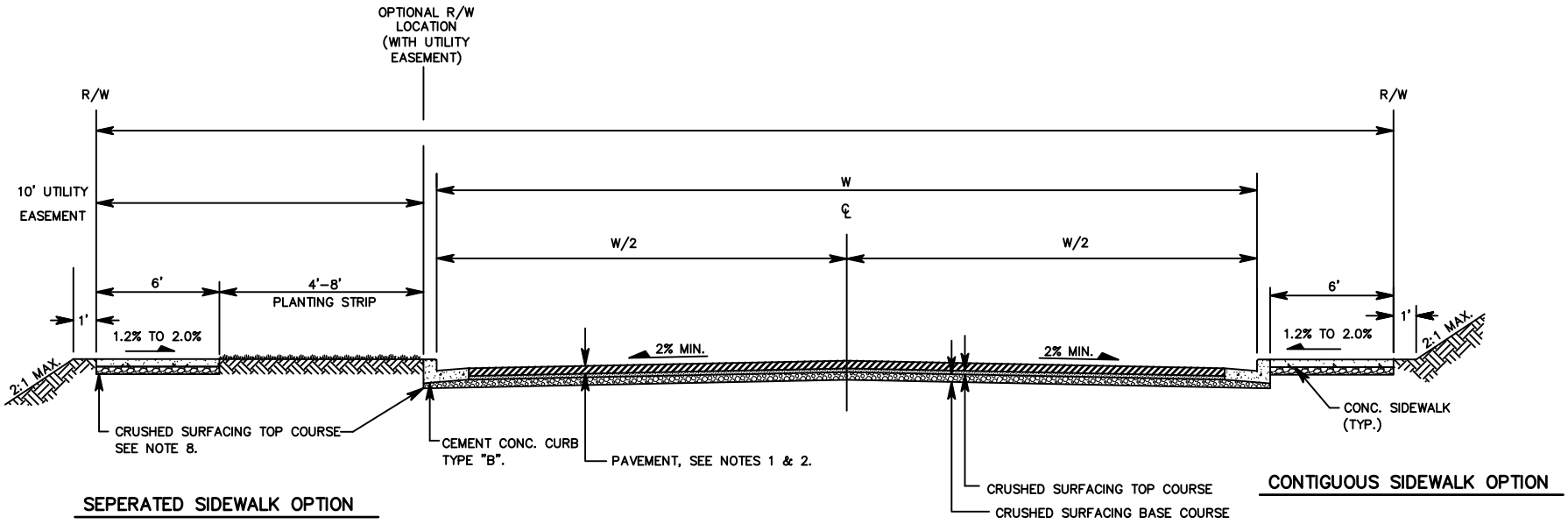
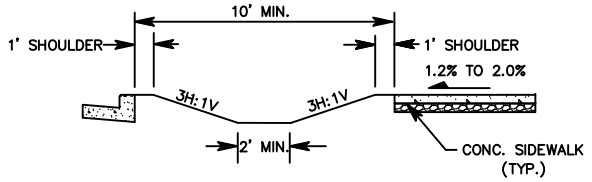


SEPERATED SIDEWALK OPTION

CONTIGUOUS SIDEWALK OPTION

GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE CITY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE PER THE DESIGN STANDARDS OR AS DETERMINED BY A PAVEMENT DESIGN.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE CITY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. "W" SHALL BE SHOWN ON CONSTRUCTION PLANS.
5. CRUSHED TOP COURSE AND BASE COURSE (UNDER THE ASPHALT) AND ROADWAY SUBGRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE AASHTO T-180 TEST PROCEDURE.
6. PLANTER STRIPS MUST BE APPROVED BY THE LIBERTY LAKE PUBLIC WORKS DEPARTMENT. IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE MINIMUM WIDTH SHALL BE 10'. THE MINIMUM WIDTH FOR ALL OTHER PLANTING STRIPS SHALL BE 4'.
7. WHEN RAISED MEDIANS ARE CONTINUOUS BETWEEN INTERSECTIONS, CRUSHED SURFACING SECTION SHOULD BE EXTENDED UNDER CURB.
8. CRUSHED ROCK AND SUBGRADE LOCATED UNDER CURBS AND SIDEWALKS SHALL BE COMPACTED TO 92% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE AASHTO T-180 TEST PROCEDURE.



