agency.

3105.5.1 U.S. Department of the Army - Corps of Engineers (Corps)

1. General. The Corps of Engineers has authority over all work in waters of the United States and

When the Corps prepares an environmental assessment or impact statement for a project requiring a Section 10 or Section 404 permit, conditions set forth in a Memorandum of Agreement between USDOT (FHWA) and the Corps, signed March 1980, are followed. This agreement is intended to "strengthen the early coordination between

USDOT and the Corps prior to and during development of projects and environmental documentation."

2. Permits. Highway construction that affects waters or wetlands of the United States must have a Section 10 permit or a Section 404 permit. Either permit may be in the form of a nationwide or regional general permit or an individual permit.

- a. Section 10 Permit. This is a permit required for any construction, excavation, deposition of material, or any other work in navigable water affecting the course, location, conditions or capacity of such waters. The purpose of the permit is to prevent obstructions to navigation.

Navigable waters are "those waters of the United States that are subject to tidal action shoreward to mean high water or are used, have been used, or are susceptible to use in interstate or foreign commerce."

- b. Section 404 Permit. This permit is required for placing of dredged or fill material into waters of the United States. The purpose of the permit is to prevent water quality degradation. A 404 permit is not required to maintain drainage structures or ditches, but may be required to construct temporary sedimentation basins.

Waters of the United States include all navigable waters, interstate waters, and intrastate waters of which the use, degradation or destruction could affect interstate or foreign commerce. Also included are tributaries to, and wetlands adjacent to the above.

- c. Nationwide Permits (NWP). These permits are both Section 10 and Section 404 permits and are fully detailed in 33CFR330. NWP are intended to lessen damage, by:

- Reducing adverse impacts on the aquatic system caused by changes in water flow due to impoundment.
- Avoiding wetlands.
- Placing heavy equipment on mats in wetlands.
- Avoiding breeding areas for migratory waterfowl.
- Removing temporary fills entirely.

3. Procedures. The Districts submit a joint application for a State Stream Alteration 404 permit to the Idaho Department of Water Resources (DWR). The application should say if an individual 404 permit or a nationwide or

general permit applies. DWR acts as a clearinghouse for applicants. They process the application with the Walla Walla office of the Corps of Engineers, requesting that type of permit required.

When a contractor wishes to work in water of the United States, he must apply for a joint water resources/404 permit. This may take an additional 60 to 90 days response time.

3105.5.2 Idaho Department of Water Resources

1. General. DWR issues permits for any proposal that will alter a channel that carries continuously flowing water.
2. Procedures. Districts apply to DWR after the preliminary design stage with a joint application as mentioned above.

NOT REVIEWED

3105.5.3 Idaho Department of Lands

1. General. All projects involving or affecting the beds and shores of navigable waters in Idaho as determined by Department of Lands (DOL), must have approval. Approval is in the form of permit, special use lease, or easement.
2. The DWR submits the joint applications to DOL for review and comment. If a permit or easement is required, DOL will comment. When a project involves a navigable lake, the District will ask for comment and get approval from DOL. Reclamation plans will be prepared by the District and submitted to DOL for approval.

3105.6 Public Involvement Process

3105.6.1 Introduction

The public involvement process assures adequate public input about the need for a proposed project. The District and public can discuss alternate courses of action; alternative project locations; major design features; social; economic and environmental effects of the alternatives; changes to the local roadway system; transportation planning; and the consistency of the project with Federal and State laws.

The public involvement process may be thought of as having two phases. The informal public involvement phase identifies issues, goals, objectives, values and impacts. The formal hearing phase summarizes studies and work to date and presents these in a public forum. Formal hearings provide opportunity for further public interaction. If a proper job was done during the informal phase, there should be few "surprises" at this time.

As part of the information process that is undertaken on each project, the consultant should be prepared to answer the following questions:

1. Why are we doing this project? (origin of project, traffic, safety, maintenance, structural needs, etc.)
2. Is the project supported by existing plans? (Long Range Plan, Transportation Improvement Plan (TIP), Pathway Plan, etc.)
3. When will the project start and be completed? (If the project is phased over several years, a schedule for each phase should be provided.)
4. What is the anticipated construction cost?
5. What type of work is going to be completed? (Widening, curb, gutter, sidewalk, bicycle facilities, number of travel lanes, turn lanes, irrigation relocation, detour routes, etc.)
6. What will be the effect on the environment? How is this being considered in the approval process?
7. What considerations have been reviewed and what type of mitigation, if required, have been included.
8. How are pedestrians and bicyclists being accommodated?
9. What other measures or alternatives were considered and why was this alternative selected?
10. What type of traffic control features has been planned?

STRATEGY FOR PUBLIC INVOLVEMENT SHOULD BE COORDINATED WITH ACHD'S UPDATED ACCESSIBILITY POLICY ON COMMUNICATION AND ACCESSIBILITY REQUESTS. ACCOMMODATIONS AND ALTERNATE COMMUNICATION METHODS MAY BE REQUIRED. REVISE WORDING ACCORDINGLY.

This is only a partial list of questions that are typically asked, and are intended for your use in preparing the supporting project information. In many areas the District will have to participate with the consultant in finalizing the answers to these questions. Prior to any public involvement process the consultant and District should meet to discuss these questions and any others that might arise.

3105.6.2 Informal Phase

The number and extent of informal meetings, informal requests and preliminary project scoping procedures varies depending on the proposal, impacts, location and public interest. The basic strategy for public involvement shall be determined early by District staff and documented in project memo files. Such items as who to contact, size of groups, areas, detail of presentation, how best to make contact and other matters must be decided.

Informal public involvement activities described in memorandums that shall cover such items as length of meetings or contacts; where held; who initiated them, who participated; how they were notified; content of discussion; questions, comments, and concerns; and conclusions. Minorities should be

identified and included at the early stage of project development to follow Title VI of the Civil Rights Act.

The information gained in the scoping process should be used to help support future determinations on issues; decide the need for a formal hearing or not; and provide input for project development. Additional guidance for public involvement is provided in Guidelines on Citizen Participation in Transportation Planning, 1978, AASHTO; and Improving the Effectiveness of Public Meetings and Hearings, 1978, FHWA.

3105.6.3 Formal Phase

In all cases, the Engineering Services Manager shall review the major design features, route locations, alternatives and approved environmental documents. This review determines that the project features are generally acceptable for hearing purposes.

3105.6.4 Definitions

REFERENCE ACHD'S UPDATED
ACCESSIBILITY POLICY ON
COMMUNICATION AND
ACCESSIBILITY REQUESTS. .
REFERENCE UPDATED
GUIDANCE MATERIALS.

1. Design Public Hearing. This hearing is held after a route location has been determined but before a final commitment is made to a specific design.
2. Combined Location and Design Public Information Meeting. This is a public meeting held to discuss the proposed location and major design features of the proposed alternatives before a commitment is made for a specific route location and design.
3. Location Public Information Meeting. This is a meeting held before a route location is approved. The meeting purpose is to present information to the public to secure comments on the proposed work.
4. Class I Project. This involves actions likely to have significant impact on the environment and requires an Environmental Impact Statement.
5. Class II Project. This involves actions that do not individually or in combination have significant effects on the environment. It can result in a Categorical Exclusion or a Finding of No Significant Impact (FONSI).
6. Class III Project. This involves actions for which the significance of the impact on the environment is not clearly established. It requires an Environmental Assessment.
7. Scoping. A process for determining the extent of issues to be addressed. It identifies the significant issues related to a proposed action. It occurs early in project development and is open to interested parties.

3105.6.5 Public Involvement Process

1. The public involvement process applies to all projects, except those noted in Section 3103, beginning early in project development. The project scope, intensity of interest and level of impact determines the level of public involvement activities.
2. Projects must have a hearing when:
 - a. There is acquisition of significant amounts of right-of-way;
 - b. There is substantial change to the layout or function of connecting roadways, or of the facilities being improved;
 - c. There is significant adverse impact on abutting property, or when litigation or public controversy is anticipated; and
 - d. There is significant social, economic, environmental affect on the surrounding area.

COORDINATE WITH ACHD'S
UPDATED ACCESSIBILITY POLICY
ON COMMUNICATION AND
ACCESSIBILITY REQUESTS.



3. Notice of Public Hearing or Information Meeting. Notices for public hearings or for public information meetings shall be published in a newspaper having general circulation in the area in which the proposed project is located. Plans and Surveys prepare the hearing notification and coordinates hearing activities.

When a public hearing is to be held, a notice of public hearing is published at least twice. The first notice is published 15 days before the date of the hearing. The second notice is published 5 days before the date of the hearing.

When a public information meeting is advertised, one notice is published. The notice shall be published at least 7-days before the meeting.

In addition to publication of the notice of the public hearing, copies of the notice shall be distributed to the news media. Copies or other notices also shall be sent to local public officials; public advisory groups and agencies who have requested notice of hearings; and other groups, including minority groups. Agencies that, by nature of their function, interest or responsibility, may be interested in or affected by the proposal should also receive notice.

COORDINATE WITH ACHD'S
UPDATED ACCESSIBILITY POLICY
ON COMMUNICATION AND
ACCESSIBILITY REQUESTS.

Each notice of a public hearing shall specify the date, time and place of the hearing and shall contain a brief description of the proposal(s). The notice shall specify that pertinent information concerning the project is available for public inspection and copying. It shall explain where this information is available and give the name and phone number of a contact person.

Procedures for submitting written statements after the hearing shall be described in the notice.

4. Conduct of Public Hearing or Information Meeting. Public hearings or information meetings are to be held at a place and time convenient for persons affected by the proposed undertaking. Provisions shall be made to accommodate ~~handicapped~~ or minority individuals. Responsible personnel shall be present at the hearing to conduct the hearing and answer questions. Appropriate documents must be made available for public inspection at the hearing, and a Hearing Officer shall be appointed.

INDIVIDUALS WITH A DISABILITY

As the result of, and to be in conformance with, the *Americans with Disabilities Act (ADA)*, the Highway District and its consultants are required to make all off-site activities accessible, including audio and visual material. When arranging an off-site activity, select a site that is accessible. If special arrangements are requested by someone with a hearing or visual impairment, the District must comply if given reasonable notice.

The hearing or meeting shall cover the need for the proposed project; alternative courses of action; alternative project locations and major design features; engineering, social, economic and environmental documents; right-of-way requirements; relocation assistance programs and payments, when needed; and the consistency of the project with local planning goals. Alternatives shall be presented at comparable levels of detail.

Provisions shall be made to accept written statements and exhibits. This can be in place of, or in addition to, oral statements at the public hearing. The procedures for such submittals shall be clearly described at the hearing.

5. Public hearing transcript - A word-for-word written transcript of the oral proceedings of each public hearing is prepared by the hearing officer. A statement certifying that a hearing opportunity was provided shall accompany this transcript, with copies of all written statements submitted to the hearing officer. It shall be prepared before the close-of-hearing date. A combination of these items forms the

transcript. Copies of the hearing transcript shall be sent to those who request copies.

OR INFORMATION MEETING

3105.6.6 Design Hearing Plans

The design hearing or information meeting plans shall show the property owner's name. These plans shall not show the acreage required or remaining. If title reports are not available, the owner's name as shown on the assessor's tax role is acceptable. The profile and ground line should be shown, except in urban projects, where profile and ground line tend to coincide. The right-of-way lines established on the basis of the latest design should be shown with cut and fill catch lines and pertinent planimetric features. Approaches established on the basis of access control approved by the District and owner contact should be shown. Right-of-way lines, cut and fill catch lines, and approaches shown on the plans are subject to change as the project moves to final design. The same title sheet should be used for the preliminary design review.

There are two forms of plans for design hearing presentation:

1. Plans can be made from topographic plans with separate profile sheets (cut from the rolls). The maximum sheet size is to 24x48 inches. Matching plan and profiles should be mounted on a firm background to make a workable exhibit at the hearing.
2. Plan and Profile Sheets (24"x36") can be used, if they are available at this project stage and contain the required data for presentation.

RECOMMEND RUNNING EXHIBIT
THROUGH A COLOR CONTRAST
ANALYZER TO MAKE THE
INFORMATION ACCESSIBLE TO
A WIDER RANGE OF PEOPLE
WITH DISABILITIES.

The District or consultant shall prepare at least two sets of design hearing plans as colored white prints showing ownership. All-white prints to be used for hearing plans will be sent to the Plans & Surveys Division with any other data to be used for the hearing. The plans will be stamped "Official Hearing Plans" and prepared for public display. The District is responsible for furnishing hearing plans and other hearing data for public display at the locations set in the published hearing notice. Enough copies of the hearing plans shall be colored to provide adequate public information. The coloring should show individual ownerships in contrasting colors.

The required right-of-way should be a solid color. The ownership boundary should be colored along the line, with the owner's name printed in the same color as the required area. Easements, if known, are to be labeled and cross-hatched with the same color for the applicable ownership. The roadway may be left white or colored, using one neutral color throughout the project.

3105.7 Mitigation

As part of any realignment, reconstruction, widening or other project not listed in Section 3103, the District must take mitigation action to the reduce impact to adjoining properties. This effort shall be made according to the various permitting requirements.

Each project shall be reviewed on a project-by-project basis to determine the type and amount of mitigation required.

3105.7.1 Examples of Mitigation

Following is a list of general mitigation measures that may be considered. The list is not considered to be all inclusive.

1. Design changes should not increase noise, and if possible reduce noise, vibration, light and other traffic effects during and after construction.
2. The design process should assure impacts on ~~the~~ **INDIVIDUALS WITH A DISABILITY** ~~handicapped~~ are considered and that ~~handicapped~~ individuals are provided access. **WITH A DISABILITY**
3. Designs should consider the impact of the project on pedestrian traffic. **AND ACCESSIBILITY.**
4. During design, consider measures that minimize the impact on vehicle traffic during construction. **BICYCLE, AND PEDESTRIAN**
5. Insure that business and property owners are provided access during and after construction.
6. Make changes to designs assuring preservation of historically important sites and structures.
7. Assure that designs include measures to protect public safety, including designs providing adequate street lighting that is coordinated with other safety and security lighting.
8. Include measures to protect the environment, including protection of natural resources.
9. In areas where negative impacts cannot be avoided, implement measures to reduce the impacts such as creating or enhancing wetland.
10. Include measures to preserve scenic views.
11. Lessen the overall impact on neighborhoods.
12. Provide access to public recreational sites.
13. Landscape to enhance and preserve scenic vistas and reduce visual and noise impacts.
14. Include corridors such as pathways and bikeways as part of projects, where appropriate.

3106 FINAL DESIGN

3106.1 Final Right-of-Way Plans

Projects needing right-of-way, including permanent (P) or temporary (T) easements require the preparation and submission of "official right-of-way plans." They also require substantiating documentation to complete plans and acquisition of the right-of-way.

If needed, the District will furnish title reports for the affected properties. The designer must be careful to request only the title reports needed. He should not request reports that are not needed. Title reports should be examined for easements or other encumbrances. These would reveal the existence and location of water lines, conduits, drainage or irrigation lines, utilities, etc. that must be handled during construction.

The designer will check the following list of items to be included in preparation of right-of-way plans and other documents.

RECOMMEND
SHOWING CURB
RAMPS AND REQUIRED
LANDINGS. GRADING
OF CURB RAMPS AND
LANDINGS MAY
TRIGGER NEED FOR
RIGHT-OF-WAY
ACQUISITION.

1. All projects shall be referenced to land corners, i.e. section corners, 1/4 corners, 1/16 corners, 1/64 corners, street intersections or lot and block corners. Local coordinate systems are acceptable. In some cases the District will provide Ada County Base Map coordinates for control corners of a project.
2. Township plat must be used to check the proposed alignment location. This will assure that all subdivisions being crossed have been properly set, and the correction is shown along lines common with adjacent townships.

In platted areas such as suburban tracts, lake shore lots, patented mining claims and city subdivisions, secure copies of official plats for map preparation. Use maps of existing highways, railroads, utilities and any other facilities where plans or maps of record may contain valuable historic information.

3. The ownership of all property where there is right-of-way proposed for the project will be determined from records available in county offices. Ownership records will be used for location studies, preparation of ownership map sheets, title reports, and right-of-way plans.
4. Right-of-way widths and centerline stations are shown at the beginning and end of each sheet, and at all points of change in width of the right-of-way. Distance left or right is not identified unless the right-of-way width is variable. All dimensions and computed area must be shown on the plans.
5. Right-of-way lines, widths to be acquired, centerline stations with proper ties to intersecting property lines, and changes in right-of-way widths are required.

6. A parcel number shall be assigned to each recorded ownership for properties involved in each project. This shall include all units of government.
 - a. Parcels are to be numbered consecutively starting with No. 1 for the first tract crossed and continuing in numerical sequence through to the end of the project. Do not use fractions. After assigning the parcel numbers, hyphenated numbers will be used to designate the intervening parcels, if the existence of an intervening ownership is discovered. This applies if a parcel is created because a portion of one of the original tracts is sold and creates an intervening ownership.
 - b. Show property ownership lines.
 - c. Show names of the property owners.
7. Property line symbols shall be shown on both sides of the right-of-way where a property line is continuous across the right-of-way.
8. Plan information must be tied to the name of the subdivision, designation of lot and block numbers and all platted dimensions adjacent to the new right-of-way, as shown on the plat of record. Show all dedicated widths of streets and alleys. Review all subdivision records for possible public land vacations. Where recorded tracts are described locally by tax numbers, it is helpful to include tax designation and legal description of the tract. This legal description may be a metes and bounds description available in the county records.

A warranty deed is the conveyance currently used by the District in the acquisition of right-of-way. Where possible, that portion of the existing right-of-way being held by the District for future use will be included in the total area conveyed in the deed. There is no need to refer to old project plans to determine the extent of right-of-way, since complete information is now shown on the new project plans.

9. Proposed limits of slope will be placed on plans as soon as earthwork design is mostly completed. Slope lines should be carried around any approaches.
10. Delineate easements required outside the right-of-way to accommodate intersecting roads and streets, land service, access and temporary roads, drainage areas, material storage areas, slope widening, utilities, railroads and any other special use. There must be adequate data shown to allow easement description, including area in square feet or acres. Permanent easements are used where parties other than the owner need to maintain a right to the land. Examples are pipelines or an access road. Interceptor ditches, normally at the top of cuts, shall have permanent easements. Temporary easements give permission to use the land for a limited period, such as during construction.

11. Show centerline station (plus) at the beginning and end of each easement. Mark each easement as temporary (T) or permanent (P) and note the purpose of each permanent easement (P). If the easement is irregular in shape, it shall be necessary to include distances and bearings to write a description.
12. Use a profile, showing ground line and grade line, including profiles of any approaches for which special design is made.
13. All types of ditches, irrigation pipe lines, concrete lined ditches, checks, etc., must be shown on the plan but need not be on the profile.
14. Plans shall include replacement of sod where it currently exists, and replacement or reconstruction of sprinkler systems where they already exist; shrubs, trees and fences are not included.
15. Project construction numbers shall be shown on all sheets of the project plans. Show the station at the BEGIN and END designation on all projects.
16. All items originally shown on the official right-of-way plans shall be retained on the right-of-way and Final Design Construction Plans, whether or not the items are negotiated for the owner to construct. Items that are negotiated for the owner to construct, as stated in the right-of-way contract, are to be shown on the plans as "By Owner." These are items such as irrigation ditches or fencing. A typical example is a small concrete-lined ditch which is initially shown on the plans as a construction contract item within a temporary easement. If, by negotiation, the owner is paid for the ditch instead of contract construction, and it is stated in the right-of-way contract, then a right-of-way revision would be made eliminating the temporary easement. The ditch is still shown on the plans. The concrete-lined ditch profile on the construction plans would have a line drawn through it and the plans would state "Concrete-lined ditch by Owner."
17. Right-of-way plans are prepared in permanent form on standard 24"x36" sheets on stable reproducible material. Consistent drafting procedures must be observed to attain maximum accuracy and clarity.
18. Final right-of-way plans submittal shall include a sheet or sheets listing land owners, parcel numbers, takes remainders, easement (both temporary and permanent), along with furnishing two complete sets of right-of-way drawings colored to identify each parcel and need and stamped "Legal Description" by an Idaho Licensed Land Surveyor.

3106.2 Final Project Plans

Plans for the Final Design submittal should be complete and shall include the following items:

1. Title sheet.

2. Plan and Profile Sheets (with a maximum of 500 linear feet of roadway per sheet).
3. Necessary detail sheets.(INCLUDING CURB RAMP LAYOUT AND GRADING DETAILS)
4. Traffic Control Plan sheet, striping plan, and signals, lighting, etc., if applicable.
5. Final Right-of-Way Plans and necessary legal descriptions.
6. Project Special Provisions.
7. Engineer's projected opinion of costs.
8. Original project survey notes.
9. Computer disks in AutoCad drawing format of the project.
10. Bridge situation and layout drawings, bridge detail sheets, and stamped structure calculations when appropriate.
11. Any additional supporting information, though not previously specifically identified.

The submitted drawings shall be in ink on mylar or other approved medium. They shall be stamped by an Engineer licensed in Idaho. The drawings shall be according to Section 3107 Plan Configuration.

Twelve sets of roadway and/or bridge plans and specifications shall be submitted for District use, in addition to their original drawings.

3106.3 Final Specifications

As part of the final plan submittal, one set of original final specifications and two Bid Schedules for the project and four sets of copies shall be provided to the District.

3106.4 Final Estimate

The Engineer must prepare an estimate of project construction costs and submit this with the final project package. When more than one project number is included in the contractor's bid proposal, separate estimates shall be prepared for each project number. Each of these estimates shall be further separated into roadway and bridge quantities, if applicable.

3106.5 Certification of Compliance with Design Standards (Idaho Code 6-904 (7) (8))

Consulting Engineering firms that are preparing project designs for the District (plans and specifications) shall be required to provide *Certification of Compliance with Design Standards*. Certification that the plans or designs are

prepared in substantial conformance with engineering or design standards in effect at the time of preparation shall be given on all designs for construction or improvements to the highways, roads, streets, bridges, drainage facilities, or other public property.

Certification shall be provided for all projects, regardless of size or complexity, and shall be provided on the cover sheet of the project plans or on the front sheet of the project specifications if no plans are involved. The Consultant shall also provide a signature block for the District.

In cases where the District grants variances on the project design, the Consultant shall provide a letter detailing the allowed variance(s). The letter shall have a certification as to what variance(s) from the normal design standards were allowed and the justification for said changes. The cover sheet of the plans or specifications shall note the letter detailing the variance(s). The documentation shall become, in all cases, a permanent part of the project package.

3107 PLAN CONFIGURATION

3107.1 Plans

The following information provides examples, sample sheets and suggestions for preparing project construction plans for the District. The construction plans should include detailed construction features required to complete the project. The plans should show all property lines and right-of-way limits, items to be removed, and new items to be constructed. Special detailed drawings are required to clarify construction details or non-standard items included in the project.

Not all necessary details for preparing project plan sheets will be covered in these procedures. If questions arise on the amount of detail or appropriate format, review other similar project plans for examples or ask the Plans & Surveys Division.

Stationing on all plans, unless otherwise approved by the District, shall begin with a minimum station of 10+00 and shall either proceed south to north or west to east.

3107.2 Plan Size

All project plans shall be prepared on 24"x36" sheets for uniformity and ease of filing. Standard project plan sheets are available in computer format for CAD systems in the .DWG form.

3107.3 Drafting Symbols

Standard drafting symbols shall be used on all project plans. Symbols are shown with standard shapes and sizes on Exhibit 7 and are available in CAD format. All symbols have been designed for 20-foot per inch scale and should be sized proportionately for all other scales. For example, the manhole symbol

measures 2-feet in diameter on a 20-scale drawing and should measure 2-feet in diameter on a 40 scale drawing.

Symbols used for existing topography should be lighter in tone than new design symbols which should show up black. This is to show contrast between existing topography and new design.

3107.4 Drafting Line Types

Standard drafting line types shall be used on all project plans. Line types and line weights are shown on Exhibit 5 and are available in CAD format.

All line types have been designed for 20-foot per inch scale and should be sized proportionately for all other scales. For example, a dash in a line type measures 10-feet long on a 20 scale drawing and should measure 10-feet long on a 40 scale drawing.

Line types used for existing topography should show lighter in tone than new design line types which should show up black. This shows contrast between existing topography and new design.

Line types for various detail sheets shall be 0.70 black for object lines on various details with 0.25 or 0.35 lines for dimensions and or note leaders. Hidden lines shall be dashed and thin.

3107.5 Drafting Plan Scales

All project plans in the plan view shall be drawn at 20-foot per inch scale, excepting right-of-way, traffic control, striping, and structure drawings which may vary.

All project plans in the profile view shall be drawn at 20-foot per inch horizontally and 2-foot per inch vertically.

Any variation of drawing scales shall have prior approval of the District.

All drawings shall show scales.

3107.6 Drafting Lettering

All lettering on plans shall be uniform and of the same style, height and line weight for each particular purpose.

Existing topography lettering shall be visibly lighter than lettering for design or notes. Design and note lettering shall be black. All lettering shall be minimum 0.10 of an inch high.

Titles and street names shall be at least 0.20 inch high with a minimum plotter pen size of 0.70 or equivalent.

Lettering style shall be approved by the District. A simple single-line style, set vertically, is preferred.

Lettering for notes shall be a combination of upper and lower case lettering with the first letter of each word being capitalized. In this way it will use a minimum of space on drawings.

3107.7 Drafting Layers

Where applicable for CAD drawings, drafter shall separate the drawing into layers in the computer. The number of layers required will be based on the type and complexity of the particular drawing file. The drafter should confer with District before commencing with drawings if he is unsure of reasonable layer number and type.

3107.8 Standard Drawing Sheets

The District has developed standard drawing sheets with borders, title blocks, profile grids, and legends. Standards have been developed for title sheets, plan and profile sheets, detail sheets, traffic control sheets, etc. See Exhibit 10 for examples. These sheets are available in CAD format upon request.

3108 BIDDING AND CONTRACT AWARD

3108.1 Advertisement Period

Refer to Construction Contracts sub-section 2013.3.2, Advertisement for Bids for minimum periods for advertisement on capital improvement contracts.

3108.2 Contract Award

Refer to Section 2004 Construction Contracts, sub-section 2013.3.3, Awards for approval process.

3109 COST SHARE ORDINANCE

3109.1 Short Title, Authority and Applicability

This Ordinance shall be known and may be cited as the "Ada County Highway District Cost Share Ordinance."

The Board of Commissioners of the Ada County Highway District has the authority to adopt ordinances pursuant to the powers granted it under § 40-1406, Idaho Code.

This Ordinance shall apply in all areas under the control and jurisdiction of the Ada County Highway District, including all Highways and Public Rights-of-Way within Ada County.

3109.2 Findings and Purpose

ACHD is committed to furthering the policies and goals set forth in the Blueprint for Good Growth, the Transportation and Land Use Integration Plan; the Complete Streets Policy; the Liveable Streets Design Guide; the Master Street Map, the Pedestrian-Bicycle Transition Plan, and the Bike Master Plan.

In accordance with the foregoing plans and in accordance with the jurisdiction and authority of ACHD, the Board of Commissioners of ACHD finds that it is in the best interest of the citizens of Ada County, Idaho to define the role of ACHD and its partnering agencies in constructing and funding both Transportation Components and Non-Transportation Components of ACHD's Road Projects. ACHD has limited funding for transportation improvements. It is the intent of the Commission, by enactment of this Ordinance, to:

- a. acknowledge that Title 40, Chapter 14 specifically reserves jurisdiction to the cities to authorize the expenditure of funds for the placement, care and removal of Non-Transportation Components in the Public Right-of-Way;
- b. acknowledge that cities have the statutory authority and expertise to design, develop and fund Non-Transportation Components in the Public Right-of-Way in order to define the aesthetic character of their respective communities;
- c. declare that all ACHD revenues should be spent exclusively for the construction and maintenance of the Transportation Components of Road Projects, which includes Pedestrian and drainage facilities, in accordance with applicable law;
- d. adopt a policy that establishes that ACHD will not fund any Non-Transportation Components, in accordance with applicable law;
- e. provide rules for when ACHD and partnering agencies desire to include Non-Transportation Components into ACHD's Road Projects;
- f. ensure that any Road Project improvements that result in costs outside of ACHD's statutory jurisdiction over Transportation Components are funded by the partnering agency that requests such Non-Transportation Components;
- g. acknowledges that ACHD will purchase and/or otherwise acquire right-of-way necessary for motorist and pedestrian safety, subject to the public necessity requirements for eminent domain for Highway Districts under Idaho law;
- h. establish Non-Transportation Components to be included in cost-sharing applications submitted to ACHD by a partnering agency for approval;

- i. adopt a policy that authorizes a proportionate credit based on the cost of Transportation Components that would otherwise be installed by ACHD in lieu of the Non-Transportation Components proposed by a Partnering Agency); and
- j. establish an application and permit process whereby partnering agencies may apply to ACHD for approval of a cost-sharing request.

3109.3 Definitions

Following are definitions of certain terms used in this Ordinance.

As used in this Ordinance, the following terms shall have the following meanings:

“ACHD” means the Ada County Highway District.

“Commission” means the Board of Commissioners of ACHD.

“Cost Share Application” means an application submitted by a Partnering Agency to ACHD in accordance with this Ordinance.

“Cost Share Permit” means a permit issued by ACHD to a Partnering Agency in accordance with this Ordinance.

“Hardscape” means to surface areas within sidewalk buffers and paved medians with hard material, such as asphalt, concrete, or similar materials, as opposed to soil and vegetation.

“Highway” means any of the following located within a Public Right-of-Way; roads, streets, alleys, curbs, gutters, culverts, sidewalks, paved medians, bulkheads, retaining walls, bridges, culverts, sluices, drains, stormwater facilities, waterways, embankments, tunnels, grade separation structures, bicycle facilities, and any other structures, works or fixtures incidental to the preservation of the highways for motorist and public safety.

“Highway Necessity” means an improvement, structure, work, or fixture that is necessary for motorist and/or Pedestrian traffic, motorist and/or Pedestrian safety, Public Right-of-Way maintenance, traffic control, or that is otherwise necessary for the preservation of the Highways or necessary to mitigate project impacts on adjacent lands, in accordance with Idaho law and as determined by ACHD. ACHD may utilize ACHD’s Development Policy, Idaho Standards for Public Works Construction (ISPWC) and other established engineering standards to determine Highway Necessity. The determination of Highway Necessity will occur on a case-by-case basis and will include a written analysis that weighs the merits of cost, traffic operations and safety. The determination as to Highway Necessity is also subject to the public necessity requirements for eminent domain for Highway Districts under Idaho law, as applicable. Section 3004 of the existing ACHD Policy Manual provides that ACHD relies on AASHTO guidelines in determining the necessity for certain transportation

improvements. However, AASHTO are only guidelines, and ACHD reserves the discretion to deviate from AASHTO based upon the unique circumstances of each project. AASHTO "Green Book" provides: *"The intent of this policy is to provide guidance to the designer by referencing a range of values for critical dimensions. It is not intended to be a detailed design manual that could supersede the need for the application of sound principles by the knowledgeable design professional. Sufficient flexibility is permitted to encourage independent designs tailored to particular situations."*

"Non-Transportation Components" means those components of a Road Project set forth in Section 3109.6.3 of this Ordinance, and includes components that are requested by a Partnering Agency and are the Partnering Agency's responsibility.

"Partnering Agency" means any of the agencies defined in Section 3109.5.2 of this Ordinance.

"Pedestrian" means foot traffic, bicycle, and other non-motorized use by the public of a Highway or a Public Right-of-Way.

"Person" means an individual, corporation, partnership, association, government agency, or other entity.

"Public Right-of-Way" means a Highway, roadway or other right-of-way open to the public under the jurisdiction of ACHD.

"Road Project" means a Public Right-of-Way and/or Highway improvement project by ACHD that may, in accordance with the provisions of this Ordinance, incorporate both Transportation Components under the jurisdiction and control of ACHD and Non-Transportation Components requested by a Partnering Agency.

"Transportation Components" means those components of a Road Project set forth in Section 3109.6.2 of this Ordinance, and includes components that are under the jurisdiction of ACHD and are ACHD's statutory responsibility.

3109.4 Rules of Construction

The provisions of this Ordinance shall be interpreted to be consistent with state and federal law, including but not limited to the United States Constitution, the State of Idaho Constitution, federal statutes, and state statutes, including without limitation, Idaho Code Title 40.

3109.5 Applicability

3109.5.1 General Application

This Ordinance governs and is limited to those instances in which a Partnering Agency desires to incorporate Non-Transportation Components into an ACHD Road Project.

3109.5.2 Applicability to Partnering Agencies

This Ordinance applies to all governmental entities that have the authority under federal and/or state law to construct, reconstruct, and/or maintain Non-Transportation Components that are located or may become located within an ACHD Road Project in accordance with the terms of this Ordinance. Such governmental entities may include the following:

- a. Cities
- b. Counties
- c. Urban Renewal Agencies
- d. Idaho Transportation Department
- e. School Districts
- f. Utilities
- g. Irrigation and Drainage Districts
- h. Regional Public Transportation Authority -Valley Regional Transit ("VRT") (provided, however, that issues related to the construction, placement, or relocation of transit structures in Public Rights-of-Way are addressed under that certain Cooperative Agreement for Transit Structures between ACHD and VRT, dated July 1, 2007, or as amended in the future, and are not governed by this Ordinance).
- i. Metropolitan Planning Organization (MPO) or Transportation Management Agency (TMA)

Nothing in this Ordinance shall be construed to prevent a Partnering Agency from requiring a third party to pay for the costs or install improvements allocated to the Partnering Agency by a Cost Share Application and Cost Share Permit issued in accordance with this Ordinance.

3109.5.3 Non-Application to Agreements with Private Parties

This Ordinance does not govern instances in which ACHD and a Partnering Agency desire to enter into a development agreement with a private party pursuant to ACHD's Impact Fee Ordinance and the Idaho Development Impact Fee Act.

3109.6 ACHD's Jurisdiction and Authority Over Road Projects

3109.6.1 ACHD General Jurisdiction

ACHD is a single county-wide highway district, a public entity, organized and existing pursuant to Idaho Code Title 40, Chapter 14, as amended and supplemented, with the exclusive jurisdiction and authority to maintain, improve, and operate Highways and Public Rights-of-Way in Ada County,

Idaho. Idaho Code, Title 40, Chapters 13 and 14, define ACHD's jurisdiction and powers, and includes, by way of example and without limitation, the following:

- a. the full power to construct, maintain, repair, acquire, purchase and improve all Highways within ACHD's Highway system;
- b. all transportation powers and duties that would by law be vested in the commissioners of Ada County, if not already vested in ACHD;
- c. the power to establish and post speed and other regulatory signs;
- d. the right to acquire all lands and other property necessary for the construction, use, maintenance, repair and improvement of Highways;
- e. the right to change the width or location or straighten the lines of any Highway;
- f. the exclusive general supervisory authority over all Highways, public streets and Public Rights-of-Way under its jurisdiction, with full power to establish design standards, establish use standards, pass resolutions and establish regulations in accordance with the provisions of Title 49, Idaho Code, and to control access to said public Highways, public streets and Public Rights-of-Way;
- g. CURB RAMPS, the design, construction, reconstruction and maintenance of city rights-of-way and accompanying curbs, gutters, culverts, sidewalks, paved medians, bulkheads and retaining walls, which shall include: (a) traffic and safety engineering for both motorist and Pedestrian traffic; (b) procurement and installation of highway lighting where it is primarily of benefit to the motorist (provided that energy costs and maintenance of lighting shall subsequently be a function of the applicable city or the county); (c) procurement, installation, operation and maintenance of traffic control devices where they are needed for traffic control; and (d) drainage where it is necessary for motorist safety or necessary for right-of-way maintenance;
- h. the acquisition and acceptance of Public Rights-of-Way; and
- i. the responsibility for planning and locating Public Rights-of-Way.

3109.6.2 Transportation Components

ACHD may fund components of any Road Project in accordance with the powers and authority granted to ACHD in accordance with the authority above. By way of example and without limitation, "Transportation Components" of a Road Project funded by ACHD may include the following, so long as they are a Highway Necessity:

- a. Roads - Through lanes and turn lanes for the purpose of vehicular movements;
- b. Bike Facilities - Facilities for bicycle use within the Public Right-of-Way and/or Highways;
- c. Curbs and Gutters - Infrastructure for storm water conveyance on urban cross-sections;
- d. Sidewalks  & CURB RAMPS - Pedestrian facilities within the Public Right-of-Way for the safe movement of pedestrians; including safety buffers that are deemed to be a Highway Necessity;
- e. Paved Medians - Facilities installed for purposes of motorist safety, access management and traffic operation;
- f. Retaining Walls - Facilities for buttressing of slopes as a result of roadway design;
- g. Highway Lighting – Procurement and installation of illumination for the primary benefit to the motorist;
- h. Traffic Control Devices - Traffic and Pedestrian signals, flashing beacons, signage, striping, and intelligent transportation system facilities;
- i. Drainage - Stormwater structures, drainage, and irrigation facilities;
- j. Right-of-way and pavement necessary for pullouts, stops and lanes associated with public transportation that are a Highway Necessity; and
- k. Any other improvements, facilities, structures, works, or fixtures that are a Highway Necessity.

3109.6.3 Non-Transportation Components

There are certain improvements or features that a Partnering Agency may request to be incorporated into an ACHD Road Project that do not fall within the definition of Transportation Components and/or are not a Highway Necessity. These "Non-Transportation Components" are improvements which ACHD will not fund, but the Partnering Agency may receive a proportionate credit as authorized herein. By way of example and without limitation, "Non-Transportation Components" of a Road Project funded by a Partnering Agency

may include the following depending on the particular power and authority of the Partnering Agency:

- a. Landscaping;
- b. Specialized pavement or sidewalk treatments;
- c. Decorative lighting or other illumination features that are not for the primary benefit of the motorist;
- d. Medians that are not a Highway Necessity;
- e. Medians necessary for traffic management, but made of materials other than Hardscape;
- f. Pedestrian facilities that are not included in ACHD's Livable Design Guide or other cross-section policies;
- g. Bike lanes that are not included in ACHD's Livable Design Guide or other cross-section policies; and
- h. Utilities, parking, bus pullouts, bus stops, transit structures, and specialized signing.

3109.7 Procedure for Providing Notice of Interest for Inclusion of Non-Transportation Components into an ACHD Road Project

ACHD shall determine whether to include Non-Transportation Components into ACHD Road Projects after submission of a Cost Share Application by a Partnering Agency pursuant to Section 3109.8.1 below. However, ACHD recognizes that in some circumstances, it may be beneficial for ACHD and a Partnering Agency to exchange information in advance of the application process. For that reason, prior to submitting a Cost Share Application, a Partnering Agency may elect to notify ACHD that it is interested in the inclusion of Non-Transportation Components into a future ACHD Road Project through any of the following procedures set forth in this Section below. Notifying ACHD of this interest shall not obligate ACHD in any way to incorporate the Non-Transportation Components or to make any determination at the time of such notice as to whether to incorporate the Non-Transportation Components. Such determination shall be made only upon the submission of a complete Cost Share Application.

3109.7.1 Notice of Interest by Partnering Agency

Prior to submitting a Cost Share Application, a Partnering Agency may contact ACHD at any time to provide notice of its interest to include Non-Transportation Components in connection with any planned ACHD Road Project. Partnering Agencies are encouraged to provide this notice during ACHD's annual request for input on its Five-Year Work Plan (FYWP). Such interest should provide as much detail as possible and should:

- a. be provided in a written letter to ACHD, addressed to Deputy Director, Planning and Project Management Division;
- b. identify the name or location of the applicable Road Project;
- c. identify the Non-Transportation Components being proposed by the Partnering Agency; and
- d. provide any information available about the anticipated cost and proposed funding for the Non-Transportation Components (including, if applicable, any credits based on the cost of Transportation Components that would otherwise be installed by ACHD in lieu of the Non-Transportation Components proposed by a Partnering Agency).

3109.7.2 Invitation from ACHD

From time to time, before or during project development, ACHD will use its best efforts to contact various Partnering Agencies and request input as to whether any Non-Transportation Components are desired by the Partnering Agency in connection with any ACHD Road Project. In addition, ACHD will provide each city and county that is a Partnering Agency with a list of all of the existing ACHD Road Projects planned within city or county limits on an annual fiscal year basis. ACHD shall provide the applicable Partnering Agency with a Notice of Project Intent, which shall be served on the Partnering Agency not less than 15 days prior to ACHD commencing the scoping design process for the ACHD Road Project. If the Partnering Agency determines it would like to incorporate Non-Transportation Components into the ACHD Road Project, it shall complete a Cost Share Application pursuant to Section 3109.8.1 below. ACHD may elect to specify a deadline by which the Partnering Agency must submit a Cost Share Application in order for the incorporation of the Non-Transportation Components to be considered. Applications that are not timely submitted may be rejected, or, if they are considered, they will be approved only on the condition that the Partnering Agency pay for all redesign costs and other costs associated with the inclusion of the Non-Transportation Components.

3109.8 Cost Share Application

3109.8.1 Submission of Cost Share Application

If a Partnering Agency determines it would like ACHD to incorporate Non-Transportation Components into any ACHD Road Project, it shall complete and submit the Cost Share Application set forth on Appendix 1, attached hereto and incorporated herein. There shall be no application fee required in connection with submitting the Cost Share Application.

To be considered for approval, all Cost Share Applications must provide information and certifications by the Partnering Agency consistent with the following specifications and rules:

- a. Project Description. Each Cost Share Application shall identify the Road Project and include a complete description of the Non-Transportation Components. If project plans or other conceptual designs for the inclusion of the Non-Transportation Components are available at the time of execution, they shall be provided by Exhibit to the Cost Share Application.
- b. Project Design. All Non-Transportation Component design and operation plans associated with and ACHD Road Project pursuant to a Cost Share Application are the responsibility of the Partnering Agency and must comply with (i) established engineering standards, including the Idaho Standards for Public Works Construction (ISPWC) and American Association of State Highway and Transportation Officials ("AASHTO") guidelines, (ii) this Ordinance, (iii) all adopted ACHD rules and regulations, and (iv) all state and federal laws. All Non-Transportation Component designs and plans may be provided by ACHD directly with reimbursement by the Partnering Agency and shall be subject to the final review and approval of ACHD. The Partnering Agency shall participate in the design of any requested Non-Transportation Components.
- c. Project Design Costs. All Cost Share Applications shall specify that all Road Project design costs associated with the Non-Transportation Components are the responsibility of the Partnering Agency, including any overrun costs. Such allocation shall be made in accordance with the provisions of this Ordinance, and the Project Cost Responsibilities Chart is summarized on Appendix 2, when applicable. Any redesign costs of Transportation Components of the Road Project that are necessitated by the incorporation of Non-Transportation Components in the Road Project also shall be paid by the Partnering Agency. The Cost Share Application shall also specify, if applicable, any credits based on the cost of the design of Transportation Components that would otherwise be installed by ACHD in lieu of the Non-Transportation Components proposed by a Partnering Agency.
- d. Project Construction. All Cost Share Applications shall identify whether ACHD or the Partnering Agency will be responsible to construct the Non-Transportation Components. There shall be a presumption that in most instances, the Partnering Agency shall be responsible for the construction of the Non-Transportation Components. If the Partnering Agency is responsible for any construction, the Partnering Agency must certify in its Cost Share Application that such construction will not negatively impact ACHD's construction of the Transportation

Components or the overall ACHD Road Project schedule in any way. In addition, the Partnering Agency shall be responsible for obtaining all permits required by ACHD in connection with any construction.

- e. Project Construction Costs. All Cost Share Applications shall allocate the Road Project construction costs, with the Partnering Agency responsible for paying all construction costs associated with the Non-Transportation Components, including applicable construction, maintenance, administration and overrun costs, and ACHD responsible for paying all construction costs associated with the Transportation Components, which is summarized on Appendix 2. - Project Cost Responsibilities Chart. Any reconstruction costs of Transportation Components of the Road Project that are necessitated by the incorporation of Non-Transportation Components into the Road Project also shall be paid by the Partnering Agency. The Cost Share Application shall also specify, if applicable, any credits based on the construction cost of Transportation Components that would otherwise be installed by ACHD in lieu of the construction of Non-Transportation Components proposed by a Partnering Agency.
- f. Land Acquisition. If real property is necessary for the Non-Transportation Components, or if the incorporation of Non-Transportation Components into the Road Project necessitates or increases the costs of the acquisition of real property for the Transportation Components, the Partnering Agency shall be responsible for acquiring, paying for, or dedicating such additional real property and/or paying for the cost increase in the acquisition of real property for the Non-Transportation and Transportation Components, as applicable.
- g. Maintenance. All Cost Share Applications shall provide that the Partnering Agency shall be solely responsible for perpetually replacing, maintaining, and caring for the Non-Transportation Components, so long as ACHD provides the Partnering Agency with authority and permission to do so pursuant to the terms of the Cost Share Permit. The Partnering Agency shall also certify in the Cost Share Application that if the Partnering Agency fails to replace, maintain, and care for the Non-Transportation Components, ACHD shall have the following remedies in addition to any other recovery in law or in equity, provided that ACHD first gives the Partnering Agency thirty (30) days notice and the Partnering Agency fails to remedy such failure: (i) ACHD may revoke the Partnering Agency's Cost Share Permit for the Non-Transportation Components, (ii) ACHD may replace, maintain, and/or care

for the Non-Transportation Components and the Partnering Agency shall reimburse ACHD fully for all associated costs, (iii) ACHD may remove, alter, redesign, or, in the case of landscaping, replace with hardscape over the Non-Transportation Components, and the Partnering Agency shall reimburse ACHD fully for all associated costs, and (iv) ACHD may refuse to issue any further Cost Share Permits or any other permits for future ACHD Road Projects until the Partnering Agency complies with the conditions of the Cost Share Permit. In addition, in the event of an emergency caused by the Partnering Agency's failure to perform required maintenance, ACHD may immediately perform any and all emergency repairs or take other measures in connection with an emergency, and the Partnering Agency shall reimburse ACHD fully for all associated costs.

- h. Future Work. In the event the Non-Transportation Components will or may necessitate future maintenance, repair, relocation, or replacement that is not the subject of the original Cost Share Permit, ACHD shall, in its discretion, issue the Partnering Agency an amended Cost Share Permit to perform such work.
- i. Relocation of Utilities. The Partnering Agency shall be solely responsible for all costs associated with the relocation of any utilities required in connection with the placement, incorporation, or construction of the Non-Transportation Components, provided that ACHD may require, as a condition of the Cost Share Permit, that the Partnering Agency be responsible for the relocation.
- j. Effect on Stormwater Quality. The Cost Share Application shall include a certification by the Partnering Agency that if ACHD determines that a Partnering Agency's request for a Non-Transportation Component will have an adverse effect on stormwater quantity or quality, the Partnering Agency shall be responsible for mitigating or funding the mitigation of any such adverse effects, in a means determined by or acceptable to ACHD.
- k. Medians and Other Structures. If a Partnering Agency requests medians or other structures that are not a Highway Necessity, the Partnering Agency shall be solely responsible for all of the associated costs, including, without limitation, the design, construction, additional land acquisition, and maintenance costs. If ACHD determines that a median or any other structure is a Highway Necessity, the Partnering Agency shall only be responsible for all of the costs of any aesthetic features and landscaping associated with said structure, including

without limitation, the design, construction, and maintenance costs related to the aesthetic features and landscaping that are in excess of the cost of installing ACHD's structure, such as Hardscape and in such case, a credit shall be applied..

- l. Pedestrian/Bicycle Facilities. If a Partnering Agency requests a bicycle and Pedestrian facility that is not a identified in ACHD's Livable Street Design Guide and/or is not a Highway Necessity, the Partnering Agency shall be solely responsible for providing or paying all of the costs for the bicycle and Pedestrian facilities, including, without limitation, the design, construction, land acquisition, and maintenance.
- m. On-Street Parking. ACHD may fund the land acquisition, construction, and maintenance of on-street parking, where appropriate, on arterials, collectors, and local roads for ACHD Road Projects that is based upon an approved ACHD transportation plan and is determined to be cost-effective, safe and appropriate. If a Partnering Agency requests any additional on-street parking, the Partnering Agency shall be solely responsible for all costs associated with the on-street parking. ACHD shall retain the authority to remove any parking at any time.
- n. Federally Funded Projects. If pursuant to the federal aid grant, the federal law requires any match, mitigation and maintenance for an ACHD Road Project as a condition of the grant, then ACHD shall be responsible for such costs as required by federal law. If federal funds are available for any Non-Transportation Components that are not required for the Project under federal law, the Partnering Agency shall pay any proportionate match mitigation, and maintenance for the Non-Transportation Components of the Road Project. Mitigation. Site-specific mitigation may include specialized treatments such as sound walls, berms, and other components whose purpose is to mitigate traffic impacts within the Road Project area. Funding and responsibility for mitigation shall be addressed in the Cost Share Application and Cost Share Permit.
- o. Revocation of Rights by ACHD. Each Cost Share Application shall include a certification by the Partnering Agency that ACHD shall at all times have the right to (i) maintain, relocate, reconstruct, remove, or redesign any and all improvements that are part of the Road Project, in which case the Partnering Agency shall reimburse ACHD fully for all associated costs; (ii) revoke any Cost Share Permit granted to the Partnering Agency to access any

Highway or Public Right-of-Way; and (iii) immediately perform any and all emergency repairs or take other measures in connection with an emergency, in which case the Partnering Agency shall reimburse ACHD fully for all associated costs. ACHD shall use best efforts to provide the Partnering Agency with advance notice before taking any of these steps.

- p. Indemnification. Each Cost Share Application shall include a certification by the Partnering Agency that it will indemnify ACHD from all damages caused or suffered by the Partnering Agency and its contractors and agents and invitees in connection with the Road Project.

3109.8.2 Determination as to Completeness of Cost Share Application

Upon receipt of a Cost Share Application from a Partnering Agency, ACHD shall first review it and make a determination as to whether the Cost Share Application contains all information necessary for making a determination whether to grant or deny the application. Within 30 days following receipt of the Cost Share Application, ACHD shall provide notice to the Partnering Agency indicating that either (i) the application is complete and no further information is needed at that time, or (ii) the application is incomplete and requires certain other additional information prior to consideration. If ACHD notifies the Partnering Agency that the application is incomplete, the Partnering Agency shall submit the additional requested information within fifteen (15) days. ACHD shall review the application and any additional information and notify the Partnering Agency within 15 days that either (i) the application is complete and no further information is needed at that time, or (ii) the application is incomplete and requires certain other additional information prior to consideration. If ACHD notifies the Partnering Agency that the application is complete, such notification shall not preclude ACHD from requesting additional information should it become necessary at any time during the full consideration stage outlined below in this Section. ACHD may at any time notify the Partnering Agency that its Cost Share Application is or will be rejected if it would be untimely in relation to the ACHD Road Project schedule.

3109.8.3 Approval or Denial of Cost Share Application – Issuance of Cost Share Permit

After ACHD notifies the Partnering Agency that the application is complete and no further information is needed at that time, ACHD's Director or the Director's designee(s) shall determine, in his or her discretion, whether to approve or deny the application. If an application is approved, ACHD shall issue a Cost Share Permit to the Partnering Agency that provides the terms and conditions upon which the incorporation of the Non-Transportation Components is approved. The Cost Share Permit shall include a schedule for completion of the Road Project. Any application that is approved by ACHD must comply with the requirements set forth in this Ordinance, including, without limitation, each of the provisions set forth in Section 3109.6 regarding ACHD's jurisdiction and authority over Transportation Components and each Partnering Agency's jurisdiction and authority over Non-Transportation Components. The

application must also be consistent with the requirements of any cost sharing arrangement set forth in Section 3109.8.1 above. Additional reasons for denial of any application may include, but are in no way limited to, considerations of economics, the impact on project costs, availability of ACHD staff and resources, anticipated project schedules, availability of land acquisitions, noncompliance with any issued Cost Share Permits or other permits or applicable law and the authority of ACHD and/or the Partnering Agency, and other feasibility issues. If at any point during the consideration process, ACHD determines that it requires additional information from the Partnering Agency in order to consider the application, ACHD shall notify the Partnering Agency, and the Partnering Agency shall supply the information with a new application.

3109.9 Appeal Process

If ACHD denies a Cost Share Application or Exception request, or if ACHD issues a Cost Share Permit on terms that are unacceptable to the Partnering Agency, the Partnering Agency shall have fourteen (14) days following receipt of written notice on ACHD's decision to appeal to the ACHD Commissioners. To make such appeal, the Partnering Agency shall submit the following:

- a. written notice of the Partnering Agency's request to appeal the decision, addressed to the Commission;
- b. a copy of the application and a copy of ACHD's decision denying the application or Exception request;
- c. a copy of any other information submitted to ACHD in connection with the application; and
- d. a written statement indicating why the Partnering Agency believes the application or Exception should be approved on appeal or why the Cost Share Permit should be revised.

Upon receipt of an appeal, the ACHD Commission shall consider the appeal and make a decision within 30 days. The ACHD Commission's decision shall be communicated in writing to the Partnering Agency. The ACHD Commission's decision shall be final and non-appealable.

3109.10 Exception Requests

ACHD reserves the right to consider any exceptions to this Ordinance on a case-by-case basis and in accordance with ACHD rules and regulations and Idaho law. Exceptions may include, without limitation, any interim treatments and the eligibility of a feature (or portion thereof) as a Transportation Component as proposed by a Partnering Agency. Subject to the Appeal Process provided herein, any exceptions to this Ordinance shall require ACHD's Director or the Director's designee(s) approval granted in response to a written request from the Partnering Agency for a Exception request, identifying the specific provisions of this Ordinance from which the Partnering Agency requests an exception in connection with any Road Project, and any supporting documentation. The Exception request may be made in advance of

submitting the Cost Share Application for the Road Project or simultaneously with the submission of the Cost Share Application.

3109.11 Severability/Conflict with Other Laws and/or ACHD Policies or Ordinances

The provisions of this Ordinance are hereby declared to be severable, and if any provision of this Ordinance or the application of the same to any Person or circumstance is declared invalid for any reason, such declaration shall not affect the validity of the remaining portions of the Ordinance. In the event of any conflict between this Ordinance and any state or federal law, the applicable state or federal law shall control. In the event of any conflict between this Ordinance and any other ACHD policy or ordinance, this Ordinance shall control.

[Section 3109.12 on following page]

3109.12 Project Cost Responsibilities

ITEM	ACHD COST	PARTNERING AGENCY
Design	Standard Design	Design of Amenities
Right-of-Way	Project specific design dimensions or Livable Street Design Guide basic street section if typology adopted by ACHD and jurisdiction in Master Street Map or ACHD Capital Improvement Plan - subject to Highway Necessity requirement.	Extra Right of Way (ROW) for amenities as outlined in Ordinance, including damages, buyouts and associated legal costs.
Through and Center Turn Lanes, Curb and Gutter, Utility Strip	Project specific design dimensions or Livable Street Design Guide dimensions if typology adopted by ACHD and jurisdiction in Master Street Map or ACHD Capital Improvements Plan – subject to Highway Necessity requirement.	None.
Medians	Demonstrated need for traffic safety & operations, with Hardscape – subject to Highway Necessity requirement.	Upgraded Hardscape or landscaping and irrigation if median is needed for traffic management. All ROW, construction, and maintenance if median is for aesthetics only.
Buffer Zone	As specified in the Livable Street Design Guide for the basic Pedestrian zone; 6' ROW if partnering agency chooses to landscape - subject to Highway Necessity requirement.	Landscape costs, construction and ROW in excess of 6'; perpetual maintenance of landscaping.
Bike Lanes	5' unless constrained in a built environment, then determined during project design – subject to Highway Necessity requirement.	Greater than 5' unless otherwise specified in an adopted ACHD plan - subject to Highway Necessity requirement.
Sidewalks	5' - subject to Highway Necessity requirement.	Greater than 5' unless otherwise specified in an adopted ACHD plan - subject to Highway Necessity requirement.
On-Street Parking	ROW, design, construction and maintenance on arterials, collectors, and local roads for ACHD Road Projects, subject to approved ACHD transportation plan and determined to be cost-effective, safe and appropriate.	Dedicated by the partnering agency or developer when required as a condition of development approval and determined to be cost-effective, safe and appropriate.
Illumination (lighting)	Primarily of benefit to motorists.	Energy and Maintenance costs, Pedestrian lighting.

UPDATE SIDEWALK WIDTH IF REVISION TO STANDARD DESIGN WIDTH IS MADE BASED ON COMMENTS ON SD-709 (ACHD).

3110 ACHD COMPLETE STREETS POLICY

3110.1 Introduction

A “complete” street addresses the needs of all users. Motorists, pedestrians, bicyclists, and transit riders of all ages and abilities can be safely accommodated within the overall street network. Planning for this diverse user group requires consideration of the following elements:

1. Appropriately-sized travel lanes for cars, trucks, and delivery/emergency service vehicles;
2. Sidewalk space for pedestrians;
3. Bike lanes or bike routes;
4. Transit vehicles, facilities and routes;
5. On-street parking where applicable;
6. Median use for traffic flow, safety, and pedestrian refuge;
7. Adequate buffer areas for pedestrian safety, utility placement, and possible landscaping;
8. Landscaping or hardscaping adding pedestrian protection; and
9. The general land use context of a roadway or corridor.

AND MEETING
ACCESSIBILITY
REQUIREMENTS

Future streets within Ada County will be designed to balance user needs and incorporate those elements that match the land use context. Some corridors will be oriented to vehicle mobility but should always safely accommodate other modes. Through context sensitive design, a “complete” street can accomplish greater public benefits, improve safety, increase transportation options, strengthen the overall benefit of transportation investments and enhance air quality.

ACHD supports the creation of “complete” streets by establishing the following policies.

3110.2 Guiding Principle

Streets, bridges and transit stops within Ada County should be designed, constructed, operated and maintained so that pedestrians, bicyclists, transit riders, motorists, and people of all ages and abilities can travel safely and independently.

3110.3 Policies

3110.3.1 Bicycle and Pedestrian Ways

Bicycle and pedestrian ways should be established in new construction and reconstruction projects in all urbanized areas and areas identified for urban levels of development in adopted land use plans unless one or more of the following conditions are met:

- a. Significant safety or other challenges exist that make bicycle and pedestrian facilities dangerous to potential users.
- b. The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable future use.
- c. Where current and projected future population is sparsely forecasted or other factors indicate an absence of need.

Where bicycle and pedestrian facilities are omitted from a roadway project, it may be necessary to accommodate bicyclists and pedestrians elsewhere within a nearby transportation corridor.

PAVED SHOULDERS FOR PEDESTRIAN USE MUST MEET THE REQUIREMENTS FOR A PEDESTRIAN ACCESS ROUTE IDENTIFIED IN 2011 PROWAG SECTION 302.

3110.3.2 Paved Shoulders

In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day. Paved shoulders of adequate size have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians.

3110.3.3 Pedestrian Facilities

All pedestrian facilities, including sidewalks, shared-use paths, street crossings (including over- and undercrossing), pedestrian signals, signs, transit facilities, and all connections within the public right-of-way, should be designed, constructed, operated and maintained so that all people, including children, the elderly and people with disabilities, have safe usage—AND MEET ADA REQUIREMENTS

3110.3.4 Transportation Infrastructure

The design and development of the transportation infrastructure should improve conditions for all likely users through the following steps:

- a. Plan projects for the long-term. Transportation facilities are long-term investments that should be designed and

FOR ALTERATIONS TO EXISTING FACILITIES, PLEASE NOTE THE FOLLOWING:

PER 2011 PROWAG R202.3.1, WHERE EXISTING PHYSICAL CONSTRAINTS MAKE IT IMPRACTICABLE FOR ALTERED ELEMENTS, SPACES, OR FACILITIES TO FULLY COMPLY WITH THE REQUIREMENTS FOR NEW CONSTRUCTION, COMPLIANCE IS REQUIRED TO THE EXTENT PRACTICABLE WITHIN THE SCOPE OF THE PROJECT. EXISTING PHYSICAL CONSTRAINTS INCLUDE, BUT ARE NOT LIMITED TO, UNDERLYING TERRAIN, RIGHT-OF-WAY AVAILABILITY, UNDERGROUND STRUCTURES, ADJACENT DEVELOPED FACILITIES, DRAINAGE, OR THE PRESENCE OF A NOTABLE NATURAL OR HISTORIC FEATURE.

PER 2011 PROWAG R202.3.3, AN ALTERATION SHALL NOT DECREASE OR HAVE THE EFFECT OF DECREASING THE ACCESSIBILITY OF A FACILITY OR AN ACCESSIBLE CONNECTION TO AN ADJACENT BUILDING OR SITE BELOW THE REQUIREMENTS FOR NEW CONSTRUCTION IN EFFECT AT THE TIME OF THE ALTERATION.

accessible and connected to surrounding neighborhoods requires close coordination between transit agencies, municipalities and ACHD in all phases of design and development. Installation and maintenance of transit facilities would be funded through cooperative cost sharing agreements between ACHD and the applicable municipality or transit provider.

- c. Address the need for bicyclists and pedestrians to cross corridors as well as travel along them. Even where bicyclists and pedestrians may not commonly use a particular travel corridor that is being improved or constructed, they will likely need to be able to cross that corridor safely and conveniently. Therefore, the design of intersections, interchanges, and overpasses should accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.

FOR ALTERATIONS TO EXISTING FACILITIES, PLEASE NOTE THE FOLLOWING:

PER 2011 PROWAG R202.3.3, AN ALTERATION SHALL NOT DECREASE OR HAVE THE EFFECT OF DECREASING THE ACCESSIBILITY OF A FACILITY OR AN ACCESSIBLE CONNECTION TO AN ADJACENT BUILDING OR SITE BELOW THE REQUIREMENTS FOR NEW CONSTRUCTION IN EFFECT AT THE TIME OF THE ALTERATION.

- d. Consider enhancements such as landscaping, specialized pavement treatments, decorative lighting, public art and other aesthetic features in new construction and reconstruction projects in appropriate land use contexts. Funding for installation and maintenance of enhancements will be specified in cooperative cost sharing agreements between ACHD and its partners as outlined in ACHD Policy Manual, Section 3109, "Interagency Cost Share Policies and Procedures." In new development, these enhancements may be required by the land use agencies through development approval.

- e. Get material exceptions approved by the commission. Removal of bikeways or walkways from an existing facility or design should be approved by the Commission or their designee in consultation with the relevant land use agency and be documented with supporting data that indicates the basis for the decision. The decision process and supporting documentation should be open to the public for review and comment.

3111 MASTER STREET MAP PURPOSE AND AMENDMENT PROCEDURES

3111.1 Purpose of the Master Street Map

The ACHD Master Street Map is a planning tool that works in concert with ACHD's partner agencies comprehensive plans. The Master Street Map creates a shared vision between ACHD and its partner agencies and provides information about future roadway characteristics based on land use plans and transportation goals. Portions of the Master Street Map can be used to comply with Idaho State Statute 67-6508 which describes local land use agencies responsibility to include transportation analysis in the comprehensive planning process.

NOT REVIEWED

The information captured in the Master Street Map shall be used by ACHD as input into the scoping and conceptual design of roadway projects; and in the development process as a guide for right-of-way acquisition, collector street requirements, and specific roadway features required through development.

In no way do the features and dimensions adopted in the Master Street Map constitute final design decisions for ACHD's capital projects or create entitlement for development approvals. All final decisions will be made through the ACHD project development process or the official development review process.

The Master Street Map along with the Livable Street Design Guide and Cost Share Policies and Procedures establish a planning framework for ACHD to interact with its partner agencies. To be effective the Master Street Map should be adopted by ACHD and its partner agencies.

The Master Street Map is not intended to be a regulatory document but rather a planning tool that informs the decision making process of ACHD and its partner agencies.

In summary, the three primary functions of the Master Street Map are as follows:

1. Define a shared vision of the future roadway network between ACHD and its partner agencies based on approved Comprehensive Plans and street typologies.
2. Establish a county wide right-of-way preservation map.
3. Establish an existing and future collector network map.

3111.2 Elements of the Master Street Map

The Master Street Map consists of two main components. The first component is a map that depicts roadway typologies (described in the Livable Street Design Guide), street codes, and existing and proposed collector streets. The second component is a spreadsheet that contains detailed information about each street segment identified on the map. Element Nos. 1, 2, 4, 5, 11, and 12 of the Master Street Map (as identified below) are primarily for informational purposes and the content of which, on the map and in the spreadsheets, can be changed at the staff level from time to time as new information becomes available.

3111.2.1 Master Street Map Elements

1. Street Code – This code is the key link between the spreadsheet and the associated map. Each unique street segment is assigned a code. In general no segment exceeds one mile.

2. Segment Description – Identifies the road name associated with the segment.
3. Street Typology –The typology from the Livable Street Design Guide (adopted by the ACHD Commission on May 27, 2009) designated for the segment. The typology is directly related to the planned land use adjacent to the roadway and it provides the basic information regarding the planned roadway cross section.
4. Existing Number of Lanes – Describes existing lane configuration as of the most recent Master Street Map update.
5. Planned Lanes for “Construction” – The number of lanes ACHD has funded for construction within a 20 year time frame. This information is taken from ACHD’s adopted CIP and Five Year Work Plan. Projects listed as funded for right-of-way preservation only in the CIP are not shown in this column.
6. Planned Lanes for “Preservation” – The number of lanes planned for preservation. This column represents preservation only and not a commitment by ACHD to purchase right-of-way or construct projects. This information was taken from several different sources including ACHD’s current CIP, adopted sub area studies, and in some cases reflects what ACHD has been preserving for in areas outside the CIP where development has occurred.
7. Parking – ACHD generally prohibits parking on arterial streets when there are significant impacts on safety and traffic flow, but there are some locations where parking is allowable due to the specific traffic conditions and the adjacent land use, such as a central business district. The Livable Street Design Guide provides typologies where on-street parking may be appropriate in the context of a roadway’s size, speed limit and adjacent land uses. This column represents several different parking conditions:

Existing - An “E” in this column indicates that parking exists on the street segment. Existing parking does not guarantee that parking can be accommodated on the street segment in perpetuity. Undeveloped areas often have parking along arterial streets that needs to be removed for safety purposes when a road is widened.

Parking removal associated with projects is addressed through the project team process involving representation from the respective city or Ada County. Where more than a few spaces of parking are removed that are not involving

the project development process, ACHD will contact the respective jurisdiction for discussion prior to parking removal. Traffic safety and operations goals must be satisfied but concerns of the jurisdiction and the adjacent property owner, and alternatives, will be considered before action is taken.

Approved - An "A" in this column represents that parking is approved by the ACHD Commission for a street segment but not yet built. Parking can sometimes be approved through the development process and the ACHD project development process. During the concept design phase of an ACHD project the city or county will have ample opportunity to discuss parking as an element of the street cross section.

Blank – On many segments the parking column will be left blank due to lack of information. A blank designation indicates that no specific data is available for that segment. There may be existing parking on some of these segments but it will take further research to create a countywide parking inventory.

8. Amenities or Enhanced Features – Areas where the city/county has a desire to include elements beyond the ACHD basic treatments described in the Livable Street Design Guide. These features may include a wider buffer area between the sidewalk and back of curb, a larger pedestrian zone, a place for public art or some other special feature that would require extra right-of-way than what would be preserved for the ACHD basic footprint. These features may require funding partnerships in accordance with the Cost Share Policies and Procedures.

9. Planned Right-of-Way Footprint "Projects" – Defines the total right-of-way needed for an ACHD capital project based on the input of the other elements. This number will be used by ACHD as a starting point for the concept design process. In some cases ACHD has a segment already designed. In these instances the right-of-way needs from the existing design will be used in the spreadsheet. In no way does this column represent a financial commitment from ACHD to purchase right-of-way. There may be areas where development is required to pay for some or all of the right-of-way and construction needs. There may also be modifications to this dimension based on specific project context and needs.

For many roadway segments there is no current plan to expand the road beyond the existing footprint. In these cases the roadway is identified as “No Planned Improvement” (NPI). In some cases the necessary right-of-way footprint is still to be determined (TBD).

10. Planned Right-of-Way Footprint “Preservation” – Defines the total right-of-way needed for preservation based on the input of the other elements and the buffer space needed to place the sidewalk in its final location so it will not be disturbed when the roadway is widened. This number will be used by ACHD to preserve right-of-way along developing corridors where the roadway will be widened to its full cross sections after some development has occurred. In no way does this column represent a financial commitment from ACHD to purchase right-of-way. There may be areas where development is required to fund some or all of the right-of-way and construction needs.

For many roadway segments there is no current plan to preserve right-of-way or expand the road beyond the existing footprint. In these cases the roadway is identified as “No Planned Improvement” (NPI). In some cases the necessary right-of-way footprint is still to be determined (TBD).

11. Comments – Miscellaneous comments or features that do not fall into the standard form. This area can also be used to describe special circumstances or approved policies associated with a specific road segment.
12. Reference to approved Concept Designs, Other Plans or Studies – Upon approval of a concept design, access management plan, or any other applicable document or policy related to a street segment, a reference will be placed in the comments section of the Master Street Map identifying these documents.
13. Collector Streets – In general collector streets are designed and constructed through the development process. Cross section features for collectors will continue to be worked out on a case by case basis with the developer in coordination with the lead land use agency and ACHD based on the traffic impacts of the proposed land uses in the area. The typology and proposed location of the collector streets is captured on the map and will serve as the starting point for the discussion that occurs through the development process.
14. Mobility Corridors – There are two types of mobility corridors identified on the Master Street Map. State mobility corridors include the interstate and state highway

system. ACHD mobility arterials are major roadways that focus on traffic operations and efficiency while maintaining pedestrian safety. Mobility corridors may be designed to accommodate higher speeds and may need strict access control. Mobility corridors may also require strategic investment and prioritization to help preserve traffic flow.

Like all other typologies identified on the Master Street Map ACHD mobility arterials are subject to modification to fit the roadway context. For example, some sections of a particular mobility arterial may need a lower speed to accommodate the adjacent land use. Other elements of the street sections such as lane width will also be reviewed at the project level.

3111.3 Amendment Procedures

Periodically, the Master Street Map will require amendment in response to development applications or comprehensive plan modifications initiated by ACHD's partner agencies. Element No.s 3, 6, 7, 8, 9, 10, 13, and 14 (as identified above) can only be amended through the Master Street Map.

3111.3.1 Amendment Requests through Development Applications

ACHD's standard development review process shall be the vehicle for processing and commenting on requests to amend the Master Street Map associated with new development. All requests to amend the Master Street Map from a land owner or developer shall be associated with a development application (e.g. Comprehensive Plan Amendment, Zoning and Annexation, etc.) that is submitted to one of ACHD's partner agencies and officially transmitted to ACHD for review and comment.

3111.3.2 Pre-Application Process

Developers are encouraged to meet with ACHD and the lead land use agency (City or County) prior to submitting a development application in a joint pre-application meeting. At this meeting the developer will be informed of the roadway typology and associated features adopted by the city or county. The developer in conjunction with the lead land use agency and ACHD will determine if a change to the Master Street Map is necessary and should be proposed as part of the development application.

3111.3.3 Official Transmittal

In accordance with ACHD's standard policies and procedures for development review the lead land use agency will transmit completed development applications to ACHD for official review. If a change is being requested to the Master Street Map the desired amendments should be clearly identified in the applicant's narrative and on the city or county application. At a minimum, the application should address:

1. Current Typology – As shown on the approved Master Street Map for each street segment where a change is being requested.

2. Proposed Typology – All proposed typology changes must be clearly defined in the application. The extents of the proposed changes can be described in the application or the applicant can provide an exhibit showing the proposed typology changes.
3. Parking – If parking in the right-of-way or adjacent to the right-of-way is proposed it shall be clearly shown on the site plan associated with application.
4. Collector Streets – All new collector streets shall be shown on the preliminary plat map and/or master site plan. The applicant shall work with ACHD staff to determine the appropriate cross sections features and details of new collector streets.
5. Other Special Features - Any other features that impact the right-of-way or differ from the approved Master Street Map shall be clearly defined in the application and if possible shown on the site plan or preliminary plat.

If this information is not provided the request cannot be processed by ACHD staff. If no changes are being requested to the Master Street Map this should also be indicated on the application.

3111.3.4 ACHD Staff Review and Comment

Requests to modify the Master Street Map will be reviewed by ACHD through its development review process when included with the development application. Street typology, the presence and location of collector streets, and any other features described in the Master Street Map will be analyzed by ACHD staff and comments will be provided to the lead land use agency. If no requests to modify the Master Street Map are included with the development application ACHD will conduct its standard development review.

3111.3.5 ACHD Decision

According to ACHD's standard development review procedures requests to modify the Master Street Map will be acted upon by ACHD staff or the ACHD Commission. The ACHD final decision and conditions of approval for the development application will be transmitted to the lead land use agency for inclusion in its review process.

3111.3.6 Lead Land Use Agency Decision

The final decision on the development application as a whole is made by the lead land use agency according to its standard policies and procedures.

3111.3.7 Approval

Upon approval of the development application by the lead land use agency any amendments to the Master Street Map approved by the ACHD Commission associated with the application will be included in the Master Street Map.

3111.3.8 Approval with Changes

If the lead land use agency through the approval process modifies some aspect of the requested Master Street Map amendment that contradicts with ACHD comments or approval, the applicant, ACHD and the lead land use agency will meet to resolve any discrepancies.

3111.3.9 Denial

Upon denial of the application by the lead land use agency no changes will be made to the Master Street Map.

3111.3.10 Amendment Process through Large-Scale City or County-Initiated Comprehensive Plan Changes or Sub Area Plans

1. Request Letter

During the early stages of a large scale comprehensive plan amendment or specific area plan the city or county may send ACHD an official correspondence informing ACHD of the plan and requesting ACHD to participate in the amendment process. At a minimum the letter should include the general area of the proposed changes and the goals and objectives of the amendment.

2. Scoping Meeting

If requested ACHD will meet with the city or county to determine the scope of work and partnership responsibilities necessary to address the proposed comprehensive plan amendment or specific area plan.

3. Draft Comprehensive Plan or Specific Area Plan Change

The city or county will provide ACHD with a draft of the proposed plan including any land use maps, circulation maps, or other information that pertains to the transportation network. Without these items ACHD cannot review the proposal.

4. ACHD Review and Comment

Based upon the information provided by the city or county, ACHD will analyze the impacts of the proposal on:

- a. Street Typologies
- b. Right-of-way
- c. Five Year Work Plan
- d. Capital Improvements Plan
- e. Other Master Street Map features
- f. Traffic Impacts
- g. Timing of projects

h. Needed improvements that fall outside the Capital Improvements Plan and Five Year Work Plan

i. Previous actions or approvals

j. Known or Pending Developments

5. Public Involvement

Upon city or county request, ACHD will participate in any public involvement process associated with the comprehensive plan amendment or specific area plan. Depending on the scope and scale of the changes, ACHD may hold its own public involvement process (especially in the case of specific area plans or regional transportation plans).

6. Approval

a. City or County Approval

The final comprehensive plan amendment or specific area plan will be approved by the lead land use agency in accordance with their standard policies and procedures.

b. ACHD Approval

After all public comment and revisions, the amendments to the Master Street Map recommended in the Comprehensive Plan change or specific area plan will be presented the ACHD Commission for adoption by resolution.

3111.3.11 Official Updates to the Master Street Map

Changes to the Master Street Map become effective upon approval by the lead land use agency and ACHD. ACHD staff will maintain an up-to-date version of the Master Street Map in electronic format that reflects the approved amendments.

ACHD will officially update the Map and Spreadsheet and present it to the ACHD Commission for approval by resolution on a bi-annual basis.

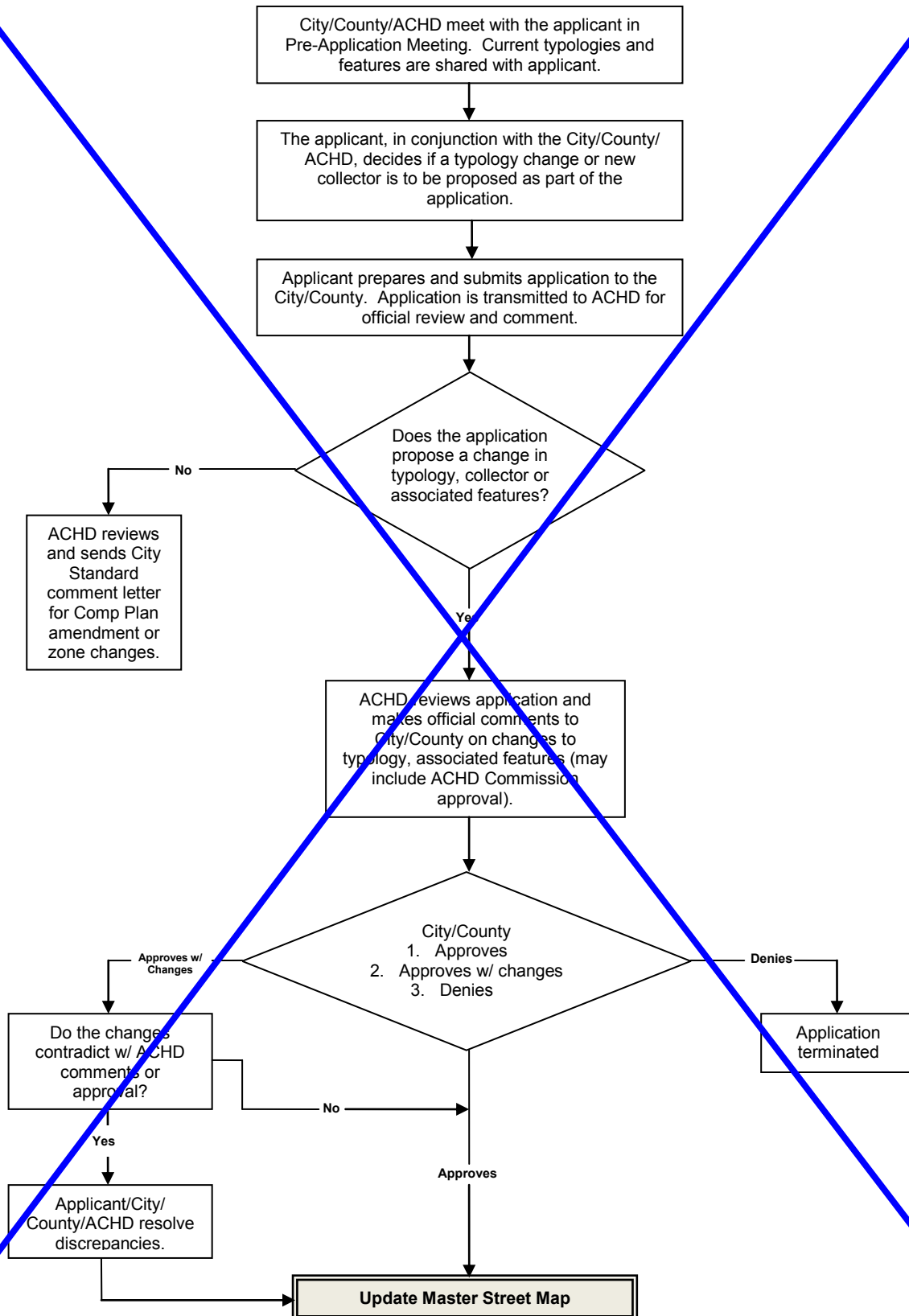
3111.4 Additional Right-of-Way Acquisition

Right-of-way acquisition for features beyond the ACHD basic footprint, as described in the Livable Street Design Guide, shall occur in accordance with ACHD's Cost Sharing Policies and Procedures.

3111.5 Master Street Map Amendment Process

Diagram of Master Street Map Amendment Process is on the following page.

MASTER STREET MAP AMENDMENT PROCESS



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5101 TRAFFIC DESIGN

TRAFFIC SIGNAL DESIGN PROCEDURES SHALL INCLUDE DESIGN OF PERMANENT PEDESTRIAN SIGNALS AND PUSH BUTTON PLACEMENT. INCLUDE PEDESTRIAN SIGNALS IN DESCRIPTION BELOW.

5101.1 Traffic Signal Design Procedures

Traffic signal design shall be done according to standards set forth in ACHD's Standard Traffic Details (Section 1100), ACHD's Standard Traffic Specifications, the Manual on Uniform Traffic Control Devices (MUTCD), and good engineering practice. This policy includes existing traffic signals to be reconstructed by ACHD or under contract.

Traffic signals shall be installed only after a traffic engineering investigation or study determines that specific warrant(s) are met. Signal warrants to be considered are found in the most recently adopted edition of the MUTCD. Other intersection treatments (all-way stop control, warning sign improvements, etc.) should be considered prior to signal installation.

Roundabouts should be considered as an alternative to traffic signal installation. Guidelines for roundabout consideration in Ada County should be followed in accordance with Section 5108 of this policy.

Traffic signals may be installed as part of traffic improvement plans. Wherever feasible, signal poles, the controller cabinet and other devices installed as part of signal control should be placed at the "ultimate" location to avoid having to move them in the future. Temporary pedestrian push button poles may be necessary to address interim or ultimate conditions to accommodate pedestrian accessibility.

Signal controller cabinets and service pedestals should be placed where they will not create a sight obstruction. See ACHD's Traffic Standard Details (TS-1111) for additional information.

Traffic signals, unless otherwise directed by ACHD's Traffic Department, should have provisions for signals interconnect with adjacent traffic signals and/or ACHD's Traffic Management Center (TMC). Design for signal interconnect, when included as part of the project scope, shall include provisions for conduit and junction box installation from the controller to the project limits on all approaches with direction from ACHD's Traffic Department.

The traffic signal plan shall include appropriate signing to indicate the conditions encountered by drivers. See ACHD's Traffic Standard Details (TS-1117) for additional information. The traffic signal plan shall also be accompanied by a striping plan that extends on each intersection approach to the point where new markings match existing markings. The striping plan shall also show all driveway locations, traffic signage and on-street parking regulations within the defined section.

5101.2 Traffic Marking Design Procedures

Part 3 of the MUTCD provides standards and guidance with regard to the marking of roadways. Minor modifications and refinements are provided in ACHD's Traffic Standard Details (TS-1118). Particular concerns in marking design are as follows:

1. Taper Lengths

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Taper rates generally apply to the development of separate left and right turn lanes. They can also refer to instances where a roadway has a change in alignment.

Guidelines for calculating taper lengths can be found in ACHD's Traffic Standard Details (TS-1112). Other appropriate reference sources include the most recently published versions of AASHTO's "A Policy on Geometric Design of Highways and Streets" and the Institute of Transportation Engineers' (ITE) "Traffic Engineering Handbook".

The recommended departure taper from the through traffic lane to a right turn lane is a straight line 10:1. This distance may need to be adjusted in situations where intersection geometry and turning demand dictate a longer taper is necessary to accommodate turning traffic. Significant deviation from this taper length shall only occur with the approval of the ACHD Traffic Engineer.

2. The Use of Double/Double Yellow Markings vs. Two-Way Left Turn Lane (TWLTL) Markings

The distinction between TWLTL turn lane markings and barrier markings (double/double yellow) is often misunderstood by the public; the latter treatment should not be extensively employed. Where crossing the roadway centerline is discouraged or at locations where left turns do not occur, barrier markings provide the proper message. However, in most cases, they should be supplemented with movement prohibition signs, channelizing devices, and/or a raised concrete median.

3. Continuity of Through Travel Lanes

Markings shall be arranged to maintain maximum continuity for through travel lanes. In situations where an intersection widening project precedes a roadway widening project, there may be temporary add/drop lanes while allowing provisions for adding and dropping lanes. Right or left turn drop lanes at major intersections should be avoided, if feasible. Drop lanes also require sufficient advance warning signage, per MUTCD criteria, for the approaching condition.

The applicable roadways should be marked under a plan prepared or approved by ACHD's Traffic Department. Guidelines for auxiliary through lanes can be found in ACHD's Traffic Standard Details (TS-1112).

4. New Roadway Improvements From Private Development That Allow for Improved Striping

Striping modifications should be considered when additional pavement width is installed with commercial development or residential subdivisions. Traffic Engineering should be notified before routine restriping is performed.

5101.3 Bicycle Facility Design

Bicycle facility design shall consider ACHD's Livable Street Design Guide, the Ada County Roadways to Bikeways Master Plan and other adopted plans. Where ACHD

design details do not address the specific situation, the most recent version of AASHTO's "Guide for the Development of Bicycle Facilities" shall be consulted. Another resource for bicycle facility design may include the National Association of City Transportation Officials' (NACTO) "Urban Bikeway Design Guide".

Bicycle facilities are to be signed and marked according to ACHD's Traffic Standard Details (TS-1112) and the MUTCD. Bike lane widths less than those recommended may be approved by ACHD's Traffic Department on a case by case basis to provide facility continuity under constrained conditions.

5101.4 Roadside Barriers

Roadside barriers include devices specifically designed to reduce the severity of crashes or roadway departures within reasonable financial constraints. They lessen the impact of a vehicle with a roadside object (e.g., utility pole, bridge abutments) or redirect errant vehicles away from an unusual road condition (e.g., non-recoverable slope). Barriers should only be placed at locations where the result of striking the barrier is likely to be less severe than striking the hazard that the barrier is designed to protect.

Frequently, the need for a traffic barrier is based on the probable risk to the driver and occupants of an errant vehicle. The factors considered include:

- height and slope of fill;
- shoulder/clear zone width;
- horizontal roadway curvature;
- vehicular speeds,
- traffic volumes,
- roadside conditions, in

INCLUDE AN ACCESSIBLE PEDESTRIAN ACCESS ROUTE TO/FROM TRANSIT STOP IN THE LIST OF FACTORS TO BE CONSIDERED REGARDING TRANSIT OPERATIONS DURING DESIGN.

The primary resource for determining the most recent version of AA

PER 2011 PROWAG R308.1.3.2, BOARDING AND ALIGHTING AREAS AND BOARDING PLATFORMS SHALL BE CONNECTED TO STREETS, SIDEWALKS, OR PEDESTRIAN CIRCULATION PATHS BY PEDESTRIAN ACCESS ROUTES COMPLYING WITH R302.

5101.5 Transit Operations

The following factors should be considered regarding transit operations in the design of ACHD projects and approval of private development projects:

1. The pavement structural design, with current and anticipated bus traffic. This may apply to roadways where Valley Regional Transit (VRT) maintains existing routes in addition to roadways where buses may operate in the future.
2. The turning radii of buses with current and anticipated bus traffic.
3. Bus turnouts at key locations where bus layovers and transfers are likely to occur. These locations should be identified in coordination with VRT.
4. Specific locations for signed bus stops should be selected in coordination with VRT. ACHD generally prefers stops on the far side of a signalized intersection, as this allows right turning vehicles to proceed without being blocked by a stopped bus. Consideration for near side stops should be based

on site specific conditions (sidewalks, sight distance limitations, bus routing, etc.).

5. Installation of transit amenities associated with ACHD or private improvement projects, such as bus benches and shelters, shall be coordinated with VRT. Refer to VRT's most recently adopted version of their "Bus Stop Location and Transit Amenities Development Guidelines" for further details regarding bus stop placement and design throughout the VRT service area.
6. Active or passive Transit Signal Priority (TSP) techniques to assist bus traffic along transit routes should be identified in coordination with VRT. Refer to Section 5201.3 (Emergency Vehicle Preemption/Bus Preemption) for additional details regarding TSP requirements.

5101.6 Pedestrian Accessibility

Consideration shall be given to the needs of persons with disabilities when designing ACHD projects and approving private improvement projects. Particular attention should be given to meeting the applicable provisions of the most recently adopted version of the Americans with Disabilities Act (ADA), Standards for Accessible Design. Examples of items in ACHD projects that shall conform to the ADA are pedestrian ramps, pedestrian push button detection at signalized intersections and sidewalk barriers that result in inadequate lateral clearance.

Areas that have a high concentration of elderly or disabled individuals should be provided additional consideration in traffic design for items such as audible pedestrian signals, signing, accessibility, etc.

The applicable standards for identification of deficiencies are the ADA Standards for Accessible Design and AASHTO's "A Policy on Geometric Design of Highways and Streets".
 , 2011 PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY (PROWAG)

5101.7 Railroad Preemption and Crossing Improvements

ACHD shall encourage railroad preemption where an active railroad crosses one of the approach legs to a signalized intersection. ACHD shall work cooperatively with the railroad operator to work out the best compromise for traffic safety and efficiency. Motion sensing devices shall be required in advance of railroad preemption if there is the potential for a train to stop near the street crossing and keep the flashing red lights operating or hold gates in a closed position.

All railroad preemption devices and proposed crossing improvements shall conform to the most recently adopted version of the MUTCD.

5101.8 Construction Traffic Control Plan Review

ACHD Traffic Engineering staff reviews traffic control plan(s) associated with capital and private development projects to assure compliance with established standards in the most recently adopted version of the MUTCD and good engineering practice. Traffic Engineering also reviews the project specific traffic control during construction, at the request of ACHD's Construction Services Section, and makes recommendations regarding traffic control changes. Traffic Engineering may also
 AND PEDESTRIAN PROWAG

INCLUDE
SIDEWALK
CLOSURE AND
PEDESTRIAN
REROUTING

recommend special provisions or changes to the design and/or implementation of traffic control plans.

The following items shall be considered in the review of traffic control plans:

1. Congestion that is likely to occur on the route, adjacent to the route, or on parallel facilities. Time of day restrictions, including night work or weekend work only, may need to be implemented as part of the contract documents or approved traffic control.
2. Other construction activities (permit work, other capital and private projects, e.g.) in the general vicinity that are likely to occur simultaneously. In areas where multiple activities are taking place, care should be taken to avoid overlapping or conflicting traffic control.
3. Evaluate the inconvenience and amount of delay incurred due to the proposed traffic restrictions. ACHD may compare users' costs with the costs of a different construction method and traffic control plan to decide the best alternative. Several options may need to be considered.
4. Consider the affected community and the hardship on any group of people or businesses due to the proposed traffic restrictions. Recent construction activity in the area is a relevant consideration.
5. Attempt to schedule construction so as not to conflict with major traffic generating events, such as Boise State University home football games or other significant campus events, special events like the Twilight Criterium and the Western Idaho Fair, seasonal peaks (summer traffic near Barber Park, e.g.) and holiday shopping traffic around the Boise Towne Square Mall (see Sec. 5101.8.1 for further details on holiday permitting).

ADDRESS
SIDEWALK
CLOSURE AND
PEDESTRIAN
REROUTING

5101.8.1 Holiday Permit Guidelines

Roadwork in the public right-of-way that occurs between the Monday before Thanksgiving and the first working day after New Year's Day presents specific concerns to ACHD and local businesses. Non-emergency permit requests for work during this time on roadways near major shopping areas should be considered as follows:

1. Daytime lane closures (9am to 4pm) may be allowed at the discretion of ACHD's Traffic Department, provided the affected street has more than one travel lane in a given direction. Daytime closures or flagging operation on two lane roadways may be considered provided the traffic can be reasonably detoured or operational problems are not created at nearby intersections. Where school walk routes or school access is affected, work times may be modified at the discretion of ACHD.
2. Overnight lane or roadway closures (10pm to 6am) may be considered in situations where daytime work cannot be allowed.

3. Lane or roadway closures that exceed 24 hours shall, under most circumstances, not be approved in primarily commercial areas during the holiday season as stated above.
4. Roadwork that affects on-street parking only should generally be allowed during the holiday season. Proposed roadwork may require approval from the appropriate City department responsible for metered or time restricted parking.
5. If a lane closure causes operating problems at nearby intersections, the ACHD Inspector may, at their discretion or in consulting with the Traffic Engineer, direct the permit holder to suspend work and open all travel lanes.

5101.9 Project Completion

At the end of a project, Traffic Engineering shall make a final field review to assure compliance of traffic control devices with the construction plans, specifications and appropriate engineering standards. The field review may be performed in conjunction with a final project walk through organized by Construction Services.

If a project significantly changes the character of a roadway, such as a project that increases the number of through lanes, Traffic Engineering may perform a traffic and engineering study to either confirm or revise the posted speed limit. The study should be performed within six months of project completion. In certain circumstances (other road work or significant development along the project, e.g.) dictate waiting for traffic conditions to normalize.

NOT REVIEWED

5101.10 Weight Limit Restrictions on Roads and Bridges

Weight restrictions should be posted on roadways and/or bridges according to the determination of ACHD's or the State of Idaho's bridge inspection program. Advance posting may be appropriate for routes with large numbers of trucks, poor turn around conditions, or long distances to the nearest alternate route.

5102 TRAFFIC STUDIES

5102.1 Requirements and General Information

Traffic impact studies shall be required in conjunction with private development. They shall be consistent with requirements set forth in ACHD's Development Policy Manual.

5102.2 Traffic Studies ← INCORPORATE PEDESTRIAN VOLUMES IN TRAFFIC STUDIES

Traffic studies may be required for a variety of reasons on both capital and private development projects. Traffic Engineering should be an active participant in the review of those projects that involve ACHD maintained roads.

Traffic studies may vary in size and scope. A one page study evaluating existing traffic volumes, accidents, and physical conditions may be sufficient in addressing traffic related issues associated with a project. A traffic study may be a more complex analysis of existing and future levels of service at several locations as well as possible

capital and development project scenarios. They may consider various roadway concept alternatives, alignments, modes of travel, and project enhancements such as location of enhanced pedestrian crossings (PHBs, RRFBs, etc.) and roundabouts.

5103 TRAFFIC DATA AND ANALYSIS

5103.1 Crashes

An annual review by Traffic Engineering shall be made of high crash locations (HCLs) to determine any collision patterns that might be correctable by changes to traffic control devices, roadway improvements, or other measures under ACHD control. A field visit of key intersections should take place in mid to late spring of each year once crash data has been entered and finalized for the previous calendar year. The five most recent years of crash data should be considered in the analysis.

Periodic follow up for key locations should be made if significant changes are incorporated at a particular intersection (all-way stop control installation, protected left turn phasing, etc.).

5103.2 Traffic Counts

Machine traffic counts (volume) should be performed at regular intervals (preferably every two to three years on arterials and collectors) to obtain a sample of traffic volumes on ACHD roadways. This data helps determine growth trends and provides information for ACHD's Planning and Programming Section as well as development and calibration of the long range model. Machine counts can also be employed for various traffic safety investigations and studies, design projects, traffic calming requests and other special needs. Traffic counts should be bidirectional, where feasible.

Turning movement counts may be made where specific information is needed regarding intersection turning movements, traffic conflicts, and pedestrian and bicycle traffic. This information helps assess the need for crosswalks or other enhanced pedestrian crossings, perform signal warrant analyses and conduct other studies that help prioritize improvements. Morning turning movement counts are generally performed from 7am to 9am, midday counts are generally performed from 11am to 1pm and evening turning movement counts are generally performed from 4pm to 6pm. Other count times may be considered if the majority of anticipated pedestrian or vehicular traffic occurs outside of these timeframes (school drop off and release times, e.g.).

Care should be used in placing traffic counters for basic data collection in areas where roadway construction may have a significant impact on traffic volumes for that segment. However, traffic counters may be a useful tool in determining impacts related to roadway construction (road closures, lane reductions, detours, etc.).

Traffic count records shall be retained in accordance with Idaho Code and ACHD public records policy.

5103.3 Speed Studies

Speed studies shall be performed as part of a traffic and engineering study to set or reevaluate speed limits. A manual observation with a radar speed measuring device is the accepted method for measuring speed for such a study.

Machine speed measurements can be useful for lower volume locations, such as local streets, in an assessment of residential traffic management issues. They are, however, generally not a preferred method for measuring vehicular speeds for establishing speed limits. Machine data may be used as supplemental information on lower volume roadways where a manual radar study would take an excessive amount of time.

5103.4 Vehicle Classification Counts

Vehicle classification counts can be useful for pavement design, the design of some roadway geometric features (intersection curb radii, roundabout truck aprons, etc.) and the placement of traffic control devices. The use of a mechanical device for classifying vehicles may be cross-checked with manual observation of the traffic stream.

5103.5 Other Data Collection

Other types of traffic data may be collected for special studies. Examples include traffic control device compliance studies, gap studies and license plate surveys to determine cut through traffic.

5103.6 Traffic Signal Warrants

Traffic signal warrants from the most recently adopted version of the MUTCD shall be used as guidelines in considering the need for a traffic signal at an intersection. Other features that should be considered include the following:

ON MARCH 18, 2018, FHWA ISSUED A NEW INTERIM APPROVAL FOR THE OPTIONAL USE OF RECTANGULAR RAPID-FLASHING BEACONS (RRFB) AS PEDESTRIAN-ACTUATED CONSPICUITY ENHANCEMENTS FOR PEDESTRIAN AND SCHOOL CROSSING WARNING SIGNS UNDER CERTAIN LIMITED CONDITIONS. STATE AND LOCAL AGENCIES MUST REQUEST AND RECEIVE PERMISSION TO USE THIS NEW INTERIM APPROVAL, DESIGNATED IA-21, FROM THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) IN ACCORDANCE WITH THE PROVISIONS OF SECTION 1A.10 OF THE MUTCD BEFORE THEY CAN USE THE RRFB, EVEN IF PRIOR APPROVAL HAD BEEN GIVEN FOR INTERIM APPROVAL 11 (IA-11), NOW TERMINATED. THE ISSUANCE OF THIS NEW INTERIM APPROVAL DOES NOT REINSTATE IA-11 EITHER IN WHOLE OR IN PART.

5103.7 Pedestrian Signal Warrants

Pedestrian signal warrants from the most recently adopted version of the MUTCD shall be used in considering the need for a pedestrian signal or other enhanced crossing device (pedestrian hybrid beacon, rectangular rapid flashing beacon, etc.). Care should be made in avoiding placement of devices where there is a significant geometric feature that inhibits appropriate sight distance without supplemental provisions (advance signage, flashing beacons, etc.). Other features that should be considered include the following:

- established school walk routes;

- spacing with respect to other traffic control devices;
- proximity to schools or other major pedestrian generators.

5104 TRAFFIC INVESTIGATIONS

5104.1 Traffic Safety Investigations

Traffic safety investigations are performed in response to requests from the public, other agencies, staff observations, or other manners in which a potential safety concern is identified. Documentation is made of the concern and the findings by Traffic Engineering staff. The conclusions should be based upon an engineering evaluation taking into account the following:

- traffic volumes;  INCLUDE PEDESTRIANS
- crash history;
- vehicular speeds;
- physical conditions;
- other relevant factors appropriate to the investigation.

Where ACHD conducts an investigation to determine the need for traffic control devices, the MUTCD shall serve as the primary set of guidelines for traffic control device use. Various Institute of Transportation Engineer (ITE) publications, the American Association of State Highway and Transportation Officials (AASHTO) policies, and other relevant professional and technical publications may also supplement the MUTCD.

The District shall investigate school safety concerns based on requests from the school district or other parties. The most recently adopted version of the MUTCD shall serve as the primary guideline for placement of traffic control devices.

5104.2 Residential Traffic Management (Traffic Calming)

ACHD shall cooperate with residents, other local agencies and neighborhood associations to manage residential traffic according to thresholds established in this policy. Traffic calming measures are roadway features and/or traffic controls that reduce the speed or volume of traffic on a street, and are not intended to address serious safety deficiencies in roadway geometry or traffic controls. The measures may include, but are not limited to, speed humps, speed tables, raised crosswalks, chicanes and mini-roundabouts.

5104.2.1 Prerequisites to Traffic Calming

Prior to implementing traffic calming:

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1. A traffic safety investigation consistent with procedures outlined in Sec. 5104.1 shall be completed. This includes gathering data to determine eligibility for traffic calming, including speed and volume information as well as recent crash history.
2. If a roadway segment meets traffic calming criteria, residents shall submit a petition showing support of 75% of the households on the impacted section of the street. For a local street, signatures

representing a minimum of 10 households are required and may include other residents within the neighborhood where the number of houses on the street do not allow for satisfaction of this requirement. For a collector street, signatures representing 50% of the households of the adjacent local streets that, as defined by ACHD on a case-by-case basis, depend upon the collector for major street access, are also required.

3. For continuous collector streets, additional notification and public involvement of drivers may be required. Collector streets with over 4000 vehicles per day (weekday average) are generally not appropriate facilities for speed humps or other measures that may divert traffic to other streets.
4. Input from emergency services (police, fire, EMT, etc.) should be obtained by ACHD. Should the roadway be considered a primary response route, ACHD may decline to install traffic calming measures.
5. Where public transit service is routed along a street that is considered for traffic calming measures, this shall not automatically disqualify the street from traffic calming implementation.

5104.2.2 Eligibility

Only residential streets with a posted speed limit of 30 mph or less and functionally classified as a local or collector street are eligible for traffic calming.

5104.2.3 Neighborhood Participation and Financial Contribution

When the cut-through traffic threshold established in Sec. 5104.2.5 or Sec. 5104.2.6 is exceeded, ACHD shall conduct a study to determine appropriate traffic calming measures, perform the design, conduct the public information process, fund the construction in accordance with available funds and priorities, administer the construction contract, and install all supplementary traffic controls such as signs and pavement markings.

When the cut-through requirement is not met but traffic volume and/or speed thresholds are exceeded, the neighborhood is responsible for the construction costs. Payment shall be to ACHD in advance of any traffic calming construction and/or installation. ACHD shall provide the necessary supplementary traffic control devices such as appropriate signs and markings.

If traffic thresholds outlined in this policy are not met, options available to the neighborhood include the following:

- Placement of a temporary speed trailer (See Sec. 5104.2.8).
- Police enforcement.

5104.2.4 Minimum Criteria for Traffic Calming Eligibility

The following minimum criteria shall be met (applicable to both local and collector roads) for a street segment to be eligible for traffic calming:

1. The minimum street length to be considered for traffic calming measures shall be 750'. Additional information in how this distance is measured can be found in ACHD's Traffic Standard Details (TS-1121).
2. A 200' minimum and 500' maximum distance is required between traffic calming devices (measured center to center). A minimum of 300' is required between stop or yield control, horizontal curves with 45 degree or greater deflection and any traffic calming device (except curb extensions). Minor variations in the aforementioned standards may be accepted by the ACHD Traffic Engineer.
3. The minimum average daily traffic (ADT), as measured by a weekday count of at least three days duration, shall be at least 400 vehicles.
4. The maximum average daily traffic (ADT), as measured by a weekday count of at least three days duration, shall be no more than 4000 vehicles.

5104.2.5 Thresholds for Local Residential Roads

One of the following thresholds shall be met in order for a local roadway to be considered eligible for traffic calming:

1. Peak hour traffic greater than 100 vehicles.
2. 85th percentile speed of all vehicles, as measured by a count of at least three days duration, equal to or greater than 30 mph. The 85th percentile speed is defined as the speed at which 15% of vehicles are traveling at or exceeding. All speeds will be rounded to the nearest mile per hour.
3. 95th percentile speed of all vehicles, as measured by a count of at least three days duration, equal to or greater than 35 mph. The 95th percentile speed is defined as the speed at which 5% of vehicles are traveling at or exceeding. All speeds will be rounded to the nearest mile per hour.

The speed requirement for both thresholds shall be reduced by 1 mph for each of the following:

1. Lack of continuous sidewalks on at least one side of the street.
2. Vertical or horizontal alignment that limits sight distance, based on the posted speed limit, as determined by ACHD.

Provided either the speed or volume requirement is met, ACHD shall defray the costs of traffic calming measures if the cut through traffic exceeds the percentage listed in the table below. Values between those listed shall be prorated linearly from the values provided:

ADT (Weekday)	% Cut-Through
400	50
800	40
1200	30
1600	20
>=2000	10

5104.2.6 Width Thresholds for Collector or Local Roads Fully Improved to Collector

1. Peak hour traffic greater than 300 vehicles where no direct lot access is permitted and 150 vehicles where continuous direct lot access exists. Streets having a mixture of direct and non-direct lot access shall have a threshold volume determined by a proration based on the lineal feet of frontage of each type (for example, direct lot access on 50% of the roadway requires 225 vehicles in the peak hour to meet this requirement).
2. 85th percentile speed of all vehicles, as measured by a count of at least three days duration, equal to or greater than 35 mph. The 85th percentile speed is defined as the speed at which 15% of vehicles are traveling at or exceeding. All speeds will be rounded to the nearest mile per hour.
3. 95th percentile speed of all vehicles, as measured by a count of at least three days duration, equal to or greater than 37 mph. The 95th percentile speed is defined as the speed at which 5% of vehicles are traveling at or exceeding. All speeds will be rounded to the nearest mile per hour.

The speed requirement for both thresholds shall be reduced by 1 mph for each of the following:

1. Lack of continuous sidewalks on at least one side of the street.
2. Vertical or horizontal alignment limits sight distance per the posted speed limit.
3. More than 50% front-on housing.

Provided either the speed or volume requirement is met, ACHD shall defray the costs of traffic calming measures if the cut through traffic exceeds the percentage listed in the table below. Values between those listed shall be prorated linearly from the values provided:

ADT (Weekday)*	% Cut-Through
1000	50
1500	40
2000	30
2500	20
>=3000	10

* Cut through requirement shall be reduced from the value shown above based on direct lot access according to the following chart:

Direct Lot Access	% Reduction in Cut Through Requirement
0%	0%
20%	5%
40%	10%
60%	15%
80%	20%
100%	25%

5104.2.7 Procedure for Traffic Calming Installation

If the prerequisites and eligibility criteria for traffic calming are satisfied, ACHD shall determine the timing of device installation based on funding eligibility and priority.

A public involvement process, such as a public information meeting and/or survey of concerns, may be performed to identify and evaluate support and opposition for the proposed project.

After clearing all preceding requirements, design shall be completed and the contract submitted to the ACHD Commission for approval.

5104.2.7.1 Traffic Calming Consideration for Additional Measures

Additional traffic calming measures may be considered if a street already has previously installed traffic calming devices. The analysis procedure, including neighborhood support, shall remain the same as described in sections 5104.2.1 through 5104.2.6 of this policy. However, the speed criteria as outlined above shall govern additional mitigation.

5104.2.7.2 Traffic Calming Consideration for New Development

Traffic calming on new streets should be a part of the conditions of development for new neighborhoods (see Sec. 5104.2.8 for additional information). In the absence of any previously documented conditions or requirements for traffic calming installation, no roadway shall be eligible for traffic calming measures at District expense unless a minimum of 50% of the front on homes are occupied.

5104.2.8 Development Funded Traffic Calming Measures

Traffic calming measures may be required as a site related impact for any development which is likely to create or add to residential traffic exceeding thresholds outlined in Sec. 5104.2.4 or 5104.2.5. The volume or cut-through criteria specified in Sec. 5104.2.4 or 5104.2.5 shall be satisfied by projected traffic volumes as identified in a traffic impact study or, where no study is required, by ACHD determination

Traffic calming measures required with development may be approved by the ACHD Commission based on the following:

1. Evidence of neighborhood support via petition;
2. The relationship of the proposed development's impact to existing and future traffic volumes;
3. Route importance for emergency response;
4. Response from affected emergency services personnel to the proposal.

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The selection of traffic calming measures shall be limited to the most appropriate devices to mitigate speeding concerns. Where the measures are for an established neighborhood area, that neighborhood may request more costly traffic control measures, but shall be responsible for the additional cost.

5104.2.9 Policy for Radar Trailer (Visual Traffic Speed Indicator)

Requests for trailer use may be accepted by ACHD Traffic Engineering from municipalities, neighborhood associations or groups, law enforcement personnel, school districts or individual residents on a residential street. Requests may be made in writing, by phone, or via email. Location consideration shall respond to safety and sight obstruction factors.

Radar trailer availability is normally on a first come, first served basis, Monday through Friday. Display operation is all day (24 hours). Priorities for radar trailer placement may change due to special studies, weather, construction or other considerations.

5104.3 Encroachments and Sight Obstructions

5104.3.1 Encroachments and Sight Obstructions – Definitions

- A. Encroachments include, but are not limited to, any gate, building, private sign, mailbox, facility, structure, object, hedge, tree, shrubbery, fence, or wall that is placed on, over, beneath, or within or otherwise encroaches into any portion of any highway or any public right-of-way.
- B. Sight Obstructions include, but are not limited to any gate, building, private sign, mailbox, facility, structure, object, hedge, tree, shrubbery, fence, or wall that interferes with driver vision.

5104.3.2 Encroachment and Sight Obstructions – Notice and Investigation

Upon actual notice of an encroachment or sight obstruction, either by direct and documented observation by District staff, or by receiving a clear and concise written or

verbal communication from the public or other written or verbal notification from another governmental entity, the District Engineer or its designees, in accordance with duly adopted policies and procedures, shall conduct an engineering and traffic safety investigation to determine whether an encroachment or sight obstruction exists and whether it effectively obstructs and prevents the use of an open highway for vehicles or is unsafe for pedestrian, bicyclist or motorist use of an open highway. In accordance with duly adopted policies and procedures, appropriately trained Maintenance personnel may also conduct an investigation of an encroachment or sight obstruction and make a determination relative to its severity.

5104.3.3 Encroachments and Sight Obstructions – Removal Specifications

Encroachments and sight obstructions will be considered for removal or mitigation based upon applicable Idaho law, District specifications, and duly adopted policies and procedures. Pursuant to Idaho Code 40-2319(2), if an encroachment effectively obstructs and prevents the use of an open highway for vehicles or is unsafe for pedestrian or motorist use of an open highway, it is subject to immediate removal by the District without notice to the occupant or owner of the land, or person causing or owning the encroachment or sight obstruction. District specifications for sight obstructions include, but are not limited to, the 40-foot vision triangle, the 3-foot and 10-foot height requirements, and intersection sight distance; see Figure 1 and Figure 2. These specifications are in accordance with Idaho Code 49-221 and 40-2319 and applicable AASHTO guidelines and the location related to the highway or public right-of-way. Section 5104.3.4 provides additional guidelines for removal and mitigation of sight obstructions, encroachments, and other hazards.

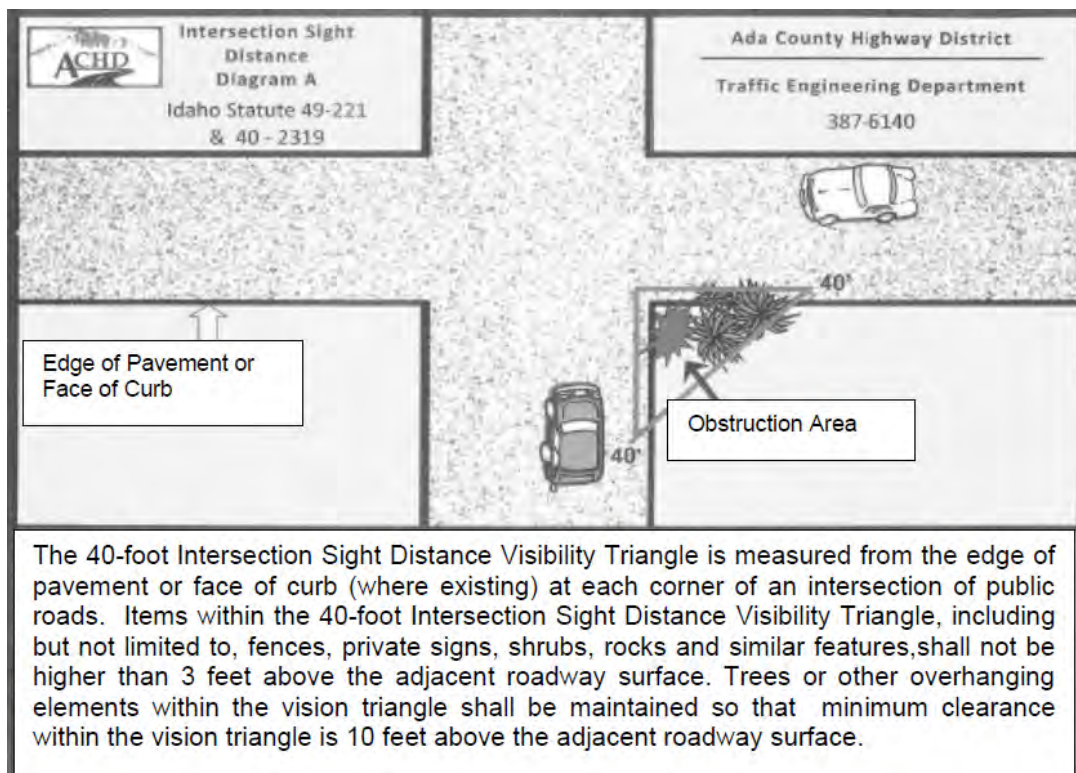


Figure 1 – Uncontrolled Intersection

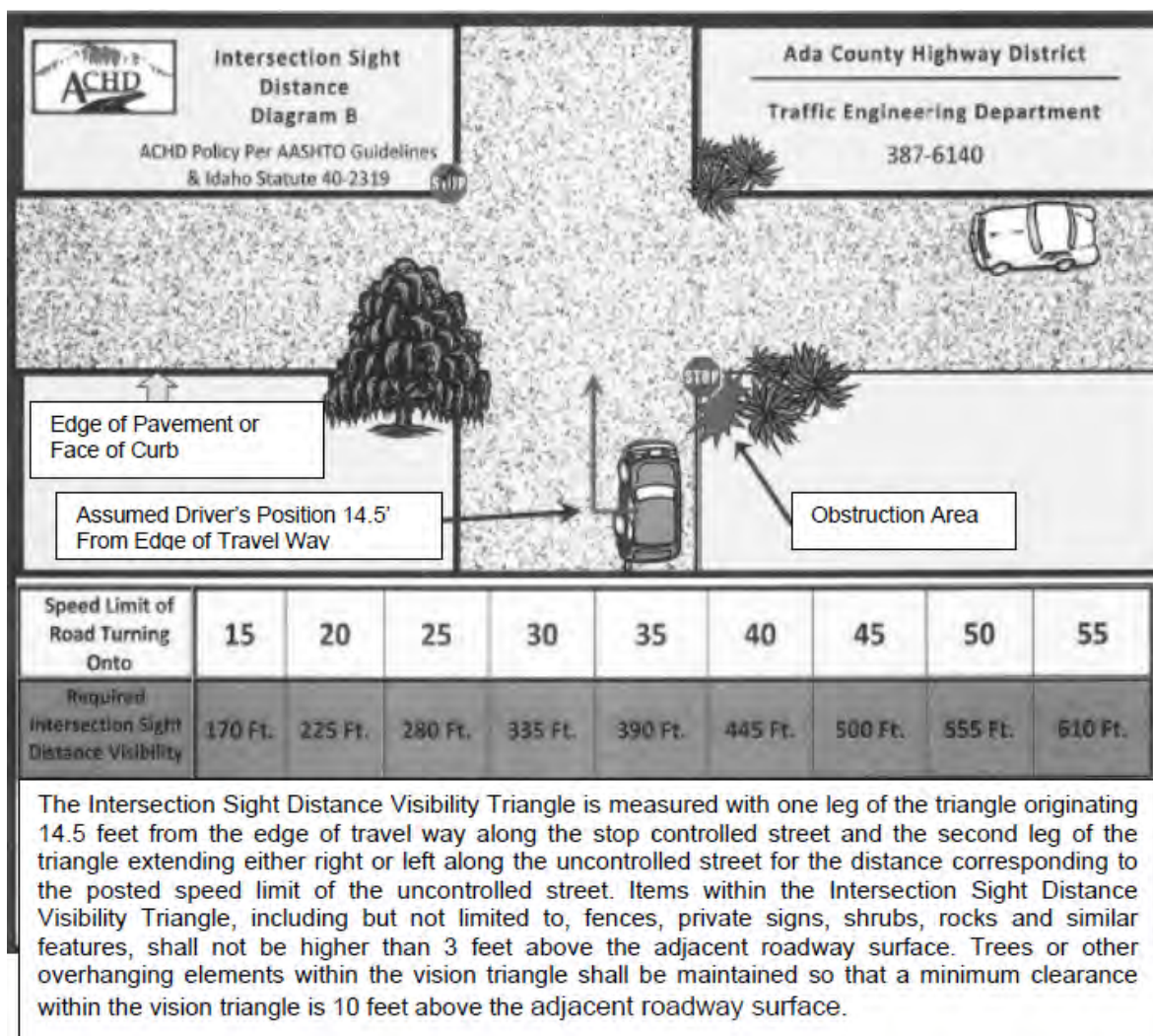


Figure 2 – Stop Controlled Intersection

5104.3.4 Guidelines for Removal and Mitigation of Traffic Hazards Caused by Encroachments and Sight Obstructions

A. Degree or Severity of Hazard

Hazards are prioritized as follows:

1. Hazard effectively obstructs and prevents the use of an open highway for vehicles or is unsafe for pedestrian or motorist use of an open highway.
2. Deficiency based upon operational safety, such as accident record, or emergency stopping sight distance, or threatens structural integrity of the road surface or raises other concerns relative to maintenance or operation of the highway or public right-of-way.

3. Safety deficiency based upon current design standards, such as intersection sight distance, or stopping sight distance.
4. Beneficial to remove or mitigate, but minimum standards are met, such as vegetation cut to back of curb on minor residential streets; 2-feet behind curb for collectors; 4-feet behind curb for arterials; mitigating traffic control at intersections with visibility obstruction; and partial obstructions to visibility in sight triangles.
5. No significant benefit to removing sight triangle obstruction or encroachment

B. Location of Hazard

1. Right-of-way
2. Private property in sight triangle
3. Private property not in sight triangle

C. Potential Removal and Mitigation Actions

1. Notice of Encroachment (Requiring Removal Within 10 Days)
2. Follow-up Certified Letter, Door Hanger, Telephone Call, or Personal Visit
3. Attorney Letter
4. District Zone Inspection Services Remove
5. District Maintenance Remove
6. District Traffic Operations Place Temporary Mitigation
7. City/County Forestry Trim or Remove
8. City/County Code Enforcement
9. Court Injunction
10. Criminal Citation
11. Placement of Traffic Control Device
12. Minor District Project (Current Budget Year)
13. Major District Project (Consider for Future Year)
14. License Agreement

D. Degree of Removal and Mitigation Effort

The following chart identifies, but does not limit, the suggested removal and mitigation actions based on the degree and location of the hazard.

DEGREE OF HAZARD	LOCATION OF HAZARD	POTENTIAL REMOVAL AND MITIGATION ACTION
1	Right-of-Way	4, 5, 6 (Immediately)
1	Private Property (In Sight Triangle (ST))	4, 5, 6 (Immediately)
1	Private Property (Not in ST)	4, 5, 6 (Immediately)
2	Right-of-Way	All except 8, (depending on circumstances: 14)
2	Private Property (In ST)	All except 7, 14
2	Private Property (Not in ST)	1, 2, 11, 12, 13
3	Right-of-Way	1, 2, 4 (depending on circumstances: 5, 9, 12, 13, 14)
3	Private Property (In ST)	1, 2, 4
3	Private Property (Not in ST)	1
4	Right-of-Way	1, (depending on circumstances: 2, 4, 9, 14)
4	Private Property (In ST)	1, 4
4	Private Property (Not in ST)	1 (not certified mail)
5	Right-of-Way	1, (depending on circumstances: 2, 4, 9, 14)
5	Private Property (In ST)	None
5	Private Property (Not in ST)	None

E. Non-Immediate Encroachment Removal – Civil Penalty

1. If the encroachment is not removed, or commenced to be removed, prior to the expiration of ten (10) days from the service or posting the Notice of Encroachment, the person who caused, owns or controls the encroachment shall forfeit up to one hundred fifty dollars (\$150) for each day the encroachment continues unremoved.
2. If the owner, occupant, or person controlling the encroachment, refuses either to remove it or to permit its removal, the District shall commence in the proper court an action to abate the encroachment. If the District recovers judgment, it may, in addition to having the encroachment abated, recover up to one hundred fifty dollars (\$150) for every day the nuisance encroachment remained after notice, as well as costs of the legal action and removal.
3. If the owner, occupant or person controlling the encroachment fails to respond to the Notice of Encroachment within five (5) days after the service or posting of the Notice of Encroachment is complete, the District may remove the encroachment at the expense of the owner, occupant, or person controlling the encroachment, and the District may recover costs

and expenses, as well as the sum of up to one hundred fifty dollars (\$150) for each day the encroachment remained after notice was complete.

5104.3.5 Non-regulatory Signs, Temporary Signs, and Nuisance Signs or Lighting
All Non-regulatory signs, such as "Neighborhood Watch" signs, Temporary signs such as but not limited to "Real Estate", "Open House", "Garage Sale", and "Political Campaign" signs, and Nuisance Signs such as but not limited to miscellaneous services and lost animals (collectively hereafter referred to as "Signs") shall be placed according to current District standards and are granted permission for placement within the public right-of-way under District jurisdiction subject to the following restrictions:

SIGN PLACEMENT SHALL
NOT RESTRICT 48" MINIMUM
WIDE PEDESTRIAN ACCESS
ROUTE PER 2011 PROWAG
R302.3.

1. Signs shall not be placed or located in a manner that interferes with the movement of motor vehicles or bicyclists or pedestrians or creates a sight obstruction for drivers or pedestrians or otherwise impedes driver or cyclist or pedestrian vision.
2. Signs, regardless of height or width, shall not be placed or located within the 40' x 40' Intersection Sight Distance Visibility Triangle located on the corner of every roadway intersection as defined by the intersection of the curb lines of both streets or where curbs do not exist, the edge of the pavement lines of both streets; see Figure 1, in Section 5104.3.3 and Figure 3.
3. Signs shall not be placed or located in a manner that interferes with the required intersection sight distance visibility; see Figure 2 in Section 5104.3.3 and Figure 3.
4. Signs shall not be located within twelve (12) feet of the edge of pavement where there are no curbs and/or sidewalks; see Figure 3.
5. Where curb exists without sidewalks, signs shall not be located closer than six (6) feet from the curb to allow for a pedestrian walkway; see Figure 3.
6. Where sidewalk exists, signs may be located on the property (non-roadway) side of the sidewalk if sufficient public right-of-way exists for such placement, see Figure 3; provided that the sign shall not hang over the sidewalk. This will ensure the pedestrian access route on the sidewalk to be no narrower than the minimum width required under the Americans with Disabilities Act AND PROWAG.
7. Signs shall not be located on any sidewalk, traffic median, island, boulevard strip, or landscape area between the curb and the separated sidewalk; see Figure 3.
8. Signs shall not be displayed using digital, flashing, battery operated, wireless, electronic or solar technology.
9. Signs shall not be placed on or attached to any post, pole, traffic sign, traffic marker, or traffic control facility located within the public right-of-way.

CLARIFY NOTE. IS THIS REFERRING
TO A POTENTIAL FUTURE
PEDESTRIAN WALKWAY?

10. All political campaign signs are to be removed from the public right-of-way within 48 hours after the election.
11. Any signs that are an encroachment or sight obstruction as provided in Section 5104.3.3 or are otherwise a hazard to vehicles, bicyclists, or pedestrians, or which hang over the sidewalk in such a manner that it causes the pedestrian access route on the sidewalk to be narrower than the minimum width required under the Americans with Disabilities Act, must be removed. Any illumination that creates a traffic hazard must be shielded, removed, or otherwise properly mitigated.  ~~AND~~ PROWAG,

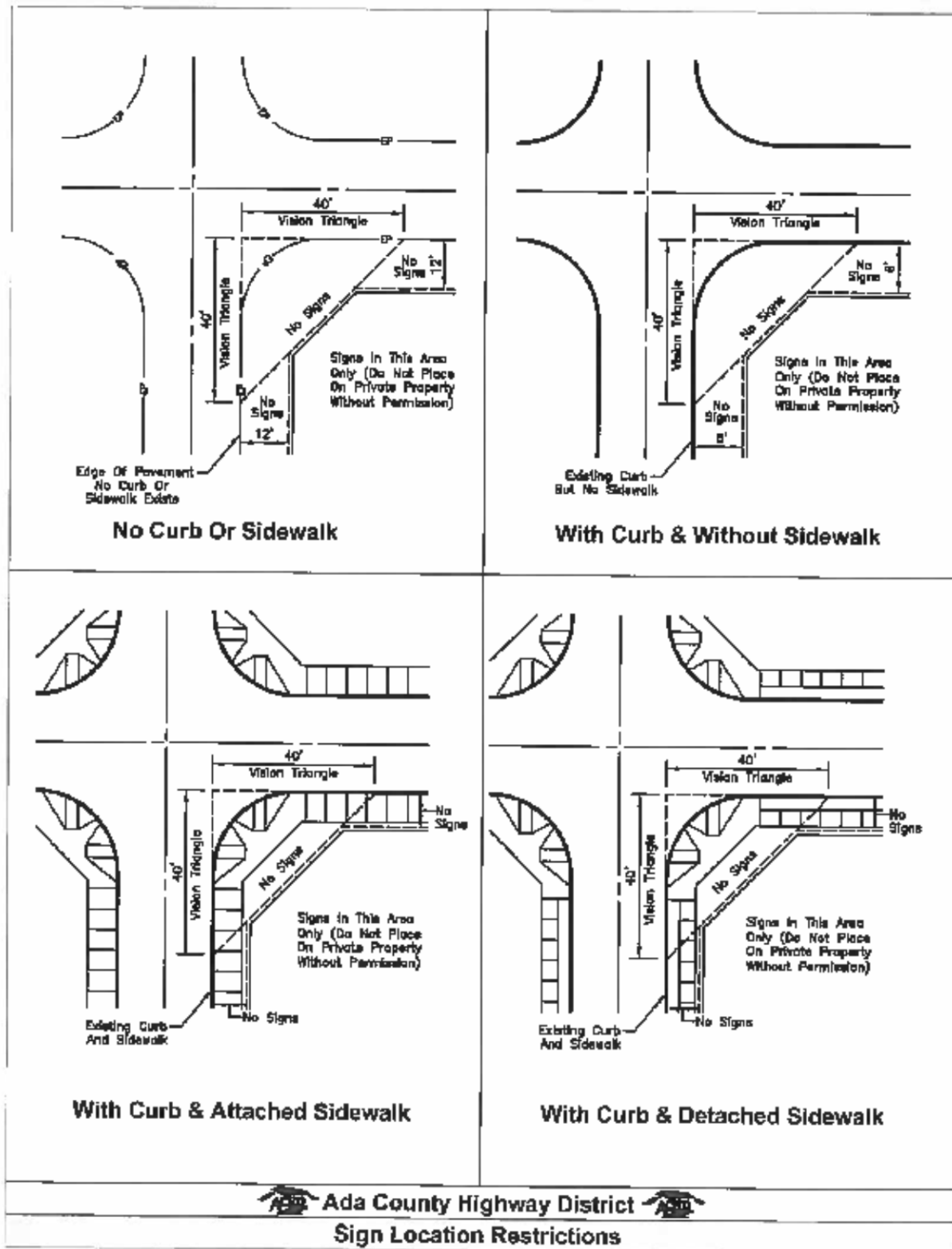


Figure 3 – Sign Location Restrictions

Signs placed in violation of these restrictions will be removed by the District and may be subject to civil penalties in an amount equal to the cost to remove the sign. For the purpose of imposing and collecting any civil penalty, there is a rebuttable presumption that the owner of the sign is responsible for the placement of the sign and who may be obligated to pay the civil penalty. The Commission may cause the District to institute a civil action in the District Court of Ada County to enforce compliance with this policy and to collect the civil penalty. Signs that have been removed by the District may be retrieved at the District offices.

Nothing in this Section 5104.3.5 is intended to, nor shall it be considered, a granting of permission to place signs on private property or on state or federal highways or public rights-of-way. Ada County and the cities within Ada County may have sign ordinances that are more restrictive than this Section 5104.3.5. If so, the more restrictive standard shall apply. It is the responsibility of those placing signs in the public right-of-way to be aware of those regulations.

5104.3.6 Mailboxes

Mailboxes causing a hazardous obstruction in the right-of-way or which hang over the sidewalk in such a manner that it causes the pedestrian access route on the sidewalk to be narrower than the minimum width required under the Americans with Disabilities Act must be removed, at the discretion of the District Director.

AND PROWAG

5104.4 Parking Investigations

The District shall investigate concerns related to parking in the public right of way as well as place and maintain parking controls for traffic safety and operations. As a

PROVIDE REQUIREMENTS FOR ACCESSIBLE PARKING IN THE RIGHT-OF-WAY. PER 2011 PROWAG R214, WHERE ON-STREET PARKING IS PROVIDED ON THE BLOCK PERIMETER AND THE PARKING IS MARKED OR METERED, ACCESSIBLE PARKING SPACES COMPLYING WITH R309 SHALL BE PROVIDED IN ACCORDANCE WITH TABLE R214. WHERE PARKING PAY STATIONS ARE PROVIDED AND THE PARKING IS NOT MARKED, EACH 20 FT OF BLOCK PERIMETER WHERE PARKING IS PERMITTED SHALL BE COUNTED AS ONE PARKING SPACE.

Table R214 On-Street Parking Spaces

Total Number of Marked or Metered Parking Spaces on the Block Perimeter	Minimum Required Number of Accessible Parking Spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 and over	4 percent of total

5104.4.1 Loading Zones

PROVIDE REQUIREMENTS FOR LOADING ZONES IN THE RIGHT-OF-WAY. PER 2011 PROWAG R215, WHERE PASSENGER LOADING ZONES OTHER THAN TRANSIT STOPS ARE PROVIDED, AT LEAST ONE ACCESSIBLE PASSENGER LOADING ZONE COMPLYING WITH R310 SHALL BE PROVIDED FOR EACH 30 M (100.0 FT) OF CONTINUOUS LOADING ZONE SPACE OR FRACTION THEREOF.

Adopter
Reviser

Ord. 233 (1/25/17)

Loading zones are designated areas in a parking lane for the loading and unloading of deliveries to adjacent buildings. Loading zones may be installed where, in District staff's estimation, there is a need by an area business for a specific location on the roadway to allow freight operation.

Any request for loading zone shall require, from the applicant, an understanding of the delivery volume, both in terms of quantity of cargo as well as delivery frequency. This helps ensure loading zones are set aside only for those businesses that require them.

Loading zones may also be considered near schools, where the school has established an area on the roadway for bus pick-ups and drop-offs.

5104.4.2 Special Parking Districts

Special Parking Districts (SPDs) are created when residential neighborhoods ---
IF ON STREET PARKING IS MARKED OR METERED, PROVIDE REQUIREMENTS FOR ACCESSIBLE PARKING IN THE RIGHT-OF-WAY. PER 2011 PROWAG R214, WHERE ON-STREET PARKING IS PROVIDED ON THE BLOCK PERIMETER AND THE PARKING IS MARKED OR METERED, ACCESSIBLE PARKING SPACES COMPLYING WITH R309 SHALL BE PROVIDED IN ACCORDANCE WITH TABLE R214. WHERE PARKING PAY STATIONS ARE PROVIDED AND THE PARKING IS NOT MARKED, EACH 20 FT OF BLOCK PERIMETER WHERE PARKING IS PERMITTED SHALL BE COUNTED AS ONE PARKING SPACE. SEE TABLE R214 IN COMMENTS BOX ON PAGE 23 FOR MINIMUM REQUIRED NUMBER OF ACCESSIBLE SPACES.

5104.4.3 Accessible Parking

In residential areas, the District is not legally obligated to provide accessible parking. The District shall consider such requests according to the following criteria:

- Existing parking restrictions (posted restrictions near an applicant's residence shall not be removed to accommodate accessible parking spaces);
- Parking demand (existing on-street parking demand should not exceed 75% of the available parking within 500' of the proposed accessible parking space);
- Passenger-side vehicle entry (where passenger side entry is required, the sidewalk or park strip shall be unobstructed or mitigated at the cost of the applicant);
- Roadway safety (no roadway characteristics, such as curvature or sight distance challenges, should be present near the proposed accessible space).

If applicants shall provide the following documentation to the District in order to be eligible for disabled parking on public streets:

- Proof of residency at the proposed location;
- Proof of disability (disabled plate or placard);
- Proof of driveway or garage impact.

If the District finds accessible parking to be appropriate at a given location, the District shall pay for and maintain the necessary signage. Should the District determine the posted area is being misused, (long term vehicle storage, applicant has moved, etc.) the District shall remove the signs.

Installation of accessible parking spaces in the public right of way are available for all appropriately licensed or permitted vehicles and shall not give preference to specific individuals.

CLARIFY THE INTENT OF THIS CRITERIA. ONE COULD ASSUME THAT THE NEED FOR A MARKED ADA PARKING SPOT WOULD BE MUCH GREATER IN AN AREA WITH HIGH PARKING DEMAND. THE INDIVIDUAL REQUESTING AN ACCESSIBLE PARKING SPOT MAY NOT BE ABLE TO WALK SIGNIFICANT LENGTHS FROM CAR TO HOME.

5104.4.4 Diagonal Parking on Public Streets

Diagonal parking consideration for District roadways shall include the following:

1. Diagonal or perpendicular on-street parking is common in the vicinity of the request;
2. Existing activities in the vicinity are not able to accommodate parking by off-street and/or parallel curb parking;

Design guidelines for on-street diagonal parking can be found in ACHD's Traffic Standard Details (TS-1122).

IF ON STREET PARKING IS MARKED OR METERED, PROVIDE REQUIREMENTS FOR ACCESSIBLE PARKING IN THE RIGHT-OF-WAY. PER 2011 PROWAG R214, WHERE ON-STREET PARKING IS PROVIDED ON THE BLOCK PERIMETER AND THE PARKING IS MARKED OR METERED, ACCESSIBLE PARKING SPACES COMPLYING WITH R309 SHALL BE PROVIDED IN ACCORDANCE WITH TABLE R214. WHERE PARKING PAY STATIONS ARE PROVIDED AND THE PARKING IS NOT MARKED, EACH 20 FT OF BLOCK PERIMETER WHERE PARKING IS PERMITTED SHALL BE COUNTED AS ONE PARKING SPACE. SEE TABLE R214 IN COMMENTS BOX ON PAGE 23 FOR MINIMUM REQUIRED NUMBER OF ACCESSIBLE SPACES.

of vehicular or pedestrian traffic upon any public right-of-way, without first obtaining a Special Event Permit. The following types of use permits are established for special events in the public right-of-way.

5105.2 Type A – Special Events – Nonprofit

- a. Type A permits may be issued for the use of public right-of-way for 24 or less continuous hours for nonprofit purposes which do not involve the physical disturbance of the right-of-way and are not otherwise covered by Section 6007 of the ACHD Code.
- b. Type A permit uses may involve disruption of pedestrian and vehicular traffic or access to private property but they may not restrict or prevent the public from accessing the right-of-way except as necessary for public safety. (e.g. Applicants may not barricade the event in such a manner that only invitees are allowed to access the closed right-of-way, except
- c. Type A permits include, but are not limited to,
 - Bike races;
 - Parades
 - Residential Block parties;
 - Parking;
 - Walks or Runs;
 - Street dances;
 - Theatrical plays or events, etc.;
 - Marketing booths.
- d. Type A permits do not include religious, social or political rallies, or similar events which have received a permit from the applicable city or which are spontaneous in nature.

NOT REVIEWED

- e. A non-refundable application fee of \$25 shall be submitted along with an application for a Type A permit and there shall be no other charge or fee associated with a Type A permit.
- f. Applicants requesting Type A permit for a residential block party shall provide, in addition to the permit application and application fee, verification that 51% or more of the owners and/or heads of household of residences within 300 feet of either side of the location of the block party or the nearest intersection, whichever is closer, are in favor of the residential block party. Provided however, dead-end or no outlet street sections shall not be blocked or their ingress/egress adversely impacted by a residential block party.
- g. Applications for a Type A permit shall be submitted to the District a minimum of thirty (30) days prior to the event to allow for sufficient review time by District staff and shall include a diagram, map, or similar site sketch depicting the site location and identifying the rights-of-way involved (i.e. street name) and adjacent or nearby rights-of-way, as well as a narrative describing the special event and setting forth the site address, names of rights-of-way involved, the planned date of the special event including the starting and ending times of the special event, and a Temporary Traffic Control Plan in conformance with Section 6007.11 of the ACHD Code. In its sole discretion, ACHD staff may waive all or a portion of the thirty (30) day advanced application submittal requirement for extenuating circumstances.
- h. In making an application for a Type A permit, Applicants shall agree to indemnify, defend, and hold harmless, ACHD, its officers, agents, and employees from and against any and all claims for damages to property and or bodily injury which may result from or in connection with any of the operations carried on by the Applicant under the permit.
- i. Applicants for any Type A permit, other than a Block party, shall also submit with the application, a copy of a certificate of liability insurance, and a specific endorsement, each in an amount not less than \$500,000 per claim and \$1,000,000 aggregate per occurrence and each naming Ada County Highway District as a certificate holder and an additional insured.
- j. Type A permits shall expire automatically upon the conclusion of the special event.

5105.3 Type B – Special Events - Commercial

- a. Type B permits may be issued for the use of public right-of-way for 72 hours or less continuous hours for commercial purposes which do not involve the physical disturbance of the right-of-way and are not otherwise covered by Section 6007 of the ACHD Code.
- b. Type B permit uses may involve disruption of pedestrian and vehicular traffic or access to private property but they may not restrict or prevent the public from accessing the right-of-way, except as necessary for public safety. (e.g. Applicants may not barricade the event in such a manner that only invitees are allowed to access the closed right-of-way, except as necessary for public safety.)

- c. Type B permits include, but are not limited to,
- Any Type A permit use when for a commercial purpose;
 - Fairs;
 - Temporary sale of goods;
 - Farmer's Markets;
 - Grand opening;
 - Open house or similar event.
- d. A non-refundable application fee of \$75 shall be submitted with an application for a Type B permit along with a use fee adopted by the Board for each 24 hour period that a right-of-way is planned to be used under a Type B permit. For special events which reoccur on a regular basis throughout a 12 month or less period of time, an applicant may apply for an annual Type B permit. A non-refundable application fee of \$75 shall be submitted with an application for an annual Type B permit along with a use fee adopted by the Board for each 24 hour period that a right-of-way is planned to be used under an annual Type B permit for the first month of uses; the use fee shall be paid thereafter on a monthly basis, and shall be due on or before the 5th day of each month.
- e. Applicants for any Type B permits for a grand opening, open house or similar special event shall provide, in addition to the permit application and payment of the application fee and applicable use fees, verification that a majority of owners or occupiers (or their legal representative) of property within 300 feet of either side of the location of the special event or the nearest intersection, whichever is closer, are in favor of the special event. Provided however, dead-end or no outlet street sections shall not be blocked or their ingress/egress adversely impacted by the special event.
- f. Applications for a Type B permit shall be submitted to the District a minimum of forty-five (45) days prior to the event to allow for sufficient review time by District staff and shall include a diagram, map, or similar site sketch depicting the site location and identifying the rights-of-way involved (i.e. street name) and adjacent or nearby rights-of-way, as well as a narrative describing the event and setting forth the site address, the names of rights-of-way involved, the planned date that the special event will begin, the planned duration of the special event including the planned starting and ending times of the special event, and a Temporary Traffic Control Plan in conformance with Section 6007.11 of the ACHD Code. Applicant's failing to meet the mandatory minimum time to submit an application for a Type B permit shall automatically be denied the requested permit. For annual Type B permits, the narrative shall also provide the planned schedule for the reoccurring special event.
- g. If the special event requires a detour, a condition of granting the permit shall be ACHD's verification that all detour roadways and/or the constricted roadway are still at or under capacity with the proposed closure.
- h. Applicants for a Type B permit shall also submit with the application, a copy of a certificate of liability insurance, and a specific endorsement, each in an amount not less than \$500,000 per claim and \$1,000,000 aggregate per occurrence and each naming Ada County Highway District as a certificate holder and as an additional insured.

- i. In making an application for a Type B permit, Applicants shall agree to indemnify, defend, and hold harmless, ACHD, its officers, agents, and employees from and against any and all claims for damages to property and or bodily injury which may result from or in connection with any of the operations carried on by the Applicant under the permit.
- j. Type B permits shall expire automatically upon the conclusion of the special event; however, annual Type B permits shall expire automatically 12 months following the date of issuance by ACHD, or upon the last regularly scheduled special event, or upon failure to timely pay the applicable monthly use fee, whichever is earlier.

5105.4 Maintenance & Operations and Construction Services shall be given copies of all Special Event Permits issued.

5106 ROADWAY LIGHTING

5106.1 Purpose and Applicability

The purpose of this policy is to assure that roadway lighting is designed to attain a level of visibility which, under low or no natural light conditions, enables motorists to distinctly see the roadway alignment and any obstacles, pedestrians, or cyclists on or about to enter the roadway.

This policy applies to all roadways under the jurisdiction of the Ada County Highway District in order to enhance the safety and mobility of the travelling public. By State Statute, the Ada County Highway District is only responsible for lighting which is primarily for the benefit of the motorist.

5106.2 Roadway Lighting Installations

5106.2.1 Installations by the District

The District shall design and install roadway lighting for all public roadway intersections and marked (non-intersection) crosswalks that are included in a capital improvement project. Continuous roadway lighting may be designed and installed by the District with a capital improvement project or safety project if deemed beneficial by an engineering study from the Traffic Engineering Division or other qualified source.

5106.2.2 Installations by Development

All developments shall install lighting at intersections of roadways built by the development. This includes intersections of a new road with a new road, intersections of a new road with an existing road, and marked mid-block crosswalks. No development plans shall be approved without inclusion of roadway lighting as required by this standard.

5106.2.3 Installations by a City or the County

A city or Ada County may elect to install roadway lighting at the sole cost of that agency. An agency may also elect to cost share with the District to upgrade lighting that the District is proposing to install. All city or county roadway lighting installations and all upgraded roadway lighting installations shall comply with these standards.

Lighting that is solely for illuminating pedestrian walkways or for aesthetics (such as historical lighting) does not need to comply with these standards so long as the glare created for motorists is not in excess of recommended thresholds per AASHTO guidelines.

5106.3 Roadway Lighting Design Standards

The most current edition of the ACHD Roadway Lighting Design Standards supplements this policy. These standards contain guidance to assist the designer in providing roadway lighting plans and specifications to meet the requirements of this policy. The Design Standards are revised and updated as needed to include advances in roadway lighting best practices.

5107 (RESERVED)

5108 ROUNDABOUTS

5108.1 Roundabout Policy Purpose and Definitions

This policy defines the requirements of proposed, new, and modified circular intersections under the jurisdiction of the ACHD. A roundabout is an intersection traffic control device with the following characteristics:

- Traffic flows counter-clockwise around a center island;
- Entering traffic yields to circulating traffic;
- Channelized approaches deflect traffic into a proper entry path;
- Appropriate geometric curvature and curbs control the speed of vehicles.

5108.2 ACHD Roundabout Design Guide

The most current edition of the ACHD Roundabout Design Guide supplements this policy. The Design Guide contains guidance to help the designer analyze and design roundabouts to meet the requirements of this Policy. The Design Guide will be updated administratively as needed to include advances in the field of roundabout evaluation and design.

5108.3 Modifications and Addenda

ACHD may revise and update this Policy as necessary through approval by the ACHD Commission.

5108.4 Intersection Control Selection

Roundabout traffic control shall be considered and evaluated as an option if the intersection is being considered for improvement for any of the following reasons:

- A capacity deficiency exists, and all-way stop control and/or traffic signal volume warrants are met as defined in the MUTCD; or
- A safety deficiency exists; or
- Unconventional geometry exists (e.g., five approaches).

An alternatives analysis (potentially including other intersection control types, such as signals and stop signs) shall be conducted at all intersections where a roundabout is being considered. The alternatives analysis shall include a detailed traffic operations analysis and shall consider ACHD costs (e.g., right-of-way, construction, and maintenance) and public costs (e.g., delay, safety, and the environment.) The alternatives analysis should be the decision-making tool used to determine whether or not a roundabout will be constructed. Final discretion for all intersection control decisions rests with ACHD.

5108.5 Traffic Operations Analysis

5108.5.1 Analysis Scenarios

Traffic conditions shall be analyzed for all peak periods of the intersection's construction year and design year(s). The construction year is the year the roundabout will be constructed and opened. For federally funded projects the design year is typically 20 years after the construction year. There may be multiple design years if considering interim designs.

5108.5.2 Analysis Procedure

Traffic analysis procedures shall be consistent with the most recent version of the Highway Capacity Manual (HCM). Additional analytical or simulation tools may be required to supplement the traffic analysis. Additional analysis tools may be calibrated to match the HCM or local conditions. Site selection, data collection, and calibration methods shall be pre-approved by ACHD Traffic Engineering.

Roundabouts shall be analyzed with the following default parameters:

ALSO CONSIDER PEDESTRIAN
VOLUMES AT CROSSINGS



Variable	Existing Analysis	Future Analysis
Traffic Volume ¹	Existing	Forecast
Peak Hour Factor (PHF)	Existing	0.90 ²
Percent Heavy Vehicles (HV)	Existing % ³	
Passenger Car Equivalents (PCE) for HV	2	

1 – Analyze all critical hours as defined by ACHD. Procedure and key assumptions used to develop analysis volumes shall be provided to and approved by ACHD.

2 – Use existing PHF if existing PHF > 0.90 and no capacity improvements are planned

3 – If intersection does not currently exist or traffic composition is anticipated to change, engineering judgment should be used and documented.

4 – As traffic analysis tools require, other parameters shall reflect the recommendations of the HCM, proposed roundabout design, and traffic conditions as closely as possible.

5108.5.3 Results Reporting

Roundabout traffic operations shall be reported on a lane-by-lane basis. Reported values include the volume-to-capacity ratio (V/C), traffic delay, level of service, and 95th percentile queues.

5108.5.4 Acceptable Thresholds

The acceptable threshold for all roundabouts shall be based upon the critical/worst lane and a maximum volume-to-capacity (V/C) ratio of 0.85.

5108.6 Intersection Capacity Enhancement Phasing

In locations where a multilane roundabout will ultimately be needed but is not needed for ten years or more, three possible options to constructing the ultimate design should be considered:

- Construct the ultimate design;
- Construct an interim roundabout that will be replaced by an ultimate roundabout in the future;
- Construct an interim roundabout that is expandable (inward or outward) to the ultimate roundabout in the future.

The final discretion for which option is selected rests with ACHD. If the expandable option is chosen, the ultimate roundabout design shall be approved before the interim roundabout is designed. Interim roundabout designs shall use curbs to define the travel way (i.e., striping alone is not acceptable).

5108.7 Roundabout Review and Submittal

The process of designing a safe roundabout typically requires a considerable amount of iteration. Minor adjustments in roundabout design can significantly impact roundabout safety and operation because elements are inter-related and have a collective effect on vehicle paths and speeds. Due to the iterative nature and complexities associated with roundabout design the following detailed roundabout submittal and review process shall be followed.

5108.7.1 Roundabout Designers

ACHD roundabout projects shall be designed and submitted by ACHD staff or prequalified firms approved to design roundabouts by ACHD. A peer review shall be performed by an ACHD prequalified roundabout peer review firm for all roundabouts designed by ACHD staff. The list of firms approved to design and review roundabouts by level of roundabout complexity is available to the public via the ACHD On-Call Consultant Services list.

The ACHD prequalified firms approved to design roundabouts are recommended for developer projects. If a roundabout is not designed by a firm prequalified by ACHD to design roundabouts, the developer shall have a roundabout peer review performed by a firm acceptable to ACHD.

5108.7.2 Preliminary Deliverables

RECOMMEND REQUIRING SIDEWALK, CURB
RAMP AND CROSSWALK LAYOUT BE
REQUIRED IN THE PRELIMINARY SUBMITTAL.

Before plat approval, right-of-way dedication or purchase, grading, or other details are designed, the designer shall demonstrate to ACHD's satisfaction that the preliminary roundabout design meets the standards set forth in ACHD Roundabout Policy. All roundabout designs will be required to meet the same standards outlined in the roundabout policy. Preliminary submittal deliverables shall include the following items:

5108.7.2.1 Traffic Operation Analysis Summary

Include input parameter summary sheets and output tables as necessary so analysis can be independently replicated.

5108.7.2.2 Scaled Plan View

Include curbs and pavement markings. Plan view shall be supplemented with an AutoCAD compatible file.

5108.7.2.3 Wheel Path Plots

Illustrate the wheel paths of the design vehicle(s) making the critical movement from each approach. Additionally, a side-by-side swept path plot shall be provided with the appropriate design vehicle(s) for multilane roundabout sections.

5108.7.2.4 Fastest Path Plots

Illustrate the fastest path for every movement from each approach. Include a complete speed comparison table.

5108.7.2.5 Natural Path Plots

Illustrate the natural path for the critical movement(s) from each applicable approach for multilane roundabouts (this is not a requirement for single lane roundabouts).

5108.7.3 Final Deliverables

Final submittals shall include the following items:

← REQUIRE SIDEWALK, CURB RAMP AND
CROSSWALK LAYOUT TO BE
INCLUDED IN THE FINAL SUBMITTAL.

5108.7.3.1 Grading Plans

Include a plan view showing cross slopes of the circulating roadway, the entries, and the exits. Include a profile showing longitudinal slopes of the circulating roadway and a profile of each entry from the splitter island nose to the downstream exit splitter island termination (at the minimum).

5108.7.3.2 Signing and Striping Plans

Include removals, relocations, and new installations.

5108.7.3.3 Illumination Plans

Include pole locations, lamp wattage and type, mounting height and location of luminaires, conduit and electrical connections, and horizontal and vertical calculation grid and illuminance values.

5108.7.3.4 Landscaping Plans

Include a plan view showing landscaping areas and any height restrictions to achieve adequate sight distance. Illustrate the sight triangles and provide the calculations used to develop the landscaping height restrictions.

5108.7.3.5 Drainage Plans

Include plans consistent with ACHD drainage and storm water standards.

5108.7.3.6 Traffic Control Plan

Include construction phasing and interim traffic control devices.

5108.8 Roundabout Design Parameters

5108.8.1 Number and Assignment of Lanes

The number of lanes and their assignment shall be based upon a roundabout traffic operations analysis.

5108.8.2 Lane Continuity

Roundabout design shall be such that vehicles do not have to change lanes within the circulatory roadway in order to exit the roundabout in a given direction. Intersecting (crossing) path conflicts shall be limited to those between entering vehicles and circulating or exiting vehicles. Exiting vehicle paths shall not conflict with circulating vehicle paths.

5108.8.3 Islands

5108.8.3.1 Right of Way

All islands shall be dedicated to ACHD as part of the intersection right-of-way. All fixed objects and landscape features are subject to ACHD approval.

5108.8.3.2 Splitter Islands

Splitter islands shall be at least 50 feet long, be able to accommodate an acceptable pedestrian refuge area, assist in sufficiently controlling vehicle speeds through path deflection, prevent exiting traffic from accidentally crossing into the path of approaching traffic, and reinforce one-way circulation.

Splitter island landscaping is permissible as long as acceptable stopping and intersection sight distances are provided.

The surfaces of splitter islands shall not drop below the top face of curb and should be a different color and/or texture than pedestrian facilities, the roadway and the truck apron.

Fixed object placement within splitter islands shall conform to AASHTO Roadside Design Guide principles.

5108.8.3.3 Central Island

The center island shall not contain anything that attracts pedestrians into the center island or that can be a distraction to drivers. The islands shall be visible to approaching traffic and provide a cue for traffic to slow down and carefully navigate the intersection.

Central island landscaping shall achieve the following landscaping requirements as long as acceptable stopping and intersection sight distances are provided:

1. 1:6 maximum surface slope (from top of curb)
2. 1:20 surface slope or greater for minimum of 20 feet inside of curb.
 - a. 1:20 positive slope or greater shall be extended for a maximum distance possible if center island is constrained by

- size (diameter less than 40 feet) or by sight distance requirements
3. At minimum, gain three (3) feet in vertical height from top of curb as long as the minimum sight distance requirements are met.
 - a. Vertical height can be achieved by means of surface slope and/or inclusion of height gained by foliage or art as approved by ACHD
 4. The surface shall not drop below the top face of the curb.
 5. Fixed object placement shall conform to AASHTO Roadside Design Guide principles.

The central island shall provide a maintenance vehicle pullout if it is anticipated such a vehicle will be required to access the island. The pullout shall be located to minimize impact to sight distance when occupied, and if there is no adjacent truck apron, the curb shall be designed as a mountable truck apron curb. The maintenance vehicle pullout area shall not utilize any area impacted by a swept path.

5108.8.4 Fastest Paths

The fastest path is the path of least travel time made by a passenger vehicle traversing through the roundabout in the absence of other traffic and irrespective of all lane markings.

5108.8.4.1 Fastest Path Procedure

The procedure used to determine fastest paths and their respective speeds shall be approved by ACHD (e.g., the ACHD fastest path procedure). Approved procedures must be objective, repeatable, consistent with the most recent version of the FHWA Roundabout Guide recommendations, and shall reflect anticipated driver behavior and vehicle performance.

5108.8.4.2 Fastest Path Threshold Requirements

Entry fastest path speeds shall be 22 mph or slower for single-lane entries and 25 mph or slower for multilane entries.

Intersecting fastest path speed differences (e.g., entering versus circulating paths) and consecutive fastest path speed differences (e.g., path that circulates then exits) should be minimized and not exceed 10 mph for single-lane configurations and 15 mph for multilane configurations.

Fastest path speeds exiting the roundabout should be minimized to reduce pedestrian crosswalk conflicts.

5108.8.5 Natural Paths

The natural path of a passenger vehicle is a path that can be comfortably followed at roundabout operating speeds. It does not contain any abrupt changes in direction. There is one natural path for each legal movement in each lane.

5108.8.5.1 Natural Path Procedure

The procedure used to determine natural paths shall be approved by ACHD. Approved procedures must be objective, repeatable, and shall reflect anticipated driver behavior and vehicle performance. The method shall depict the ability of a vehicle to stay in its lane.

5108.8.5.2 Natural Path Requirements

Passenger vehicle natural paths shall maintain a minimum 2 foot offset from each other and from curbs.

5107.8.6 Wheel and Swept Paths

A wheel path is the space required to accommodate all of a vehicle's wheels through a maneuver. A swept path is the space required to accommodate all parts of a vehicle (the vehicle body) through a maneuver.

5108.8.6.1 Wheel and Swept Path Procedure

One design vehicle shall be selected for each movement to determine the minimum lane width(s) and one design vehicle shall be selected for each movement to determine the truck apron and/or roadway width(s). The selected design vehicles shall be approved by ACHD.

Wheel and swept paths shall be analyzed for all permitted movements from each lane using the selected design vehicle with an appropriate software package (e.g., AutoTURN or AutoTRACK). Wheel and swept paths shall reflect anticipated driver behavior and vehicle performance as approved by ACHD (e.g., no stopping or backing).

NOTE THE CONCERNS IDENTIFIED IN 2011 PROWAG ADVISORY R306.3 REGARDING PEDESTRIAN SAFETY FOR STREET CROSSINGS AT ROUNDABOUTS. ADVISORY R306.3 ROUNDABOUTS. PEDESTRIAN STREET CROSSINGS AT ROUNDABOUTS CAN BE DIFFICULT FOR PEDESTRIANS WHO ARE BLIND OR HAVE LOW VISION TO IDENTIFY BECAUSE THE CROSSINGS ARE LOCATED OFF TO THE SIDE OF THE PEDESTRIAN CIRCULATION PATH AROUND THE STREET OR HIGHWAY. THE CONTINUOUS TRAFFIC FLOW AT ROUNDABOUTS REMOVES MANY OF THE AUDIBLE CUES THAT PEDESTRIANS WHO ARE BLIND USE TO NAVIGATE PEDESTRIAN STREET CROSSINGS. WATER FOUNTAINS AND OTHER FEATURES THAT PRODUCE BACKGROUND NOISE SHOULD NOT BE PLACED IN THE MIDDLE ISLAND OF A ROUNDABOUT BECAUSE PEDESTRIANS WHO ARE BLIND USE AUDITORY CUES TO HELP DETECT GAPS IN TRAFFIC. MULTI-LANE PEDESTRIAN STREET CROSSINGS AT ROUNDABOUTS INVOLVE AN INCREASED RISK OF PEDESTRIAN EXPOSURE TO ACCIDENT.

5108.8.7 Truck Aprons

Truck aprons are traversable areas used to accommodate semi-trailer off-tracking while achieving adequate deflection for all other vehicles.

As necessary, truck aprons shall be provided to accommodate the design vehicle(s). Truck aprons shall be a different color and texture than the roadway surface and all pedestrian and bicycle facilities. Truck aprons shall be raised three (3) inches above the adjoining roadway with mountable roundabout curb.

5108.8.8 Pedestrian Facilities

Sidewalks shall be provided on all roundabout approaches that connect to existing or planned pedestrian facilities, or where there is anticipated pedestrian demand based on a city's urban impact area, a proposed development, and/or adjacent land use. Sidewalk construction may be deferred, at ACHD's discretion, at roundabouts where

no sidewalk is present on the entering roadways, provided that the roundabout design includes consideration of the future sidewalk and right-of-way is provided for construction. Crosswalks and refuge areas shall be provided to connect all roundabout approaches that have sidewalks or mixed-use paths. A buffer shall be provided between roadway curb and the sidewalk or mixed-use path.

5108.8.8.1 Sidewalk

Sidewalk shall comply with ADA standards and ACHD requirements.

↓, PROWAG,

5108.8.8.2 Crosswalks

Pedestrian crosswalks shall be located 20 to 25 feet back (roughly one car length) from the entrance line. However, if additional control is being considered at the crosswalk and/or a staggered crosswalk is desired it may be desirable to locate the crosswalk further back.

Provide ADA-compliant pedestrian ramps, including truncated domes, at all crosswalks (this includes the crosswalk entrances from the splitter island refuge areas). At roundabouts with bicycle facilities, the ramps shall be a minimum of eight (8) feet wide (10 feet preferred). Wings shall only be used on ramp curbs if the roadway curb is in direct contact with the sidewalk.

5108.8.8.3 Refuge Areas

Splitter islands and bypass lane islands shall provide pedestrian refuge areas where pedestrian crossings are provided or planned to be provided in compliance with ADA standards. Refuge areas shall be a minimum of eight (8) feet long in the direction of pedestrian travel and eight (8) feet wide (10 feet preferred).

5108.8.8.4 Buffer

Provide a 2.5 feet minimum buffer between the sidewalks and curbs around the exterior of the roundabout. The buffer surface material shall not consist of brick, concrete, or asphalt unless a physical barrier (e.g., fence) is also provided. All vertical elements shall comply with sight distance requirements.

Fixed object placement within the buffer shall not restrict required sight distances and shall conform to AASHTO Roadside Design Guide principles.

UPDATE TO INCLUDE 2011 PROWAG REQUIREMENTS R306.3 THROUGH R306.4 ON ROUNDABOUTS INCLUDING SEPARATION REQUIREMENTS AND EDGE TREATMENT.

R306.3.1 SEPARATION. WHERE SIDEWALKS ARE FLUSH AGAINST THE CURB AND PEDESTRIAN STREET CROSSING IS NOT INTENDED, A CONTINUOUS AND DETECTABLE EDGE TREATMENT SHALL BE PROVIDED ALONG THE STREET SIDE OF THE SIDEWALK. DETECTABLE WARNING SURFACES SHALL NOT BE USED FOR EDGE TREATMENT. WHERE CHAINS, FENCING, OR RAILINGS ARE USED FOR EDGE TREATMENT, THEY SHALL HAVE A BOTTOM EDGE 380 MM (15 IN) MAXIMUM ABOVE THE SIDEWALK.

All bike lanes and shoulders shall be clearly terminated prior to the crosswalk but close enough to the intersection so experienced cyclists can merge with vehicles traveling at similar speeds. A sidewalk ramp (or curb opening to a shared-use path if a sidewalk is not present) must be

SEE COMMENT ON NEXT SHEET REGARDING BIKE RAMPS.

TAKE INTO CONSIDERATION THE REQUIREMENT FOR PEDESTRIAN ACTIVATED SIGNALS AT ROUNDABOUTS WITH MULTI-LANE PEDESTRIAN STREET CROSSINGS PER 2011 PROWAG R306.3.2 AND ROUNDABOUTS WITH PEDESTRIAN STREET CROSSINGS AT MULTI-LANE CHANNELIZED TURN LANES PER PROWAG R306.4. REVISE SECTION ACCORDINGLY.

included at the termination point for less experienced cyclists. Bicycle ramps shall be provided at safe and maneuverable angles for bicyclists.

5107.8.9.2 Mixed-Use Path

The mixed-use path shall be at minimum 10 feet wide between bicycle ramps and/or curb openings if a bicycle lane is provided and a continuous sidewalk exists or is planned. If a shoulder is provided without a bicycle lane or a continuous sidewalk does not exist nor is planned, the mixed-use path shall be at minimum five (5) feet wide between bicycle ramps and/or curb openings. The mixed-use path shall comply with ADA requirements.

5108.8.10 Vertical Alignment

The circulatory roadway, truck apron, and approaches shall have between a 1.5% and 2.5% outward cross slope. Grades in the direction of vehicle travel shall not exceed $\pm 4\%$ within the circulatory roadway and to a point at least 50 feet beyond crosswalk locations. If no crosswalk is provided, grades in the direction of vehicle travel shall not exceed $\pm 4\%$ to a point at least 50 feet beyond the circulatory roadway.

5108.8.11 Sight Distance

CLARIFY MAXIMUM GRADE IN DIRECTION OF VEHICLE TRAVEL AT A CROSSWALK. THIS DESIGN PARAMETER APPEARS TO CREATE A POTENTIAL CROSS-SLOPE OF $\pm 4\%$ WITHIN A CROSSWALK.

Sight distance shall be provided for each approach, the circulatory ramps, landing areas, and crosswalks. In addition, sufficient sight distance shall be provided on all approaches at a point 50 feet from the intersection. Intersection sight distance shall be calculated using a critical path method. Fastest path speeds shall be used to compute all sight distances.

PER 2011 PROWAG R302.6, EXCEPT AS PROVIDED IN R302.6.1 AND R302.6.2, THE CROSS SLOPE OF PEDESTRIAN ACCESS ROUTES SHALL BE 2 PERCENT MAXIMUM.

5108.8.12 Stripping

Striping shall comply with the latest edition of the Manual on Uniform

Traffic Control Devices (MUTCD).

TAKE INTO CONSIDERATION POTENTIAL PEDESTRIAN CONFLICTS DESCRIBED IN 2011 PROWAG ADVISORY R306.3.1 REGARDING REMOVING CYCLISTS FROM STREETS BY MEANS OF RAMP.

PER 2011 PROWAG ADVISORY R306.3.1, SCHEMES THAT REMOVE CYCLISTS FROM THE STREET OR HIGHWAY BY MEANS OF A RAMP THAT ANGLES FROM THE CURB LANE TO THE SIDEWALK AND THEN PROVIDE RE-ENTRY BY MEANS OF A SIMILAR RAMP BEYOND PEDESTRIAN STREET CROSSINGS CAN PROVIDE FALSE CUES TO PEDESTRIANS WHO ARE USING THE EDGE OF THE SIDEWALK FOR WAYFINDING ABOUT THE LOCATION OF PEDESTRIAN STREET CROSSINGS.

5108.8.13.1 Illumination Analysis Procedure

The procedure used to analyze the horizontal and vertical illumination shall be consistent with the recommendations in the most recent version of the Illuminating Engineering Society publication, *Roundabout Lighting and the most recent version of the Illuminating Engineering Society Design Guide*.

NOT REVIEWED

5108.8.13.2 Illumination Requirements

The horizontal luminance values shall be within $\pm 20\%$ and vertical luminance values shall be no less than 20% of the recommendations summarized in the most recent version of the Illuminating Engineering Society publication, *Design Guide for Roundabout Lighting*.

5108.8.14 Curbs

Roundabout curbs shall be used as depicted in the latest edition of the ISPWC Standard Drawings – ACHD Supplement. Six (6) inch high roundabout curb shall be used around the outside of the roundabout, outside of the approaches, and around the splitter and central islands. Three (3) inch high roundabout curb shall be used between the roadway and truck aprons. On the entry approaches, the outer curb shall extend at least as far back from the circulatory roadway as the splitter islands. On the exit approaches, the outer curb shall extend at least as far back from the circulatory roadway as the crosswalk or bicycle ramp, if one is provided. Gutters shall be provided where necessary.

5108.8.15 Access Control

Access control and intersection spacing with roundabouts shall be in compliance with the ACHD Development Policy Manual and its driveway and intersection spacing requirements.

5108.9 Roundabout Design Exceptions

Exceptions to this policy may be considered at ACHD's discretion and shall not be considered until all impacts and consequences of the exception are clearly quantified and documented to ACHD's satisfaction.

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Appendix A

ACHD Fastest Path Procedure

Appendix A ACHD Fastest Path Procedure

Fastest Path Definition

The fastest path is the path of least travel time made by a passenger vehicle traversing through the roundabout in the absence of other traffic and ignoring all lane markings. A true fastest path is comprised of a series of consecutive spiral curves that are tangent to each other. The speeds of the fastest path are limited by the smallest radius of each spiral, superelevation, and a vehicle's ability to accelerate.

Procedure Objectives

All measured fastest paths and their corresponding speeds are estimates based on engineering practices and judgment. The purpose of the ACHD Fastest Path Procedure is to remove as much guesswork and variability from fastest path measurements as possible and to achieve the following goals:

- Be objective,
- Be repeatable,
- Be consistent with the most current edition of the FHWA Roundabout Guide recommendations; and
- Reflect anticipated driver behavior and vehicle performance.

Procedure Applicability

The ACHD Fastest Path Procedure should be used to estimate the fastest paths of typical roundabouts with one and two entry lanes with either flat or tight exit geometry. In rare cases (e.g., a dog bone shaped roundabout) the Procedure is not anticipated to be applicable and an experienced roundabout designer hand sketch should be used. The ACHD Fastest Path Procedure is performed with a Computer Aided Drafting (CAD) software but should be supplemented with an experienced designer's hand sketch or other tested procedure to confirm the results and identify potential enhancements to the procedure.

*The resulting path from the ACHD Fastest Path Procedure is not intended to trace or resemble the actual fastest path because it is replacing spirals with arcs and tangents. Rather, the results are intended to provide arc radii that match the actual fastest path spiral radii at their tightest points.

Procedure Steps

First, determine whether the subject approach has one or two entry lanes and whether the corresponding exit has flat or tight exit geometry (Procedure A – Exit Type Test). Second, follow the applicable procedure (Procedure #1, #2, or #3) and measure the fastest path radii and/or acceleration distances for the subject approach. Next, determine the roadway's superelevation for each measurement (typically $e = +0.02$ for right-turns and $e = -0.02$ for left-turns at roundabouts). Last, calculate an estimated 85th-percentile speed for each movement with the applicable equations (see below).

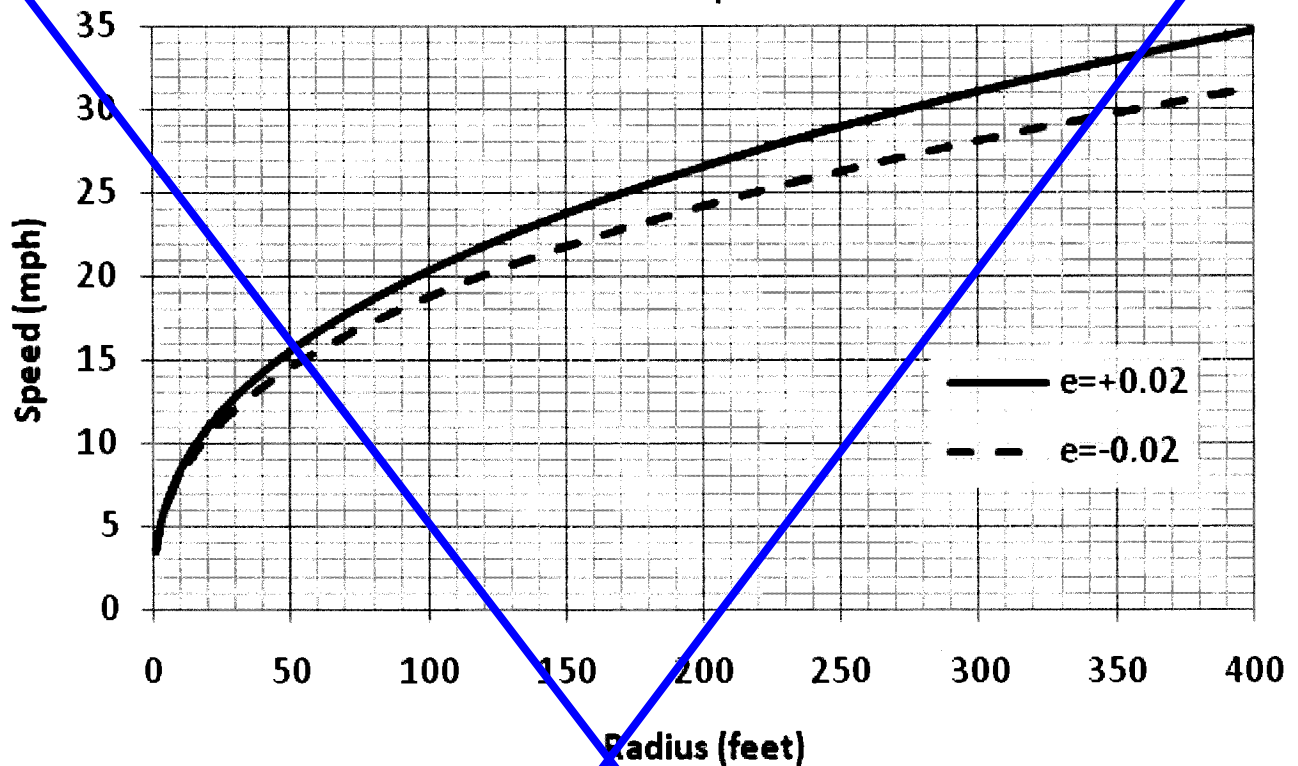
Speed Based on Defining Radius

Below are fitted equations that are used to estimate vehicle speed (V , mph) based on its path radius (R , feet) and superelevation (e). These equations should be used to estimate most or all of the fastest path speeds in a roundabout. Figure A1 plots the speed versus radius equations for supplementary reference.

$$V = 3.4415 \times R^{0.2961}, \text{ for } e = +0.02$$

$$V = 3.4614 \times R^{0.2672}, \text{ for } e = -0.02$$

**Figure A1
 Speed-Radius
 Relationship**



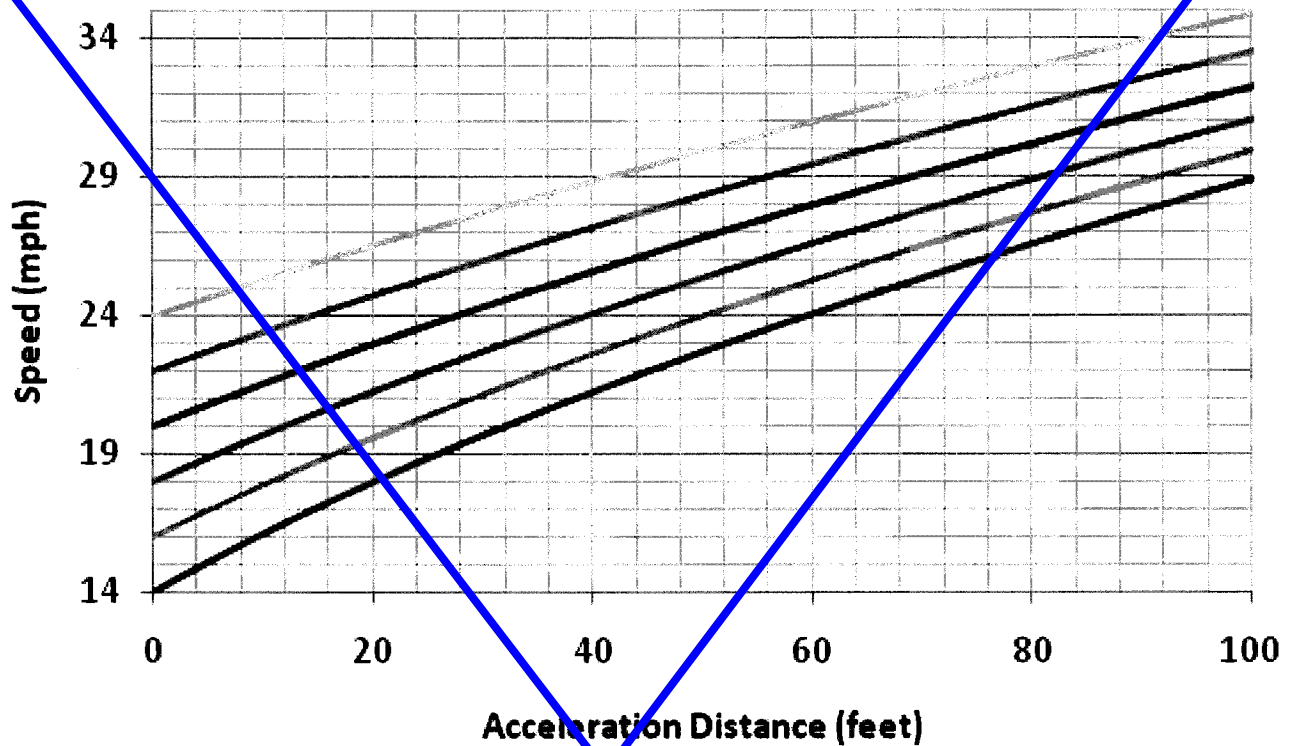
Speed Based on Acceleration Distance

The equation below is used to estimate vehicle speed (V_3 , mph) based on the previous movement's speed (V_2 , mph) and the distance (D , feet) between the midpoint of the V_2 path and the point of interest along the V_3 path. This equation is typically used to estimate the speed of exiting through movement vehicles in roundabouts with flat exits. Figure A2 plots the speed versus acceleration distance equation for supplementary reference.

$$V_3 = \frac{1}{1.47} \sqrt{(1.47 \times V_2)^2 + 13.8 \times D}$$

Appendix A
ACHD Fastest Path Procedure

Figure A2
Speed-Acceleration Distance Relationship



Questions or Comments

Please contact Andrew Cibor in ACHD's traffic department at (208) 387-6140 with any questions or comments concerning the ACHD Fastest Path Procedure.

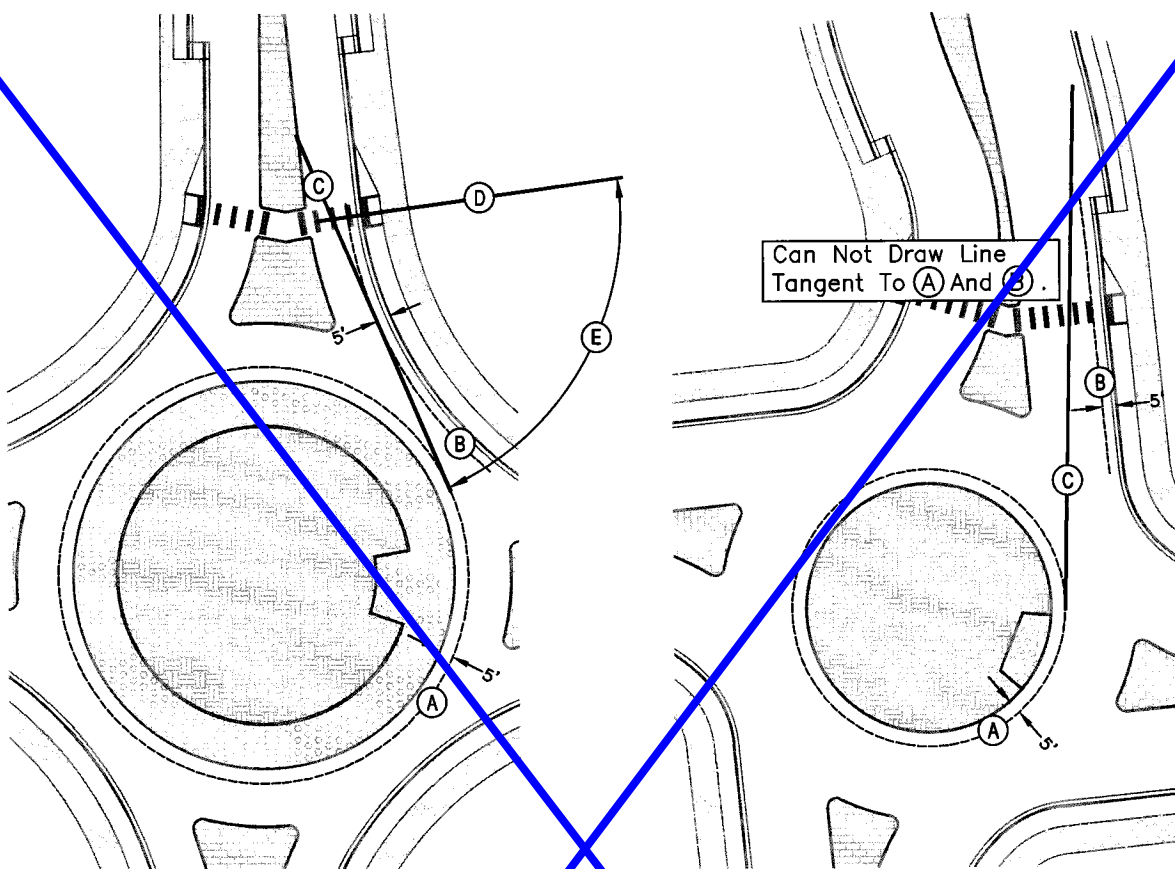
Attachments

- Procedure A - Exit Type Test (Page A4)
- Procedure #1 - Single Entry Lane with Flat Exit (Pages A5 to A12)
- Procedure #2 - Two Entry Lanes with Flat Exit (Pages A13 to A20)
- Procedure #3 - Tight Exit (Pages A21 to A27)

ACHD FASTEST PATH PROCEDURE

Procedure A – Exit Type Test

Revised: November 30, 2010



Exit Type Test

Steps A to E

- Step (A) – Offset The Center Island Curb (Outside Of Truck Apron If Present) By 5–Feet Toward The Outside.
- Step (B) – Offset The Outside Exit Curb By 5–Feet Toward The Inside.
- Step (C) – Draw A Line Tangent To Center Island Offset And Outside Exit Offset. If This Lines Does Not Exist, Skip Steps (D) and (E).
- Step (D) – Draw A Line Perpendicular To Outside Exit Curb Approximately 30 Feet Beyond Circulatory Roadway (Center Of Crosswalk).
- Step (E) – Measure Angle Between Tangent Line Drawn In Step (C) And Perpendicular Line Drawn In Step (D).

Fastest Path Procedure Selection

If Step (C) Tangent Line Does Not Exist Or If The Angle Measured In Step (E) Is Greater Than 90 Degrees Proceed With One Of The Following Procedures:

- Procedure #1 (Pages A5 To A12) – Single Entry Lane With Flat Exit If There Is Only One Entry Lane; or
- Procedure #2 (Pages A13 To A20) – Two Entry Lanes With Flat Exit If There Are Two Entry Lanes.

If The Angle Measured In Step (E) Is Less Than 90 Degrees Proceed With The Following Procedure:

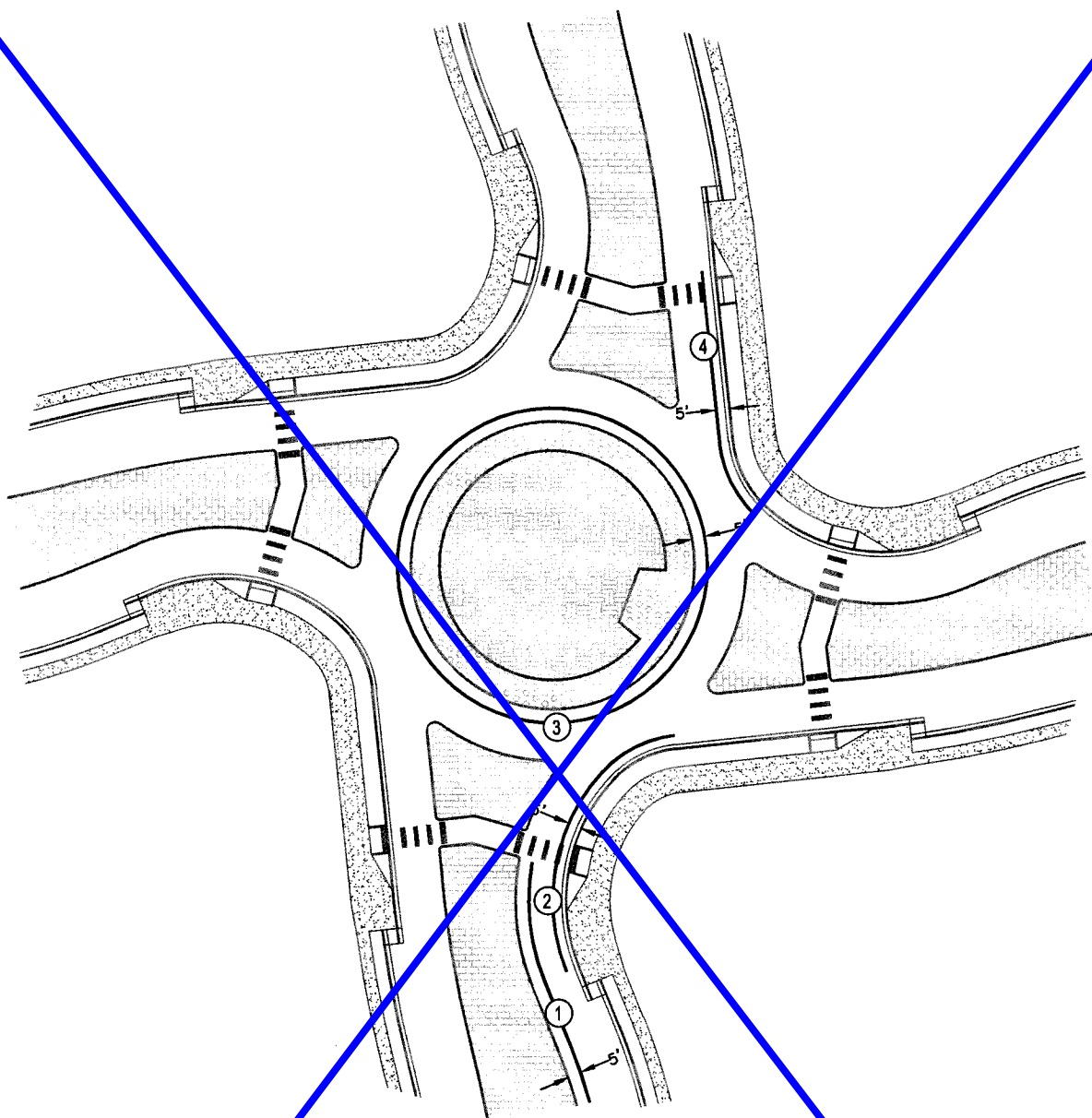
- Procedure #3 (Pages A21 to A27) – Tight Exit.

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #1 – Single Entry Lane With Flat Exit

Revised: November 30, 2010



Fastest Path Layout

Offset Construction Points

Steps 1 to 4

- Step ① – Offset The Inside Approach Curb By 5–Feet Toward The Outside.
- Step ② – Offset The Outside Entry Curb By 5–Feet Toward The Inside.
- Step ③ – Offset The Center Island Curb (Outside Of Truck Apron If Present) By 5–Feet Toward The Outside.
- Step ④ – Offset The Outside Departure Curb By 5–Feet Toward The Inside.

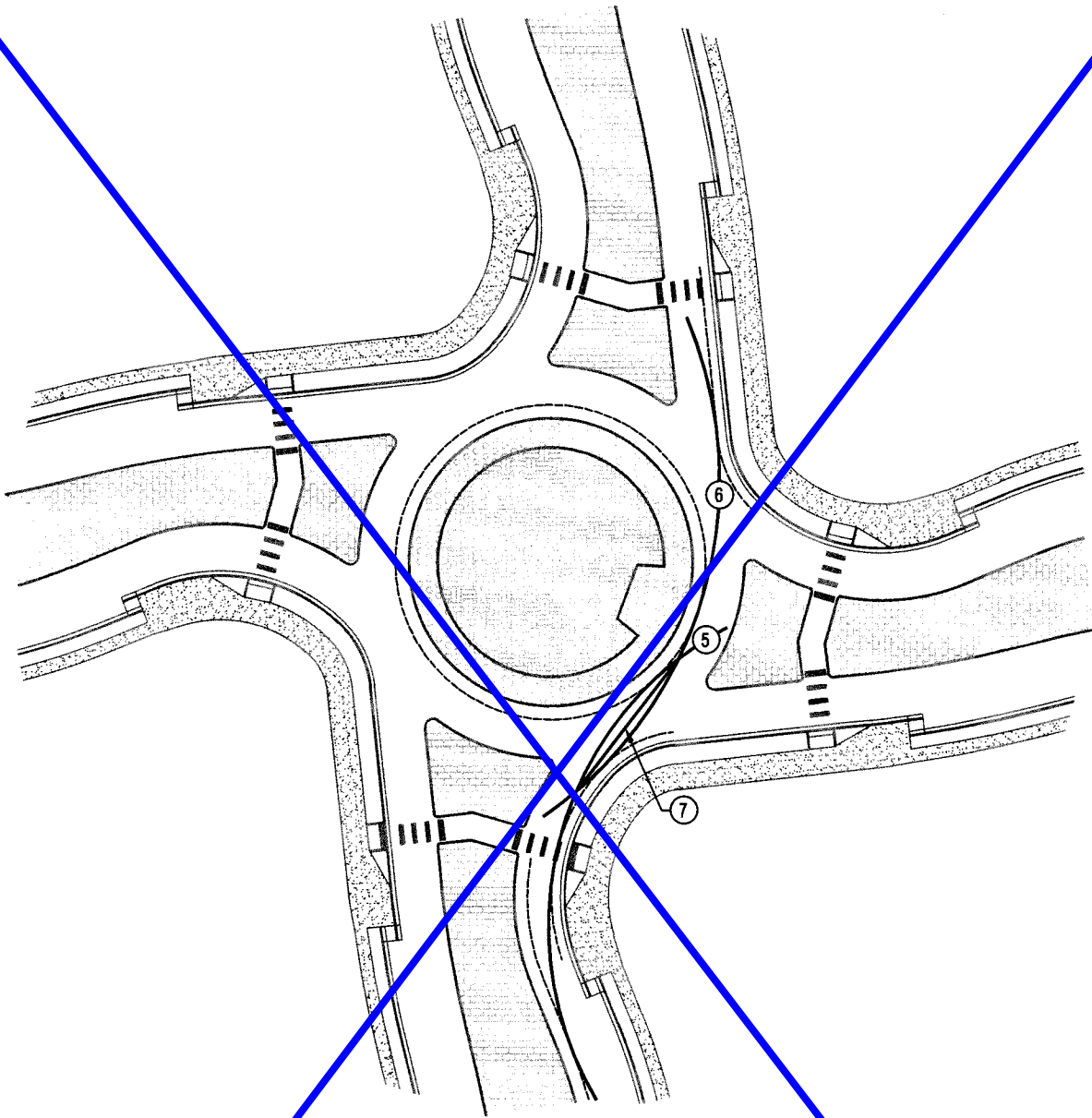
Fastest Path Values

R4 = The Radius Of The Circle Drawn In Step ③

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #1 — Single Entry Lane With Flat Exit
Revised: November 30, 2010



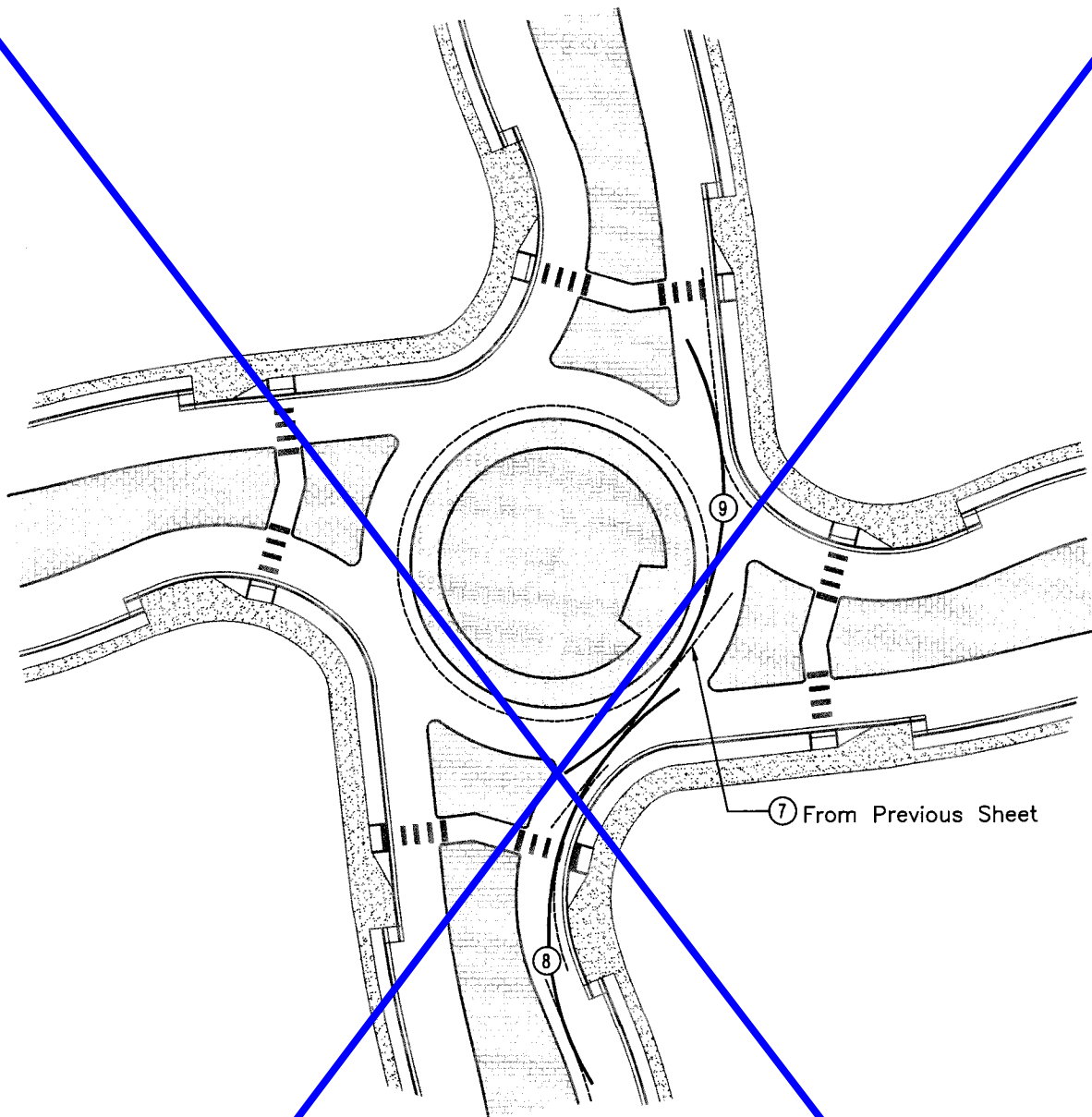
Fastest Path Layout

Tangent Construction Lines
Steps 5 to 7

- Step ⑤ — Draw A 3 Point Circle, Tangent To Inside Approach Offset, The Outside Entry Offset, And The Center Island Offset.
- Step ⑥ — Draw A 3 Point Circle, Tangent To Outside Entry Offset, Center Island Offset, And Outside Exit Offset.
- Step ⑦ — Draw A Straight Line Between The Two Points Where The Circles From Step ⑤ And Step ⑥ Cross Each Other.

ACHD FASTEST PATH PROCEDURE

Procedure #1 – Single Entry Lane With Flat Exit
Revised: November 30, 2010



Fastest Path Layout

Tangent Construction Circles
Steps 8 to 9

- Step ⑧ – Draw A 3 Point Circle, Tangent To Inside Approach Offset, The Outside Entry Offset, And The Straight Line Drawn In Step ⑦.
- Step ⑨ – Draw A 3 Point Circle, Tangent To The Straight Line Drawn In Step ⑦, The Center Island Offset, And The Outside Departure Offset.

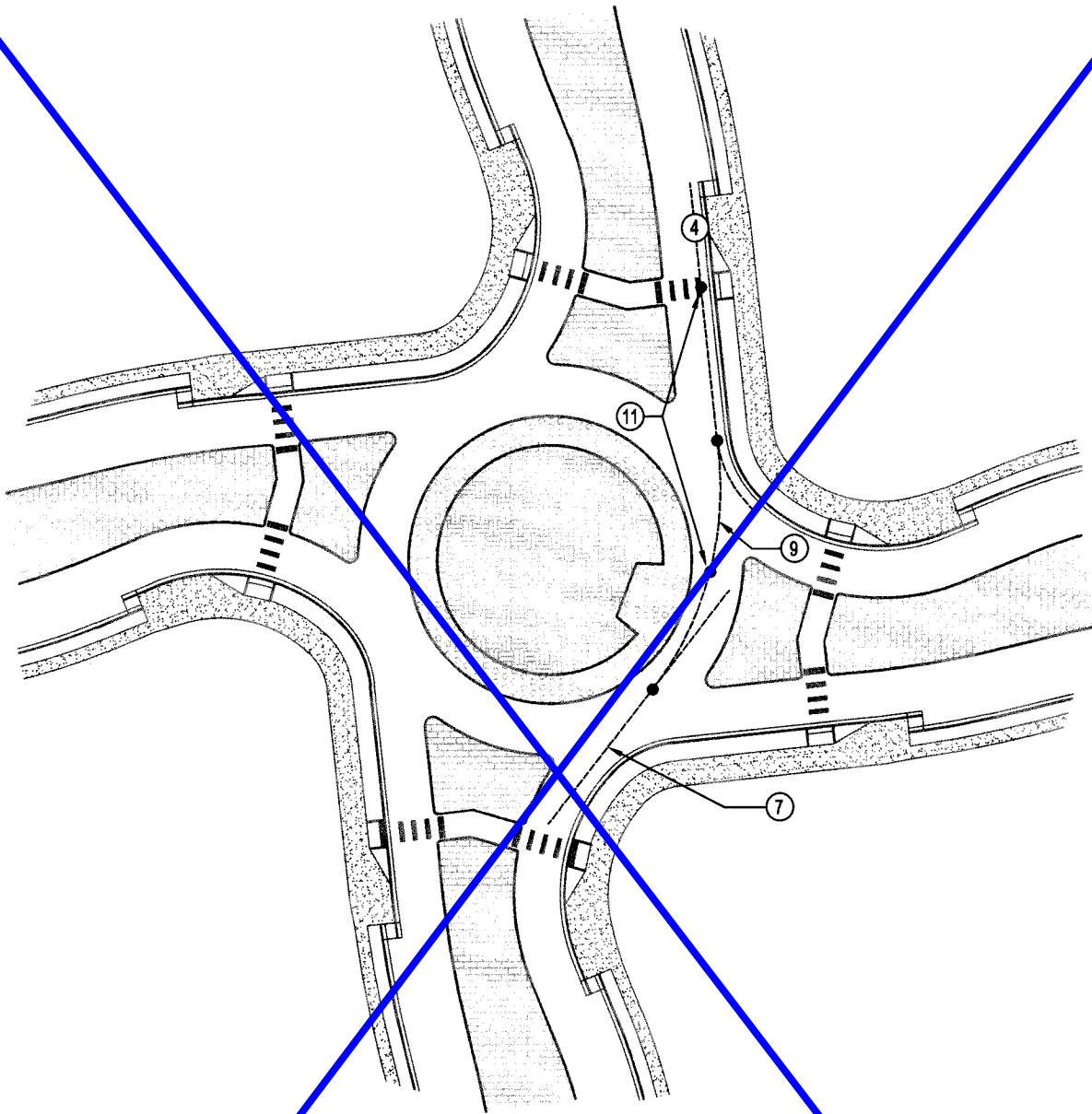
Fastest Path Values

R2 = The Radius Of The Circle Drawn In Step ⑨

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #1 – Single Entry Lane With Flat Exit
Revised: November 30, 2010



Fastest Path Layout

Acceleration Distance
Steps 10 to 11

- Step ⑩ – Trim The Circle Drawn In Step ⑨ With The Line Drawn In Step ⑦ And The Outside Departure Offset Drawn In Step ④.
- Step ⑪ – Measure The Distance Traveled Along The Combination Of The Arc Created In Step ⑩ And The Tangent Outside Departure Offset From The Midpoint Of The Arc Created In Step ⑩ To The Midpoint Of The Pedestrian Crosswalk.

Fastest Path Values

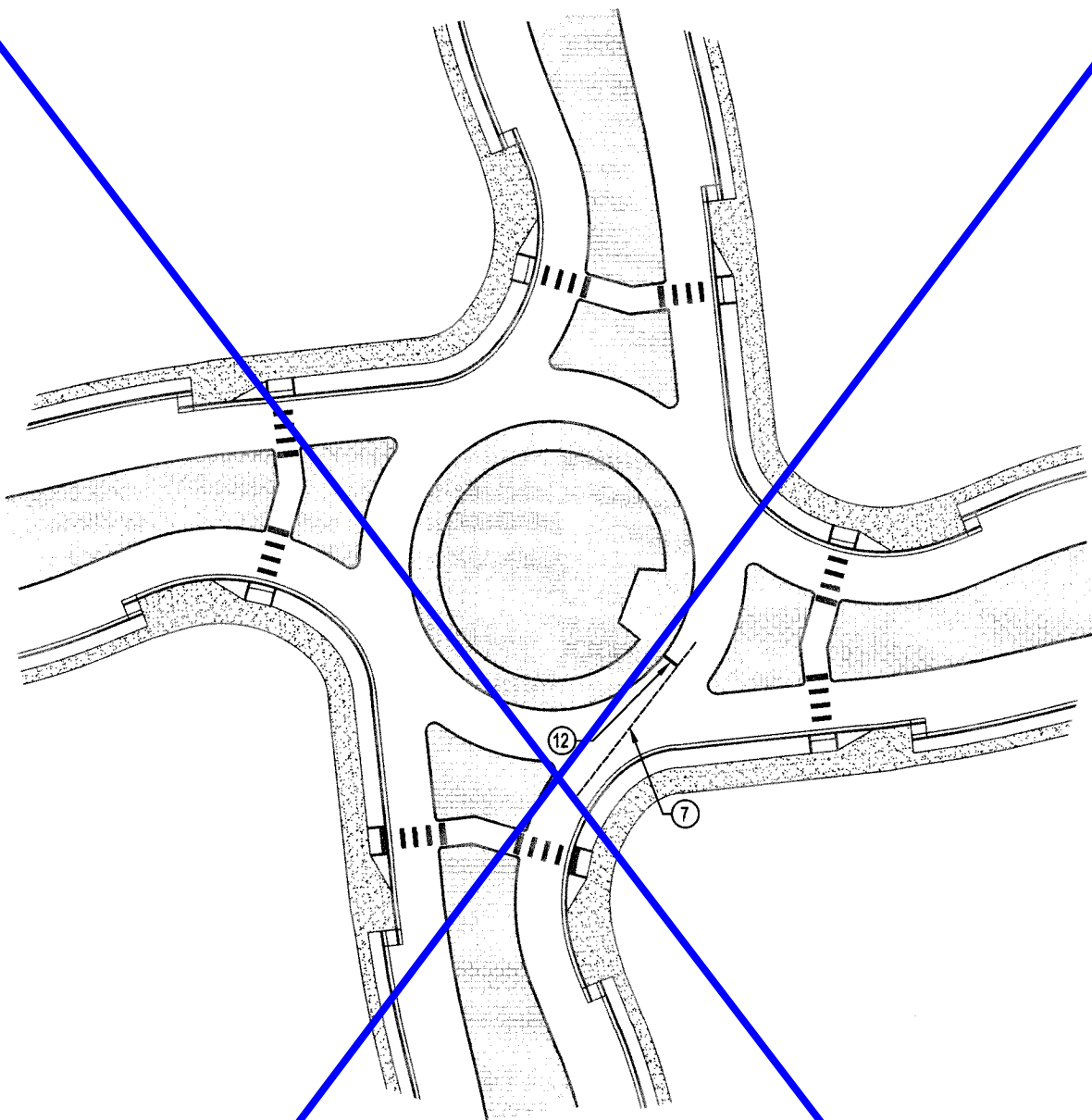
V3 = Calculate Based On Speed Of R2 And Acceleration Over Distance Measured In Step ⑪.

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #1 – Single Entry Lane With Flat Exit

Revised: November 30, 2010



Fastest Path Layout

New Offset Measurement

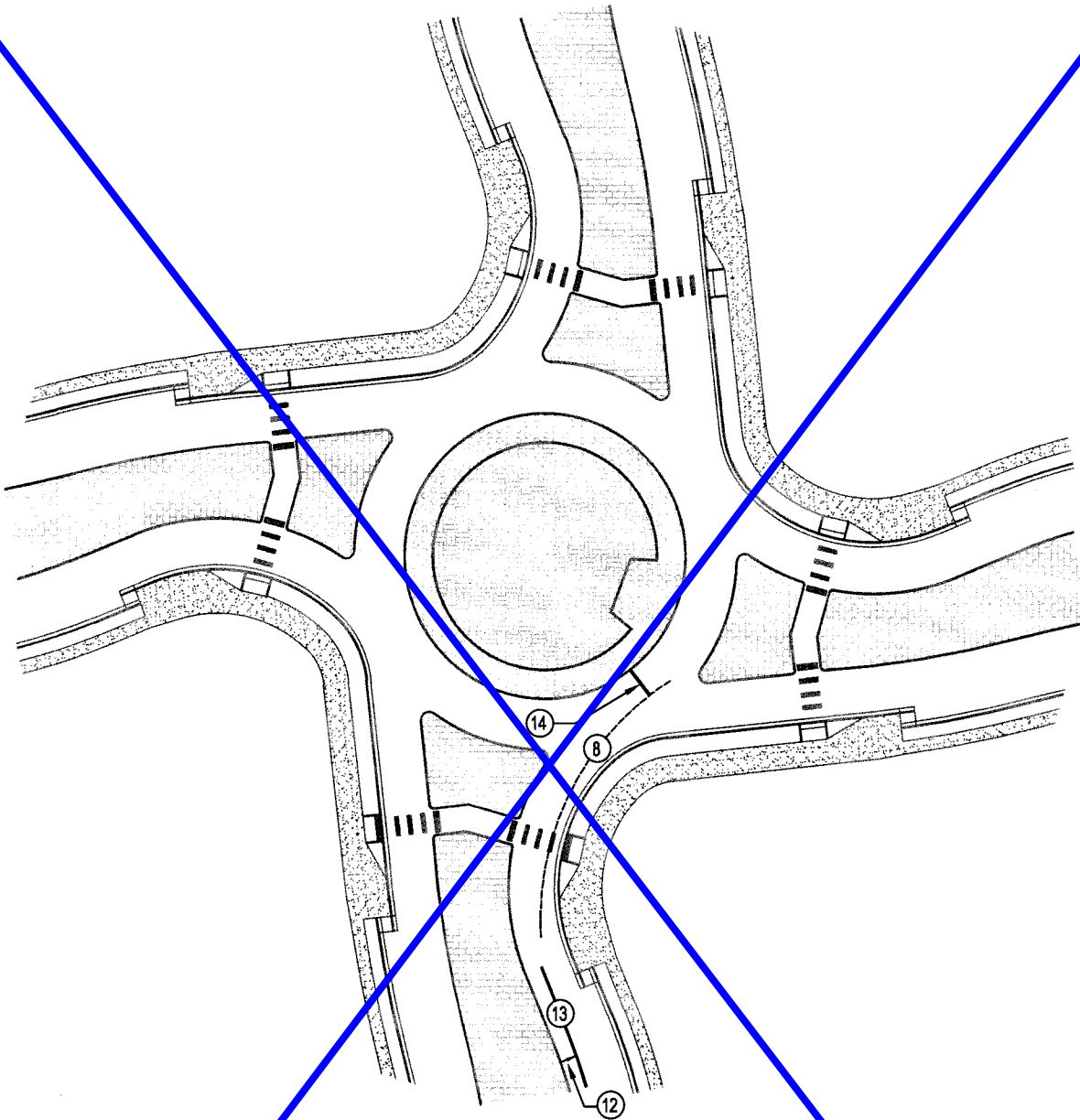
Step 12

- Step ⑫ – Draw A Straight Line From The Center Of The Roundabout, Perpendicular To The Straight Line Drawn In Step ⑦, And Measure The Distance Along This Line From The Center Island Curb (Outside Of The Truck Apron Curb If Present) To Line ⑦.