ROADSIDE BIOFILTRATION SWALE

Andrea Staples

SANDRINE DONN STAPLES
STATE OF WASHINGTON
44738
REGISTERED PROFESSIONAL ENGINEER

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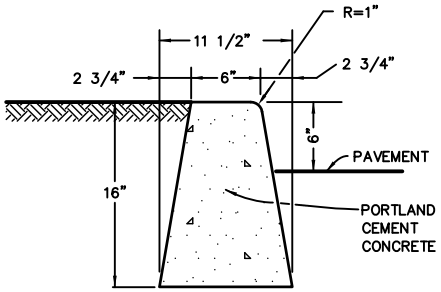
STANDARD

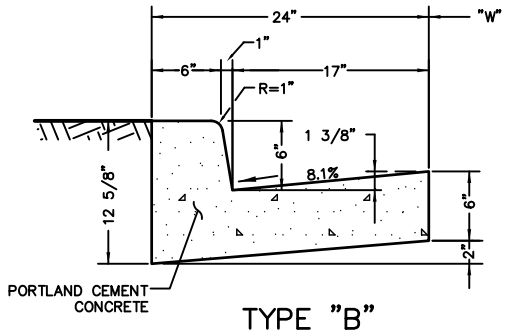
ROADWAY SECTION – CURBED

SHEET A-1



TYPE "A"

QUANTITY = 0.036025 C.Y./ L.F.
SEE NOTE 5



TYPE "B"

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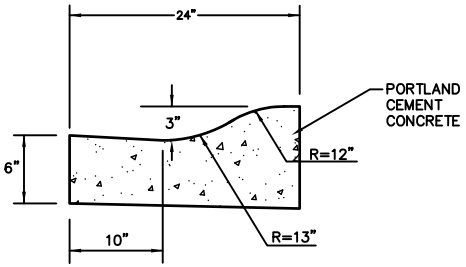

TYPE "R"

QUANTITY = .041555 C.Y. / L.F.

GENERAL NOTES

1. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000, AIR ENTRAINED, CONFORMING TO THE STANDARD SPECIFICATIONS.
2. EXPANSION JOINTS SHALL USE A 3/8" PREMOLDED JOINT FILLER. EXPANSION JOINTS SHALL EXTEND THROUGH THE FULL CROSS SECTION OF THE CURB OR CURB AND GUTTER. EXPANSION JOINTS SHALL BE PLACED AT ALL CURB RETURNS AND BETWEEN EXISTING AND NEW CURBS.
3. CONTRACTION JOINTS SHALL BE HAND TOOLED 1/4" WIDE BY 2" MINIMUM DEPTH SPACED AT MAX. 15' O.C.
4. THE TOP AND FACE OF THE CURB SHALL RECEIVE A LIGHT BRUSH FINISH AND THE TOP OF THE GUTTER SHALL RECEIVE A BROOM FINISH.
5. TYPE "A" CURB IS ONLY ALLOWED WHERE CONSTRUCTION REQUIRES REMOVAL AND REPLACEMENT OF CURBS ON EXISTING ROADWAYS THAT DO NOT HAVE CURB AND GUTTER. TYPE "B" CURB AND GUTTER IS REQUIRED IN ALL NEW DEVELOPMENTS.
6. 4" OF CRUSHED SURFACING TOP COURSE IS REQUIRED UNDER ALL CURBS AND SIDEWALKS. THE SUBGRADE AND CRUSHED ROCK SHALL BE COMPACTED TO 92% OF THE DRY DENSITY.

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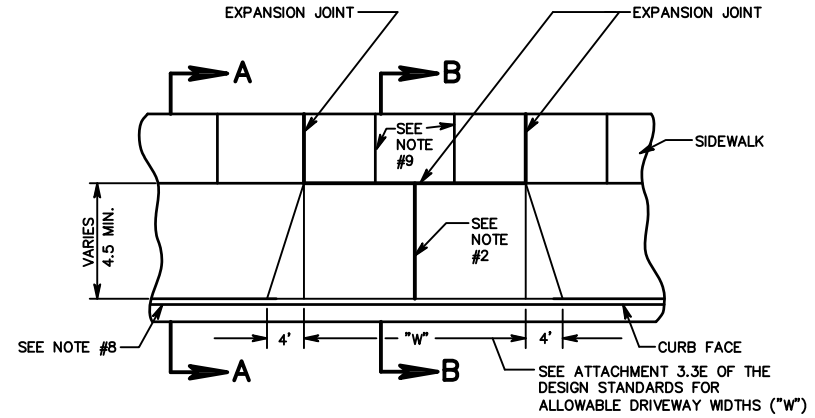
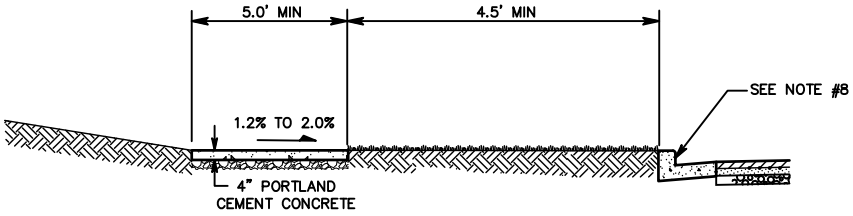
STANDARD
CURB AND GUTTERS

SHEET
A-2



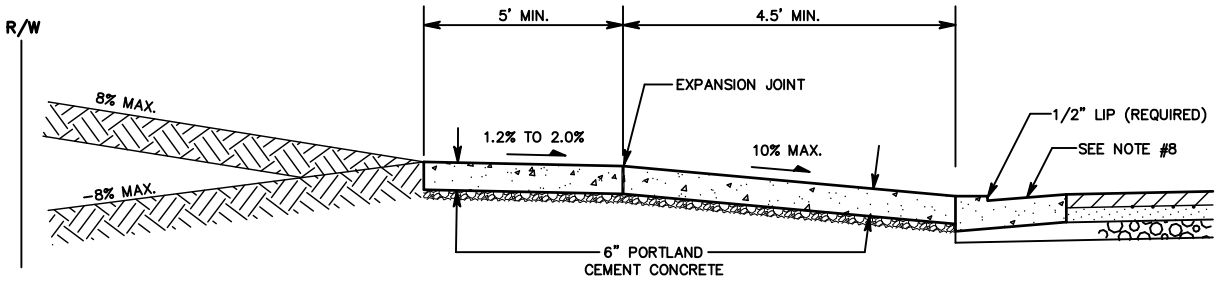
PLAN



SECTION A–A

GENERAL NOTES

1. EXPANSION JOINTS SHALL BE 3/8" PREMOLDED JOINT FILLER EXTENDING THROUGH THE FULL CONCRETE CROSS SECTIONS.
2. EXPANSION JOINTS SHALL BE PLACED IN THE CENTER OF ALL DRIVEWAYS OVER 20' IN WIDTH.
3. CONCRETE FOR DRIVEWAYS SHALL BE CLASS 3000 AIR ENTRAINED.
4. ALL EXTERNAL EDGES TO BE TROWELED WITH 1/4" RADIUS EDGER.
5. BROOMED FINISH ON DRIVEWAY SHALL BE APPLIED PERPENDICULAR TO THE VEHICULAR DIRECTION OF TRAVEL. BROOMED FINISH ON SIDEWALK SHALL BE APPLIED PERPENDICULAR TO THE PEDESTRIAN DIRECTION OF TRAVEL.
6. 4" CSTC IS REQUIRED UNDER ALL CONCRETE.
7. 95% COMPACTION FOR SUBGRADE AND CSTC REQUIRED UNDER ALL DRIVEWAY APPROACHES. (SHADED AREA)
8. TYPE "B" CURB AND GUTTER OR ROLLED CURB (SHOWN) ARE REQUIRED IN ALL NEW DEVELOPMENTS. TYPE "A" CURB IS ALLOWED WHERE DRIVEWAYS ARE TO BE INSTALLED ON EXISTING ROADWAYS THAT DO NOT HAVE CURB AND GUTTER. SEE STANDARD PLAN A–2.
9. INSTALL CONTRACTION JOINTS PER STANDARD PLAN A–16 ACROSS THE SIDEWALK PORTION OF THE DRIVEWAY APPROACH. MAXIMUM SPACING OF CONTRACTION JOINTS SHALL BE 5'.



SECTION B–B

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ANDREW DONN STAPLES
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44738
REGISTERED PROFESSIONAL ENGINEER
6-29-17

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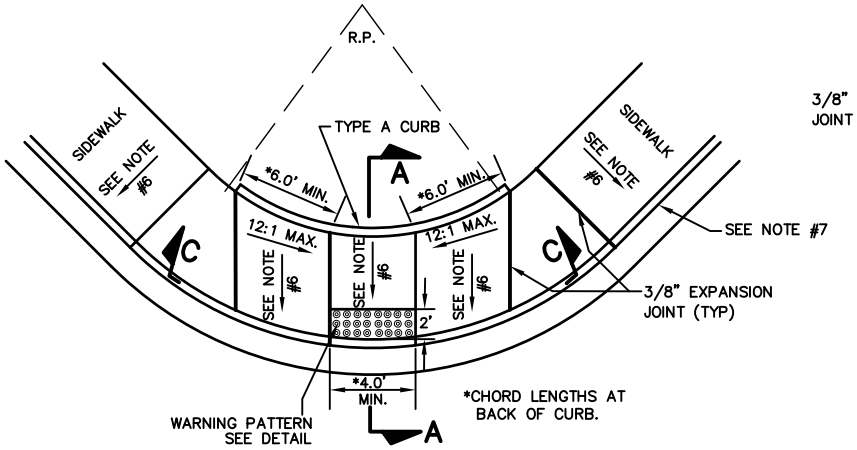
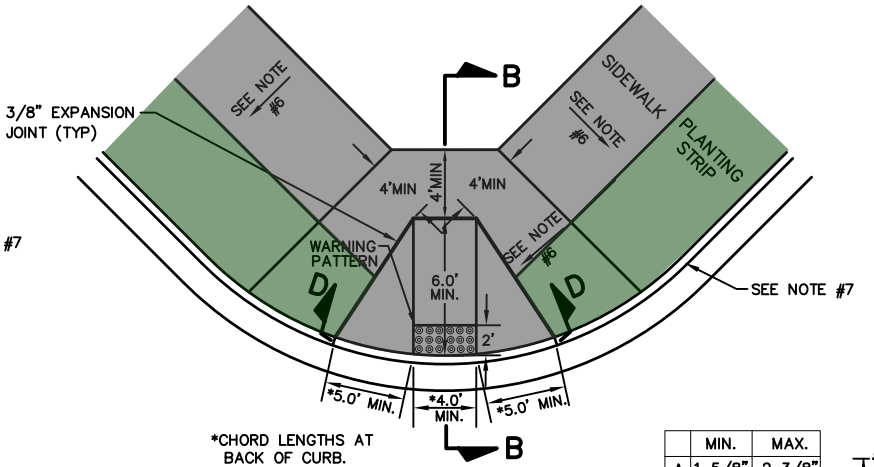
STANDARD
URBAN DRIVEWAYS – SEPARATED SIDEWALKS