ACHD FASTEST PATH PROCEDURE

Procedure #1 – Single Entry Lane With Flat Exit

Revised: November 30, 2010



Fastest Path Layout

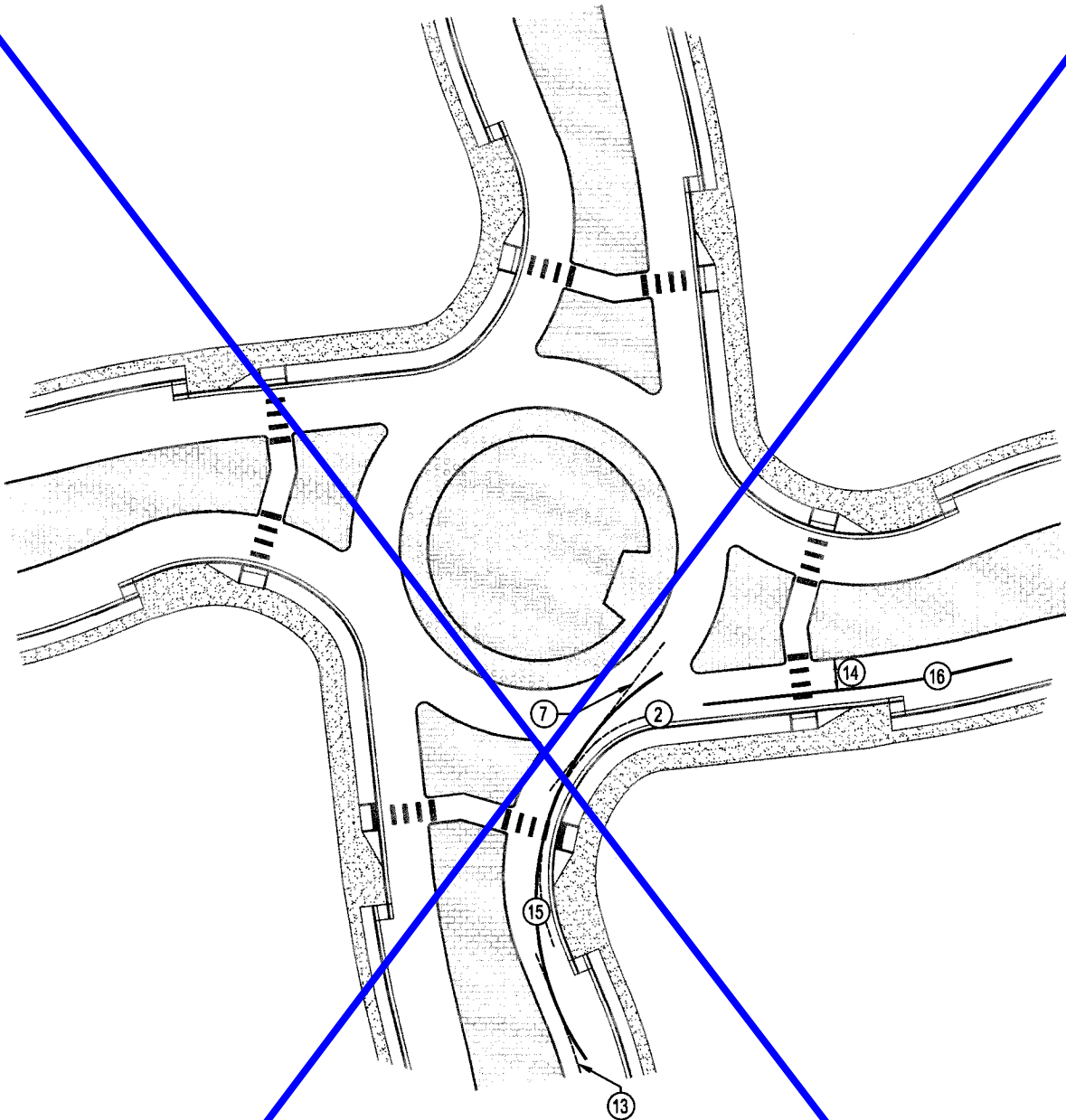
Construction Offset Lines

Steps 13 to 14

- Step ⑬ – Offset The Inside Approach Curb By The Distance Measured In Step ⑫ Toward The Outside.
- Step ⑭ – Draw A Straight Line From The Center Of The Roundabout, Perpendicular To The Circle Drawn In Step ⑧, And Measure The Distance Along This Line From The Center Island Curb (Outside Of The Truck Apron Curb If Present) To Circle ⑬.

ACHD FASTEST PATH PROCEDURE

Procedure #1 – Single Entry Lane With Flat Exit
Revised: November 30, 2010



Fastest Path Layout

Measurement Circle
Steps 15 to 16

- Step ⑮ – Draw A 3 Point Circle, Tangent To The Inside Approach Offset Drawn In Step ⑬, The Outside Entry Offset Drawn In Step ②, And The Straight Line Drawn In Step ⑦.
- Step ⑯ – Offset The Inside Right-Turn Departure Curb By The Distance Measured in Step ⑭ Toward The Outside.

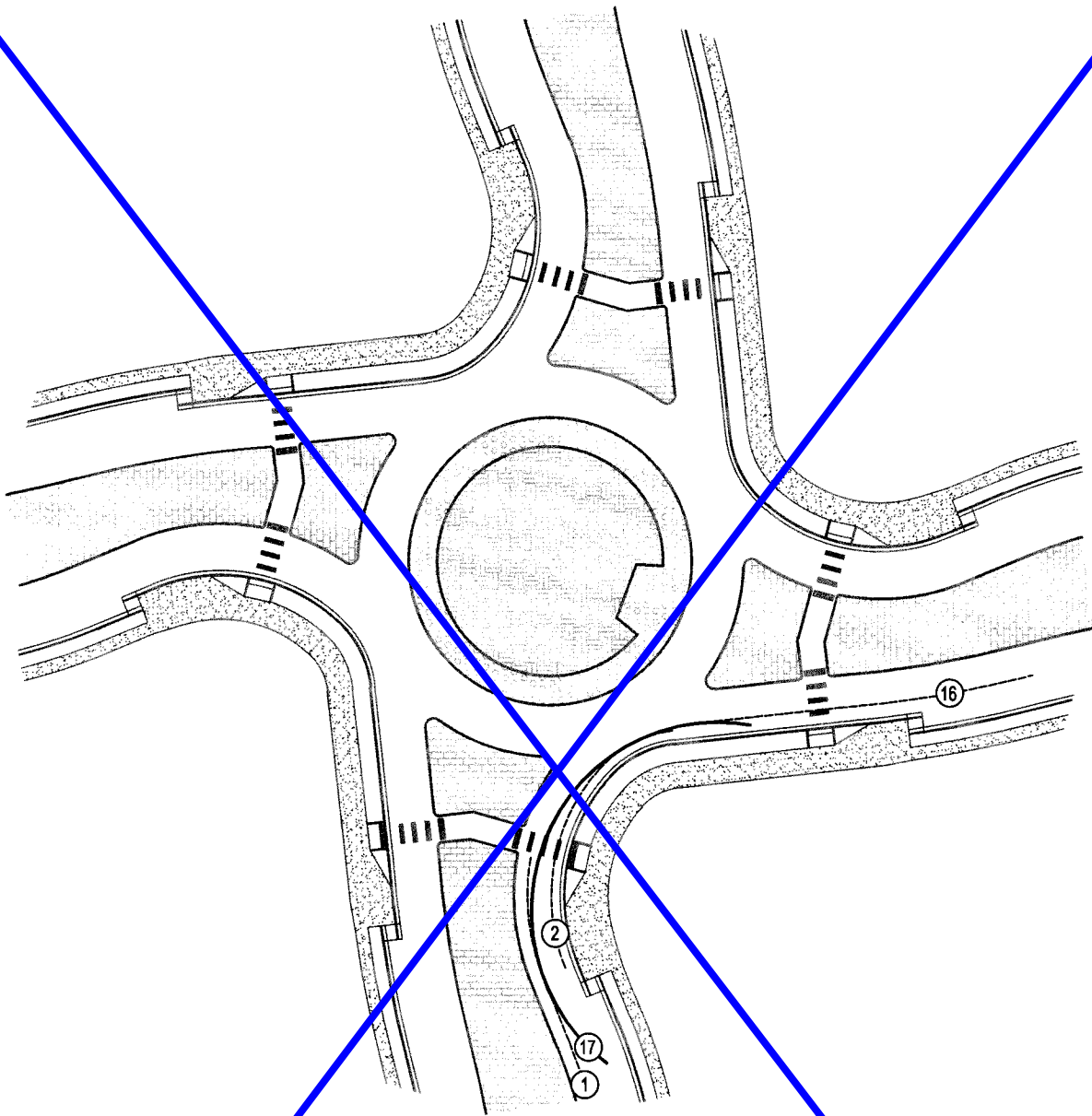
Fastest Path Values

R1 = The Radius Of The Circle Drawn In Step ⑮

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #1 – Single Entry Lane With Flat Exit
Revised: November 30, 2010



Fastest Path Layout

Right Turn Measurement Circle
Step 17

Step 17 – Draw A 3 Point Circle, Tangent To The Inside Approach Offset Drawn In Step 1, The Outside Entry Offset Drawn In Step 2, And The The Inside Right-Turn Departure Curb Offset Drawn In Step 16.

Fastest Path Values

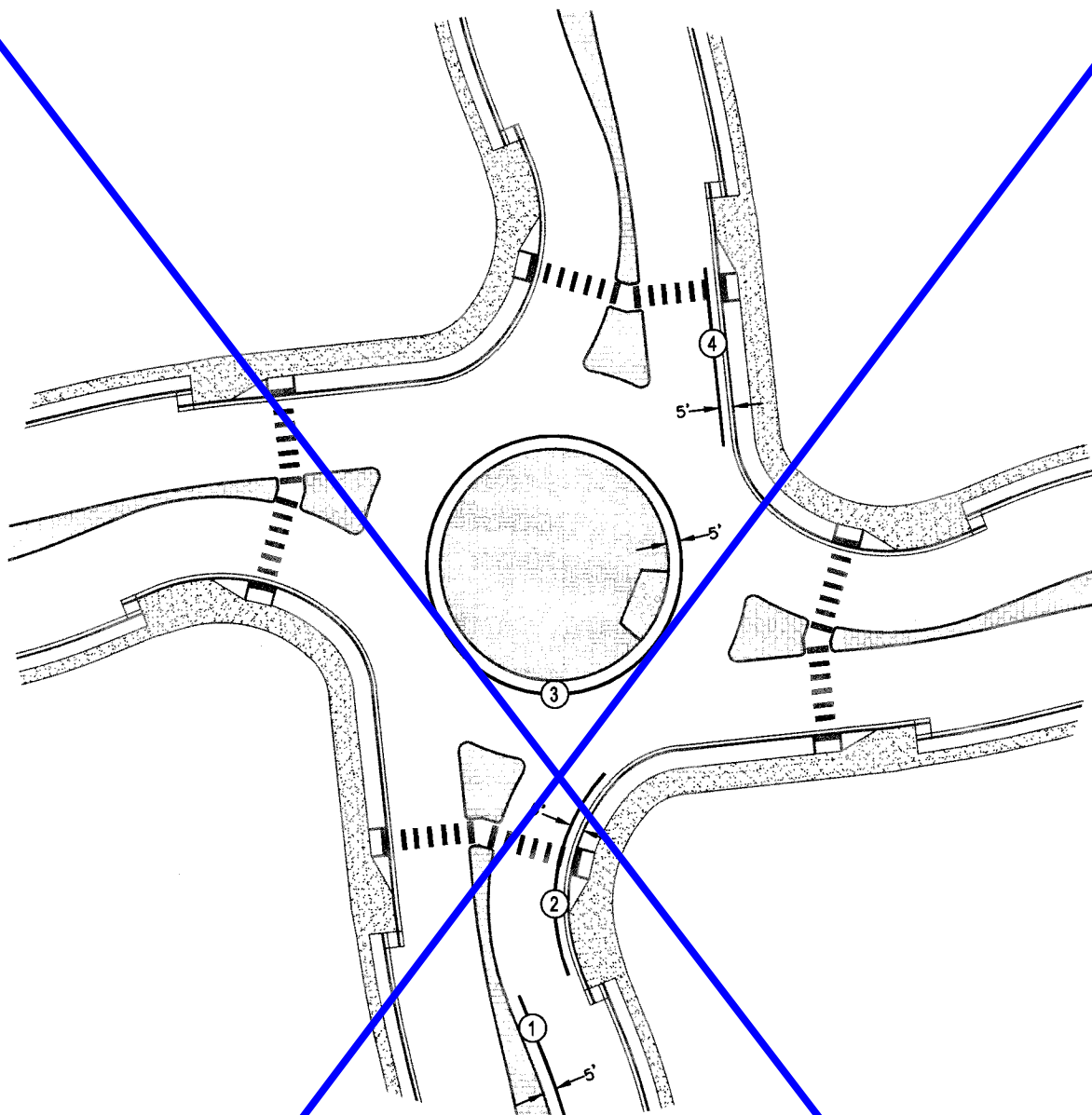
R5 = The Radius Of The Circle Drawn In Step 17

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #2 – Two Entry Lanes With Flat Exit

Revised: November 30, 2010



Fastest Path Layout

Offset Construction Points

Steps 1 to 4

- Step ① – Offset The Inside Approach Curb By 5–Feet Toward The Outside.
- Step ② – Offset The Outside Entry Curb By 5–Feet Toward The Inside.
- Step ③ – Offset The Center Island Curb (Outside Of Truck Apron If Present) By 5–Feet Toward The Outside.
- Step ④ – Offset The Outside Departure Curb By 5–Feet Toward The Inside.

Fastest Path Values

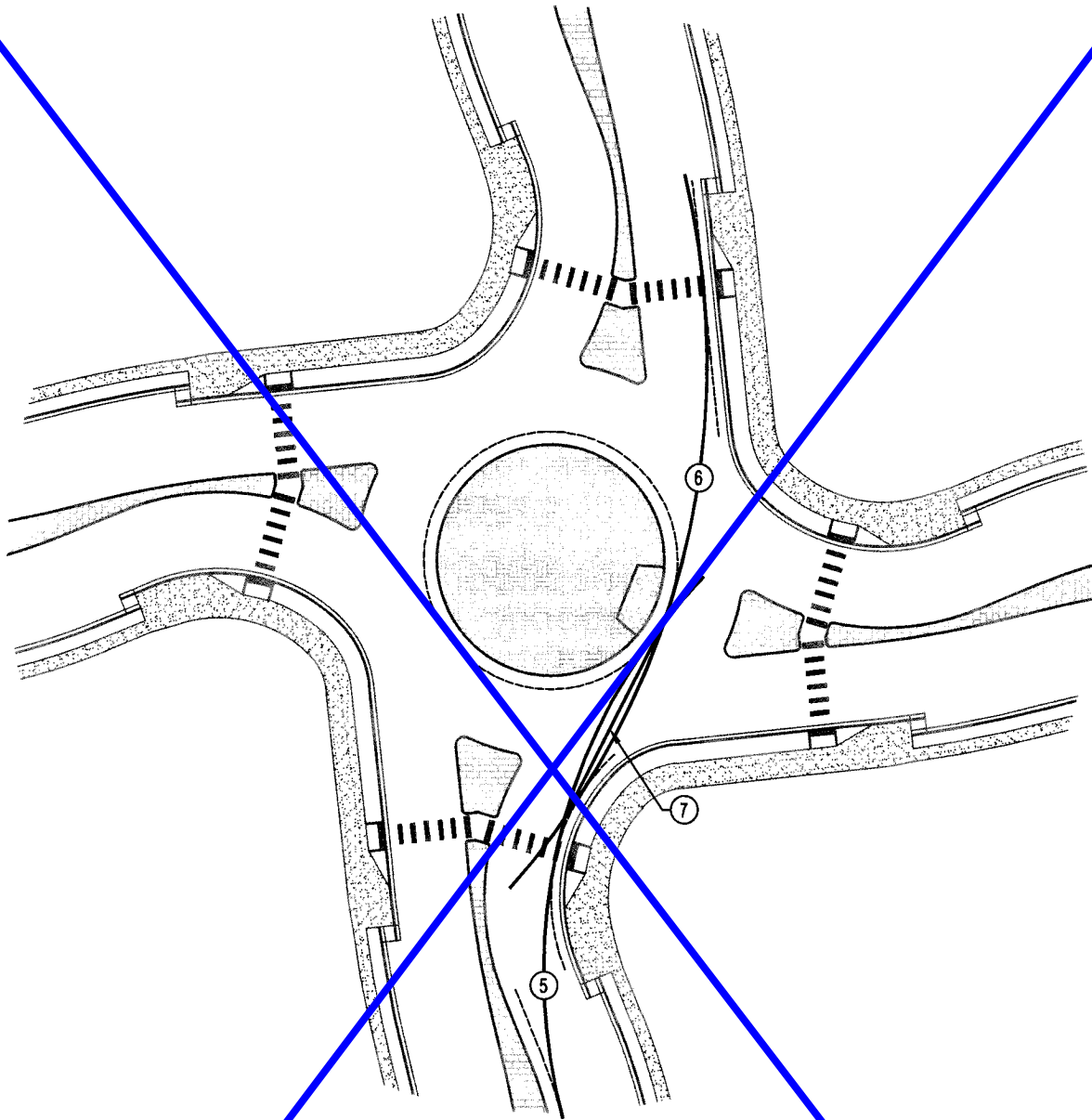
R4 = The Radius Of The Circle Drawn In Step ③

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #2 – Two Entry Lanes With Flat Exit

Revised: November 30, 2010



Fastest Path Layout

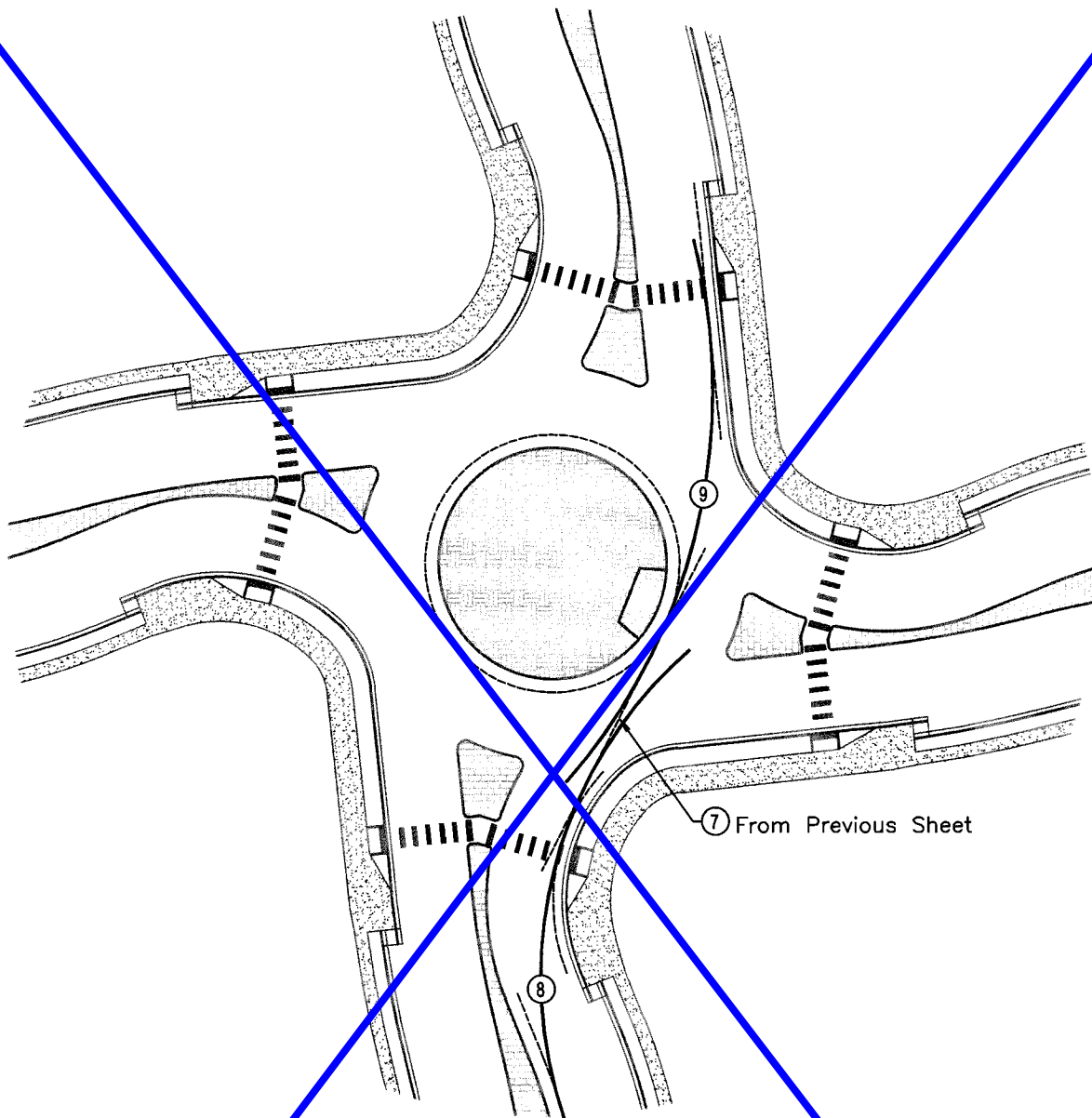
Tangent Construction Lines
Steps 5 to 7

- Step ⑤ – Draw A 3 Point Circle, Tangent To Inside Approach Offset, The Outside Entry Offset, And The Center Island Offset.
- Step ⑥ – Draw A 3 Point Circle, Tangent To Outside Entry Offset, Center Island Offset, And Outside Exit Offset.
- Step ⑦ – Draw A Straight Line Between The Two Points Where The Circles From Step ⑤ And Step ⑥ Cross Each Other.

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #2 – Two Entry Lanes With Flat Exit
Revised: November 30, 2010



Fastest Path Layout

Tangent Construction Circles
Steps 8 to 9

- Step ⑧ – Draw A 3 Point Circle, Tangent To Inside Approach Offset, The Outside Entry Offset, And The Straight Line Drawn In Step ⑦.
- Step ⑨ – Draw A 3 Point Circle, Tangent To The Straight Line Drawn In Step ⑦, The Center Island Offset, And The Outside Departure Offset.

Fastest Path Values

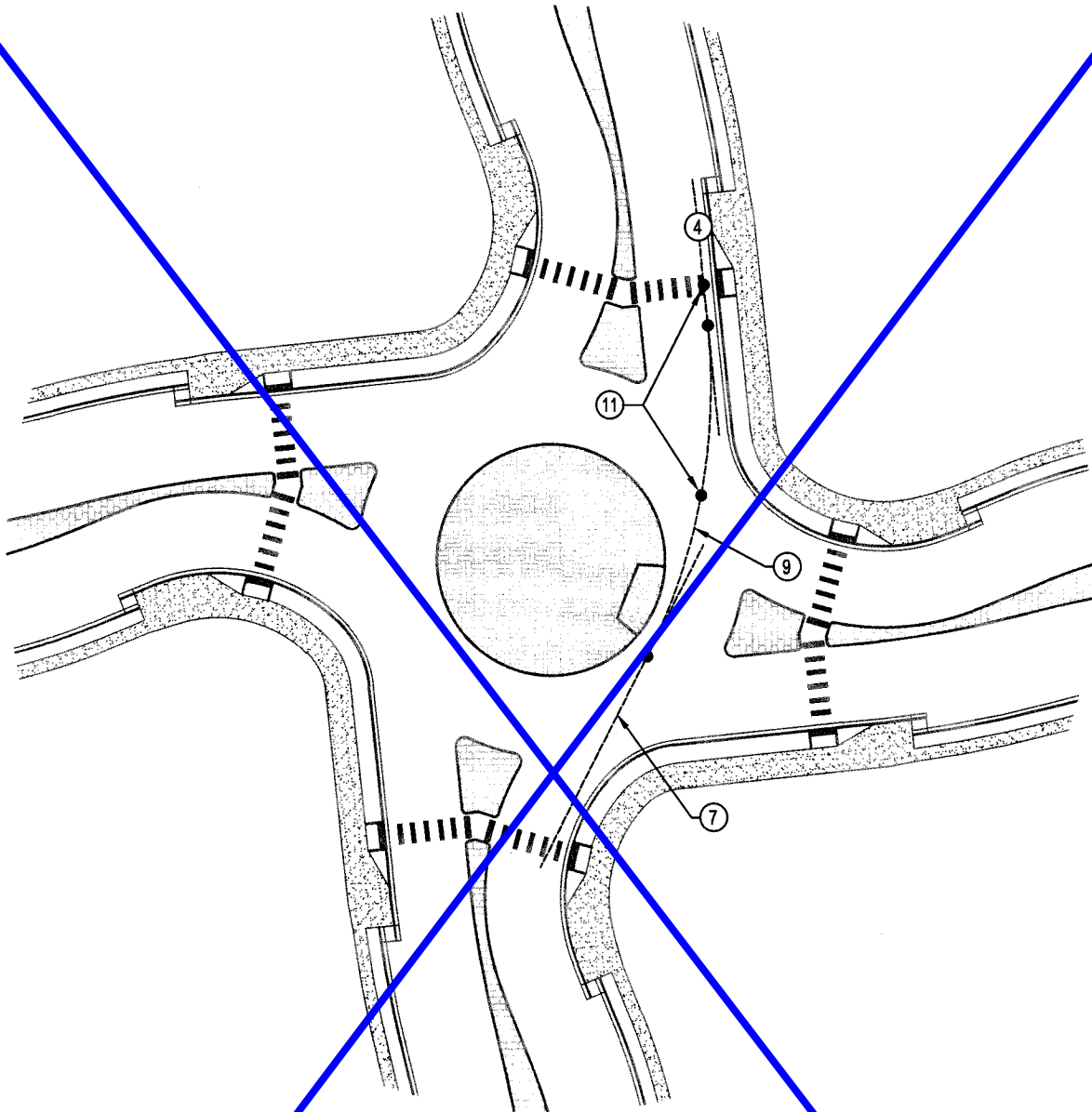
$R2$ = The Radius Of The Circle Drawn In Step ⑨

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #2 – Two Entry Lanes With Flat Exit

Revised: November 30, 2010



Fastest Path Layout

Acceleration Distance

Steps 10 to 11

- Step ⑩ – Trim The Circle Drawn In Step ⑨ With The Line Drawn In Step ⑦ And The Outside Departure Offset Drawn In Step ④.
- Step ⑪ – Measure The Distance Traveled Along The Combination Of The Arc Created In Step ⑩ And The Tangent Outside Departure Offset From The Midpoint Of The Arc Created In Step ⑩ To The Midpoint Of the Pedestrian Crosswalk.

Fastest Path Values

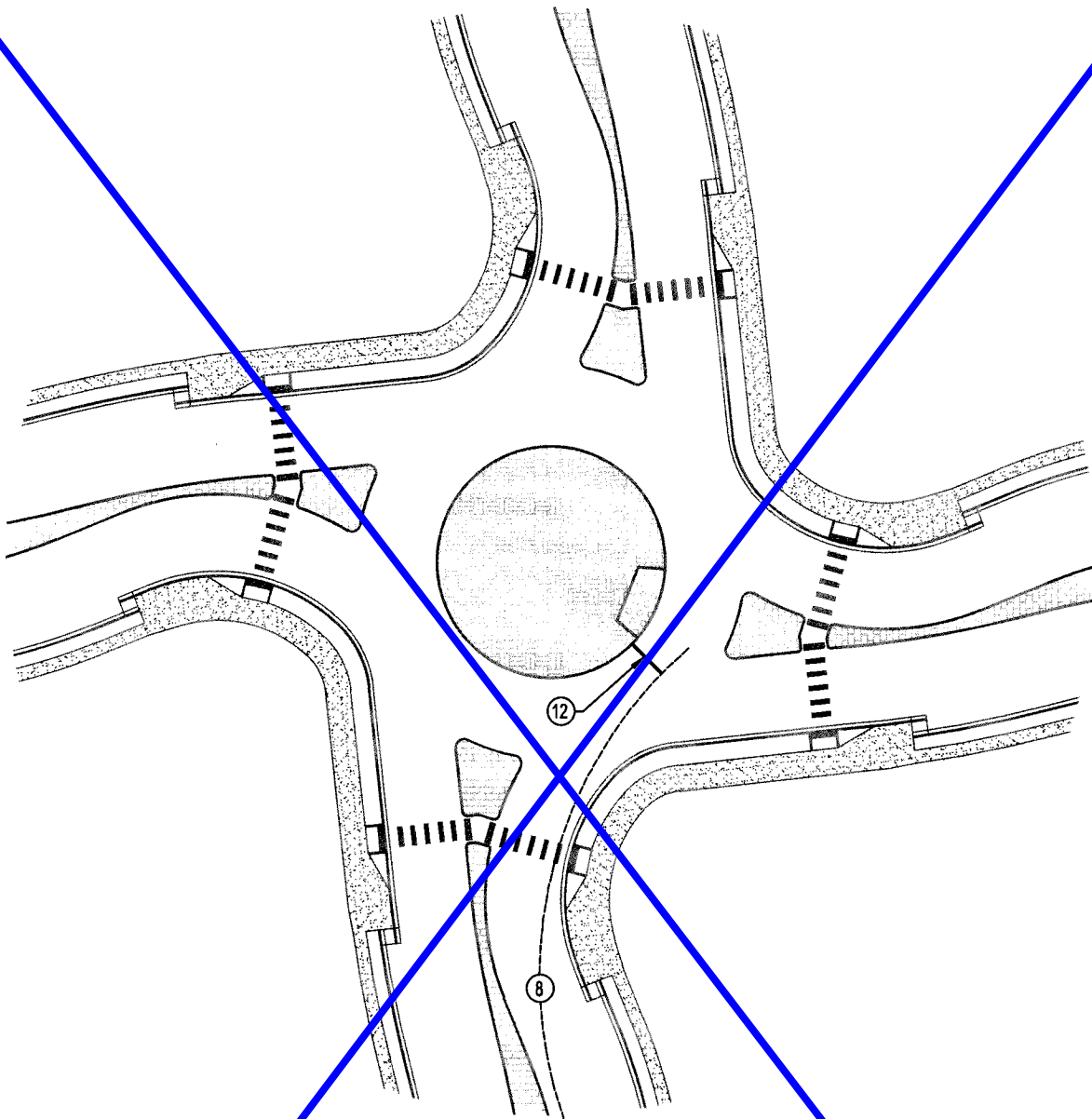
V3 = Calculate Based On Speed Of R2 And Acceleration Over Distance Measured In Step ⑪ .

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #2 – Two Entry Lanes With Flat Exit

Revised: November 30, 2010



Fastest Path Layout

New Offset Measurement

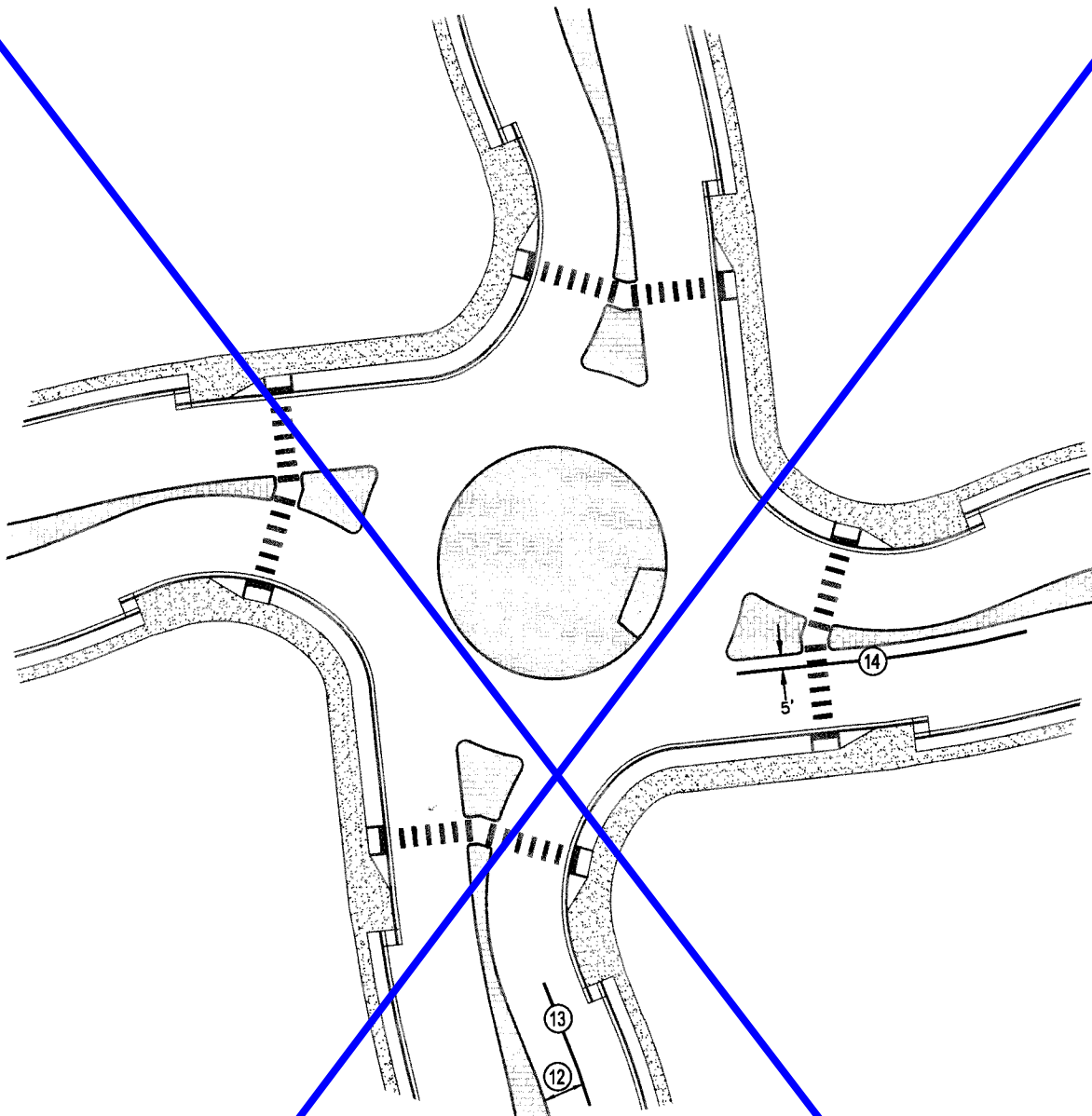
Step 12

- Step (12) – Draw A Straight Line From The Center Of The Roundabout, Perpendicular To The Circle Drawn In Step (8), And Measure The Distance Along This Line From The Center Island Curb (Outside Of The Truck Apron Curb If Present) To Circle (8).

ACHD FASTEST PATH PROCEDURE

Procedure #2 – Two Entry Lanes With Flat Exit

Revised: November 30, 2010



Fastest Path Layout

Construction Offset Lines

Steps 13 to 14

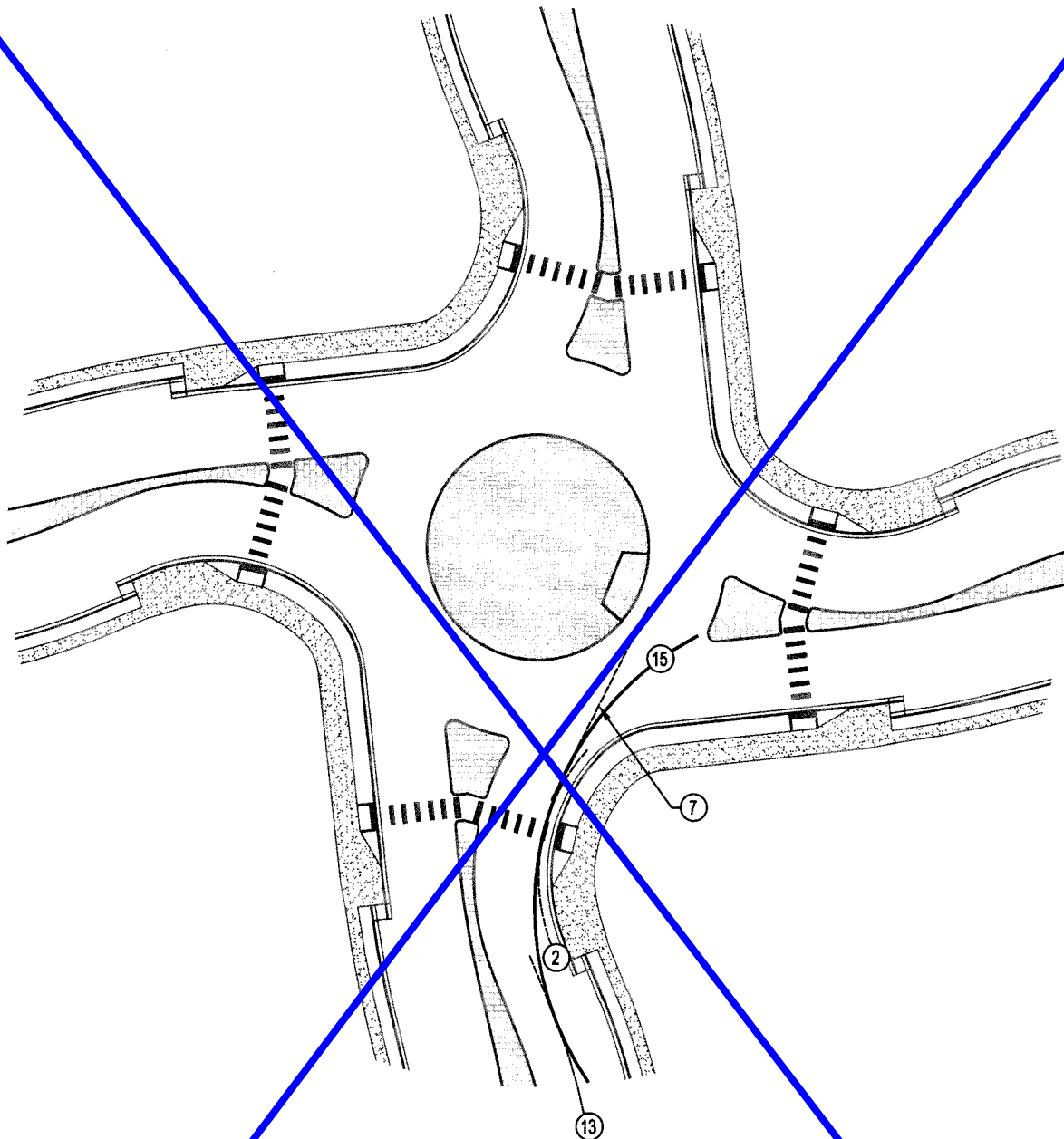
- Step ⑬ – Offset The Inside Approach Curb By The Distance Measured In Step ⑫ Toward The Outside.
- Step ⑭ – Offset The Inside Right-Turn Departure Curb By 5-Feet Toward The Outside.

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #2 – Two Entry Lanes With Flat Exit

Revised: November 30, 2010



Fastest Path Layout

Measurement Circle

Step 15

Step 15 - Draw A 3 Point Circle, Tangent To The Inside Approach Offset Drawn In Step 13, The Outside Entry Offset Drawn In Step 2, And The Straight Line Drawn In Step 7.

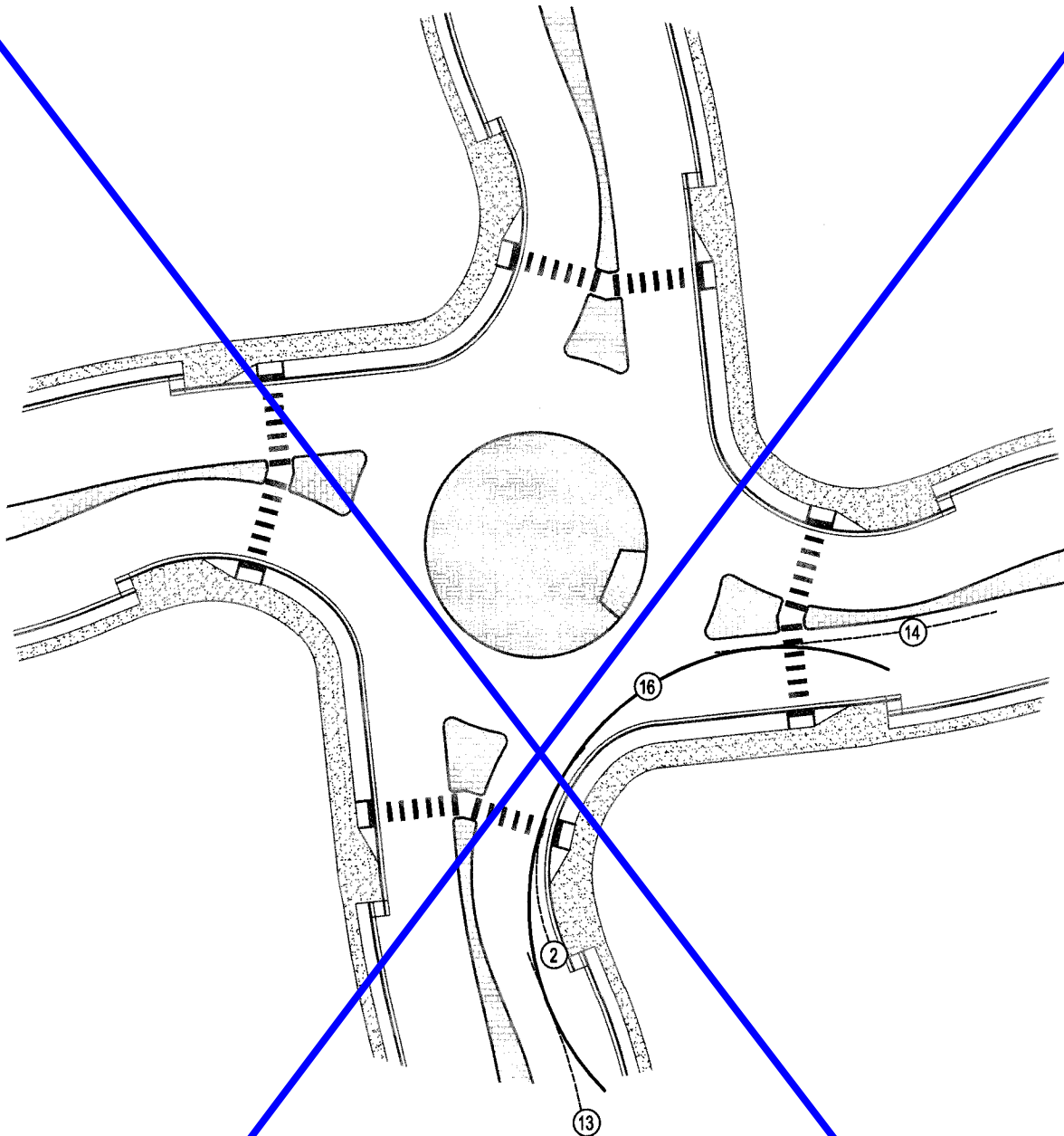
Fastest Path Values

R1 = The Radius Of The Circle Drawn In Step 15

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #2 — Two Entry Lanes With Flat Exit
Revised: November 30, 2010



Fastest Path Layout

Right Turn Measurement Circle
Step 16

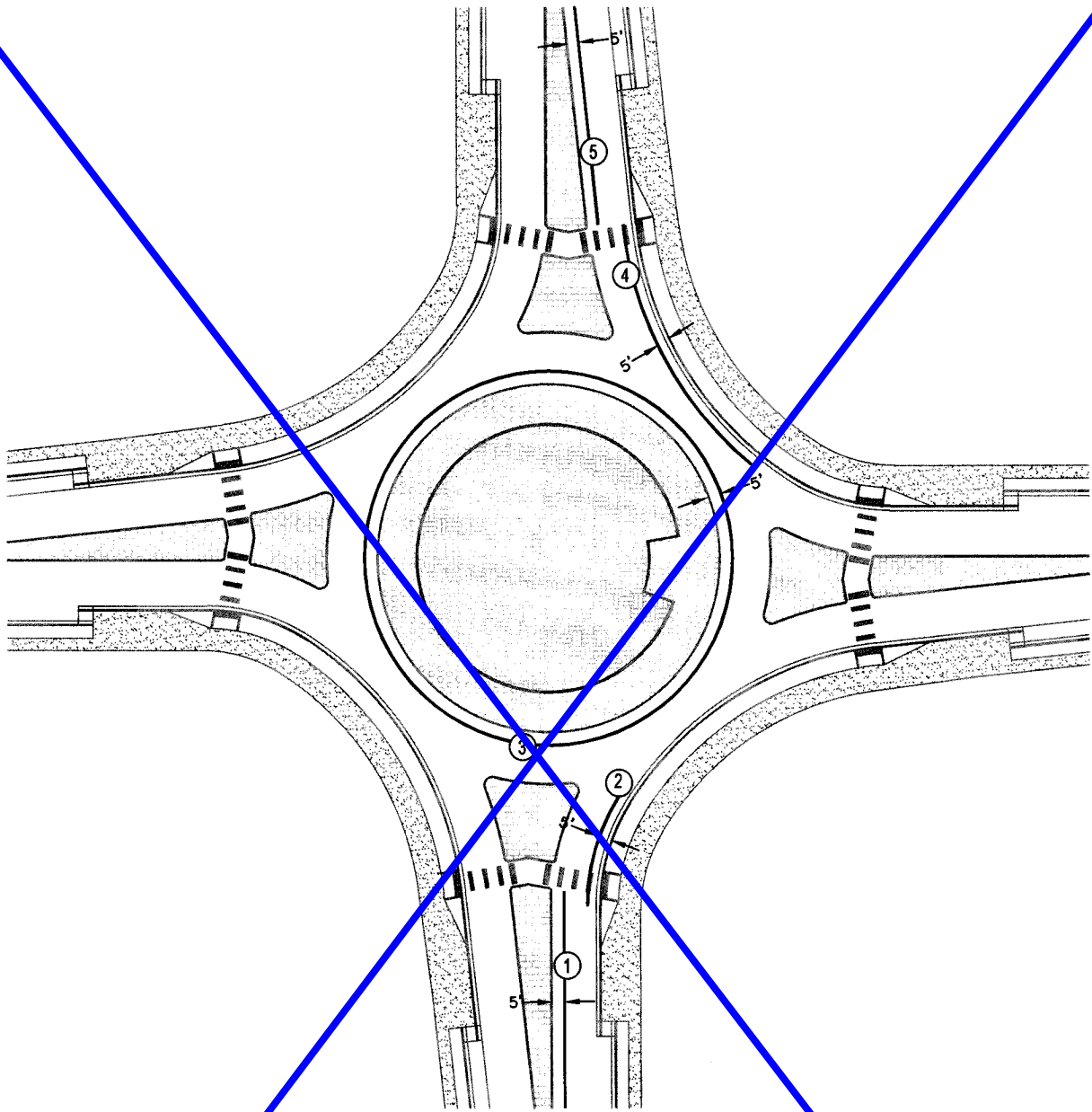
Step ⑯ — Draw A 3 Point Circle, Tangent To The Inside Approach Offset Drawn In Step ⑬ , The Outside Entry Offset Drawn In Step ② , And The The Inside Right-Turn Departure Curb Offset Drawn In Step ⑭ .

Fastest Path Values

R5 = The Radius Of The Circle Drawn In Step ⑯

ACHD FASTEST PATH PROCEDURE

Procedure #3 – Tight Exit
Revised: November 30, 2010



Fastest Path Layout

Offset Construction Points
Steps 1 to 5

- Step ① – Offset The Inside Approach Curb By 5–Feet Toward The Outside.
- Step ② – Offset The Outside Entry Curb By 5–Feet Toward The Inside.
- Step ③ – Offset The Center Island Curb (Outside Of Truck Apron If Present) By 5–Feet Toward The Outside.
- Step ④ – Offset The Outside Exit Curb By 5–Feet Toward The Inside.
- Step ⑤ – Offset The Inside Departure Curb By 5–Feet Toward The Outside.

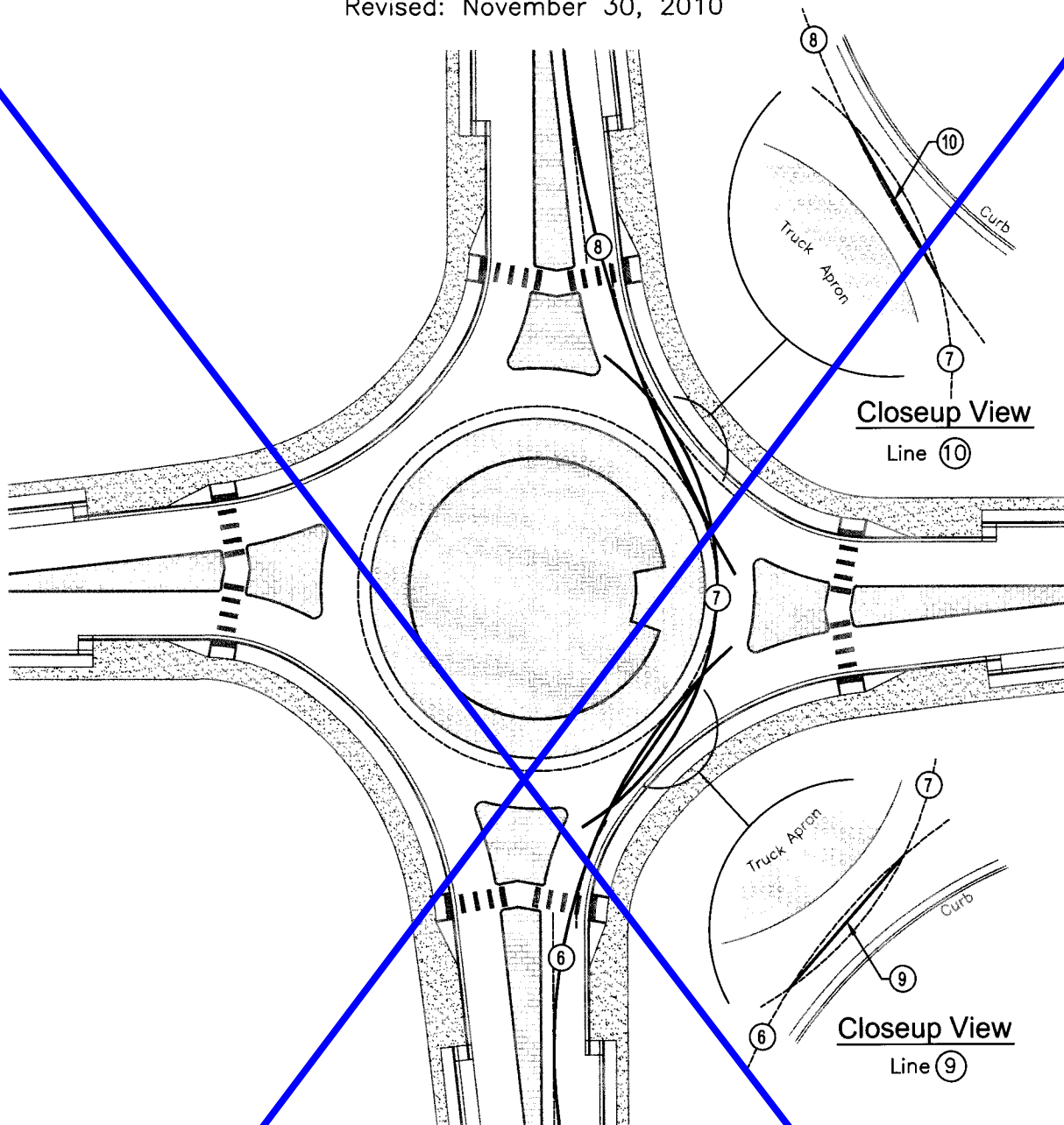
Fastest Path Values

R4 = The Radius Of The Circle Drawn In Step ③

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #3 – Tight Exit
Revised: November 30, 2010



Fastest Path Layout

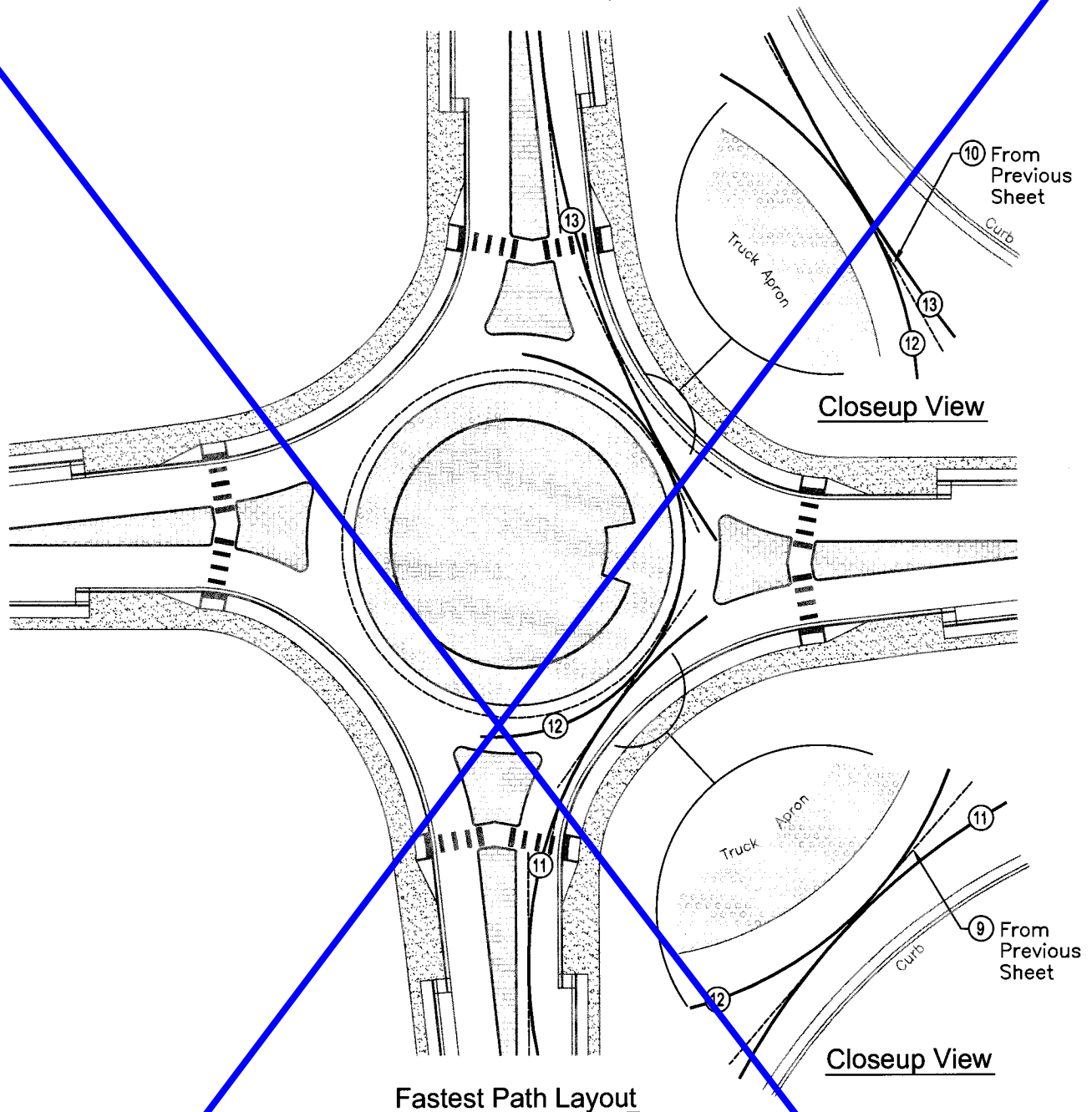
Tangent Construction Lines
Steps 6 to 10

- Step ⑥ – Draw A 3 Point Circle, Tangent To Inside Approach Offset, The Outside Entry Offset, And The Center Island Offset.
- Step ⑦ – Draw A 3 Point Circle, Tangent To Outside Entry Offset, Center Island Offset, And Outside Exit Offset.
- Step ⑧ – Draw A 3 Point Circle, Tangent To Center Island Offset, Outside Exit Offset, And Inside Departure Offset.
- Step ⑨ – Draw A Straight Line Between The Two Points Where Circles ⑥ And ⑦ Cross Each Other.
- Step ⑩ – Draw A Straight Line Between The Two Points Where Circles ⑦ And ⑧ Cross Each Other.

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #3 – Tight Exit
Revised: November 30, 2010



Fastest Path Layout

Tangent Construction Circles
Steps 11 to 13

- Step ⑪ – Draw A 3 Point Circle, Tangent To Inside Approach Offset, Outside Entry Offset, And The Straight Line Drawn In Step ⑨
- Step ⑫ – Draw A 3 Point Circle, Tangent To The Straight Line Drawn In Step ⑨, The Center Island Offset, And The Straight Line Drawn In Step ⑩
- Step ⑬ – Draw A 3 Point Circle, Tangent To The Straight Line Drawn In Step ⑩, The Outside Exit Offset, And The Inside Departure Offset.

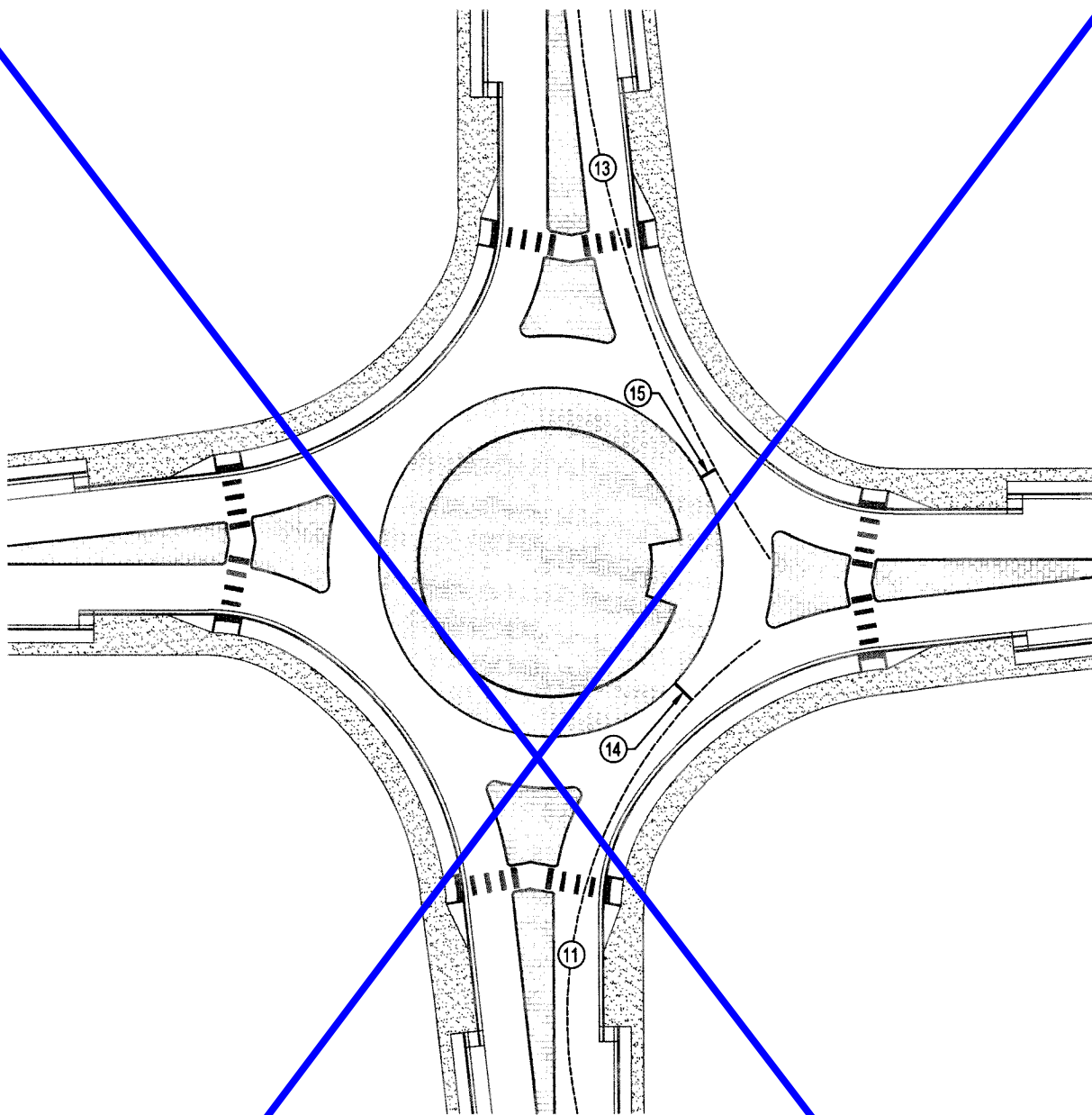
Fastest Path Values

R2 = The Radius Of The Circle Drawn In Step ⑫

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #3 — Tight Exit
Revised: November 30, 2010



Fastest Path Layout

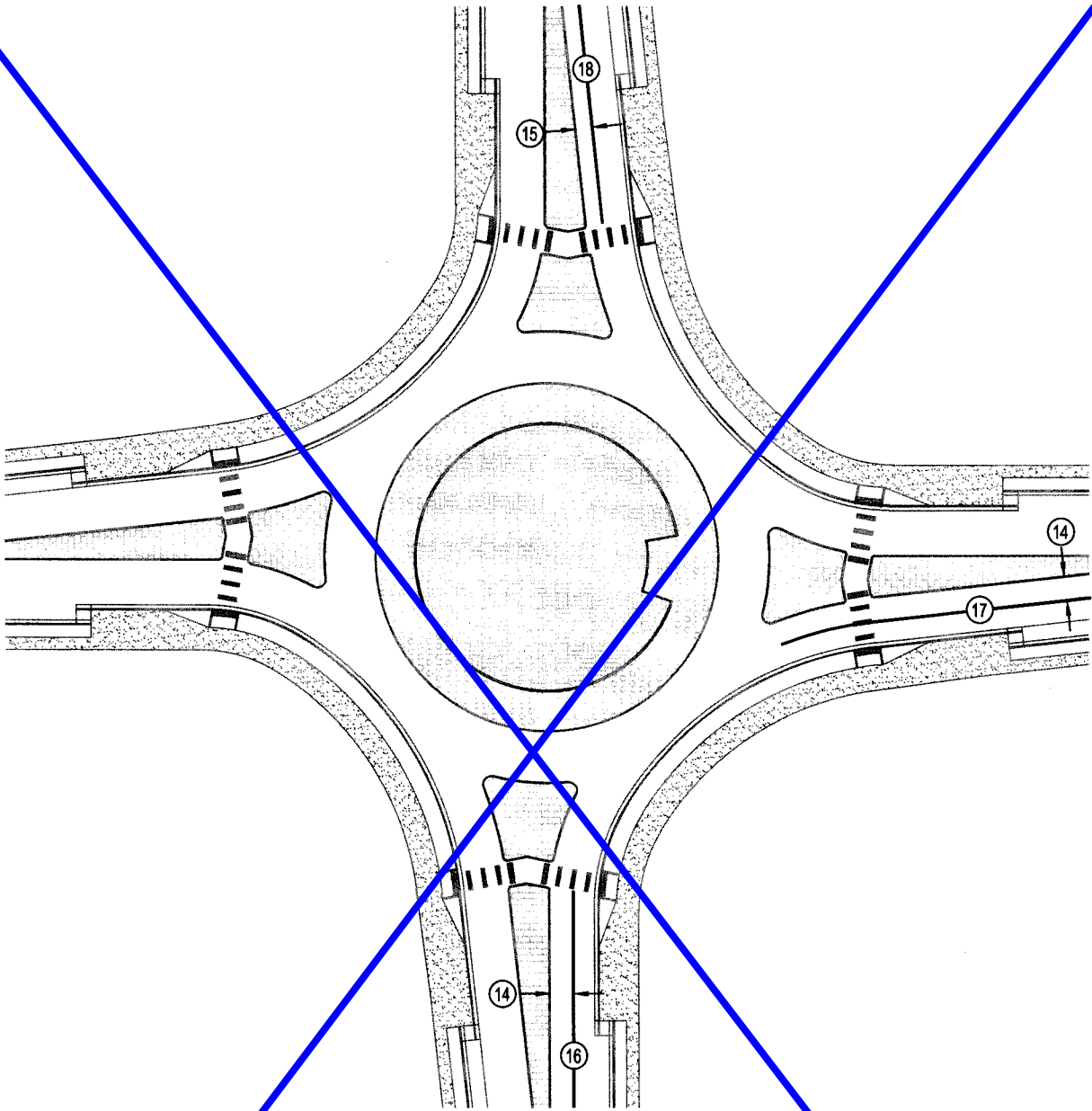
New Offset Measurements

Steps 14 to 15

- Step ⑭ — Draw A Straight Line From The Center Of The Roundabout, Perpendicular To The Circle Drawn In Step ⑪ , And Measure The Distance Along This Line From The Center Island Curb (Outside Of Truck Apron Curb If Present) To Circle ⑪ .
- Step ⑮ — Draw A Straight Line From The Center Of The Roundabout, Perpendicular To The Circle Drawn In Step ⑬ , And Measure The Distance Along This Line From The Center Island Curb (Outside Of Truck Apron Curb If Present) To Circle ⑬ .

ACHD FASTEST PATH PROCEDURE

Procedure #3 – Tight Exit
Revised: November 30, 2010



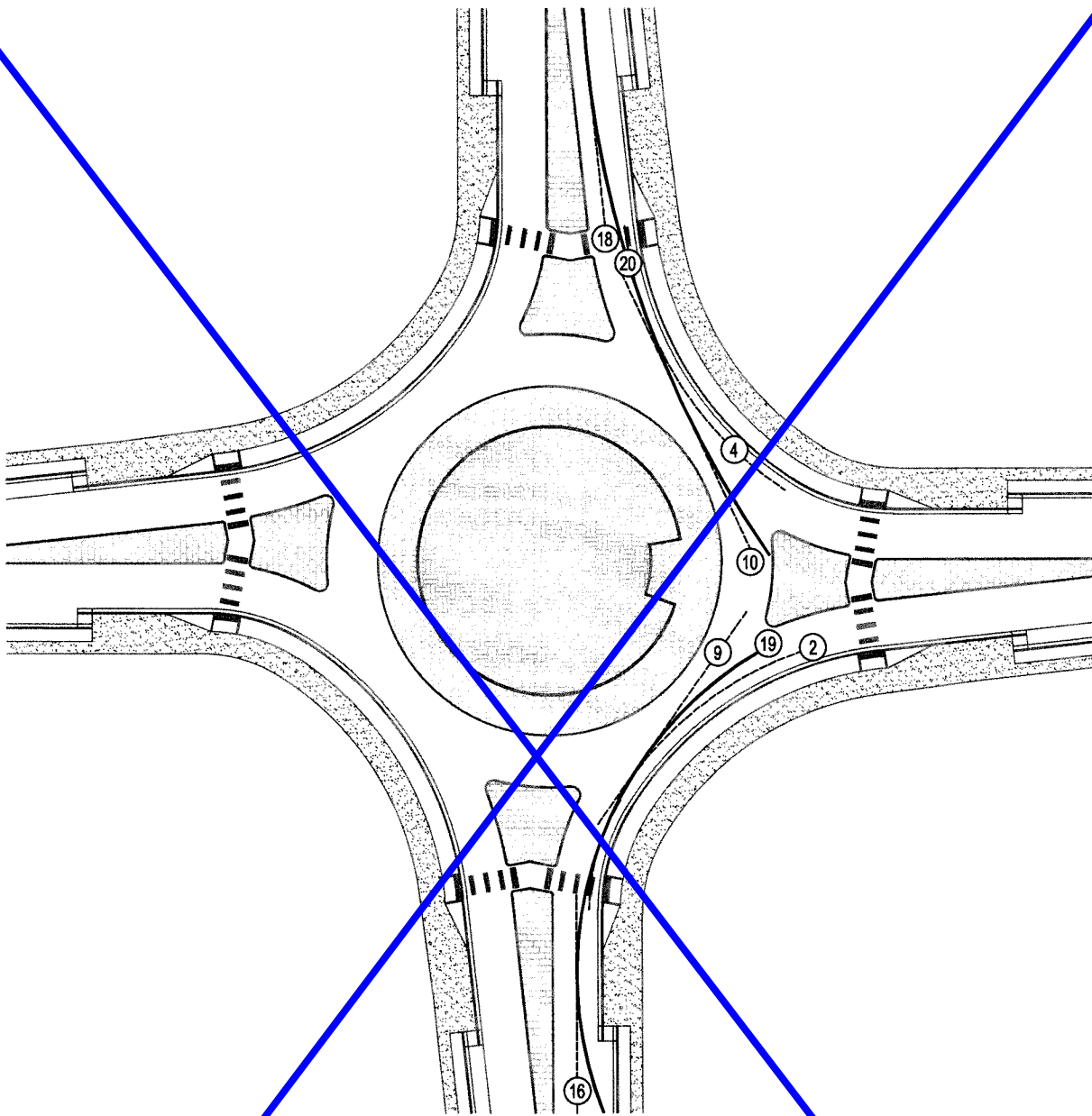
Fastest Path Layout

Construction Offset Lines
Steps 16 to 18

- Step ①⑥ – Offset The Inside Approach Curb By The Distance Measured In Step ①④ Toward The Outside.
- Step ①⑦ – Offset The Inside Right-Turn Departure Curb By The Distance Measured In Step ①④ Toward The Outside.
- Step ①⑧ – Offset The Inside Departure Curb By The Distance Measured In Step ①⑤ Toward The Outside.

ACHD FASTEST PATH PROCEDURE

Procedure #3 — Tight Exit
Revised: November 30, 2010



Fastest Path Layout

Measurement Circles
Steps 19 to 20

- Step 19 — Draw A 3 Point Circle, Tangent To The New Inside Approach Offset Drawn In Step 16, The Outside Entry Offset Drawn In Step 2, And The Straight Line Drawn In Step 9.
- Step 20 — Draw A 3 Point Circle, Tangent To The Straight Line Drawn In Step 10, The Outside Exit Offset Drawn In Step 4, And The New Inside Departure Offset Drawn In Step 18.

Fastest Path Values

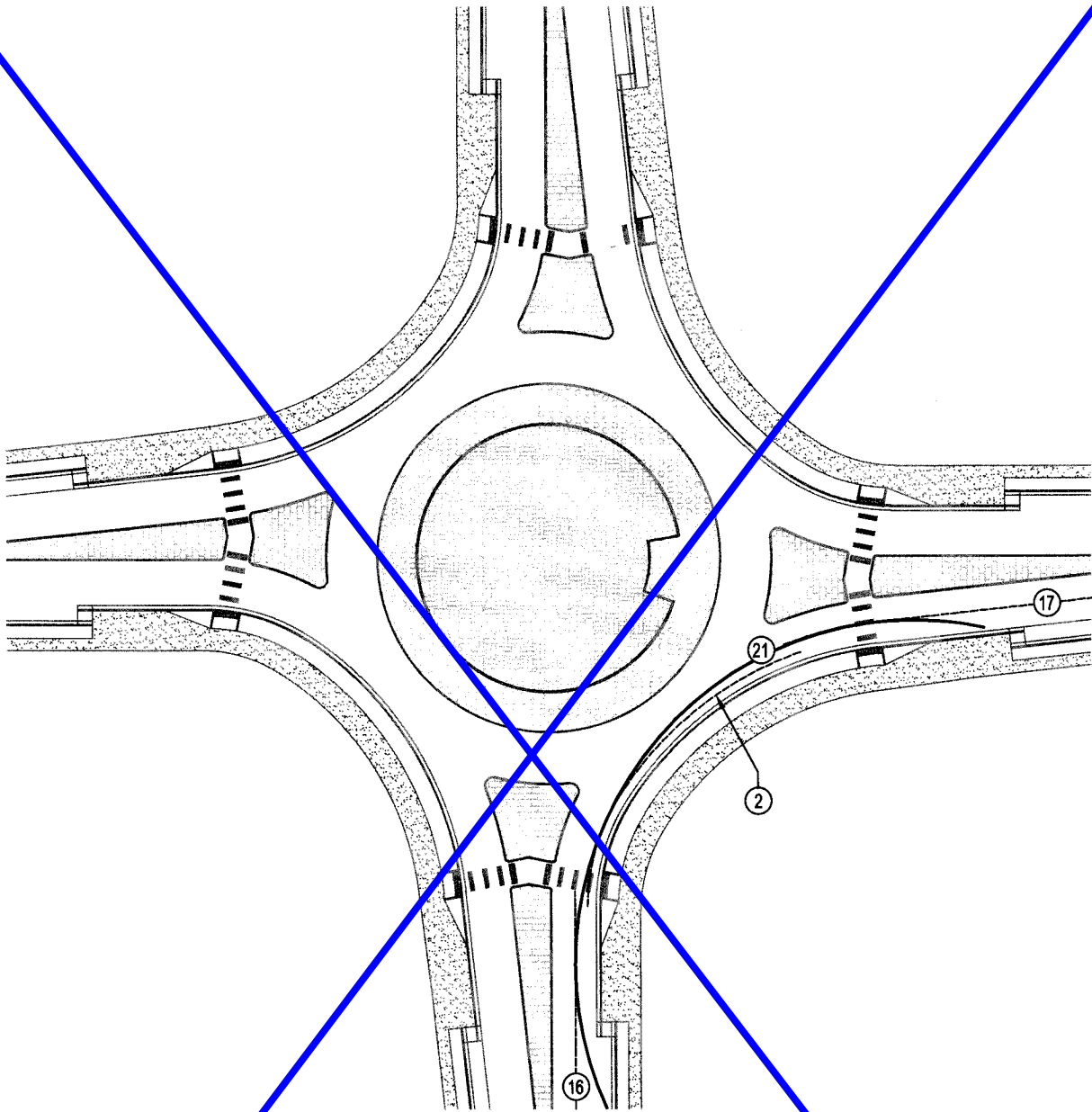
R1 = The Radius Of The Circle Drawn In Step 19

R3 = The Radius Of The Circle Drawn In Step 20

NOT REVIEWED

ACHD FASTEST PATH PROCEDURE

Procedure #3 – Tight Exit
Revised: November 30, 2010



Fastest Path Layout

Measurement Circle
Step 21

Step 21 – Draw A 3 Point Circle, Tangent To The Inside Approach Offset Drawn In Step 16 , The Outside Entry Offset Drawn In Step 2 , And The The Inside Right-Turn Departure Curb Offset Drawn In Step 17 .

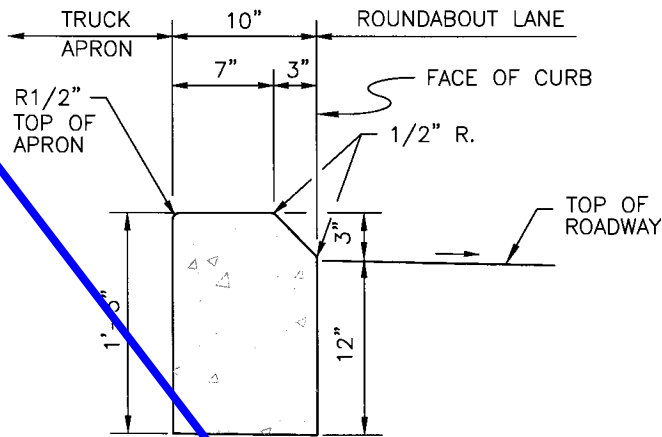
Fastest Path Values

R5 = The Radius Of The Circle Drawn In Step 21

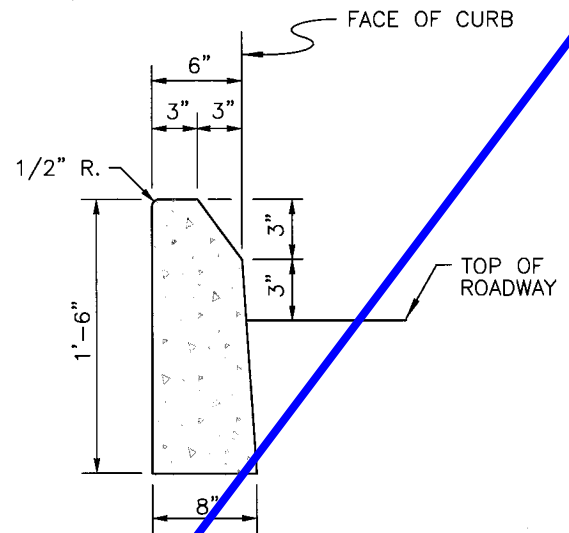
NOT REVIEWED

Appendix B

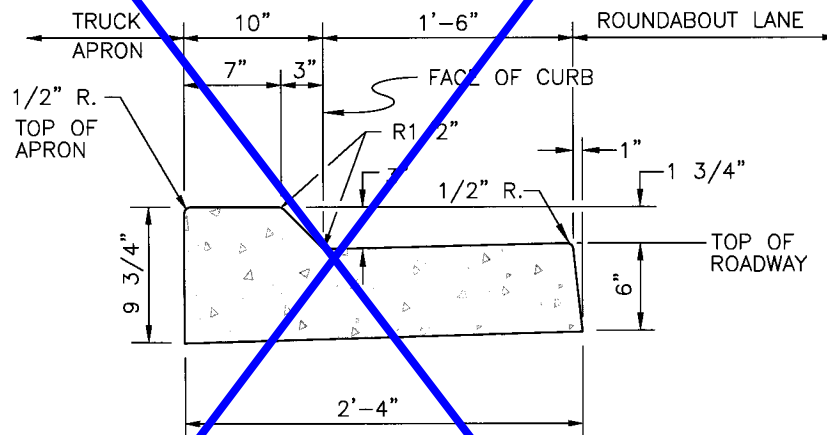
ISPWC SD-701B
(Roundabout Standard Curb Drawing)



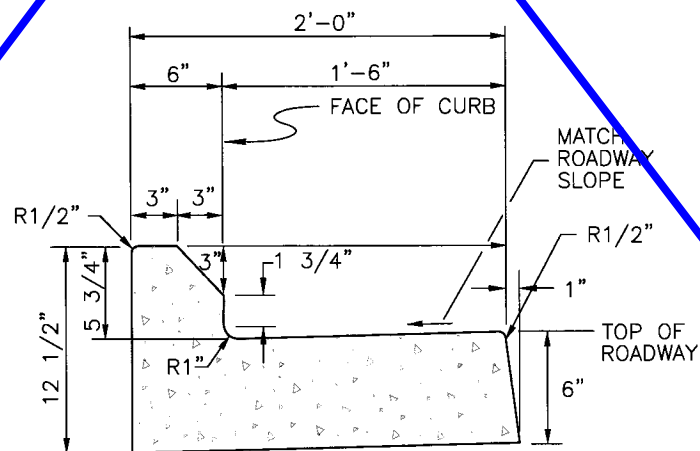
3" MOUNTABLE TRUCK APRON CURB
(NO GUTTER)



6" ROUNDABOUT CURB
(NO GUTTER)



3" MOUNTABLE TRUCK APRON CURB AND GUTTER



6" ROUNDABOUT CURB AND GUTTER

ACHD REVISION 2010

IDAHO STANDARDS
FOR PUBLIC WORKS
CONSTRUCTION

MOUNTABLE
ROUNDABOUT CURB
NOT REVIEWED BS

STANDARD DRAWING
NO. SD-701B

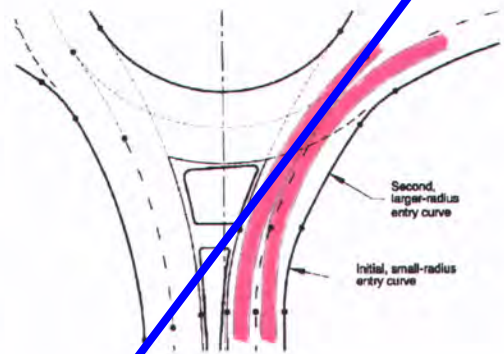
Appendix C

Design Parameter Checklist Assistant

Appendix C
Design Parameter Checklist Assistant

Natural Paths

1. Has every movement from each lane on each approach been included?
2. Do the entry paths point vehicles toward their lane in the circulating roadway, toward another lane, or toward an island?
3. If vehicles followed the lane and curb lines precisely, would they be required to make any sharp or sudden changes in direction or speed?
4. If that vehicle does not change its path sharply or its speed suddenly would it strike a curb or overlap an adjacent vehicle's path?



Fastest Paths

1. Has every movement from each approach been included?
2. Have the fastest paths been drawn by hand (or by an ACHD approved method if drawn by computer)?
3. Are they offset 5 ft from curbs (or 3 ft from stripes if no curb) at the closest point?
4. Have consecutive paths been drawn to approximate the shortest travel time? (A driver would not maximize entry speed if that would require a slower circulating speed.)
5. Have the speeds been measured at the slowest point on each of the paths and adjusted for the super-elevation at that point?
6. Have the exit speeds been calculated both ways? (The circulating speed + acceleration will control if it is slower than the speed determined by the exit radius. Acceleration is 7 ft/sec^2 for half the distance between the circulating speed location and the exit speed location)
7. Do any of the entry speeds exceed 20 mph (25 mph for multilane entries)?
8. Do any of the consecutive speeds differ by more than 6 mph (12 mph for multilane entries)?
9. Do any of the conflicting speeds differ by more than 6 mph (12 mph for multilane entries)?

Wheel & Swept Paths

1. Has every movement from every approach been included?
2. Have the appropriate design vehicles been used for each movement?
3. Is each path drawn the way a driver would actually drive it? (Long trucks will straddle both lanes on the entry, circle, and exit of multilane roundabouts; cabs will not use truck aprons.)
4. Are all paths offset at least 2 ft from adjacent paths and 1 ft from roundabout curb, except semi-truck trailers on truck aprons, at the closest point?

Grading

1. Are all lanes and truck aprons sloped toward the outside of the roundabout?
2. Are the slopes across the lanes (to the ends of the splitter islands) and truck aprons between 1.5% and 2.5%?
3. Are the slopes in the direction of travel around the circle between -4% and +4%?
4. Does the transition from the approach roadway to the circulating roadway have any sudden grade changes?

Appendix C Design Parameter Checklist Assistant

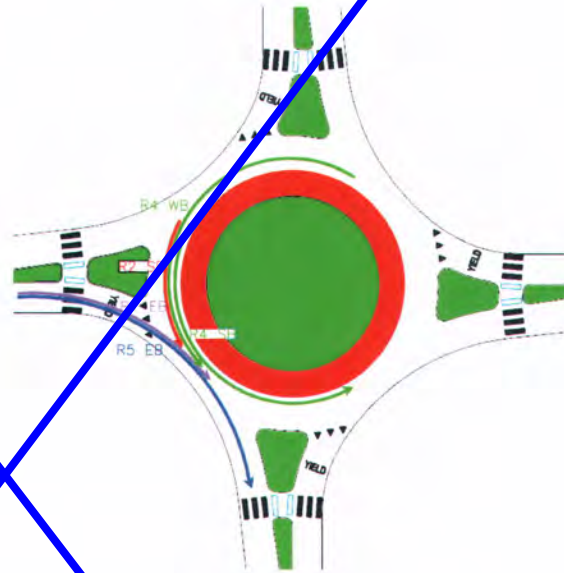
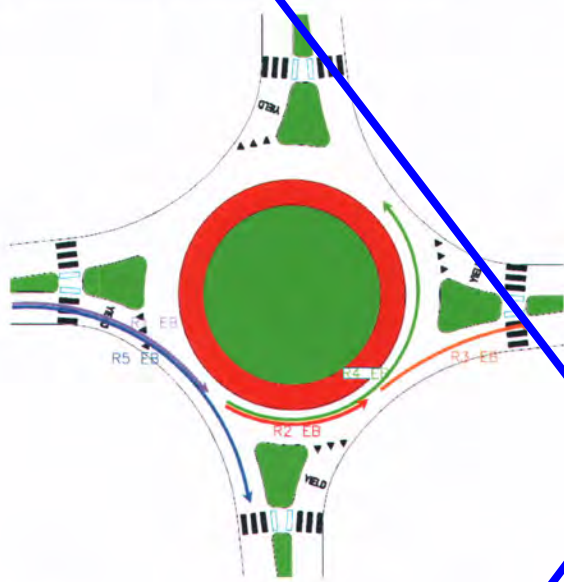
Fastest path example template for a standard 4-leg single-lane roundabout (the arrows below depict direction only, the actual fastest paths will overlap):

Eastbound Approach

R1 (Entry)	R4 (LT)	R3 _{rad} (Exit)	R3 _{min}
R5 (RT)	R2 (TH)	R3 _{acc} (Exit)	

EB Conflicting Speed Comparison

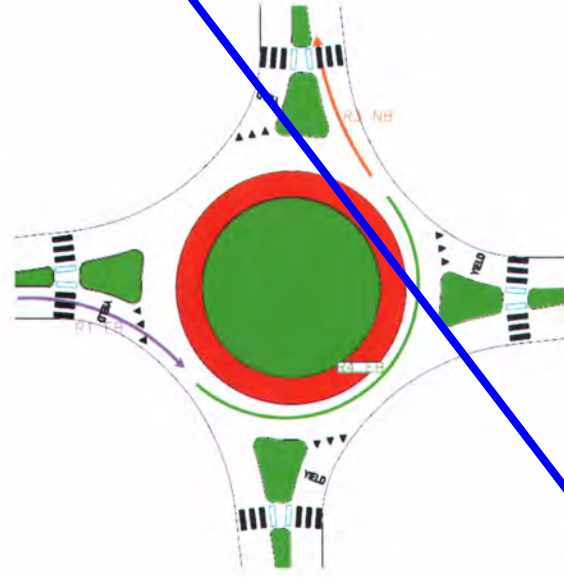
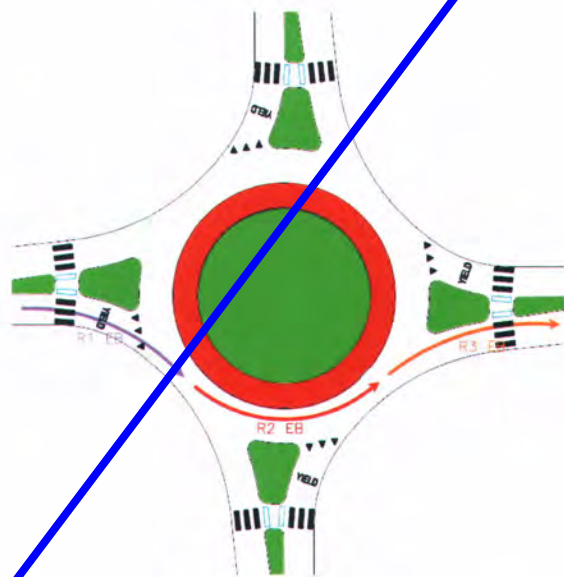
R1 (EB), R5 (EB), R2 (SB), R4 (WB), R4 (SB)



EB Consecutive Speed Comparison

R1 (EB), R2 (EB), R3 (EB)

R1 (EB), R4 (EB), R3 (NB)



Appendix C
Design Parameter Checklist Assistant

Northbound Approach

R1 (Entry)	R4 (LT)	R3 _{rad} (Exit)	R3 _{min}
R5 (RT)	R2 (TH)	R3 _{acc} (Exit)	

NB Conflicting Speed Comparison

R1 (NB), R5 (NB), R2 (EB), R4 (SB), R4 (EB)

NB Consecutive Speed Comparison

R1 (NB), R2 (NB), R3 (NB)
R1 (NB), R4 (NB), R3 (WB)

Westbound Approach

R1 (Entry)	R4 (LT)	R3 _{rad} (Exit)	R3 _{min}
R5 (RT)	R2 (TH)	R3 _{acc} (Exit)	

WB Conflicting Speed Comparison

R1 (WB), R5 (WB), R2 (NB), R4 (EB), R4 (NB)

WB Consecutive Speed Comparison

R1 (WB), R2 (WB), R3 (WB)
R1 (WB), R4 (WB), R3 (SB)

Southbound Approach

R1 (Entry)	R4 (LT)	R3 _{rad} (Exit)	R3 _{min}
R5 (RT)	R2 (TH)	R3 _{acc} (Exit)	

SB Conflicting Speed Comparison

R1 (SB), R5 (SB), R2 (WB), R4 (NB), R4 (WB)

SB Consecutive Speed Comparison

R1 (SB), R2 (SB), R3 (SB)
R1 (SB), R4 (SB), R3 (EB)



Encroachments/Obstructions

Removal & Mitigation Procedures

Encroachment/Obstruction – Defined

- Encroachments include, but are not limited to, any gate, building, private sign, mailbox, facility, structure, object, hedge, tree, shrubbery, fence, or wall that is placed on, over, beneath, or within or otherwise encroaches into any portion of any highway or any public right-of-way.
- Sight Obstructions include, but are not limited to any gate, building, private sign, mailbox, facility, structure, object, hedge, tree, shrubbery, fence, or wall that that interferes with driver vision.

Actual Notice

- Clear and concise verbal communication to a Commissioner or an employee; in person, or by telephone call/voice mail
- Clear and concise e-mail via Tellus or ACHD smart phone application, or directly to a staff member's work e-mail
- Clear and concise letter to the District, a Commissioner or an employee
- Clear and concise written public meeting comment
- Direct and documented observation by an employee

Transmit for Review

- Forward Notice to Traffic Engineering for field review

OR

- Roadside Vegetation Crew for immediate action

Determine Required Action

- Remove without Notice - Meets criteria in 40-2319(2) – obstructs and prevents use of an open highway by v

- Action

**NOT REVIEWED - COORDINATE
ENCROACHMENT REMOVAL & MITIGATION
PROCEDURES WITH SECTION 5104.3. IT
APPEARS THAT THE PROCEDURE LISTED IN
THIS APPENDIX HAS CHANGED BASED ON
THE REQUIREMENTS OF 5104.3.**

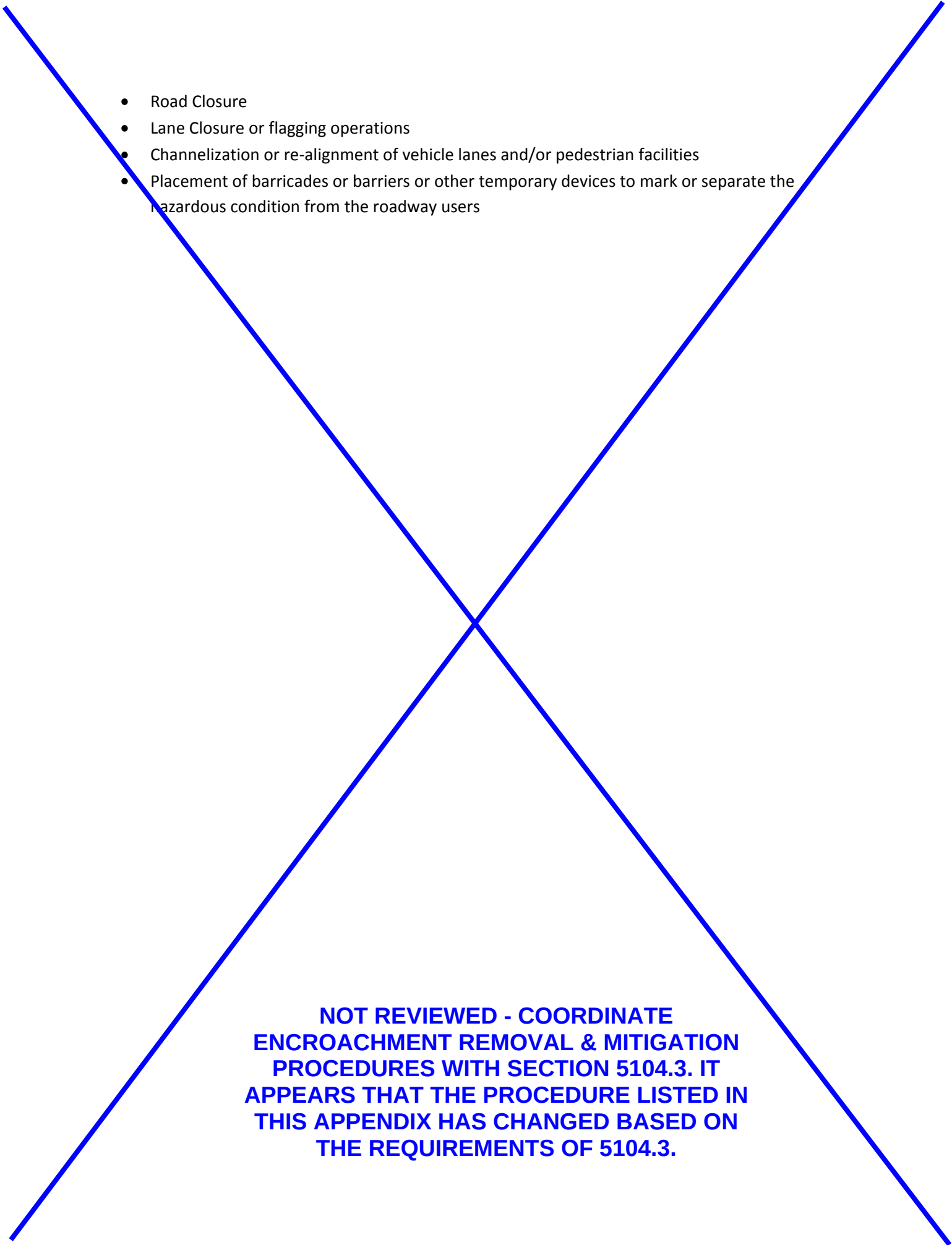
- Action by Zone Inspection (activities requiring permits – could also apply to Capital Projects and Subdivisions) for:
 - Dumpsters
 - Material Storage Containers
 - Construction Materials (e. g., gravel, lumber, steel)
 - Temporary Traffic Control Devices (improperly positioned or not in active use)
- Emergency Action (Storm/Natural Disaster) – potentially all the above, plus:
 - Coordination with utilities
 - Coordination with city public works staff
 - On-call Maintenance Supervisors at Cloverdale or Adams (depending on location of event)
- Require Owner to Remove Encroachment per 40-2319(1),(3) – encroachment does not constitute an effectual obstruction or unsafe condition
 - Provide 10-day notice to owner
 - If owner complies, document and close investigation
 - If owner fails to respond within 5 days of the 10-day notice period, District may remove at owner's expense
 - If owner responds but fails to remove after 15 days
 - Refer to City/County Code Enforcement - Vegetation
 - If owner complies, document and close investigation
 - If owner refuses removal:
 - Citation by Code Enforcement
 - Referral to Legal Department for Civil Action
 - Refer to Legal Department for Civil Action
- If suitable for License Agreement
 - Provide property owner License Agreement Application (Right-of-Way)
 - If owner does not apply for and sign License Agreement
 - Provide 10-day notice to owner
 - If owner signs License Agreement
 - Document and close investigation

Temporary Mitigation

Where an encroachment has a temporary nature of the encroachment, mitigation measures may be used, but are limited to:

NOT REVIEWED - COORDINATE ENCROACHMENT REMOVAL & MITIGATION PROCEDURES WITH SECTION 5104.3. IT APPEARS THAT THE PROCEDURE LISTED IN THIS APPENDIX HAS CHANGED BASED ON THE REQUIREMENTS OF 5104.3.

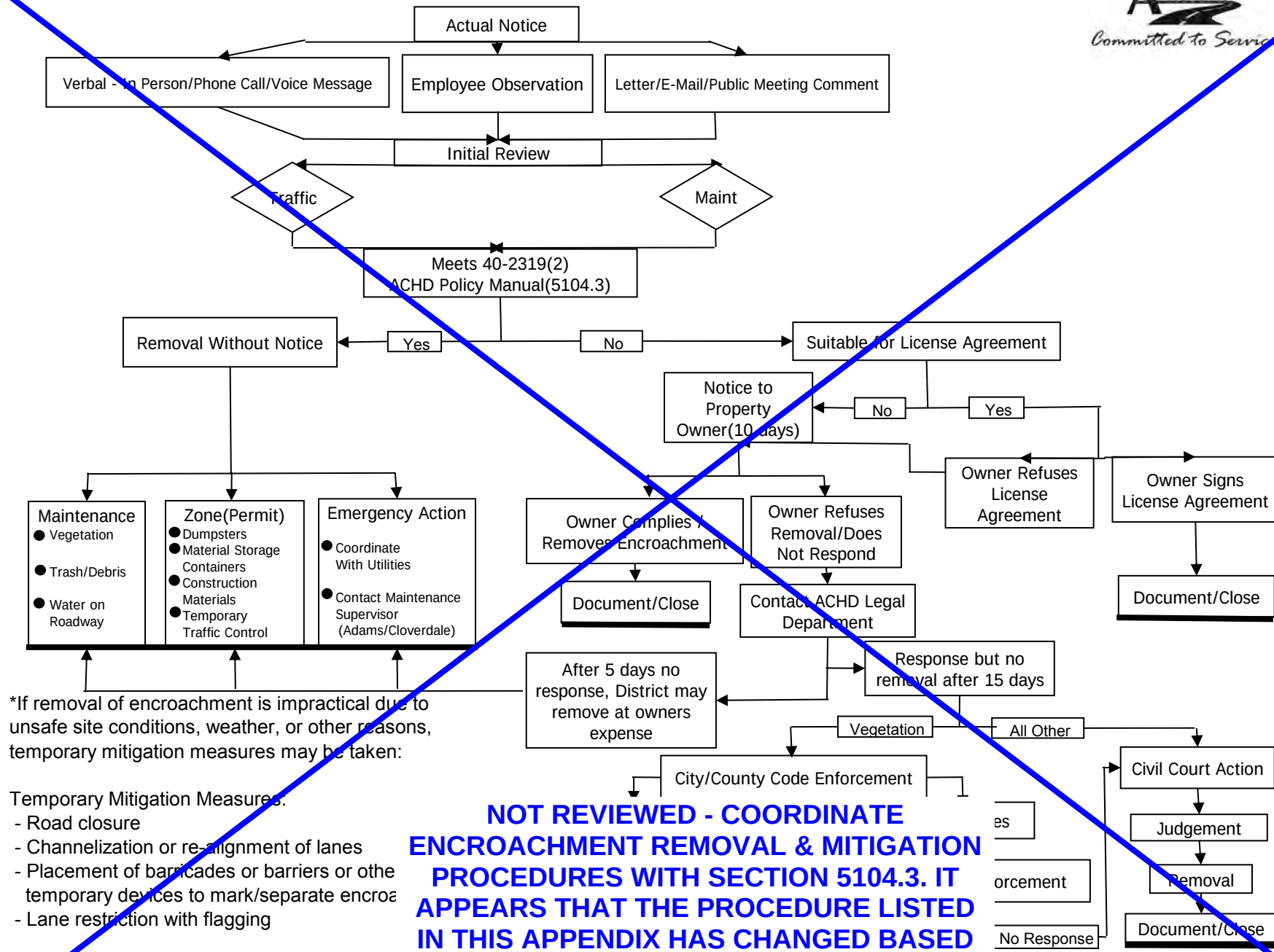
al due to the temporary nature of the encroachment, but not

- 
- Road Closure
 - Lane Closure or flagging operations
 - Channelization or re-alignment of vehicle lanes and/or pedestrian facilities
 - Placement of barricades or barriers or other temporary devices to mark or separate the hazardous condition from the roadway users

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ENCROACHMENT REMOVAL & MITIGATION
PROCEDURES WITH SECTION 5104.3. IT
APPEARS THAT THE PROCEDURE LISTED IN
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THE REQUIREMENTS OF 5104.3.**

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ACHD Encroachments/Obstructions



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contained in the ACHD QA/QC Procedure.

6004.3 Testing Technician Responsibilities

Testing technicians shall perform laboratory and field testing of materials according to established guidelines to determine compliance with minimum specification requirements.

6004.4 Uniformity of Inspection

ACHD personnel and consultants representing ACHD shall uniformly enforce compliance with ACHD standards and policy.