SHEET
A–3



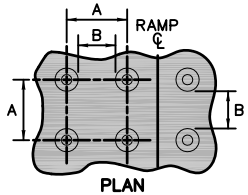
DESIGN "A"



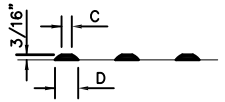
DESIGN "B"

PLAN

	MIN.	MAX.
A	1 5/8"	2 3/8"
B	5/8"	1 1/2"
C	7/16"	3/4"
D	7/8"	1 7/16"



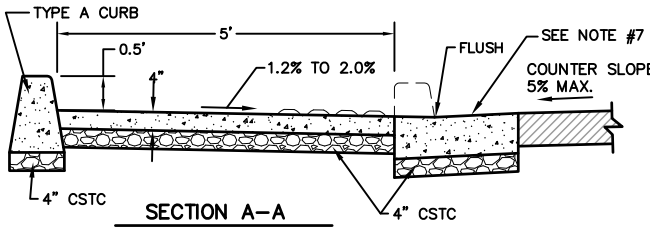
PLAN



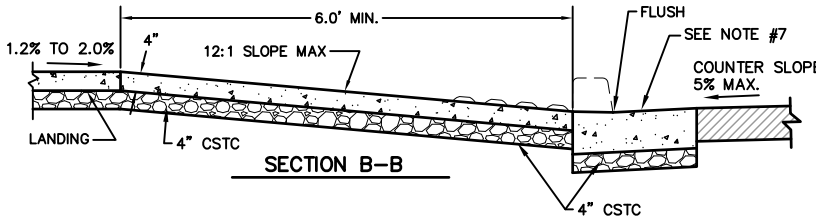
ELEVATION

TRUNCATED DOMES

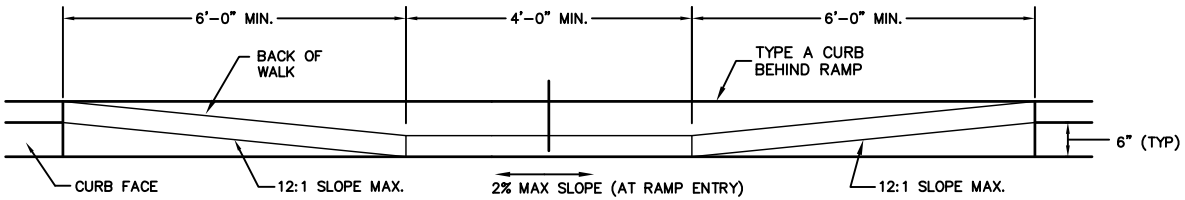
DETECTABLE WARNING PATTERN DETAIL (SEE NOTE 2)



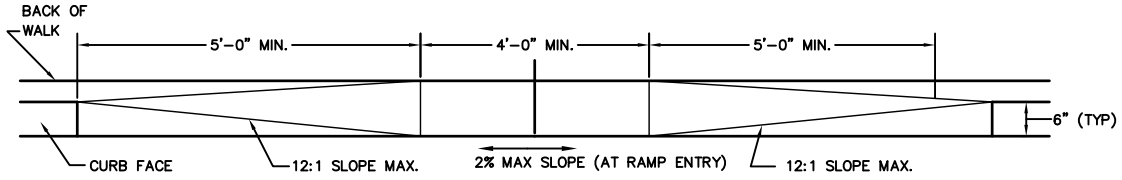
SECTION A–A



SECTION B–B



SECTION C–C



SECTION D–D

GENERAL NOTES

1. DRAINAGE INLETS SHALL BE LOCATED OUTSIDE THE CURB RAMP.
2. DETECTABLE WARNING DOMES SHALL BE PRECAST DUCTILE IRON.
3. CURB RAMPS SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES, EXCEPT AT THE SIDE ADJACENT TO THE ROADWAY.
4. WHERE CONSTRUCTED ON STRAIGHT CURB, DESIGN "A" DIMENSIONS REMAIN THE SAME AS SHOWN.
5. TOP OF CURB ELEVATIONS SHOWN ON PLANS ARE PROJECTED TOP OF CURB ELEVATIONS THROUGH CURB RAMP AREA.
6. 1.2% TO 2.0% CROSS–SLOPES ALLOWED ON ALL SIDEWALKS AND RAMPS, UNLESS OTHERWISE INDICATED.
7. TYPE "B" CURB AND GUTTER OR ROLLED CURB (SHOWN) ARE REQUIRED IN ALL NEW DEVELOPMENTS. TYPE "A" CURB IS ALLOWED WHERE CURB RAMPS ARE TO BE INSTALLED ON EXISTING ROADWAYS THAT DO NOT HAVE CURB AND GUTTER. SEE STANDARD PLAN A–2.
8. 4" OF CSTC IS REQUIRED UNDER ALL CONCRETE.
9. 92% COMPACTION FOR SUBGRADE AND CSTC IS REQUIRED UNDER ALL CONCRETE FOR SIDEWALKS, CURB RAMPS AND CURBS.