6004.5 Frequency of Testing

Materials and Inspection testing frequencies shall be performed as identified in the ISPWC. ACHD shall be responsible for Contractors/Developers shall be responsible for Quality Control Testing through a qualified Testing Technician.

6004.6 Final Inspections and Approvals

Final inspections of Subdivisions and Permits shall be performed at the request of the Permittee or the Developer.

1. Subdivisions and Permits under ACHD administration and inspection shall be final once all ACHD requirements of the development and/or Permit have been completed, and shall be effective when the permit is signed off by the ACHD Inspector; this shall commence the warranty period. For subdivisions with new public streets, final acceptance is effective and the warranty shall commence when the acceptance for maintenance letter is issued.

WORDING MAY CONFLICT WITH INVENTORY REQUIREMENTS OF AN ADA TRANSITION PLAN. REVISE WORDING TO REFERENCE INVENTORY OF BARRIERS CATALOGED FOR ADA TRANSITION PLAN AND INDICATE PROCEDURE FOR ADDRESSING BARRIERS AS DISCOVERED. WORDING SHOULD BE COORDINATED WITH WORDING IN TRANSITION PLAN.

6005 SIDEWALK

6005.1 Preamble - Construction, F

Prioritization of the construction, repair or removal of sidewalks by ACHD is a discretionary function. Operating within financial limitations pursuant to Section 40-1311, Idaho Code, and as authorized by Chapter 13, Title 40 and Chapter 14, Title 40, Idaho Code, ACHD does not actively identify dangerous or hazardous sidewalks and therefore, does not know all sidewalk locations within its jurisdiction which may be dangerous or hazardous. Whenever ACHD becomes aware of and determines a sidewalk to have a dangerous or hazardous defect pursuant to the criteria set forth in Section 6005.2, ACHD shall undertake reasonable efforts to warn the public of the dangerous or hazardous sidewalk and consistent with the provisions of this Section, ACHD shall cause the repair of any sidewalk determined to be dangerous or unsafe for public use in accordance with ACHD Ordinances, guidelines and standards. Any sidewalk defect that does not meet the criteria for a dangerous or hazardous defect as set forth in Section 6005.2 is presumed to be an insubstantial defect and the sidewalk is presumed to be reasonably safe and convenient for public travel.

6005.2 Criteria for Determining Dangerous or Hazardous Defects

Dangerous or hazardous defects

0.5 INCH (1/2") MAX

1. ~~0.75 inch (3/4")~~ vertical misalignment;
2. Missing sections or voids exceeding ~~0.75 inch (3/4")~~ in horizontal alignment;
3. Spalled or irregular surfaces, ~~0.75 inch (3/4")~~ or deeper.

PER 2011 PROWAG R302.7.2, VERTICAL SURFACE DISCONTINUITIES SHALL BE 13 MM (0.5 IN) MAXIMUM. VERTICAL SURFACE DISCONTINUITIES BETWEEN 0.25 IN AND 0.5 IN SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 50 PERCENT. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE VERTICAL SURFACE DISCONTINUITY. PER 2011 PROWAG R302.7.3, HORIZONTAL OPENINGS IN JOINTS SHALL NOT PERMIT PASSAGE OF A SPHERE MORE THAN 0.5 IN IN DIAMETER.

0.5 INCH (1/2") MAX

0.5 INCH (1/2") MAX

6005.3 Criteria for Determining Additional Adjacent Sidewalk Repairs

Federal Accessibility Standards:

1. ~~Greater than~~ 0.25 inch (1/4") vertical misalignment ~~or greater than~~ 0.50 inch (1/2") vertical misalignment ~~that has a 0.25 inch (1/4") beveled ramp on a 1:2 slope~~ ~~MAX.~~
2. 0.50 inch (1/2") ~~wide openings~~ ~~MAX~~

BETWEEN

AND

SHALL BE

WITH

6005.4 Responsibility for Sidewalk Repair

ACHD is responsible to repair most sidewalks in the public rights-of-way except as provided herein:

1. Property owners are responsible to repair carriage walks (i.e. the private sidewalk between the back of curb and the public sidewalk or the private sidewalk from the back of the public sidewalk leading to the house), driveway approaches, and any decorative concrete items within the public rights-of-way at their expense.
2. Sidewalks damaged by private property trees are the responsibility of the property owner.
3. Property owners are responsible for sidewalk damage caused by their activities.
4. Damage caused by third parties, including but not limited to, sprinkler systems or vehicles driving on curbs or sidewalks shall be the responsibility of the third party, if determined.

IDENTIFY PROCEDURE/PROCESS FOR REPAIR OF VERTICAL MISALIGNMENTS GREATER THAN 0.75 INCHES.

6005.5 Sidewalk Repair by Mutual Consent

Sidewalks with vertical misalignment in a range from 0.25 inch (1/4") to 0.75 inch (3/4") may be repaired through mutual consent between ACHD and the property owner.

1. Repair costs to be the responsibility of the property owner and ACHD.
2. Repairs shall be completed in a manner that complies with federal accessibility standards to include repairing the entire sidewalk adjacent to the affected property if necessary.
3. ACHD's participation in Mutual Consent repairs shall be fifty percent (50%) of the

cost and shall be limited by available resources. Mutual Consent repairs shall be lower priority than repairs for sidewalks with a designated hazardous defect.

CONFIRM THE REQUIRED REPAIRS WILL STILL BE COMPLETED. APPLICATION SHALL BE MADE AVAILABLE TO PUBLIC IN ACCESSIBLE FORMAT PER ACHD'S UPDATED ACCESSIBILITY POLICY

6005.6 Financial Hardship Waiver

Financial hardship appeals will be considered by ACHD when a property owner is responsible for the repairs. The Deputy Director of Maintenance and/or the Director have the authority to waive, in whole or in part, a property owner's responsibility to repair a sidewalk determined to be dangerous, unsafe, or unable to meet Federal Accessibility Standards when such repair would be an undue financial hardship for the property owner. An application for a financial hardship waiver must be in writing and it must be submitted to the Deputy Director of Maintenance. The application for a financial hardship waiver must specifically describe the undue financial hardship and it must be supported by adequate documentation demonstrating the property owner's current financial situation.

6006 FIVE YEAR MORATORIUM POLICY

6006.1 Five Year Moratorium

Where a newly constructed or repaved Highway surface has been in service for less than five (5) years, such Highway shall be termed a "Moratorium Highway". No cutting or excavation of a Moratorium Highway shall be permitted except with the written approval of the ACHD Pavement Cut Committee, or as provided herein.

6006.1.1 Exceptions.

Exceptions to this policy are as follows:

1. Emergencies due to utility failure that endanger life or property.
2. Interruption of essential utility services.
3. Work that is required by a City, the County or the State or mandated by City, County, State or Federal law or regulation.
4. Alleys- except those designated by ACHD.
5. Seal coat projects.

NOT REVIEWED

6006.1.2 Waiver Required

To cut or excavate in a Moratorium Highway, a waiver must be obtained from ACHD. To request a waiver, the applicant must submit a written request to the Deputy Director of Engineering or his/her designee. The request must include the following:

1. The location of the cutting or excavation.
2. Description of the work to be performed.
3. The reason(s) the work was not performed before the Highway was constructed or repaved.

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7200 TECHNICAL REQUIREMENTS

The purpose of Section 7200 is to outline the technical requirements and responsibilities for all developments including but not limited to requirements for street frontage improvements, right-of-way dedication, access, roadway design, stormwater, etc. The policies apply to both new development projects and to re-development projects and are intended to provide for the safe and efficient movement of people and goods on the street system within Ada County. These policies are also intended to allow for reasonable and safe traffic flow and access for future users of the roadways.

These policies will be implemented and applied when a property owner/developer submits a development application to one of the lead land use agencies within Ada County (i.e. one of the six cities or the County). In certain situations the applicant may not be required to submit to a lead land use agency, but the same policies will be applied.

7201 STREET CLASSIFICATION

7201.1 General

The functional classifications of new streets constructed under the District's jurisdiction are as follows: Principal Arterial, Minor Arterial, Collector, Local, Commercial, and Industrial.

7201.2 Functional Street Classification

Urban and Rural Functional Street Classification maps are prepared by the Community Planning Association of Southwest Idaho (COMPASS) and adopted by its member agencies, including the District. The maps depict the current arterial street designations.

Some future arterials are shown on the maps, but not all are indicated.

ACHD has adopted the Master Street Map (Section 3111). The Master Street Map consists of two main components. The first component is a map that depicts roadway typologies (described in the Livable Street Design Guide), street codes, and existing and proposed collector streets. The second component is a spreadsheet that contains detailed information about each street segment identified on the map.

7202 ACCESS MANAGEMENT

7202.1 General

Access management is the control of the location, spacing, design and operation of driveways, median openings, and street connections to a roadway. Access management principles help guide decisions involving land use planning, corridor design, traffic operation and land development.

7202.2 Purpose, Benefits, and Goals of Access Management

The purpose of access management is to optimize the capacity, operations and safety of a roadway through a cooperative plan.

If management of access locations and design is not successful, the ability to provide acceptable long-term capacity, travel times and safety will be diminished. Furthermore, the effectiveness of future roadway widening efforts will be compromised. Benefits of access management are not limited to individual motor vehicles, but extend to other modes using the corridor, such as transit, pedestrians, and bicycles.

Using a combination of strategies derived from land use planning, transportation planning, traffic engineering, roadway design, and law, Access Management accomplishes the following:

- Helps maintain travel mobility for the efficient movement of goods and services.
- Helps preserve the public investment in the roadway system by maintaining the functional performance of existing roadways as intended.
- Promotes sustainable land use patterns while preserving the investment in commercial, residential, and other developments that depend on reliable transportation performance.
- Improves safety and capacity by using turn lanes to enter and exit the highway thereby limiting vehicle speed differences, decreasing the likelihood of a crash and reducing delay for the through movement.
- Increases safety by reducing the number of potential vehicle conflict points, and reducing motor vehicle crashes.

7202.3 Principles of Access Management

- Provide a specialized roadway system. Different types of roadways serve different functions. It is important to design and manage roadways according to the primary functions that they are expected to serve.
- Limit direct access to major roadways. Roadways that serve higher volumes of regional through traffic need more access control to preserve their traffic function and capacity. Frequent and direct property access is more compatible with the function of local and collector roadways.
- Promote intersection hierarchy. An efficient transportation network provides appropriate transitions from one classification of roadway to another.
- Locate signals to favor through movements. Long, uniform spacing of intersections and signals on major roadways enhances the ability to coordinate signals and ensure continuous movement of traffic at the desired speed. Failure to carefully locate access connections, or median openings that later become signalized, can cause substantial increases in arterial travel times.
- Preserve the functional area of intersections and interchanges. The functional area of an intersection or interchange is the area that is critical to its function. This is the area where motorists are responding to the

intersection or interchange, decelerating, and maneuvering into the appropriate lane to stop or complete a turn. Access connections too close to intersections or interchange ramps can cause serious traffic conflicts that impair the function of the affected facilities.

- Limit the number of conflict points. Drivers make more mistakes and are more likely to have collisions when they are presented with the complex driving situations created by numerous conflicts.
- Separate conflict areas. Drivers need sufficient time to address one potential set of conflicts before facing another. The necessary spacing between conflict areas increases as travel speed increases, to provide drivers adequate perception and reaction time.
- Remove turning vehicles from through-traffic lanes. Turning lanes allow drivers to decelerate gradually out of the through lane and wait in a protected area to complete a turn, thereby reducing the severity and duration of conflict between turning vehicles and through traffic. They also improve the safety and efficiency of roadway intersections.
- Use non-traversable medians to manage left-turn movements. Medians channel turning movements on major roadways to designated locations. Therefore, non-traversable medians and other techniques that minimize left turns or reduce conflicts can be especially effective in improving roadway safety. Full median openings, which allow left turns from either direction, are best provided at signalized intersections and unsignalized junctions of arterial and collector streets. Full median openings in other unsignalized locations can adversely affect safety and traffic flow, but may be appropriate in some areas where analysis indicates that traffic operations and safety would be improved.
- Provide a supporting street and circulation system. Well planned communities provide a supporting network of local and collector street to accommodate development, as well as unified property access and circulation systems. Interconnected street and circulation systems provide alternative route for bicyclists, pedestrians, and drivers alike. Alternatively, commercial strip development with separate driveways for each business forces even short trips onto arterial roadways, thereby impeding safety and mobility. Connectivity can be maintained while advancing access management objectives for arterial roadway by ensuring that local street connections to the arterial conform with the adopted connection spacing interval.

7202.4 Access Management Tools

7202.4.1 Cross Access Easements/Shared Access

Cross access utilizes a single vehicular connection that serves two or more adjoining lots or parcels so that the driver does not need to re-enter the public street system.

7202.4.2 Temporary Access

Access that is permitted for use until appropriate alternative access becomes available. Temporary access may be granted through a development

Agreement or similar method, and the developer shall be responsible for providing a financial guarantee for the future closure of the driveway.

7202.4.3 Frontage/Backage and Local Access Service Roads

A frontage/backage road is an access road that generally parallels a major public roadway between the public roadway and the front building setback line; or behind a building. A frontage/backage road provides direct lot access to private properties while separating them from the principal roadway.

7203 DEVELOPMENT REQUIREMENTS

7203.1 General

Developers are responsible for providing an acceptable means of vehicle and pedestrian access to and from a dedicated, improved public street. Developers shall be required to improve their public street frontage as outlined in the forthcoming sections.

7203.2 Exceptions to Usual Performance Requirements

If a proposed development abuts a street that has already been improved to current District standards, the developer will not have any requirement for street improvements except as required by Sections 7203.3 and 7300.

If a proposed development is for a land use with the potential of generating less than ten additional vehicle trips per day, the developer shall have no requirement except as required by Sections 7203.3 and 7300.

If a proposed development involves a land use of scale or nature that exceeds the traffic capacity of the adjacent system or presents an unreasonable financial burden on the District, the development standards may be increased. The District reserves the right to set standards, require additional improvements, or require extraordinary impact fees related to the scale of the proposed project and the capacity limitations of the existing facilities. (See Section 7300.)

If a proposed development abuts a street that the District has programmed for improvement, the developer will have no requirement for improvements of the adjacent street if the District has formally awarded a contract for the construction of the street improvements before the development application is received; and the District's project includes all improvements required of the development by the DEVELOPMENT POLICY MANUAL.

7203.3 Minor Improvements

Minor improvements to existing streets adjacent to a proposed development may be required. These improvements are to correct deficiencies or replace deteriorated facilities. Included are sidewalk construction or replacement; curb and gutter construction or replacement; replacement of unused driveways with curb, gutter and sidewalk; installation or reconstruction of pedestrian ramps; pavement repairs; signs; traffic control devices; and other similar items.

7203.4 Improvement Standards

All improvements shall be made in accordance with Subsection 7205, "Design Elements."

7203.5 Public Rights-of-Way Trust Fund

If the District determines that it is necessary or desirable to defer making some or all of the required improvements, the developer shall contribute the estimated value of the improvements to the Public Rights-of-Way Trust Fund. ACHD will determine the value. In general, this will be limited to those roadways scheduled in the District's Five Year Work Plan.

7203.6 Capital Contributions

The District, with the consent of the developer, may increase the developer's construction program to add roadway capacity or improvements beyond those normally required of the developer by this Policy Manual. Those improvements must be identified as impact fee eligible in the current Capital Improvements Plan.

Reimbursement to the developer for these capital improvements may be made by any of the methods described below, and the District shall approve the repayment method in writing in advance of construction. All of the methods described below require that a development agreement be executed by both parties prior to engineering or construction of improvements.

The reimbursement may be in the form of an offset against future impact fees, according to Section 7300. The District may make reimbursement by a cash payment on completion and acceptance of the improvements or conveyance of the right-of-way.

7203.7 Adopted and Referenced Plans

The District conducts corridor studies and participates in area plans that are led by the lead land use agencies. These studies and plans provide a more in-depth review and analysis of specific areas and corridors and often make specific recommendations regarding street sections, access control and spacing. As these plans are adopted by the lead land use agencies and ACHD with specific implementation strategies for access control or street design and layout, the plan policies and recommendations will supersede standard policy. Development applications that are located within a specific area plan boundary or within the boundary of a corridor study shall be reviewed in accordance with the implementation strategies of these plans and studies. The ACHD Right-of-Way and Development Services Department shall maintain a list of these adopted plans, including effective dates, as well as copies of the plan documents.

7204 DESIGN ELEMENTS

7204.1 General

The design elements in this section of the Policy Manual are to be used with the adopted District standards and specifications, along with the policies outlined in other sections of this Manual.

If the District requires more stringent design elements due to terrain or other local conditions, the developer shall conform to the more stringent design standards. The more stringent design requirements shall be shown on the construction plans.

Good engineering practices are essential.

7204.2 Plan Requirement

The content of the street improvement plans shall be in accordance with Section 7105.

7205 ARTERIAL STREETS

7205.1 General

Principal arterials serve the major regional centers of activity of a metropolitan area, the higher traffic volume corridors, and the longer trips while carrying a higher proportion of the total urban areas travel on a minimum of roadway mileage. Principal arterials carry the major portion of trips entering and leaving the urban area, as well as the majority of through movements. To preserve the long term functionality of such roadways, they should have more access control than a minor arterial.

Minor arterials interconnect with and augment the principal arterial system and provide service to trips of shorter length at a lower level of travel mobility than principal arterials. Minor arterials also distribute travel to geographic areas smaller than those identified with the higher systems. This classification includes all arterials not included in a higher classification and places more emphasis on land access than principal arterials. Such roadways should still have limited access with less access control than a principal arterial, but more than a collector.

7205.2 Development Requirements

7205.2.1 Adjacent Streets and Required Improvements

The developer is responsible for improving all street frontages adjacent to the site as identified below regardless of whether access is taken to all of the adjacent streets.

All utility relocation costs associated with improving street frontages adjacent to the site shall be borne by the developer (See Section 7107).

a. Frontage Improvements – Sidewalk

Required improvements to an arterial shall consist of a 7- foot wide (minimum) sidewalk if located adjacent to the curb, or a 5-foot wide (minimum) sidewalk if located 6-feet or more behind the curb. Refer to the District's Tree Planting Policy if trees are to be placed within the parkway strip.

✓ Detached sidewalks are encouraged and should be parallel to the adjacent roadway. ✓ Weandering sidewalks are discouraged.

Easements shall be provided if sidewalks are located outside of the right-of-way. The easement shall encompass the entire area from the right-of-way line to 2- feet behind the back edge of the sidewalk. Sidewalks shall either be located wholly within the public right-of-way or wholly within an easement.

Outside an Area of Impact, the District may consider waiving the requirement to construct sidewalk along the arterial roadway. If this waiver is granted other requirements may be established to accommodate pedestrians and non-motorized travel.

b. Frontage Improvements – Pavement Widening

The developer shall widen the pavement to a minimum of 17-feet from centerline plus a 3-foot wide gravel shoulder adjacent to the entire site. Curb, gutter, and additional pavement widening may be required (See Section 7205.5.5).

c. Right-of-Way Dedication

The District will provide compensation for additional right- of-way dedicated beyond the existing right-of-way along arterials listed as impact fee eligible in the adopted Capital Improvements Plan using available impact fee revenue in the Impact Fee Service Area.

No compensation will be provided for right-of-way on an arterial that is not listed as impact fee eligible in the Capital Improvements Plan.

The District may acquire additional right-of-way beyond the site-related needs to preserve a corridor for future capacity improvements, as provided in Section 7300.

Standard Right-of-Way Widths

7-lane arterial = 120-feet

5-lane arterial = 96-feet

3-lane arterial = 70-feet

d. Off-Site Streets

If the proposed development is not served by a public street that is fully improved to urban standards (curb, gutter, sidewalk) or a minimum 30-feet of pavement, then the developer shall provide 30-feet of pavement with 3-foot wide gravel shoulders from the site to the public street specified by the District, typically to the nearest public street that meets the District's minimum standards or a maximum of ¼ mile; OR shall provide 24-feet of pavement with 3-foot wide gravel shoulders and a minimum 6-foot wide detached asphalt/concrete pedestrian facility from the site to the public street specified by the District, typically to the nearest public street that meets the District's minimum standards or a maximum of ¼ mile.

Alternatives to pavement widening including sidewalks and pathways, or other proposals may be considered by the District. The extent of roadway improvements (improvement type and length) will be determined by evaluating certain criteria. Criteria to establish improvement type and length include but are not limited to: traffic volumes (existing and projected); the posted speed limit; topography; accident history; potential need for bicycle and bus traffic/routes; number of pedestrians (existing and projected); location of pedestrian -attractors and -generators (i.e. parks and schools); number of access points/streets serving the proposed development; usable right-of-way; need for traffic calming; utilities and irrigation facilities. All utility relocation costs associated with the off-site street widening shall be borne by the developer.

Narrower street widths may be considered if pedestrian or bike facilities exist or if the proposed development is for ten (10) residential lots or fewer or will generate less than 100 VTD.

The District will consider the phasing of off-site improvements to the arterial roadway on a case-by-case basis if a phasing plan is approved by the lead land use agency. The required improvements must be constructed prior to the signature on the final plat that includes the 40th residential lot, or exceeds trip generation of 400 VTD.

e. Continuation of Streets

1. Consideration for Future Development

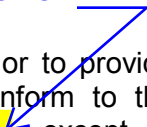
The street layout in a proposed development shall cause no undue hardship to adjacent property. An adequate and convenient access to adjacent property for use in future development may be required. If a street ends at the development boundary, it shall meet the requirements as described in this sub-section.

2. Existing Adjacent Development

An existing street, or a street in an approved preliminary plat, which ends at a boundary of a proposed development shall be extended in to that development. The extension shall include provisions for continuation of storm drainage facilities and other improvements.

3. Stub Streets

CONFIRM SECTION
REFERENCE



Stub streets will be required to provide circulation or to provide access to adjacent properties. Stub streets will conform to the requirements described in Section 7205.2.5.4, except a temporary cul-de-sac will not be required if the stub street has a length of less than 150-feet. In all cases, a sign shall be installed at the terminus of the stub street stating that "THIS IS A DESIGNATED ARTERIAL STREET. THIS STREET WILL BE EXTENDED AND WIDENED IN THE FUTURE."

In addition, a stub street must meet the following conditions:

- A stub street shall be designed to slope towards the nearest street intersection within the proposed development and drain surface water toward that intersection; unless an alternative storm drain system is approved by the District.
- The District may require covenants guaranteeing that the stub street will remain free of obstructions.

When analyzing the need for a stub street, the District will consider the following:

- Adopted corridor plans.
- Property size and configuration.

- Property size and configuration of adjacent parcels.
- Potential for redevelopment of adjacent parcels. Location of vehicular and pedestrian attracting land uses (i.e. schools, neighborhood commercial, etc.). Comprehensive Plan and Zoning designations.
- Needs of emergency service providers.
- Location of existing stub streets.
- Location of canals and necessary crossings, and the cost/benefit.
- Functional Classification of adjacent and nearby streets.

Benefits of Street Connectivity include, but are not limited to, the following:

- Reduces vehicle miles traveled.
- Maintains the efficiency of the arterial street. Increases and promotes pedestrian and bicycle activity and connectivity.
- Increases access for emergency services.
- Reduces the need for additional access points to the arterial street system.
- Improved transit operations.
- Promotes the efficient delivery of services including trash and mail.
- Promotes intra-neighborhood circulation to schools, parks, neighborhood commercial centers, etc.
- Promotes orderly development.

4. Temporary Dead End Streets

The design and construction requirements for cul-de-sac streets shall apply to temporary dead end streets. The developer shall construct a temporary cul-de-sac. The temporary cul-de-sac shall be paved and shall meet the dimensional requirements of a standard cul-de-sac. The developer shall grant a temporary turnaround easement to the District for those portions of the cul-de-sac which extend beyond the dedicated street right-of-way. In the instance where a temporary easement extends onto a buildable lot, the entire lot shall be encumbered by the easement and identified on the plat as a non-buildable lot until the street is extended.

7205.3 Traffic Considerations

The efficiency of the arterial network is critical, and the District's policies outline the location, spacing, and control of access points to the arterial system. Local traffic circulation systems in land developments, including local streets and driveways, should not reduce the efficiency of nearby major streets.

7205.3.1 Level of Service

Level of Service standards have been established for principal arterials and minor arterials within ACHD's Capital Improvement Plan and are also listed in Section 7106.

7205.3.2 Maximum Traffic on One Access

If a proposed development has only one access to a public street that is classified as an arterial, or if it proposes to extend public streets from existing developments with only one arterial access to the public street system, the maximum forecast ADT to be allowed at any point on the arterial is 5,000. This volume may be reduced or increased based on information received from the lead land use agency, and the applicable fire department, and/or emergency services. The District will also take into consideration the following items when determining whether or not to reduce or increase the maximum allowable ADT: railroad crossings, canal crossings, and topography (foothills vs. flat land).

7205.3.3 Street Patterns

To aid in the orderly development of an efficient transportation system, arterials are generally constructed in one-mile intervals located on section lines.

7205.3.4 Traffic Conflicts

Traffic volumes typically found on arterials can be in conflict with vehicular movements associated with adjacent land uses. Off-street parking, off-street maneuver areas, minimum direct lot access, and other circulation and design elements should be included in the layout of a development to minimize these conflicts.

7205.3.5 Pedestrians

- ✓ Pedestrian-vehicle conflict points should be minimized. Pedestrian walkways or sidewalks are to provide access from all adjacent property, to assure safe pedestrian travel in the area.

7205.3.6 Bicycles

Generally, improved arterials will have sufficient pavement width to accommodate automobile and bicycle traffic on both sides of the roadway.

7205.3.7 On-street Parking

On-street parking is typically prohibited on arterials. The District may consider on-street parking in central business districts. If on-street parking is allowed by the District, it may be removed in the future at the discretion of the District if safety conditions warrant. See Section 5104.3.5 for dimensional standards for diagonal parking and the requirements for a hold harmless agreement for parking within the right-of-way.

SEE COMMENTS REGARDING ACCESSIBLE ON-STREET PARKING IN SECTION 5104.4.3

7205.4 Access Considerations and Requirements

7205.4.1 Access Points

All access points associated with development applications shall be determined in accordance with the policies in this section and Section 7202. Access points shall be reviewed only for a development application that is being considered by the lead land use agency. Approved access points may be relocated and/or restricted in the future if the land use intensifies, changes, or the property redevelops.

7205.4.2 Signalized Collector Street Intersection Spacing on Minor and Principal Arterials

The optimum spacing for new signalized collector roadways intersecting minor arterials is one half-mile. In order to maintain the function of the arterial street system, the goal is to allow no more than one signal per mile (with connectivity within the square mile to that signal location). The spacing of signalized intersections on arterials is critical to traffic progression and the optimization of the arterial street system.

Deviations from the ½ mile spacing may be considered:

- To accommodate the design and layout of an existing collector street system.
- Within existing central business districts.
- If specified by an adopted Corridor Study or Specific Area Plan.
- If there are no other reasonable site design, access or circulation alternatives eliminating the need for a signal; and if there is a proven public necessity for the intersection; and a traffic signal study and traffic analysis reviewed and approved by the District verifies the need.

7205.4.3 Local Street Intersection Spacing on Arterials

New local streets should not typically intersect arterials. Local streets should typically intersect collectors. If it is necessary, as determined by ACHD, for a local street to intersect an arterial, the minimum allowable offset shall be as identified in Tables 1a and 1b below.

7205.4.4 Number of Driveways on Arterials

The intent of this policy is to limit the number of access points to those that are warranted or necessary to serve the development, while maintaining the function and performance of the arterial. The guidelines below shall be used when more than one access point is being requested with a development.

Additional driveways may be considered when one or more of the following conditions are met:

- The daily volume using one driveway exceeds 5,000 vehicles (total volume for entering and exiting traffic).

- Traffic using one driveway exceeds the volume to capacity ratio (v/c) equal to or greater than 1, of a STOP controlled intersection during either the peak hour of the street or the peak hour of the site traffic generation.
- A District approved traffic impact study and analysis determines that conditions warrant additional driveways.

7205.4.5 Driveway Spacing on Minor Arterials from Existing or Future Signalized Intersections

To determine if there is a single or dual left turn lane planned, refer to the ACHD Capital Improvement Plan (CIP). If the intersection is not listed in the CIP, then assume a single left turn lane. Dimensions shall be measured from the centerline of the intersection to the centerline of the driveway.

Single Left Turn Lane

If a driveway is approved by the District based on the policies listed above, then driveways located near a signalized intersection with an existing or planned single left turn lane shall be located:

- A minimum of 330-feet from the intersection for a right-in/right-out driveway; and
- A minimum of 600-feet from the intersection for a full-movement driveway.

Dual Left Turn Lane

Driveways located near a signalized intersection with an existing or planned dual left turn lane shall be located:

- A minimum of 330-feet from the intersection for a right-in/right-out driveway; and
- A minimum of 710-feet from the intersection for a full-movement driveway.

7205.4.6 Driveway Spacing on Minor Arterials (away from a signalized intersection)

- Direct lot or parcel access to a minor arterial is typically prohibited.
- If a property has frontage on more than one street, access shall be taken from the street having the lesser functional classification.
- Driveways located on an arterial may be prohibited when the property has frontage on one or more other public streets.
- For property with frontage on more than one street, access shall be provided from the street having the lower current or projected Average Daily Traffic Volume (ADT), and/or the lesser functionally classified street (i.e. frontage on arterial and collector, access shall be from collector). ACHD shall determine which street has the lower volume.

If it is necessary to take access to the higher classified street due to a lack of frontage, the minimum allowable spacing shall be based on Table 1a below. The spacing shall be measured from all other existing or approved driveway or intersecting street on either side of the Minor Arterial.

Table 1a: Access Spacing on Minor Arterials (away from a signalized intersection/successive spacing)

Posted Speed Limit	Minimum Separation for Unsignalized Collector Streets	Minimum separation for Local Streets	Minimum driveway separation
25 MPH	1,320'	660'	330'
30 MPH	1,320'	660'	330'
35 MPH	1,320'	660'	330'
40 MPH	1,320'	660'	330'
45 MPH	1,320'	660'	380'
50 MPH	1,320'	660'	425'

- Dimensions are to be measured centerline to centerline.

7205.4.7 Driveway Spacing on Principal Arterials

- Direct lot or parcel access to a principal arterial is typically prohibited.
- If a property has frontage on more than one street, access shall be taken from the street having the lesser functional classification.
- Driveways located on arterials may be prohibited when the property has frontage on one or more other public streets.
- For property with frontage on more than one street, access shall be provided from the street having the lower current and projected Average Daily Traffic Volume (ADT), and/or the lesser functionally classified street (i.e. frontage on arterial and collector, access shall be from collector). ACHD shall determine which road has the lower volume.
- If it is necessary to take access to the higher classified street due to a lack of frontage, the minimum allowable spacing shall be based on Table 1b below. The spacing shall be measured from any other existing or approved driveway or street on either side of the street.

Table 1b: Access Spacing on Principal Arterials

Posted Speed Limit	Minimum separation for Unsignalized Public Streets	Minimum driveway separation (right-in/right-out)
30 MPH	1,320'	355'
35 MPH	1,320'	355'
40 MPH	1,320'	400'
45 MPH	1,320'	450'
50 MPH	1,320'	520'

- All dimensions shall be measured centerline to centerline of the proposed driveway/street to the nearest driveway/street.
- Driveways, when approved on a principal arterial shall operate as right-in/right-out only. The District will require the construction of a raised median in the Principal Arterial to restrict the left turning movements on

the principal arterial.

- The District may consider a temporary full access driveway when the following conditions are met:
- It is a single lane principal arterial (one lane in each direction of travel), AND
- The road has less than 24,000 ADT, OR
- Traffic safety, operations and site conditions provide reasonable access to a parcel without placing an undue burden on the surrounding road network as determined by the District. Management level staff shall have authority to grant temporary full access under this policy, upon first making findings of fact, and conclusions based thereon, that:

- a. A parcel of real property proposed for development is so unusual in size, shape, location and/or physical condition that strict enforcement of one or more of the access standards contained in sections 7100 and 7200 of this Policy Manual would result in extraordinary economic and design hardships and practical difficulties, as distinguished from a mere inconvenience;
- b. Modifications of such standards will not jeopardize pedestrian and motorist safety or otherwise be injurious to other adjacent property or detrimental to public safety, health or welfare; and
- c. Conditions for the request for modification are unique to the property for which the modification is sought and are not applicable generally to other property; and
- d. The modification will not contravene the overall intent or effect of sections 7100 and 7200 of this Policy Manual.

- If granted, temporary access will be administered per Section 7202.4.3 (Temporary Access).

7205.4.8 Driveway Design Criteria

Driveways shall be designed in accordance with the criteria in Table 2 below. Additionally:

- All new driveways are required to be paved their full width and at least 30-feet into the site from the edge of pavement of the adjacent street.
- If a driveway is to be gated, the gate or keypad (if applicable) shall be located a minimum of 50-feet from the adjacent street and an on-site turnaround shall be provided.
- Driveways are to be identified on the construction drawings. The remaining frontage along an arterial roadway shall be identified as having no access.
- The throat length is measured from the back of curb of the intersecting street to the nearest drive aisle intersection. Adequate throat length allows stacking, or queuing to occur on site. This reduces driver confusion, traffic problems, and unsafe conditions, such as vehicles backing out onto the arterial, interrupting traffic flow.
- Raised medians may be used for traffic control and regulation. The District may require raised medians on arterials to restrict access. The District will require raised medians for a 7-lane roadway and/or where the

SHOULD THROAT LENGTH BE MEASURED FROM BACK OF WALK INSTEAD OF BACK OF CURB? QUEUING CARS SHOULD NOT BLOCK PEDESTRIANS ACCESS ROUTE.

Adopted: Res. 469 (11/13/04)

Revised: Res. 675 (1/29/03); Res. 690 (10/15/03); Ord. 201 (4/12/06); Ord. 211 (12/15/10); Ord. 233 (1/25/17); Ord. 236 (11/29/17)

roadway volumes exceed 24,000 ADT. The raised median shall be constructed as a 6-inch concrete median with the appropriate reflectors and shall extend a minimum of 75-feet beyond the edge of the driveway, or as determined by Traffic Services staff.

Table 2: Driveway Design Criteria on Minor and Principal Arterials

Driveway Type	High Volume Driveways (100 VTD or more)	Low Volume Driveways (less than 100 VTD total entering and exiting)	Residential/ Agricultural/ Field Access	Industrial Driveways
Width	30 to 36-feet	24 to 30-feet	20 to 30-feet	24 to 40-feet
Radii (Back of curb)	30-feet	15-feet	15-feet	15 to 30-feet
Throat Length	50-feet (minimum) or greater based on anticipated volume and/or analysis in TIS	30 to 50-feet	n/a	50-feet (minimum) or greater based on anticipated volume and/or analysis in TIS

7205.4.9 Turn Lanes

If right or left turn lanes are warranted per a submitted Traffic Impact Study (See Section 7106), the storage and taper lengths shall be designed in accordance with the minimum AASHTO and MUTCD standards. The storage length shall be a minimum of 100-feet in length. The applicant will not be compensated by ACHD for the dedication of additional right-of-way and pavement widening.

7205.4.10 Miscellaneous Access (Out-Parcels, Emergency Access, etc.)

Where a property is being developed and there is a legal out-parcel (as determined by the lead land use agency) that is not part of the development application, the District will require that the applicant provide adequate access (i.e. stub street, cross access easement, or other as appropriate) to that parcel for future development and/or re-development in order to ensure that the District's access management goals are achieved.

7205.5 Arterial Street Design

The design of improvements for arterials shall be in accordance with District standards, including the Master Street Map and Livable Streets Design Guide. The developer or engineer should contact the District before starting any design.

7205.5.1 Master Street Map and Typologies

If the arterial street is designated with a typology on the Master Street Map, that typology shall be considered for the required street improvements.

If there is no typology listed in the Master Street Map, then the sections listed below shall serve as the default.

7205.5.2 Street Sections and Right-of-Way Width

The standard 7-lane street section shall be 96-feet (back-of-curb to back-of-curb). This width typically accommodates three travel lanes in each direction, a continuous raised or landscaped median with intermittent turn lanes, and safety shoulders.

The standard 5-lane street section shall be 72-feet (back-of-curb to back-of-curb). This width typically accommodates two travel lanes in each direction, a continuous center left-turn lane, and bike lanes on a minor arterial and a safety shoulder on a principal arterial.

The standard 3-lane street section shall be 46-feet (back-of-curb to back-of-curb). This width typically accommodates a single travel lane in each direction, a continuous center left-turn lane, and bike lanes.

7205.5.3 Pavement Thickness

The minimum pavement thickness on a principal arterial will be determined by the District.

The minimum pavement thickness on any arterial will be determined by ACHD at the time of application. An adequate base section is also required. Base thickness shall be determined by the following formula:

$T = 0.0032 (T.I.) (100-R)$, where
T = total gravel equivalency
T.I. = traffic index
R = "R" value of subgrade material

7205.5.4 Traffic Index

The District will calculate the traffic index for arterials on an as-needed basis.

7205.5.5 Curb Type and/or Roadside Borrow Ditch

Where curbs are required to be constructed on arterials, standard vertical curbs are required.

Where curbs are not required the design of the roadside borrow ditch shall be in accordance with the ISPWC standards.

7205.5.6 Auxiliary Turn Lanes

Where turn lanes are required to serve the development, the applicant may need to dedicate additional right-of-way and construction additional street improvements to accommodate the pavement width for the turn lane, tapers and the increased drainage. If the applicant is unable to fit a minimum 8-foot wide borrow ditch and 3-foot wide gravel shoulder between the edge of pavement and the face of sidewalk due to right-of-way constraints,

then the applicant may need to construct vertical curb and gutter adjacent the site; or as an alternative, the applicant may need to move the sidewalk back and dedicate additional right-of-way to allow for the construction of a ditch wide enough to accommodate the drainage. An easement will be required for any segment of the sidewalk located outside of the right-of-way. Coordinate the design of the drainage facility with District Development Review staff.

NOT REVIEWED

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)

7205.5.7 Sidewalk

Concrete sidewalks at least **five-feet** wide are required on both sides of all arterial streets. A parkway strip at least 6-feet wide between the back-of-curb and street edge of the sidewalk is required to provide increased safety and protection of pedestrians. Consult the District's planter width policy if trees are to be placed within the parkway strip. Sidewalks constructed next to the back-of-curb shall be a minimum of 7-feet wide.

Detached sidewalks are encouraged and should be parallel to the adjacent roadway. Meandering sidewalks are discouraged.

Appropriate easements shall be provided if public sidewalks are placed out of the right-of-way. The easement shall encompass the entire area between the right-of-way line and 2-feet behind the back edge of the sidewalk. Sidewalks shall either be located wholly within the public right-of-way or wholly within an easement.

7205.5.8 Design Speed

The design speed for arterials shall be as listed in the Livable Streets Design Guide. If the street is not listed, the District will determine the design speed on a case-by-case basis.

7205.5.9 Horizontal and Vertical Curves

All vertical and horizontal curves shall meet the minimum AASHTO standards per the design speed of the roadway.

7205.5.10 Maximum/Minimum Profile Grade

The maximum allowable grade for any arterial shall be in accordance with AASHTO standards and in no case shall it be greater than 10%. The minimum allowable grade is 0.4%.

NOT REVIEWED

7205.5.11 Minimum Centerline Radius of Curves

The minimum centerline radius for arterials shall be designed in accordance with the minimum AASHTO standards.

7205.5.12 Tangent Length Between Curves

The minimum tangent between horizontal reverse curves for arterials shall be designed in accordance with the minimum AASHTO standards.

7205.5.13 Tangent Length Approaching Intersections

Intersections located on horizontal curves should be avoided, particularly if

the radius of either street is close to the minimum allowed or if the intersection occurs on the inside of the horizontal curve. A permanent sight distance easement based on the sight distance for the design speed shall be provided where one street must intersect with another on a curve.

The minimum centerline tangent length approaching an intersection shall be 360-feet from the near edge of the travel way. If the street is planned for future widening, then the tangent shall be measured from the near edge of the future travel way.

7205.5.14 Roadway Lighting

Each land use jurisdiction in Ada County establishes the requirements for roadway lighting. The applicant shall provide adequate lighting per the requirements of the land use jurisdiction.

7205.5.15 Landscape Medians

Landscape medians are permissible where adequate pavement width is provided on each side of the median to accommodate the travel lanes and where the following is provided.

- The median is platted as right-of-way owned by ACHD.
- The width of an island near an intersection is 12' maximum for a minimum distance of 150'. Beyond the 150' the island may increase to a maximum width of 30'.
- At an intersection that is signalized or is to be signalized in the future, the median width shall be reduced to accommodate the necessary turn lane storage and tapers.
- The Developer or Homeowners Association shall apply for a license agreement if landscaping is to be placed within these medians.
- The license agreement shall contain the District's requirements of the developer including, but not limited to, a "hold harmless" clause; requirements for maintenance by the developer; liability insurance requirements; and restrictions.
- Vertical curbs are required around the perimeter of any raised median. Gutters shall slope away from the curb to prevent ponding.

7206 COLLECTOR STREETS

7206.1 General

The primary function of a collector is to intercept traffic from the local street system and carry that traffic to the nearest arterial. A secondary function is to service adjacent property. Access will be limited or controlled. Collectors may also be designated as bicycle and bus routes.

7206.2 Development Requirements

7206.2.1 Adjacent or Internal Streets

The developer is responsible for improving all collector frontages adjacent

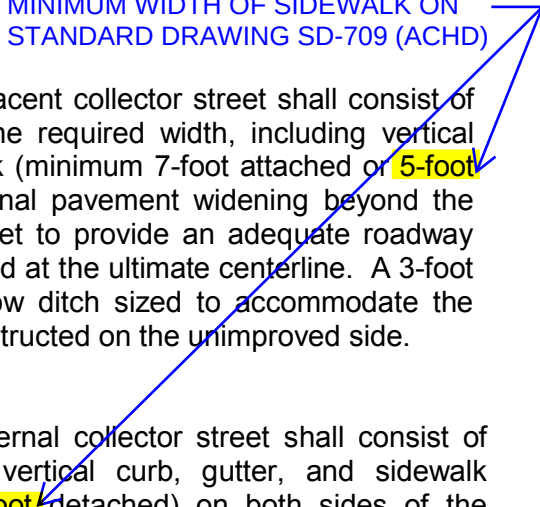
to the site or internal to the development as required below, regardless of whether access is taken to all of the adjacent streets.

All utility relocation costs associated with improving street frontages adjacent the site shall be borne by the developer.

The District requires dedication of additional right-of-way without compensation to provide the minimum width requirements according to District standards.

7206.2.2 Required Improvements

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)



1. Adjacent Streets (Existing or New)

Required improvements to an adjacent collector street shall consist of pavement widening to one-half the required width, including vertical curb, gutter and concrete sidewalk (minimum 7-foot attached or 5-foot detached), plus 12-feet of additional pavement widening beyond the centerline established for the street to provide an adequate roadway surface, with the pavement crowned at the ultimate centerline. A 3-foot wide gravel shoulder and a borrow ditch sized to accommodate the roadway storm runoff shall be constructed on the unimproved side.

2. Internal Streets (Existing or New)

Required improvements to an internal collector street shall consist of a complete street section with vertical curb, gutter, and sidewalk (minimum 7-foot attached or 5-foot detached) on both sides of the roadway.

3. Right-of-Way Dedication

The District requires dedication of right-of-way without compensation to encompass the minimum width requirements according to District standards.

7206.2.3 Off-site Streets

If the proposed development is not served by a public street that is fully improved to urban standards (curb, gutter, sidewalk) or with a minimum of 30-feet of pavement, then the developer shall provide 30-feet of pavement with 3-foot gravel shoulders from the site to a public street specified by the District; OR the developer shall provide 24-feet of pavement with 3-foot gravel shoulders and a minimum 6-foot wide detached asphalt/concrete pedestrian facility, from the site to a public street specified by the District.

Alternatives to pavement widening including sidewalks and pathways or other proposals, may be considered by the District. The extent of roadway improvements (improvement type and length) will be determined by evaluating certain criteria. Criteria to establish improvement type and length include but are not limited to: traffic volumes (existing and projected); number of pedestrians (existing and projected); location of pedestrian 'attractors' and 'generators' (i.e. parks and schools); number of access points/streets serving the proposed development; usable right-of-way; need

for traffic calming; utilities and irrigation facilities. All utility relocation costs associated with the off-site street widening shall be borne by the developer. All utility relocation costs associated with the off-site street widening shall be borne by the developer.

7206.2.4 Continuation of Streets

1. Consideration for Future Development
The street design in a proposed development shall cause no undue hardship to adjoining property. An adequate and convenient access to adjoining property for use in future development may be required. If a street ends at the development boundary, it shall meet the requirements as described in this sub-section.
2. Existing Adjacent Development
An existing street, or a street in an approved preliminary plat, which ends at a boundary of a proposed development shall be extended in that development. The extension shall include provisions for continuation of storm drainage facilities.
3. Stub Streets
Stub streets will be required to provide circulation or to provide access to adjoining properties. Stub streets will conform with the requirements described in Section 7206.2.5.4, except a temporary cul-de-sac will not be required if the stub street has a length no greater than 150-feet. A sign shall be installed at the terminus of the stub street stating that "THIS IS A DESIGNATED COLLECTOR ROADWAY. THIS ROADWAY WILL BE EXTENDED AND WIDENED IN THE FUTURE."

CONFIRM SECTION
REFERENCE

In addition, a stub street must meet the following conditions:

- A stub street shall be designed to slope towards the nearest street intersection within the proposed development and drain surface water toward that intersection; unless an alternative storm drain system is approved by the District.
- The District may require appropriate covenants guaranteeing that the stub street will remain free of obstructions.

The District will consider the following items when determining when to require a stub street:

- Identification of the roadway on the adopted functional classification map, a corridor plan, and/or a comprehensive plan.
- Property size and configuration of current application
- Property size and configuration of adjacent parcels
- Potential for redevelopment of adjacent parcels
- Location of vehicular and pedestrian attracting land use (i.e. schools, neighborhood commercial, etc.)

- Comprehensive Plan and Zoning designations
- Needs of the emergency service providers
- Location of existing stub streets
- Location of canals and necessary crossings
- Cost vs. benefit of requiring canal crossing
- Functional Classification of adjacent and nearby roadways (i.e. will requiring a stub street achieve the District's Access Management goals by reducing potential need for additional connection to a classified roadway)
- The Master Street Map

Benefits of Connectivity and Stub Streets include but are not limited to the following:

- Reduces vehicle miles traveled.
- Increases and promotes pedestrian and bicycle activity and connectivity.
- Increases access for emergency services.
- Reduces need for additional access points to the arterial street system
- Promotes the efficient delivery of services including trash and mail.
- Promotes appropriate intra-neighborhood traffic circulation to schools, parks, neighborhood commercial centers, etc.
- Promotes orderly development.

4. Temporary Dead End Streets

The design and construction requirements for cul-de-sac streets shall apply to temporary dead end streets. The developer shall construct a temporary cul-de-sac. The temporary cul-de-sac shall be paved and shall meet the dimensional requirements of a standard cul-de-sac. The developer shall grant a temporary turnaround easement to the District for those portions of the cul-de-sac which extend beyond the dedicated street right-of-way. In the instance where a temporary easement extends onto a buildable lot, the entire lot shall be encumbered by the easement and identified on the plat as a non-buildable lot until the street is extended.

7206.3 Traffic Considerations

The efficiency of the collector street network is critical, and the District's policies outline the location, spacing, and control of access points to the collector street system. An efficient collector street system can reduce the burden on the critical arterial street system.

7206.3.1 Level of Service

The level of service for collector streets is established within the District's Traffic Impact Study Policy (See Section 7106).

7206.3.2 Vehicle Access

Direct lot access to collector streets is normally controlled. Direct lot access to collector streets in residential areas is discouraged, but lot access may be allowed at the discretion of the District.

7206.3.3 Maximum Traffic on One Access

If a proposed development only has one access to a public street that is classified a collector, or if it proposes to extend public streets from existing development with only one collector street access to the public street system, the maximum forecast ADT to be allowed at any point on the collector street is 3,000. This volume may be reduced or increased based on information received from the lead land use agency, the applicable fire department, and/or emergency services. The District will also take into consideration the following items when determining whether or not to reduce or increase the maximum allowable ADT: railroad crossings, canal crossings, and topography (foothills vs. flat land).

7206.3.4 Through Traffic

The purpose of a collector street is to carry local traffic to an arterial roadway.

Collectors in residential areas may serve land uses that can increase traffic volumes during certain periods of the day or times of the year, such as neighborhood parks, community centers, elementary schools, and some mixed land uses. The design of a collector street in a residential area should promote safe pedestrian movement and lower speeds.

7206.3.5 Street Patterns

To aid in the development of an efficient vehicular transportation system and an accessible transit system, continuous collector streets are required at or near mid-section lines to achieve optimal ½ mile signal spacing.

It is not necessary for a continuous collector roadway in a residential area to be in a straight alignment. As identified in Section 7206.3.8, the District supports passive design elements to discourage excessive speeds. The collector street intersections with arterial streets are to be planned with potential short range or long range needs for signal warrants and operation in mind. This will require consideration of other existing or future traffic signal locations along the arterial street, a location that will serve both sides of the original street, and traffic volumes commensurate with signalization.

7206.3.6 Traffic Conflicts

Traffic volumes typically found on collector roadways can be in conflict with adjacent land uses. Off-street parking, off-street maneuver areas, minimum direct lot access, and other circulation and design elements should be designed to minimize these conflicts.

Collector streets in residential areas typically carry low to moderate volumes of traffic. The level of traffic should not interfere with an area's livability.

7206.3.7 Front-on Housing in a Residential Area

New collector roadways in residential areas with front-on housing shall be limited to a maximum ADT of 3,000. Driveway location and spacing will be controlled in accordance with Section 7207.4. Existing collector roadways in residential areas with front-on housing should not exceed 5,000 ADT. In some instances a lower ADT for existing collectors in residential areas may be applied due to items such as grades, curves, etc.

7206.3.8 Speed Control and Traffic Calming

Collector streets should be designed to discourage speeds above 35 MPH, and in a residential area collector streets should be designed to discourage speeds above 30 MPH.

The design of collector street systems should discourage excessive speeds by using passive design elements. The traffic calming policy for existing residential streets is included in Section 5000. In the review of developments, the District will evaluate the potential need for future traffic calming. If the design or layout of a development is anticipated to necessitate future traffic calming implementation by the District, then the District will require changes to the layout and/or the addition of passive design elements such as horizontal curves, bulb-outs, chokers, etc. The District will also consider texture changes to the roadway surface (i.e. stamped concrete) as a passive design element. These alternative methods may require a maintenance and/or license agreement.

Passive design elements are to be considered the preferred method to calm traffic and achieve the desired travel speed for the roadway. Speed humps, valley gutters, stop signs, and cross drains are not an acceptable tool for traffic calming new collector streets.

7206.3.9 Pedestrians

Pedestrian-vehicle conflict points should be minimized. Pedestrian walkways or sidewalks are to provide direct access from all adjacent property, to assure safe pedestrian travel in the area.

7206.3.10 Bicycles

Generally, collector streets will have striped and designated bike lanes on both sides of the roadway.

7206.3.11 On-Street Parking

The District may consider on-street parking on a case-by-case basis taking into consideration the anticipated roadway volumes and adjacent land uses. If on-street parking is allowed by the District it may be removed in the future at the discretion of the District if safety conditions warrant.

On-street parking on collector roadways in residential areas is typically prohibited. The District may consider on-street parking on a case-by-case basis where it is consistent with the adjacent land use (i.e. alley loaded lots needing on-street parking); where it achieves a goal(s) of the lead land use agency, and where sufficient pavement width is provided. If on-street

SEE COMMENTS REGARDING ACCESSIBLE ON-STREET PARKING IN SECTION 5104.4.3

parking is allowed by the District it may be removed in the future at the discretion of the District if safety conditions warrant.

7206.4 Access Considerations and Requirements

7206.4.1 Access Points

All access points associated with development applications shall be determined in accordance with the policies in this section and Section 7202. Access points shall be reviewed only for a development application that is being considered by the lead land use agency. Approved access points may be relocated and/or restricted in the future if the land use intensifies, changes, or the property redevelops.

7206.4.2 Signalized Intersection Spacing on Collectors

The preferred spacing for new collectors intersecting existing collectors is 1/4 mile to allow for adequate signal spacing and alignment. Access points on a collector that require signalization shall be public streets.

7206.4.3 Driveway Spacing on Collectors Near Existing or Future Signalized Intersections and Roundabouts Access is typically prohibited within the influence area of the intersection. For roundabouts, the area of influence is generally considered the area from the intersection to the far end of the splitter islands.

Driveways located near a signalized intersection shall be located in accordance with one of the following, whichever is greater:

- Outside the area of influence; OR
- 220-feet for a right-in/right-out driveway and 440-feet for a full-movement driveway.

Dimensions shall be measured from the centerline of the intersection to the centerline of the driveway.

7206.4.4 Driveway Spacing on Collectors Near Stop-Controlled Intersections

Access is typically prohibited within the influence area of the intersection. For roundabouts, the area of influence is generally considered the area from the intersection to the far end of the splitter islands.

Driveways located near a STOP controlled intersection shall be located in accordance with one of the following, whichever is greater:

- Outside the area of influence; OR
- 150-feet.

Dimensions shall be measured from the centerline of the intersection to the centerline of the driveway.

7206.4.5 Driveway Spacing on Collectors (away from a signalized intersection)

Access restrictions to collectors shall be based upon the type of access that is being proposed according to Table 1 below. The spacing shall be measured from any other existing or approved driveway or street on either side of the street.

Table 1: Access Spacing on Collectors (away from a signalized intersection)

Posted Speed Limit	Minimum separation for Local Streets	Minimum driveway separation for more than 100 VTD	Minimum driveway separation for less than 100 VTD
25 MPH	330'	245'	150'
30 MPH	330'	260'	150'
35 MPH	330'	285'	150'

- All dimensions are to be measured centerline to centerline.

7206.4.6 Driveway Design Criteria

Driveways shall be designed in accordance with the criteria in Table 2 below. Additionally:

- All new driveways are required to be paved their full width and at least 30- feet into the site from the edge of pavement of the adjacent street.
- If a driveway is to be gated, the gate or keypad (if applicable) shall be located a minimum of 50-feet from the adjacent street and an on-site turnaround shall be provided.
- Driveways are to be identified on the construction drawings. The remaining frontage along an arterial roadway shall be identified as having no access.
- The throat length is measured from the back of curb of the intersecting street to the nearest drive aisle intersection. Adequate throat length allows stacking, or queuing to occur on site. This reduces driver confusion, traffic problems, and unsafe conditions, such as vehicles backing out onto the arterial, interrupting traffic flow.
- Raised medians may serve as an effective means of traffic control and regulation. The District may require raised medians on collector roadways where site access creates operational problems. The raised median shall be constructed as a 6-inch concrete median with the appropriate reflectors and shall extend a minimum of 75-feet beyond the edge of the driveway.

Table 2: Driveway Design Criteria on Collectors

Driveway Type	High Volume Driveway (100 VTD or more)	Low Volume Driveway (less than 100 VTD total entering and exiting)	Residential/ Agricultural/ Field Access	Industrial Driveways
Width	30 to 36-feet	24 to 30-feet	20 to 30-feet	24 to 40-feet
Radii (Back of curb)	30-feet	15-feet	15-feet	15 to 30-feet
Throat Length	50-feet** (minimum) or greater based on anticipated volume and/or analysis in TIS	30 to 50-feet	n/a	50-feet (minimum) or greater based on anticipated volume and/or analysis in TIS

7206.4.7 Turn Lanes

If right or left turn lanes are warranted per a submitted Traffic Impact Study (See Section 7106), the storage and taper lengths shall be designed in accordance with the minimum AASHTO and MUTCD standards. The storage length shall be a minimum of 100-feet in length. The applicant will not be compensated by ACHD for the dedication of additional right-of-way and pavement widening.

7206.4.8 Miscellaneous Access (Out-Parcels, Emergency Access, etc.)
Where a property is being developed and there is a legal out-parcel (as determined by the lead land use agency) that is not part of the development application, the District will require that the applicant provide adequate access (i.e. stub street, cross access, or other as appropriate) to that parcel for future development and/or re-development in order to ensure that the District's access management goals are achieved.

7206.5 Collector Street Design

The design of improvements for collectors shall be in accordance with District standards, including the Master Street Map and Livable Streets Design Guide. The developer or engineer should contact the District before starting any design.

7206.5.1 Master Street Map and Typologies

If the collector street is designated with a typology on the Master Street Map, that typology shall be considered for the required street improvements. If there is no typology listed in the Master Street Map, then the sections listed below shall serve as the default.

7206.5.2 Street Sections and Right-of-Way Width

The standard right-of-way width for collector streets shall typically be 50 to 70- feet, depending on the location and width of the sidewalk and the location and use of the roadway. The right-of-way width may be reduced,

with District approval, if the sidewalk is located within an easement; in which case the District will require a minimum right-of-way width that extends 2-feet behind the back-of-curb on each side.

The standard street section shall be 46-feet (back-of-curb to back-of-curb). This width typically accommodates a single travel lane in each direction, a continuous center left-turn lane, and bike lanes.

Generally, collector streets will be designed with sufficient pavement width to accommodate both motorized and non-motorized traffic.

1. Street Section in Residential Areas

The standard street section for a collector in a residential area shall be 36-feet (back-of-curb to back-of-curb). The District will consider a 33-foot or 29-foot street section with written fire department approval and taking into consideration the needs of the adjacent land use, the projected volumes, the need for bicycle lanes, and on-street parking.

7206.5.3 Pavement Thickness

A minimum thickness of 3-inches of pavement is required on collector streets.

An adequate base section is also required. Base thickness shall be determined by the following formula:

$$T = 0.0032 (T.I.) (100-R), \text{ where}$$

T = total gravel equivalency
T.I. = traffic index
R = "R" value of subgrade material

7206.5.4 Traffic Index

The District has pre-assigned a traffic index of 8 for collector streets.

7206.5.5 Curb Type

Standard vertical curbs are required on all collector streets

7206.5.6 Sidewalk

Concrete sidewalks at least **five-feet** wide are required on both sides of all collector streets. A parkway strip at least 6-feet wide between the back-of-curb and street edge of the sidewalk is required to provide increased safety and protection of pedestrians. Consult the District's planter width policy if trees are to be placed within the parkway strip. Sidewalks constructed next to the back-of-curb shall be a minimum of 7-feet wide.

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)

Detached sidewalks are encouraged and should be parallel to the adjacent roadway. Meandering sidewalks are discouraged.

Appropriate easements shall be provided if public sidewalks are placed out of the right-of-way. The easement shall encompass the entire area between

the right-of-way line and 2-feet behind the back edge of the sidewalk. Sidewalks shall either be located wholly within the public right-of-way or wholly within an easement.

7206.5.7 Design Speed

The design speed for collectors shall be as listed in the Livable Streets Design Guide. If the street is not listed, the District will determine the design speed on a case-by-case basis.

7206.5.8 Stopping Sight Distance

A safe stopping sight distance is required for all vertical and horizontal curves. The minimum sight distance allowed is 200-feet.

7206.5.9 Maximum/Minimum Profile Grade

The maximum allowable grade for any public collector street is 10%. The minimum allowable grade is 0.4%.

7206.5.10 Minimum Centerline Radius of Curves

The minimum mid-block centerline radius allowed on collector streets is 180-feet.

The minimum mid-block centerline radius allowed on collector streets in residential areas is 150-feet.

7206.5.11 Tangent Length Between Curves

A minimum tangent of 100-feet is required between horizontal reverse curves, unless the centerline radius exceeds 500-feet.

A minimum tangent of 50-feet is required between horizontal reverse curves, unless the centerline radii exceed 300-feet.

7206.5.12 Tangent Length Approaching Intersections

Intersections located on horizontal curves should be avoided particularly if the radius of either street is close to the minimum allowed or if the intersection occurs on the inside of the horizontal curve. A permanent sight distance easement based on the sight distance of the design speed shall be provided where one street must intersect with another on a curve.

The minimum centerline tangent length approaching an intersection shall be 200-feet from the near edge of the travel way. If the street is planned for future widening, then the tangent shall be measured from the near edge of the future travel way.

7206.5.13 Roadway Lighting

Each land use jurisdiction in Ada County establishes the requirements for roadway lighting. The applicant shall provide adequate lighting per the requirements of the land use jurisdiction.

7206.5.14 Landscape Medians

Landscape medians are permissible where adequate pavement width is provided on each side of the median to accommodate the travel lanes and where the following is provided.

- The median is platted as right-of-way owned by ACHD.
- The width of an island near an intersection is 12' maximum for a minimum distance of 150'. Beyond the 150' the island may increase to a maximum width of 30'.
- At an intersection that is signalized or is to be signalized in the future, the median width shall be reduced to accommodate the necessary turn lane storage and tapers.
- The Developer or Homeowners Association shall apply for a license agreement if landscaping is to be placed within these medians.
- The license agreement shall contain the District's requirements of the developer including, but not limited to, a "hold harmless" clause; requirements for maintenance by the developer; liability insurance requirements; and restrictions.
- Vertical curbs are required around the perimeter of any raised median. Gutters shall slope away from the curb to prevent ponding.

7207 LOCAL STREETS

7207.1 General

The primary function of a local street is to serve adjacent property. Adjacent property will usually have unrestricted access to the street and ADT will typically be less than 2,000. Access to local streets is generally unrestricted, except near intersections.

7207.2 Development Requirements

7207.2.1 Adjacent or Internal Streets

The developer is responsible for improving all local street frontages adjacent to the development site or internal to the development as required below, regardless of whether access is taken to all of the adjacent streets.

All utility relocation costs associated with improving street frontages adjacent the site shall be borne by the developer.

The District requires dedication of additional right-of-way without compensation to provide the minimum requirements according to District standards.

7207.2.2 Required Improvements

1. Adjacent Streets (Existing or New)

Required improvements to an adjacent local street shall consist of pavement widening to one-half the required width, including curb, gutter and concrete sidewalk (minimum 5-feet), plus 12-feet of additional pavement widening beyond the centerline established for the street

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
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to provide an adequate roadway surface, with the pavement crowned at the ultimate centerline. A 3-foot wide gravel shoulder and a borrow ditch sized to accommodate the roadway storm runoff shall be constructed on the unimproved side.

2. Internal Streets (Existing or New)

Required improvements to an internal local street shall consist of a complete street section with curb, gutter, and sidewalk (minimum 5-feet) on both sides of the roadway.

7207.2.3 Off-site Streets SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)
Local Streets with less than 400 VTD (existing + proposed)

If the proposed development is not served by a public street with at least 24- feet of pavement then the developer shall pave the street or widen the existing pavement to provide 24-feet of pavement with 3-foot gravel shoulders from the site to a public street specified by the District.

Local Streets with 400 to 1,000 VTD (existing + proposed)

If the proposed development is not served by a public street with at least 30- feet of pavement, then the developer shall pave the street or widen the existing pavement to provide a minimum 24 to 30-feet of pavement as determined by the District, with 3-foot gravel shoulders from the site to a public street specified by the District.

Local Streets with greater than 1,000 VTD (existing + proposed)

If the proposed development is not served by a public street with a minimum of 30-feet of pavement, then the developer shall pave the street or widen the existing pavement to provide 30-feet of pavement with 3-foot gravel shoulders from the site to a public street specified by the District; OR shall provide 24-feet of pavement with 3-foot gravel shoulders and a minimum 6-foot wide detached asphalt/concrete pedestrian facility from the site to a public street specified by the District.

All Local Streets

Alternatives to pavement widening include sidewalks, pathways, or other proposals such as passive traffic calming measures or mitigation through design elements, may be considered by the District. The extent of roadway improvements (improvement type and length) will be determined by evaluating site specific criteria. Criteria to establish improvement type and length include but are not limited to: traffic volumes (existing and projected); number of pedestrians (existing and projected); location of pedestrian -attractors and -generators (i.e. parks and schools); number of access points/streets serving the proposed development; usable right-of-way; need for traffic calming; utilities and irrigation facilities. All utility relocation costs associated with the off-site street widening shall be borne by the developer.

7207.2.4 Continuation of Streets

1. Consideration for Future Development

The street design in a proposed development shall cause no undue hardship to adjoining property. An adequate and convenient access to

adjoining property for use in future development may be required. If a street ends at the development boundary, it shall meet the requirements as described in this sub-section.

The District will consider the following items when determining when to require a stub street:

- Property size and configuration of current application
- Property size and configuration of adjacent parcels
- Potential for redevelopment of adjacent parcels
- Location of vehicular and pedestrian attracting land use (i.e. schools, neighborhood commercial, etc.)
- Comprehensive Plan and Zoning designations
- Needs of the emergency service providers
- Location of existing stub streets
- Location of canals and necessary crossings
- Cost vs. benefit of requiring canal crossing
- Functional Classification of adjacent and nearby roadways (i.e. will requiring a stub street achieve the District's Access Management goals by reducing the potential need for additional connection to a classified roadway)
- The Master Street Map

Benefits of Connectivity and Stub Streets include but are not limited to the following:

- Reduces vehicle miles traveled.
- Increases pedestrian and bicycle connectivity. Increases access for emergency services.
- Reduces need for additional access points to the arterial street system
- Promotes the efficient delivery of services including trash, mail, and deliveries.
- Promotes appropriate intra-neighborhood traffic circulation to schools, parks, neighborhood commercial centers, transit stops, etc.
- Promotes orderly development.

2. Existing Adjacent Development

An existing street, or a street in an approved preliminary plat, which ends at a boundary of a proposed development shall be extended in that development. The extension shall include provisions for continuation of storm drainage facilities.

3. Stub Streets

Stub streets will be required to provide circulation or to provide access to adjoining properties. Stub streets will conform with the requirements described in Section 7207.2.5.4, except a temporary cul-de-sac will not be required if the stub street has a length no greater than 150-feet. A sign shall be installed at the terminus of the stub street stating that "THIS ROADWAY WILL BE EXTENDED IN THE FUTURE."

In addition, a stub street must meet the following conditions:

A stub street shall be designed to slope towards the nearest street intersection within the proposed development and drain surface water toward that intersection; unless an alternative storm drain system is approved by the District.

The District may require appropriate covenants guaranteeing that the stub street will remain free of obstructions.

4. Temporary Dead End Streets

The design and construction requirements for cul-de-sac streets shall apply to temporary dead end streets. The developer shall construct a temporary cul-de-sac. The temporary cul-de-sac shall be paved and shall meet the dimensional requirements of a standard cul-de-sac. The developer shall grant a temporary turnaround easement to the District for those portions of the cul-de-sac which extend beyond the dedicated street right-of-way. In the instance where a temporary easement extends onto a buildable lot, the entire lot shall be encumbered by the easement and identified on the plat as a non-buildable lot until the street is extended.

7207.3 Traffic Considerations

7207.3.1 Average Daily Traffic (ADT)

ADT on new and existing local streets should typically be less than 2,000. This ADT applies to both existing and new streets. For new streets that are stubbed to connect to adjacent land that is not fully developed, the allowable ADT for the new street will typically be no more than 1,000 ADT, to accommodate future additional traffic from the adjacent land, depending on the location and type of the stub street and the location and size of the adjacent undeveloped land. When stub streets are connected and properties fully developed, local streets should not exceed 2,000 ADT.

In developed areas where streets already exceed 2,000 ADT or are close to exceeding 2,000 ADT, the Commission may grant approval to exceed the 2,000 ADT based on existing zoning of undeveloped properties or infill development. The Commission may also consider the need for additional roadway improvements or traffic calming to mitigate the additional traffic if necessary.

The ADTs listed above are desirable planning thresholds for local streets, not roadway capacities. Actual roadway capacities are much higher than the planning thresholds.

7207.3.2 Vehicle Access

Direct lot access to local streets from adjacent property is permissible.

7207.3.3 Maximum Traffic on One Access

If a proposed development only has one access to a public street that is a local street, or if it proposes to extend public streets from existing development with only one local street access to the public street system, the maximum forecast ADT to be allowed at any point on the local street access is 1,000 and is subject to fire department requirements for the provision of a secondary access. This volume may be reduced or increased based on information received from the lead land use agency, the applicable fire department, and/or emergency services. The District will also take into consideration the following items when determining whether or not to reduce or increase the maximum allowable ADT: railroad crossings, canal crossings, topography (foothills vs. flat land), pedestrian connectivity, location of schools, etc.

7207.3.4 Through Traffic

Local street systems should be designed to minimize through traffic. Through traffic may be discouraged by creating breaks in the local street pattern; by offsetting local street intersections; or by controlling access to major streets.

New developments shall be designed to avoid increasing through traffic on existing local streets, unless those streets have been previously designed for extension. Although through traffic is generally undesirable, street system interconnectivity between subdivisions is essential. This interconnectivity serves local residents, pedestrians, bicyclists, public transit, and emergency services.

7207.3.5 Cul-de-sacs

Ada County or the city in which the cul-de-sac is located shall determine the maximum length and number of dwelling units allowed to take access from the cul-de-sac, provided the maximum number of expected trips per day generated by those properties taking access from an individual cul-de-sac shall not exceed 400.

7207.3.6 Special Traffic Generators

Special types of developments, such as schools, day care centers, convenience stores and churches serve as focal points for traffic circulation within the neighborhood they serve. When designing the development, planners should consider both the benefits and impacts that their traffic will have on the development.

7207.3.7 Speed Control and Traffic Calming

Design of local street systems should discourage excessive speeds by using passive design elements. If the design or layout of a development is anticipated to necessitate future traffic calming implementation by the District, then the District will require changes to the layout and/or the addition of passive design elements such as horizontal curves, bulb-outs, chokers, etc. The District will also consider texture changes to the roadway surface (i.e. stamped concrete) as a passive design element. Passive design elements are to be considered the preferred method to calm traffic and achieve the

desired travel speed for the roadway. Speed humps, valley gutters, stop signs, and cross drains are not an acceptable tool for traffic calming on new local streets.

The District has developed a traffic calming policy for existing residential streets in Section 5000. In the review of developments, the District will evaluate the potential need for future traffic calming.

7207.3.8 Pedestrians

Pedestrian-vehicle conflict points should be minimized. Pedestrian walkways or sidewalks are to provide direct access from all adjacent property, to assure safe pedestrian travel in the area.

7207.3.9 On-Street Parking

On-street parking is permissible on standard local roadways where adequate width exists. Parking shall be prohibited within 75-feet from any intersection. Emergency service providers must approve on-street parking on reduced width streets.

[SEE COMMENTS REGARDING ACCESSIBLE ON-STREET PARKING IN SECTION 5104.4.3](#)

7207.4 Access Considerations and Requirements

7207.4.1 Driveway Spacing

Near Intersections

Driveways on a local street shall be located a minimum of 75-feet (measured centerline to centerline) from the nearest local street intersection, and 150-feet from the nearest collector or arterial street intersection. This is not applicable for single family dwelling units.

Successive Driveways

Away from an intersection there are no minimum spacing requirements for access points along a local street, but the District does encourage shared access points where appropriate.

7207.4.2 Local Street Intersections

Local streets intersecting other local streets shall either align with another street or provide a minimum offset of 125-feet from any other street (measured centerline to centerline).

7207.4.3 Driveway Design Requirements on Local Streets

- Where vertical curbs are required, residential driveways shall be restricted to a maximum width of 20-feet. These driveways may be constructed as curb-cut type driveways.
- All driveways are required to be paved their full width and at least 30-feet into the site from the edge of pavement of the adjacent street.
- If an access point is to be gated, the gate or keypad (whichever is closer) shall be located a minimum of 50-feet from the adjacent street and an on-site turnaround shall be provided.

7207.5 Local Street Design

7207.5.1 Right-of-Way Width

Right-of-way widths for all local streets shall generally not be less than 47-feet wide except for minor local streets (24-foot street sections), 27-foot street sections, or half street sections (paved or unpaved). Half-street improvements located adjacent to the property line shall be constructed in a minimum 40-foot right-of-way.

The Commission, at its discretion, may not require right-of-way dedication adjacent to an existing roadway where roadway improvements are not required with the development, or where improvements already exist. In lieu of additional right-of-way, a sidewalk easement will be required for any sidewalk located outside of the right-of-way.

7207.5.2 Urban and Rural Local Street Sections

The District allows a variety of street sections for urban and rural local streets. The street sections have varying criteria for their application within developments. Table 8 below summarizes the typical street sections. The following policies outline the specifics for the application, use, and requirements of each street section.

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)

Table 8: Typical Local Street Sections

	Lot Size Requirement	Street Section	Right-of-Way Width	Curb Type	Sidewalk
Standard Local	Less than 1 acre	33-feet	47-feet	Vertical/ Rolled	5-foot on both sides
Standard Local (City of Kuna, City of Star)	Less than 1 acre	36-feet	50-feet	Vertical/ Rolled	5-foot on both sides
Reduced width Local	Less than 1 acre	27-feet	41-feet	Vertical/ Rolled	5-foot on both sides
Minor Urban	Less than 1 acre	24-feet	28-feet (minimum)	Vertical/ Rolled/ Ribbon	5-foot
Standard Rural	Greater than 1 acre, but less than 5 acres	30-feet with a minimum 8-foot drainage swale	52-feet (to encompass entire swale)	2-foot concrete ribbon	No Sidewalk 4-feet of the pavement on each side is striped for non-motorized travel
Standard Rural	Greater than 5 acres	24-feet of pavement	50-feet	3-foot gravel shoulder	No sidewalk

A PAVED SHOULDER INSTALLED FOR NON-MOTORIZED TRAVEL MUST MEET ALL THE ACCESSIBILITY REQUIREMENTS OF 2011 PROWAG R302 INCLUDING MINIMUM WIDTH AND PASSING SPACES IF WIDTH OF ACCESS ROUTE IS LESS THAN 5'. RECOMMEND INCREASING WIDTH OF PAVED SHOULDER TO 5' MINIMUM.

PER 2011 PROWAG R302.3, THE CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES SHALL BE 1.2 M (4.0 FT) MINIMUM, EXCLUSIVE OF THE WIDTH OF THE CURB.

PER 2011 PROWAG R302.4, WHERE THE CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES IS LESS THAN 1.5 M (5.0 FT), PASSING SPACES SHALL BE PROVIDED AT INTERVALS OF 200 FT MAXIMUM. PASSING SPACES SHALL BE 5 FT MINIMUM BY 5 FT MINIMUM.

1. Standard Urban Local Street—33-foot Street Section

The standard street section shall be 33-feet (back-of-curb to back-of-curb) for developments with any buildable lot that is less than 1 acre in size. This street section shall include curb, gutter, and minimum 5-foot concrete sidewalks on both sides and shall typically be constructed within 47-feet of right-of-way. For the City of Kuna and City of Star: Unless otherwise approved by Kuna or Star, the standard street section shall be 36-feet (back-of-curb to back-of-curb) for developments with any buildable lot that is less than 1 acre in size. This street section shall include curb, gutter, and minimum 5-foot wide concrete sidewalks on both sides and shall typically be constructed within 50-feet of right-of-way.

SEE COMMENTS REGARDING
MINIMUM WIDTH OF
SIDEWALK ON STANDARD
DRAWING SD-709 (ACHD)

2. Reduced Urban Local Street—27-foot Street

The width of a reduced urban local street shall be 27-feet (back-of-curb to back-of-curb) with curb, gutter, and minimum 5-foot concrete sidewalks on both sides and shall typically be within 41-feet of right-of-way. Unless approved in writing by the land use agency, this street section is not allowed by the City of Kuna or the City of Star. In some cases this street width may not accommodate new utilities. A 29-foot street section within 43-feet of right-of-way may be constructed in lieu of a 27-foot street section if the applicant demonstrates that the additional roadway width is necessary to extend utilities. Although some parking is allowed by the following subsections, the District will further restrict parking on a reduced width street if curves or other physical features cause problems, if actual emergency response experience indicates that emergency vehicles may not be able to provide service, or if other safety concerns arise. One of the following three sets of design conditions shall apply.

Design Condition #1: Parking is allowed on one side of a reduced width street when all of the following criteria are met:

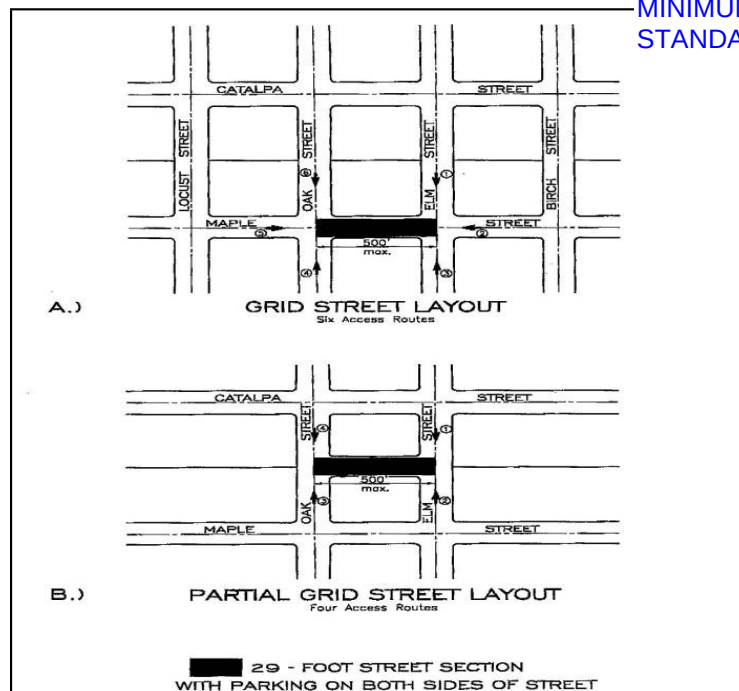
- The street is in a residential area.
- The developer shall provide written approval from the appropriate fire department or emergency response unit in the jurisdiction.
- The developer shall install -NO PARKING signs on one side of the street, as specified by the District and as specified by the appropriate fire department.
- This street section shall include curb, gutter, and minimum 5-foot wide concrete sidewalks on both sides and shall typically be constructed within 41-feet of right-of-way.
- Traffic volumes on the street shall not exceed 1,000 vehicle trips per day. There shall be no possibility that another street may be connected to it in a manner that would allow more than 1,000 vehicle trips per day.

SEE COMMENTS REGARDING ACCESSIBLE ON-STREET PARKING IN SECTION 5104.4.3

Design Condition #2: Parking is allowed on both sides of a reduced width street when the street layout has the qualities of a road grid system. This provides fire trucks and other emergency vehicles alternate routes of access since the ability to pass another vehicle may be compromised by placement of parked vehicles on both sides of the street. The following criteria shall be met:

- The street is in a residential area.
- The developer shall provide written approval from the appropriate fire department or emergency response unit in the jurisdiction.
- The block length of the street shall not exceed 500-feet, measured between centerlines.
- Traffic volumes on the street are not forecast to exceed 400 vehicle trips per day.
- A minimum of two street connections shall be provided to each end of the street with the reduced width. The two connecting streets shall each connect to the larger street system to provide the intended alternate routes of access. A street system that has one street connection to the larger street network on one end and a loop/circle street on the other end with no outlet shall not be approved.
- This street section shall include curb, gutter, and minimum 5-foot wide concrete sidewalks on both sides and shall typically be constructed within 41-feet of right-of-way.

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)

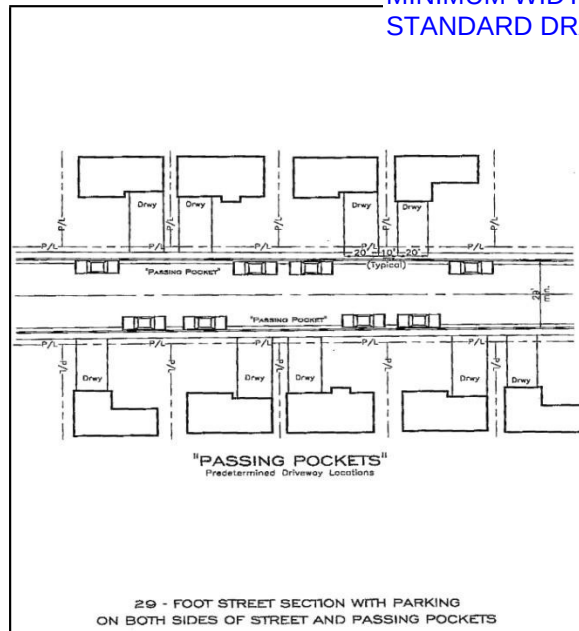


Design Condition #3: Parking is allowed on both sides of a reduced width residential street with passing pockets that are created when two driveways are constructed near the same property line, where a 50-foot segment will not have on-street parking on the side of the street with the driveways. This provides fire trucks and other vehicles areas to move to the side of the street to allow another vehicle to pass when vehicles are parked on the street. Parking is allowed on both sides of a reduced width street when the following criteria are met.

- The street is in a residential area.
- The developer shall provide written approval from the appropriate fire department or emergency response unit in the jurisdiction.
- Driveway locations are predetermined with curb cuts for the driveways to be installed when the street is constructed. The curb cuts shall be 20-foot wide. Each lot on the street will be -paired with an adjacent lot. If there are an odd number of lots, one lot at either end of the street will not be -paired. Each pair of lots shall locate its driveway 5- feet from the shared lot line of the pair.
- This street section shall include curb, gutter, and minimum 5-foot wide concrete sidewalks on both sides and shall typically be constructed within 41-feet of right-of-way.
- The lots cannot abut an alley.
- Traffic volumes on the street are not forecast to exceed 400 vehicle trips per day.

ASSUMING CONCRETE DRIVEWAY WITH RAMPED SIDEWALK PER SD-710B (ACHD) WILL BE REQUIRED. SEE COMMENTS REGARDING MINIMUM WIDTH BETWEEN DRIVEWAYS ON STANDARD DRAWING SD-710D (ACHD).

SEE COMMENTS REGARDING MINIMUM WIDTH OF SIDEWALK ON STANDARD DRAWING SD-709 (ACHD)



3. Minor Urban Local Street—24-foot Street

A minor local street is defined as a reduced width local street that provides direct lot access for residential land uses, and in limited circumstances, commercial or mixed uses as described below in this policy.

Note: Due to the types of circumstances in which this street might be utilized (i.e. homes fronting on common space), it is either necessary for the lead land use agencies to have ordinances to address this type of design or to grant variances to current ordinance requirements. Therefore, it is critical that prior to submitting a development application utilizing this street section, that the lead land use agency be consulted.

a. Pavement Width and Curb Type

A minor local street shall be constructed with a reduced width of 24-feet from back-of-curb to back-of-curb with curb and gutter. In instances where the minor local street is utilized in a gridded street system with alleys, vertical curb shall be required, and direct lot access shall be restricted. In instances where the minor local street is utilized with residential open space scenarios, rolled curb or ribbon curbing (with an inverted crown), is allowed if access to the rear of the parcels is provided from the minor local street (see diagram below).

b. Sidewalk and Right-of-Way

Five-foot wide concrete sidewalks are required on both sides, unless as otherwise described below or approved by ACHD and the lead land use agency. The sidewalk for this street section may be located within an easement. If the sidewalk is located within an easement, the minimum right-of-way width for this street section is 28-feet, to allow for 2-feet behind the back-of-curb on each side. Sidewalk may not be required, or may be required on one side only as determined by the lead land use agency, if the minor local street is used in residential areas where houses accessing the minor local street are built with the front of the house (including the front door) facing the common or open space lots that include a connected system of sidewalks or paved pathways and the lotting pattern is mirrored on both sides of the street (see diagram below).

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)

c. Parking

Parking is prohibited on both sides of this street section. "No Parking" signs are required. Alternative parking for guests, visitors, auxiliary residential parking, and deliveries shall be provided and shall be designed and located in coordination with the lead land use agency. Typically this parking will be provided via community parking spaces located within walking distance of these types of residences. Walking distance shall be defined by the lead land use agency.

d. Requirements

This street section may only be used in limited circumstances as described below:

- The maximum projected ADT is less than 400.
- The street connects to two other standard size streets.

- There is support from the lead land use agency (either from staff or Commission/Council).
- Maximum block length of 600-feet.
- In commercial or mixed use areas where urban designs utilizing alleys are desirable, but may be impractical due to access restrictions to classified roadways (arterials, collectors, and residential collectors). In this example, the minor local street would parallel the access-restricted roadway and would provide direct access to the commercial or mixed-use lots.
- No portion of a building shall be over 30-feet in height. If any portion of a building is over 30-feet in height, aerial fire apparatus is required and a 26-foot wide street is required (International Fire Code Appendix D Section C105). However, a 26-foot wide street, with a minimum right-of-way of 30-feet, is allowed if all other requirements for a minor local street are met.

Gridded Street System
Utilizing Minor Local Streets

Open Space and Alley Example
Utilizing Minor Local Streets

A PAVED SHOULDER INSTALLED FOR NON-MOTORIZED TRAVEL MUST MEET ALL THE ACCESSIBILITY REQUIREMENTS OF 2011 PROWAG R302 INCLUDING MINIMUM WIDTH AND PASSING SPACES IF WIDTH OF ACCESS ROUTE IS LESS THAN 5'. RECOMMEND INCREASING WIDTH OF PAVED SHOULDER TO 5' MINIMUM.

PER 2011 PROWAG R302.3, THE CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES SHALL BE 1.2 M (4.0 FT) MINIMUM, EXCLUSIVE OF THE WIDTH OF THE CURB.

PER 2011 PROWAG R302.4, WHERE THE CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES IS LESS THAN 1.5 M (5.0 FT), PASSING SPACES SHALL BE PROVIDED AT INTERVALS OF 200 FT MAXIMUM. PASSING SPACES SHALL BE 5 FT MINIMUM BY 5 FT MINIMUM.



4. Standard Rural Local Street—30-foot Street Section

The standard street width for rural developments with lot sizes of 1-acre or greater, but less than 5-acres per dwelling shall provide streets with a 30-foot wide surface (26-feet of pavement with 2-foot concrete ribbon on each side), 4-feet of which will be striped for non-motorized travel on each side. The minimum right-of-way width for this street section shall be 52- feet in order to encompass the entire swale section. The developer shall construct on both sides of the road a 2-foot wide (minimum) concrete ribbon 8-inches thick and an 8-foot wide drainage swale along the edge of the pavement to accommodate the runoff from the development. See Section 7207.5.6 for roadside swale requirements. Requests for variations of the provision for non-motorized travel (pedestrian and bikes) will be considered on a case-by-case basis.

5. Standard Rural Local Street—24-feet of pavement

The standard street width for rural developments with lot sizes of 5-acres or greater per dwelling shall provide a minimum of 24-foot pavement width, with an additional 3-foot gravel shoulders and borrow ditches on each side. This street section does not require the construction of curbs, gutters, or sidewalks.

7207.5.3 Pavement Thickness

A minimum of 2-1/2 inches of pavement is required on all local streets.

An adequate base section is also required. Base thickness shall be determined by the following formula:

$T = 0.0032 (T.I.) (100-R)$, where

T = total gravel equivalency

T.I. = traffic index

R = "R" value of subgrade material

7207.5.4 Traffic Index

The District has pre-assigned a traffic index of 6 for local residential streets.

7207.5.5 Curb Type

7207.5.5.1 Standard Vertical curb

Standard vertical curb and gutter is required on all streets where curbs are required, except as allowed below in Section 7207.5.5.2 and 7207.5.5.3. This provides increased protection for pedestrians, street trees, utilities and signs and clearly identifies driveway depressions. It also provides drainage control and helps prevent runaway parked vehicles.

7207.5.5.2 Rolled Curb

The District allows 3-inch rolled curb and gutter where none of the following conditions exist:

- An area covered by hillside ordinances, regardless of the grade.
- A street where the grade is 3.0% or greater for a distance of more than 100-feet.
- A street where drainage control is needed.
- Vertical curb exists on both sides of the proposed improvements.
- Where Section 7208.4.6 does not require vertical curb for a 27-foot street section.

7207.5.5.3 Ribbon Curb

Ribbon curbs are allowed in rural developments with buildable lot areas of 1.0 acre or more. See Section 7208.5.6 below.

7207.5.6 Roadside Swale Drainage Treatment—for lots 1-acre or greater

1. Development Agreement Requirement
The developer shall enter into a development agreement providing for the design and inspection of the roadside swale street section within the development and provide a financial surety to ensure compliance with the roadside swale street section standards and requirements.
2. Design Criteria
The swale section shall consist of a minimum 8-foot wide swale a minimum of 1-foot deep on each side. The minimum roadway cross slope is 2%. A 1-foot wide 8-inches thick ribbon curb is required at the top back of swale. For specific design criteria refer to the ACHD supplement to the ISPWC.
3. Swale Location
Swales shall be located within the public right-of-way; sidewalk may be placed in an easement.
4. Driveway Requirements
Maximum driveway width of 30-feet for lot frontage greater than or equal to 100-feet wide, maximum driveway width of 20-feet for lots with frontage less than 100-feet wide.
5. Landscaping and Maintenance
Landscaping within the swale requires a license agreement. For specific landscaping criteria refer to the ACHD supplement to the ISPWC.

Swales shall be maintained in common by the Homeowner's Association. Design engineer shall provide Maintenance and Operation Manual outlining required periodic maintenance.

7207.5.7 Sidewalks

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)

Five-foot wide concrete sidewalk is required on both sides of all local streets, except those in rural developments with net densities of one dwelling unit per 1.0 acre or less, or in hillside conditions where there is no direct lot frontage, in which case a sidewalk shall be constructed along one side of the street. Some local jurisdictions may require wider sidewalks.

The sidewalk may be placed next to the back-of-curb. Where feasible, a parkway strip at least 8-feet wide between the back-of-curb and the street edge of the sidewalk is recommended to provide increased safety and protection of pedestrians and to allow for the planting of trees in accordance with the District's Tree Planting Policy. If no trees are to be planted in the parkway strip, the applicant may submit a request to the District, with justification, to reduce the width of the parkway strip.

Detached sidewalks are encouraged and should be parallel to the adjacent roadway. Meandering sidewalks are discouraged.

Appropriate easements shall be provided if public sidewalks are placed out of the right-of-way. The easement shall encompass the entire area between the right-of-way line and 2-feet behind the back edge of the sidewalk. Sidewalks shall either be located wholly within the public right-of-way or wholly within an easement.

7207.5.8 Cul-de-sac Streets

The minimum radius permitted for a turnaround is 45-feet; in rural areas or for temporary cul-de-sacs the emergency service providers may require a greater radius.

1. Alternative Turnarounds

The District will consider alternatives to the standard cul-de-sac turnaround on a case-by-case basis. This will be based on turning area, drainage, maintenance considerations and the written approval of the agency providing emergency fire service for the area where the development is located.

2. Landscaping and Parking

Landscaping and parking islands may be constructed in turnarounds if a minimum 29-foot street section is constructed around the island. The pavement width shall be sufficient to allow the turning around of a standard AASHTO SU design vehicle without backing. The developer shall provide written approval from the appropriate fire department for this design element.

7207.5.9 Design Speed

The minimum design speed for local urban and rural streets shall be 25 MPH.

7207.5.10 Stopping Sight Distance

A safe stopping sight distance is required for all vertical and horizontal curves. The minimum sight distance allowed is 150-feet on local streets.

7207.5.11 Maximum/Minimum Profile Grade

The maximum allowable grade for any public street is 10%, and the minimum allowable grade is 0.4%.

7207.5.12 Minimum Centerline Radius of Curves

The minimum mid-block centerline radius allowed on a local street is 100-feet.

7207.5.13 Tangent Length Between Curves

A minimum tangent length of 50-feet is required between horizontal reverse curves, unless the centerline radii are at least 300-feet.

7207.5.14 Tangent Length Approaching Intersections

Intersections located on horizontal curves should be avoided particularly if the radius of either street is close to the minimum allowed or if the intersection occurs on the inside of the horizontal curve. A permanent sight distance easement based on the sight distance of the design speed

shall be provided where one street must intersect with another on a curve.

The minimum centerline tangent length approaching an intersection shall be 150-feet from the near edge of the travel way. If the street is planned for future widening, then the tangent shall be measured from the near edge of the future travel way.

7207.5.15 Roadway Lighting

Each land use jurisdiction in Ada County establishes the requirements for roadway lighting. The applicant will provide adequate lighting per the requirements of the land use jurisdiction.

7207.5.16 Landscape Medians

Landscape medians are permissible where adequate pavement width is provided on each side of the median to accommodate the travel lanes and where the following is provided.

- The median is platted as right-of-way owned by ACHD.
- The width of an island near an intersection is 12' maximum for a minimum distance of 150'. Beyond the 150' the island may increase to a maximum width of 30'.
- At an intersection that is signalized or is to be signalized in the future, the median width shall be reduced to accommodate the necessary turn lane storage and tapers.
- The Developer or Homeowners Association shall apply for a license agreement if landscaping is to be placed within these medians.
- The license agreement shall contain the District's requirements of the developer including, but not limited to, a "hold harmless" clause; requirements for maintenance by the developer; liability insurance requirements; and restrictions.
- Vertical curbs are required around the perimeter of any raised median. Gutters shall slope away from the curb to prevent ponding.

7208 COMMERCIAL STREETS

7208.1 General

Commercial streets are classified as local streets, but they carry higher volumes of vehicle and truck traffic than local residential streets. Special design considerations are made necessary by the unique character of the roadway and traffic volumes.

The District encourages shared access points and cross access in order to minimize conflicts. Shared access points are particularly desirable where on- street parking is proposed.

7208.2 Development Requirements

7208.2.1 Adjacent or Internal Streets

The developer is responsible for improving all commercial street frontages adjacent to the development's site or internal to the development as required below, regardless of whether access is taken to all of the adjacent or internal commercial streets.

All utility relocation costs associated with improving street frontages adjacent the site shall be borne by the developer.

The District requires dedication of additional right-of-way without compensation to provide the minimum requirements according to District standards.

7208.2.2 Required Improvements

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)

1. Adjacent Streets (Existing or New)

Required improvements to an adjacent commercial street shall consist of pavement widening to one-half the required width, including curb, gutter and concrete sidewalk (minimum 5-feet), plus 12-feet of additional pavement widening beyond the centerline established for the street to provide an adequate roadway surface, with the pavement crowned at the ultimate centerline. A 3-foot wide gravel shoulder and a borrow ditch sized to accommodate the roadway storm runoff shall be constructed on the unimproved side.

2. Internal Streets (Existing or New)

Required improvements to an internal commercial street shall consist of a complete street section with curb, gutter, and sidewalk (minimum 5-feet) on both sides of the roadway.

7208.2.3 Off-site Streets

If the proposed development is not served by a paved public street, the developer shall pave the street or widen the existing pavement to provide a 30-foot wide (minimum) paved street with 3-foot gravel shoulders from the proposed development to the public street specified by the District. Wider street widths may be required depending on the magnitude of the development and other factors, including the potential for bicycle, bus and pedestrian traffic.

If the proposed development is served by a paved public road less than 30-feet wide, the developer shall widen the pavement to a minimum of 30-feet wide or add 3-feet of additional pavement plus 3-foot gravel shoulders to the existing road, whichever is greater. The road shall be widened from the site to the public street specified by the District. All utility relocation costs associated with the off-site street widening shall be borne by the developer.

7208.2.4 Continuation of Streets

1. Consideration for Future Development

The street design in a proposed development shall cause no undue hardship to adjoining property. An adequate and convenient access to adjoining property for use in future development may be required. If a street ends at the development boundary, it shall meet the requirements as described in this sub-section.

The District will consider the following items when determining when to require a stub street:

- Property size and configuration of current application
- Property size and configuration of adjacent parcels
- Potential for redevelopment of adjacent parcels
- Location of vehicular and pedestrian attracting land use (i.e. schools, neighborhood commercial, etc.)
- Comprehensive Plan and Zoning designations
- Needs of the emergency service providers
- Location of existing stub streets
- Location of canals and necessary crossings
- Cost vs. benefit of requiring canal crossing
- Functional Classification of adjacent and nearby roadways (i.e. Will requiring a stub street achieve the District's Access Management goals by reducing potential need for additional connection to a classified roadway?)

Benefits of Connectivity and Stub Streets include but are not limited to the following:

- Reduces vehicle miles traveled.
- Increases access for emergency services.
- Reduces need for additional access points to the arterial street system.
- Promotes the efficient delivery of services including trash, mail, deliveries, water, and sewer.
- Promotes orderly development.

2. Existing Adjacent Development

An existing street, or a street in an approved preliminary plat, which ends at a boundary of a proposed development shall be extended in that development. The extension shall include provisions for continuation of storm drainage facilities.

3. Stub Streets

Stub streets will be required to provide circulation or to provide access to adjoining properties. Stub streets will conform with the requirements described in Section 7208.2.5.4, except a temporary cul-de-sac will not be required if the stub street has a length no greater than 150 feet. A sign shall be installed at the terminus of the stub street stating

that "THIS ROADWAY WILL BE EXTENDED IN THE FUTURE."

In addition, a stub street must meet the following conditions:

- A stub street shall be designed to slope towards the nearest street intersection within the proposed development and drain surface water toward that intersection; unless an alternative storm drain system is approved by the District.
- The District may require appropriate covenants guaranteeing that the stub street will remain free of obstructions.

4. Temporary Dead End Streets

The design and construction requirements for cul-de-sac streets shall apply to temporary dead end streets. The developer shall construct a temporary cul-de-sac. The temporary cul-de-sac shall be paved and shall meet the dimensional requirements of a standard cul-de-sac. The developer shall grant a temporary turnaround easement to the District for those portions of the cul-de-sac which extend beyond the dedicated street right-of-way. In the instance where a temporary easement extends onto a buildable lot, the entire lot shall be encumbered by the easement and identified on the plat as a non-buildable lot until the street is extended.

7208.3 Traffic Considerations

7208.3.1 Average Daily Traffic

ADT for commercial streets typically ranges up to 8,500 vehicles. Peak-hour traffic varies, depending on the type of development.

7208.3.2 Vehicle Access

Lot access to local commercial streets from adjacent property is permitted. Controls for driveway and intersection placement shall be required.

7208.3.3 Maximum Traffic on One Access

If a proposed development only has one access to a public street that is a commercial street, or if it proposes to extend public streets from existing development with only one commercial street access to the public street system, the maximum forecast ADT to be allowed at any point on the local commercial street access is 3,000. This volume may be reduced or increased based on information received from the lead land use agency, the applicable fire department, and/or emergency services. The District will also take into consideration the following items when determining whether or not to reduce or increase the maximum allowable ADT: railroad crossings, canal crossings, and topography (foothills vs. flat land).

7208.3.4 Through Traffic

Through traffic in commercial developments is permitted.

7208.3.5 Street Patterns

Street patterns in commercial developments should not adversely affect nearby residential development. Street connectivity to adjacent residential land uses is important in order to provide access from the residential uses to the commercial uses. Consideration shall be given for designing these connections to discourage the commercial traffic from adversely impacting the residential land uses.

7208.3.6 Traffic Considerations

Commercial streets will typically carry a higher percentage of truck traffic than local residential streets in order to accommodate deliveries, etc. Therefore, off-street parking and maneuvering areas, defined access points and other on-site circulation elements should be taken into consideration.

7208.3.7 Speed Control and Traffic Calming

Design of local commercial street systems, where higher pedestrian activity is anticipated, should discourage excessive speeds by using passive design elements. If the design or layout of a development is anticipated to necessitate future traffic calming implementation by the District, then the District will require changes to the layout and/or the addition of passive design elements such as horizontal curves, bulb-outs, chokers, etc. The District will also consider texture changes to the roadway surface (i.e. stamped concrete) as a passive design element. These alternative methods may require a maintenance and/or license agreement. Passive design elements are to be considered the preferred method to calm traffic and achieve the desired travel speed for the roadway. Speed humps, valley gutters, stop signs, and cross drains are not an acceptable tool for traffic calming new local streets.

The District has developed a traffic calming policy for existing streets in Section 5000. In the review of developments, the District will evaluate the potential need for future traffic calming.

7208.3.8 Pedestrians

Pedestrian/vehicle conflict points should be minimized. Pedestrian walkways or sidewalks are to be provided to allow direct access from all adjacent property, to assure safe pedestrian travel in commercial developments.

7208.3.9 Bicycles

The commercial street section typically provides sufficient width to accommodate motorized vehicles and bicycles.

7208.3.10 On-Street Parking

On-street parking is typically permissible on roadways serving primarily commercial uses and where adequate width exists. Parking shall be prohibited within 75-feet from an intersection.

SEE COMMENTS REGARDING ACCESSIBLE ON-STREET PARKING IN SECTION 5104.4.3

7208.4 Access Considerations and Requirements

7208.4.1 Access and Driveway Spacing

Direct lot access to a commercial roadway near an intersection shall be located a minimum of 75-feet (measured centerline to centerline) from the nearest local intersection, and 150-feet from the nearest collector/arterial or arterial street intersection. There are no minimum spacing requirements for access points along a commercial street, but the District does encourage shared access points where appropriate.

7208.4.2 Commercial Street Intersections

Commercial streets intersecting other local streets (residential, industrial, or commercial) shall provide a minimum roadway offset of 125-feet from any other roadway or intersection (measured centerline to centerline).

7208.4.3 Driveway Design Requirements

- Commercial driveways shall be restricted to a maximum width of 40-feet.
- Most commercial driveways will be constructed as curb-cut type facilities if located on commercial streets.
- All new driveways are required to be paved their full width and at least 30- feet into the site from the edge of pavement of the existing road.
- If an access point is to be gated, the gate or keypad (if applicable) shall be located a minimum of 50-feet from the near edge of the intersection and a turnaround shall be provided.
- Raised medians may serve as an effective means of traffic control and regulation. The District may require raised medians on commercial roadways where site access creates operational issues. The raised median shall be constructed as a 6-inch concrete median with the appropriate reflectors and shall extend a minimum of 75-feet beyond the edge of the driveway.

7208.5 Commercial Street Design

7208.5.1 Right-of-Way Width

The standard right-of-way width for new commercial roadways shall typically be 50 and 70-feet.

7208.5.2 Street Section

The standard street section for commercial streets will vary depending on the need for a center turn lane, bike lanes, volumes, percentage of truck traffic, and/or on-street parking.

A 36-foot street section (back-of-curb to back-of-curb) will typically accommodate two travel lanes and on-street parking.

A 40-foot street section (back-of-curb to back-of-curb) will typically accommodate two travel lanes and a center turn lane.

A 46-foot street section (back-of-curb to back-of-curb) will typically accommodate two travel lanes, a center turn lane and bike lanes.

7208.5.3 Pavement Thickness

A minimum thickness of 3-inches of pavement is required on collector streets.

An adequate base section is also required. Base thickness shall be determined by the following formula:

$$T = 0.0032 (T.I.) (100-R), \text{ where}$$

T = total gravel equivalency
T.I. = traffic index
R = "R" value of subgrade material

7208.5.4 Traffic Index

The District has pre-assigned a traffic index of 8 for commercial streets.

7208.5.5 Curb Type

Standard vertical curbs are required on all commercial streets.

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)

7208.5.6 Sidewalk

Concrete sidewalks at least **five-feet** wide are required on both sides of all commercial streets. If a separated sidewalk is proposed, a parkway strip at least 6-feet wide between the back-of-curb and street edge of the sidewalk is required to provide increased safety and protection of pedestrians. Consult the District's Tree Planting Policy if trees are to be placed within the parkway strip.

7208.5.7 Cul-de-sac Streets

The minimum radius permitted for a turnaround is 55-feet to back-of-curb.

7208.5.8 Design Speed

The design speed for commercial streets shall be 30 MPH.

7208.5.9 Stopping Sight Distance

A safe stopping sight distance is required for all vertical and horizontal curves. The minimum sight distance allowed is 200-feet.

7208.5.10 Maximum/Minimum Profile Grade

The maximum allowable grade for any public commercial street is 10%. The minimum allowable grade is 0.4%.

7208.5.11 Minimum Centerline Radius of Curves

The minimum mid-block centerline radius allowed on commercial streets is 180-feet.

7208.5.12 Tangent Length Between Curves

A minimum tangent of 100-feet is required between horizontal reverse

curves, unless the centerline radii exceeds 500-feet.

7208.5.13 Tangent Length Approaching Intersections

Intersections located on horizontal curves should be avoided particularly if the radius of either street is close to the minimum allowed or if the intersection occurs on the inside of the horizontal curve. A permanent sight distance easement based on the sight distance of the design speed shall be provided where one street must intersect with another on a curve.

The minimum centerline tangent length approaching an intersection shall be 200-feet from the near edge of the travel way. If the street is planned for future widening, then the tangent shall be measured from the near edge of the future travel way.

7208.5.14 Roadway Lighting

Each land use jurisdiction in Ada County establishes the requirements for roadway lighting. The applicant will provide adequate lighting per the requirements of the land use jurisdiction.

7208.5.15 Landscape Medians

Landscape medians are permissible where adequate pavement width is provided on each side of the median to accommodate the travel lanes and where the following is provided.

- The median is platted as right-of-way owned by ACHD.
- The width of an island near an intersection is 12' maximum for a minimum distance of 150'. Beyond the 150' the island may increase to a maximum width of 30'.
- At an intersection that is signalized or is to be signalized in the future, the median width shall be reduced to accommodate the necessary turn lane storage and tapers.
- The Developer or Homeowners Association shall apply for a license agreement if landscaping is to be placed within these medians.
- The license agreement shall contain the District's requirements of the developer including, but not limited to, a "hold harmless" clause; requirements for maintenance by the developer; liability insurance requirements; and restrictions.
- Vertical curbs are required around the perimeter of any raised median. Gutters shall slope away from the curb to prevent ponding.

7209 INDUSTRIAL STREETS

7209.1 General

Industrial streets are classified as local streets, but they carry higher volumes of vehicle and truck traffic. Special design considerations are made necessary by the unique character of the roadway and traffic volumes.

The District encourages shared access points and cross access in order to minimize conflicts. Shared access points are particularly desirable where

on- street parking is proposed.

7209.2 Development Requirements

7209.2.1 Adjacent or Internal Streets

The developer is responsible for improving all industrial street frontages adjacent the development's site or internal to the development as required below, regardless of whether access is taken to all of the adjacent or internal collector streets.

All utility relocation costs associated with improving street frontages adjacent the site shall be borne by the developer.

The District requires dedication of additional right-of-way without compensation to provide the minimum width requirements according to District standards.

7209.2.2 Required Improvements

1. Adjacent Streets (Existing or New)

Required improvements to an adjacent industrial street shall consist of pavement widening to one-half the required width, including curb, gutter and concrete sidewalk (See Section 7209.5.6), plus 12-feet of additional pavement widening beyond the centerline established for the street to provide an adequate roadway surface, with the pavement crowned at the ultimate centerline. A 3-foot wide gravel shoulder and a borrow ditch sized to accommodate the roadway storm runoff shall be constructed on the unimproved side.

2. Internal Streets (Existing or New)

Required improvements to an internal industrial street shall consist of a complete street section with curb, gutter, and sidewalk (See Section 7209.5.6).

7209.2.3 Off-site Streets

If the proposed development is not served by a paved public street, the developer shall pave the street or widen the existing pavement to provide a 30-foot wide (minimum) paved street with 3-foot gravel shoulders from the proposed development to the public street specified by the District. Wider street widths may be required depending on the magnitude of the development and other factors, including the potential for bicycle, bus and pedestrian traffic. If the proposed development is served by a paved public road less than 30-feet wide, the developer shall widen the pavement to a minimum of 30-feet wide or add 3-feet of additional pavement plus 3-foot gravel shoulders to the existing road, whichever is greater. The road shall be widened from the site to the public street specified by the District. All utility relocation costs associated with the off-site street widening shall be borne by the developer.

7209.2.4 Continuation of Streets

1. Consideration for Future Development

The street design in a proposed development shall cause no undue hardship to adjoining property. An adequate and convenient access to adjoining property for use in future development may be required. If a street ends at the development boundary, it shall meet the requirements as described in this sub-section.

The District will consider the following items when determining when to require a stub street:

- Property size and configuration of current application
- Property size and configuration of adjacent parcels
- Potential for redevelopment of adjacent parcels
- Location of vehicular and pedestrian attracting land use (i.e. schools, neighborhood commercial, etc.)
- Comprehensive Plan and Zoning designations
- Needs of the emergency service providers
- Location of existing stub streets
- Location of canals and necessary crossings
- Cost vs. benefit of requiring canal crossing
- Functional Classification of adjacent and nearby roadways (i.e. will requiring a stub street achieve the District's Access Management goals by reducing potential need for additional connection to a classified roadway)

Benefits of Connectivity and Stub Streets include but are not limited to the following:

- Reduces vehicle miles traveled.
- Increase access for emergency services.
- Reduces need for additional access points to the arterial street system
- Promotes the efficient delivery of services including trash, mail, deliveries, water, and sewer.
- Promotes orderly development.

2. Existing Adjacent Development

An existing street, or a street in an approved preliminary plat, which ends at a boundary of a proposed development shall be extended in that development. The extension shall include provisions for continuation of storm drainage facilities.

3. Stub Streets

Stub streets will be required to provide circulation or to provide access to adjoining properties. Stub streets will conform with the requirements described in Section 7209.2.5.4, except a temporary cul-de-sac will not be required if the stub street has a length no greater than 150-feet. A sign shall be installed at the terminus of the stub street stating

that "THIS ROADWAY WILL BE EXTENDED IN THE FUTURE."

In addition, a stub street must meet the following conditions:

- A stub street shall be designed to slope towards the nearest street intersection within the proposed development and drain surface water toward that intersection; unless an alternative storm drain system is approved by the District.
- The District may require appropriate covenants guaranteeing that the stub street will remain free of obstructions.

4. Temporary Dead End Streets

The design and construction requirements for cul-de-sac streets shall apply to temporary dead end streets. The developer shall construct a temporary cul-de-sac. The temporary cul-de-sac shall be paved and shall meet the dimensional requirements of a standard cul-de-sac. The developer shall grant a temporary turnaround easement to the District for those portions of the cul-de-sac which extend beyond the dedicated street right-of-way. In the instance where a temporary easement extends onto a buildable lot, the entire lot shall be encumbered by the easement and identified on the plat as a non-buildable lot until the street is extended.

7209.3 Traffic Considerations

7209.3.1 Average Daily Traffic

ADT for industrial streets typically ranges up to 8,500 vehicles. Peak-hour traffic varies, depending on the type of development.

7209.3.2 Vehicle Access

Lot access to local industrial streets from adjacent property is permitted. Controls for driveway and intersection placement shall be required. See Section 7209.4 for guidance.

7209.3.3 Maximum Traffic on One Access

If a proposed development only has one access to a public street that is an industrial street, or if it proposes to extend public streets from existing development with only one industrial street access to the public street system, the maximum forecast ADT to be allowed at any point on the industrial street access is 3,000. This volume may be reduced or increased based on information received from the lead land use agency, the applicable fire department, and/or emergency services. The District will also take into consideration the following items when determining whether or not to reduce or increase the maximum allowable ADT: railroad crossings, canal crossings, and topography (foothills vs. flat land).

7209.3.4 Through Traffic

Through traffic in industrial developments is permitted. Through industrial traffic to or from residential areas will normally not be allowed.

7209.3.5 Street Patterns

Street patterns in industrial developments should not adversely affect nearby residential development.

7209.3.6 Traffic Considerations

Industrial streets typically carry a high percentage of truck traffic in industrial areas. Therefore, off-street parking and maneuvering areas, defined access points and other on-site circulation elements should be taken into consideration.

7209.3.7 Speed Control

Streets in industrial areas should be designed to discourage speeds above 35 MPH.

7209.3.8 Pedestrians

Pedestrian/vehicle conflict points should be minimized.

The District will review ✓ pedestrian facilities in industrial developments on a development-by-development basis. See Section ✓ 209.5.6 for guidance.

7209.3.9 Bicycles

The industrial street section typically does not provide sufficient width to accommodate bicycles. Bicycle lanes may be required if the roadway provides an important connection for bicycles or is on a designated bicycle route.

7209.3.10 On-Street Parking

On-street parking is typically permissible on roadways serving industrial uses where adequate width exists. The street section shall be increased from the standard (See Section 7209.5.2) if on-street parking is proposed. Parking shall be prohibited within 75-feet from an intersection.

7209.4 Access Considerations and Requirements

7209.4.1 Access and Driveway Spacing

Direct lot access to an industrial roadway near an intersection shall be located a minimum of 75-feet (measured centerline to centerline) from the nearest local street intersection, and 150-feet from the nearest collector or arterial street intersection. There are no minimum spacing requirements for access points along an industrial street, but the District does encourage shared access points where appropriate.

7209.4.2 Industrial Street Intersection Spacing

Industrial streets intersecting other local streets (residential, industrial, or commercial) shall provide a minimum roadway offset of 125-feet from any other roadway or intersection (measured centerline to centerline).

7209.4.3 Driveway Design Requirements

- Industrial driveways shall be restricted to a maximum width of 40-feet. A wider access point may be considered if it is demonstrated to be necessary with turning templates based on the design vehicle.
- Most industrial driveways will be constructed as curb-cut type facilities if located on industrial streets.
- All new driveways are required to pave their full width and at least 30- feet into the site from the edge of pavement of the existing road.
- If an access point is to be gated, the gate or keypad (if applicable) shall be located a minimum of 50-feet from the near edge of the intersection and a turnaround shall be provided.
- Raised medians may serve as an effective means of traffic control and regulation. The District may require raised medians on industrial roadways where site access creates operational problems. The raised median shall be constructed as a 6-inch concrete median with the appropriate reflectors and shall extend a minimum of 75-feet beyond the edge of the driveway.

7209.5 Industrial Street Design

7209.5.1 Right-of-Way Width

The standard right-of-way width for new industrial roadways shall be 50-feet.

7209.5.2 Street Section

The standard street section for industrial streets will vary depending on the need for a center turn lane, bike lanes, and/or on-street parking.

A 40-foot street section (back-of-curb to back-of-curb) will typically accommodate two travel lanes and a center turn lane.

A 52-foot street section (back-of-curb to back-of-curb) will typically accommodate two travel lanes, a center turn lane, and on-street parking.

The width may need to be wider if the developer proposes all of the roadway components.

7209.5.3 Pavement Thickness

A minimum thickness of 3-inches of pavement is required on industrial streets.

An adequate base section is also required. Base thickness shall be determined by the following formula:

$$T = 0.0032 (T.I.) (100-R), \text{ where}$$

T = total gravel equivalency

T.I. = traffic index

R = "R" value of subgrade material

7209.5.4 Traffic Index

The District has pre-assigned a traffic index of 8 for industrial streets.

7209.5.5 Curb Type

Standard vertical curbs are required on all industrial streets.

SEE COMMENTS REGARDING
MINIMUM WIDTH OF SIDEWALK ON
STANDARD DRAWING SD-709 (ACHD)

7209.5.6 Sidewalk

Concrete sidewalks at least **five-feet** wide are required on one side of all new industrial streets. If a separated sidewalk is proposed, a parkway strip at least 6-feet wide between the back-of-curb and street edge of the sidewalk is required to provide increased safety and protection of pedestrians. Consult the District's Tree Planting Policy if trees are to be placed within the parkway strip.

In some existing industrial developments or expansions of those developments, the District will allow deviations from the typical street standards by not requiring the construction of sidewalks. These developments include primary uses of storage facilities, trucking terminals, contractor shops, utility shops and selective heavy manufacturing facilities in which significant pedestrian movement is not anticipated. Deviations from the standards will not be allowed in new industrial developments, technological parks or on designated collector or arterial streets.

7209.5.7 Cul-de-sac Streets

The minimum radius permitted for a turnaround is 55-feet to back-of-curb.

7209.5.8 Design Speed

The design speed for industrial streets shall be 35 MPH.

7209.5.9 Stopping Sight Distance

A safe stopping sight distance is required for all vertical and horizontal curves. The minimum sight distance allowed is 200-feet.

7209.5.10 Maximum/Minimum Profile Grade

The maximum allowable grade for any industrial street is 10%. The minimum allowable grade is 0.4%.

7209.5.11 Minimum Centerline Radius of Curves

The minimum mid-block centerline radius allowed on industrial streets is 180-feet.

7209.5.12 Tangent Length Between Curves

A minimum tangent of 100-feet is required between horizontal reverse curves, unless the centerline radii exceeds 500-feet.

7209.5.13 Tangent Length Approaching Intersections

Intersections located on horizontal curves should be avoided particularly if the radius of either street is close to the minimum allowed or if the intersection occurs on the inside of the horizontal curve. A permanent sight distance easement based on the sight distance of the design speed shall be provided where one street must intersect with another on a curve.

The minimum centerline tangent length approaching an intersection shall be 200-feet from the near edge of the travel way. If the street is planned for future widening, then the tangent shall be measured from the near edge of the future travel way.

7209.5.14 Roadway Lighting

Each land use jurisdiction in Ada County establishes the requirements for roadway lighting. The applicant will provide adequate lighting per the requirements of the land use jurisdiction.

7209.5.15 Raised Medians

Landscape medians are permissible where adequate pavement width is provided on each side of the median to accommodate the travel lanes and where the following is provided.

- The median is platted as right-of-way owned by ACHD.
- The width of an island near an intersection is 12' maximum for a minimum distance of 150'. Beyond the 150' the island may increase to a maximum width of 30'.
- At an intersection that is signalized or is to be signalized in the future, the median width shall be reduced to accommodate the necessary turn lane storage and tapers.
- The Developer or Homeowners Association shall apply for a license agreement if landscaping is to be placed within these medians.
- The license agreement shall contain the District's requirements of the developer including, but not limited to, a "hold harmless" clause; requirements for maintenance by the developer; liability insurance requirements; and restrictions.
- Vertical curbs are required around the perimeter of any raised median. Gutters shall slope away from the curb to prevent ponding.

7210 ALLEYS

7210.1 General

An alley is defined as vehicular access way through the middle of a block giving public access to the rear of residential, non-residential, and mixed use lots or buildings. Alleys are not considered part of the traffic circulation system. An alley may serve as the primary vehicular access to a lot or building, but an alley should not provide the sole public right-of-way frontage. A lot served by an alley shall also have public street frontage. Alleys should connect to a public street at each end and should not terminate in permanent dead-ends. Access is allowed to and from a fully improved alley. A fully improved alley is defined as an alley that is paved the required width (as determined by 7210.2 and 7210.3.1)

7210.2 Existing Alleys

If a proposed development abuts an existing alley, the dedication of additional right-of-way to obtain a minimum width from the centerline of the alley of 8-

feet for residential uses and 10-feet for non-residential or commercial uses may be required. Each development will be reviewed by the District on a case-by-case basis. If the proposed development takes access from an alley, the developer will be required to pave the entire width of the right-of-way from the nearest public street to and adjacent the development.

7210.3 New Alleys

7210.3.1 Right-of-Way and Pavement Width

The minimum right-of-way width for all new residential alleys shall be a minimum of 16-feet or a maximum of 20-feet. If the residential alley is 16-feet in width building setbacks required by the land use agency having jurisdiction shall provide sufficient space for the safe backing of vehicles into the alley (see Section 7210.3.3). The minimum right-of-way width for all new commercial or mixed-use alleys shall be 20-feet. All alleys shall be improved by paving the full width and length of the right-of-way.

Dedication of clear title to the right-of-way and the improvement of the alley, and acceptance of the improvement by the District as meeting its construction standards, are required for all alleys contained in a proposed development.

7210.3.2 Length

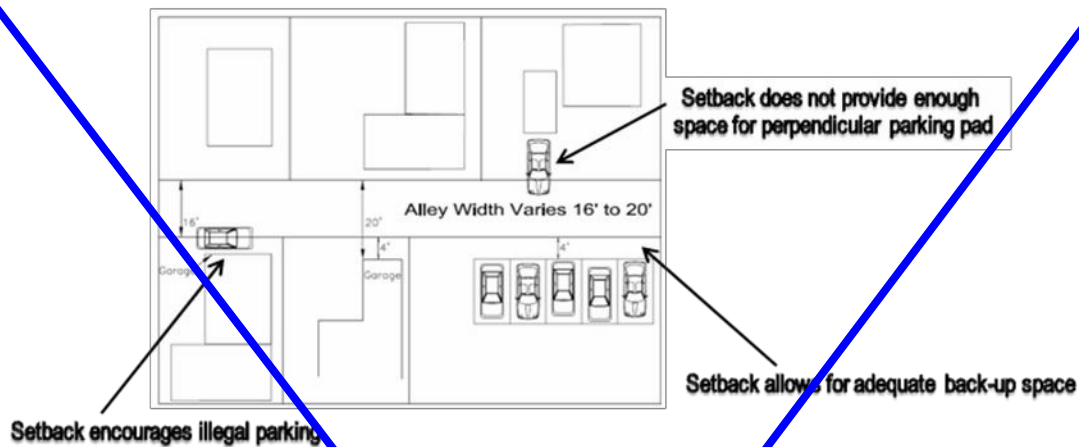
Alleys shall be no longer than 700-feet in length. If the lead land use agency having jurisdiction requires a shorter block length, the alley shall be no longer than the agency's required block length.

7210.3.3 Parking and Setbacks

Parking within the alley right-of-way is prohibited. "No Parking" signs are required to be installed by the developer. The signs should be located at the alley/street intersections. Parking which is entered from the alley shall be designed so the minimum clear distance from the back of the parking stall to the opposite side of the alley is 20-feet for perpendicular parking.

Setbacks for structures taking access from the alley should be closely coordinated with the lead land use agency. The setbacks shall either discourage parking within the alley (where it may partially block or occur within the right-of-way) or allow adequate area for one perpendicular parking pad. In order to discourage parking, building setbacks shall be minimal from the alley right-of-way line, while still achieving the required 20-feet of back-up space from a garage or other parking structure to the opposite side of the alley (i.e. 4-foot setback + 16-foot alley = 20-feet for back-up space). In order to allow for one perpendicular parking pad, the setbacks shall be great enough from the alley right-of-way line to allow for one perpendicular parking pad (length of pad shall be as defined by the applicable land use agency, typically 19 to 20-feet for a 90 degree parking stall) plus the necessary length to achieve 20-feet of back-up space to the opposite side of the alley. Parking stall angled at 30, 45, or 60 degrees have different requirements for back-up distances and require coordination with the lead land use agency. Note: Some lead land use agencies may require a greater back-up space for 90-

degree parking.

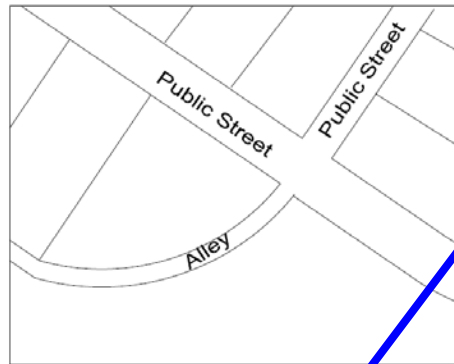
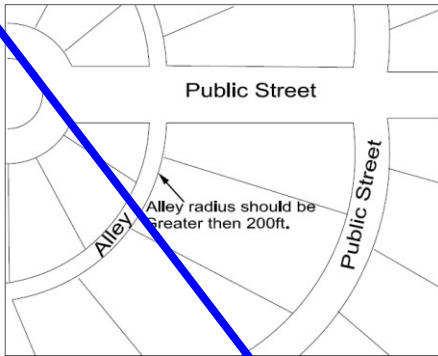


Developments with alleys shall demonstrate that adequate parking for guest, visitors, deliveries, etc. is provided within the development. This will require coordination with the lead land use agency. Additional parking may be provided either in common areas or by the provision of adequate on-street parking.

7210.3.4 Curves

Alleys shall generally be linear in design, but the District will consider large radius curves (with a radius greater than 200-feet) in alleys on a case-by-case basis.

- Curves in alleys will be considered if the land use pattern is desired by the lead land use agency and if the alley parallels the roadway to which the residential lots are fronting. (Note: the support from the lead land use agency may come in the form of a staff letter or analysis of codes and/or the comprehensive plan or a letter of support from the Council/Commission).
- Large radius curves may also be considered in areas where the alley needs to intersect the street at a 90° angle. In each instance, the District may require open space lots in strategic locations to ensure that appropriate sight distance is attained. The sight triangles shall either be identified as common spaces with landscaping restrictions or permanent easements identified on the plat.
- Ninety degree turns are prohibited within alleys.



7210.3.5 Alleys as Stubs

Alleys may be constructed as stubs to adjacent properties if the same land use pattern is desired by the lead land use agency and the continuation of the alley is associated with a parallel stub street with an appropriate turnaround. The District will only consider an alley as a stub street if there is full support from the lead land use agency (indicated either by staff or Commission/Council support). Some lead land use agencies may require a temporary turnaround at the end of the stubbed alley. Typically support will be granted from the lead land use agency if the property being stubbed to is either zoned similarly or has the same comprehensive plan designation as the property being developed (i.e. densities and land use layout are anticipated to be similar). Prior to the District approving an alley as a stub, the applicant shall seek comment and/or a conceptual plan from the adjacent property owner.

If an alley is to be stubbed to an adjacent property for future development the area should have an established circulation plan that supports the temporary dead-end. An alley may be stubbed as part of a phasing plan for an approved preliminary plat. If an alley is stubbed to an adjacent property, there may be interim restrictions on building lots, turnarounds, sanitary service provision, emergency access provision, and other related items.

7210.3.6 Vacations of Alleys

Vacations of alley rights-of-way are discouraged and shall not result in dead-end alleys.

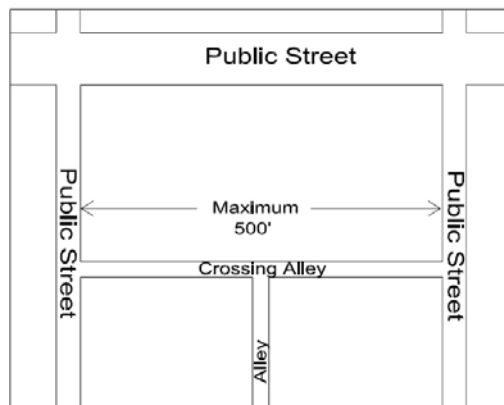
7210.3.7 Intersections and Offsets

Alleys should intersect public streets at each end. In specific circumstances as outlined in the policies below, the District may consider allowing an alley to intersect a public street at only one end. A 90-degree angle of intersection shall be designed where practical. In no case shall the intersecting angle be less than 75-degrees, as measured from centerline of intersecting street. An access to an alley shall be located a minimum of 50-feet from the nearest street (as measured centerline to centerline).

1. Alley/Alley Intersections

Alley to alley intersection may only be considered or allowed under the specific circumstances identified below:

- The lead land use agency supports the land use proposing an alley to alley intersection.
- The intersecting alleys provide access to residential uses. On a case by case basis the District will consider allowing the alley to alley intersections for mixed use areas within a development.
- For alley/alley intersections, base the sight triangle on the 10x20 and use ACHD Policy 7200 Figure 3, but decrease the driver's eye location to 10' from the edge of travel way.
- For the horizontal curves in an alley base the clear sight triangle on AASHTO equation 3-38. $HSO=R(1-\cos(28.65^\circ S/R))$. The value for S shall be based on a single vehicle approaching a nonmoving object at 15 mph.
- Appropriate radii and site distances are accommodated at the alley/alley intersection. The minimum inside radius at the alley/alley intersection shall be 28-feet and the minimum outside radius shall be 48-feet. The radii at the intersection shall accommodate the planned design vehicle, most typically a sanitary services vehicle. The sight triangles shall either be identified as common spaces with landscaping restrictions or permanent easements identified on the plat.
- A coordination meeting is held with the applicable agency staff (fire department, police department, sanitary service provider, land use agency, and ACHD) to discuss and resolve potential issues.
- The crossing alley has a maximum block length of 500-feet (measured near edge to near edge of the intersecting streets). The crossing alley shall intersect a public street at each end and shall not terminate at another alley. The crossing alley is the alley that has intersections with two public streets and an intersection with the perpendicular alley.



2. Alley/Local Street Intersections Alleys may intersect all types of local streets including minor local streets. Alleys shall generally be designed with a curb cut type approach when intersecting a local street. Alleys shall generally intersect streets in the middle of the block equally offsetting the intersecting streets. Alleys shall either align with alley/street intersections or provide a minimum 100-foot offset (measured centerline to centerline) from other local street intersections. For alley intersections with local streets, the District may consider a reduced offset if the lead land use agency's required lot size allows for shorter buildable lots.
3. Alley/Collector Street Intersections Alleys may intersect collector roadways. Alleys intersecting collector roadways shall generally be designed with a curb return type approach with a minimum back of curb radius of 28-feet. Typically, alleys will only intersect classified collector roadways within a downtown gridded street system setting. Alleys shall generally intersect the residential collector or collector streets in the middle of the block equally offsetting the intersecting streets. If the alley/collector intersection does not occur within a gridded street system, then alley/collector intersection shall offset any other intersection by the standard driveway offset requirements as outlined in Section 7206.4
4. Alley/Arterial Street Intersections Alleys may intersect classified arterial roadways in a downtown gridded street system setting. Alleys shall generally intersect the arterial in the middle of the block equally offsetting the intersecting streets. Alleys intersecting arterials shall generally be designed with a curb return type approach with a minimum back of curb radius of 28-feet. The radius may need to be greater depending on the planned design vehicle (i.e. garbage trucks, delivery vehicles, etc.) utilizing the alley.
5. Drainage Design Alleys shall generally be designed with an inverted crown section. The storm drain system shall be designed to meet the requirements of Section 8000.

7211 INTERSECTION DESIGN

7211.1 Approach Speed

A minimum design approach speed of 20 MPH is required for all intersections.

7211.2 Clear Sight Distance

The developer shall design local street intersections to safely operate without any traffic control device. A clear vision triangle, according to Figure 3 and Idaho Code will be required.

The clear vision triangle shall include restrictions on the height of embankments, shrubbery, fences or trees and the location of buildings. No

obstruction to vision will be allowed between 36-inches and 120-inches above the elevation of the adjacent roadway surface. The area in a clear vision triangle shall be given to the District by dedication or permanent easement.

7211.3 Vertical Alignment Within an Intersection

Intersections should be designed with minimum or near minimum grades. The maximum intersection grade allowed will be 2%. The allowable length of the connecting tangent grade may be zero, with the finished grade of the roadway having the flatter grade (2% or less) only at the intersection of the two street centerlines. The grade of the intersection and the steeper ascending grade approaching the intersection must be connected with a crest vertical curve with a "K" value of 15 or greater. The steeper ascending grade departing the intersection must be connected with a sag vertical curve with a "K" value of 20 or greater.

The design grade of intersecting streets shall be designed so as to extend from the intersection with a maximum grade of 2%, connected to the steeper grade departing the intersection with a vertical curve having a "K" value of 15 or greater for crest vertical curves and 20 or greater for sag vertical curves. The tangent of the intersecting street grade will begin no closer to the intersection than the extension of the curb line of the street being intersected.

7211.4 Minimum Angle of Intersection

A 90-degree angle of intersection should be designed where practical. In no case will the intersection angle be less than 75-degrees as measured from centerline of intersecting street.

7211.5 Drainage Structures

Inlets and catch basins should be avoided within the corner radius of any intersection. They shall not be located in front of a pedestrian ramp under any circumstance.

7212 PRIVATE ROADS

7212.1 General

The lead land use agencies in Ada County establish the requirements for private streets. The District retains authority and will review the proposed intersection of a private and public street for compliance with District intersection policies and standards.

7212.2 Requirements

Private roads should be designed to discourage through traffic between two public streets.

Private roads shall be graded to drain away from the public street intersection.

If a private road is gated, the gate or keypad (if applicable) shall be located a minimum of 50-feet from the near edge of the intersection and a turnaround shall be provided.

7212.3 Process to Dedicate an Existing Private Road to ACHD

7212.3.1 Application

The party requesting to dedicate a private road to the public shall be required to submit an application letter specifying the proposed portion of road to be dedicated, the public benefit of the road and the reasons why the District should accept the road into the public system. An application fee is required to pay for staff time to review the application, the road, site history, and make a report to the Right-of-Way and Development Services (ROWDS) Manager. The fee shall be as established in the Right-of-Way and Development Services Fee Schedule. The ROWDS Manager may accept or deny the application based on the data provided in the application and a determination of any public benefit to acceptance of the road into the public system. If the ROWDS Manager determines that there is no public benefit to accepting the road, the application shall be denied with no further action required by staff. An applicant may appeal the decision of the ROWDS Manager to the ACHD Commission.

7212.3.2 Review and Inspection

If the ROWDS Manager accepts the application, the applicant shall be required to provide all required documentation verifying the road was designed and constructed to current public standards. The burden of proof is on the applicant to prove the road meets public standards, not on the District to prove otherwise. Required documentation includes design plans, as-built plans, testing and inspection records and any other information or data that the District may reasonably require including additional testing of the storm drain system to verify that it has not been compromised by lack of maintenance or sedimentation from past construction activity within the development. If plans and/or testing and inspection records are not available, the applicant shall contract with an engineer and a testing laboratory and pay for the required additional testing to verify the design and condition of the road and storm drain system.

7212.3.3 Costs to be paid by Applicant

The applicant shall be required to reimburse the District for all staff time and charges to review the documentation and inspect the road prior to scheduling the public hearing.

7212.3.4 Public Hearing

After review of the required documentation and conducting a site inspection, staff shall prepare a report to the Commission and schedule a public hearing. At the public hearing the Commission will accept public testimony and review the findings of staff to determine if the road will be accepted.

into the public system. The Commission may: (i) accept the road, (ii) accept the road with conditions if remedial work is required to bring the road up to current public standards, or (iii) deny the request for acceptance of the road if the road does not meet current District standards and the applicant is unwilling or unable to perform the work necessary to bring the road up to current District standards.

7212.3.5 Acceptance with Conditions

If remedial work is required to bring the road up to current District standards, the applicant shall provide construction plans prepared by a professional engineer licensed in the State of Idaho to the District for review and acceptance. Prior to commencing construction, the applicant shall enter into an Inspection Agreement with the District and provide an inspection deposit in an amount to be calculated by District staff based on the amount of work required to be performed. The applicant's contractor shall be required to obtain a permit from the Construction Services Division and schedule inspections with the Division Inspection Personnel. All required remedial work shall be completed to District standards prior to final acceptance of the road.

7212.3.6 Acceptance

After Commission approval of the request to accept the road into the public system the applicant shall dedicate the right-of-way for the road by donation to the District free of all liens and encumbrances. The applicant shall provide a legal description for the road right-of-way prepared by a professional land surveyor licensed in the State of Idaho. The District will prepare the deed and obtain a title report. The applicant shall be responsible to remove all encumbrances not acceptable to the District prior to recordation of the deed. The official date of final acceptance of the road by the District for public maintenance shall be the date the deed is recorded by the District.

7213 PRIVATE NON-REGULATED UTILITIES

A private non-regulated utility is defined as a privately owned and operated utility that is not regulated by the Public Utilities Commission, nor owned and operated by a municipality, water sewer, or irrigation district. Examples include community water or sanitary sewer systems that serve a single development. This section applies to utilities installed parallel to and within public right-of-way.

7213.1 Developments Without Street Connectivity (Private Roads)

Developments proposing to install private non-regulated utilities, which do not provide street connectivity to adjacent properties, shall not be accepted as public roads and public right-of-way, but may be developed as private roads with agency (city or county) approval.

7213.2 Developments With Street Connectivity (Public Roads)

Developments proposing to install private non-regulated utilities, which provide street connectivity to adjacent properties, may be accepted as public roads

and public right-of-way, if they enter into a Development Agreement with the District. Requirements of the Development Agreement shall include the following:

The owner of the land being developed shall enter into a Development Agreement with the District prior to final plat approval. The agreement shall be recorded and shall run with the land in perpetuity, or until the private utility is taken over by a public agency or other regulated entity.

The developer shall include all requirements listed in the Development Agreement as a part of the Covenants, Codes and Restrictions (CC&Rs) for the development, which shall be reviewed and approved by the District prior to acceptance of the roads. The CC&Rs shall contain a provision prohibiting the dissolution of the Homeowners Association or the modification of the CC&R's without the expressed written consent of the District.

The developer shall provide certification by a professional engineer licensed in the state of Idaho that the utilities have been constructed in accordance with the District approved construction plans, and shall include record drawings, and copies of test results that verify trench compaction, and pressure tests per accepted industry standards for all water and sanitary sewer lines.

The developer or their contractor shall provide a three year warranty to the District for the utility construction and associated construction and materials. The developer or their contractor shall provide a financial surety held by and in the name of the Ada County Highway District, in an amount determined by the District, for a period of three years following acceptance of the roads by the District. This surety is to guarantee the developer or their contractor shall complete any needed roadway repairs caused or necessitated by the private utility within the three year warranty period.

The developer shall provide a letter from a municipality, water or sewer district, indicating that they will accept ownership and operation of the private utility, if the utility is built to the standards of the municipality/district. This letter requirement shall not apply to Planned Communities, as defined by the Ada County government.

In the event that no public agency or other regulated entity will accept the utility in the future, the private utility shall be located outside of the public right-of-way. Perpendicular crossings of the public right-of-way may be allowed subject to a license agreement and the following requirements: Utilities crossing the public right-of-way shall be placed with a valve or manhole constructed at the right-of-way line on both sides of the crossing. Pressurized lines crossing public right-of-way shall comply with Section 6007.11-8.6.

The developer shall require in the CC&Rs that the Homeowners Association shall become a member of Digline, and shall be responsible for marking the location of the underground private utilities.

Any future relocation of the private utilities (that lie within public right-of-

way) deemed necessary by the District shall be moved at the sole expense of the developer or their successor.

7214 STORMWATER

The District controls stormwater within the public rights-of-way under its jurisdiction, as necessary for public safety or right-of-way maintenance.

Ada County and the municipal governments have authority to control some functions of storm drainage management. Normally the County and cities administer the plan and plat review process, flood plain permitting, ordinance enforcement, and on-site drainage improvements.

Stormwater policies and guidelines are included in Section 8000 of this manual. They shall be used in study and design of drainage facilities that are located within the public rights-of-way. They also apply to those facilities that are to be connected with facilities for which the District has control or maintenance responsibility.

Should stormwater policies and guidelines stated or referenced in this Manual be inconsistent or conflict with the requirements of the governing jurisdiction, the more stringent requirements shall apply.

7215 MISCELLANEOUS REQUIREMENTS

7215.1 Bridges, Culverts, Headwalls, Retaining Walls and Other Structures

All structures proposed for location in the public right-of-way, or which affect District facilities, must be designed by a qualified Professional Engineer registered to practice in the State of Idaho and be properly detailed on the construction drawings. All structures shall be designed and constructed in accordance with Section 3000.

Appropriate engineering calculations are required. They shall accompany the construction drawings when submitted to the District for review. If the proposed structure is to accommodate anything owned or to be owned by someone other than the District (such as irrigation water or retained earth on private property) the District requires evidence of the Owner's approval before granting District approval.

7215.2 Gravity Irrigation Facilities

All irrigation facilities must be located outside the public right-of-way except where system distribution lines cross perpendicular to the right-of-way, unless otherwise approved by the District. A shutoff valve or manhole shall be installed on both sides of all crossings at the right-of-way line. If the District approves the location of irrigation facilities within the public right-of-way, a maintenance agreement will be required with the entity that owns the irrigation facilities.

7215.3 Idaho Standards for Public Works Construction (ISPWC)

All roadway and stormwater facilities to be constructed with a proposed development, and to be owned and maintained by the District, must be constructed according to the latest District approved edition of ISPWC and the District's Supplemental Standard Specifications.

7215.4 Hillside Ordinances

The development of hillside and foothills areas poses special problems and possible hazards. In order to allow development and minimize potential hazards, local public entities have adopted regulations called "Hillside Ordinances."

The Hillside Ordinances require the submittal of certain reports and plans. When proposed District facilities are involved, the reports are necessary for proper evaluation of District facilities. The developer shall submit a copy of each report to the District at the same time he submit the reports to the governing jurisdiction. The developer shall keep the District informed of revisions to the report. He shall submit a copy of all approval action(s) by the governing jurisdiction(s) to the District

7215.5 Signs

The District will provide street name signs, poles and mounting hardware for which the developer shall pay and install. The developer shall provide a copy of the street name evaluation sheet approving the street names of all streets within the development. The District will make the signs and provide them for a cost to the developer for installation according to District policy and the MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). Sign installation shall be inspected by District personnel for proper construction and placement. If the signs are installed according to MUTCD and District policy, they will be accepted for maintenance by the District. Alternatively, upon request the District will install the signs for a cost to the developer. If it becomes necessary to replace the signs because of erroneous street name information provided to the District, the developer shall reimburse the District for all costs incurred.

Figure 1
STREET SECTIONS
FOR REFERENCE ONLY

LOCAL STREETS

Please refer to Section 7207 in the Policy Manual for the criteria and standards related to each street section.

Road/RW	Walk to P/L	Walk	Curb	Park Lane	Thru Lane	Thru Lane	Park Lane	Curb	Walk	Walk to P/L
Standard Local										
33/47	2	5	.5	7	9	9	7	.5	5	2
Standard Local – City of Kuna and City of Star										
36/50	2	5	.5	8	9.5	9.5	8	.5	5	2
Reduced Width Local										
27/41	2	5	.5	-	9.5	9.5	7	.5	5	2
Minor Urban										
24/28	2	5 in easement	.5	-	11.5	11.5	-	.5	5 in easement	2
Standard Rural (1-5 acres)										
30/52	11 with swale	none	2 concrete ribbon	-	13	13	-	2 concrete ribbon	none	11 with swale
Standard Rural (+5 acres)										
24/50	10 with borrow ditch	none	3 gravel shoulder	-	12	12	-	3 gravel shoulder	none	10 with borrow ditch

SEE COMMENTS REGARDING MINIMUM WIDTH OF
SIDEWALK ON STANDARD DRAWING SD-709 (ACHD)

1. All dimensions are in feet.
2. Street sections less than 33-feet wide require approval by the appropriate fire department.
3. Criteria and Conditions in the Policy Manual shall be met to determine street section.
4. The Reduced Width Local street section may be constructed as a 29/43 if demonstrated that the width is necessary to accommodate utilities.

Figure 1
STREET SECTIONS
FOR REFERENCE ONLY

COMMERCIAL/INDUSTRIAL

Please refer to Section 7208 and 7209 in the Policy Manual for the criteria and standards related to each street section.

Road / RW	Walk to P/L	Walk	Curb	Bike Lane or Parking	Outside Lane	Turn lane	Outside lane	Bike Lane or Parking	Curb	Walk	Walk to P/L
2-lane Commercial w/parking											
36/50	2	5	.5	7.5 Parking	10	-	10	7.5 Parking	.5	5	2
3-lane Commercial											
40/54	2	5	.5	-	13	13	13	-	.5	5	2
3-lane Commercial w/bike lanes											
46/60	2	5	.5	6	11	11	11	6	.5	5	2
3-lane Industrial											
40/54	2	5	.5	-	13	13	13	-	.5	5	2
3-lane Industrial w/parking											
52/66	2	5	.5	7.5 Parking	12	12	12	7.5 Parking	.5	5	2

SEE COMMENTS REGARDING MINIMUM WIDTH OF
 SIDEWALK ON STANDARD DRAWING SD-709 (ACHD)

1. All dimensions are in feet.
2. Criteria and Conditions in the Policy Manual shall be met to determine street section.

Figure 1
STREET SECTIONS
FOR REFERENCE ONLY

COLLECTORS

Please refer to Section 7206 in the Policy Manual for the criteria and standards related to each street section.

Road / RW	Walk to P/L	Walk	Planter	Curb	Bike Lane	Outside Lane	Turn lane	Outside lane	Bike Lane	Curb	Planter	Walk	Walk to P/L
3-lane Collector w/bike lanes													
46/70	1	5	6	.5	6	11	11	11	6	.5	6	5	1
2-lane Collector w/bike lanes													
36/60	1	5	6	.5	6	11.5	-	11.5	6	.5	6	5	1

1. All dimensions are in feet.
2. Criteria and Conditions in the Policy Manual shall be met to determine street section.

SEE COMMENTS REGARDING MINIMUM WIDTH OF
SIDEWALK ON STANDARD DRAWING SD-709 (ACHD)

Figure 1
STREET SECTIONS
FOR REFERENCE ONLY

MINOR ARTERIAL

Please refer to Section 7205 in the Policy Manual for the criteria and standards related to each street section.

3-LANE MINOR ARTERIAL

Road / RW	Walk to P/L	Walk	Planter	Curb	Bike Lane	Outside Lane	Turn lane	Outside lane	Bike Lane	Curb	Planter	Walk	Walk to P/L
3-Lane Minor Arterial													
50/74	1	5	6	.5	6.5	12	12	12	6.5	.5	6	5	1

4-LANE MINOR ARTERIAL

Road / RW	Walk to P.L	Walk	Planter	Curb	Bike Lane	Outside Lane	Thru Lane	Thru Lane	Outside Lane	Bike Lane	Curb	Planter	Walk	Walk to P/L
4-Lane Minor Arterial														
60/84	1	5	6	.5	6.5	11.5	11.5	11.5	11.5	6.5	.5	6	5	1

5 LANE MINOR ARTERIAL

Road / RW	Walk to P/L	Walk	Planter	Curb	Bike Lane	Outside lane	Thru Lane	Turn Lane	Thru Lane	Outside Lane	Bike Lane	Curb	Planter	Walk	Walk to P/L
5-Lane Minor Arterial															
72/96	1	5	6	.5	6.5	11.5	11.5	12	11.5	11.5	6.5	.5	6	5	1

SEE COMMENTS REGARDING MINIMUM WIDTH OF
 SIDEWALK ON STANDARD DRAWING SD-709 (ACHD)

1. All dimensions are in feet.
2. Criteria and Conditions in the Policy Manual shall be met to determine street section.

Figure 1
STREET SECTIONS
FOR REFERENCE ONLY

PRINCIPAL ARTERIAL

Please refer to Section 7205 in the Policy Manual for the criteria and standards related to each street section.

5 LANE PRINCIPAL ARTERIAL

Road / R/W	Walk to P/L	Walk	Planter	Curb	Safety Shoulders	Outside lane	Thru Lane	Turn Lane	Thru Lane	Outside Lane	Safety Shoulder	Curb	Planter	Walk	Walk to P/L
5-Lane Principal Arterial															
72/96	1	5	6	.5	5.5	12	12	12	12	12	5.5	.5	6	5	1

7 LANE PRINCIPAL ARTERIAL

Road / R/W	Walk to P/L	Walk	Planter	Curb	Safety Shoulder	Outside Lane	Thru Lane	Thru Lane	Turn lane	Thru Lane	Thru Lane	Outside lane	Safety Shoulder	Curb	Planter	Walk	Walk to P.L
7-Lane Principal Arterial																	
96/120	1	5	6	.5	5.5	12	12	12	12	12	12	12	5.5	.5	6	5	1

SEE COMMENTS REGARDING MINIMUM WIDTH OF
 SIDEWALK ON STANDARD DRAWING SD-709 (ACHD)

1. All dimensions are in feet.
2. Criteria and Conditions in the Policy Manual shall be met to determine street section.

Figure 2

**STREET DESIGN GUIDELINES
*FOR REFERENCE ONLY***

Sections 7205, 7206 and 7207 – Please refer to the Policy Manual for the criteria and standards related to each section.

Description	Local Street Section 7207	Collector Street Section 7206	Arterial Street Section 7205
Standard Right-of-Way Width	47'	50' – 70'	70' – 120'
Standard Right-of-Way Width (City of Kuna and City of Star)	50'	50'-70'	70'-120'
Standard Street Section	33'	46'	46' – 96'
Standard Street Section (City of Kuna and City of Star)	36'	46'	46'-96'
Curb Type	Vertical or Rolled	Vertical	Vertical
Sidewalk Width	5'	5' Detached or 7' attached	5' Detached or 7' attached
Stopping Sight Distance for Vertical/Horizontal Curves	150'	200'	Refer to AASHTO
Minimum/Maximum Profile Grade	0.4% - 10%	0.4% - 10%	0.4% - 10%
Minimum Centerline Radius of Curves	100'	180'	Refer to AASHTO
Design Speed	25 MPH	35 MPH or less Refer to LSDG	Refer to LSDG
Tangent Length Between Curves	50'	100'	Refer to AASHTO
Tangent Length Approaching Intersection	150'	200'	360'
Traffic Index	6	8	case-by-case
Minimum Back of Curb Radius	15'	30'	30'

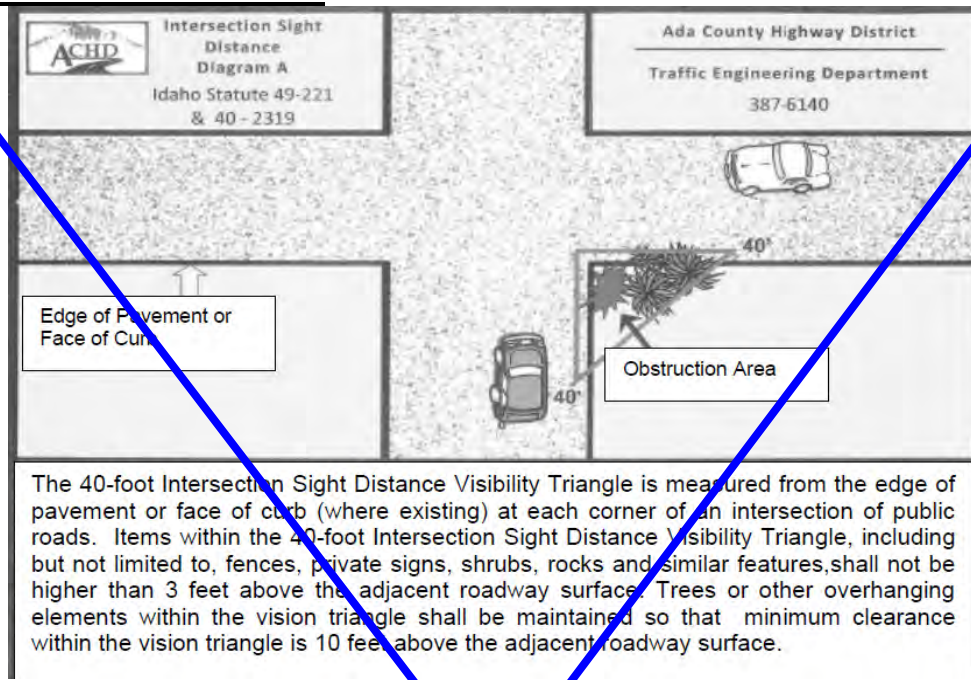
AASHTO = American Association of State Highway and Transportation Officials

LSDG = Livable Streets Design Guideline (ACHD)

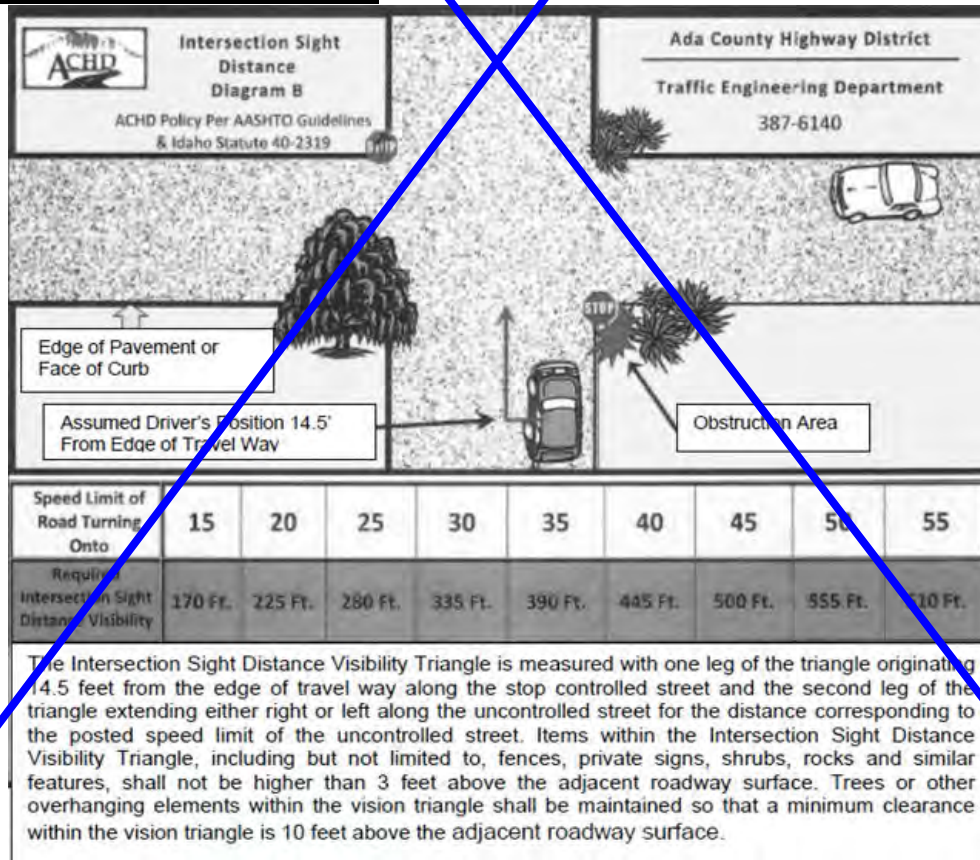
SEE COMMENTS REGARDING MINIMUM WIDTH OF
SIDEWALK ON STANDARD DRAWING SD-709 (ACHD)

Figure 3

Uncontrolled Intersection



Stop Controlled Intersection



Safe Sidewalk Program

Eliminating Hazards for Pedestrians



Maintaining a pedestrian network that is safe and accessible to all users is a high priority of the Ada County Highway District. Each year, repairs are made to sidewalk locations throughout Ada County to increase safety and bring existing sidewalks and pedestrian ramps into compliance with the Americans with Disabilities Act (ADA).

Sidewalk Hazards What Are They?

- ▶ ~~A minimum of 3/4 inch vertical or horizontal misalignment.~~
A VERTICAL MISALIGNMENT GREATER THAN 1/4" AND A HORIZONTAL OPENING GREATER THAN 1/2".
- ▶ Damage caused by roots from a tree growing between the roadway and the sidewalk.
- ▶ Heaved areas caused by expansion and contraction.
- ▶ Sidewalk sunken behind curb.
- ▶ Sidewalk which has failed over a utility trench.

(Default.aspx) originally constructed in a half-moon shape around a tree to avoid protruding roots; once the tree has been removed, a void is left, creating a potential hazard.



How to Submit an Inspection Request

- Complete a sidewalk inspection request

Sidewalk Inspection Request Form

(../Documents/Forms/mostDocs/ACHDSafeSidewalkInspectionRequest.pdf)

- Send an E-mail

Sidewalk Inspection Request email (mailto:sidewalks@achdidaho.org)

IDENTIFY THE REVIEW PROCESS FOR THE
SIDEWALK INSPECTION REQUEST FORM.
IDENTIFY THE DESIGNATED ADA COORDINATOR.

Each year, ACHD budgets money for sidewalk repairs. The amount of money programed varies from year to year, but there are typically two or three large repair contracts per year. Sidewalk locations are prioritized by severity of condition; however, location is also a significant factor. Sidewalk repairs are bundled by geographic location to maximize available funding. Due to the volume of sidewalk in need of repair, ACHD is limited as to how many locations it can improve each year.

For additional information:

REFERENCE ACHD'S ADA TRANSITION PLAN. PRIORTIZATION OF
REPAIRS IDENTIFIED ON WEBSITE SHOULD MATCH PRIORITIZATION
IDENTIFIED IN TRANSITION PLAN.
PROVIDE LINK TO ADA TRANSITION PLAN.

ACHD Main Line: 208-387-6100

Sidewalk Program 208-387-6288

E-mail us at: Safe Sidewalk (mailto:sidewalks@achdidaho.org)

Or E-Mail: Tell Us (../AboutACHD/contactUs.aspx)

(/Default.aspx)

We Drive Quality Transportation For All Ada County ~
Anytime...Anywhere

Ada County Highway District © 2017

For Questions or problems with this Web site contact the Webmaster (<mailto:webmaster@achdidaho.org>)

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Carol A. McKee – President
Sherry R. Huber – 1st Vice President
Dave Bivens – 2nd Vice President
John S. Franden – Commissioner
Rebecca W. Arnold – Commissioner

MEMORANDUM

Capital Projects Department

Date: January 11, 2008
To: ACHD's Design Consultants
From: Sally Goodell and Kent Brown
Subject: ADA During Construction for Three Separate Conditions

THE MUTCD REFERENCES IDENTIFIED IN THE GENERAL PROVISIONS APPEAR TO BE OUT OF DATE. THE PROPOSED REFERENCE UPDATES ARE BASED ON THE 2009 MUTCD.

The following three General Special Provisions (GSP) were written to give guidance for compliance with current ADA requirements. Each of the GSP's is meant to address a different contract situation. One is applicable for work that has no direct impact to pedestrians or for short term work that lasts for less than half of one day. The next one is to be used when the contractor is required to develop and implement the traffic control (TC) plans. The third GSP is to be used when the consultant develops the traffic control plans and specifies the TC equipment to be used. In all cases, the contractor is to be allowed flexibility as long as the requirements are met.

PLEASE NOTE THAT THE 2011 PROWAG REQUIREMENTS FOR PEDESTRIAN ACCESS ROUTES APPLY TO BOTH TEMPORARY AND PERMANENT FACILITIES.

R201.2 TEMPORARY AND PERMANENT FACILITIES. THE REQUIREMENTS IN THIS DOCUMENT SHALL APPLY TO TEMPORARY AND PERMANENT FACILITIES IN THE PUBLIC RIGHT-OF-WAY.

ADVISORY R201.2 TEMPORARY AND PERMANENT FACILITIES. TEMPORARY PEDESTRIAN CIRCULATION PATHS AROUND WORK ZONES AND PORTABLE PUBLIC TOILETS ARE EXAMPLES OF TEMPORARY FACILITIES IN THE PUBLIC RIGHT-OF-WAY THAT ARE COVERED BY THE REQUIREMENTS IN THIS DOCUMENT.

R205 ALTERNATE PEDESTRIAN ACCESS ROUTES. WHEN A PEDESTRIAN CIRCULATION PATH IS TEMPORARILY CLOSED BY CONSTRUCTION, ALTERATIONS, MAINTENANCE OPERATIONS, OR OTHER CONDITIONS, AN ALTERNATE PEDESTRIAN ACCESS ROUTE COMPLYING WITH SECTIONS 6D.01, 6D.02, AND 6G.05 OF THE MUTCD (INCORPORATED BY REFERENCE, SEE R104.2) SHALL BE PROVIDED. WHERE PROVIDED, PEDESTRIAN BARRICADES AND CHANNELIZING DEVICES SHALL COMPLY WITH SECTIONS 6F.63, 6F.68, AND 6F.71 OF THE MUTCD (INCORPORATED BY REFERENCE, SEE R104.2).

ADVISORY R205 ALTERNATE PEDESTRIAN ACCESS ROUTES. SECTION 6G.05 OF THE MUTCD RECOMMENDS THAT WHENEVER POSSIBLE WORK SHOULD BE DONE IN A MANNER THAT DOES NOT CREATE A NEED TO DETOUR PEDESTRIANS FROM EXISTING PEDESTRIAN ROUTES. EXTRA DISTANCE AND ADDITIONAL PEDESTRIAN STREET CROSSINGS ADD COMPLEXITY TO A TRIP AND INCREASE EXPOSURE OF RISK TO ACCIDENTS. SECTIONS 6D.01 AND 6G.05 OF THE MUTCD REQUIRE ALTERNATE PEDESTRIAN ROUTES TO BE ACCESSIBLE AND DETECTABLE, INCLUDING WARNING PEDESTRIANS WHO ARE BLIND OR HAVE LOW VISION ABOUT SIDEWALK CLOSURES. PROXIMITY-ACTUATED AUDIBLE SIGNS ARE A PREFERRED MEANS TO WARN PEDESTRIANS WHO ARE BLIND OR HAVE LOW VISION ABOUT SIDEWALK CLOSURES.

ADA DURING CONSTRUCTION

When there is no direct impact to pedestrian facilities and the work is less than half of one day

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway and/or public right-of-way, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a temporary traffic control “TTC” zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents. The primary function of TTC is to provide for the reasonably safe and efficient movement of road users through or around TTC zones while reasonably protecting workers, responders to traffic incidents, and equipment.

Temporary facilities, including reasonably safe pedestrian routes around work sites, are also covered by the accessibility requirements of the Americans with Disabilities Act of 1990 (ADA) (Public Law 101-336, 104 Stat.327, July 26, 1990. 42 USC 12101-12213 (as amended)). TTC plans and devices shall be the responsibility of the contractor performing the construction, alteration and/or maintenance of the highway or public right-of-way. When an existing continuous sidewalk or street crossing route cannot be maintained for pedestrians because of construction, either temporary walkways with curb ramps are to be provided, or the construction shall be phased to maintain access to the affected addresses. **Contractors shall be allowed flexibility as long as the requirements are met.**

Contractors shall not block temporary walkways with contractor parking, materials piles, signs, rubble or rubbish. Construction equipment and equipment operation must be separated from the temporary walkways. At work zones where higher volumes of pedestrian traffic or school children exist, pedestrian fences or other protective barriers may be needed to prevent access into the construction area.

ADA DURING CONSTRUCTION

When traffic control plans are developed by the contractor

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway and/or public right-of-way, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a temporary traffic control “TTC” zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents. The primary function of TTC is to provide for the reasonably safe and efficient movement of road users through or around TTC zones while reasonably protecting workers, responders to traffic incidents, and equipment.

Temporary facilities, including reasonably safe pedestrian routes around work sites, are also covered by the accessibility requirements of the Americans with Disabilities Act of 1990 (ADA) (Public Law 101-336, 104 Stat.327, July 26, 1990. 42 USC 12101-12213 (as amended)). Implementation of TTC plans and installation and maintenance of devices shall be the responsibility of the contractor performing the construction, alteration and/or maintenance of the highway or public right-of-way. When an existing continuous sidewalk or street crossing route cannot be maintained for pedestrians because of construction, either temporary walkways with curb ramps are to be provided, or the construction shall be phased to maintain access to the affected addresses. **Contractors shall be allowed flexibility as long as the requirements are met.**

The location of the construction project and whether or not accessible facilities are present shall also determine the extent of the needed temporary facilities. **The contractor is only required to maintain practical continuity** where accessible facilities already exist. On low speed rural roads that do not have sidewalks and are used by bicyclists, no additional measures are needed as the bicycles can share the available travel lanes with other traffic. On moderate to higher speed rural roads, if a bike lane exists then it should be properly detoured, complete with signage, to provide a safe route through or around the work area. If a road or bridge project affects vehicular traffic to a business, residence, school or any other type of pedestrian generating location with existing accessible facilities, then ~~pedestrian and handicapped access must be maintained.~~ **ACCESS FOR PEDESTRIANS AND PEOPLE WITH DISABILITIES MUST BE MAINTAINED.**

A continuous route for all pedestrians, including the disabled and bicyclists, shall be maintained at all times. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. The temporary route should enable pedestrians to bypass the construction site while minimizing the retracing of their steps or going significantly out of their way. Additional consideration must be given to the disabled since they may not have the physical or cognitive ability to improvise (e.g. balancing along the curb or a very narrow path) or use unofficial alternatives (e.g. using an adjacent grass surface). Temporary routes must meet the accessibility guidelines of the ~~ADA~~ for permanent facilities and shall be marked with the proper signage. Should existing crosswalks at signalized intersections be closed or made inaccessible, temporary crosswalks should be painted in an accessible location. Temporary signals should include pedestrian phases.

Contractors shall not block temporary walkways with contractor parking, materials piles, signs, rubble or rubbish. Construction equipment and equipment operation must be separated from the temporary

walkways. At work zones where higher volumes of pedestrian traffic or school children exist, pedestrian fences or other protective barriers may be needed to prevent access into the construction area.

Detour and diversion routes, when used for pedestrians and bicyclists, should be evaluated for the following items:

- Direct conflicts between pedestrians and vehicular traffic, work vehicles, and other work activities must be reduced with protective barriers or continuous high contrast fencing (min 36" high with a 6" high toe board). See MUTCD ~~6F.68~~ and 6D.02
6F.74
- Temporary pedestrian facilities should provide safe, accessible routes that replicate as nearly as practical the most desirable characteristics of the existing facility, and parallel the disrupted route whenever possible. A smooth, continuous hard surface should be provided throughout the entire length of the temporary pedestrian facility. There should be no curbs or abrupt changes in grade or terrain that could cause tripping or be a barrier to wheelchair use. The geometry and alignment of the facility should meet the applicable requirements of ~~the Americans with Disabilities Act 2011 PROWAG Accessibility Guidelines (ADAAG) for Buildings and Facilities~~. See MUTCD 6D.01 and 6D.02
- Advance information placed at appropriate distances before the work zone allowing pedestrians to make timely decisions about routes through or around the work zone. See MUTCD ~~6F.13~~ 6F.14
- Transition information allowing pedestrians to find a safe path through and around work zones, which is critical when the pathway is restricted, diverted or detoured. See MUTCD ~~6F.13~~ 6F.14
- Work area information assisting in safe passage of pedestrians through the work zone. This information is needed on all pedestrian routes except detours. See MUTCD ~~6F.13~~ 6F.14
- Exit information directing pedestrians back to the original route. See MUTCD ~~6F.13~~ 6F.14
- Crosswalk placement at intersections may need additional signage, temporary striping, traffic signal modification, pedestrian signals with audible alarms if justified, proper push button height, and ramps. See MUTCD 6H.29, ~~6F.80~~, and ~~4E.06~~
6F.84 4E.09
- Accommodations for other transit forms (busses, trains etc.) are made. See MUTCD 6D.02
- Requirements of the ADAAG and MUTCD are adhered to.
- Access is maintained to the affected businesses and residences.
- Frequent checks of the pedestrian and bicycle accommodations are made during construction to ensure that the temporary traffic control plan is followed, traffic control devices are maintained in good condition, and safe, accessible pedestrian and bicycle routes are available at all times.

ADA DURING CONSTRUCTION

When traffic control plans and equipment are specified by the contract

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway and/or public right-of-way, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a temporary traffic control “TTC” zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents. The primary function of TTC is to provide for the reasonably safe and efficient movement of road users through or around TTC zones while reasonably protecting workers, responders to traffic incidents, and equipment.

Temporary facilities, including reasonably safe pedestrian routes around work sites, are also covered by the accessibility requirements of the Americans with Disabilities Act of 1990 (ADA) (Public Law 101-336, 104 Stat.327, July 26, 1990. 42 USC 12101-12213 (as amended)). Implementation of TTC plans and installation and maintenance of the devices shall be the responsibility of the contractor performing the construction, alteration and/or maintenance of the highway or public right-of-way. **Contractors shall be allowed flexibility as long as the requirements are met.**

The location of the construction project and whether or not accessible facilities are present shall also determine the extent of the needed temporary facilities. Once installed, the contractor shall monitor the temporary facilities. If the contractor’s operations interfere with those facilities or they appear to be insufficient, the contractor shall immediately consult with the Resident Engineer or his on-site representative.

A continuous route for all pedestrians, including the disabled and bicyclists, shall be maintained at all times. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. The temporary route should enable pedestrians to bypass the construction site while minimizing the retracing of their steps or going significantly out of their way. Additional consideration must be given to the disabled since they may not have the physical or cognitive ability to improvise (e.g. balancing along the curb or a very narrow path) or use unofficial alternatives (e.g. using an adjacent grass surface). Temporary routes must meet the accessibility guidelines of the ~~ADA~~ for permanent facilities and shall be marked with the proper signage. Should existing crosswalks at signalized intersections be closed or made inaccessible, temporary crosswalks should be painted in an accessible location. Temporary signals should include pedestrian phases.

Contractors shall not block temporary walkways with contractor parking, materials piles, signs, rubble or rubbish. Construction equipment and equipment operation must be separated from the temporary walkways. At work zones where higher volumes of pedestrian traffic or school children exist, pedestrian fences or other protective barriers may be needed to prevent access into the construction area.

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Carol A. McKee – President
Sherry R. Huber – 1st Vice President
Dave Bivens – 2nd Vice President
John S. Franden – Commissioner
Rebecca W. Arnold – Commissioner

MEMORANDUM

Capital Projects Department

Date: January 11, 2008

To: ACHD's Design Consultants

From: Don Kostelec

Subject: Project development – ADA during construction

REFERENCE CURRENT VERSION OF MUTCD

UPDATE LINK TO FHWA DESIGN MANUAL

https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/pdf/11chapter10.pdf

The information below outlines ACHD's responsibilities for meeting ADA requirements during construction. This information is respectively from the US Department of Transportation Federal Highway Administration (FHWA) - Manual on Uniform Traffic Control Devices (MUTCD) (<http://mutcd.fhwa.dot.gov/htm/2003r1/part6/part6d.htm>), FHWA - Designing Sidewalks and Trails for Access (<http://www.fhwa.dot.gov/download/hep/environment/11chapter10.pdf>), and the United States Access Board - Accessible Rights-of-Way: A Design Guide (<http://www.access-board.gov/PROWAC/draft.htm#302>). All project managers should ensure these are addressed in the documents prepared for future construction projects.

REFERENCE CURRENT VERSION OF PROWAG AND UPDATE LINK.
<https://www.access-board.gov/attachments/article/743/nprm.pdf>

FHWA

MUTCD Section 6A.02 Accessibility Considerations

Support:

Additional information on the design and construction of accessible temporary facilities is found in publications listed in Section 6A.11 (see Documents 10 and 29 through 31).

Guidance:

The extent of pedestrian needs should be determined through engineering judgment or by the individual responsible for each TTC zone situation. This individual should be aware that the absence of a continuous pathway, including curb ramps and other accessible features, might preclude the use of the facility by pedestrians with disabilities.

Standard:

When existing pedestrian facilities are disrupted, closed, or removed, temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.

Guidance:

To accommodate the needs of pedestrians, including those with disabilities, the following considerations should be addressed when temporary pedestrian pathways in TTC zones are designed or modified:

**UPDATE THIS SECTION
TO REFLECT CURRENT
REQUIREMENTS**

- A. Provisions for continuity of accessible paths for pedestrians should be incorporated into the TTC process. Pedestrians should be provided with a reasonably safe, convenient, and accessible path that replicates as much as practical the desirable characteristics of the existing pedestrian facilities.
- B. Access to temporary transit stops should be provided.
- C. Blocked routes, alternate crossings, and sign and signal information should be communicated to pedestrians with visual disabilities by providing devices such as audible information devices, accessible pedestrian signals, or barriers and channelizing devices that are detectable to the pedestrians traveling with the aid of a long cane or who have low vision. Where pedestrian traffic is directed to a TTC signal, engineering judgment should be used to determine if pedestrian signals or accessible pedestrian signals should be considered for crossings along an alternate route.
- D. When channelization is used to delineate a pedestrian facility, edge markings should be provided throughout the length of the facility so that a long cane can follow it. These detectable edge markings should comply with 6F.68.
- E. A smooth, continuous hard surface should be provided throughout the entire length of the temporary pedestrian facility. There should be no curbs or abrupt changes in grade or terrain that could cause tripping or be a barrier to wheelchair use. The geometry and alignment of the facility should meet the applicable requirements of the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" (see Section 1A.11).
- F. The width of the existing pedestrian facility should be provided for the temporary facility if practical. Traffic control devices and other construction materials and features should not intrude into the usable width of the sidewalk, temporary pathway, or other pedestrian facility. When it is not possible to maintain a minimum width of 1500 mm (60 in) throughout the entire length of the pedestrian pathway, a 1500 x 1500 mm (60 x 60 in) passing space should be provided at least every 60 m (200 ft), to allow individuals in wheelchairs to pass.
- G. Signs and other devices mounted lower than 2.1m (7 ft) above the temporary pedestrian pathway should not project more than 100 mm (4 in) into accessible pedestrian facilities.

**UPDATE THIS SECTION
TO REFLECT CURRENT
REQUIREMENTS**

FHWA

Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide, Ch. 10 Sidewalk Maintenance and Construction Site Safety; p. 10-8

“A continuous route for all pedestrians must be maintained at all times. It is not acceptable to simply close a sidewalk without identifying an alternate circulation route. The alternate route must enable pedestrians to bypass the construction site without retracing their steps or going significantly out of their way. ... When a temporary route is established, it must be accessible to people with disabilities. Information sources should be used to provide advance warning to pedestrians of the presence of the sidewalk construction site and to clearly mark the alternate circulation route available. ... It is

particularly important to ensure that all information sources are accessible to people with vision and cognitive impairments ...”

This is followed by a series of implementation measures to properly delineate the alternate route.

Access Board:

Accessible Rights-of-Way

In locations where a sidewalk is not provided for pedestrians— for example, when a street is closed for more than a short period of time—sidewalks should be provided for pedestrians—

**UPDATE THIS TEXT WITH
REFERENCES TO THE 2011
PROWAG SECTIONS R201.2,
ADVISORY R201.1, R205 AND
ADVISORY R205 FROM THE 2011
PROWAG**

could be available. This may be provided along a sidewalk obstructed

Sidewalk barriers should be used to provide low vision. Plastic tape, movable cones, and other devices should be used to provide adequate notice or protection. Accessibility provisions for providing objects and construction barriers criteria in MUTCD

offer helpful guidance in this area.

have low vision. Plastic tape, provide adequate notice or barrier criteria in MUTCD

Draft Rules

R205 Alternate Pedestrian Access Route

When an existing pedestrian access route is blocked by construction, alteration, maintenance, or other temporary conditions, an alternate pedestrian access route complying to the maximum extent feasible with R301, R302, and Section 6D.01 and 6D.02 of the MUTCD (incorporated by reference; see R104.2.1) shall be provided.

Advisory R205 Alternate Pedestrian Access Route. Same-side travel is preferred because it does not increase pedestrian exposure and risk of accident consequent upon added street crossings. A route that uses vehicle lane width may be shorter, safer, and more usable than one that requires two street crossings, even if the roadway surface is imperfect. Part 6D.01 of the MUTCD requires alternate routes to provide the best elements of accessibility provided in the pedestrian circulation route before its disruption.

R302 Alternate Circulation Path

R302.1 General. Alternate circulation paths shall comply with R302 and shall contain a pedestrian access route complying with R301. (DK <R301 contains the specific references to slopes, widths, etc.>)

Advisory R302.1 General. Temporary routes are alterations to an existing developed pedestrian environment and are required to achieve the maximum accessibility feasible under existing conditions.

R302.2 Location. To the maximum extent feasible, the alternate circulation path shall be provided on the same side of the street as the disrupted route.

**UPDATE THIS TEXT WITH
REFERENCES TO THE 2011
PROWAG SECTIONS R201.2,
ADVISORY R201.1, R205 AND
ADVISORY R205 FROM THE 2011
PROWAG**

*Advisory R302.2 Look
path and pedestrians
path provide a similar
include the incorpora
accessibility features*

*de alternate circulation
ecifies that the alternate
ed route. This may
amps, or other*

R302.3 Protection. Where the alternate circulation path is exposed to adjacent construction, excavation drop-offs, traffic, or other hazards, it shall be protected with a pedestrian barrier or channelizing device complying with 1002.4.

Advisory R302.3 Protection. When it is necessary to block travel at the departure curb to close a crosswalk that is disrupted by excavation, construction, or construction activity, care must be taken to preserve curb ramp access to the perpendicular crosswalk. This may require additional pedestrian channelization if only a single diagonal curb ramp serves the corner.

Figures 6H-28 and 6H-29 of the MUTCD specify notification signage for pedestrian closings and detours. Audible signage triggered by proximity switches can provide information to pedestrians who do not use print signs.

R302.4 Pedestrian Barricades and Channelizing Devices. Pedestrian barricades and channelizing devices shall be continuous, stable, and non-flexible and shall consist of a wall, fence, or enclosures specified in section 6F-58, 6F-63, and 6F-66 of the MUTCD incorporated by reference; see R104.2.4).

R302.4.1 Detectable Base. A continuous bottom edge shall be provided 150 mm (6 in) maximum above the ground or walkway surface.

R302.4.2 Height. Devices shall provide a continuous surface or upper rail at 0.9 m (3.0 ft) minimum above the ground or walkway surface. Support members shall not protrude into the alternate circulation path.

Cc: Dorrell Hansen, Colin Farr, Kristin Lundstrom, Kent Brown

NOT REVIEWED

Website: www.achdidaho.org/Departments/Traffic
Email: tellus@achdidaho.org

6/2/2015



• STANDARD FORM NO. •
TS-INDEY

ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

PROPOSED EXISTING

AC+		An underground conductor
AC-		A grounded conductor
AWG		American wire gage
C		Conduit
CCTV	cctv	Closed circuit television
CMS	cma	Changeable message sign
DLC	dlc	Loop detector lead-in cable
DMS	dms	Dynamic message sign
EMS	ema	Extinguishable message sign
EVP	evp	Emergency vehicle preemption
FB	fb	Flashing beacon
FBCA	fbca	Flashing beacon control assembly
HAWK	hawk	High Intensity Activated Crosswalk
HPS	hps	High pressure sodium
ISNS	isns	Internally illuminated street name sign
LMA	lma	Luminaire mast arm
LPS	lps	Low pressure sodium
MC	mc	Mercury contactor
MER	mer	Mercury
MLC	mlc	Magnetometer detector lead-in cable
M/M	m/m	Multiple to multiple transformer
MT	mt	Conduit with pull wire or rope only
NC		Normally closed
NO		Normally open
NPAT	npat	No Parking Any Time
NSAT	nsat	No Stopping Any Time
PB	pb	Pullbox
PEC	pec	Photoelectric control
PED	ped	Pedestrian
PEU	peu	Photoelectric unit
PPB	ppb	Pedestrian push button
RS		Radio Interference Suppressor
SB	sb	Slip Base
SIC	sic	Signal Interconnect cable
SMA	sma	Signal mast arm
S/M	s/m	Series to multiple transformer
SN		Solid neutral
SP	sp	Service point
TMS		Traffic Monitoring Station
VMS	vms	Variable message sign
WAV	wav	Wavetraxx radar detection
XFMR	xfmr	Transformer

CONTROLLER AND SERVICE EQUIPMENT

PROPOSED EXISTING

		Pad Mount for Ground-Mounted Utility Transformer
		Service Pedestal
		Controller Equipment Enclosure (Door Indicates Front of Enclosure)

PULL BOXES

PROPOSED EXISTING

		S40-T/Ada pull box
		S45-T/Ada pull box
		S45-T/Ada pull box with riser
		32" x 32" pull box
		S51/Ada pull box (fiber)
		25-TA Splice Vault (fiber)

NON ILLUMINATED ROADSIDE SIGNS

PROPOSED EXISTING

		One Post Sign
		Two Post Sign or Type II Barricade

SIGN LIGHTING EQUIPMENT

PROPOSED EXISTING

		Overhead Sign (Single Post)
		Overhead Sign (Two Posts)
		Overhead Sign (Structure Mounted)

SYMBOLS

PROPOSED EXISTING

		Signal head number
		Project note numbers
		NOT REVIEWED

12/30/2011



TS-SYMB

Sheet 1 of 2



Adair County Highway District

2011 Adair County Highway District

SIGNATURES

Drawn By: [Signature]	Design By: [Signature]
Check By: [Signature]	Review By: [Signature]
Date: 12/30/2011	Date: 12/30/2011

SHEET TITLE

Signing, Striping, Signal, Lighting and Electrical Systems
Symbols and Abbreviations

SIGNAL EQUIPMENT

PROPOSED

EXISTING



Pedestrian Signal Head



Vehicle Signal Face, 3-Section



Vehicle Signal Face with Angle Visor



Modifications of Basic Symbols:

"L" Indicates All Non-Arrow Sections Louvered

"LG" Indicates Louvered Green Section Only

"PV" Indicates Programmed Visibility Sections



Vehicle Signal Face with Backplate

3-Section
Red Ball
Amber Ball
Green Ball

HAWK (Ped Hybrid Beacon)
Red Ball / Red Ball
Amber Ball



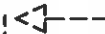
Vehicle Signal Face (3, 4 or 5 Section)

3-Section
Red Arrow
Amber Arrow
Green Arrow

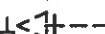
4-Section
Red Ball
Amber Ball
Green Ball

4-Section
Red Arrow
Amber Arrow
Amber Flashing Arrow
Green Arrow

5-Section
Red Ball
Amber Ball
Green Ball
Amber Arrow
Green Arrow



Vehicle Signal Face with Red and Yellow Sections and up Green Arrow



Vehicle Signal Face (3 or 4 Section)

3-Section
Red Arrow
Amber Arrow
Green Arrow

3-Section
Red Ball
Amber Arrow
Green Arrow

4-Section
Red Ball
Amber Ball
Green Ball

Amber/Green Arrow (BI-modal)



Emergency Preemption Detector



Luminaire

SIGNAL EQUIPMENT

PROPOSED

EXISTING



Standard and Attached Signal Heads



Standard with Signal Mast Arm Only and Attached Signal Heads



Standard with Luminaire and Signal Mast Arms and Attached Signal Heads



Cantilever Flashing Beacons



Flashing Beacon. One Signal Section with 12 inch Lens, Backplate and Visor.
"R" Indicates Red Lens,
"Y" Indicates Yellow Lens.

VEHICLE DETECTORS

PROPOSED

EXISTING



Video detection zone



Preformed Inductive Counter Loop Detector. Outline and Location of Loop Shown.



Sawcut Inductive Counter Loop Detector. Outline and Location of Sawcut Detector Shown.

MISCELLANEOUS EQUIPMENT

PROPOSED

EXISTING



Closed Circuit Television Camera (CCTV)



Video Detection Camera



Radar Detection Device (Advance)

NOT REVIEWED

11/11	200	Added HAWK symbol
05/10	200	Added flashing luminaire symbol
05/10	200	Added radar detection device
05/10	200	Added video detection camera
05/10	200	Added video detection camera
05/10	200	Added video detection camera
05/10	200	Added video detection camera
05/10	200	Added video detection camera
05/10	200	Added video detection camera
05/10	200	Added video detection camera



SIGNATURES	
By: [Signature]	Checked By: [Signature]
Date: 11/11/11	Date: 11/11/11
For: [Signature]	Approved By: [Signature]

Signing, Striping, Signal, Lighting and Electrical Systems
Symbols and Abbreviations

12/30/2011

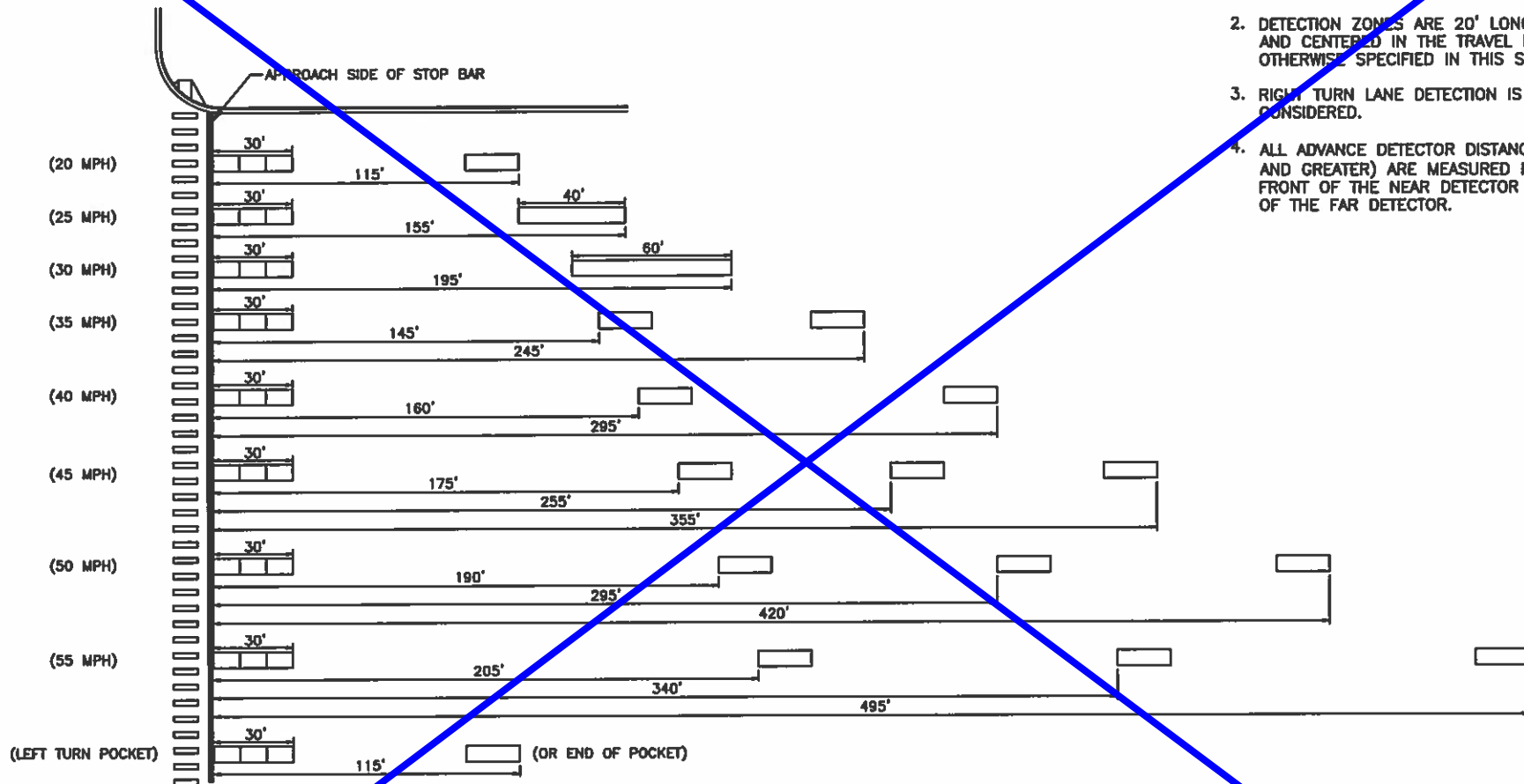


TS-SYMB

Sheet 2 of 2

NOTES:

1. DRAWING IS NOT TO SCALE.
2. DETECTION ZONES ARE 20' LONG BY 10' WIDE AND CENTERED IN THE TRAVEL LANE, UNLESS OTHERWISE SPECIFIED IN THIS SCHEMATIC.
3. RIGHT TURN LANE DETECTION IS NOT CONSIDERED.
4. ALL ADVANCE DETECTOR DISTANCES (45 MPH AND GREATER) ARE MEASURED FROM THE FRONT OF THE NEAR DETECTOR TO THE END OF THE FAR DETECTOR.



NOT REVIEWED

▲			
▲			
▲	8/22	200	Modified Advance Stop Spacing
NO. 2420	27		REVISIONS



SIGNATURES	
Drawn: EFM	Checked: Jonathan Smith
Design: 10/26/11	Reviewed: Phil Reed
File: 10-1100a-000	Approved: Ray Lewis

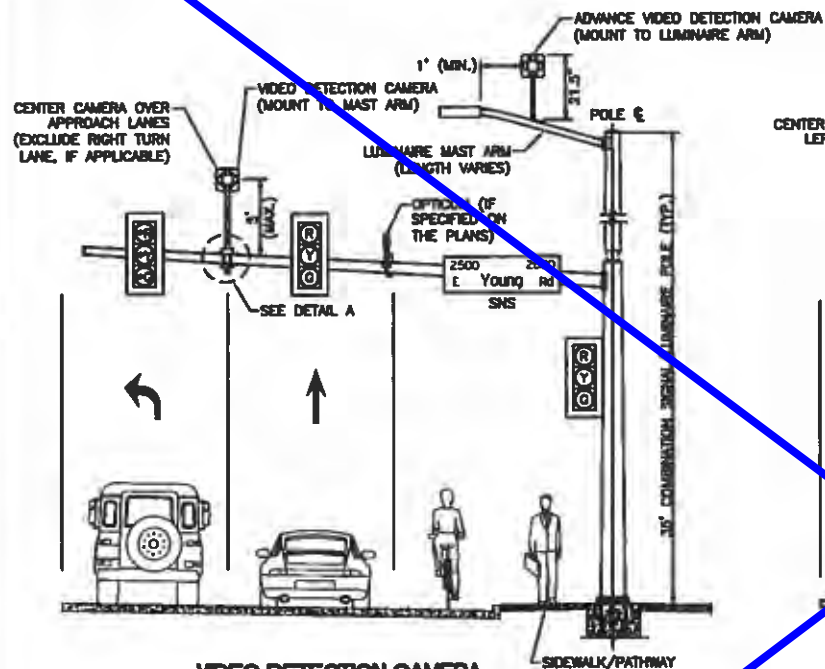
PROJECT TITLE
Standard Video Detection Zone
Spacing Detail

8/23/12

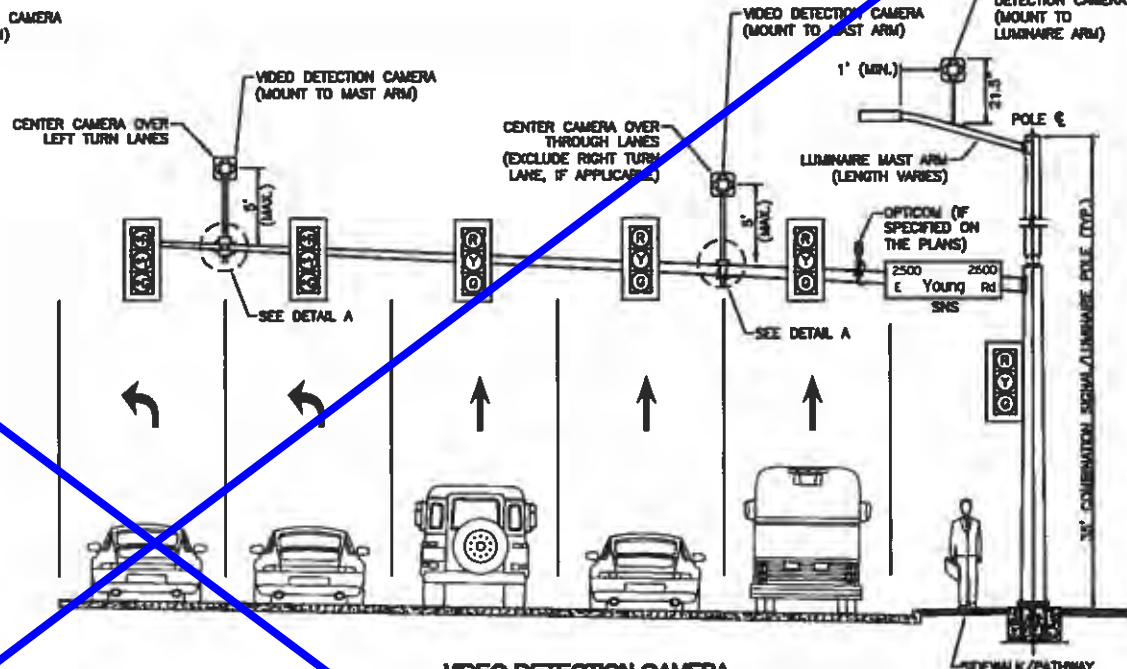


TS-1102

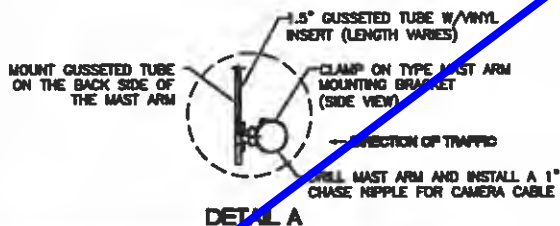
Sheet 1 of 2



VIDEO DETECTION CAMERA MOUNTING DETAILS (FOUR OR FEWER APPROACH LANES)



VIDEO DETECTION CAMERA MOUNTING DETAILS (FIVE APPROACH LANES)



NOT REVIEWED

NOTES:

1. DRAWING IS NOT TO SCALE.
2. VIDEO DETECTION CAMERAS SHALL BE CENTERED OVER THE APPROACH LANES (EXCLUDING RIGHT TURN LANES). MINOR VARIATIONS WILL BE PERMITTED SHOULD SIGNAL HEADS, MAST ARM MOUNTED SIGNS OR OPTICOM DEVICES INTERFERE WITH PRECISE CENTER PLACEMENT.
3. AN ADVANCE VIDEO DETECTION CAMERA (MOUNTED ON THE LUMINAIRE ARM) SHALL BE INSTALLED ONLY IF THE POSTED SPEED LIMIT OF THE APPROACHING LANE IS GREATER THAN 45 MPH. THE CAMERA SHALL BE MOUNTED IN THE CENTER OF THE LUMINAIRE ARM. DESIGN EXCEPTIONS MAY BE NECESSARY IF SITE CONDITIONS PREVENT LUMINAIRE INSTALLATION ON THE GIVEN APPROACH.
4. TWO VIDEO DETECTION CAMERAS SHALL BE INSTALLED IF THE NUMBER OF APPROACHING LANES IS GREATER THAN FOUR (EXCLUDING RIGHT TURN LANES). ONE CAMERA SHALL ACCOMMODATE LEFT TURNING VEHICLES (ONE OR TWO LANES), THE OTHER CAMERA SHALL ACCOMMODATE THROUGH TRAFFIC.

3/12/2012



TS-1102

Sheet 2 of 2

Phase No.	Tape Color
1	2 RED
2	GREEN
3	2 YELLOW
4	BLUE
5	RED
6	2 GREEN
7	YELLOW
8	2 BLUE

TABLE A
Video Detection Lead-in
Color Chart

Phase No.	Tape Color
1	RED
2	GREEN
3	YELLOW
4	BLUE
5	RED
6	GREEN
7	YELLOW
8	BLUE

TABLE B
Signal Cable
Color Chart

Phase No.	Preemption Channel No.
2	3
4	2
6	4
8	1

TABLE C
Preemption Channels

3/C CABLE DESIGNATIONS SIGNAL CABLE, MSA #4 10-1		
	3/C CABLE SPliced WITH 4-SECTION LEFT HEADS	3/C CABLE SPliced WITH 4-SECTION HEADS (FYA)
RED	THRU RED LIGHT	
ORANGE	THRU AMBER LIGHT	
GREEN	THRU GREEN LIGHT	
BLACK	SPARE	
WHITE	COMMON	
BLUE	SPARE	
RED/TRACER	LEFT RED LIGHT	LEFT RED LIGHT
ORANGE/TRACER	LEFT AMBER LIGHT	LEFT AMBER LIGHT
GREEN/TRACER	LEFT GREEN LIGHT	LEFT GREEN LIGHT
BLACK/TRACER	SPARE	LEFT AMBER ARROW (FYA)
WHITE/TRACER	COMMON	COMMON
BLUE/TRACER	SPARE	SPARE
PEDESTRIAN CABLE		PED HYBRID BEACON (PHB)
RED	DON'T WALK (E-W)	RIGHT RED BALL
ORANGE	PPB CALL (E-W)	LEFT RED BALL
GREEN	PPB RETURN (E-W)	SPARE
BLACK	SPARE	YELLOW
WHITE	NEUTRAL	NEUTRAL
BLUE	WALK (E-W)	SPARE
RED/TRACER	DON'T WALK (N-S)	DON'T WALK
ORANGE/TRACER	PPB CALL (N-S)	PPB CALL
GREEN/TRACER	PPB RETURN (N-S)	PUSH BUTTON RETURN
BLACK/TRACER	SPARE	SPARE
WHITE/TRACER	NEUTRAL	NEUTRAL
BLUE/TRACER	WALK (N-S)	WALK

7/C CABLE DESIGNATIONS RECTANGULAR RAPID FLASHING BEACON MSA #4 10-1	
ORANGE	PPB CALL
GREEN	PPB RETURN
RED	2X FLASH (POS.)
BLACK	2X FLASH (NEG.)
BLUE	4X FLASH (POS.)
WHITE/TRACER	4X FLASH (NEG.)
WHITE	SPARE

3/C CABLE DESIGNATIONS PROTECTIVE/RELAYIVE FYA MSA #4 10-1	
RED	LEFT RED LIGHT
ORANGE	LEFT AMBER LIGHT
GREEN	LEFT GREEN LIGHT
BLACK	LEFT AMBER LIGHT (FYA)
WHITE	COMMON

3/C CABLE DESIGNATIONS THRU OR LEFT VEHICLE HEAD MSA #4 10-1	
RED	RED LIGHT
ORANGE	AMBER LIGHT
GREEN	GREEN LIGHT
BLACK	SPARE
WHITE	COMMON

3/C CABLE DESIGNATIONS P/B SIGNAL HEADS MSA #4 10-1	
RED	RIGHT RED BALL
ORANGE	LEFT RED BALL
GREEN	SPARE
BLACK	YELLOW
WHITE	NEUTRAL

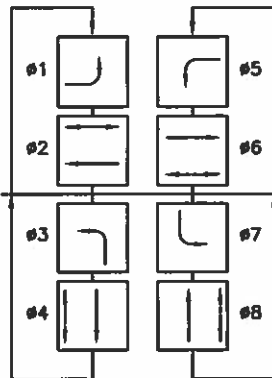
3/C CABLE DESIGNATIONS PEDESTRIAN SIGNAL HEAD MSA #4 10-1	
RED	DON'T WALK
BLACK	WALK
WHITE	NEUTRAL

3/C CABLE DESIGNATIONS PEDESTRIAN PUSH BUTTON MSA #4 10-2	
BLACK	PPB (CALL)
CLEAR	PPB (RETURN)

NOT REVIEWED

NOTES:

1. ALL 3/C AND 1P CABLES IN THE SIGNAL POLE SHALL BE COLOR CODED BY PHASE (SEE "TABLE B" ON THIS SHEET).
2. ALL 7/C AND 5/C CABLES IN THE SIGNAL POLE SHALL BE MARKED WITH THE PHASE COLOR FOR THE OUTMOST HEAD PLUS ONE BLACK WRAP FOR EACH ADDITIONAL HEAD OF THE PHASE PROCEEDING TOWARD THE POLE.



TYPICAL PHASING DIAGRAM

13/25	20	Added 10/10/2010
15/21	20	Revised 10/10/2010
16/22	20	Revised 10/10/2010



SIGNATURES	
Drawn By: Jonathan Smith	Checked By: Jonathan Smith
Design By: Jonathan Smith	Approved By: Ben Larson

Standard Cable Color
Designation Detail



TS-1103

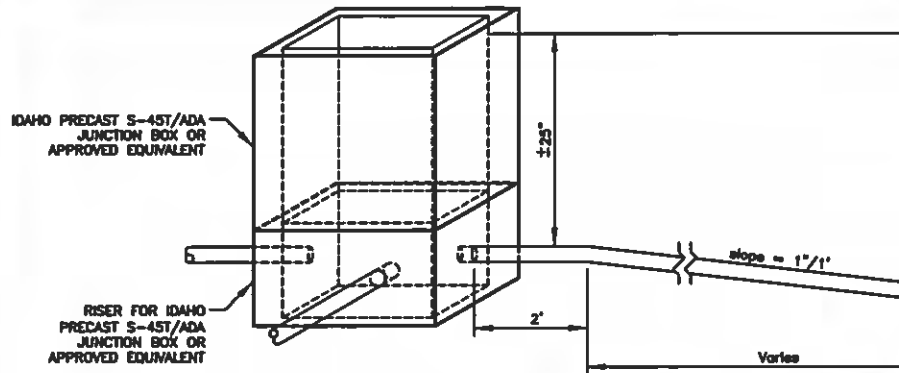
ADD NOTES TO ADDRESS THE FOLLOWING:

AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS.

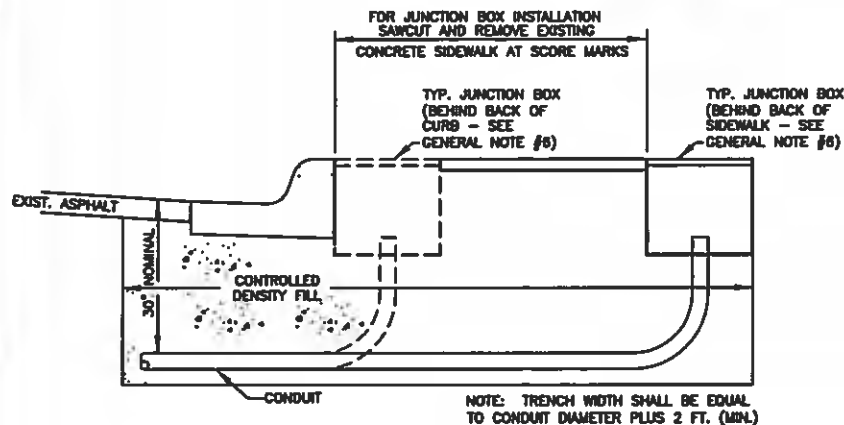
IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7)

RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2).

GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).



TYPICAL INTERCONNECT JUNCTION BOX INSTALLATION
(Interconnect Only)



TYPICAL JUNCTION BOX INSTALLATION
(Roadway Sections with Curb, Gutter and Sidewalk)

bottom of feet side of the road, unless otherwise specified on the plan.

6. All new and existing conduits shall be terminated with a plug manufactured by "Backer Rod" and have a "bell end" or terminal adaptor with bushing.

7. All spare 2" conduits shall incorporate a #12 stranded copper locate wire.

General Notes:

1. Plan sheet references to an S-40T junction box shall be interpreted as an Idaho Precast junction box type S-40T/Ada or approved equivalent.
2. S-40T/Ada junction boxes shall receive no more than six (6) 2" conduits.
3. Plan sheet references to an S-45T junction box shall be interpreted as an Idaho Precast Junction box type S-45T/Ada or approved equivalent.
4. S-45T/Ada junction boxes shall receive no more than fourteen (14) 2" conduits.
5. Junction boxes that receive fifteen (15) or more conduits shall be 32" x 32".
6. Junction boxes shall be located behind the back of curb whenever possible. If this is not possible, then they shall be located behind the back of sidewalk. Junction box locations on each roadway leg shall be consistent.
7. All spare 2" conduits shall incorporate a #12 AWG stranded copper locate wire.