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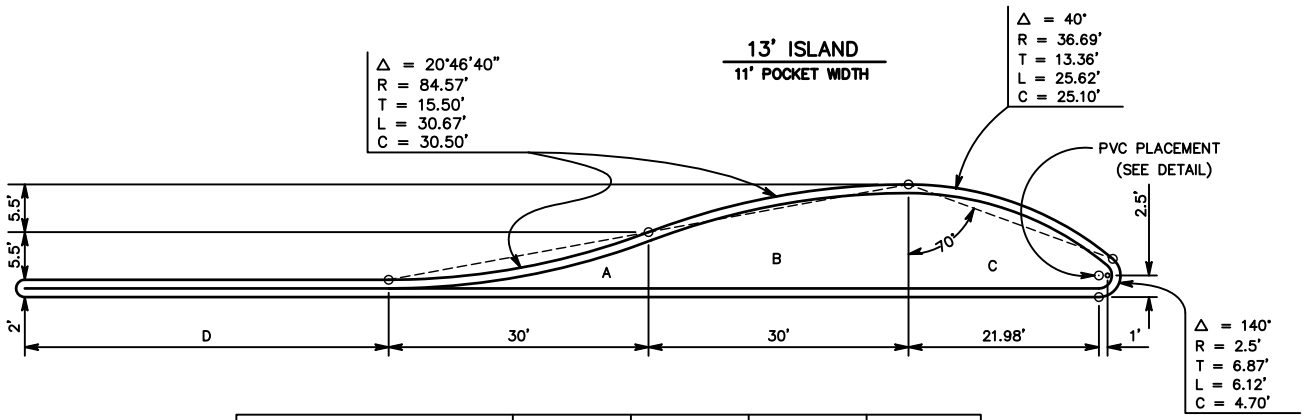
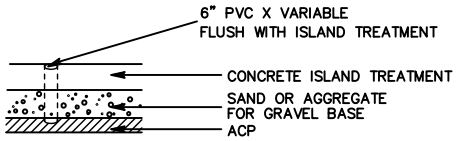
STANDARD
CURB RAMP

SHEET
A–4



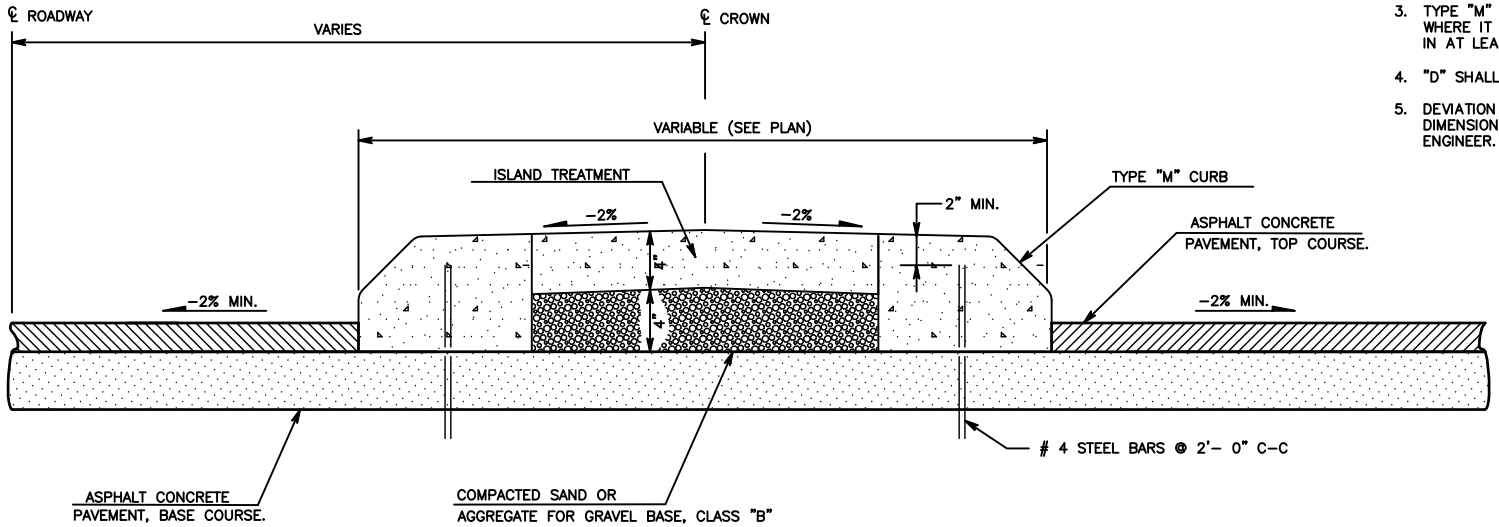


P.V.C. PLACEMENT DETAIL

AREA TABLE		A	B	C	TOTAL
TOTAL AREA	FT^2	114.27	335.74	244.73	694.74
CURB AREA	FT^2	58.71	62.63	52.14	173.48
TREATMENT AREA	FT^2	55.56	273.11	192.59	521.26
CURB(OUTER EDGE)	L.F.	60.67	60.67	53.72	175.06