1/30/2014

1/14	AK	Added notes
1/14	AK	Added notes
1/14	BT	Added notes

• 857101000 •

Ada County Highway District

ACHD
Traffic Engineering Division
8770 Adams Street, Boise, Idaho, 83724
www.achd.idaho.gov

Drawn: JRM	Checked: JRM	Designed: JRM
Date: 11/15/13	Reviewed: JRM	Approved: JRM
File: 11-1105a/2014		

• SHEET TITLE •
Standard Conduit and Junction Box Intersection Detail

1/30/2014

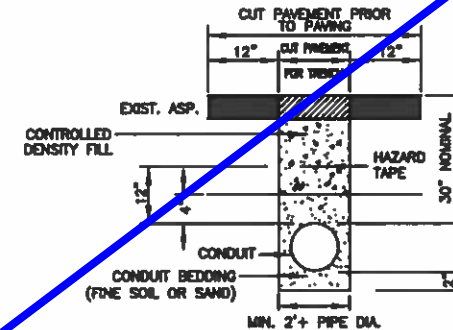
IDAHO HIGHWAY DEPARTMENT
TRANSPORTATION DIVISION
BOISE, IDAHO

• STANDARD SHEET NO. •
TS-1105

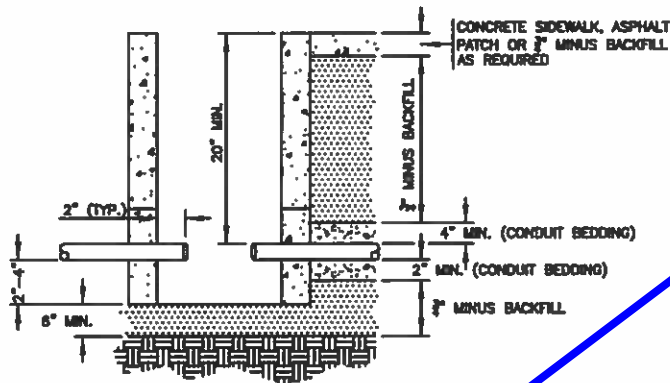
Sheet 1 of 4

General Notes:

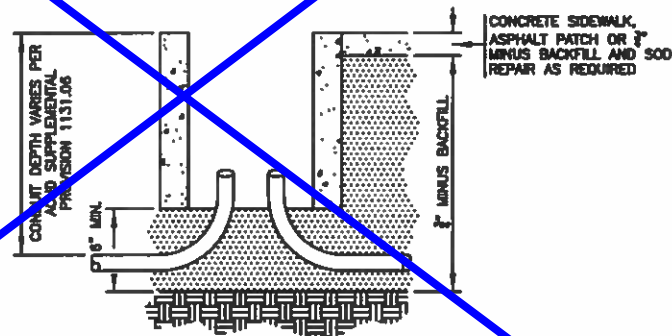
1. Conduit bedding shall be fine soil or sand.
2. $\frac{3}{4}$ " minus backfill shall be compacted to 95% maximum dry density in 6" lifts.
3. Conduit bedding shall not be used within 3 ft. of junction box for "Detail B" junction box installations.
4. Top of junction box shall be flush with the surrounding grade.



TYPICAL TRENCH AND CONDUIT INSTALLATION
(Under Existing Pavement)



DETAIL A
(Junction Box with Floor)



DETAIL B
(Junction Box without Floor)

JUNCTION BOX BACKFILL DETAIL
(For Installations Outside of the Travel Way)

NOT REVIEWED

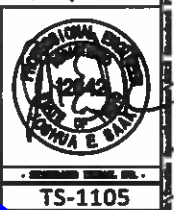
3/12/2012

NO.	DATE	BY	DESCRIPTION
1	07/05/09	ACED	Standard Conduit and Junction Box Intersection Detail



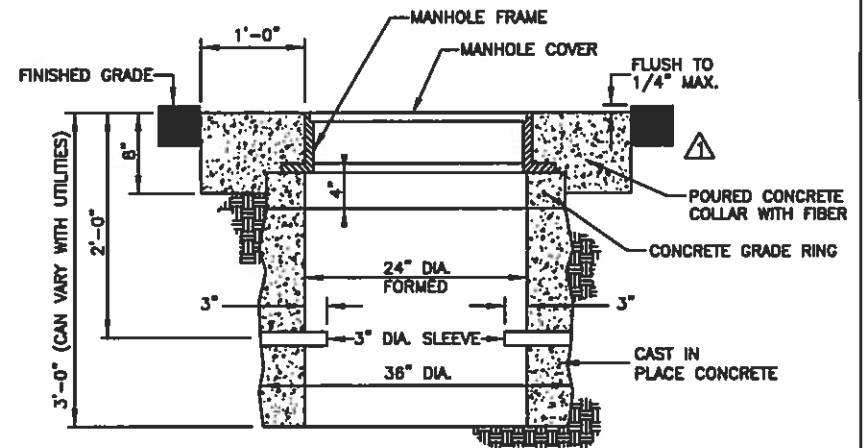
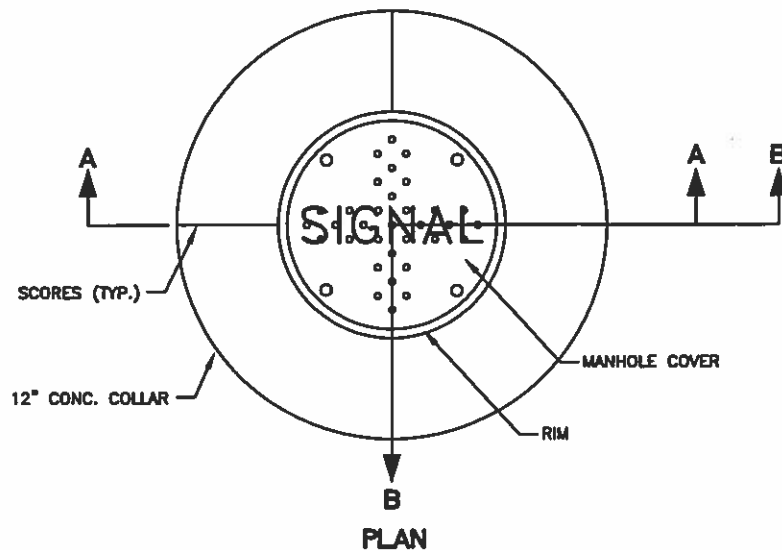
SIGNATURES		PROJECT TITLE	
Project Eng.	Project Eng.	Project Eng.	Project Eng.
Project Eng.	Project Eng.	Project Eng.	Project Eng.
Project Eng.	Project Eng.	Project Eng.	Project Eng.

Standard Conduit and Junction Box
Intersection Detail



TS-1105

Sheet 2 of 4



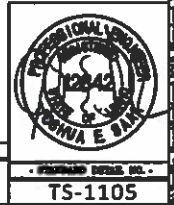
SECTION A-A

NOTES:

1. MANHOLE FRAMES AND COVERS SHALL HAVE A TOLERANCE OF $\frac{1}{4}$ " OR LESS. COVERS SHALL NOT BE WARPED AND ANY THAT ARE TRAVELED ON SHALL BE REPLACED. MACHINE ALL MATCHING SURFACES.
2. MANHOLE COVERS SHALL HAVE THE TEXT "SIGNAL". TEXT HEIGHT SHALL BE 2".
3. TOP OF COLLAR SHALL BE FLUSH WITH MANHOLE COVER AND SHALL BE $\frac{1}{4}$ " BELOW TOP.
4. ALL NEW AND EXISTING CONDUITS SHALL BE TERMINATED WITH A PLUG MANUFACTURED BY "BACKER ROD" AND A "BELL END" OR A TERMINAL ADAPTOR WITH BUISHING.



8/15/2013



Sheet 3 of 4

CAST-IN-PLACE CONCRETE MAN HOLE

SYMBOL	SHEET TITLE
	Standard Conduit and Junction Box Intersection Detail

ADD NOTES TO ADDRESS THE FOLLOWING:

AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS.

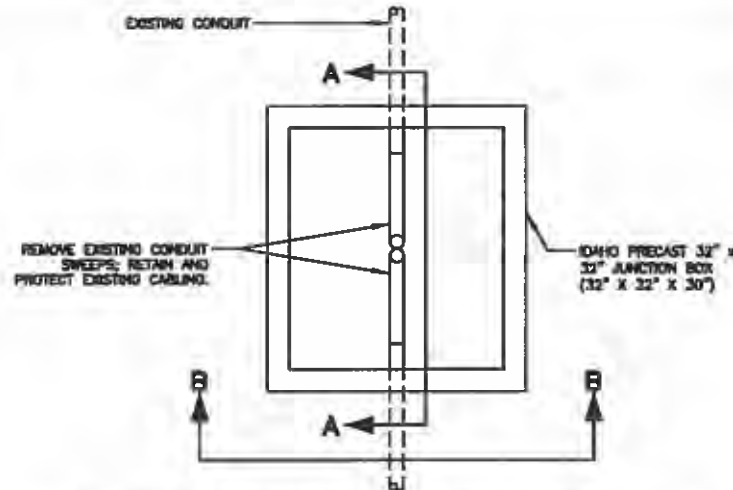
IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7)

RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2).

GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).

GENERAL NOTES:

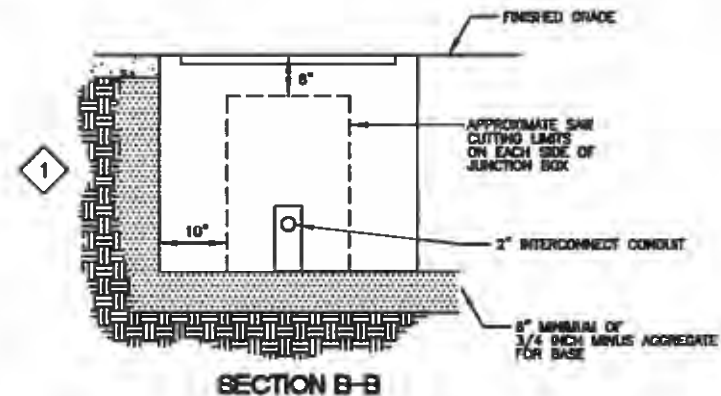
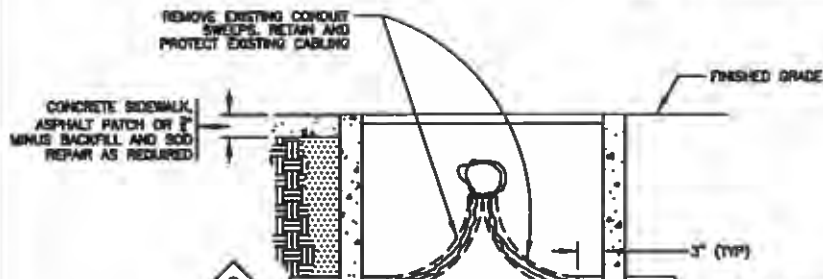
1. THIS DETAIL SHALL BE USED TO RETROFIT EXISTING JUNCTION BOXES TO ACCOMMODATE THE BENDING RADIUS FOR FIBER OPTIC CABLE.
2. $\frac{3}{4}$ " MINUS BACKFILL SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY IN 6" LIFTS.
3. TOP OF JUNCTION BOX SHALL BE FLUSH WITH SURROUNDING GRADE.
4. ALL NEW AND EXISTING CONDUITS SHALL BE TERMINATED WITH A PLUG MANUFACTURED BY "BACKER ROD" AND A "BELL END" OR A TERMINAL ADAPTOR WITH BUSHING.



TYPICAL 32" x 32" JUNCTION BOX INSTALLATION
(Plan View)

NOTES:

1. CONTRACTOR TO SAWCUT SLOT IN JUNCTION BOX, WITHIN SAWCUTTING LIMITS, TO ALLOW INSTALLATION OF JUNCTION BOX OVER EXISTING CONDUIT. AFTER BOX PLACEMENT, THE SLOT SHALL BE SEALED WITH NON-SHRINK GROUT TO THE FULL WALL THICKNESS.
2. CONTRACTOR TO REMOVE BACKFILL SURROUNDING EXISTING CONDUIT, REMOVE EXISTING CONDUIT SWEEPS AND RETAIN AND PROTECT EXISTING CABLE. IF AFTER REMOVING SWEEPS CONDUIT DOES NOT EXTEND INTO THE NEW JUNCTION BOX, THEN SPLIT CONDUIT MANUFACTURED BY CONDUIT REPAIR SYSTEMS, INC. SHALL BE USED TO EXTEND CONDUIT INSIDE THE JUNCTION BOX. CONDUITS SHALL EXTEND INTO THE JUNCTION BOX FOR A DISTANCE OF 3", UNLESS OTHERWISE APPROVED BY ACHD.



ADD NOTES TO ADDRESS THE FOLLOWING:

AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS.

IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7)

RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED $\frac{1}{4}$ " OR $\frac{1}{2}$ " WITH A 1:2 BEVEL (2011 PROWAG R302.7.2).

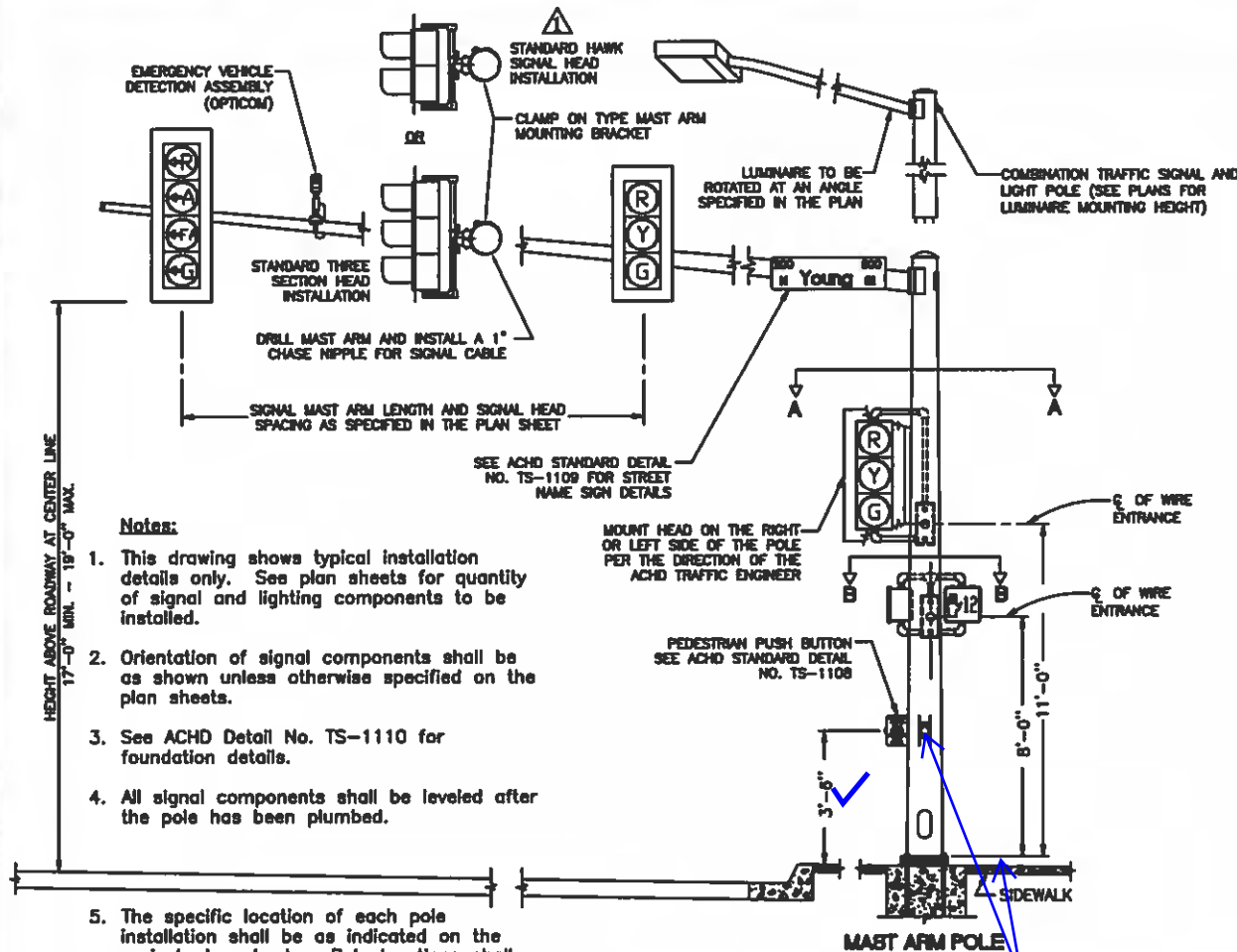
GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED $\frac{1}{2}$ " (2011 PROWAG R302.7.3).

3/12/2012



TS-1105

Sheet 4 of 4



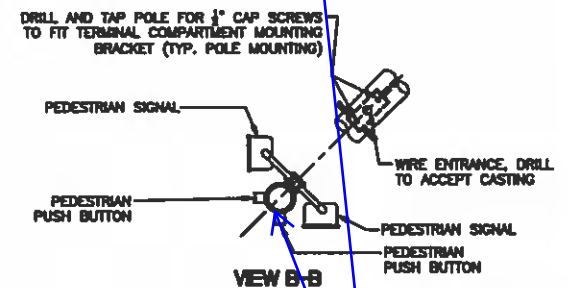
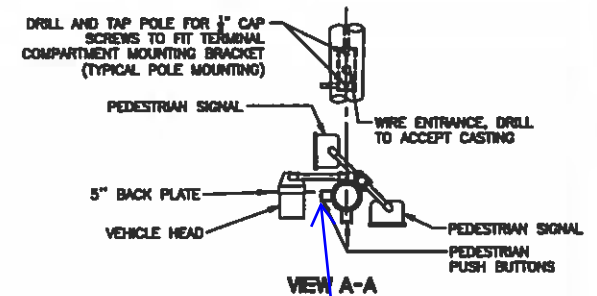
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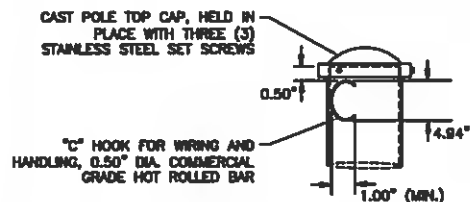
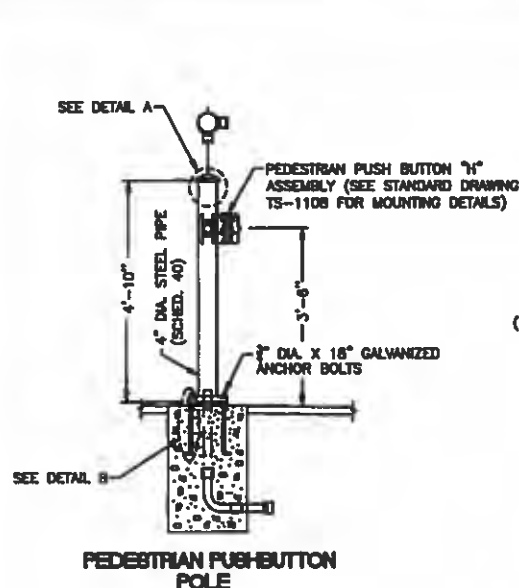
1. This drawing shows typical installation details only. See plan sheets for quantity of signal and lighting components to be installed.
2. Orientation of signal components shall be as shown unless otherwise specified on the plan sheets.
3. See ACHD Detail No. TS-1110 for foundation details.
4. All signal components shall be leveled after the pole has been plumbed.
5. The specific location of each pole installation shall be as indicated on the project plan sheets. Pole locations shall be field verified by ACHD prior to foundation installation.
6. All signals shall comply with the latest edition of the Manual on Uniform Traffic Control Devices.

7. See ACHD Standard Detail TS-1108 for ped push button details. Ped push buttons shall be installed in compliance with the Americans with Disabilities Act and the latest edition of the Manual on Uniform Traffic Control Devices.

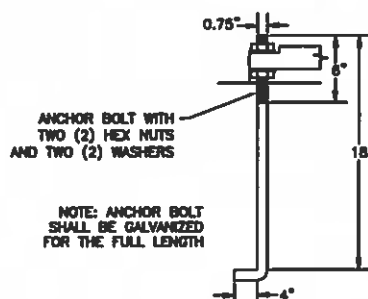
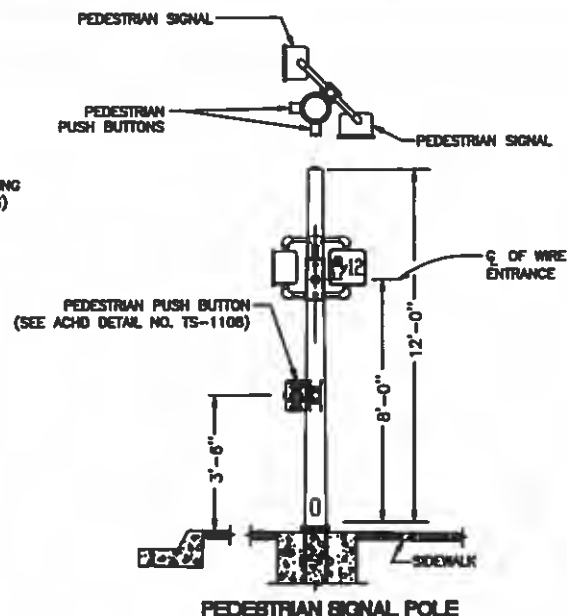
PROVIDE CLEAR SPACE TO ACCESS PUSH BUTTON

UPDATE LAYOUT OF PUSHBUTTONS TO MEET REQUIREMENTS IN 2009 MUTCD SECTION 4E.08 AND TS-1108.





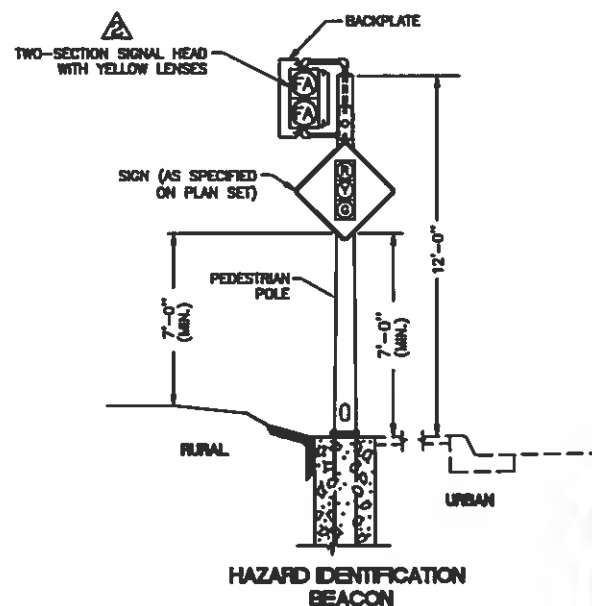
△ PEDESTRIAN PUSHBUTTON POLE - DETAIL A



△ PEDESTRIAN PUSHBUTTON POLE - DETAIL B

NOTES:

1. THIS DRAWING SHOWS TYPICAL INSTALLATION DETAILS ONLY. SEE PLAN SHEETS FOR QUANTITY AND LOCATION OF SIGNAL AND LIGHTING COMPONENTS TO BE INSTALLED.
2. ORIENTATION OF SIGNAL COMPONENTS SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED ON THE PLAN SHEETS.
3. SEE ACHD STANDARD DRAWING TS-1110 FOR FOUNDATION DETAILS.
4. ALL SIGNAL COMPONENTS SHALL BE LEVELED AFTER THE POLE HAS BEEN PLUMBED.
5. SPECIFIC LOCATION OF EACH POLE INSTALLATION SHALL BE AS INDICATED ON THE PROJECT PLAN SHEETS. THE LOCATION SHALL BE FIELD VERIFIED BY ACHD PRIOR TO FOUNDATION INSTALLATION.
6. ALL CONDUIT ELBOWS USED IN CONCRETE BASES SHALL BE RPC.
7. SEE ACHD STANDARD DETAIL TS-1108 FOR PED PUSHBUTTON DETAILS. PED PUSHBUTTONS SHALL BE INSTALLED IN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT.



3/12/2012



REV	DATE	BY	DESCRIPTION
12/11	200		Modified beacon details, added ped pole details
05/08	002		Changed pedestrian pole height to 12'-0"
01/08	001		REVISION



SIGNATURES			
Author: JTB	Drawn: JTB	Reviewed: JTB	Approved: JTB
Date: 12/11/11	Date: 12/11/11	Date: 12/11/11	Date: 12/11/11
File: 12-1106-001			

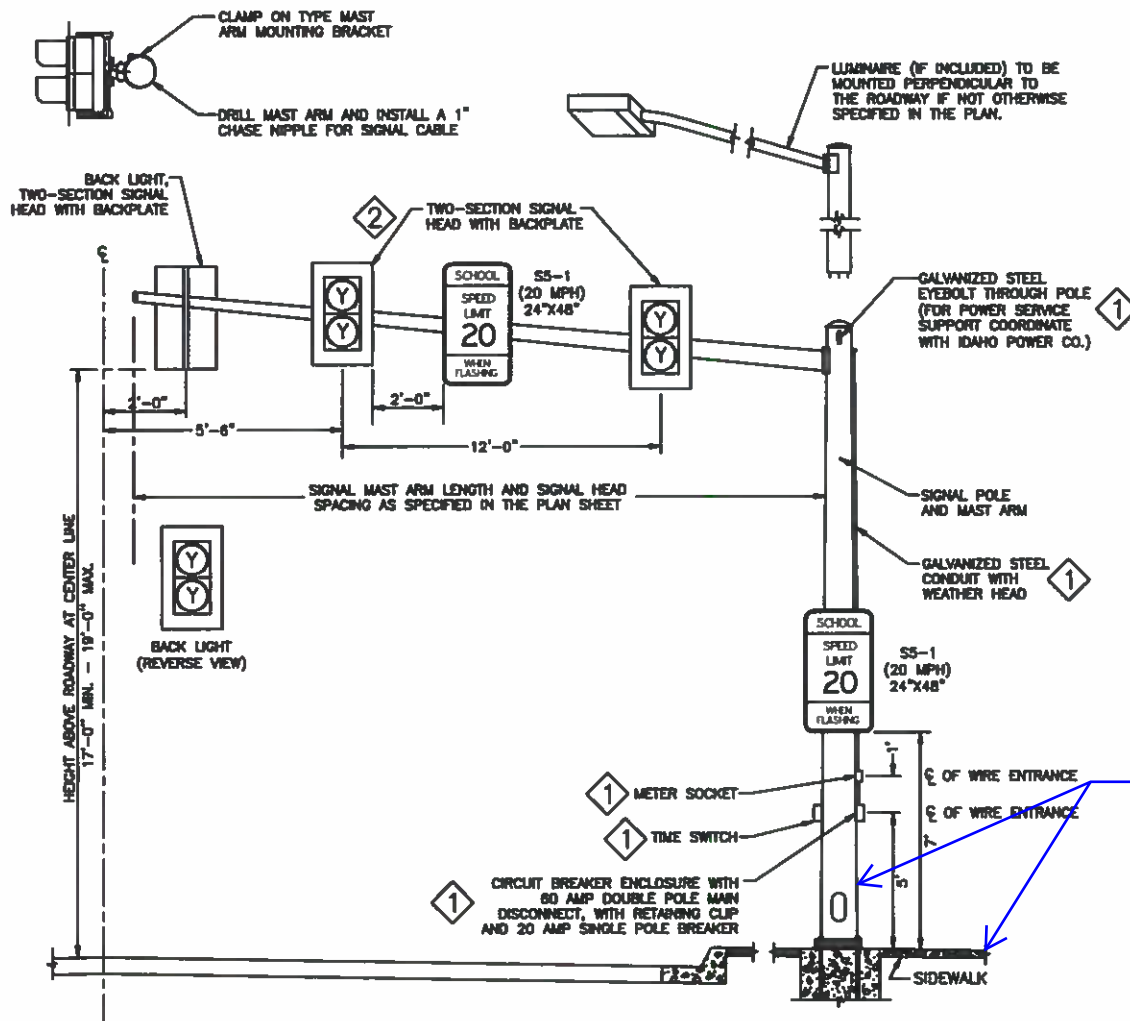
Standard Pedestrian Signal Pole and Hazard Beacon Details

TS-1106

Sheet 2 of 2

Ada County Highway District

3976 Adams Street, Boise, Idaho, 83724
www.achd.idaho.gov



TYPICAL MAST ARM MOUNTED SCHOOL ZONE FLASHING BEACON

GENERAL NOTES:

1. THIS DRAWING SHOWS TYPICAL INSTALLATION DETAILS ONLY. SEE PLAN SHEETS FOR QUANTITY OF SIGNAL COMPONENTS TO BE INSTALLED.
2. LOCATION OF EXISTING UTILITIES IS NOT SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION (DIG LINE: 1-800-342-1585).
3. ALL TRAFFIC SIGNAL WORK SHALL CONFORM TO ACHD'S SUPPLEMENTAL PROVISIONS, DIVISION 1100.
4. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST REVISION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
5. ORIENTATION OF SIGNAL COMPONENTS SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED ON THE PLAN SHEETS.
6. SEE ACHD DETAIL NO. TS-1110 (SHEET 1 OF 2) FOR FOUNDATION DETAILS.
7. ALL SIGNAL COMPONENTS SHALL BE LEVELED AFTER THE POLE HAS BEEN PLUMBED.
8. ALL FLASHERS ARE TO RUN ON 240V SERVICE.
9. THE SPECIFIC LOCATION OF EACH POLE INSTALLATION SHALL BE AS INDICATED ON THE PROJECT PLAN SHEETS. POLE LOCATIONS SHALL BE FIELD VERIFIED BY ACHD PRIOR TO FOUNDATION INSTALLATION.

POLE PLACEMENT SHALL NOT REDUCE SIDEWALK WIDTH TO LESS THAN 4' MIN. PER 2011 PROWAG R302.3, THE CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES SHALL BE 4 FT MINIMUM, EXCLUSIVE OF THE WIDTH OF THE CURB.

- 1 NOT NEEDED IF THE FLASHER IS CONNECTED TO A TRAFFIC SIGNAL CABINET AND SERVICE.
- 2 SECOND MAST ARM MOUNTED FLASHER SHALL BE INCLUDED ON MULTILANE ROADWAYS ONLY.

REV.	DATE	BY	REVISIONS



Ada County Highway District

1876 Adams Street, Boise, Idaho, 83714
www.achd.idaho.gov

		SIGNATURES	
Drawn By	Andrew Davis	Design By	Andrew Davis
Scale	1/8" = 1'-0"	Approved By	Shana Morris

Standard School Zone Flasher Details



TS-1107

Sheet 1 of 2

GENERAL NOTES:

1. THIS DRAWING SHOWS TYPICAL INSTALLATION DETAILS ONLY. SEE PLAN SHEETS FOR QUANTITY OF SIGNAL COMPONENTS TO BE INSTALLED.
2. LOCATION OF EXISTING UTILITIES IS NOT SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION (DIG LINE: 1-800-342-1585).
3. ALL TRAFFIC SIGNAL WORK SHALL CONFORM TO ACHD'S SUPPLEMENTAL PROVISIONS, DIVISION 1100.
4. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST REVISION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
5. ORIENTATION OF SIGNAL COMPONENTS SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED ON THE PLAN SHEETS.
6. SEE ACHD STANDARD DETAIL NO. TS-1110 (SHEET 1 OF 2) FOR FOUNDATION DETAILS.
7. ALL SIGNAL COMPONENTS SHALL BE LEVELED AFTER THE POLE HAS BEEN PLUMBED.
8. ALL FLASHERS ARE TO RUN ON 240V SERVICE.
9. THE SPECIFIC LOCATION OF EACH POLE INSTALLATION SHALL BE AS INDICATED ON THE PROJECT PLAN SHEETS. POLE LOCATIONS SHALL BE FIELD VERIFIED BY ACHD PRIOR TO FOUNDATION INSTALLATION.

NOTES:

- 1 NOT NEEDED IF THE FLASHER IS CONNECTED TO A TRAFFIC SIGNAL CABINET AND SERVICE.
- 2 SEE ACHD STANDARD DETAIL TS-1106 FOR SIGNAL MOUNTING DETAILS.
- 3 POLE MAY BE REDUCED IN HEIGHT DUE TO OVERHEAD UTILITY CONFLICTS. ACHD TO CUT

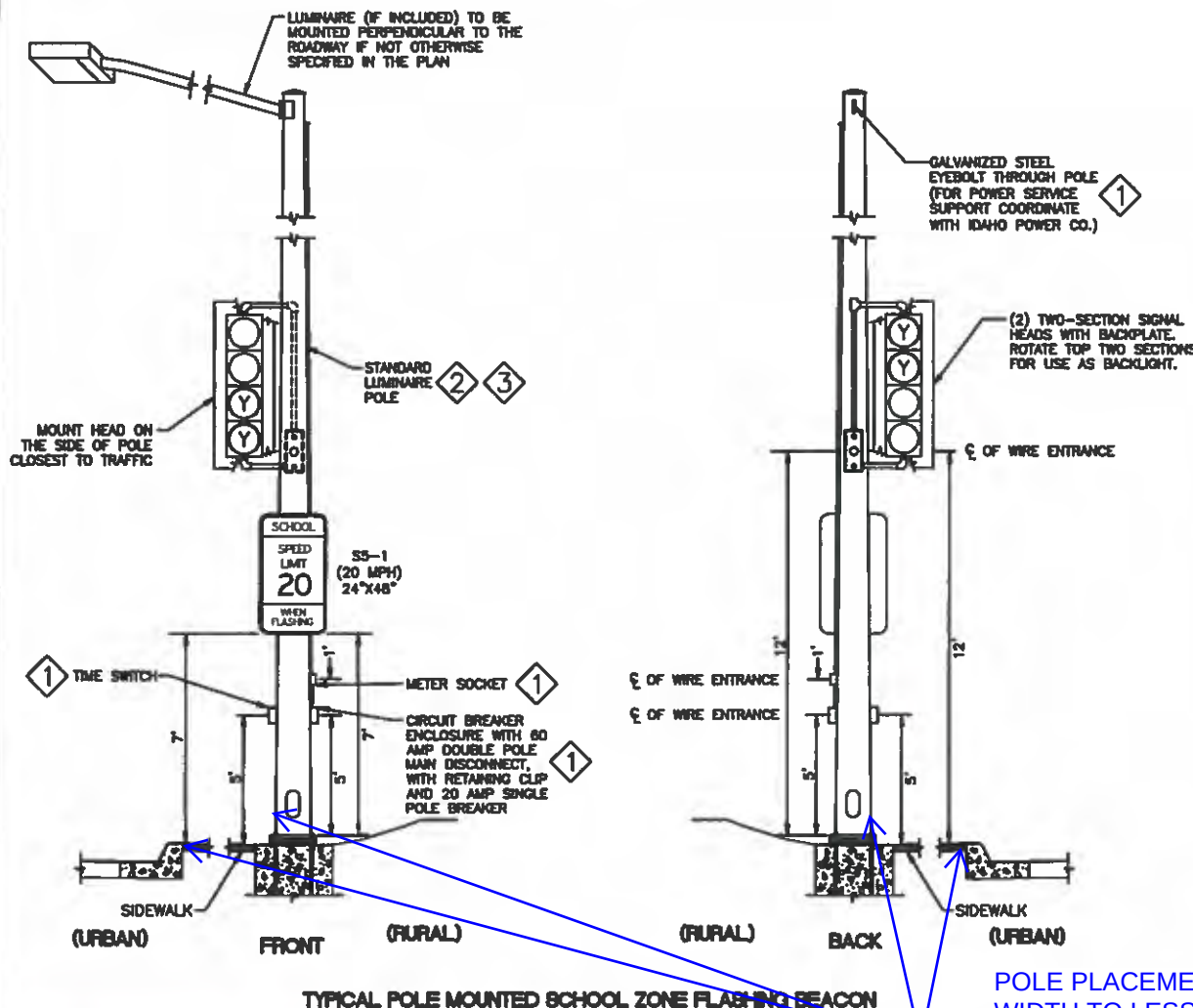
POLE PLACEMENT SHALL NOT REDUCE SIDEWALK WIDTH TO LESS THAN 4' MIN. PER 2011 PROWAG R302.3, THE CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES SHALL BE 4 FT MINIMUM, EXCLUSIVE OF THE WIDTH OF THE CURB.

Standard School Zone Flasher Details



TS-1107

Sheet 2 of 2



TYPICAL POLE MOUNTED SCHOOL ZONE FLASHING BEACON

NO.	DATE	BY	REVISION
1	10/22/2010	JES	ISSUED FOR CONSTRUCTION

ACHD

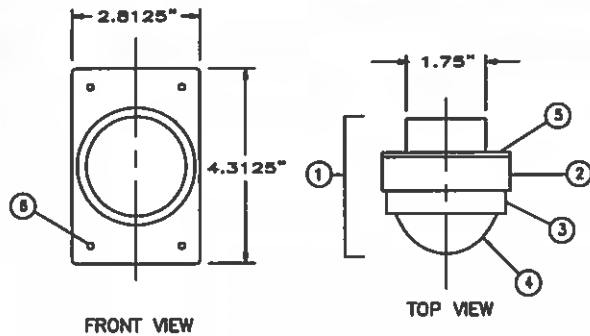
Traffic Engineering Division

8000 Adams Street, Boise, Idaho, 83714

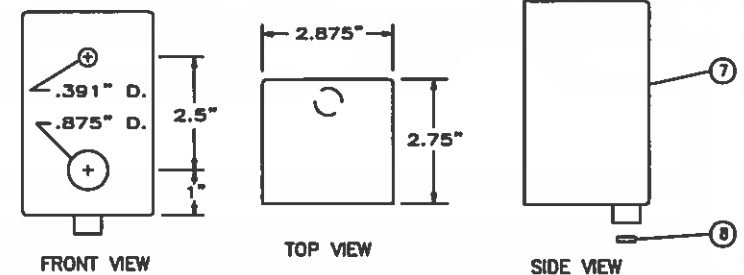
www.achd.idaho.gov

DESIGNED BY: Joshua Smith	
CHECKED BY: Joshua Smith	DATE: 10/22/2010
APPROVED BY: Joshua Smith	

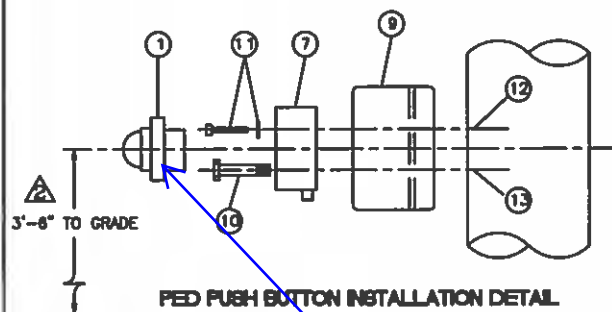
Ada County Highway District



PUSH BUTTON

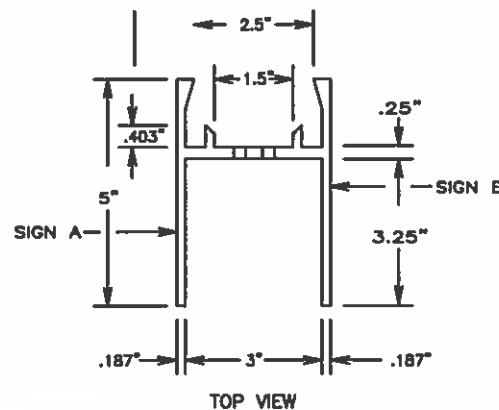


CONDUIT DRILLING DETAIL

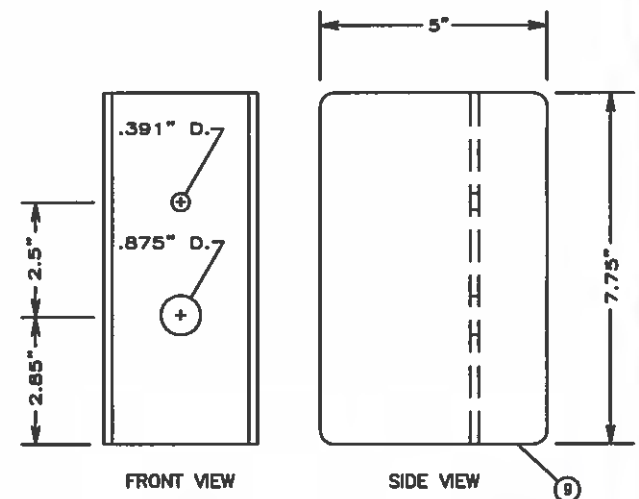


Notes:

- ① Push button switch assembly
- ② Cast metal housing
- ③ Protective collar
- ④ 2 1/2" Dia. chrome mushroom push button switch with momentary contacts
- ⑤ Gasket
- ⑥ Stainless steel fastener (typ.)
- ⑦ Cast aluminum conduit



TOP VIEW



ALUMINUM "H" EXTRUSION DRILLING DETAIL

- ⑧ Aluminum plug with #30 drilled weep hole (remove to provide wire entrance on timber pole installation)
- ⑨ Aluminum "H" extrusion
- ⑩ Chase nipple thread x 2 1/2"
- ⑪ 1/2"-16 by 2 1/2" washer

R209.1 GENERAL. WHERE PEDESTRIAN SIGNALS ARE PROVIDED AT PEDESTRIAN STREET CROSSINGS, THEY SHALL INCLUDE ACCESSIBLE PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTONS COMPLYING WITH SECTIONS 4E.08 THROUGH 4E.13 OF THE MUTCD (INCORPORATED BY REFERENCE, SEE R104.2). OPERABLE PARTS SHALL COMPLY WITH R403.

R403.4 OPERATION. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 22 N (5 LBS) MAXIMUM.

REV	DATE	DESCRIPTION	BY	CHK
1	01/15/09	Initial design of PWS	WJH	WJH
2	01/15/09	Revised design	WJH	WJH

Ada County Highway District



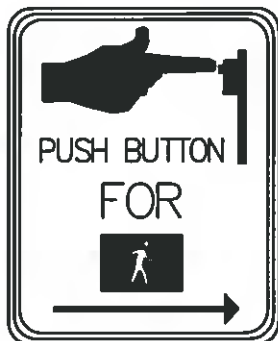
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Date:	01/15/09
File:	02-1500a-200

10/22/2010



TS-1108

Sheet 1 of 2



SIGN A

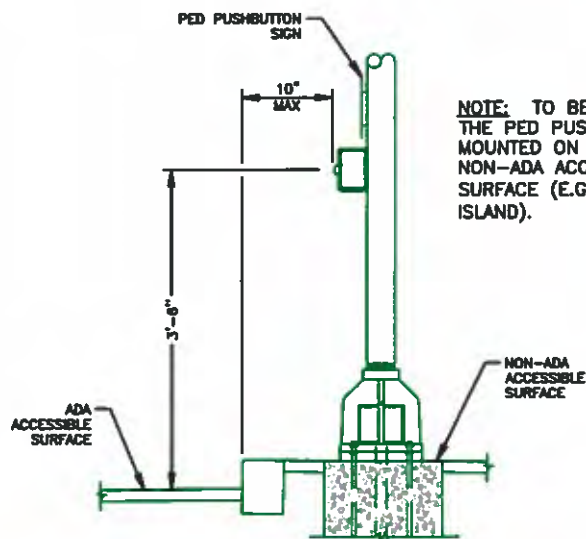


SIGN B

△ SIGN R10-3

NOTES:

1. ALL PEDESTRIAN PUSH BUTTON SIGNS SHALL MEET THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED VERSION OF THE MUTCD.
2. SIGNS MAY BE MOUNTED IMMEDIATELY ABOVE OR INCORPORATED INTO THE PUSHBUTTON UNITS.
3. THE FINGER IN THE PUSHBUTTON SYMBOL SHOULD POINT IN THE SAME DIRECTION AS THE ARROW ON THE SIGN.

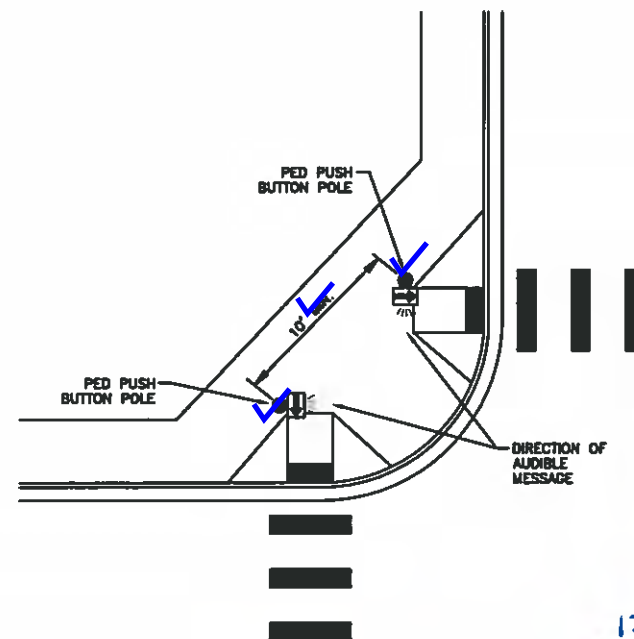


ADA ACCESSIBILITY DETAIL

NOTE: TO BE USED WHEN THE PED PUSH BUTTON IS MOUNTED ON A POLE ON A NON-ADA ACCESSIBLE SURFACE (E.G.: MEDIAN ISLAND).

NOTES:

1. THE PED PUSH BUTTON POLE MAY SUPPORT A PUSH BUTTON ONLY OR, WHEN LOCATED ON A PED POLE, ALSO SUPPORT A PED SIGNAL INDICATION.
2. THE PED PUSH BUTTON, WHEN LOCATED ON A SIGNAL POLE, MAY ALSO SUPPORT A SIGNAL MAST ARM AND LUMINAIRE.
3. THE PED PUSH BUTTON, WHEN LOCATED ON A LUMINAIRE, MAY ALSO SUPPORT A PED SIGNAL INDICATION.



△ 'IDEAL' PED PUSH BUTTON PLACEMENT
△

DATE	BY	REVISIONS
11/11	AM	Changed push button sign
11/11	AM	Minor modifications to push button detail
11/11	AM	Add push button placement detail
01/12	BT	REVISIONS



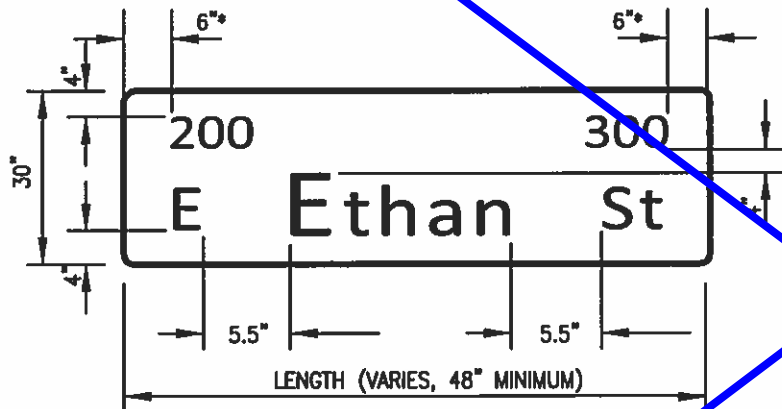
SIGNATURES	
Drawn BY	Andrew Smith
Check BY	12/12/11
File	10-11000-PED
Design BY	Andrew Smith
Approved BY	Jim Lortzen

Standard Ped Push Button Detail



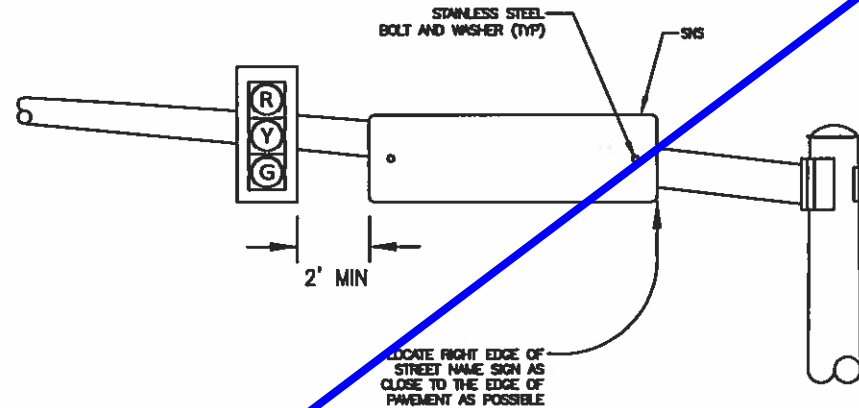
DIMENSIONS:

CORNER RADIUS: 2.25"
BORDER WIDTH: 1"



* THE DISTANCE TO THE EDGE FOR LONGER STREET NAMES (e.g. FLOATING FEATHER) SHALL BE 3" TO 4"

STANDARD MAST ARM MOUNTED STREET NAME WITH BLOCK NUMBER SIGN (SNE)



STANDARD SNE WITH BLOCK NUMBER MOUNTING DETAIL

NOTES:

1. MAST ARM MOUNTED STREET NAME SIGNS SHALL BE FASTENED WITH A PELCO ASTRO SIGN BRACKET AB-012B OR APPROVED EQUIVALENT.
2. BACKGROUND FOR PUBLIC STREET NAME SIGNS AND BLOCK NUMBERS SHALL BE GREEN COLORED TYPE III OR TYPE IV HIGH INTENSITY PRISMATIC SHEETING, CONFORMING TO THE MOST RECENTLY ADOPTED VERSION ASTM D4956.
3. BACKGROUND FOR PRIVATE STREET NAME SIGNS AND BLOCK NUMBERS SHALL BE BLUE COLORED TYPE III OR TYPE IV HIGH INTENSITY PRISMATIC SHEETING, CONFORMING TO THE MOST RECENTLY ADOPTED VERSION ASTM D4956.
4. ALL LETTERING SHALL BE WHITE REFLECTIVE TYPE III OR TYPE IV HIGH INTENSITY PRISMATIC SHEETING. LETTERING FOR STREET NAMES SHALL BE 12" FOR THE INITIAL CAPITAL LETTER OF EACH WORD AND 9" LOWER CASE FOR ALL OTHER LETTERS. LETTERING FOR THE DIRECTIONAL PREFIX, ROADWAY SUFFIX AND BLOCK NUMBERS SHALL BE 6". FONT TYPE SHALL BE CLEARVIEW HWY 2-B.
5. SIGN BLANKS FOR MAST ARM MOUNTED STREET NAME SIGNS SHALL BE 0.125" THICK TEMPERED ALUMINUM ALLOY.

NOT REVIEWED

11/20	20	Standard Mast Arm Mounted Street Name Sign Details
11/20	20	Standard Mast Arm Mounted Street Name Sign Details
 Adair County Highway District Traffic Engineering Division 2770 Adams Street, Suite 100, Idaho, 83704 www.adaircountyidaho.gov		

Design: JTB Date: 04/15/10 File: 10-1109-000	Drawn By: Andrew Smith Check By: Andrew Smith Approved By: Steve Gynn

SHEET TITLE: STANDARD MAST ARM MOUNTED STREET NAME SIGN DETAILS

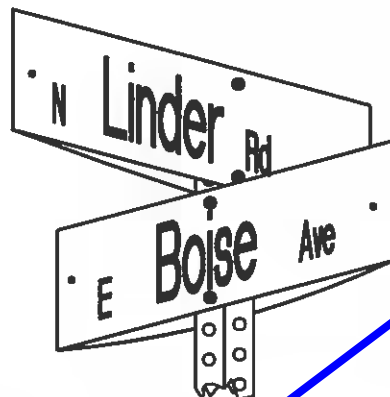
11/9/2012



ANDREW SMITH, P.E.
TS-1109
Sheet 1 of 2

NOTES:

1. STREET NAME SIZES:
MINIMUM SIZE: 9"x18"
MAXIMUM SIZE: 12"x48"
2. BACKGROUND FOR PUBLIC ROAD STREET NAME SIGNS SHALL BE GREEN COLOR TYPE III OR TYPE IV HIGH INTENSITY PRISMATIC SHEETING, CONFORMING TO THE MOST RECENTLY ADOPTED VERSION OF ASTM D4956.
3. BACKGROUND FOR PRIVATE ROAD STREET NAME SIGNS SHALL BE BLUE COLOR TYPE III OR TYPE IV HIGH INTENSITY PRISMATIC SHEETING, CONFORMING TO THE MOST RECENTLY ADOPTED VERSION OF ASTM D4956.
4. ALL LETTERING FOR STREET NAME SIGNS SHALL BE WHITE COLOR TYPE III OR TYPE IV HIGH INTENSITY PRISMATIC SHEETING, CONFORMING TO THE MOST RECENTLY ADOPTED VERSION OF ASTM D4956. FONT TYPE SHALL BE CLEARVIEW HWY 1-B.
5. SIGN HEIGHT FROM THE GROUND TO THE BOTTOM OF THE STREET SIGN SHALL BE 7'-0" (MINIMUM).



STREET NAME SIGN
BACK TO BACK
MOUNTING DETAIL



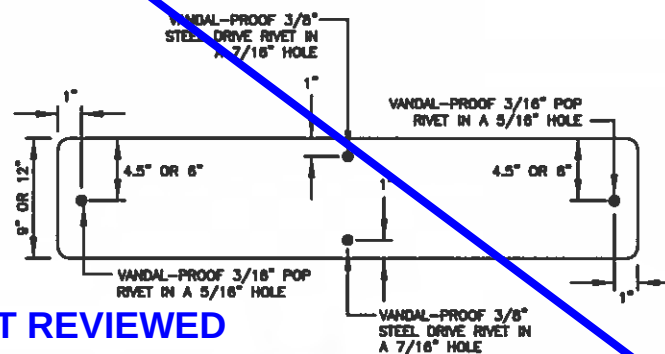
STREET NAME SIGN
DETAIL FOR

MULTI-LANE PUBLIC STREETS,
SPEED LIMIT 45 MPH OR GREATER



STREET NAME SIGN
DETAIL FOR

- MULTI-LANE PUBLIC STREETS,
SPEED LIMIT LESS THAN 45 MPH
- TWO-LANE STREETS (ANY SPEED LIMIT)
- PRIVATE STREETS



STREET NAME SIGN
MOUNTING DETAIL

NOT REVIEWED

REV	NO	DATE	DESCRIPTION
1	1	05/12/10	Initial design
2	2	05/12/10	Revised design
3	3	05/12/10	Revised design
4	4	05/12/10	Revised design
5	5	05/12/10	Revised design
6	6	05/12/10	Revised design
7	7	05/12/10	Revised design
8	8	05/12/10	Revised design
9	9	05/12/10	Revised design
10	10	05/12/10	Revised design



Alameda County Highway District

3770 Alameda Street, Suite 200, Oakland, CA 94612

DESIGNER	CHECKED	APPROVED
Design: JH	Check: JH	Approve: JH
Date: 05/12/10		
File: 10-1109-005		

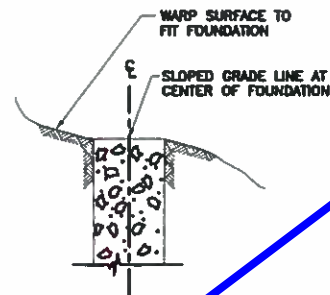
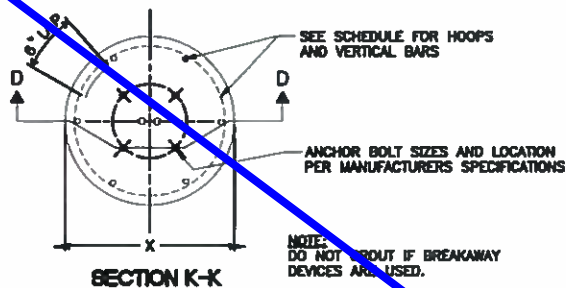
STANDARD POST MOUNTED STREET NAME
SIGN DETAILS

3/7/2013

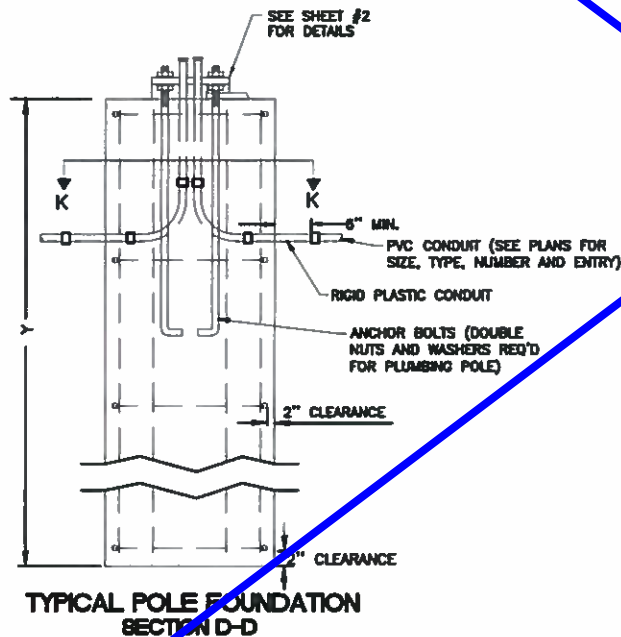


TS-1109

Sheet 2 of 2



ALTERNATE SLOPED GRADE SECTION



TYPICAL POLE FOUNDATION SECTION D-D

NOTES:

1. THE FOUNDATIONS SHALL BE LOCATED AS INDICATED ON THE PROJECT PLAN SHEETS. FOUNDATION LOCATIONS SHALL BE FIELD VERIFIED BY ACHD PRIOR TO FOUNDATION INSTALLATION.
 2. ALL CONDUIT ELBOWS USED IN CONCRETE BASES SHALL BE RPC.
 3. SPARE STUBOUTS SHALL BE TERMINATED WITH A COUPLING AND PLASTIC PUSH PLUG AT BOTH ENDS.
 4. A TYPE X SIGNAL POLE CAN CARRY UP TO:
 1. DUAL 45' MAST ARMS
 2. A 50' MAST ARM AND UP TO A 40' MAST ARM
 3. A 55' MAST ARM AND UP TO A 30' MAST ARM
- A TYPE XI SIGNAL POLE CAN CARRY UP TO:
1. A 60' MAST ARM AND UP TO A 55' MAST ARM
 2. A 65' MAST ARM AND UP TO A 40' MAST ARM

POLE FOUNDATION SCHEDULE

POLE TYPE	MT. HT.	MASTARM LENGTH	FOUNDATION TYPE	X	Y	HOOPS		VERTICAL RODS		CU. YDS. CONCRETE
						NO.	SIZE	NO.	SIZE	
PEDESTRIAN SIGNAL POLE	12'	-	A	2'-0"	5'-0"	4	#4	8	#4	0.6
LIGHT/DETECTOR POLE	35'	ALL	A	2'-0"	5'-0"	4	#4	8	#4	0.6
LIGHT POLE	35'	ALL	B	2'-6"	7'-0"	4	#4	8	#6	1.3
LIGHT POLE	40'-50'	ALL	C	3'-0"	8'-0"	5	#4	8	#6	2.1
SIGNAL POLE	-	20' - 45'	D	3'-0"	8'-0"	5	#4	8	#6	2.4
PED. PUSHBUTTON POLE	4' - 10"	-	E	2'-0"	2'-8"	-	-	-	-	0.3
DUAL MASTARM SIGNAL POLE	-	SEE NOTE 4	F/G	-	-	-	-	-	-	-
TYPE X SIGNAL POLE	-	50' - 55'	F	3'-0"	12'-0"	8	#5	12	#6	3.1
TYPE XI SIGNAL POLE	-	60' - 65'	G	3'-6"	14'-0"	9	#5	12	#6	5.0
CCTV POLE	50'	-	F	3'-0"	12'-0"	8	#5	12	#6	3.1
CCTV POLE	55'	-	F	3'-0"	12'-0"	8	#5	12	#6	3.1

NOT REVIEWED

2/5/2014

11/11

AM

Changed sheet title.

10/20/07

BT

REVISIONS

Ada County Highway District

ACHD

Traffic Engineering Division

8770 Adams Street, Boise, Idaho 83714

www.achd.idaho.gov

SIGNATURES	
Drawn By: Justin Bank	Checked By: Justin Bank
Design By: Justin Bank	Approved By: Jim Jensen

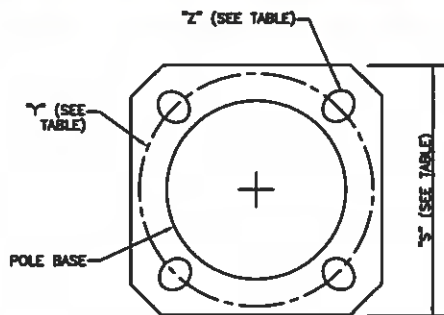
STANDARD SIGNAL AND CCTV POLE FOUNDATION DETAIL



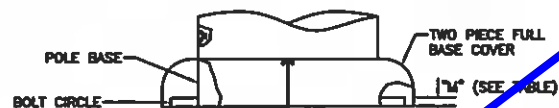
STANDARD DETAIL NO. TS-1110



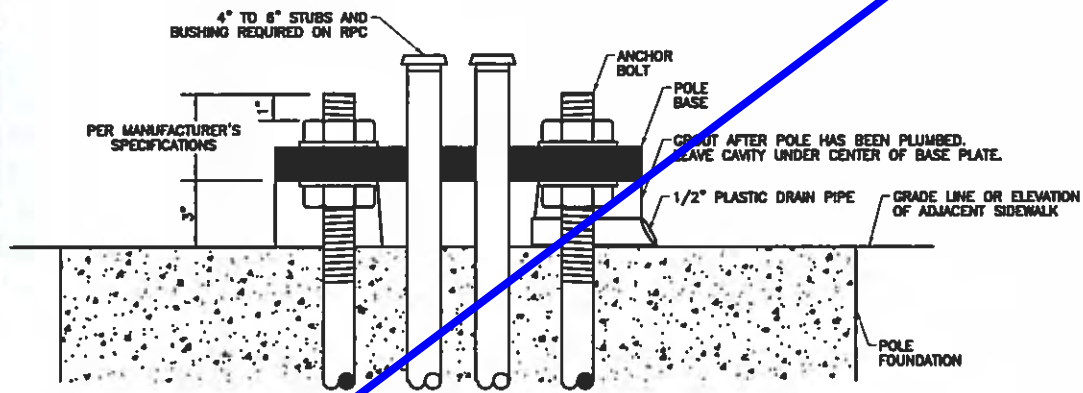
POLE TYPE	MAST ARM LENGTH	POLE DATA			
		SQUARE "S" (IN.)	BOLT CIRCLE "Y" (IN.)	THK. "M" (IN.)	HOLE / SLOT "Z" (IN.)
PED PUSHBUTTON POLE		12.00	8.50	0.50	1.00 X 1.00
PEDESTRIAN SIGNAL POLE	-	13.88	12.75	0.75	1.25 X 1.25
LUMINAIRE POLE, STANDARD	ALL	13.88	12.75	1.00	1.13 X 1.89
LUMINAIRE POLE, DAVIT STYLE	ALL	13.50	12.50	1.50	1.50 X 2.25
TYPE X SIGNAL POLE	20' - 55'	19.00	18.00	2.00	2.25 X 2.75
TYPE XI SIGNAL POLE	60' - 65'	22.00	21.00	2.00	2.25 X 2.75



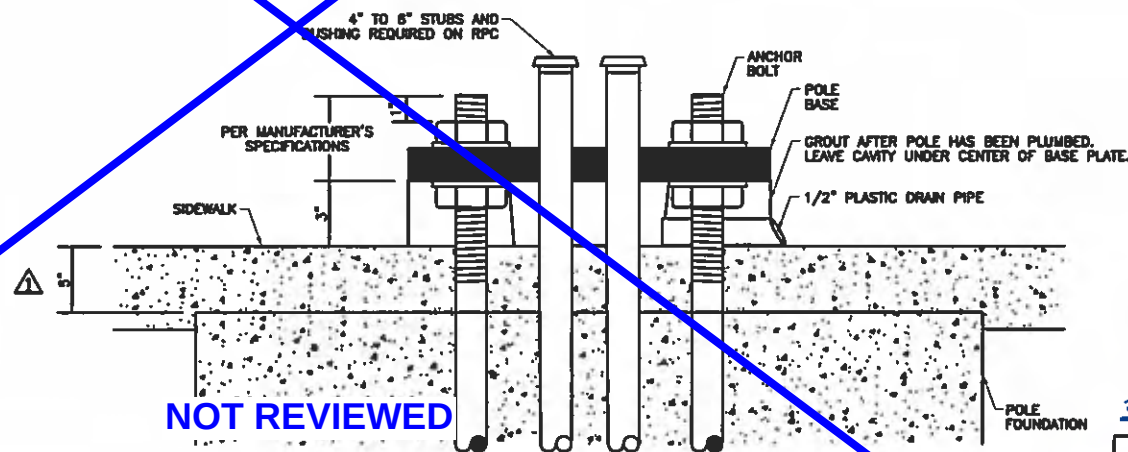
⚠ TYPICAL SIGNAL POLE BASE AND FOUNDATION BOLT DETAIL - PLAN VIEW



⚠ TYPICAL SIGNAL POLE BASE AND FOUNDATION BOLT DETAIL - PROFILE VIEW



TYPICAL SIGNAL POLE BASE AND FOUNDATION BOLT DETAIL
TO BE USED FOR SIGNAL FOUNDATIONS NOT PLACED IN SIDEWALK



TYPICAL SIGNAL POLE BASE AND FOUNDATION BOLT DETAIL
TO BE USED FOR SIGNAL FOUNDATIONS PLACED IN SIDEWALK

NOT REVIEWED

3/5/2014

NO.	DATE	BY	DESCRIPTION
1	05/15/13	SSB	Modified pole data table
2	07/15/13	SSB	Added pole base detail and materials
3	04/15/14	SSB	Increased square base thickness

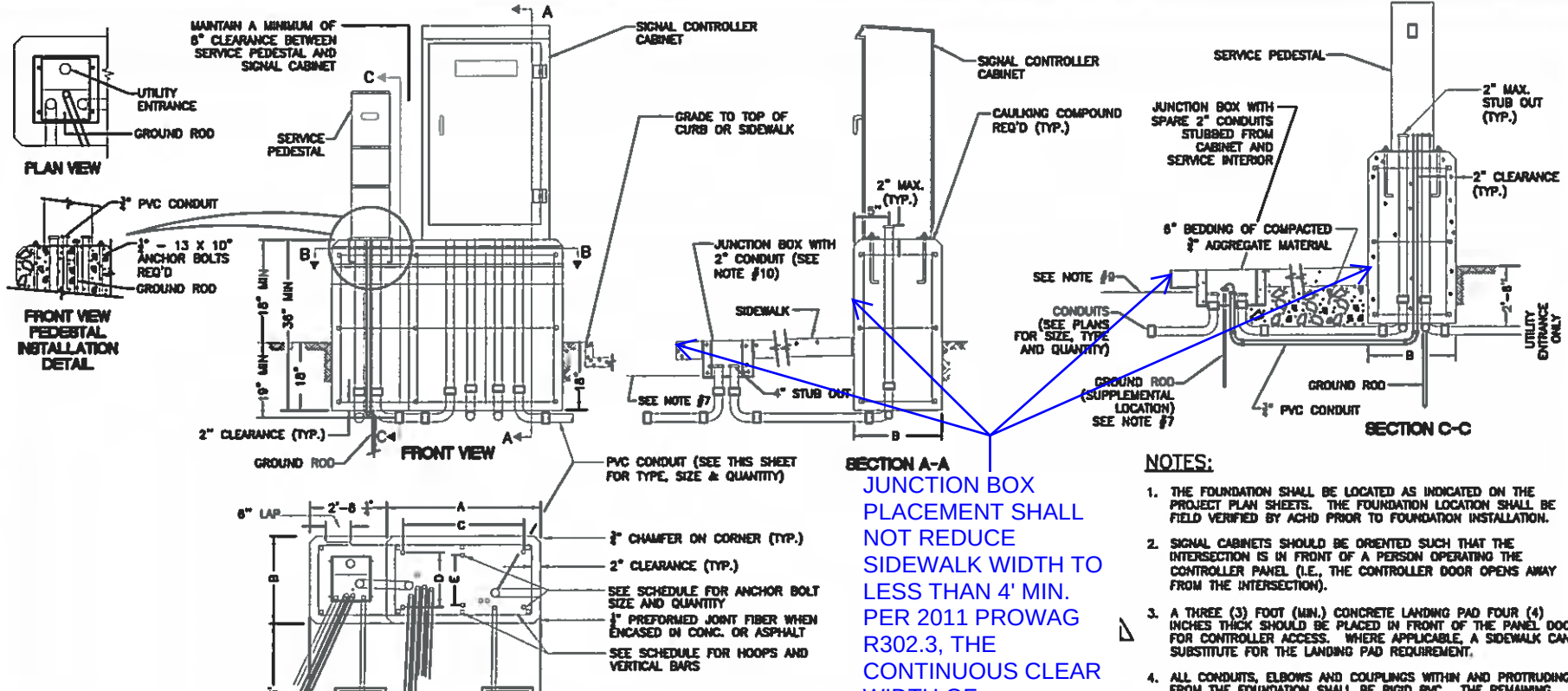
• 007181000 •



SIGNATURES			
Drawn By: SSB	Design By: Andrew Smith		
Check By: SSB/SSB	Check By: Andrew Smith		
Print: 05-1110-0000	Approved By: Jim Larson		

STANDARD SIGNAL POLE FOUNDATION DETAIL





NOTES:

1. THE FOUNDATION SHALL BE LOCATED AS INDICATED ON THE PROJECT PLAN SHEETS. THE FOUNDATION LOCATION SHALL BE FIELD VERIFIED BY ACHD PRIOR TO FOUNDATION INSTALLATION.
2. SIGNAL CABINETS SHOULD BE ORIENTED SUCH THAT THE INTERSECTION IS IN FRONT OF A PERSON OPERATING THE CONTROLLER PANEL (I.E., THE CONTROLLER DOOR OPENS AWAY FROM THE INTERSECTION).
3. A THREE (3) FOOT (MIN.) CONCRETE LANDING PAD FOUR (4) INCHES THICK SHOULD BE PLACED IN FRONT OF THE PANEL DOOR FOR CONTROLLER ACCESS. WHERE APPLICABLE, A SIDEWALK CAN SUBSTITUTE FOR THE LANDING PAD REQUIREMENT.
4. ALL CONDUITS, ELBOWS AND COUPLINGS WITHIN AND PROTRUDING FROM THE FOUNDATION SHALL BE RIGID PVC. THE REMAINING CONDUITS SHALL BE AS SHOWN ON THE PLANS.
5. MOLDED PLUGS SHALL BE REQUIRED AT BOTH ENDS OF SPARE CONDUITS.
6. USE DIMENSION "A" FOR THE CABINET FOUNDATION AND PAD WHEN THE SERVICE PEDESTAL IS NOT REQUIRED.
7. GROUND IN ACCORDANCE WITH N.E.C.
8. CONDUIT SHALL BE INSTALLED IN SUCH A MANNER AS TO NOT CAUSE MODIFICATION OF THE CABINET.
9. 6" WIDE ELECTRICAL HAZARD TAPE INSTALLED 1'-0" ABOVE CONDUIT (TYP. FOR ALL CONDUIT).
10. SEE SIGNAL PLAN FOR NUMBER OF CONDUITS AND CONDUIT ROUTING.
11. CONTRACTOR SHALL OBTAIN BOLT PATTERN REQUIREMENTS FROM THE ACHD TRAFFIC SIGNAL INSPECTOR.

SERVICE PEDESTALS					
CAL. ROOS	CUL. YDS. CONC.	ANCHOR BOLT			
SIZE LIN. FT.	FOUNDATION	PAD	QNTY.	SIZE	
#4 17'4"	1.05	0.2	2	3" x 18" x 4"	
#4 17'4"	1.90	0.2	4	3" x 18" x 4"	

ADD NOTES TO ADDRESS THE FOLLOWING:

AVOID LOCATING STRUCTURES IN THE PEDESTRIAN ACCESS ROUTE SUCH AS SIDEWALKS OR CROSSWALKS.

IF STRUCTURES ARE REQUIRED TO BE LOCATED IN THE PEDESTRIAN PATH OF TRAVEL DUE TO EXISTING CONSTRAINTS, THE STRUCTURES MUST ADHERE TO PROWAG'S SURFACE REQUIREMENTS. SURFACE OF LIDS OR GRATES MUST BE FIRM, STABLE, AND SLIP RESISTANT (2011 PROWAG R302.7)

RIM OF STRUCTURE SHALL BE FLUSH WITH SURROUNDING GRADE. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 1/4" OR 1/2" WITH A 1:2 BEVEL (2011 PROWAG R302.7.2).

GAPS IN LIDS/COVERS OR BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED 1/2" (2011 PROWAG R302.7.3).

• SHEET TITLE •

Standard Cabinet
Foundation Detail

3/26/2014



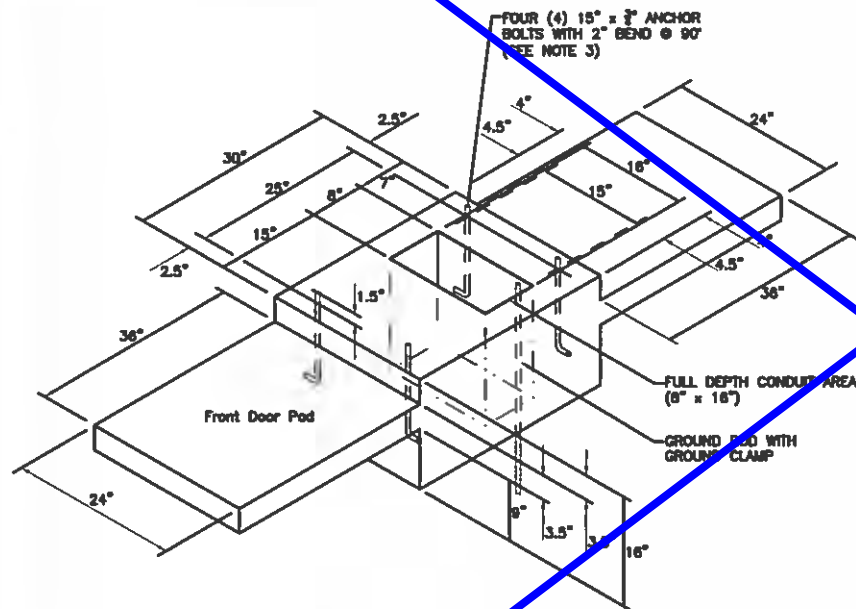
• DESIGNER FIRM, INC. •

TS-1111

Sheet 1 of 2

NOTES:

1. INSTALL GROUND ROD WIRE CONDUIT ON ALL CABINET FOUNDATIONS. GROUND ROD WIRE CONDUIT SHALL BE USED WHEN AN ADDITIONAL GROUND ROD IS REQUIRED.
2. BONDING AND GROUNDING SHALL MEET THE NATIONAL ELECTRIC CODE AND ACHD STANDARDS.
3. VENDOR WILL PROVIDE DMS CABINET.



**FOUNDATION DETAIL
FOR ITS (MODEL 334) CABINET**

NOT REVIEWED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100



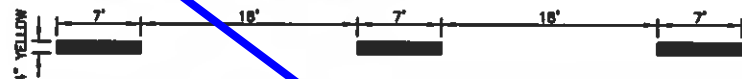
• SIGNATURE •		• SHEET TITLE •	
Drawn By	Andrew Smith	Standard ITS Cabinet	
Check By	Andrew Smith	Foundation Detail	
Date	12/10/11		

3/12/2012



TS-1111
Sheet 2 of 2

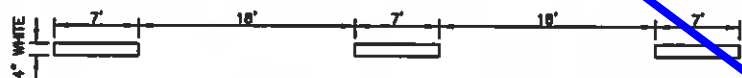
1 Center Line, Posted Speed ≤ 40 mph



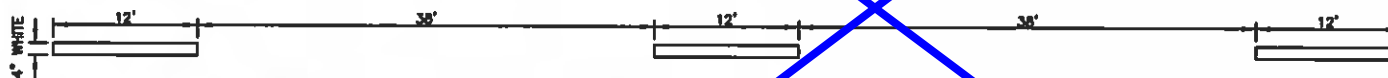
2 Center Line, Posted Speed > 45 mph



3 Lane Line, Posted Speed ≤ 40 mph



4 Lane Line, Posted Speed > 45 mph



5 Center Line, No Passing Zone, One Direction, Posted Speed ≤ 40 mph



6 Center Line, No Passing Zone, One Direction, Posted Speed > 45 mph



NOTES:

1. BASIC COLOR RULE: WHITE LINES SEPARATE TRAFFIC IN THE SAME DIRECTION; YELLOW LINES SEPARATE TRAFFIC IN OPPOSING DIRECTIONS.
2. BLACK MARKINGS MAY BE USED IN COMBINATION WITH WHITE MARKINGS FOR BROKEN LINES WHERE A LIGHT COLORED PAVEMENT DOES NOT PROVIDE SUFFICIENT CONTRAST.

NOT REVIEWED

12/8/2014

NO.	DATE	BY	REVISIONS



Traffic Engineering Division
• 8710 Adams Street, Boise, Idaho, 83714 •
www.achd.org

SIGNATURES			
Drawn By	Justin Cook	Checked By	Justin Cook
Date	12/3/14	Approved By	Dean Olsen
File	10-111a.jpg		

SHEET TITLE
Standard Traffic
Stripe Details



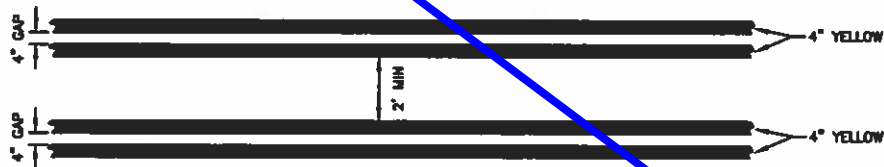
TS-1112

Sheet 1 of 8

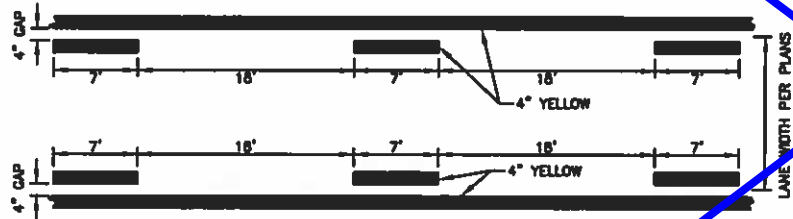
7 Center Line, No Passing Zone, Two Directions



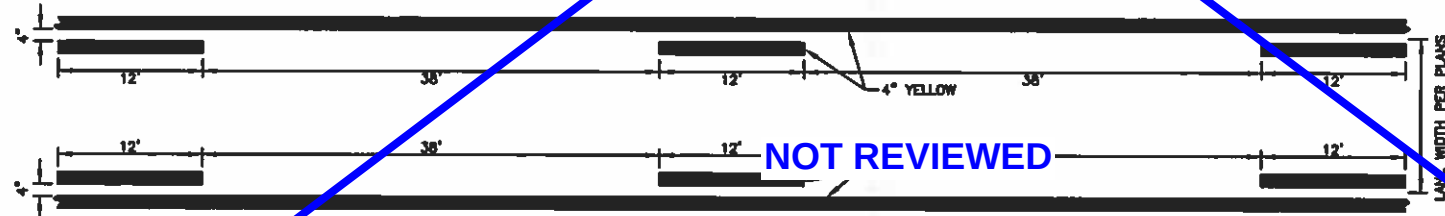
8 Striped Median Island



9 Two-Way Left Turn Lane, Posted Speed $\leq$ 40 mph



10 Two-Way Left Turn Lane, Posted Speed $>$ 45 mph

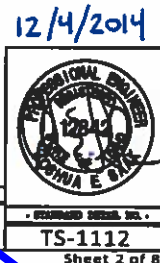


REV	DATE	BY	DESCRIPTION
1	02/15/14	ST	REVISION



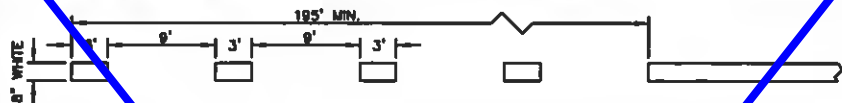
SIGNATURES			
Drawn By	Design By	Checked By	Approved By
ST	ST	ST	ST
Date	Date	Date	Date
12/4/14	12/4/14	12/4/14	12/4/14

Standard Traffic Stripes Details

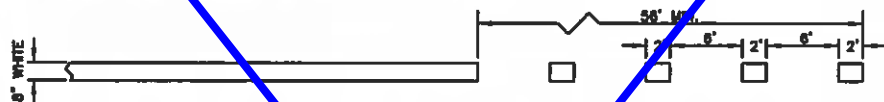


TS-112
Sheet 2 of 8

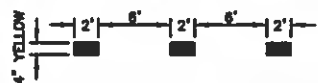
11 Mandatory Lane Drop - 'Elephant Tracking'



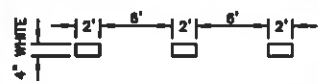
12 Bike Lane at Intersection



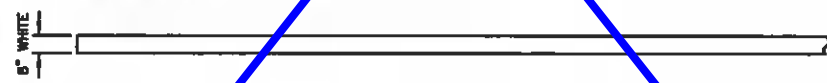
13 Lane Line Extension Through Intersection - 'Yellow Cat Track'



14 Lane Line Extension Through Intersection - 'White Cat Track'



15 Channelizing Line/Bike Lane Line



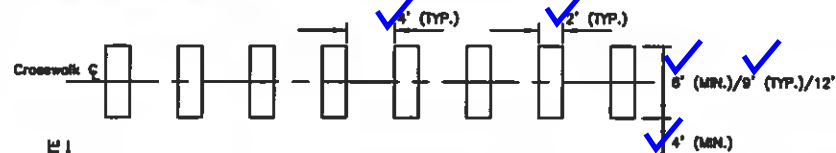
16 Left Edgeline for Divided Roadway



17 Right Edgeline NOT REVIEWED



18 Crosswalk (Note: Crosswalk is centered on centerline of pedestrian ramps; bars are installed in the direction of travel.)

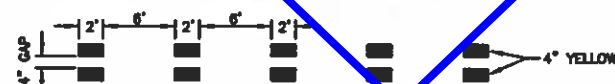


19 Stop Bar

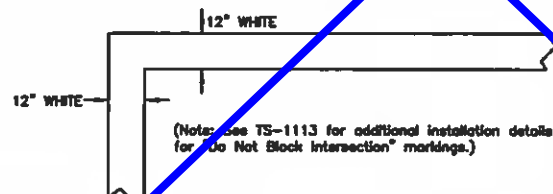
20 Roundabout Entry Marking



21 Lane Line Extension Through Intersection - 'Double Yellow Cat Track'



22 'Do Not Block Intersection' Markings



NOT REVIEWED

4/23/2015



TS-1112

Sheet 3 of 8

DATE	BY	DESCRIPTION
4/18	SR	Added details 21 and 22
4/20	SR	Revised



Traffic Engineering Division

DESIGNED BY	CHECKED BY	APPROVED BY
SR	SR	SR

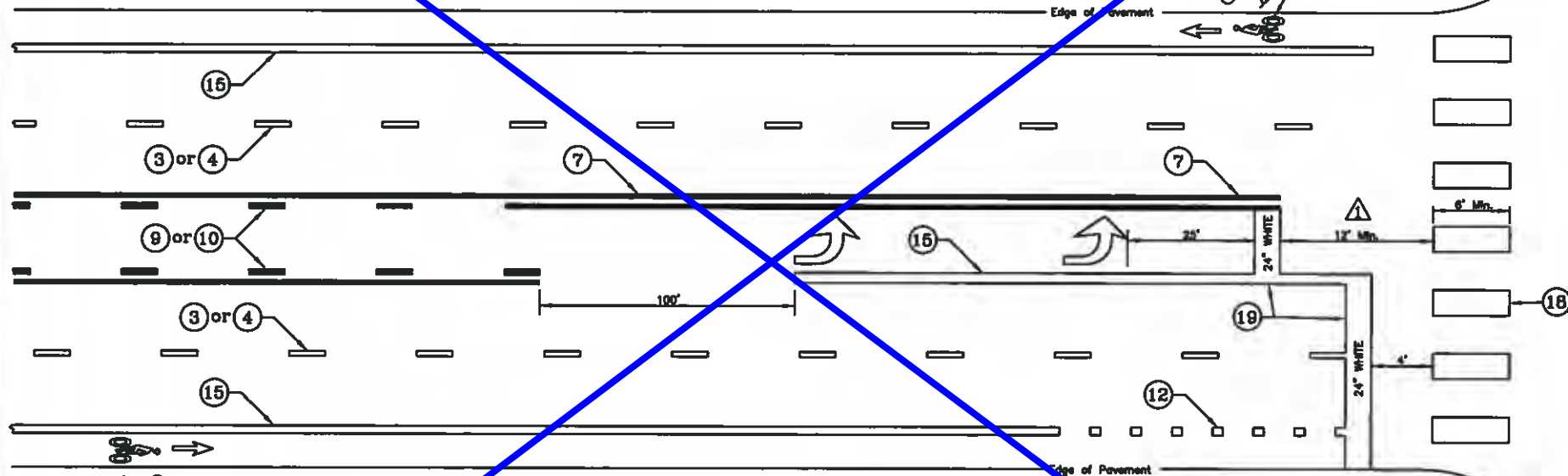
STANDARD TITLE:
Standard Traffic
Stripe Details

Ada County Highway District

8770 Adams Street, Boise, Idaho, 83716
www.achd.idaho.gov

Legend

⊙ Stripping Detail Number



Typical Intersection Leg
NOT REVIEWED

NOTES:

- SEE ACHD STANDARD DETAIL TS-1113 FOR STANDARD LANE USE PAVEMENT MARKING DETAILS.
- BIKE LANE SYMBOL SHALL BE PLACED IMMEDIATELY AFTER AN INTERSECTION AND THEN APPROXIMATELY EVERY 500 FEET.
- BIKE LANE SIGNS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER. R7-9 SIGNS SHALL BE MOUNTED AT A 45 DEGREE ANGLE TO THE ROADWAY. R3-17 SIGNS, INSTALLED AFTER MAJOR INTERSECTIONS, SHALL BE MOUNTED PERPENDICULAR TO THE ROADWAY.

12/4/2014



TS-1112
Sheet 4 of 8

DATE	BY	REVISION
01/10	AM	Various changes
04/10	AM	Added dimensions and table area updated spacing
04/10	BT	Revised

• 887161000 •

ACHD
Traffic Engineering Division
• 8776 Adams Street, Suite, Suite, 00714 •
www.achd.org

Drawn By	Mike Poon
Check By	Mike Poon
Date	04/10/14
File	ts-1112.dwg

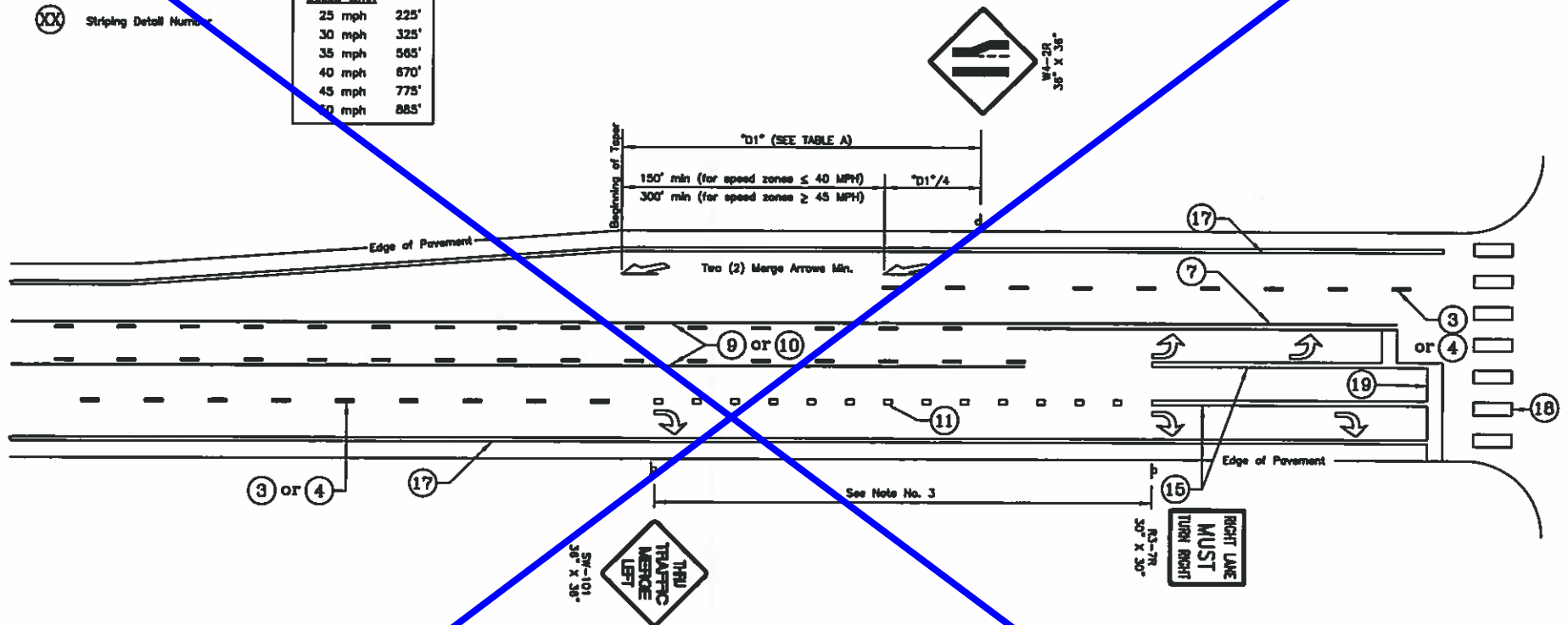
• SIGNATURES •

• CHECK TITLES •

Standard Traffic
Striping Details

 Striping Detail Number

<u>Roadway Speed Limit</u>	<u>"D1"</u>
25 mph	225'
30 mph	325'
35 mph	565'
40 mph	670'
45 mph	775'
50 mph	885'



**Typical Drop/Trap Lane
Signing and Striping
NOT REVIEWED**

1. SEE ACHD STANDARD DETAIL TS-1113 FOR STANDARD LANE USE PAVEMENT MARKING DETAILS.
2. SOME MODIFICATIONS MAY NEED TO BE MADE FOR ROADWAYS WITH BIKE LANES.
3. ADVANCE PLACEMENT OF WARNING SIGNS SHALL BE BASED ON THE CURRENT ADOPTED EDITION OF THE MUTCD.

12/4/2014



Alameda County Highway District

* 5775 Adams Street, Boise, Idaho, 83714
www.melissabell.org

	SIGNATURES	
Date: 05/04/00	Print Name:	Mike Poma
File: 65-11181-100	Print Name:	Mike Poma
	Approved By:	Sam Lanning

Standard Traffic Stripe Details



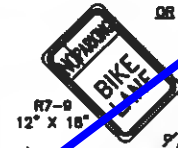
TS-1112

Legend

ⓧ Stripping Detail Number



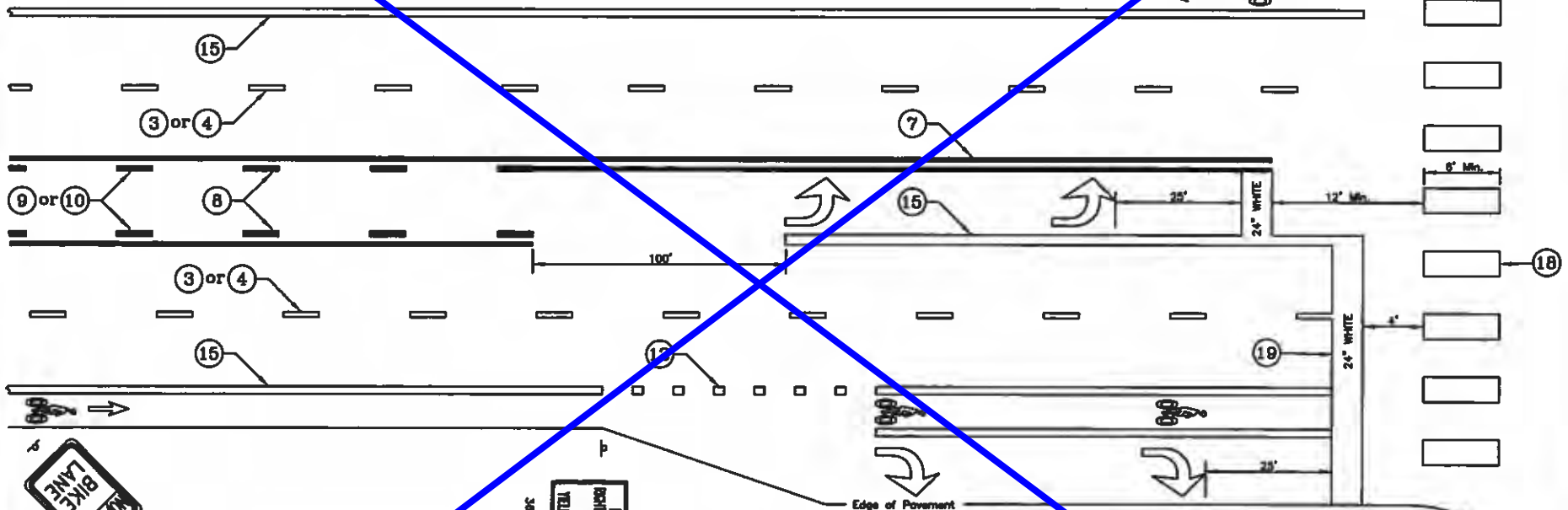
R3-17
18" X 24"



R7-9
12" X 18"

See Note No. 2

Edge of Pavement



NOTES:

1. SEE ACHD STANDARD DETAIL TS-1113 FOR STANDARD LANE USE PAVEMENT MARKING DETAILS.
2. BIKE LANE SYMBOL SHALL BE PLACED IMMEDIATELY AFTER AN INTERSECTION AND THEN APPROXIMATELY EVERY 500 FEET.
3. BIKE LANE SIGNS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER. R7-9 SIGNS SHALL BE MOUNTED AT A 45 DEGREE ANGLE TO THE ROADWAY. R3-17 SIGNS, INSTALLED AFTER MAJOR INTERSECTIONS, SHALL BE MOUNTED PERPENDICULAR TO THE ROADWAY.
4. ADD SUPPLEMENTAL RIGHT AND LEFT TURN ARROWS IF TURN BAY LENGTHS EXCEED 200'.

NOT REVIEWED

Typical Intersection Leg With Bike Lane and Right Turn Lane

DATE	BY	REVISION
01/15/14	ST	1
02/10/14	ST	2

ACHD
Traffic Engineering Division

Drawn By: ST	Checked By: ST	Design No: 10-1113-000
Date: 01/15/14	Design No: 10-1113-000	Approved By: ST
File: 10-1113-000		

Standard Traffic
Stripe Details

12/4/2014

INTERNATIONAL BUREAU
OF STANDARDS
TS-1112

Alameda County Highway District

9770 Alameda Street, Suite 100, Oakland, CA 94604

Sheet 6 of 8

Legend

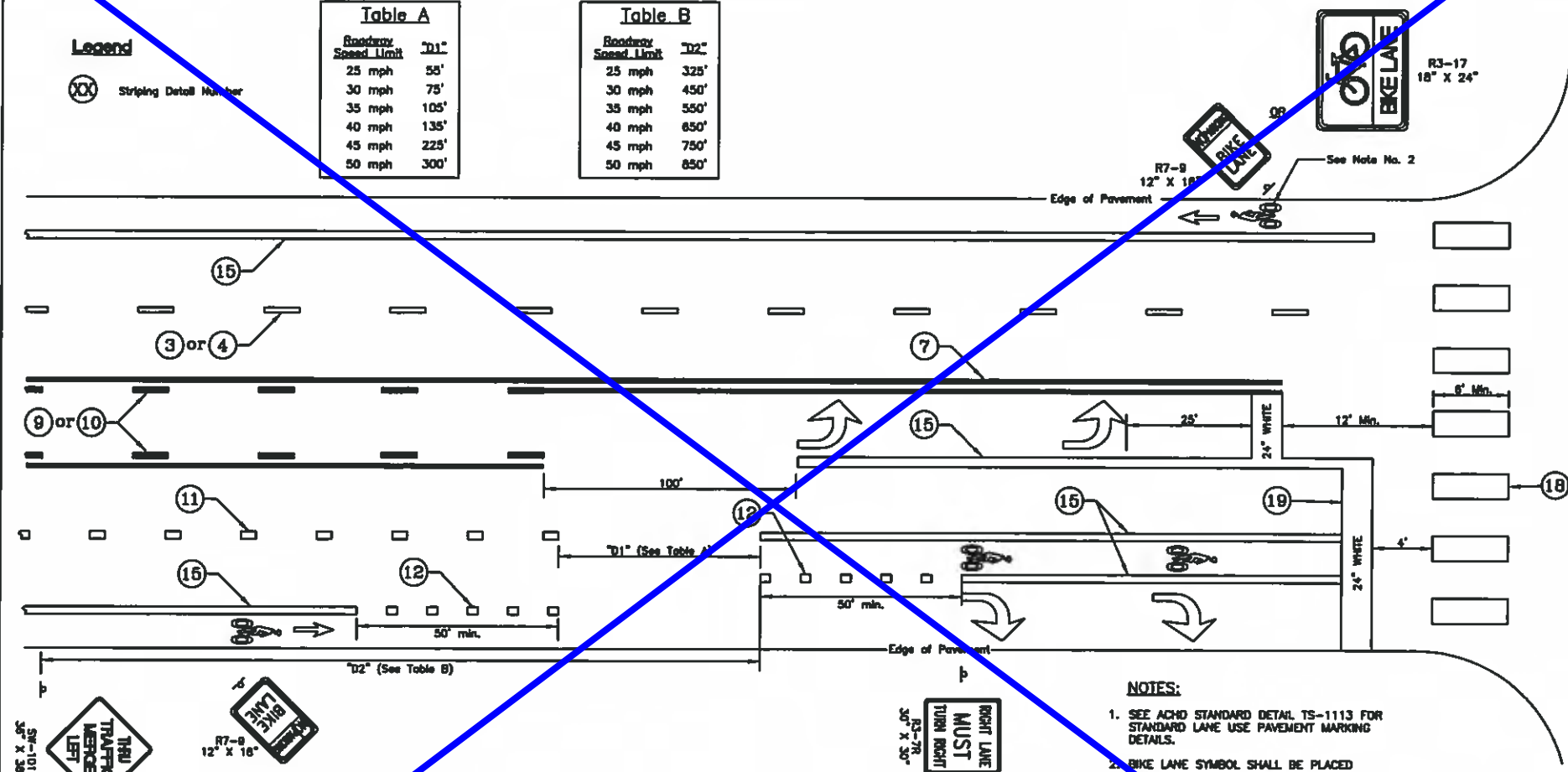
XX Striping Detail Number

Table A

Roadway Speed Limit	D1'
25 mph	55'
30 mph	75'
35 mph	105'
40 mph	135'
45 mph	225'
50 mph	300'

Table B

Roadway Speed Limit	D2'
25 mph	325'
30 mph	450'
35 mph	550'
40 mph	650'
45 mph	750'
50 mph	850'



NOTES:

- SEE ACHD STANDARD DETAIL TS-1113 FOR STANDARD LANE USE PAVEMENT MARKING DETAILS.
- BIKE LANE SYMBOL SHALL BE PLACED IMMEDIATELY AFTER AN INTERSECTION AND THEN APPROXIMATELY EVERY 500 FEET.
- BIKE LANE SIGNS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER. R7-9 SIGNS SHALL BE MOUNTED AT A 45 DEGREE ANGLE TO THE ROADWAY. R3-17 SIGNS, INSTALLED AFTER MAJOR INTERSECTIONS, SHALL BE MOUNTED PERPENDICULAR TO THE ROADWAY.
- MINIMUM ADVANCE PLACEMENT DISTANCE (D2) OF WARNING SIGNS SHALL BE BASED ON THE CURRENT ADOPTED EDITION OF THE MUTCD.