GENERAL NOTES

1. CONSTRUCTION OF ISLAND TREATMENT SHALL CONFORM TO SECTION 8-04 & 8-14 OF THE STANDARD SPECIFICATIONS.
2. EXPOSED CURB SURFACES SHALL BE STEEL TROWELLED TO PROVIDE A DENSE, SMOOTH, REFLECTIVE FINISH. THE CONCRETE SLAB SHALL HAVE A BROOMED FINISH.
3. TYPE "M" CURB EVERY 10' EXCEPT AT NOSES WHERE IT SHALL BE DOWELED TO THE PAVEMENT IN AT LEAST TWO PLACES.
4. "D" SHALL BE SHOWN ON CONSTRUCTION PLANS.
5. DEVIATION FROM THE STANDARD ISLAND DIMENSIONS MUST BE APPROVED BY THE CITY ENGINEER.



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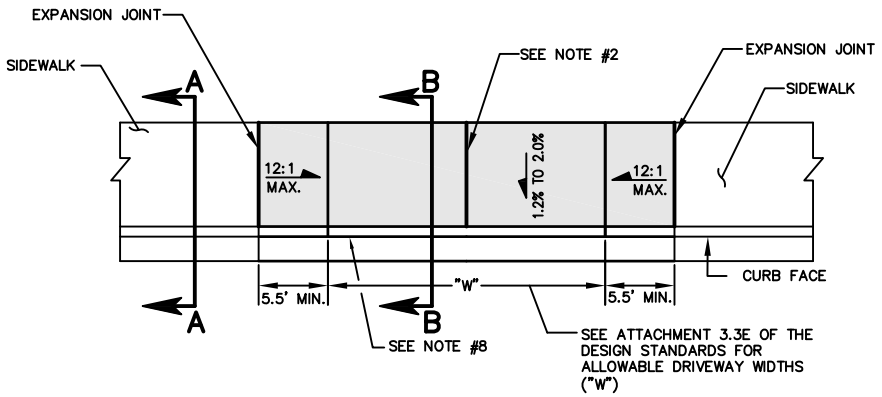
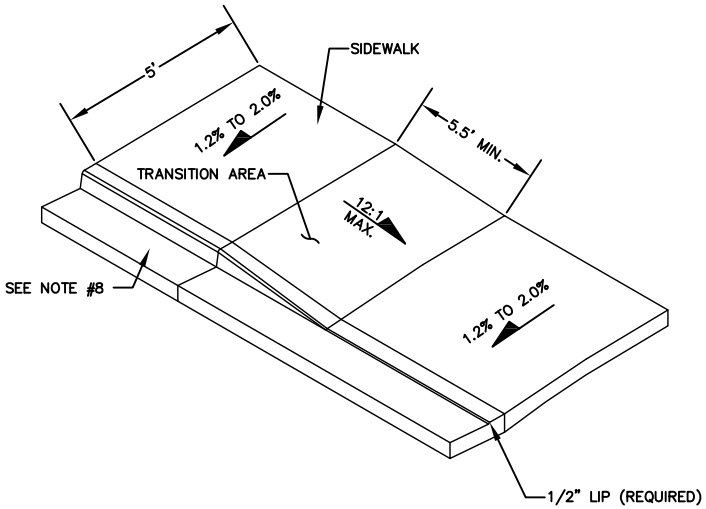
STANDARD
TRAFFIC ISLAND