NOT REVIEWED
Typical Intersection Leg With
Right Turn Drop Lane and Bike Lane

DATE	BY	REVISION
05/21	SM	Revised design
07/04	SM	Revised design
08/03	BT	Revised design



Drawn By: SM	Checked By: Andrew Smith
Date: 05/15/08	Design By: Andrew Smith
File: 10-1113-000	Approved By: Bruce Smith

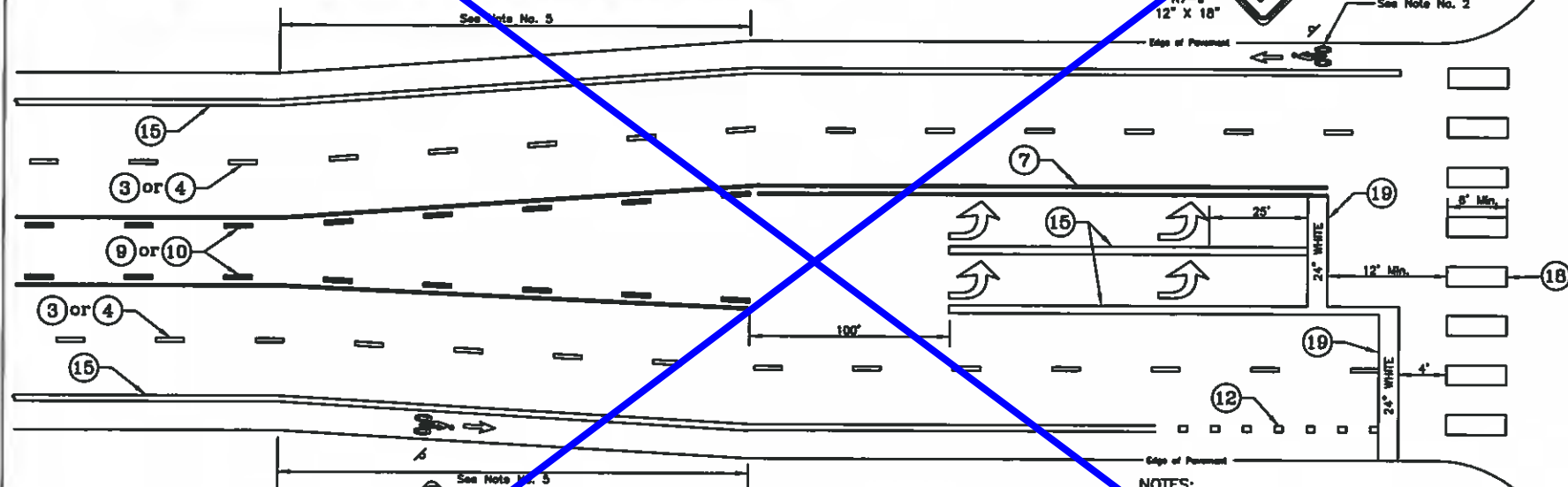
Standard Traffic
Striping Details



TS-1112

Sheet 7 of 8

TABLE 1 - MINIMUM TAPER LENGTHS		OFFSET (FEET)													
SPEED LIMIT (MPH)		1	2	3	4	5	6	7	8	9	10	11	12	13	14
TAPER = WS ² /60	20	10	15	20	30	35	40	50	55	60	70	75	80	90	95
	25	15	25	35	45	55	65	75	85	95	105	115	125	140	150
	30	15	30	45	60	75	90	105	120	135	150	165	180	195	210
	35	25	45	65	85	105	125	145	165	185	205	225	245	270	290
	40	30	55	80	110	135	160	190	215	240	270	295	320	350	375
TAPER = WS	45	45	90	135	180	225	270	315	360	405	450	495	540	585	630
	50	50	100	150	200	250	300	350	400	450	500	550	600	650	700
	55	55	110	165	220	275	330	385	440	495	550	605	660	715	770



Legend

(XX) Striping Detail Number



ACHD
Traffic Engineering Division
8770 Adams Street, Dublin, CA 94568
www.achd.org

SIGNATURES

Design: [Signature]	Drawn By: [Signature]
Check: [Signature]	Reviewed By: [Signature]
File: 0-1112B-000	Approved By: [Signature]

NOTES:

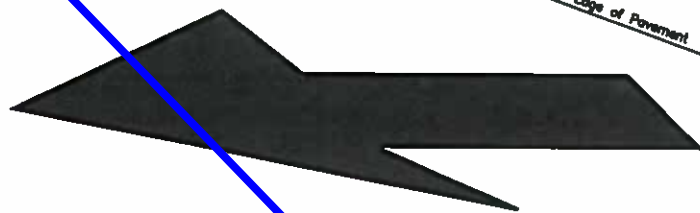
1. SEE ACHD STANDARD DETAIL TS-1113 FOR STANDARD LANE USE PAVEMENT MARKING DETAILS.
2. BIKE LANE SYMBOL SHALL BE PLACED IMMEDIATELY AFTER AN INTERSECTION AND THEN APPROXIMATELY EVERY 500 FEET.
3. BIKE LANE SIGNS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER. R7-9 SIGNS SHALL BE MOUNTED AT A 45 DEGREE ANGLE TO THE ROADWAY. R3-17 SIGNS, INSTALLED AFTER MAJOR INTERSECTIONS, SHALL BE MOUNTED PERPENDICULAR TO THE ROADWAY.
4. ADD SUPPLEMENTAL RIGHT AND LEFT TURN ARROWS IF TURN BAY LENGTHS EXCEED 200'.
5. LEFT TURN BAY TAPER LENGTHS SHALL BE DETERMINED BASED ON INFORMATION PROVIDED IN TABLE 1 ON THIS SHEET.

SHEET TITLE
Standard Traffic
Stripe Details

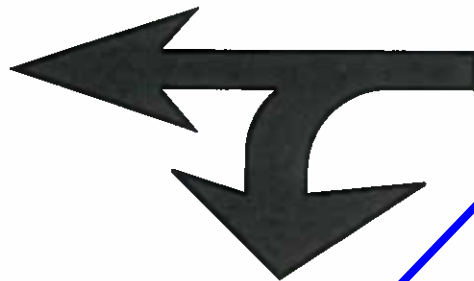


TS-1112

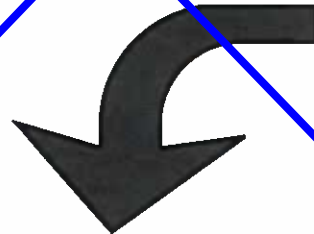
Sheet 8 of 8



A=42 SF
RIGHT LANE DROP ARROW
(For a left lane drop condition,
use the mirror image.)



A=29 SF
THRU/LEFT TURN ARROW
(For the thru/right turn arrow,
use the mirror image.)



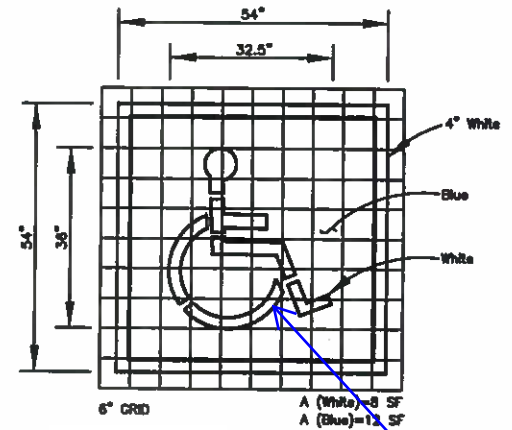
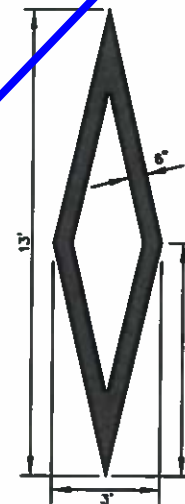
A=16 SF
LEFT/RIGHT TURN ARROW
(For the right turn arrow,
use the mirror image.)



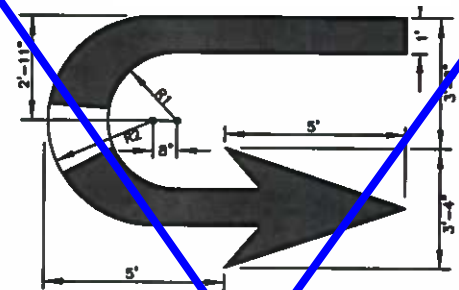
A=12 SF
THRU ARROW



A=11 SF
**PREFERENTIAL
LANE SYMBOL**



**ACCESSIBLE
HANDICAPPED PARKING SYMBOL**
DIMENSIONS OF SYMBOL
SHOULD MATCH MUTCD
FIGURE 3B-22.



A=29 SF
U-TURN ARROW

NOTES:

1. FOR PAVEMENT MARKING DIMENSIONS NOT DETAILED ABOVE, SEE THE MOST RECENT VERSION OF THE "STANDARD HIGHWAY SIGNS" BOOK.
2. MINOR VARIATIONS IN DIMENSIONS MAY BE ACCEPTED BY THE ACHD TRAFFIC ENGINEER.

NOT REVIEWED

NOT REVIEWED

12/04	2014	Added u-turn, preferential lane symbols
12/04	2014	2014/01/01
- 2014/01/01 -		



Drawn By	Design By	Checked By
Date	Date	Date
7/1/14	7/1/14	7/1/14

Standard Lane Use

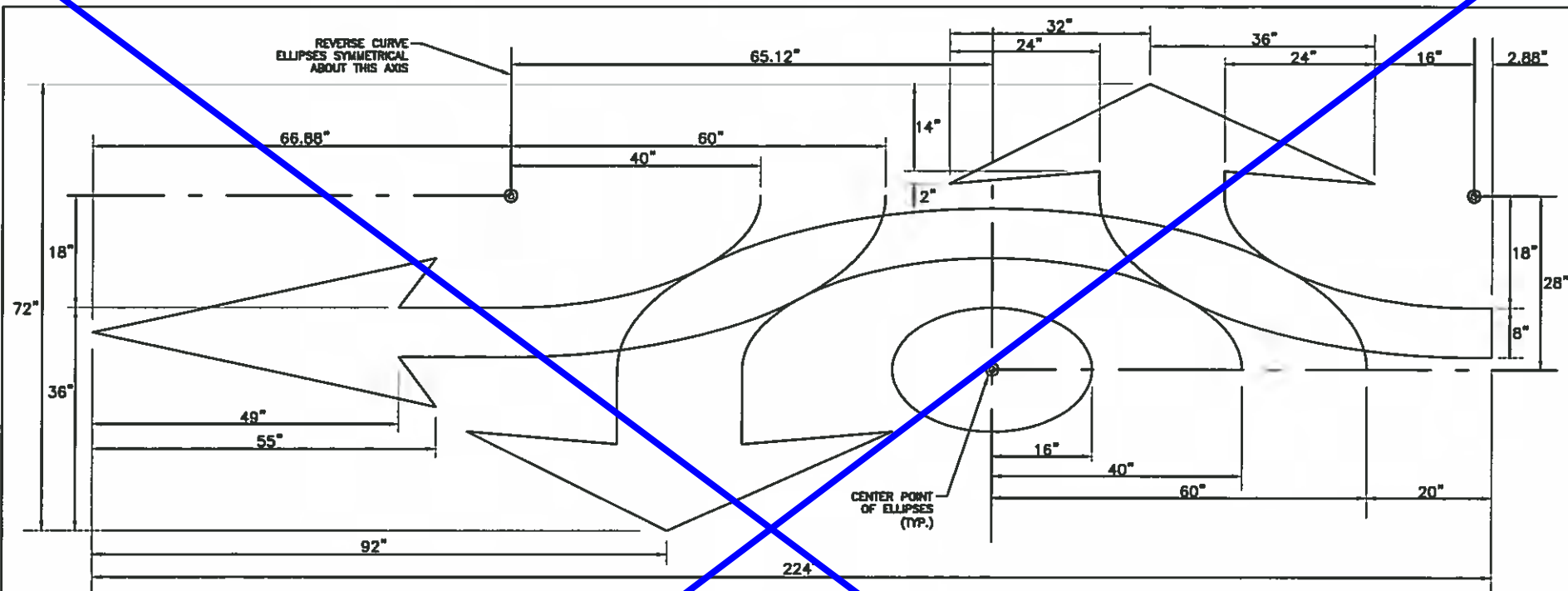
Pavement Marking



Ada County Highway District

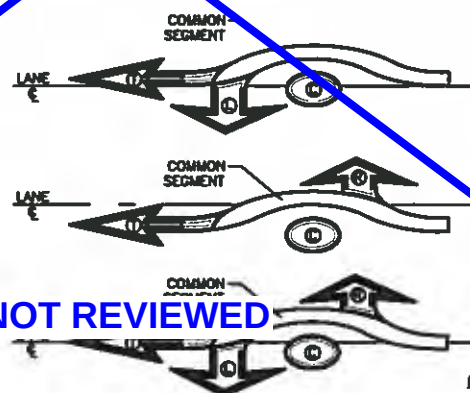
0076 Adams Street, Boise, Idaho, 83714
www.achd.idaho.gov

Sheet 1 of 12

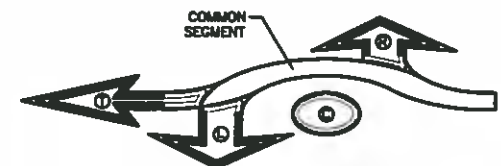


A=28.7 SF	A=23.1 SF	A=24.2 SF
A=18.6 SF	A=25.2 SF	A=19.6 SF
A=20.7 SF	A=15.1 SF	A=18.1 SF

ROUNDABOUT TRAFFIC ARROWS



ARROW PLACEMENT



NOTE:
LABELED AREAS CORRESPOND TO THE PORTIONS NEEDED FOR EACH TYPE OF ROUNDABOUT MOVEMENT. REFER TO THE PLAN SHEETS FOR TYPE OF ARROW TO BE APPLIED.

COMPONENT KEY 11/26/2014

NOTE:
ARROW SHOULD BE CENTERED IN THE LANE USING THE LATERAL EXTREMITIES OF THAT ARROW TYPE. MINOR VARIATIONS MAY BE ACCEPTED BY THE ACHD TRAFFIC ENGINEER.

NO.	DATE	BY	REVISIONS
1			
2			
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20			



Adair County Highway District

• 8776 Adams Street, Boise, Idaho, 83714 •
www.achd.org

SIGNATURES	
Drawn By	Andrew Shult
Design By	Andrew Shult
Check By	Andrew Shult
Approved By	Tom Ogan

• BEST TITLE •
Standard Lane Use
Pavement Marking Details - Roundabouts



TS-1113
Sheet 2 of 12

NOTES:

1. IF A MESSAGE CONSISTS OF MORE THAN ONE WORD, IT SHOULD READ "UP", I.E., THE FIRST WORD SHOULD BE NEAREST THE DRIVER.
2. THE SPACE BETWEEN WORDS SHOULD BE AT LEAST FOUR TIMES THE HEIGHT OF THE CHARACTERS FOR LOW SPEED ROADS, BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS. THE SPACE MAY BE REDUCED APPROPRIATELY WHERE THERE IS LIMITED SPACE BECAUSE OF LOCAL CONDITIONS.
3. MINOR VARIATIONS IN DIMENSIONS MAY BE ACCEPTED BY THE ENGINEER
4. PORTIONS OF A LETTER, NUMBER OR SYMBOL MAY BE SEPARATED BY CONNECTING SEGMENTS NOT TO EXCEED 2" IN WIDTH.

TYPICAL WORD MARKINGS

(AREA CALCULATED FOR TYPICAL WORK MARKINGS INSTALLED IN THE TRAVEL WAY)

Text	Area (SF)
25	18
35	17
40	20
AHEAD	31
BIKE	21
BUS	20
CAR	17
CLEAR	27
HERE	26
KEEP	24
LANE	24
LEFT	19
NO	5
PER	18
RIGHT	26
SCHOOL	35
SIGNAL	32
SLOW	23
TURN	24
VEHICLES	42
WAIT	19
XING	21

ONLY

A=22 SF

YIELD

A=24 SF

STOP

A=22 SF

NOT REVIEWED

11/26/2014

DATE	BY	DESCRIPTION
11/26/14	12842	



Scale: 1/8"
Date: 11/26/14
File: 10-1113A.PDF

• SIGNATURES •

Drawn By:
Design By:
Approved By: Jim Latham

• BEST TITLE •

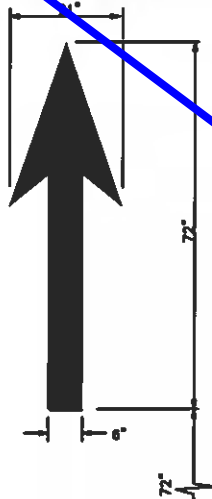
Standard Lane Use
Pavement Marking Details



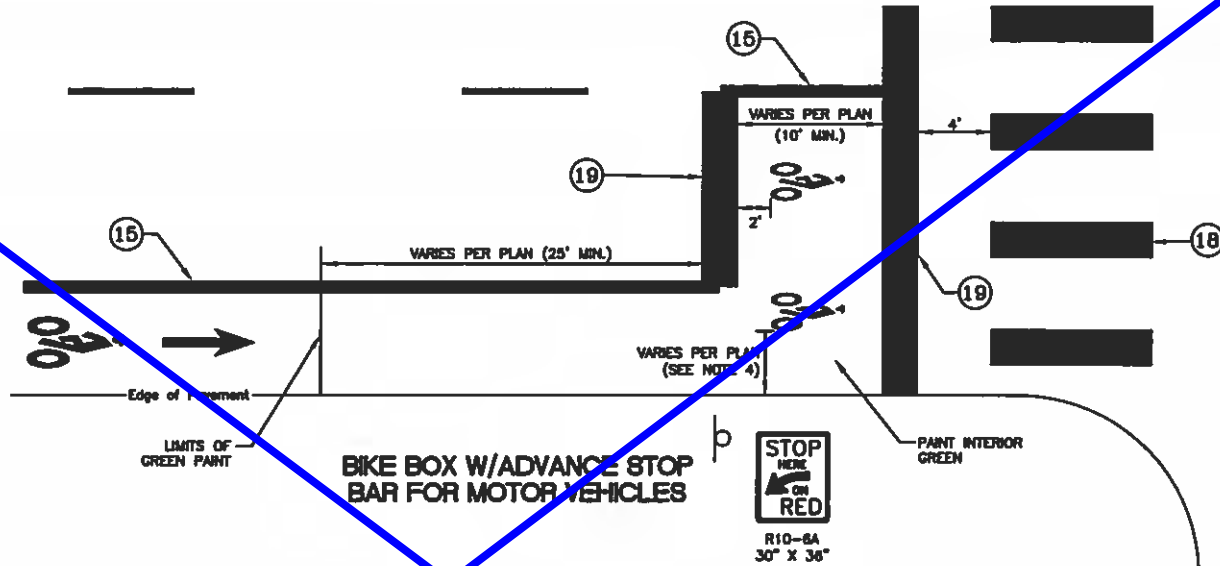
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TS-1113

Sheet 3 of 12

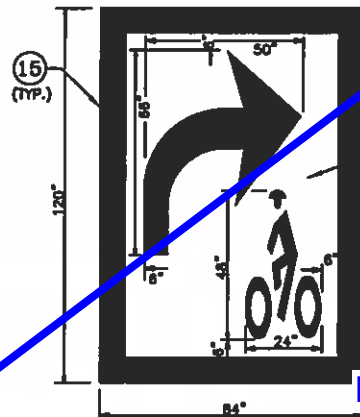
BIKE LANE ARROW A=4 SF



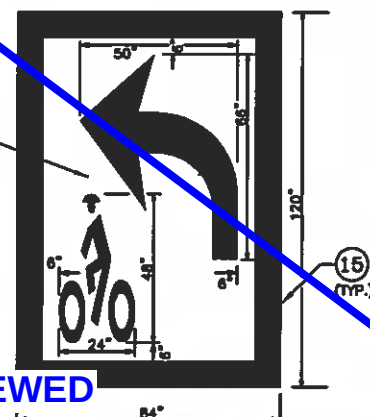
BIKE LANE SYMBOL A=7 SF



BIKE BOX W/ADVANCE STOP BAR FOR MOTOR VEHICLES



RIGHT TURN BIKE QUEUE BOX
A=31 SF (BORDER AND STENCILS)



LEFT TURN BIKE QUEUE BOX
A=31 SF (BORDER AND STENCILS)

NOT REVIEWED

NOTES:

1. BIKE LANE SYMBOLS AND ARROWS SHALL ONLY BE INSTALLED ON ROADWAYS WHERE SUFFICIENT WIDTH IS PROVIDED FOR A BIKE FACILITY, PER THE MOST RECENTLY ADOPTED VERSION OF THE MUTCD. BIKE LANE SYMBOLS AND ARROWS SHALL NOT BE INSTALLED IN VEHICULAR TRAVEL LANES.
2. MINOR VARIATIONS IN DIMENSIONS MAY BE ACCEPTED BY THE ENGINEER.
3. BIKE BOXES ARE CURRENTLY EXPERIMENTAL TREATMENTS AND SHALL ONLY BE INSTALLED IN LOCATIONS DIRECTED BY THE ACHD TRAFFIC ENGINEER.
4. LATERAL DISTANCE OF BIKE SYMBOLS FROM THE EDGE OF TRAVEL WAY WILL VARY BASED ON LANE WIDTHS. CARE SHOULD BE TAKEN TO INSTALL BIKE SYMBOLS TO AVOID VEHICULAR WHEEL PATHS.
5. A MINIMUM OF TWO BIKE SYMBOLS SHALL BE INSTALLED IN A BIKE BOX WITH AN ADVANCE STOP BAR. ADDITIONAL SYMBOLS MAY BE INSTALLED, PER PLAN, OR WITH THE APPROVAL OF THE ACHD TRAFFIC ENGINEER.

11/26/2014



DATE	BY	REVISION/NOTE
11/26/14	BSV	11/26/14



SIGNATURES	
Drawn By: Andrew Ballew	Checked By: Andrew Ballew
Design By: Andrew Ballew	Approved By: Steve Olson

Standard Lane Use
Pavement Marking Details

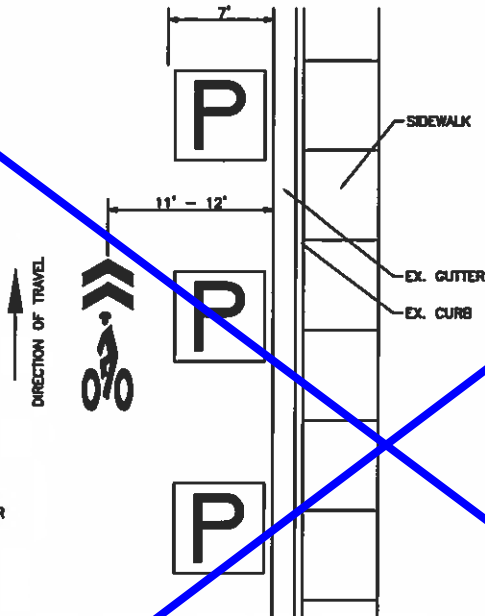
TS-1113
Sheet 4 of 12



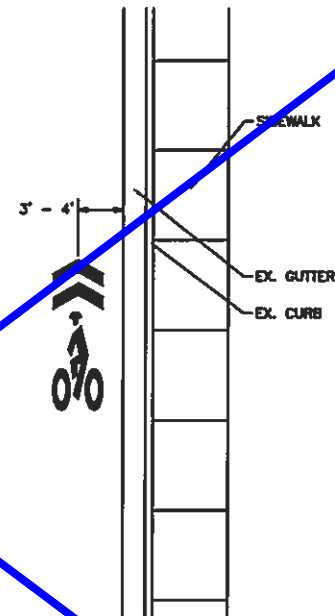
Shared Lane Marking
('Sharrow') Details

NOTES:

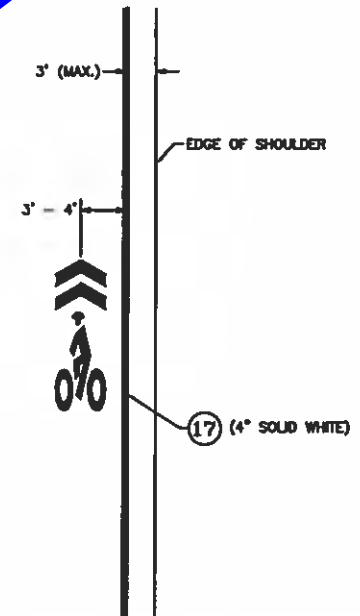
1. WHEN USED, "SHARROWS" SHOULD BE PLACED IMMEDIATELY AFTER PUBLIC STREET INTERSECTIONS AND SPACED AT INTERVALS NOT GREATER THAN 250' THEREAFTER.
2. WHEN USED IN A SHARED LANE WITH ON-STREET PARKING, "SHARROWS" SHOULD BE PLACED SO THAT THE CENTERS OF THE MARKINGS ARE 11' TO 12' FROM THE EDGE OF PAVEMENT.
3. WHEN USED IN A SHARED LANE WITH NO ON-STREET PARKING, "SHARROWS" SHOULD BE PLACED SO THAT THE CENTERS OF THE MARKINGS ARE 3' TO 4' FROM THE EDGE OF PAVEMENT.
4. IN THE ABSENCE OF CURB AND GUTTER, "SHARROWS" SHOULD BE PLACED 3' TO 4' FROM THE EDGELINE MARKING.
5. "SHARROWS" SHALL NOT BE INSTALLED ON ROADWAYS WITH A SPEED LIMIT GREATER THAN 30 MPH.
6. "SHARROWS" SHALL NOT BE INSTALLED IN BIKE LANES, SHOULDERS OR LOCATIONS WHERE SHOULDERS ARE CONSISTENTLY 3' OR GREATER IN WIDTH.
7. SIGNIFICANT VARIATIONS TO "SHARROW" PLACEMENT OUTLINED ABOVE SHALL BE APPROVED BY THE ACHD TRAFFIC ENGINEER PRIOR TO INSTALLATION.



Shared Lane Marking
('Sharrow') Placement
With On-Street Parking,
Curb and Gutter



Shared Lane Marking
('Sharrow') Placement
With No On-Street Parking,
Curb and Gutter



Shared Lane Marking
('Sharrow') Placement
With No On-Street Parking,
No Curb and Gutter

NOT REVIEWED

11/26/2014

DATE	BY	REVISION
11/26/14	ST	1



Alameda County Highway District

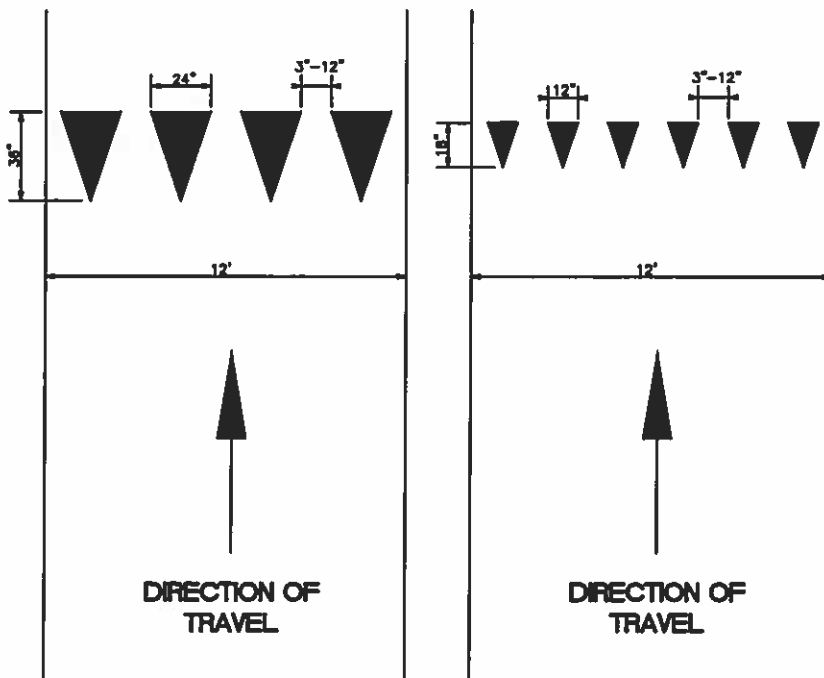
3770 Adams Street, Suite 100, Alameda, CA 94501
www.achdinfo.org

SIGNATURES	
Drawn By: Andrew Smith	Design By: Andrew Smith
Check: 11/18/14	Approved By: Matt Ryan
File: 10-1114a-000	

Standard Lane Use
Pavement Marking Details - Shared Lane Markings



TS-1113
Sheet 5 of 12



**YIELD LINE LAYOUT
POSTED SPEED >25 MPH**
A=3 SF (PER TRIANGLE)

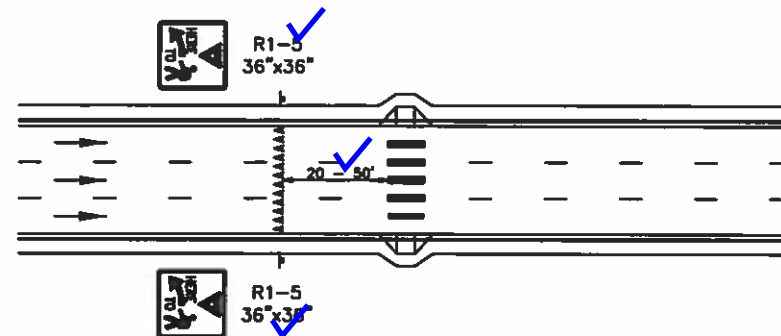
**YIELD LINE LAYOUT
POSTED SPEED <25 MPH**
A=0.75 SF (PER TRIANGLE)

NOTES:

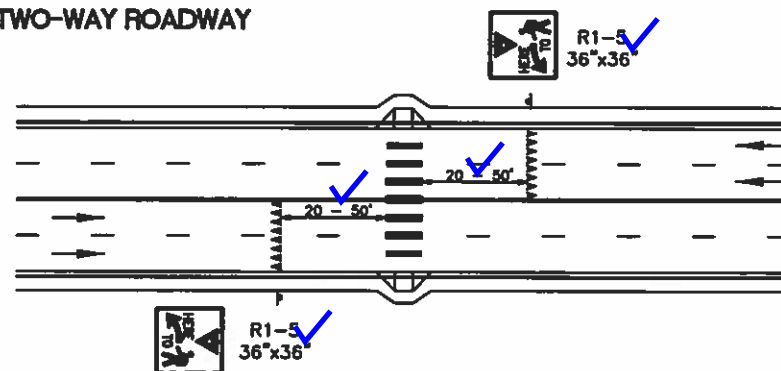
1. TRIANGLE HEIGHT IS EQUAL TO 1.5 TIMES THE BASE DIMENSION.
2. TRIANGLE SPACING MAY NEED TO BE ADJUSTED BASED ON THE WIDTH OF THE TRAVEL LANE.
3. 18" YIELD LINE MARKINGS SHALL ONLY BE INSTALLED WITH THE PERMISSION OF THE ACHD TRAFFIC ENGINEER.

**EXAMPLES OF YIELD LINES AT
UNSIGNALIZED MIDBLOCK CROSSINGS**

A. ONE-WAY ROADWAY



B. TWO-WAY ROADWAY



NOTES:

1. IF "STOP HERE FOR PEDESTRIANS" SIGNS ARE USED INSTEAD OF "YIELD HERE TO PEDESTRIANS" SIGNS, STOP BARS SHALL BE USED INSTEAD OF YIELD MARKINGS.
2. CROSSWALK WIDTH SHALL BE 6', 9' OR 12', PER THE DIRECTION OF THE ACHD TRAFFIC ENGINEER.

11/26/2014

DATE	BY	REVISION



Ada County Highway District

8775 Adams Street, Boise, Idaho, 83714
www.achd.org

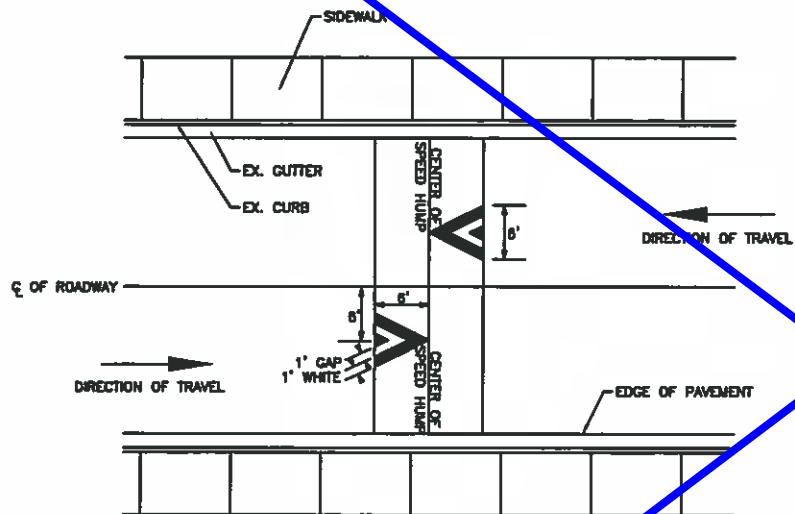
• SIGNATURES •	
Drawn By	Judith Stark
Check By	Judith Stark
Date	07/15/10
File	10-11131200
Approved By	Mark Open

• SHEET TITLE •	
Standard Lane Use Pavement Marking Details - Yield Line Markings	

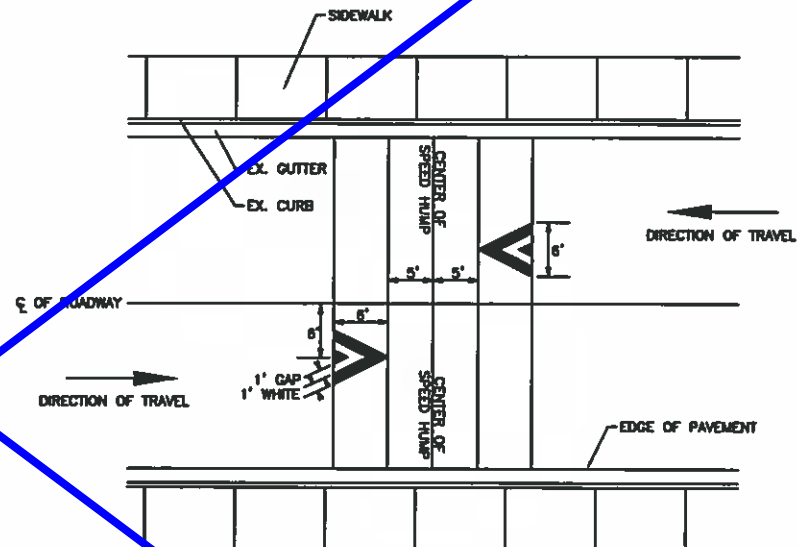


TS-1113

Sheet 6 of 12



**SPEED HUMP MARKINGS LAYOUT
LOCAL ROAD**



**SPEED HUMP MARKINGS LAYOUT
COLLECTOR ROAD**

NOTES:

1. ADVANCE SPEED HUMP MARKINGS MAY BE USED IN ADVANCE OF SPEED HUMPS WHERE ADDED VISIBILITY IS REQUIRED.
2. APPROPRIATE ADVANCE WARNING SIGNS MAY BE USED WITH ALL SPEED HUMP INSTALLATIONS.

NOT REVIEWED

11/26/2014

REV	DATE	BY	DESCRIPTION
1	08/18/10	MM	REVISION



Ada County Highway District

Drawn By: JMM
 Date: 07/28/10
 File: 10-1113-200

Design By: JMM
 Design By: JMM
 Approved By: JMM

• 1113-200 •

• SHEET TITLE •

Standard Lane Use
 Pavement Marking Details - Speed Humps

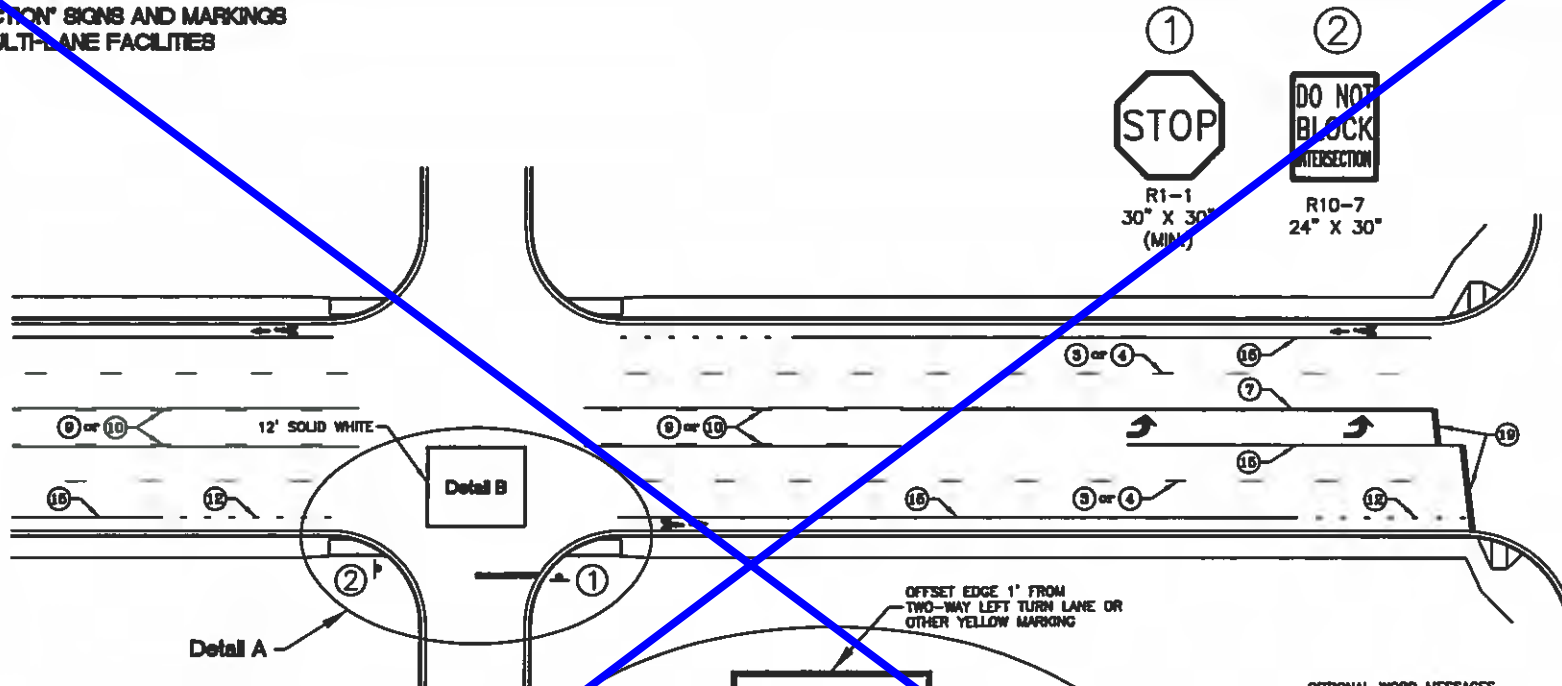


• STANDARD SERIAL NO. •

TS-1113

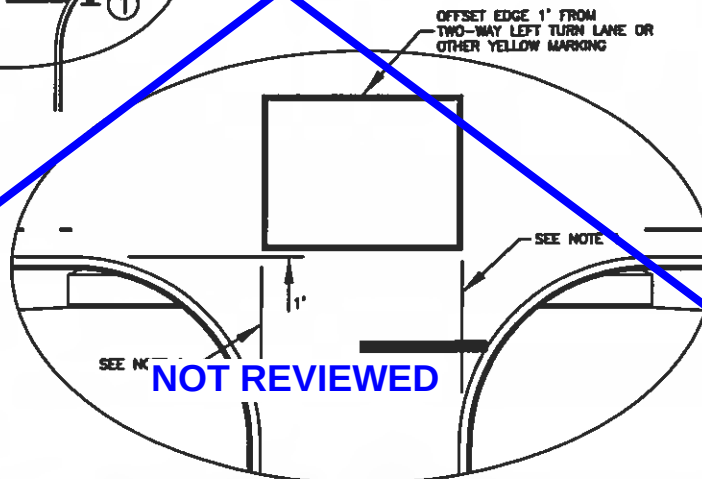
Sheet 7 of 12

**TYPICAL INSTALLATION OF "DO NOT BLOCK
INTERSECTION" SIGNS AND MARKINGS
MULTI-LANE FACILITIES**

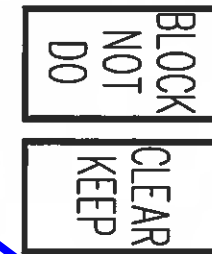


NOTES:

1. THE EDGELINES OF THE "DO NOT BLOCK..." MARKINGS SHALL ALIGN WITH THE SIDE STREET EDGES OF PAVEMENT. SIGNIFICANT DEVIATION FROM THIS STANDARD SHALL BE APPROVED BY THE TRAFFIC ENGINEER.
2. AN ENGINEERING STUDY SHOULD BE PERFORMED PRIOR TO INSTALLATION OF "DO NOT BLOCK INTERSECTION" SIGNS AND MARKINGS WITH THE APPROVAL OF THE TRAFFIC ENGINEER.
3. MARKED CROSSWALKS ON "DETAIL A" ARE NOT SHOWN FOR CLARITY PURPOSES.
4. WORD MESSAGES SUCH AS "DO NOT BLOCK" OR "KEEP CLEAR" MAY BE INSTALLED WITHIN THE SOLID WHITE LINES AS ADDED EMPHASIS TO DEFINE THE AREA THAT VEHICLES MUST NOT BLOCK.



OPTIONAL WORD MESSAGES
(SEE NOTE 4):



Detail B

Detail A

NOT REVIEWED

DATE	BY	CHKD	BY
4/14	BY	4/14	BY
4/14	BY	4/14	BY
4/14	BY	4/14	BY
4/14	BY	4/14	BY
4/14	BY	4/14	BY
4/14	BY	4/14	BY
4/14	BY	4/14	BY
4/14	BY	4/14	BY
4/14	BY	4/14	BY



DESIGNED BY	DESIGNED BY	DESIGNED BY
4/14	4/14	4/14
4/14	4/14	4/14
4/14	4/14	4/14
4/14	4/14	4/14
4/14	4/14	4/14
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4/14	4/14	4/14
4/14	4/14	4/14

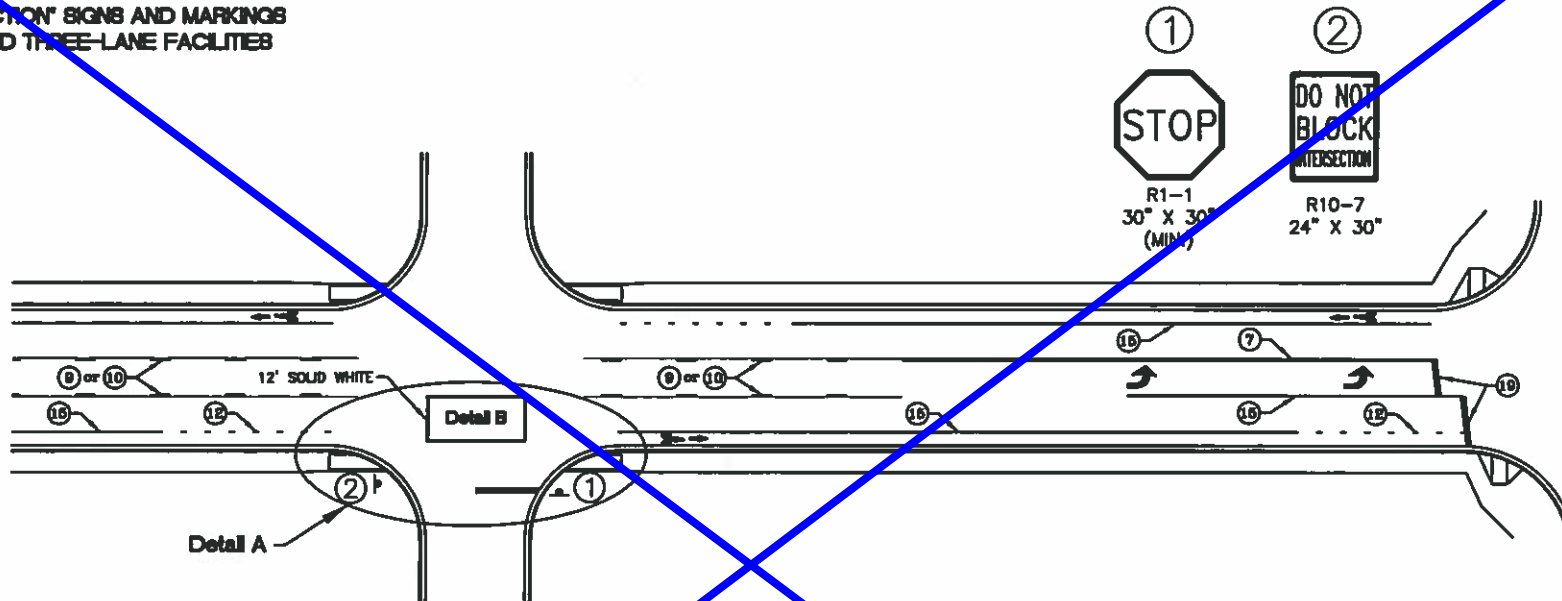
**Do Not Block Intersection
Standard Detail - Multi-Lane Facilities**



**TS-1113
Sheet 8 of 12**

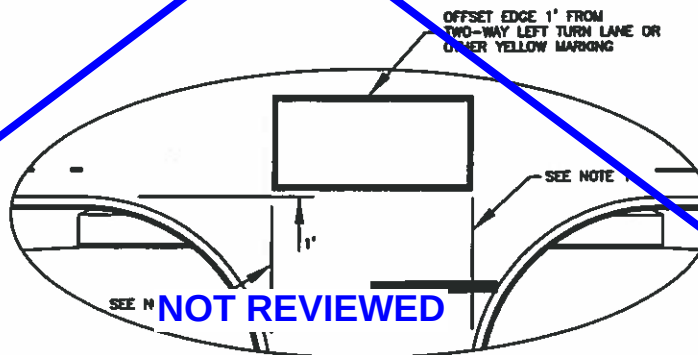
4/23/2015

**TYPICAL INSTALLATION OF "DO NOT BLOCK
INTERSECTION" SIGNS AND MARKINGS
TWO AND THREE-LANE FACILITIES**



NOTES:

1. THE EDGELINES OF THE "DO NOT BLOCK..." MARKINGS SHALL ALIGN WITH THE SIDE STREET EDGES OF PAVEMENT. SIGNIFICANT DEVIATION FROM THIS STANDARD SHALL BE APPROVED BY THE TRAFFIC ENGINEER.
2. AN ENGINEERING STUDY SHOULD BE PERFORMED PRIOR TO INSTALLATION OF "DO NOT BLOCK INTERSECTION" SIGNS AND MARKINGS WITH THE APPROVAL OF THE TRAFFIC ENGINEER.
3. MARKED CROSSWALKS ON "DETAIL A" ARE NOT SHOWN FOR CLARITY PURPOSES.
4. WORD MESSAGES SUCH AS "DO NOT BLOCK" OR "KEEP CLEAR" MAY BE INSTALLED WITHIN THE SOLID WHITE LINES AS ADDED EMPHASIS TO DEFINE THE AREA THAT VEHICLES MUST NOT BLOCK.



Detail A

OPTIONAL WORD MESSAGES
(SEE NOTE 4):

**BLOCK
DO NOT
DO**

**CLEAR
KEEP**

Detail B

4/25	2015	Minor design modifications
4/25	2015	Revised



SIGNATURES	
Drawn By: Andrew Bock	Design By: Andrew Bock
Checker: JTB	Approved By: Steve Davis
Date: 4/25/15	
File: 15-1113-000	

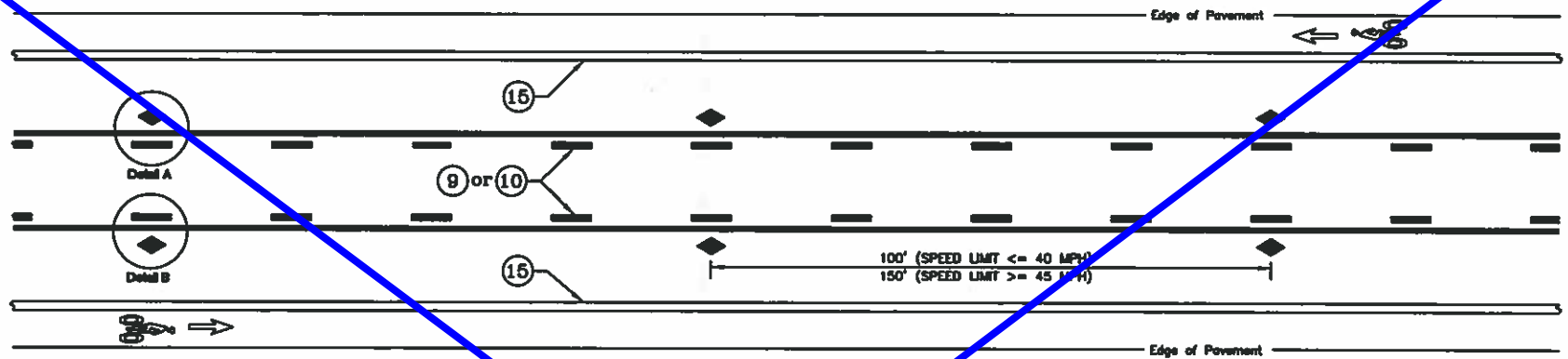
PROJECT TITLE:
Do Not Block Intersection
Standard Detail - Two and Three-Lane Facilities



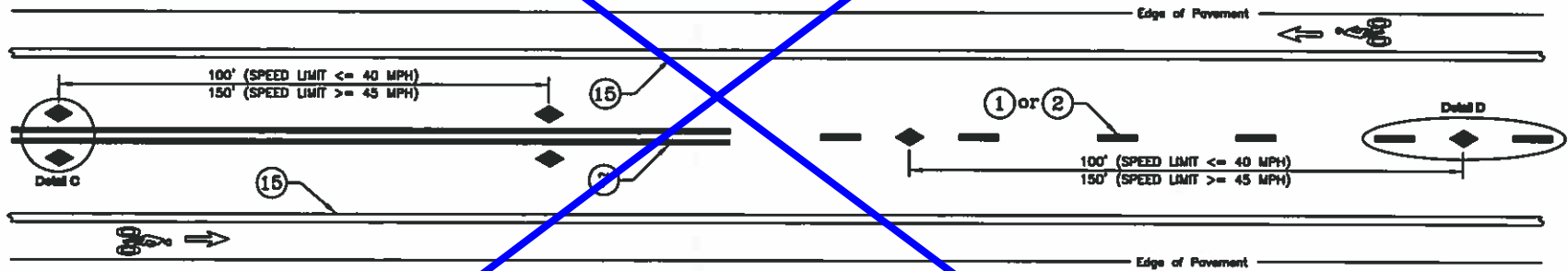
TS-1113

Sheet 9 of 12

4/23/2015



Typical Three-Lane Cross Section



Typical Two-Lane Cross Section

NOTES:

- SEE ACHD STANDARD DETAIL TS-1113 FOR STANDARD LANE USE PAVEMENT MARKING DETAILS.
- RPMs SHOULD BE ALIGNED SUCH THAT THE REFLECTIVE ELEMENT IS PERPENDICULAR TO THE DIRECTION OF TRAVEL.
- THE CENTERLINE OF RPMs SHALL BE IN LINE WITH THE CENTERLINE OF ALL BROKEN LANE LINE MARKINGS.
- IN CASES WHERE THE PREFERRED RPM LOCATION IS NOT PRACTICAL DUE TO CONSTRUCTION JOINT SPACING, LONGITUDINAL RPM SPACING MAY DEVIATE BY NOT MORE THAN 10% FROM THE TYPICAL SPACING. NO DEVIATION FROM THE LATERAL PLACEMENT IS PERMITTED EXCEPT AS APPROVED BY THE ENGINEER.

Legend

- Striping Detail Number
- ◆ Bidirectional Yellow RPM

Detail A

Detail B

Detail C

Detail D

NOT REVIEWED

4/13	423	Minor revisions to RPM spacing
5/1	423	Revised



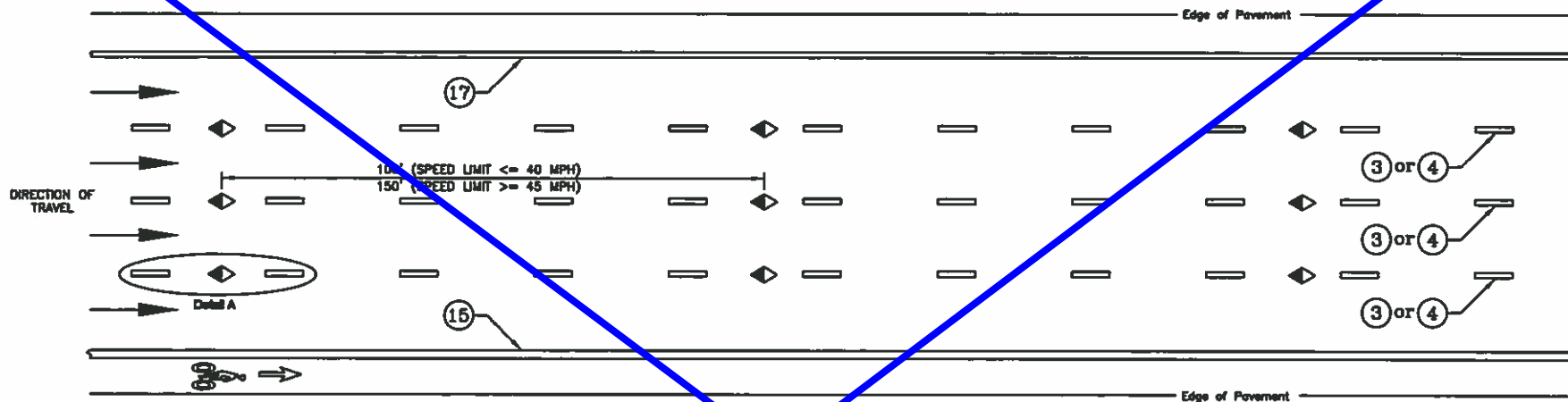
Revised By: Andrew Smith	Revised By: Andrew Smith
Date: 05/15/13	Date: 05/15/13
File: ts-1113b.dwg	Approved By: Sharon Martin

Standard Lane Use Pavement Marking Details - Reflective Pavement Markers (RPMs) - Two and Three Lane Facilities



TS-1113

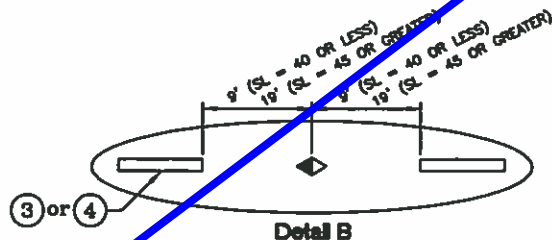
Sheet 11 of 12



Typical One Way Street Cross Section

NOTES:

1. SEE ACHD STANDARD DETAIL TS-1113 FOR STANDARD LANE USE PAVEMENT MARKING DETAILS.
2. RPMs SHOULD BE ALIGNED SUCH THAT THE REFLECTIVE ELEMENT IS PERPENDICULAR TO THE DIRECTION OF TRAVEL.
3. THE CENTERLINE OF RPMs SHALL BE IN LINE WITH THE CENTERLINE OF ALL WHITE BROKEN LANE LINE MARKINGS.
4. IN CASES WHERE THE PREFERRED RPM LOCATION IS NOT PRACTICAL DUE TO CONSTRUCTION JOINT SPACING, LONGITUDINAL RPM SPACING MAY DEVIATE BY NOT MORE THAN 10% FROM THE TYPICAL SPACING. NO DEVIATION FROM THE LATERAL PLACEMENT IS PERMITTED EXCEPT AS APPROVED BY THE ENGINEER.



Legend

- (XX) Striping Detail Number
- Bidirectional White/Red RPM
- White — Red

NOT REVIEWED

NO.	DATE	BY	DESCRIPTION



Traffic Engineering Division

Alameda County Highway District

9770 Adams Street, Dublin, CA 94568

SIGNATURES	
Drawn By: Jordana Smith	
Checked By: Jordana Smith	
Approved By: Sharon Smith	

Standard Lane Use Pavement Marking Details - Reflective Pavement Markers (RPMs) - One-Way Facilities



STANDARD DETAIL NO.

TS-1113

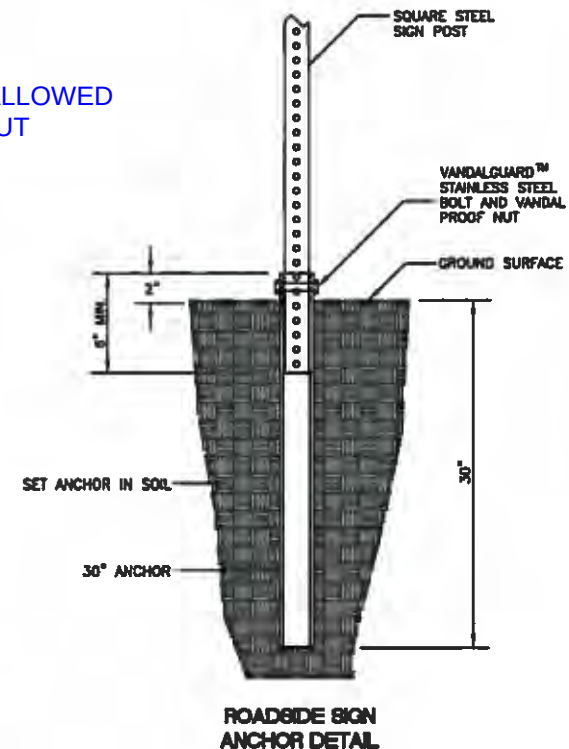
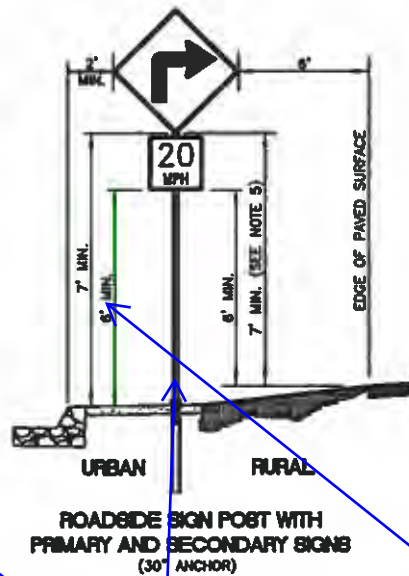
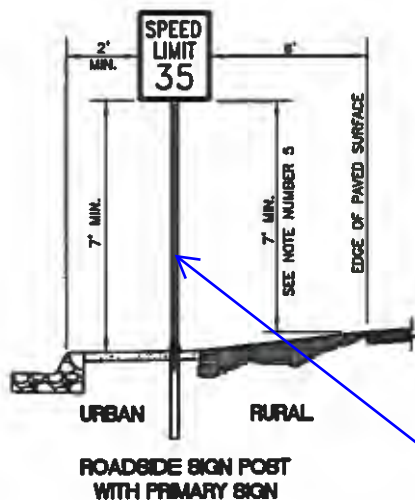
Sheet 12 of 12

11/26/2014

NOTES:

1. POSTS SHALL BE 2" X 2" 14-GAUGE A.S.T.M. A570.
2. ANCHOR SHALL BE 2.25" X 2.25" 12-GAUGE A.S.T.M. A570.
3. SIGN POSTS INSTALLED ON URBAN ROADWAY SECTIONS WITH ATTACHED SIDEWALKS NARROWER THAN 8' SHALL BE LOCATED BEHIND THE SIDEWALK.
4. SIGN POSTS INSTALLED ON URBAN ROADWAY SECTIONS WITH DETACHED SIDEWALKS SHALL BE LOCATED IN THE PLANTER STRIP BETWEEN THE CURB AND SIDEWALK.
5. ON RURAL SECTIONS WHERE CONDITIONS EXIST THAT MAKE THE 7' HEIGHT IMPRACTICAL, A 5' MOUNTING HEIGHT TO THE BOTTOM OF THE PRINCIPAL SIGN IS ACCEPTABLE.

5' MOUNTING HEIGHT ONLY ALLOWED ADJACENT TO AREAS WITHOUT PEDESTRIAN MOVEMENT.



SIGN PLACEMENT SHALL NOT REDUCE SIDEWALK WIDTH TO LESS THAN 4' MIN. PER 2011 PROWAG R302.3, THE CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES SHALL BE 4 FT MINIMUM, EXCLUSIVE OF THE WIDTH OF THE CURB.

PER 2009 MUTCD SECTION 2A.18, THE MINIMUM HEIGHT, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK, OF SIGNS INSTALLED ABOVE SIDEWALKS SHALL BE 7 FEET.

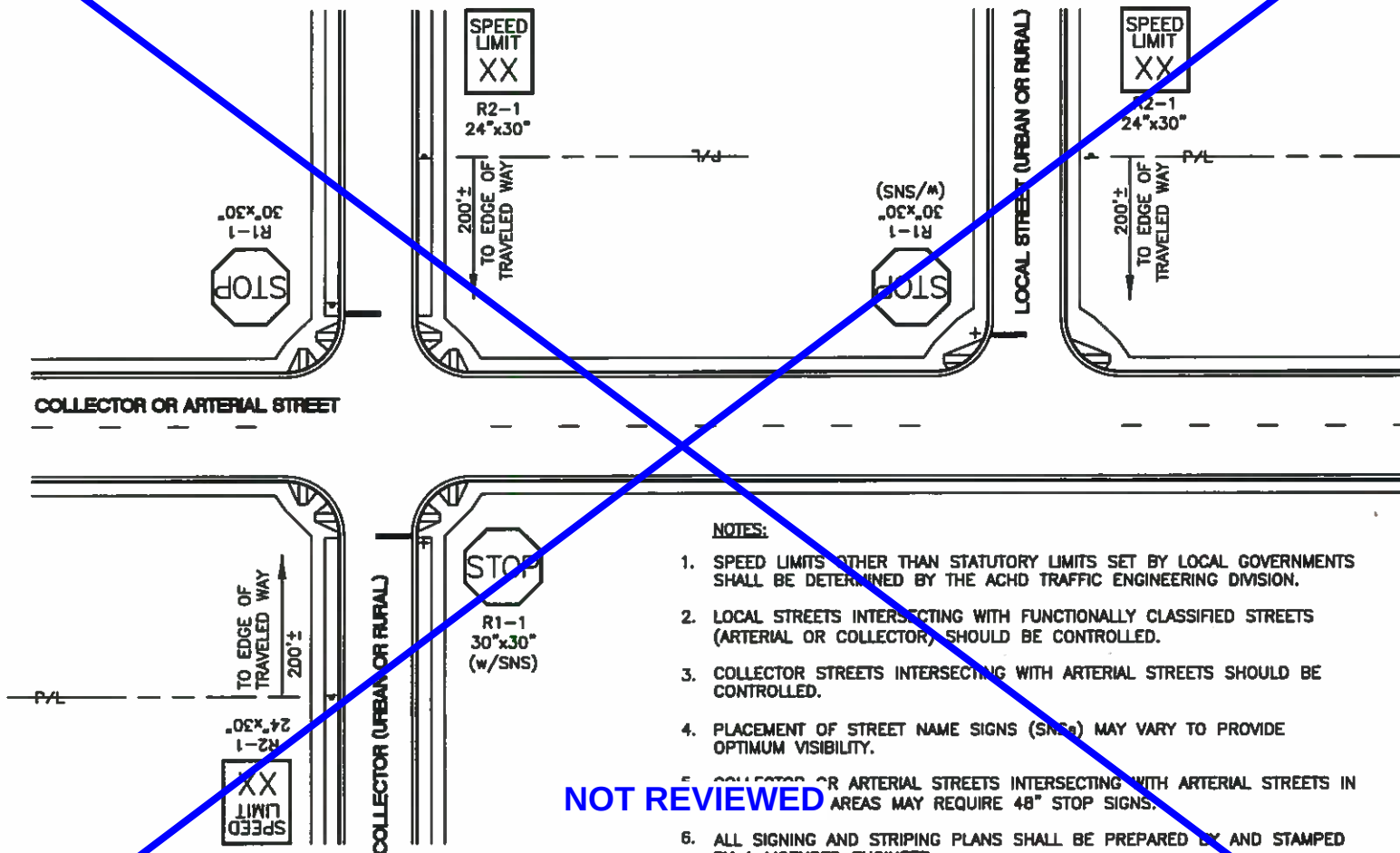
SIGNATURES	
DESIGNED BY	DATE
DRAWN BY	DATE
APPROVED BY	DATE

STANDARD TITLE
STANDARD ROADSIDE
SIGN DETAILS



TS-1114

TYPICAL ROADSIDE SIGN INSTALLATIONS AT UNSIGNALIZED INTERSECTIONS



NOTES:

1. SPEED LIMITS OTHER THAN STATUTORY LIMITS SET BY LOCAL GOVERNMENTS SHALL BE DETERMINED BY THE ACHD TRAFFIC ENGINEERING DIVISION.
2. LOCAL STREETS INTERSECTING WITH FUNCTIONALLY CLASSIFIED STREETS (ARTERIAL OR COLLECTOR) SHOULD BE CONTROLLED.
3. COLLECTOR STREETS INTERSECTING WITH ARTERIAL STREETS SHOULD BE CONTROLLED.
4. PLACEMENT OF STREET NAME SIGNS (SNS's) MAY VARY TO PROVIDE OPTIMUM VISIBILITY.
5. COLLECTOR OR ARTERIAL STREETS INTERSECTING WITH ARTERIAL STREETS IN AREAS MAY REQUIRE 48" STOP SIGNS.
6. ALL SIGNING AND STRIPING PLANS SHALL BE PREPARED BY AND STAMPED BY A LICENSED ENGINEER.
7. TYPICAL SIGN ARRANGEMENTS DEPICTED MAY BE MODIFIED AT THE DISCRETION OF THE ACHD TRAFFIC ENGINEER.

NOT REVIEWED

12/18/2013

12/18/13	12/18/13	12/18/13	12/18/13
12/18/13	12/18/13	12/18/13	12/18/13
12/18/13	12/18/13	12/18/13	12/18/13
12/18/13	12/18/13	12/18/13	12/18/13

ACHD
Traffic Engineering Division
Adams County Highway District

Scale: 1/2"=1'	Drawn By: [Signature]
Date: 12/18/13	Check By: [Signature]
File: 12-1114-SUP	Approved By: [Signature]

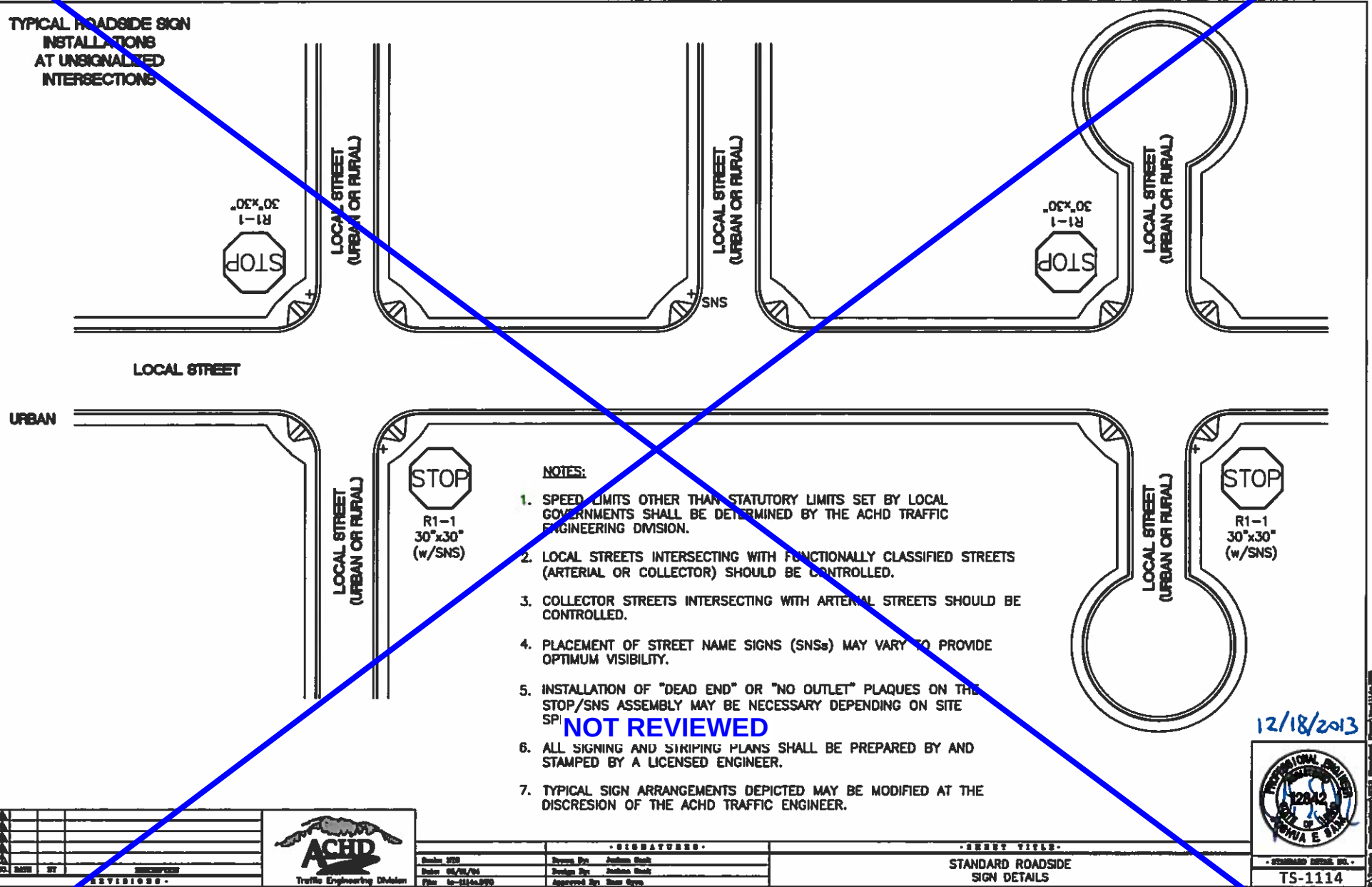
STANDARD ROADSIDE SIGN DETAILS

12/18/2013

TS-1114

Sheet 2 of 3

**TYPICAL ROADSIDE SIGN
INSTALLATIONS
AT UNSIGNALIZED
INTERSECTIONS**



NOTES:

1. SPEED LIMITS OTHER THAN STATUTORY LIMITS SET BY LOCAL GOVERNMENTS SHALL BE DETERMINED BY THE ACHD TRAFFIC ENGINEERING DIVISION.
2. LOCAL STREETS INTERSECTING WITH FUNCTIONALLY CLASSIFIED STREETS (ARTERIAL OR COLLECTOR) SHOULD BE CONTROLLED.
3. COLLECTOR STREETS INTERSECTING WITH ARTERIAL STREETS SHOULD BE CONTROLLED.
4. PLACEMENT OF STREET NAME SIGNS (SNSs) MAY VARY TO PROVIDE OPTIMUM VISIBILITY.
5. INSTALLATION OF "DEAD END" OR "NO OUTLET" PLAQUES ON THE STOP/SNS ASSEMBLY MAY BE NECESSARY DEPENDING ON SITE SPECIFIC CONDITIONS.
6. ALL SIGNING AND STRIPING PLANS SHALL BE PREPARED BY AND STAMPED BY A LICENSED ENGINEER.
7. TYPICAL SIGN ARRANGEMENTS DEPICTED MAY BE MODIFIED AT THE DISCRETION OF THE ACHD TRAFFIC ENGINEER.

NOT REVIEWED

12/18/2013

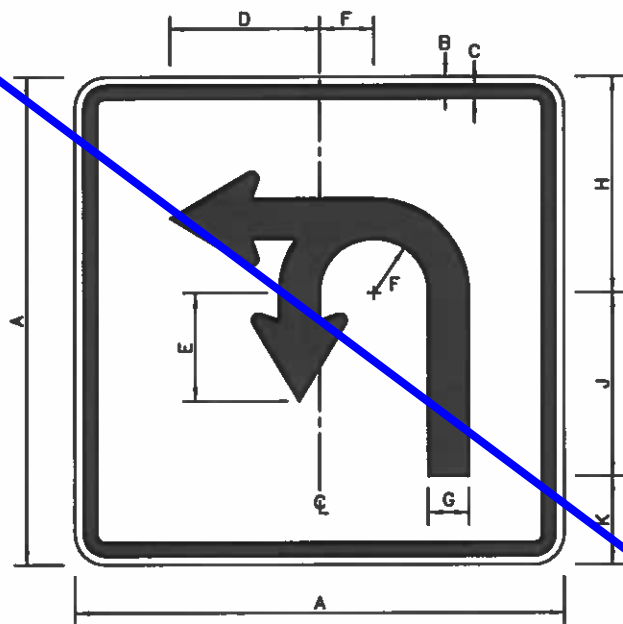


NO.	DATE	BY	REVISION
1	05/25/04	ACHD	REVISION



SIGNATURES		SHEET TITLE	
Drawn By: [Signature]	Design By: [Signature]	STANDARD ROADSIDE SIGN DETAILS	
Check By: [Signature]	Approved By: [Signature]		

SR3-100



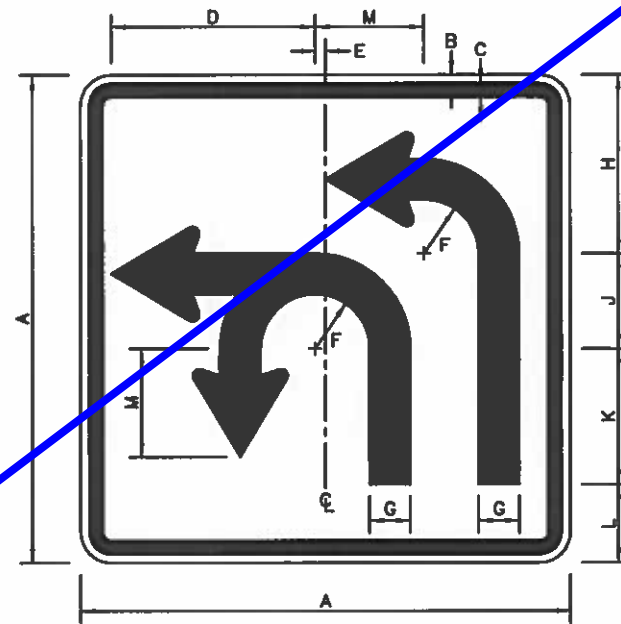
SIZE	DIMENSIONS (INCHES)				
	A	B	C	D	E
MINIMUM	24	3/8	5/8	7 3/8	3 3/8
STANDARD	36	5/8	7/8	11	8

SIZE	DIMENSIONS (INCHES)				
	F	G	H	J	K
MINIMUM	2 5/8	2	10 5/8	9	4 3/8
STANDARD	4	3	16	13 1/2	6 1/2

NOTES:

1. FOR ARROWHEAD DIMENSIONS, SEE ACHD STANDARD DETAIL TS-1115, SHEET 3.
2. ARROW AND BORDER COLORS SHALL BE BLACK. SIGN BACKGROUND COLOR SHALL BE WHITE (REFL.).

SR3-101



SIZE	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MINIMUM	24	3/8	5/8	10	1/2	2 5/8
STANDARD	36	5/8	7/8	15	3/4	4

SIZE	DIMENSIONS (INCHES)					
	G	H	J	K	L	M
MINIMUM	2	8 15/16	4 3/4	6 11/16	3 5/8	5 5/16
STANDARD	3	13 1/4	7	10	5 3/4	8

POLICY:

LANE USE CONTROL SIGN MAY BE USED AT SIGNALIZED INTERSECTIONS WITH SEPARATE TURN PHASES. THESE SIGNS MAY ALSO BE USED TO INDICATE THE TYPES OF MOVEMENTS PERMITTED AT MAJOR INTERSECTIONS.

NOT REVIEWED

3/7/2013



DATE	BY	REVISION

Adm. County Highway District

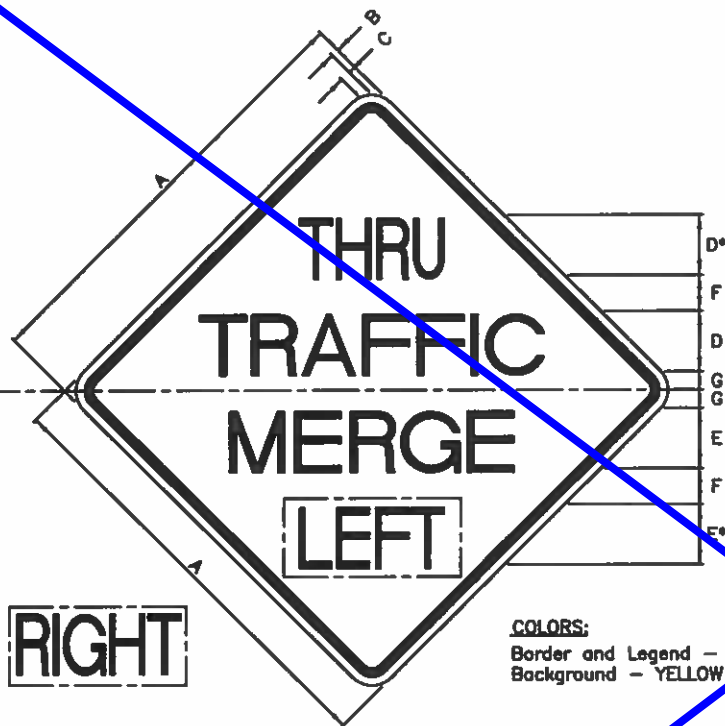


Drawn By: [Signature]	Checked By: [Signature]
Date: 05/25/10	Date: [Signature]
File: 10-1115-100	Approved By: [Signature]

SPECIAL SIGNS
DETAILS

TS-1115

SW-101



RIGHT

COLORS:
Border and Legend - BLACK
Background - YELLOW (REFL.)

* Reduce spacing 70%

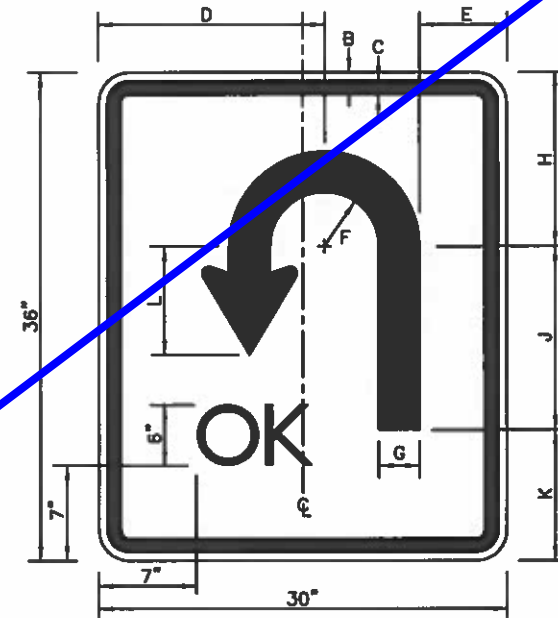
SIZE	CORNER RADIUS	DIMENSIONS (INCHES)						
		A	B	C	D	E	F	G
MINIMUM	2 1/4	36	5/8	7/8	5D	5E	3	1 1/2
STANDARD	3	48	3/4	1 1/4	6D	6E	4	2

POLICY:

THE "THRU TRAFFIC MERGE LEFT (RIGHT)" SIGN SHALL BE USED TO INFORM MOTORISTS THAT THE INSIDE OR OUTSIDE LANE IS BEING DROPPED AND THRU TRAFFIC MUST MERGE TO AVOID BEING TRAPPED IN A MANDATORY EXIT OR TURN LANE.

NOT REVIEWED

SR3-102



COLORS:
Border and Legend - BLACK
Background - WHITE (REFL.)

SIZE	DIMENSIONS (INCHES)					
	B	C	D	E	F	G
STANDARD	0.5	0.75	16.5	6.5	4	3

SIZE	DIMENSIONS (INCHES)				
	H	J	K	L	
STANDARD	13	13.5	9.5	8	

POLICY:

THE "U-TURN OK" SIGN CAN BE USED AT SIGNALIZED INTERSECTIONS WITH OR WITHOUT FLASHING YELLOW ARROWS TO INFORM MOTORISTS THAT A U-TURN IS PERMISSIBLE.

3/7/2013



TS-1115

Sheet 2 of 4

DATE	BY	REVISION



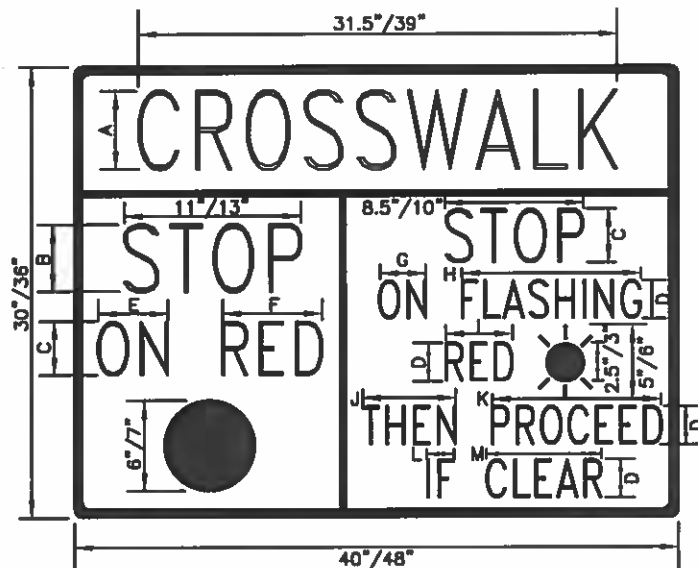
SIGNATURES			
Drawn By	Checked By	Design By	Approved By

SPECIAL SIGNS	
DETAILS	

Ada County Highway District

6710 Adams Street, Boise, Idaho, 83746

R10-23 (MOD)



NOTES:

- ALL FONTS ARE TO BE HIGHWAY GOTHIC "C".
- FOR BACKGROUND, MATERIAL IS TO BE WHITE DIAMOND GRADE SHEETING.

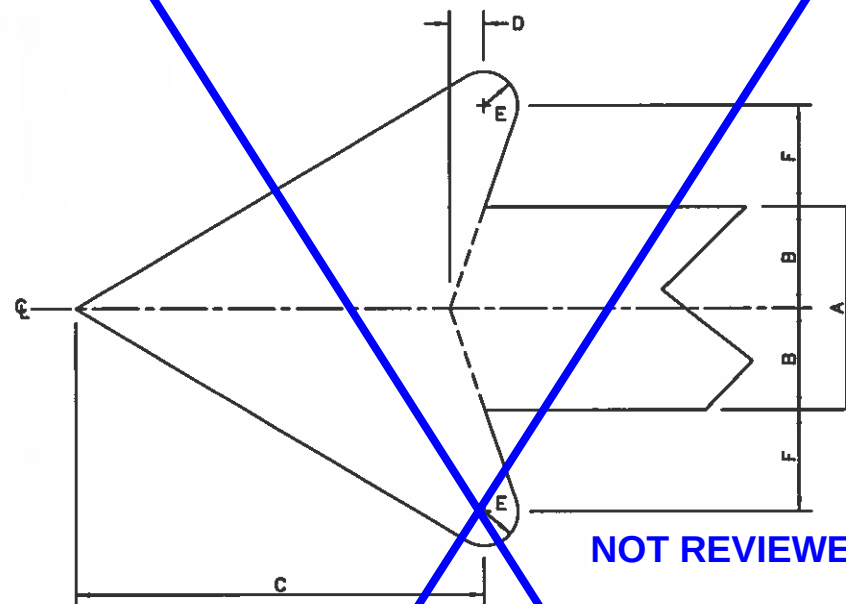
COLORS:

Border - BLACK
 Legend (CROSSWALK) - WHITE (REFL.)
 Background (CROSSWALK) - BLACK
 Legend (STOP...) - BLACK
 Background (STOP...) - WHITE (REFL.)

SIZE	CORNER RADIUS	DIMENSIONS (INCHES)												
		A	B	C	D	E	F	G	H	I	J	K	L	M
STANDARD	2	5.25	4.5	3.5	2.5	4.5	6.5	3.25	12.5	5	6.5	12	2.25	9.5
LARGE	3	6.25	5.25	4.25	3.25	5.25	7.75	4	15	6	8	14	2.5	11.5

GUIDANCE:

THE "CROSSWALK STOP ON RED" SIGN SHALL BE USED AT PEDESTRIAN HYBRID BEACONS TO INFORM MOTORISTS THAT THE FLASHING RED INDICATION INDICATES A DRIVER MAY PROCEED IF PEDESTRIANS HAVE COMPLETED CROSSING. THE "LARGE" SIGN SHOULD BE USED IN ALL APPLICATIONS UNLESS OTHERWISE APPROVED BY THE ACHD TRAFFIC ENGINEER.



NOT REVIEWED

DIMENSIONS				
B	C	D	E	F
0.500A	2.030A	0.155A	0.200A	0.650A

A = Width of shaft

STANDARD ARROWHEAD DETAIL
 FOR GUIDE AND REGULATORY SIGNS

3/7/2013



TS-115

Sheet 3 of 4



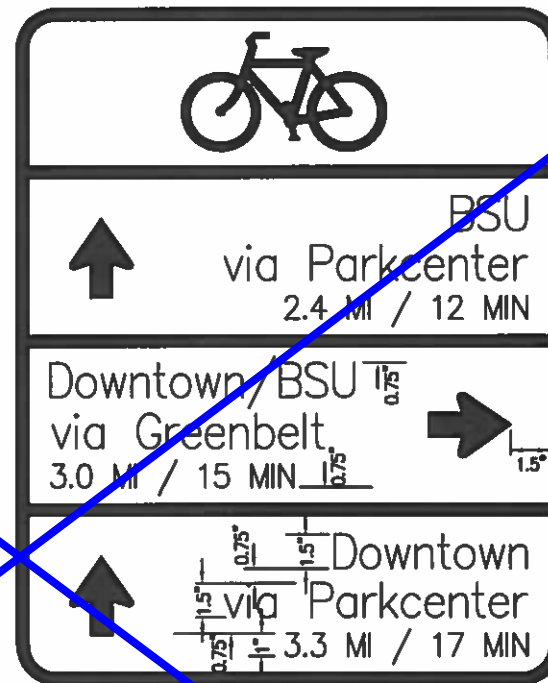
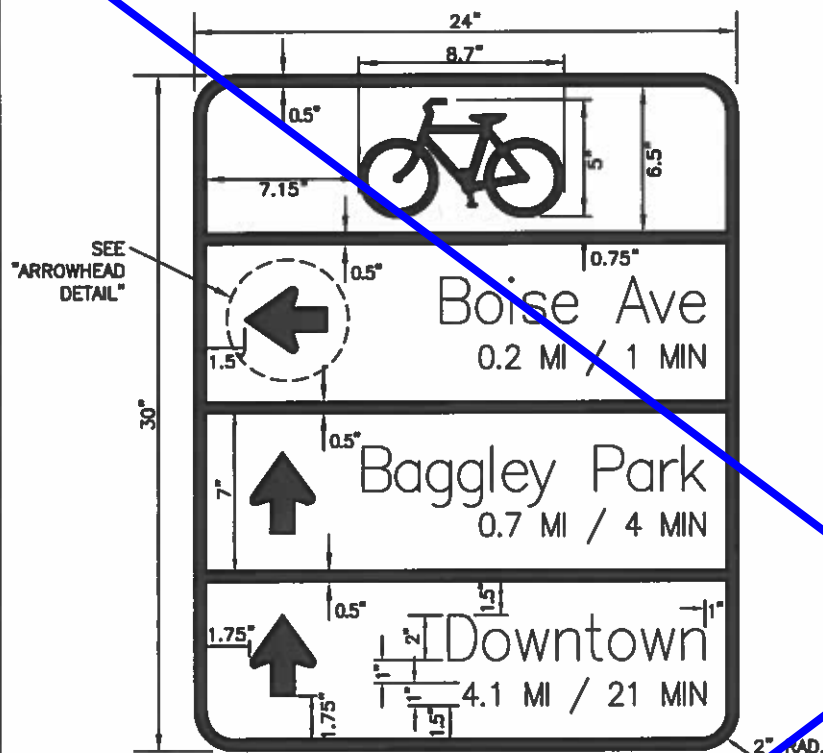
Ada County Highway District

2010 Ada County Highway District, Idaho, 83404

Design: [blank]
 Date: 6/25/11
 File: 10-1115-000

Drawn By: [blank]
 Design By: [blank]
 Approved By: [blank]

SPECIAL SIGNS
 DETAILS



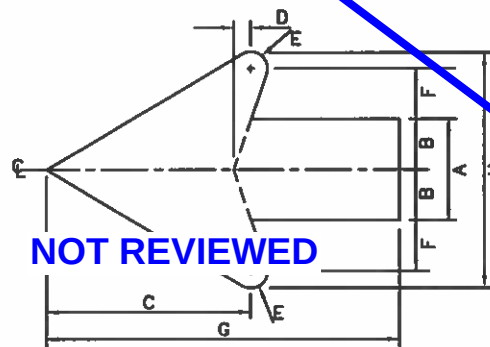
COLORS:
 Border - WHITE
 Legend - WHITE
 Background - GREEN

GUIDANCE:
 BICYCLE WAYFINDING SIGNS ARE USED TO GUIDE CYCLISTS ON ROADWAYS THAT ARE GENERALLY CONDUCTIVE TO ACCOMMODATING BICYCLE TRAFFIC. ROUTES MAY HAVE BIKE LANES, HAVE RELATIVELY LOW TRAFFIC VOLUMES OR USE NEIGHBORHOOD STREETS. TYPICAL DESTINATIONS INCLUDE SCHOOLS, COMMUNITY FACILITIES (SUCH AS PARKS) AND GOVERNMENT BUILDINGS.

NOTES:

1. ALL FONTS ARE TO BE CLEARVIEW HWY 2B. CLEARVIEW HWY 1B MAY BE USED TO FIT ALL LETTERING IN THE APPROPRIATE SPACE IF NEEDED.
2. FOR BACKGROUND, MATERIAL SHALL BE TYPE III OR TYPE IV HIGH INTENSITY PRISMATIC SHEETING, CONFORMING TO THE MOST RECENTLY ADOPTED VERSION ASTM D4956.
3. MAX. NUMBER OF LETTERS PER DESTINATION:
 ONE LINE OF TEXT: 14
 TWO LINES OF TEXT: 18

NOT REVIEWED



ARROWHEAD DETAIL

DIMENSIONS			
A	B	C	D
1.40"	0.55"	2.25"	0.17"
E	F	G	H
0.22"	0.72"	3.5"	3.0"

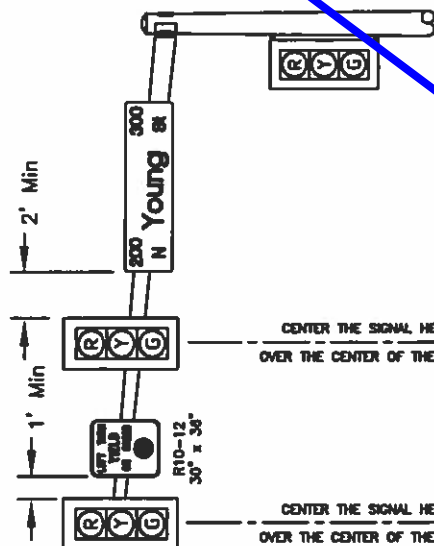
NO.	DATE	BY	REVISIONS



SIGNATURES	
Drawn By	Adrian Smith
Date	5/3/13
File	10-115043900
Drawn By	Adrian Smith
Drawn By	Adrian Smith
Approved By	Steve Gynn

SHEET TITLE	
SPECIAL SIGNS DETAILS	





Permissive Left Turn - Shared Through/Left

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.

NOT REVIEWED

12/26/2013



DATE	BY	DESIGNED BY
08/10/2010	08/10/2010	08/10/2010

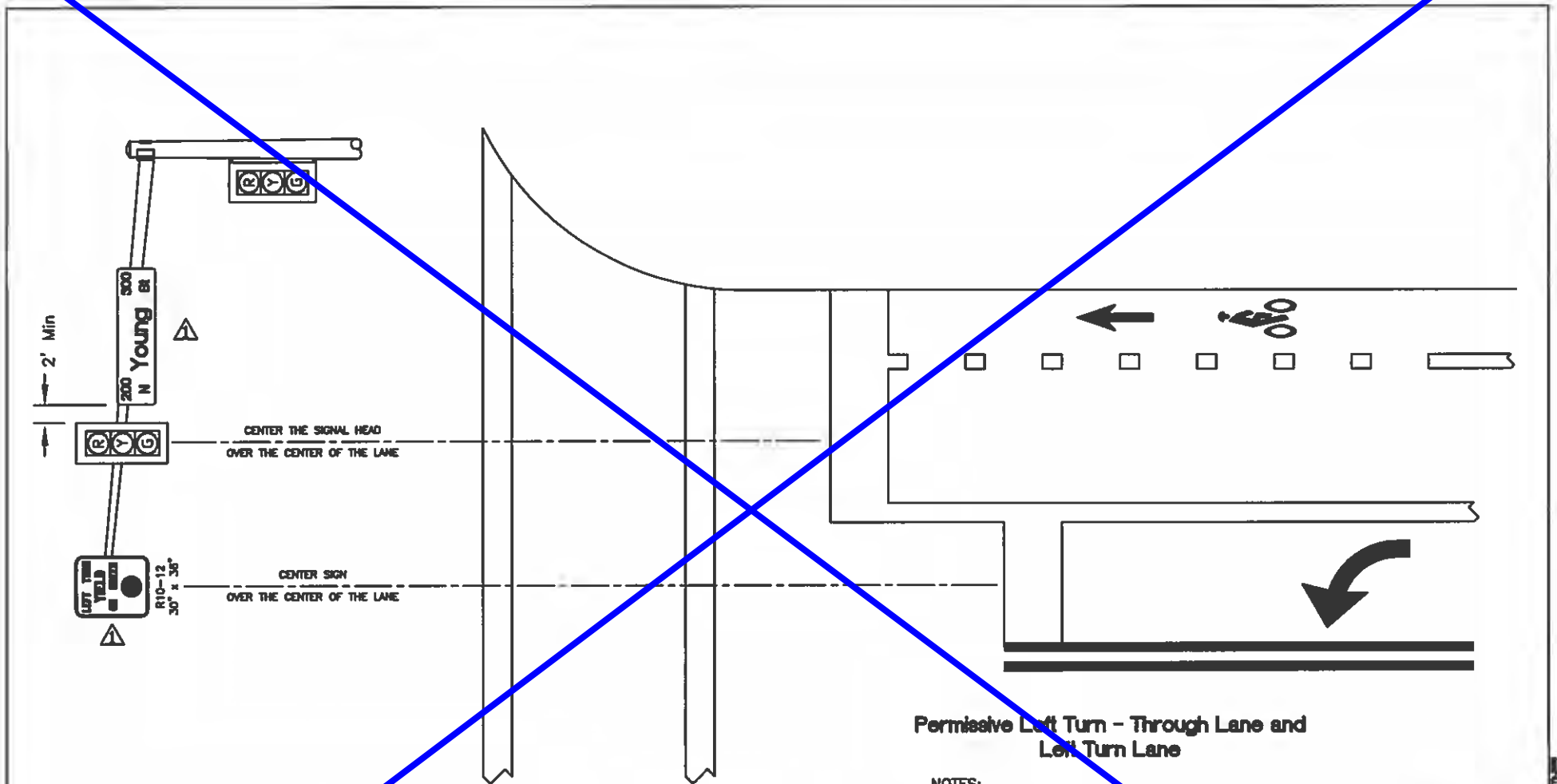


SIGNATURES	
Drawn BY	Joshua Black
Check BY	Joshua Black
Design BY	Joshua Black
Approved BY	Steve Green

STANDARD TRAFFIC SIGNAL HEAD LOCATION DETAILS

TS-1117

Sheet 1 of 13



Permissive Left Turn - Through Lane and Left Turn Lane

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.

3/5/2013



Sheet 1A of 13

NOT REVIEWED

NO.	DATE	REVISIONS
1	01/15/13	Original design
2	01/15/13	Revised design
3	01/15/13	Revised design
4	01/15/13	Revised design
5	01/15/13	Revised design
6	01/15/13	Revised design
7	01/15/13	Revised design
8	01/15/13	Revised design
9	01/15/13	Revised design
10	01/15/13	Revised design

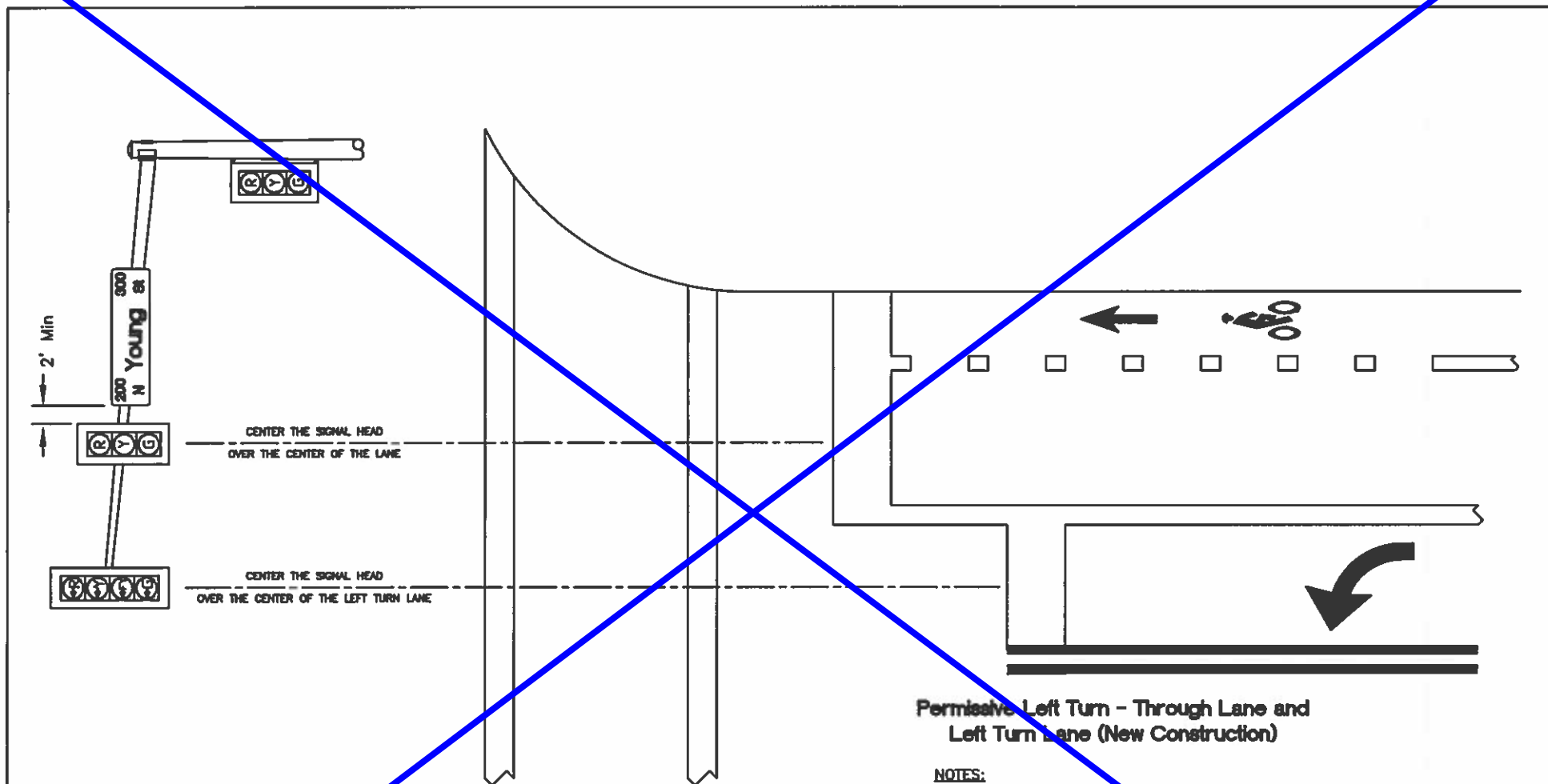
Adams County Highway District

ACHD
Traffic Engineering Division

3000 Adams Street, Boise, Idaho, 83724

SIGNATURES		DESIGN TITLE	
Design: [Signature]	Drawn By: [Signature]	Design: [Signature]	Drawn By: [Signature]
Check: [Signature]	Drawn By: [Signature]	Design: [Signature]	Drawn By: [Signature]
File: [Signature]	Drawn By: [Signature]	Design: [Signature]	Drawn By: [Signature]

STANDARD TRAFFIC SIGNAL HEAD
LOCATION DETAILS



NOT REVIEWED

Permissive Left Turn - Through Lane and Left Turn Lane (New Construction)

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.
4. THE LEFT TURN GREEN ARROW PHASE SHALL BE OMITTED FOR PERMISSIVE OPERATION.