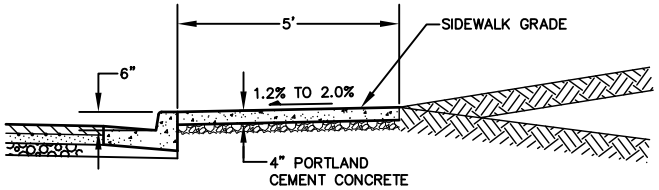
SHEET
A-5



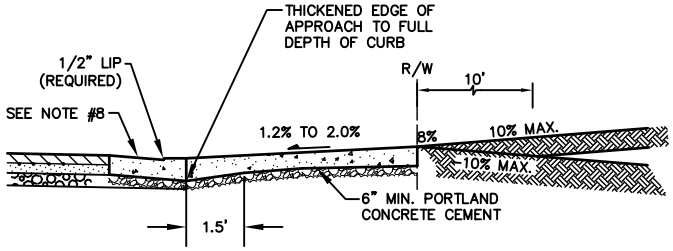
GENERAL NOTES

1. EXPANSION JOINTS SHALL BE 3/8" PREMOLDED JOINT FILLER EXTENDING THROUGH THE FULL CONCRETE CROSS SECTIONS.
2. EXPANSION JOINTS SHALL BE PLACED IN THE CENTER OF ALL DRIVEWAYS OVER 20' IN WIDTH.
3. CONCRETE FOR DRIVEWAYS SHALL BE CLASS 3000 AIR ENTRAINED.
4. ALL EXTERNAL EDGES TO BE TROWELED WITH 1/4" RADIUS EDGER.
5. BROOMED FINISH ON DRIVEWAY AND SIDEWALK SHALL BE APPLIED PERPENDICULAR TO THE PEDESTRIAN DIRECTION OF TRAVEL.
6. 4" CSTC IS REQUIRED UNDER ALL CONCRETE.
7. 95% COMPACTION FOR SUBGRADE AND CSTC REQUIRED UNDER ALL DRIVEWAY APPROACHES. (SHADED AREA)
8. TYPE "B" CURB AND GUTTER (SHOWN) IS REQUIRED IN ALL NEW DEVELOPMENTS. TYPE "A" CURB IS ALLOWED WHERE DRIVEWAYS ARE TO BE INSTALLED ON EXISTING ROADWAYS THAT DO NOT HAVE CURB AND GUTTER.





SECTION A–A



SECTION B–B

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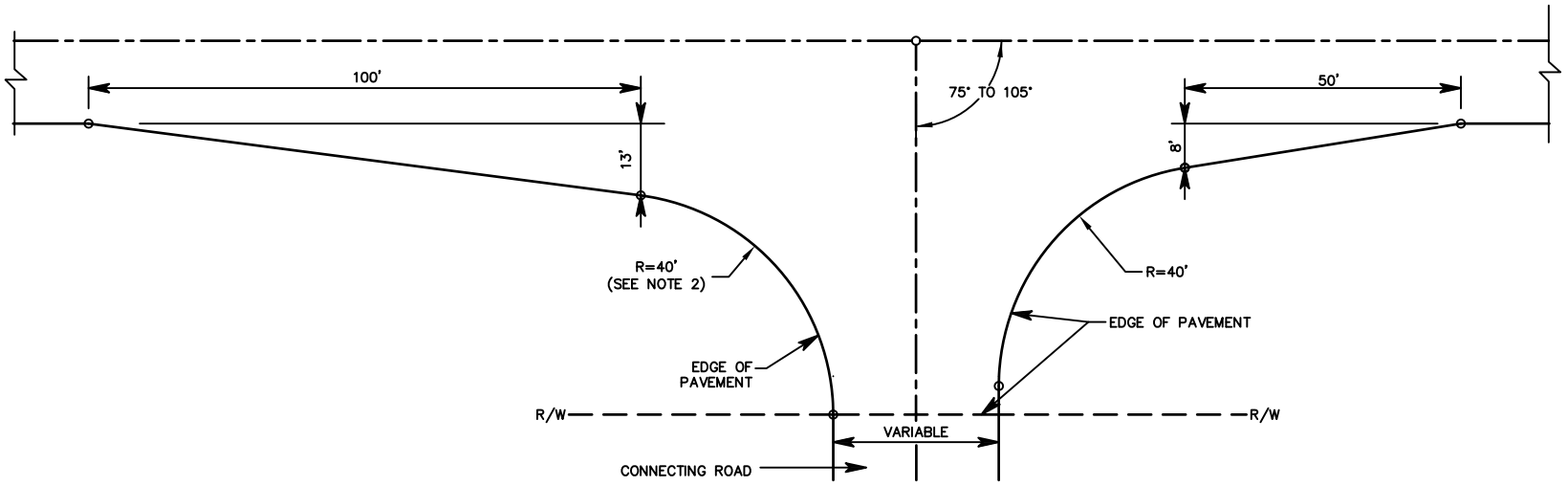
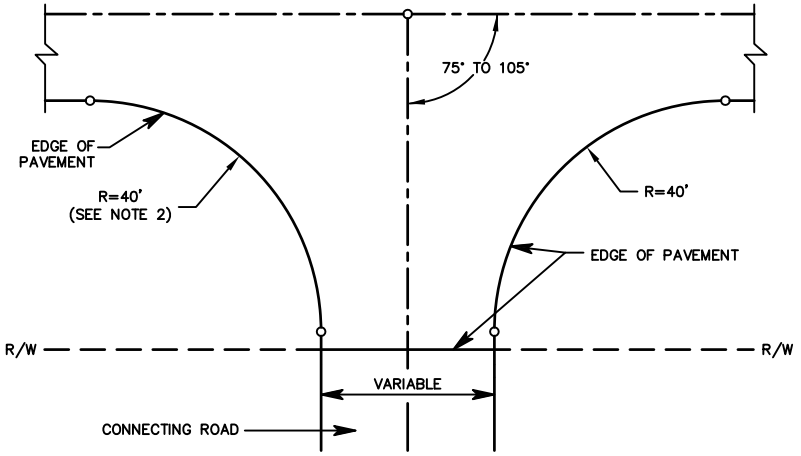
STANDARD
CEMENT CONCRETE APPROACHES