3/5/2013



NO.	DATE	BY	REVISION
1	03/05/13	SP	DESIGN

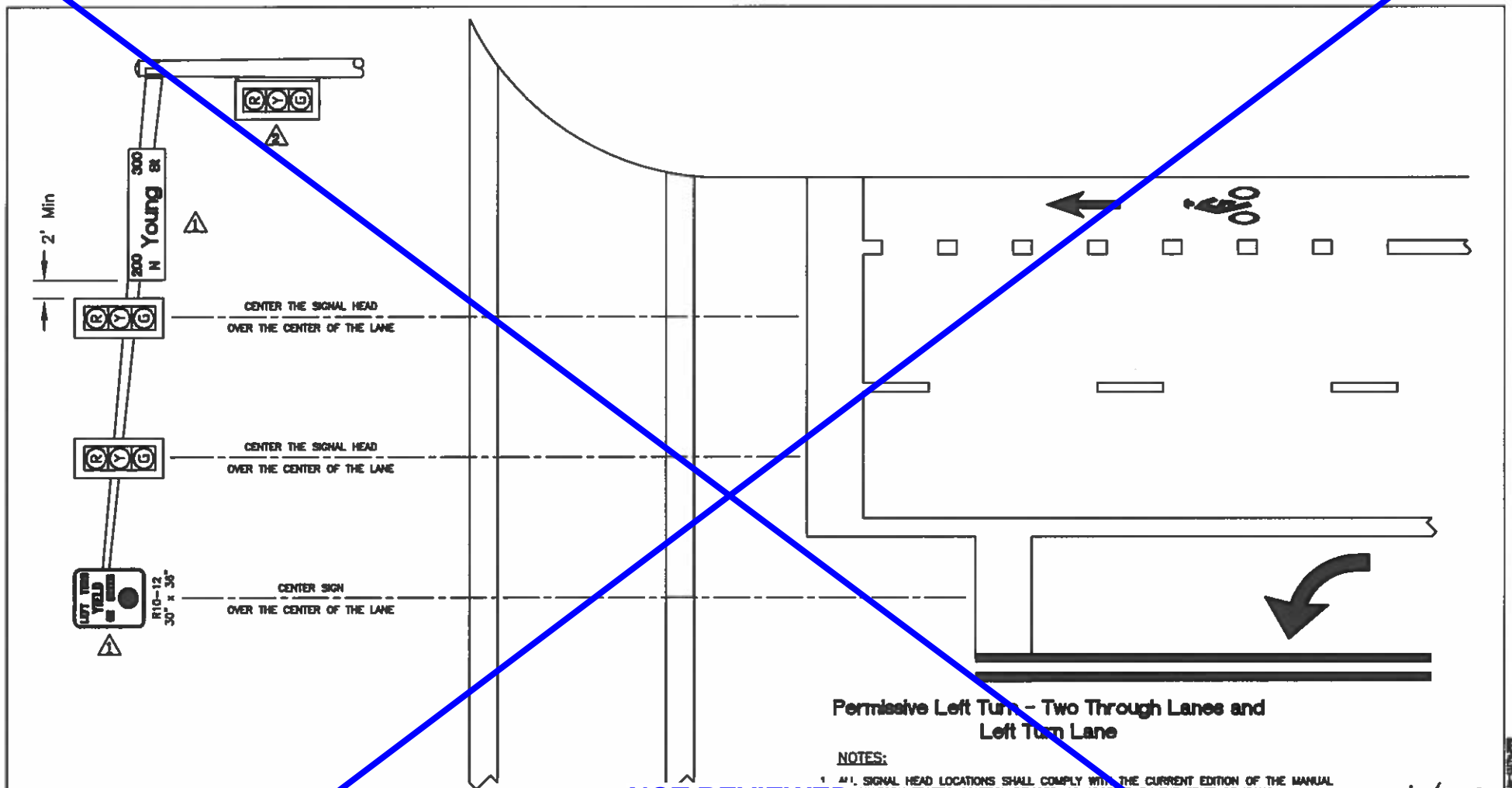


SIGNATURES			
Drawn By	Design By	Checked By	Approved By
SP	SP	SP	SP
Date: 03/05/13	Date: 03/05/13	Date: 03/05/13	Date: 03/05/13
File: 10-1117-2000			

SHEET TITLE	
STANDARD TRAFFIC SIGNAL HEAD LOCATION DETAILS	

TS-1117

Sheet 28 of 13



Permissive Left Turn - Two Through Lanes and Left Turn Lane

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1100 FOR STREET NAME SIGN DETAILS.
4. POST MOUNTED SIGNAL HEADS ARE OPTIONAL, BUT MAY BE REQUIRED BY THE ACHD TRAFFIC ENGINEER.

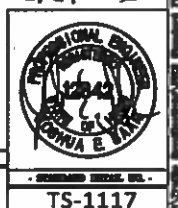


REVISION	DATE	DESCRIPTION
01/10	01/10	Added note
02/10	02/10	Changed note, new overhead signs
03/10	03/10	Added note



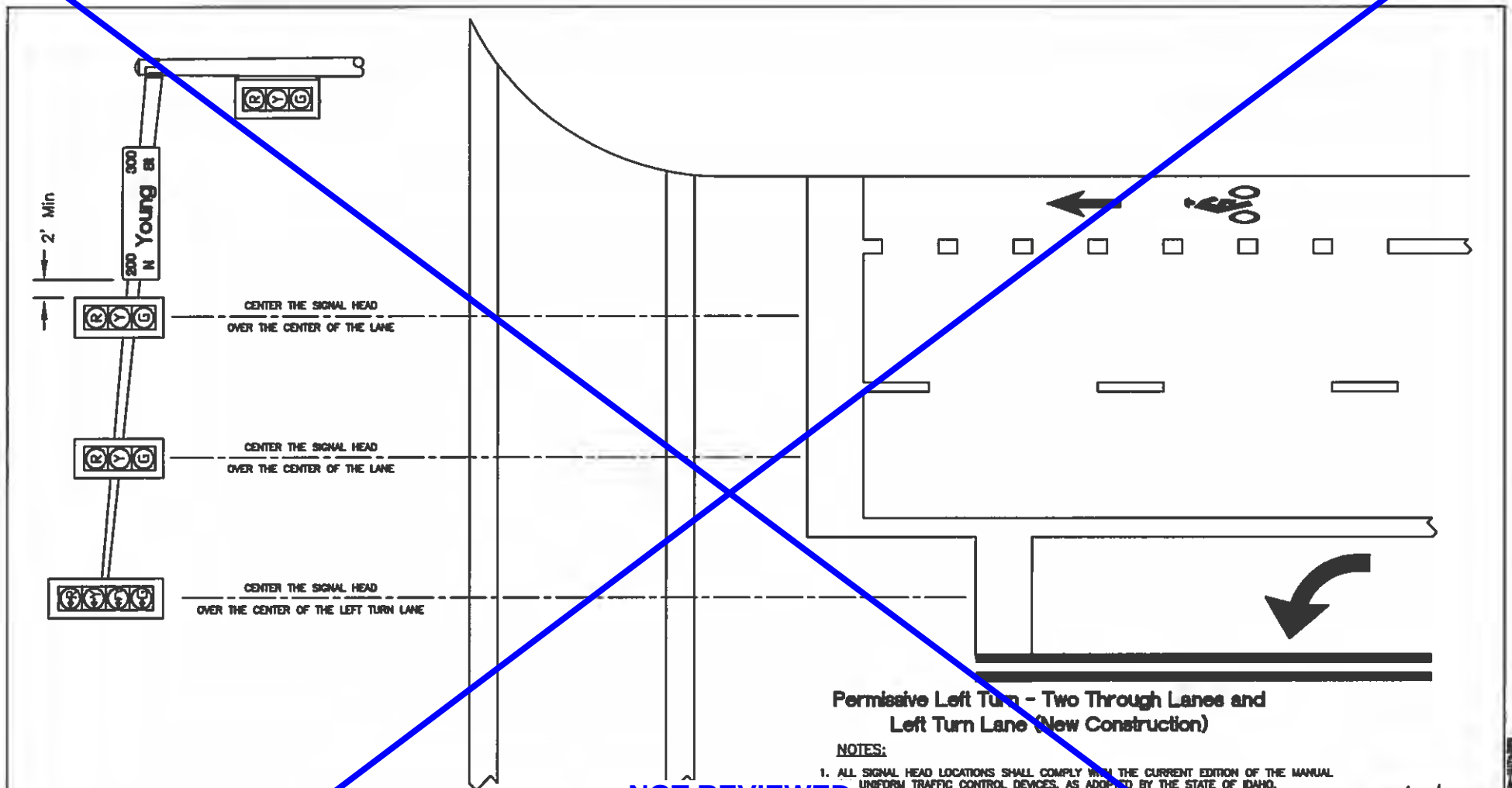
Author	WFO	Drawn By	WFO
Check	WFO	Design By	WFO
File	01-1117-000	Approved By	Jim Larson

STANDARD TRAFFIC SIGNAL HEAD LOCATION DETAILS



TS-1117

Sheet 3A of 13



Permissive Left Turn - Two Through Lanes and Left Turn Lane (New Construction)

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. THIS IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.
4. POST MOUNTED SIGNAL HEADS ARE OPTIONAL, BUT MAY BE REQUIRED BY THE ACHD TRAFFIC ENGINEER.
5. THE LEFT TURN GREEN ARROW PHASE SHALL BE OMITTED FOR PERMISSIVE OPERATION.

NOT REVIEWED

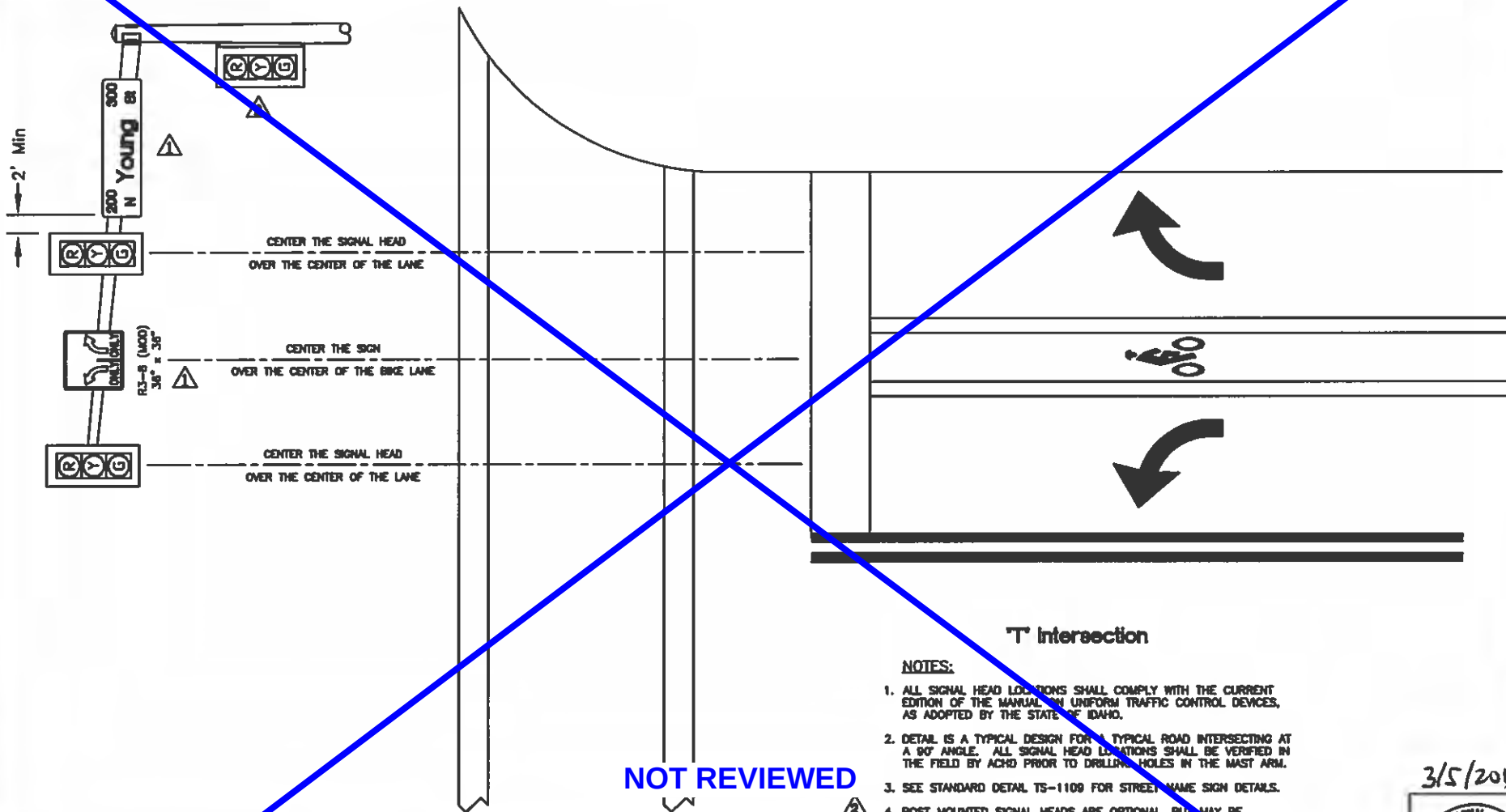
NO.	DATE	BY	REVISIONS



SIGNATURES			
Drawn By	WFO	Checked By	Justin Reed
Revised By	03/05/13	Designed By	Justin Reed
File No	12-1117A-000	Approved By	Steve Allen

STANDARD TRAFFIC SIGNAL HEAD
LOCATION DETAILS





T Intersection

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.
4. POST MOUNTED SIGNAL HEADS ARE OPTIONAL, BUT MAY BE REQUIRED BY THE ACHD TRAFFIC ENGINEER.

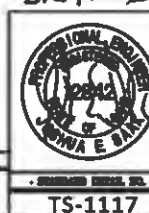
DATE	BY	REVISION
04/18/13	MM	Added note
04/18/13	MM	Changed note to new sign
04/18/13	MM	Revised



Project No.	Drawn By	Scale
04/18/13	MM	1/8" = 1'-0"
04/18/13	MM	1/8" = 1'-0"

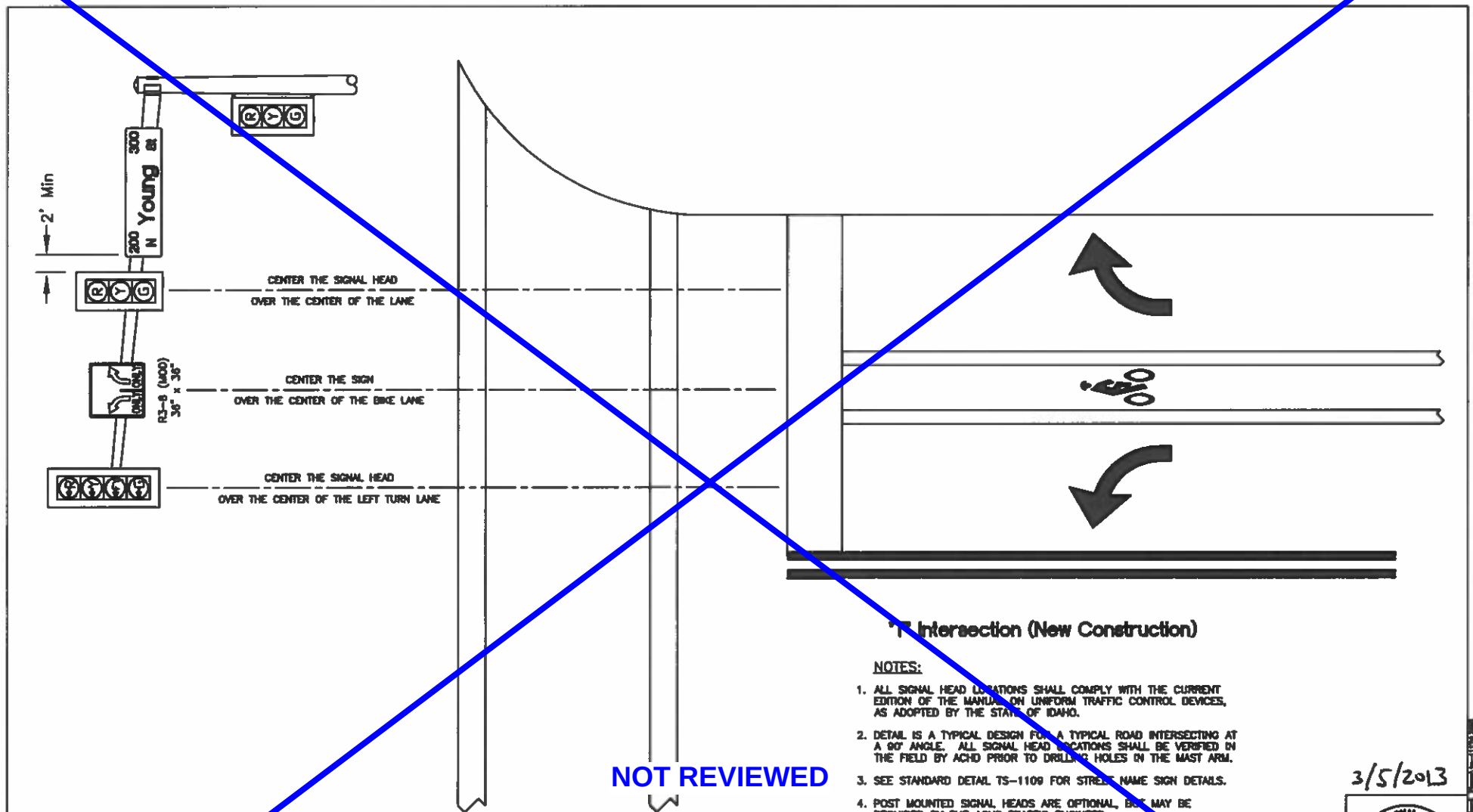
STANDARD TRAFFIC SIGNAL HEAD
LOCATION DETAILS

3/5/2013



TS-1117

Sheet 4A of 13



T Intersection (New Construction)

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.
4. POST MOUNTED SIGNAL HEADS ARE OPTIONAL, BUT MAY BE REQUIRED BY THE ACHD TRAFFIC ENGINEER.
5. THE LEFT TURN GREEN ARROW PHASE MAY BE OMITTED AT THE DISCRETION OF ACHD CONGESTION MANAGEMENT.

3/5/2013



DATE	BY	REVISION



DESIGN: JPR	DESIGN BY: Joshua Reed
CHECK: JPR	CHECK BY: Joshua Reed
FILE: 12-0174-000	APPROVED BY: Steve Ryan

SHEET TITLE:

STANDARD TRAFFIC SIGNAL HEAD
LOCATION DETAILS

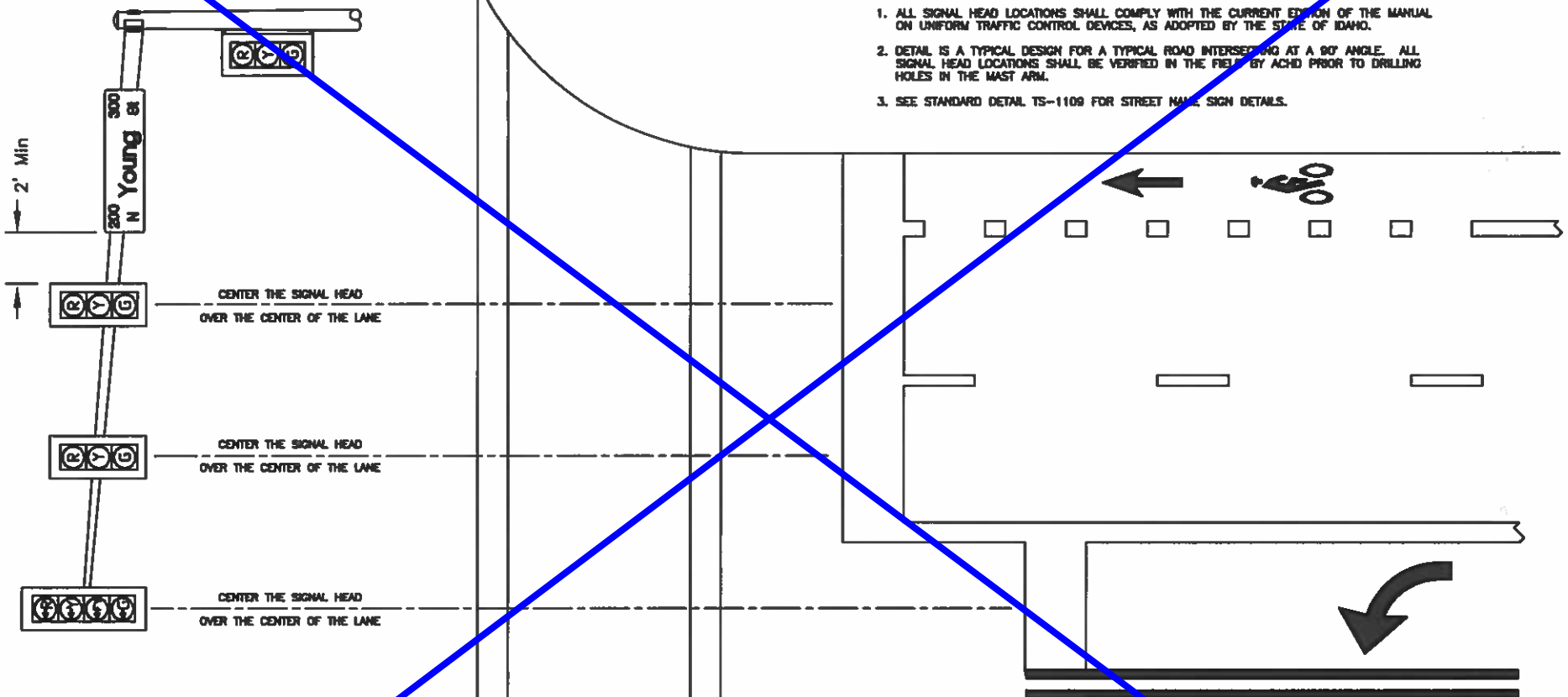
TS-1117

Sheet 48 of 13

Protected/Permissive Left Turn (Flashing Yellow Arrow)

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.



NOT REVIEWED

NO.	DATE	BY	REVISIONS



Standard TS-1117
Adopted 04/14/09
IDOT 16-4117-000

SIGNATURES

Drawn By: Jordan Smith
Design By: Jordan Smith
Approved By: Dan Olin

SHEET TITLE

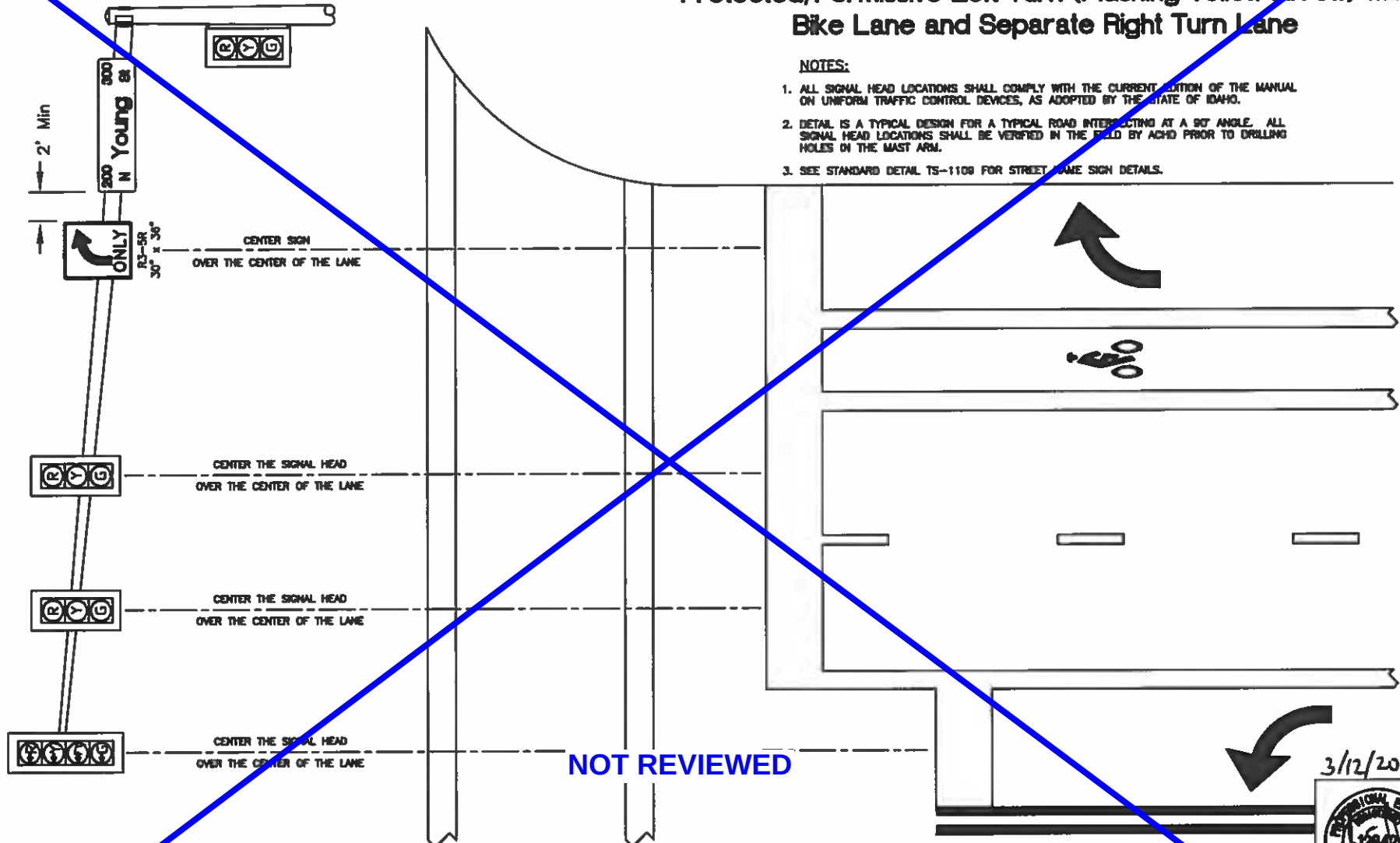
STANDARD TRAFFIC SIGNAL HEAD
LOCATION DETAILS



Protected/Permissive Left Turn (Flashing Yellow Arrow) with Bike Lane and Separate Right Turn Lane

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES ON THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.



NOT REVIEWED

NO.	DATE	BY	REVISIONS
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Ada County Highway District



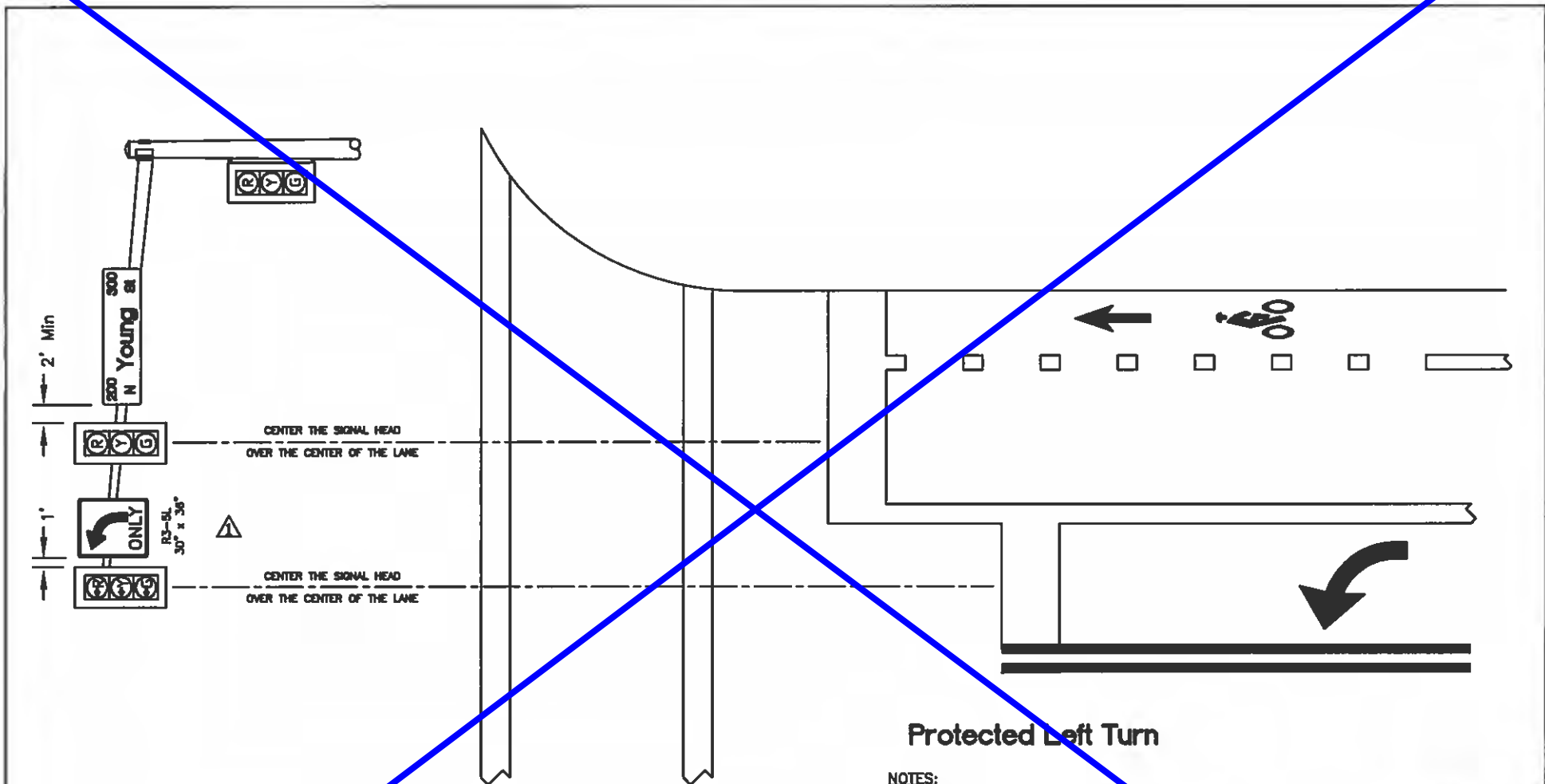
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Design: ETS	Design Rev:	Design Rev:	Design Rev:
Drawn: JH/JS/VS	Drawn Rev:	Drawn Rev:	Drawn Rev:
File: 10-11171200	Approved By: Ryan Maylin		

STANDARD TRAFFIC SIGNAL HEAD
LOCATION DETAILS

3/12/2012



Sheet 6 of 13



Protected Left Turn

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.

NOT REVIEWED

REVISIONS	NO.	DATE	DESCRIPTION
1	01/18	2012	Changed mast arm overhead signs
2	02/10	2012	REVISIONS



SIGNATURES	
Drawn By: Mike Perno	Checked By: [Signature]
Design By: Mike Perno	Reviewed By: [Signature]
Approved By: [Signature]	

SHEET TITLE
STANDARD TRAFFIC SIGNAL HEAD
LOCATION DETAILS

3/12/2012



Ada County Highway District

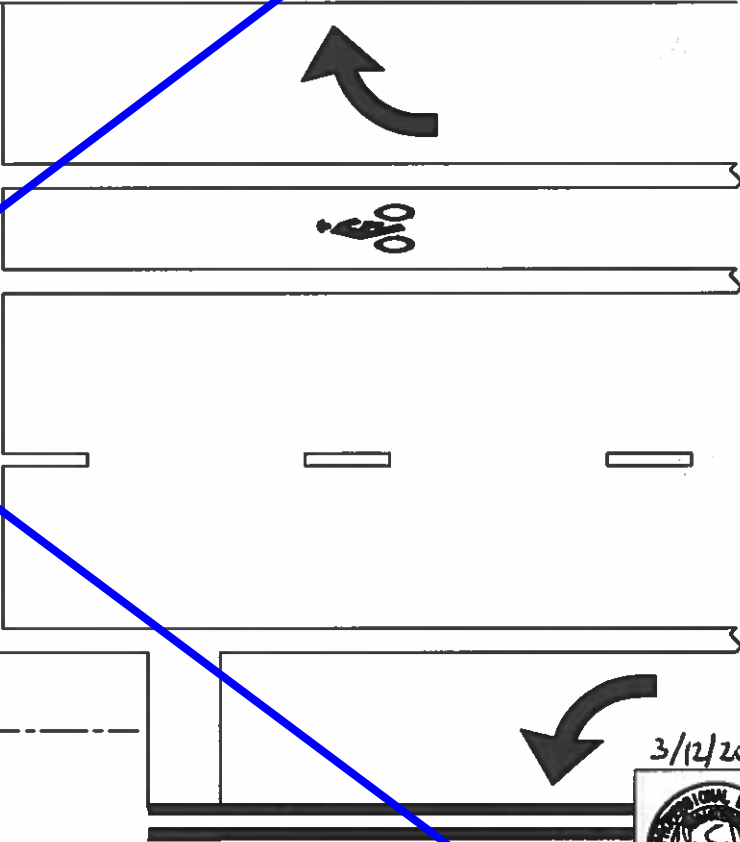
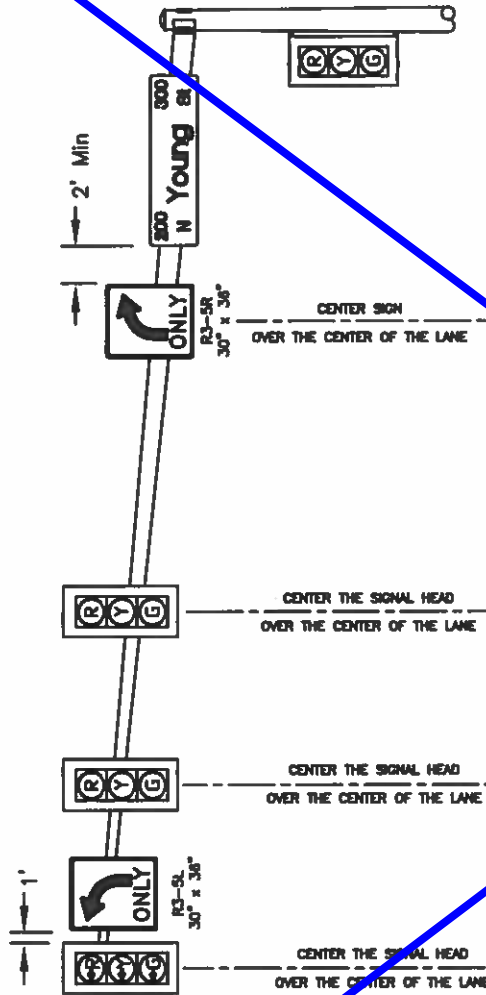
3070 Adams Street, Boise, Idaho, 83704
www.achd.idaho.gov

TS-1117
Sheet 7 of 13

Protected Left Turn with
Bike Lane and Separate Right Turn Lane

NOTES:

- 1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
- 2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
- 3. SEE STANDARD DETAIL TS-1108 FOR STREET NAME SIGN DETAILS.



NOT REVIEWED

DATE	BY	REVISION
05/25/00	05/25/00	05/25/00



SIGNATURES	
Design By	Jeffrey Smith
Drawn By	Jeffrey Smith
Approved By	Shane Morley

STANDARD TRAFFIC SIGNAL HEAD
LOCATION DETAILS

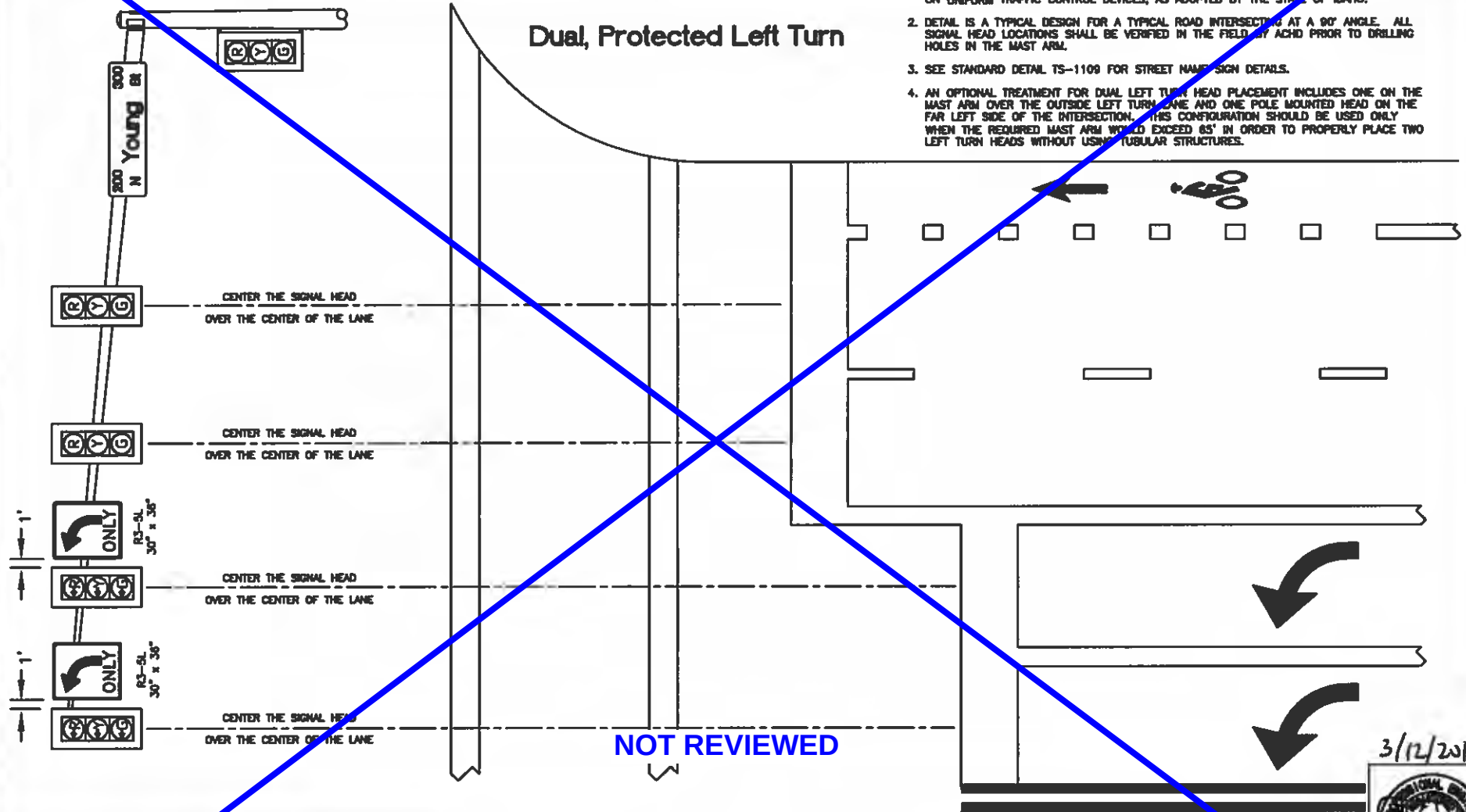
3/12/2012

TS-1117
Sheet 9 of 13

Dual, Protected Left Turn

NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. DETAIL IS A TYPICAL DESIGN FOR A TYPICAL ROAD INTERSECTING AT A 90° ANGLE. ALL SIGNAL HEAD LOCATIONS SHALL BE VERIFIED IN THE FIELD BY ACHD PRIOR TO DRILLING HOLES IN THE MAST ARM.
3. SEE STANDARD DETAIL TS-1109 FOR STREET NAME SIGN DETAILS.
4. AN OPTIONAL TREATMENT FOR DUAL LEFT TURN HEAD PLACEMENT INCLUDES ONE ON THE MAST ARM OVER THE OUTSIDE LEFT TURN LANE AND ONE POLE MOUNTED HEAD ON THE FAR LEFT SIDE OF THE INTERSECTION. THIS CONFIGURATION SHOULD BE USED ONLY WHEN THE REQUIRED MAST ARM WOULD EXCEED 85' IN ORDER TO PROPERLY PLACE TWO LEFT TURN HEADS WITHOUT USING TUBULAR STRUCTURES.



NOT REVIEWED

3/12/2012



TS-1117

Sheet 10 of 13

NO.	DATE	BY	REVISIONS

Ad. County Highway District

ACHD
Traffic Engineering Division
• 8770 Adams Street, Boise, Idaho, 83714 •
www.achd.idaho.gov

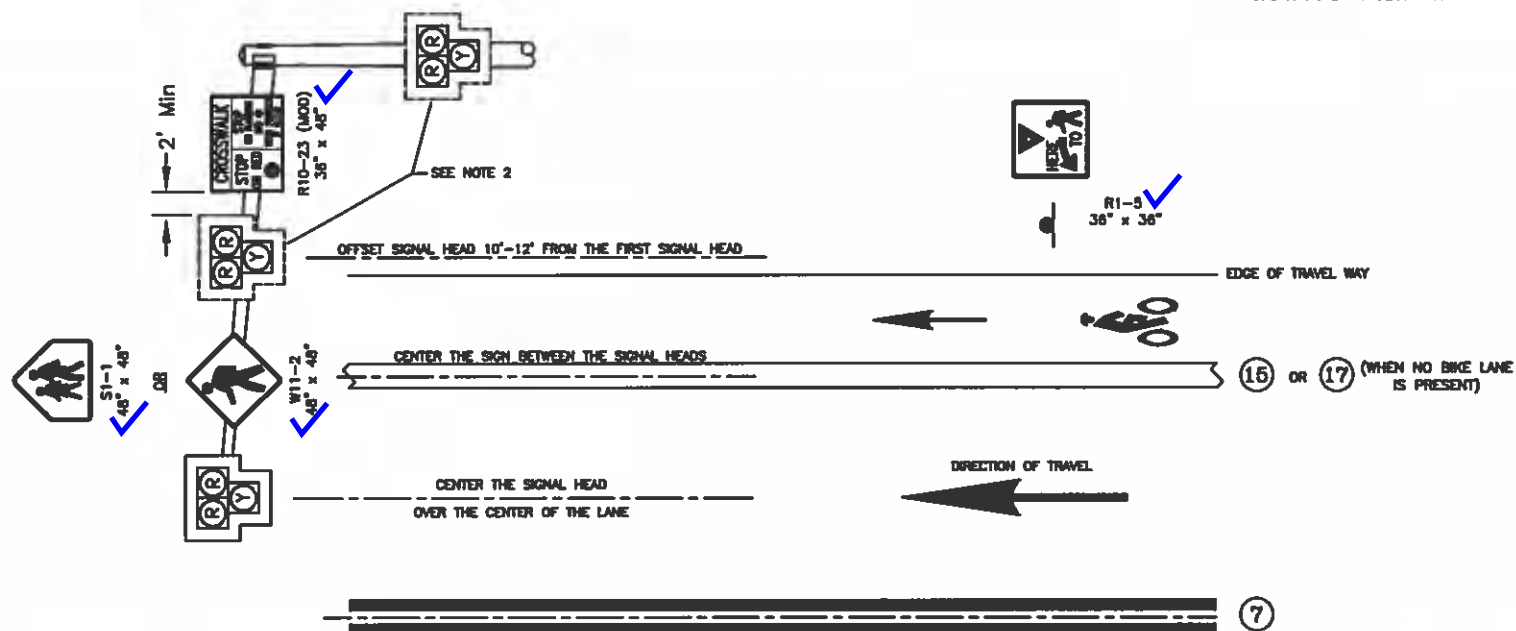
SIGNATURES			
Author: EBN	Project: 800	Reviewed: Jordan Ball	
Drawn: 04/09/10	Design: 04/09/10	Reviewed: Jordan Ball	
File: 10-1117-001	Revised: 04/09/10	Reviewed: Jordan Ball	

• SHEET TITLE •
STANDARD TRAFFIC SIGNAL HEAD
LOCATION DETAILS

Pedestrian Hybrid Beacon - Two Lane Roadway

DIAGRAM NOTES:

1. STOP BARS AND CROSSWALKS ARE NOT SHOWN FOR CLARITY PURPOSES.
2. CURB AND GUTTER DETAILS ARE NOT SHOWN. SIGNAL HEAD PLACEMENT IS SIMILAR WITH RESPECT TO RURAL AND URBAN ROADWAY SECTIONS.



GENERAL NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. INSTALLATION OF A SUPPLEMENTAL SIGNAL HEAD MAY BE EITHER MAST ARM OR POLE MOUNTED. REFER TO SIGNAL PLAN SHEETS FOR DETAILS.
3. SCHOOL CROSSING SIGNS SHOULD BE INSTALLED WHEN THE PRIMARY FUNCTION OF THE PEDESTRIAN HYBRID BEACON IS FOR SCHOOL RELATED PEDESTRIAN ACTIVITY. OTHERWISE, PEDESTRIAN SIGNS SHOULD BE INSTALLED.
4. REFER TO SIGNAL PLAN SHEETS FOR EXACT PLACEMENT AND INSTALLATION OF SIGNS AND MARKINGS.

NO.	DATE	BY	REVISIONS
1	10/10/10	AD	Added pole mounted signal head option.
2	10/10/10	AD	Changed 36-48 to 48-48 MCO.
3	10/10/10	AD	Added 48-48 MCO.



• SIGNATURES •	
Drawn: JTB	Checked: JTB, Andrew Smith
Scale: 1/4" = 1'-0"	Checked: JTB, Andrew Smith
Plot: 10-0176-000	Approved: JTB, Steve Olson

• SHEET TITLE •
PEDESTRIAN HYBRID BEACON -
TRAFFIC SIGNAL HEAD DETAILS



Ada County Highway District

• 6750 Adams Street, Boise, Idaho, 83724 •
www.achd.idaho.gov

• SHEET NO. •
TS-1117

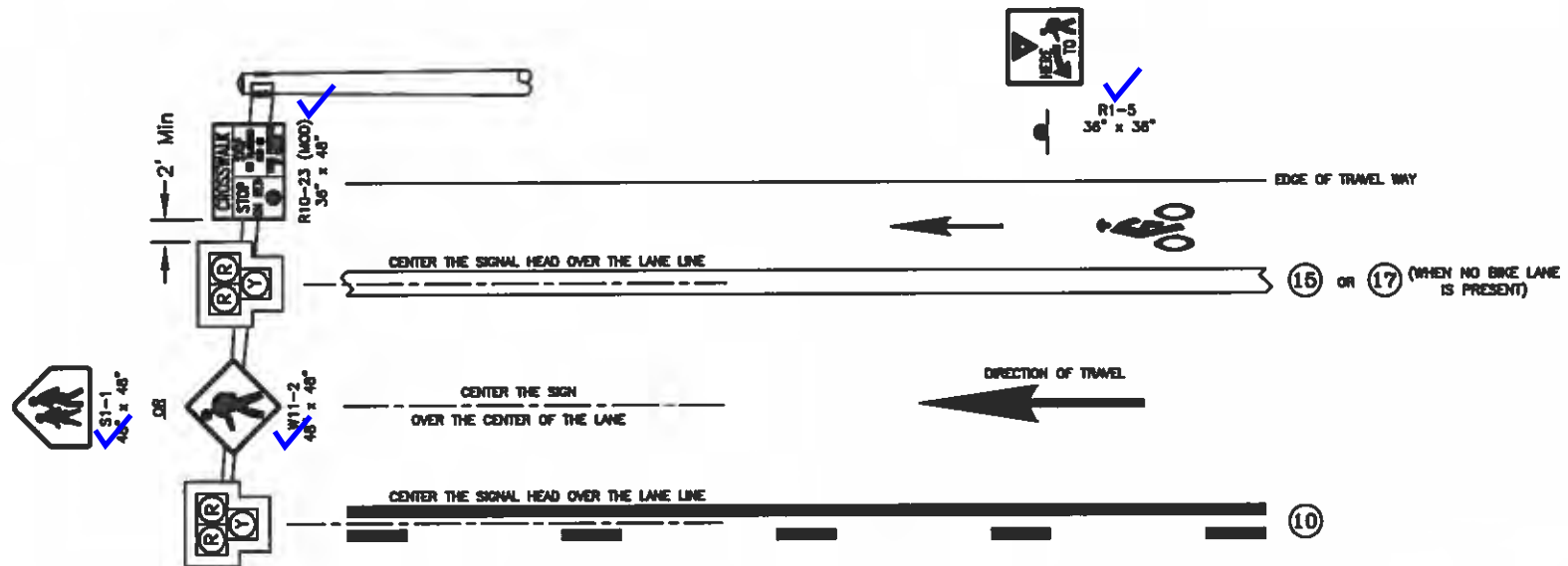
Sheet 11 of 13

3/5/2013

Pedestrian Hybrid Beacon - Three Lane Roadway

DIAGRAM NOTES:

1. STOP BARS AND CROSSWALKS ARE NOT SHOWN FOR CLARITY PURPOSES.
2. CURB AND GUTTER DETAILS ARE NOT SHOWN. SIGNAL HEAD PLACEMENT IS SIMILAR WITH RESPECT TO RURAL AND URBAN ROADWAY SECTIONS.



GENERAL NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. SCHOOL CROSSING SIGNS SHOULD BE INSTALLED WHEN THE PRIMARY FUNCTION OF THE PEDESTRIAN HYBRID BEACON IS FOR SCHOOL RELATED PEDESTRIAN ACTIVITY. OTHERWISE, PEDESTRIAN SIGNS SHOULD BE INSTALLED.
3. REFER TO SIGNAL PLAN SHEETS FOR EXACT PLACEMENT AND INSTALLATION OF SIGNS AND MARKINGS.

25/100	25	Changed 250-05 to 25 250-05 100.
25/100	25	250-05 100.



SIGNATURES		SHEET TITLE	
Project Eng	Project Eng	Surface Staff	
Design Eng	Design Eng	Surface Staff	
File	File	Surface Staff	

PEDESTRIAN HYBRID BEACON -
TRAFFIC SIGNAL HEAD DETAILS



Ade County Highway District

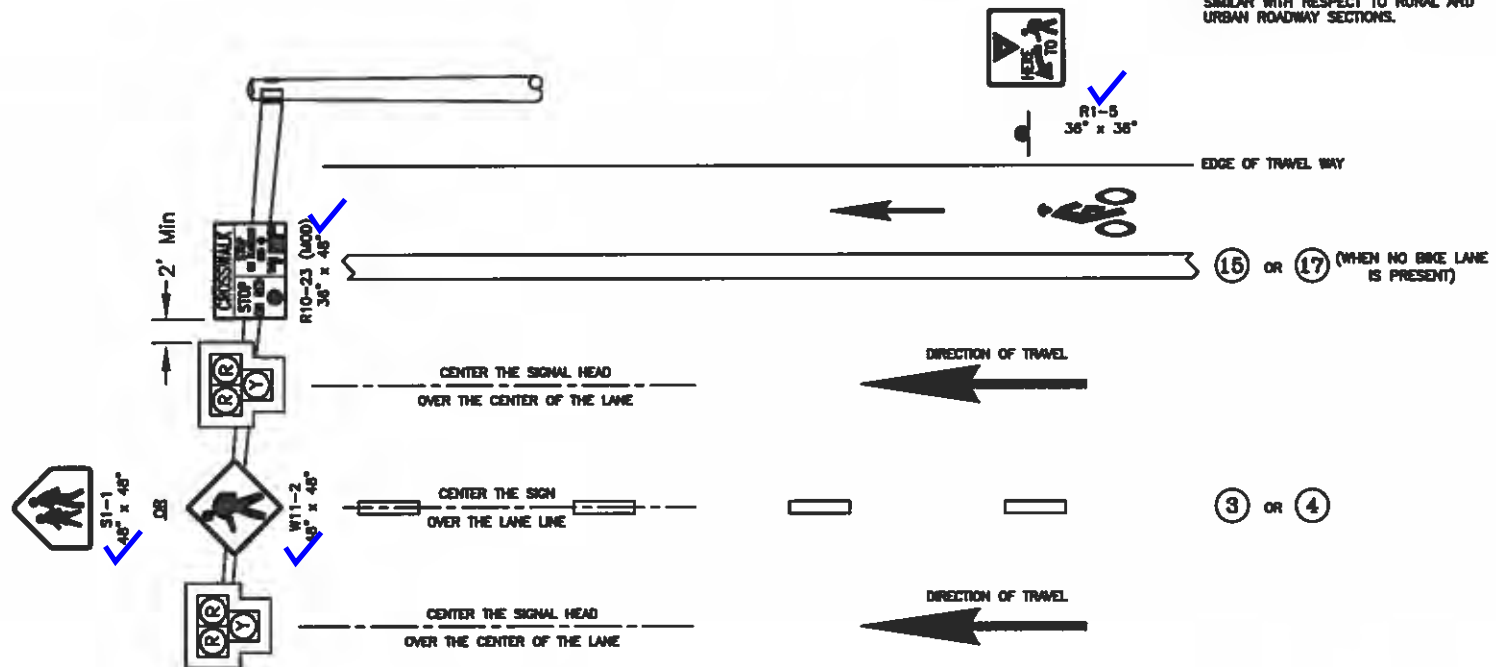
0070 Adams Street, Boise, Idaho, 83726

Sheet 12 of 13

Pedestrian Hybrid Beacon - Four or Five Lane Roadway

DIAGRAM NOTES:

1. STOP BARS AND CROSSWALKS ARE NOT SHOWN FOR CLARITY PURPOSES.
2. CURB AND GUTTER DETAILS ARE NOT SHOWN. SIGNAL HEAD PLACEMENT IS SIMILAR WITH RESPECT TO RURAL AND URBAN ROADWAY SECTIONS.



GENERAL NOTES:

1. ALL SIGNAL HEAD LOCATIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS ADOPTED BY THE STATE OF IDAHO.
2. SCHOOL CROSSING SIGNS SHOULD BE INSTALLED WHEN THE PRIMARY FUNCTION OF THE PEDESTRIAN HYBRID BEACON IS FOR SCHOOL RELATED PEDESTRIAN ACTIVITY. OTHERWISE, PEDESTRIAN SIGNS SHOULD BE INSTALLED.
3. REFER TO SIGNAL PLAN SHEETS FOR EXACT PLACEMENT AND INSTALLATION OF SIGNS AND MARKINGS.

7 (FOUR LANE SECTION) OR 5 (FIVE LANE SECTION)
8

3/12/2012



REGISTERED ENGINEER

TS-1117

Sheet 13 of 13

DATE	BY	REVISION
12/1/11	JOB	Changed R10-23 to an R10-23 (MCD)
12/1/11	BY	REVISION

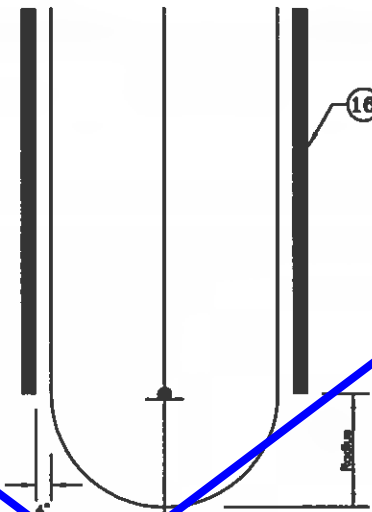
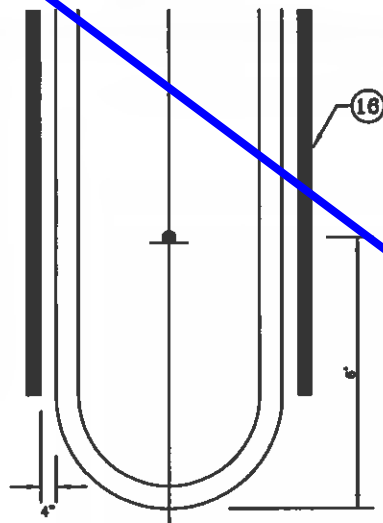


Ada County Highway District

6070 Adams Street, Boise, Idaho, 83714
www.achd.idaho.gov

SIGNATURES	
Design: JPB	Drawn: BJB
Check: JPB	Reviewed: BJB
Date: 12/28/11	Approved: BJB
File: 11-1117(13)	

SHEET TITLES	
PEDESTRIAN HYBRID BEACON -	
TRAFFIC SIGNAL HEAD DETAILS	

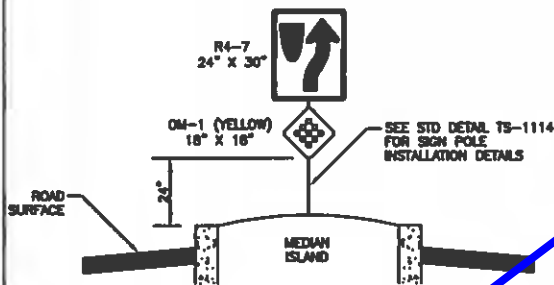


Legend

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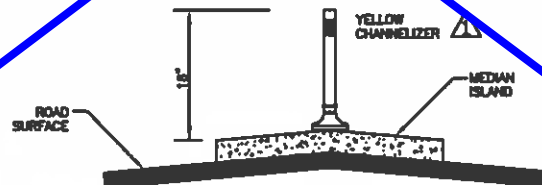
NOTES:

1. MEDIANS THAT DO NOT SEPARATE THE DIRECTION OF TRAVEL MAY REQUIRE WHITE PAINT AND MARKERS. COLORS SHALL BE VERIFIED BY THE ACHD TRAFFIC ENGINEER.
2. 4" YELLOW STRIPE MAY BE OMITTED IF THE MEDIAN ISLAND IS PAINTED WITH REFLECTIVE YELLOW PAINT.



MEDIAN ISLAND DETAIL

(Signing and striping for median islands greater than or equal to 16' wide.)



NOT REVIEWED TAIL

(Signing and striping for median islands between 2' and 4' wide.)

DATE	BY	DESCRIPTION
10/18/10	ST	DESIGN



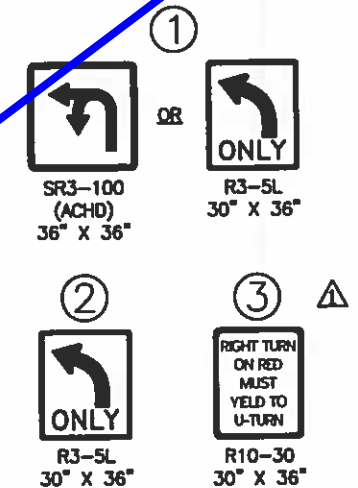
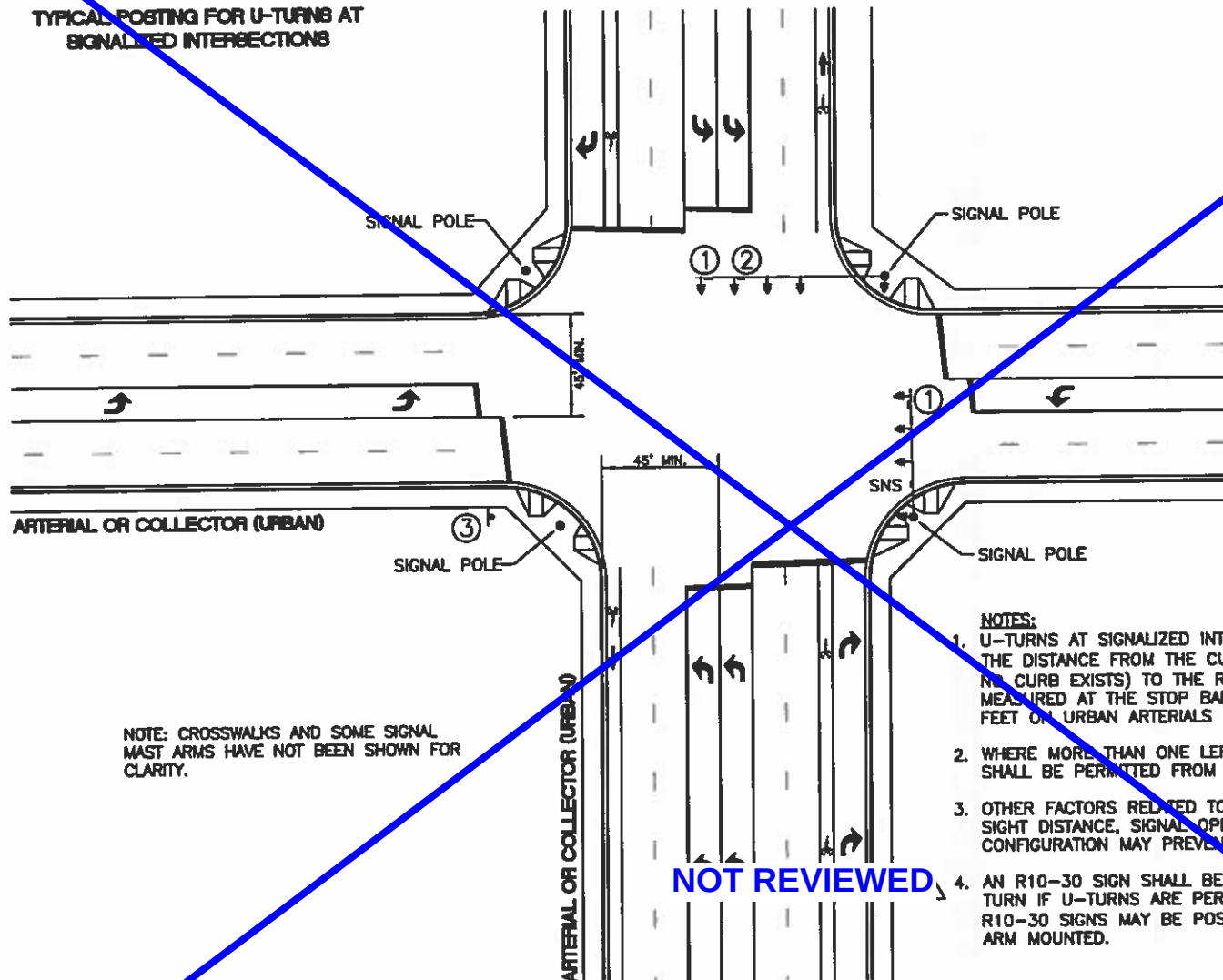
DESIGNER		CHECKER	
Drawn: ST	Design: ST	Drawn: ST	Design: ST
Scale: 1/2"=1'-0"	Scale: 1/2"=1'-0"	Scale: 1/2"=1'-0"	Scale: 1/2"=1'-0"
File: 10-1118-1000	Approved: ST	File: 10-1118-1000	Approved: ST

SHEET TITLE	
STANDARD MEDIAN ISLAND	SIGNING AND STRIPING DETAILS



Sheet 1 of 1

TYPICAL POSTING FOR U-TURNS AT SIGNALIZED INTERSECTIONS



NOTES:

1. U-TURNS AT SIGNALIZED INTERSECTIONS MAY BE PERMITTED IF THE DISTANCE FROM THE CURB FACE (OR EDGE OF PAVEMENT, IF NO CURB EXISTS) TO THE RIGHT SIDE OF THE LEFT TURN LANE, MEASURED AT THE STOP BAR, IS EQUAL TO OR GREATER THAN 45 FEET ON URBAN ARTERIALS OR COLLECTORS.
2. WHERE MORE THAN ONE LEFT TURN LANE IS PRESENT, U-TURNS SHALL BE PERMITTED FROM THE LEFT-MOST LANE ONLY.
3. OTHER FACTORS RELATED TO TRAFFIC VOLUMES, SPEED LIMITS, SIGHT DISTANCE, SIGNAL OPERATION OR GEOMETRIC CONFIGURATION MAY PREVENT POSTING OF A U-TURN CONDITION.
4. AN R10-30 SIGN SHALL BE POSTED FOR THE CONFLICTING RIGHT TURN IF U-TURNS ARE PERMITTED FOR A GIVEN MOVEMENT. R10-30 SIGNS MAY BE POST MOUNTED (AS SHOWN) OR MAST ARM MOUNTED.

NOTE: CROSSWALKS AND SOME SIGNAL
MAST ARMS HAVE NOT BEEN SHOWN FOR
CLARITY.

NOT REVIEWED

DATE	BY	APP'D	REVIEWED
10/10/14	SR	ACHD	SR



Drawn By: [blank]
Check By: [blank]
File: 10-1120a-200

SIGNATURES

Drawn By: [blank]
Check By: [blank]
Approved By: [blank]

SHEET TITLE

U-TURNS AT
SIGNALIZED INTERSECTIONS

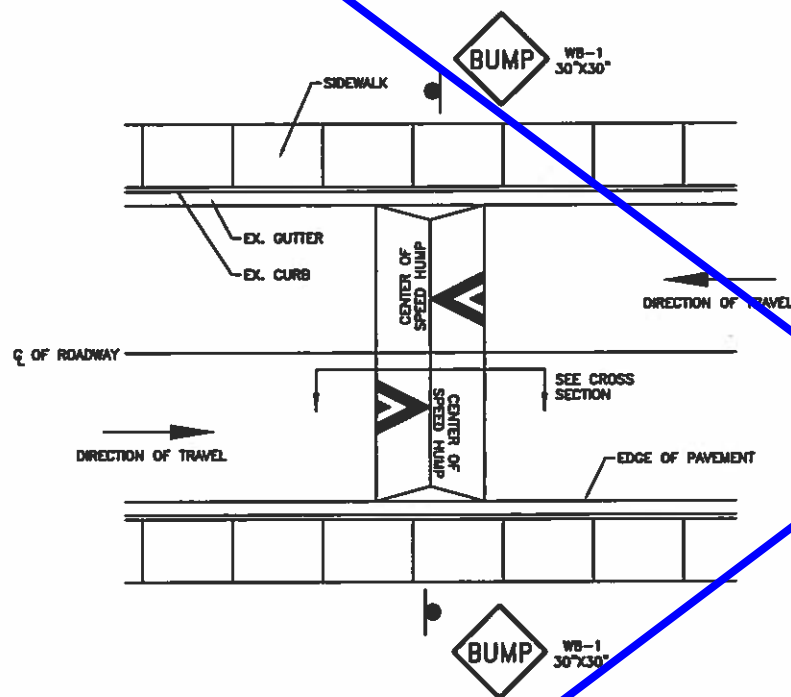


TS-1120

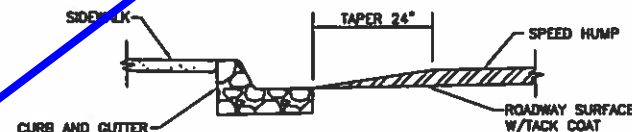
Sheet 1 of 1

NOTES:

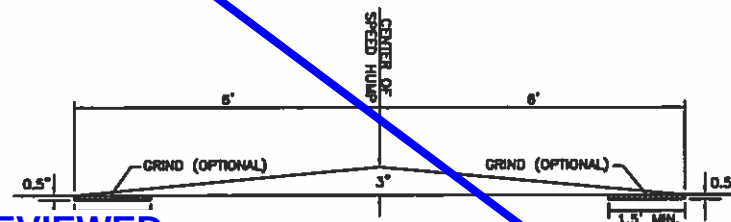
1. SPEED HUMPS SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MARKERS, ETC.
2. SPEED HUMPS SHALL NOT BE INSTALLED IN A LOCATION THAT INTERFERES WITH ROADWAY DRAINAGE.
3. A TACK COAT SHALL BE APPLIED TO THE ROADWAY SURFACE PRIOR TO APPLICATION OF PAVEMENT MATERIAL.
4. SPEED HUMP MARKINGS AND SIGNS SHALL BE INSTALLED BY ACHD, UNLESS OTHERWISE SPECIFIED BY THE ACHD TRAFFIC ENGINEER. MARKING INFORMATION FOR SPEED HUMPS CAN BE FOUND IN TS-1113.
5. "BUMPS AHEAD" SIGNS SHALL BE INSTALLED IN BOTH DIRECTIONS IN ADVANCE OF THE FIRST BUMP IN SERIES. SIGNS SHALL BE INSTALLED BY ACHD, UNLESS OTHERWISE SPECIFIED BY THE ACHD TRAFFIC ENGINEER.
6. IF CURB AND GUTTER IS NOT PRESENT ON THE ROADWAY, INSTALL SPEED HUMPS TO THE EDGE OF THE PAVED SURFACE. 4" DIA. CONCRETE BOLLARD INSTALLATION NEAR THE SPEED HUMP MAY BE NECESSARY WHERE THE POTENTIAL FOR SPEED HUMP AVOIDANCE EXISTS.



SPEED HUMP - PLAN VIEW
LOCAL ROAD



SPEED HUMP - EDGE DETAIL
LOCAL ROAD



SPEED HUMP - CROSS SECTION
LOCAL ROAD

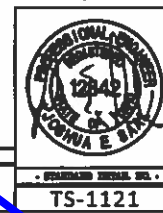
NOT REVIEWED

12/27/2013

1/1/2013	201	Make additional roadway surface uniform.
1/1/2013	201	Make additional roadway surface uniform.



SIGNATURES		SHEET TITLE	
Drawn By	Jordan Peak	Speed Hump Details - Local Road	
Check By	Jordan Peak		
Approved By	Don Gyle		

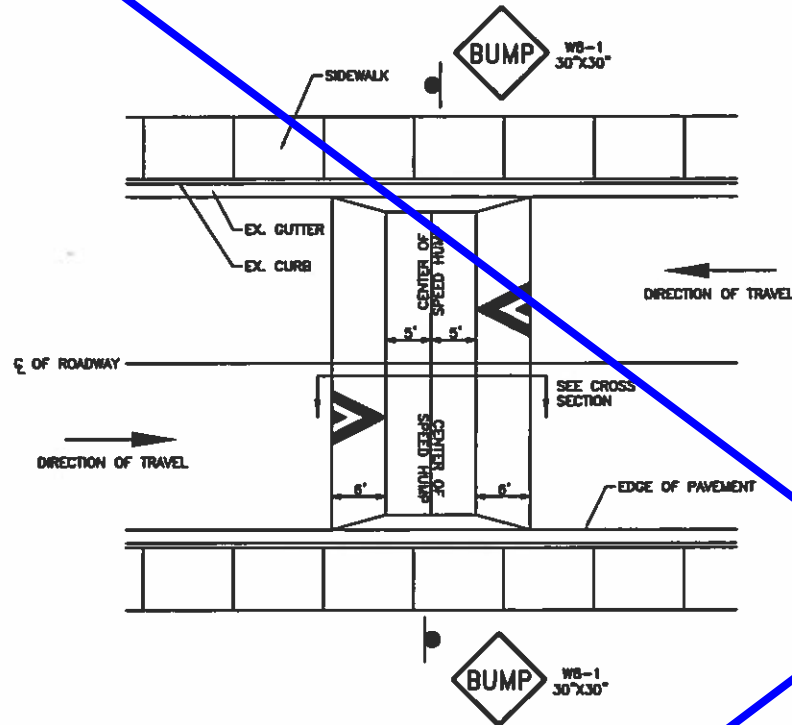


TS-1121

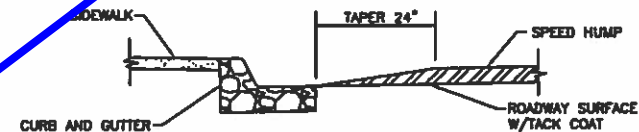
Sheet 1 of 6

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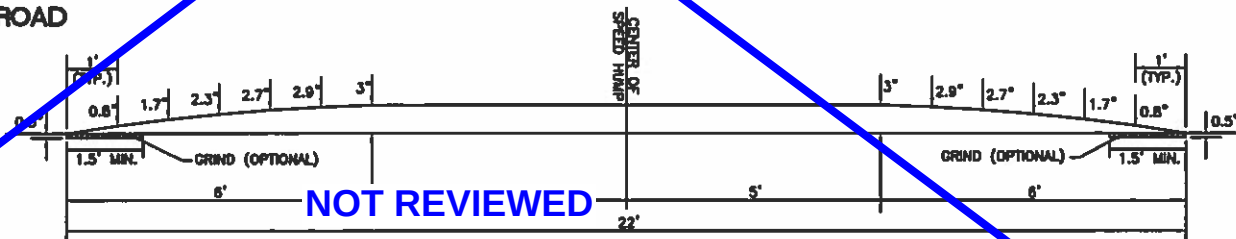
1. SPEED HUMPS SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MARKERS, ETC.
2. SPEED HUMPS SHALL NOT BE INSTALLED IN A LOCATION THAT INTERFERES WITH ROADWAY DRAINAGE.
3. A TACK COAT SHALL BE APPLIED TO THE ROADWAY SURFACE PRIOR TO APPLICATION OF PAVEMENT MATERIAL.
4. SPEED HUMP MARKINGS AND SIGNS SHALL BE INSTALLED BY ACHD, UNLESS OTHERWISE SPECIFIED BY THE ACHD TRAFFIC ENGINEER. MARKING INFORMATION FOR SPEED HUMPS CAN BE FOUND IN TS-1113.
5. "BUMPS AHEAD" SIGNS SHALL BE INSTALLED IN BOTH DIRECTIONS IN ADVANCE OF THE FIRST BUMP IN SERIES. SIGNS SHALL BE INSTALLED BY ACHD, UNLESS OTHERWISE SPECIFIED BY THE ACHD TRAFFIC ENGINEER.
6. IF CURB AND GUTTER IS NOT PRESENT ON THE ROADWAY, INSTALL SPEED HUMPS TO THE EDGE OF THE PAVED SURFACE. 4" DIA. CONCRETE BOLLARD INSTALLATION NEAR THE SPEED HUMP MAY BE NECESSARY WHERE THE POTENTIAL FOR SPEED HUMP AVOIDANCE EXISTS.



**SPEED HUMP - PLAN VIEW
COLLECTOR ROAD**



**SPEED HUMP - EDGE DETAIL
COLLECTOR ROAD**



**SPEED HUMP - CROSS SECTION
COLLECTOR ROAD**

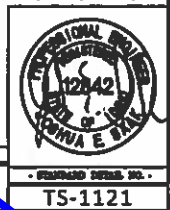
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ACHD Traffic Engineering Division	
Ada County Highway District	

SIGNATURES	
Drawn By: [Signature]	Design By: [Signature]
Check By: [Signature]	Reviewed By: [Signature]

SHEET TITLE	
Speed Hump Details - Collector Road	

12/27/2013



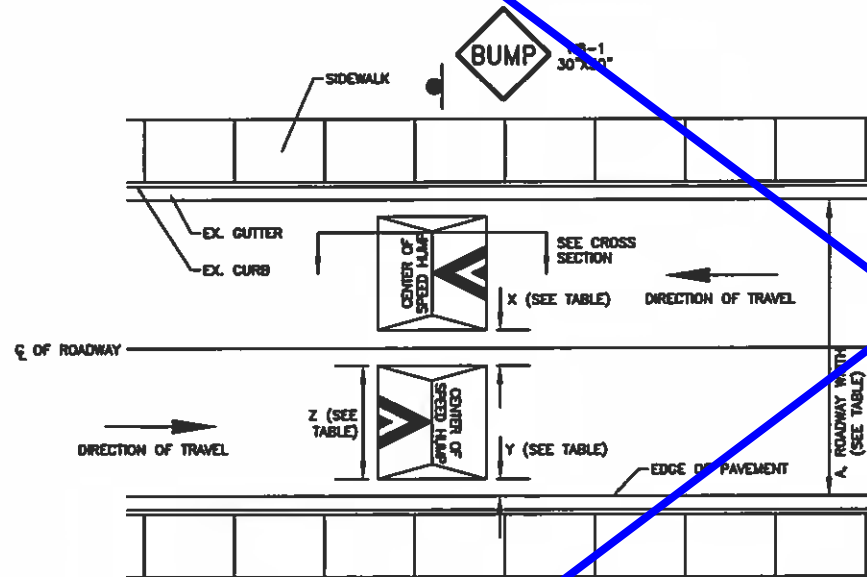
STANDARD SPEC. NO. TS-1121

SPEED HUMP DIMENSION SCHEDULE

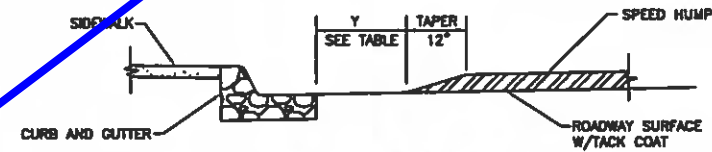
A, ROADWAY WIDTH (FT.)	Y, EDGE (FT.)	Z, HUMP (FT.)	X, CENTER GAP (FT.)	Z, HUMP (FT.)	Y, EDGE (FT.)
20'	1.5'	7'	3'	7'	1.5'
21'	2'	7'	3'	7'	2'
22'	2.5'	7'	3'	7'	2.5'
23'	3'	7'	3'	7'	3'
24'	3'	7'	4'	7'	3'

NOTES:

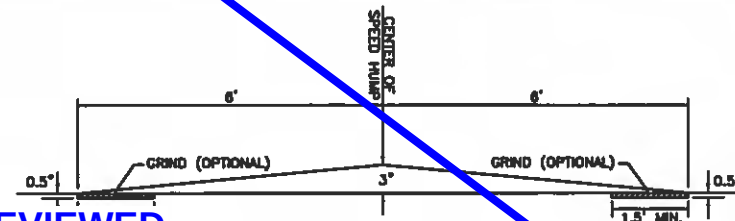
1. SPEED HUMPS SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MARKERS, ETC.
2. SPEED HUMPS SHALL NOT BE INSTALLED IN A LOCATION THAT INTERFERES WITH ROADWAY DRAINAGE.
3. A TACK COAT SHALL BE APPLIED TO THE ROADWAY SURFACE PRIOR TO APPLICATION OF PAVEMENT MATERIAL.
4. SPEED HUMP MARKINGS AND SIGNS SHALL BE INSTALLED BY ACHD, UNLESS OTHERWISE SPECIFIED BY THE ACHD TRAFFIC ENGINEER. MARKING INFORMATION FOR SPEED HUMPS CAN BE FOUND IN TS-1113.
5. "BUMPS AHEAD" SIGNS SHALL BE INSTALLED IN BOTH DIRECTIONS IN ADVANCE OF THE FIRST BUMP IN SERIES. SIGNS SHALL BE INSTALLED BY ACHD, UNLESS OTHERWISE SPECIFIED BY THE ACHD TRAFFIC ENGINEER.
6. IF CURB AND GUTTER IS NOT PRESENT OR A SIGNIFICANT DRIVABLE SHOULDER EXISTS ON THE ROADWAY, 4" DIA. CONCRETE BOLLARD INSTALLATION NEAR EACH SPEED HUMP MAY BE NECESSARY WHERE THE POTENTIAL FOR SPEED HUMP AVOIDANCE EXISTS.



**SPEED CUSHIONS - PLAN VIEW
LOCAL ROAD**



**SPEED CUSHIONS - EDGE DETAIL
LOCAL ROAD**



**SPEED CUSHIONS - CROSS SECTION
LOCAL ROAD**

NOT REVIEWED

12/27/2013

ACHD Traffic Engineering Division		DESIGNER By: [Signature] Date: 4/2/13 DESIGNER By: [Signature] Date: 4/2/13 APPROVED By: [Signature] Date: 4/2/13	

DESIGNER By: [Signature] Date: 4/2/13 DESIGNER By: [Signature] Date: 4/2/13 APPROVED By: [Signature] Date: 4/2/13	

Speed Hump Details - Local Road, Speed Cushions
Roadway Cross Sections, 20' - 24'

12443 KATHA E. VALLI Professional Engineer State of Idaho

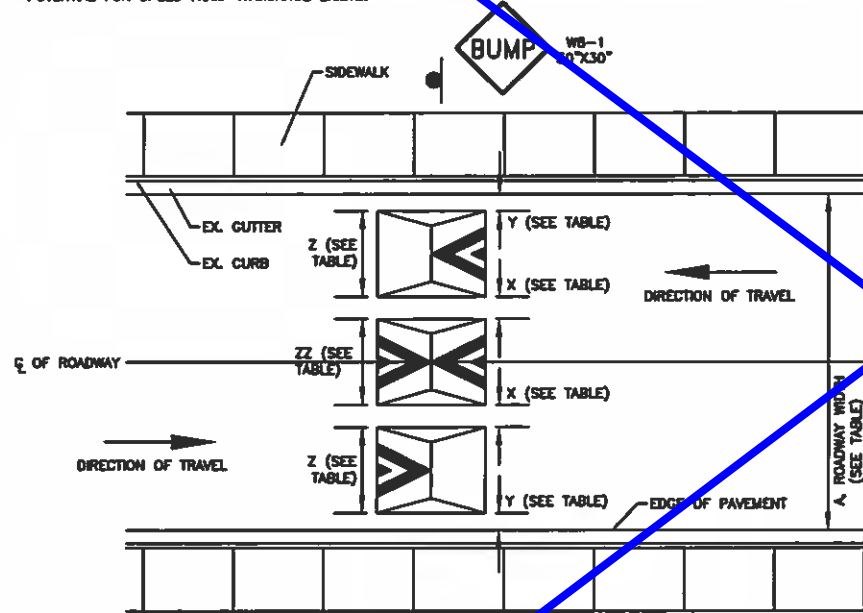
Sheet 3 of 6

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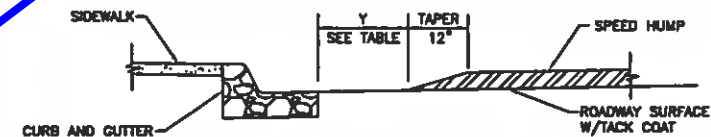
1. SPEED HUMPS SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MARKERS, ETC.
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6. IF CURB AND GUTTER IS NOT PRESENT OR A SIGNIFICANT DRIVEABLE SHOULDER EXISTS ON THE ROADWAY, 4" DIA. CONCRETE BOLLARD INSTALLATION NEAR EACH SPEED HUMP MAY BE NECESSARY WHERE THE POTENTIAL FOR SPEED HUMP AVOIDANCE EXISTS.

SPEED HUMP DIMENSION SCHEDULE

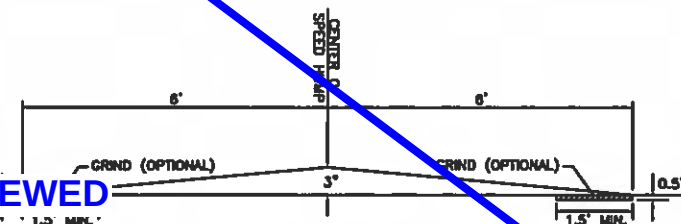
A, ROADWAY WIDTH (FT.)	Y, EDGE (FT.)	Z, HUMP (FT.)	X, GAP (FT.)	ZZ, HUMP (FT.)	X, GAP (FT.)	Z, HUMP (FT.)	Y, EDGE (FT.)
25'	1.5'	6'	2'	6'	2'	6'	1.5'
26'	2'	6'	2'	6'	2'	6'	2'
27'	2.5'	6'	2'	6'	2'	6'	2.5'
28'	3'	6'	2'	6'	2'	6'	3'
29'	2.5'	7'	2'	7'	2'	7'	2.5'
30'	2.5'	7'	2'	7'	2'	7'	2.5'
31'	3'	7'	2'	7'	2'	7'	3'
32'	3'	7'	2'	8'	2'	7'	3'
33'	3'	7.5'	2'	8'	2'	7.5'	3'
34'	3'	7.5'	2.5'	8'	2.5'	7.5'	3'
35'	3'	8'	2.5'	8'	2.5'	8'	3'
36'	3.5'	8'	2.5'	8'	2.5'	8'	3.5'
37'	4'	8'	2.5'	8'	2.5'	8'	4'
38'	4'	8'	3'	8'	3'	8'	4'
39'	4'	8'	3'	9'	3'	8'	4'
40'	4'	8'	3'	10'	3'	8'	4'



SPEED CUSHIONS - PLAN VIEW
LOCAL ROAD



SPEED CUSHIONS - EDGE DETAIL
LOCAL ROAD



SPEED CUSHIONS - CROSS SECTION
LOCAL ROAD

NOT REVIEWED

NO.	DATE	BY	DESCRIPTION



• SIGNATURES •	
Drawn By: Andrew Smith	Checked By: Andrew Smith
Design By: Andrew Smith	Approved By: Mike Ryan

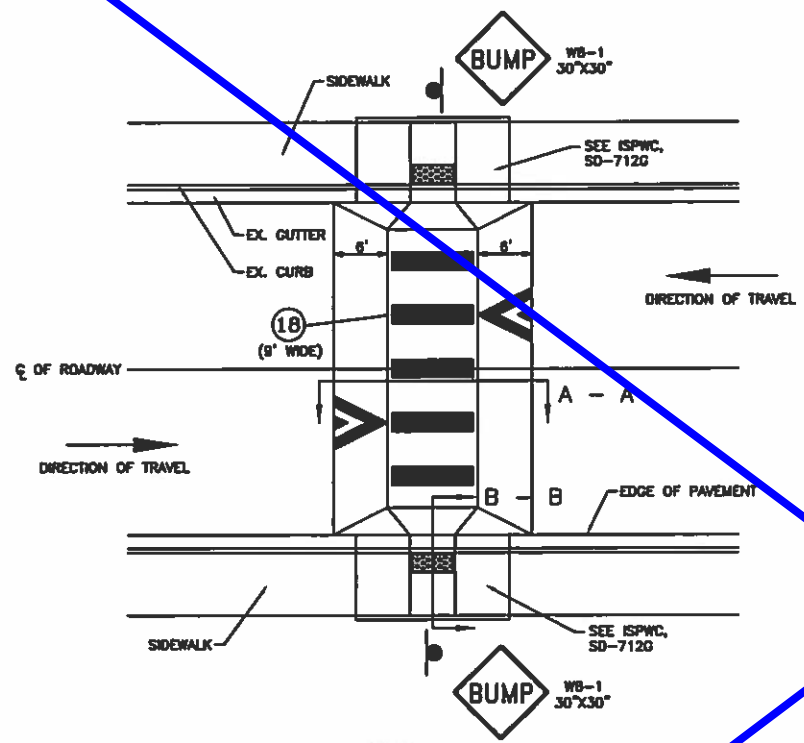
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Speed Hump Details - Local Road, Speed Cushions Roadway Cross Sections, 25' - 40'	

12/27/2013

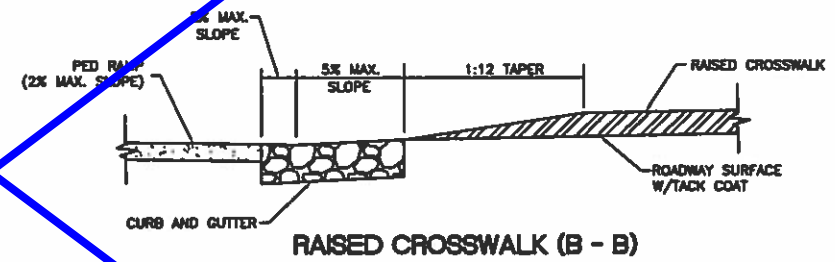
TS-1121

NOTES:

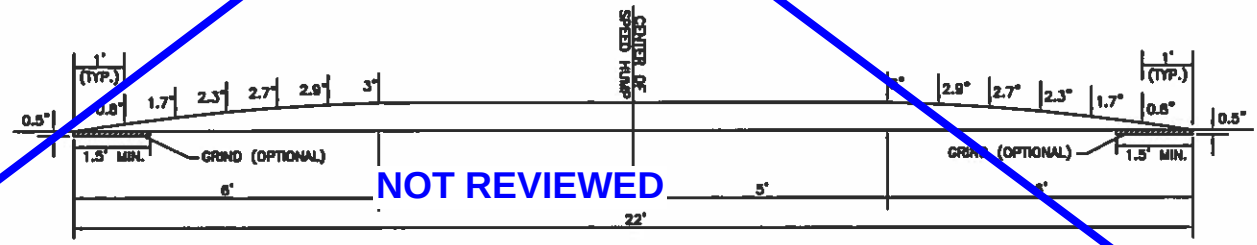
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2. SPEED HUMPS SHALL NOT BE INSTALLED IN A LOCATION THAT INTERFERES WITH ROADWAY DRAINAGE.
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6. ALL PEDESTRIAN RAMPS SHALL CONFORM TO THE MOST RECENT VERSION OF THE ISPMC.



**SPEED HUMP - PLAN VIEW
COLLECTOR ROAD**



RAISED CROSSWALK (B - B)



RAISED CROSSWALK (A - A)

NOT REVIEWED

12/27/2013

NO.	DATE	BY	REVISION
1			
2			
3			
4			
5			



- S I G N A T U R E S -	
Drawn By: Andrew Bink	Drawn By: Andrew Bink
Scale: 1/4" = 1'-0"	Scale: 1/4" = 1'-0"
File: 00-1140-000	Approved By: Sam Gynn

RAISED CROSSWALK DETAILS



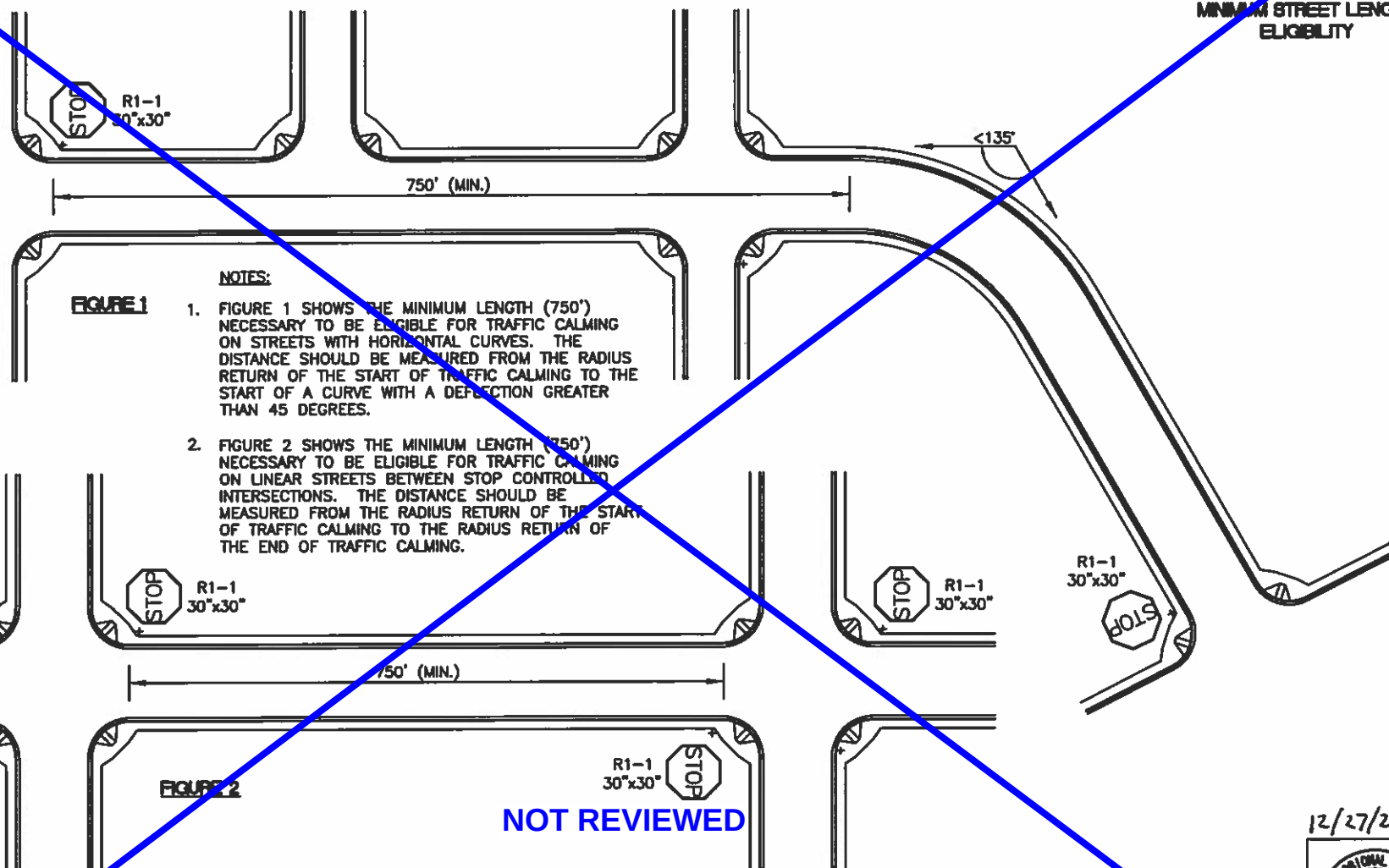
TS-1121

Sheet 5 of 6

Ada County Highway District

2115 Adams Street, Boise, Idaho, 83710

TRAFFIC CALMING MINIMUM STREET LENGTH ELIGIBILITY



NOT REVIEWED

12/27/2013

NO.	DATE	BY	REVISIONS

ACHD
Traffic Engineering Division
Adair County Highway District

• SIGNATURES •	
Scale: 1/2" = 1'	Drawn By: Jordan Smith
Date: 12/27/13	Design By: Jordan Smith
File: 13-0104.DWG	Approved By: Steve Owen

• HEET TITLE •
TRAFFIC CALMING MIN. STREET LENGTH

• STANDARD SPEC. NO. • TS-1121 Sheet 6 of 6

NOTES:

1. ALL PARKING STALL LINES SHALL BE WHITE AND CONFORM TO ACHD'S PAINT SPECIFICATIONS.
2. PARKING STALL LINES SHALL NOT BE INSTALLED AT AN ANGLE LESS THAN 45 DEGREES, AS MEASURED BETWEEN THE CURB FACE AND THE STALL EDGE LINE.
3. CALCULATIONS FOR ON STREET PARKING SPACE DIMENSIONS ARE BASED ON A 9'X16' STALL SIZE. LONGER VEHICLES ARE EXPECTED TO OVERHANG THE CURB (IF PRESENT) BY NO MORE THAN TWO FEET. PARKING METERS (IF PRESENT) SHOULD BE INSTALLED TO AVOID VEHICLES OVERHANGING THE CURB.
4. A DESIGNATED ARTERIAL STREET, FOR THE PURPOSES OF THIS STANDARD DETAIL, MAY BE DIMENSIONED AS A COLLECTOR STREET IF THE AVERAGE DAILY VOLUME (ADT) IS LESS THAN 10,000 VEHICLES OR THE STRIPING PROVIDES ONLY ONE THROUGH LANE IN EACH DIRECTION.

IF ON STREET PARKING IS MARKED OR METERED, PROVIDE REQUIREMENTS FOR ACCESSIBLE PARKING IN THE RIGHT-OF-WAY. PER 2011 PROWAG R214, WHERE ON-STREET PARKING IS PROVIDED ON THE BLOCK PERIMETER AND THE PARKING IS MARKED OR METERED, ACCESSIBLE PARKING SPACES COMPLYING WITH R309 SHALL BE PROVIDED IN ACCORDANCE WITH TABLE R214. WHERE PARKING PAY STATIONS ARE PROVIDED AND THE PARKING IS NOT MARKED, EACH 20 FT OF BLOCK PERIMETER WHERE PARKING IS PERMITTED SHALL BE COUNTED AS ONE PARKING SPACE. SEE TABLE R214 IN COMMENTS BOX ON PAGE 23 FOR MINIMUM REQUIRED NUMBER OF ACCESSIBLE SPACES.

STREET TYPE	TYPICAL LANE WIDTH	PARKING ANGLE (°)	STALL DEPTH (A)	STALL WIDTH AT CURB (B)	WIDTH OF STALL EDGE AT CURB (C)	CURB FACE TO NEAREST ROADWAY STRIPE (D)
ARTERIAL	11' - 12'	45°	17.7'	12.7'	17.7'	38.7' (MIN.)
		60°	18.4'	10.4'	10.6'	39.4' (MIN.)
		75°	17.8'	9.3'	4.8'	38.8' (MIN.)
COLLECTOR	10' - 12'	45°	17.7'	12.7'	17.7'	32.7' (MIN.)
		60°	18.4'	10.4'	10.6'	33.4' (MIN.)
		75°	17.8'	9.3'	4.8'	32.8' (MIN.)
LOCAL	10' - 11'	45°	17.7'	12.7'	17.7'	27.7' (MIN.)
		60°	18.4'	10.4'	10.6'	28.4' (MIN.)
		75°	17.8'	9.3'	4.8'	27.8' (MIN.)

TABLE 1 - DIAGONAL ON-STREET PARKING DIMENSIONS

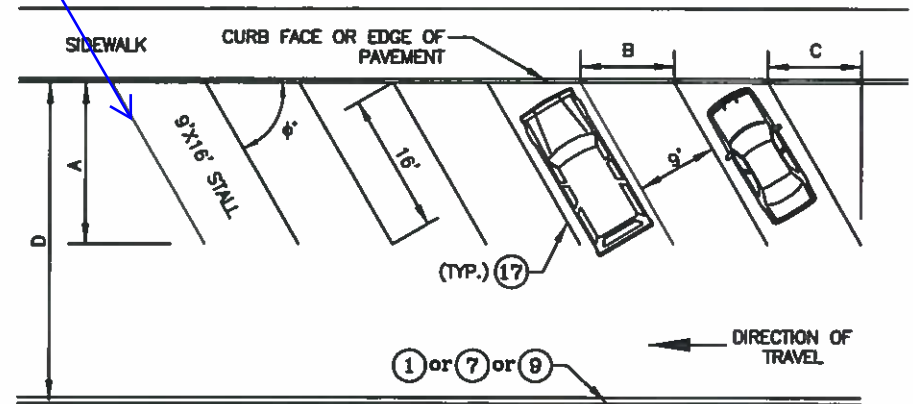


FIGURE 1 - DIAGONAL ON-STREET PARKING SCHEMATIC

4/16	20	Minor design modifications
02/16/16	02	Revised

ACHD
Traffic Engineering Division
Ada County Highway District
970 Adams Street, Boise, Idaho, 83724
www.achd.org

SIGNATURES	
Drawn By: Jordan Smith	Checked By: Jordan Smith
Drawn By: Jordan Smith	Checked By: Jordan Smith
Drawn By: Jordan Smith	Checked By: Jordan Smith

DIAGONAL ON STREET PARKING
DETAILS

4/23/2015

PROFESSIONAL ENGINEER
12842
J. SMITH
IDAHO E. & S.W.

STANDARD DRAWING NO.
TS-1122
Sheet 1 of 2

NOTES:

1. ALL PARKING STALL LINES SHALL BE WHITE AND CONFORM TO ACHD'S PAINT SPECIFICATIONS.
2. PARKING STALL LINES SHALL NOT BE INSTALLED AT AN ANGLE LESS THAN 45 DEGREES, AS MEASURED BETWEEN THE CURB FACE AND THE STALL EDGE LINE.
3. CALCULATIONS FOR ON STREET PARKING SPACE DIMENSIONS ARE BASED ON A 9'X16' STALL SIZE. LONGER VEHICLES ARE EXPECTED TO OVERHANG THE CURB (IF PRESENT) BY NO MORE THAN TWO FEET. PARKING METERS (IF PRESENT) SHOULD BE INSTALLED TO AVOID VEHICLES OVERHANGING THE CURB.
4. A DESIGNATED ARTERIAL STREET, FOR THE PURPOSES OF THIS STANDARD DETAIL, MAY BE DIMENSIONED AS A COLLECTOR STREET IF THE AVERAGE DAILY VOLUME (ADT) IS LESS THAN 10,000 VEHICLES OR THE STRIPING PROVIDES ONLY ONE THROUGH LANE IN EACH DIRECTION.

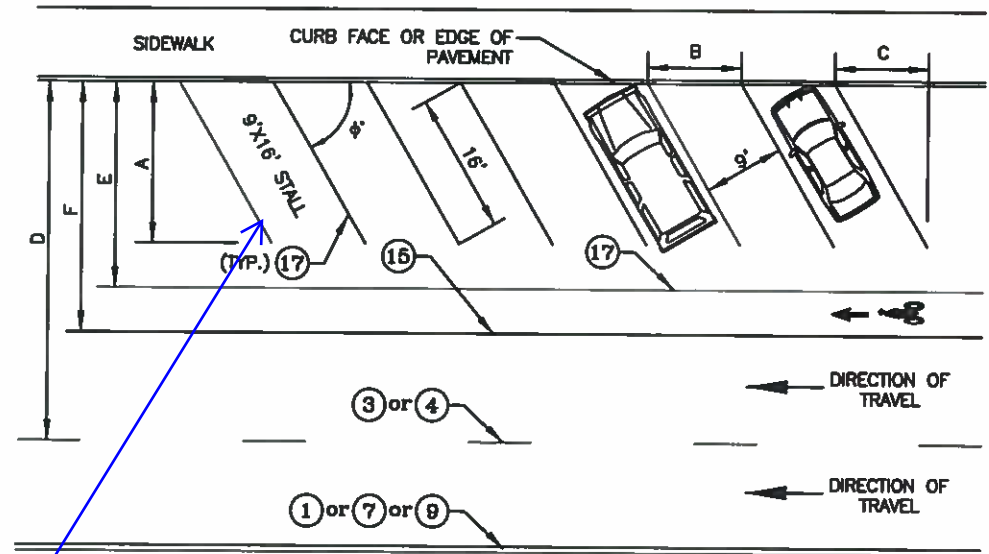


FIGURE 2 - DIAGONAL ON-STREET PARKING SCHEMATIC WITH BIKE LANE

IF ON STREET PARKING IS MARKED OR METERED, PROVIDE REQUIREMENTS FOR ACCESSIBLE PARKING IN THE RIGHT-OF-WAY. PER 2011 PROWAG R214, WHERE ON-STREET PARKING IS PROVIDED ON THE BLOCK PERIMETER AND THE PARKING IS MARKED OR METERED, ACCESSIBLE PARKING SPACES COMPLYING WITH R309 SHALL BE PROVIDED IN ACCORDANCE WITH TABLE R214. WHERE PARKING PAY STATIONS ARE PROVIDED AND THE PARKING IS NOT MARKED, EACH 20 FT OF BLOCK PERIMETER WHERE PARKING IS PERMITTED SHALL BE COUNTED AS ONE PARKING SPACE. SEE TABLE R214 IN COMMENTS BOX ON PAGE 23 FOR MINIMUM REQUIRED NUMBER OF ACCESSIBLE SPACES.

STREET TYPE	TYPICAL LANE WIDTH	PARKING ANGLE (°)	STALL DEPTH (A)	STALL WIDTH AT CURB (B)	WIDTH OF STALL EDGE AT CURB (C)	CURB FACE TO 4' BIKE LANE LINE (E)	CURB FACE TO 4' BIKE LANE LINE (F)
ARTERIAL	11' - 12'	45°	17.7'	12.7'	17.7'	32.7' (MIN.)	(F) + 10' (MIN.)
		60°	18.4'	10.4'	10.6'	33.4' (MIN.)	
		75°	17.8'	9.3'	4.8'	32.8' (MIN.)	
COLLECTOR	10' - 12'	45°	17.7'	12.7'	17.7'	27.7' (MIN.)	(F) + 10' (MIN.)
		60°	18.4'	10.4'	10.6'	28.4' (MIN.)	
		75°	17.8'	9.3'	4.8'	27.8' (MIN.)	
LOCAL	10' - 11'	45°	17.7'	12.7'	17.7'	22.7' (MIN.)	(F) + 10' (MIN.)
		60°	18.4'	10.4'	10.6'	23.4' (MIN.)	
		75°	17.8'	9.3'	4.8'	22.8' (MIN.)	

TABLE 2 - DIAGONAL ON-STREET PARKING DIMENSIONS WITH BIKE LANE

DATE	BY	REVISION
11/26/24	ADAM BLANK	1

Ada County Highway District



Drawn By: Adam Blank	Checked By: Adam Blank
Date: 11/26/24	Approved By: Adam Blank
File: 11-1122-000	

DIAGONAL ON STREET PARKING WITH BIKE LANE DETAILS



TS-1122

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