SHEET
A–6



MAJOR COLLECTOR ARTERIAL



MINOR COLLECTOR & ACCESS ROADS

GENERAL NOTES

1. ALL APPROACHES ARE SYMMETRICAL ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. WHERE LARGER TRUCK TURNING MOVEMENTS ARE ENCOUNTERED LARGER RETURN RADII AND RIGHT TURN TAPERS MAY BE REQUIRED. RADIUS AND TAPERS SHALL BE DETERMINED BY THE CITY ENGINEER.
3. DECELERATION/ACCELERATION LANES MAY BE REQUIRED IF DETERMINED BY ENGINEERING ANALYSIS OR REQUIRED BY THE CITY ENGINEER.

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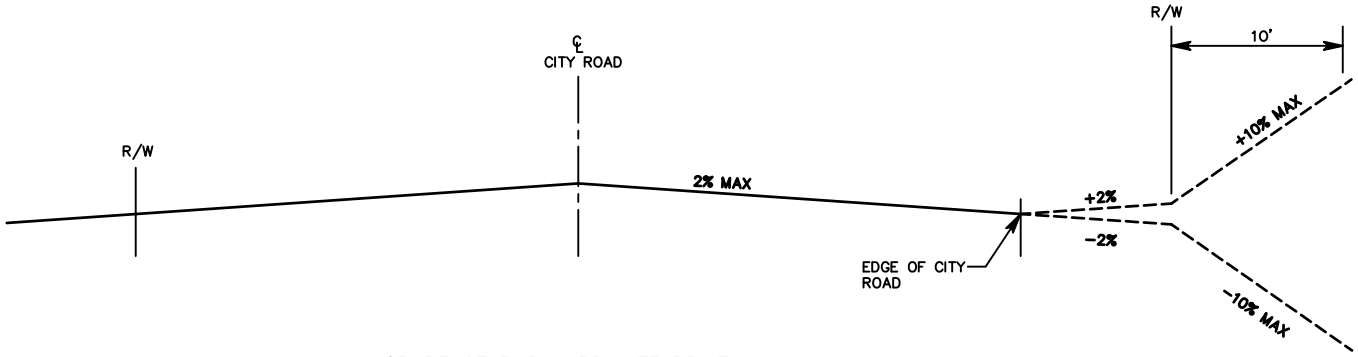
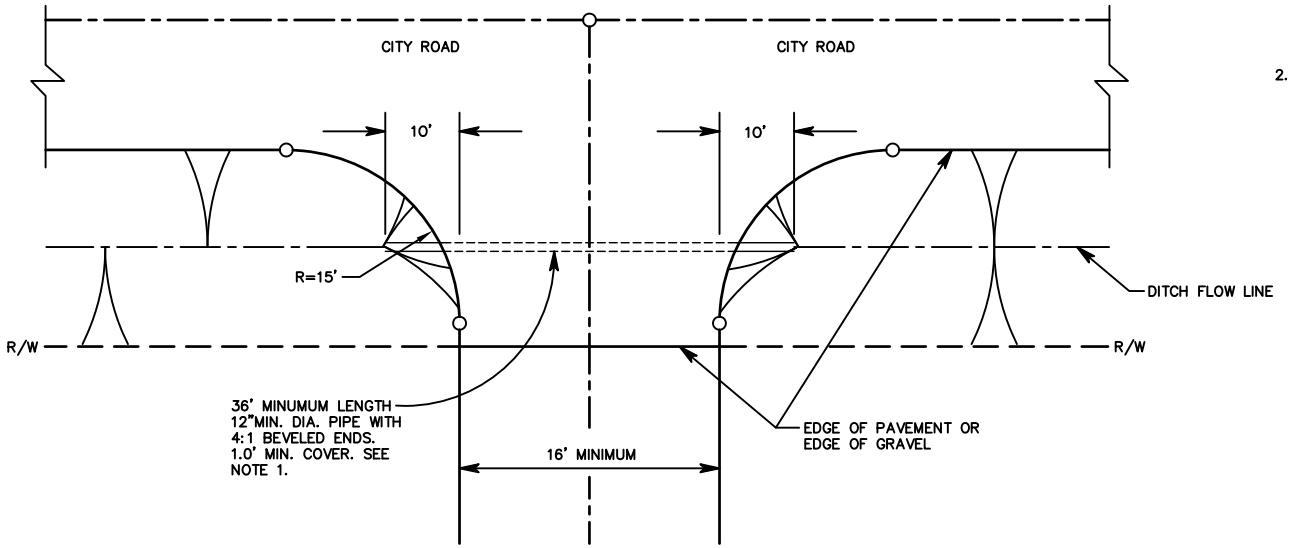
STANDARD
RURAL ROAD APPROACHES

SHEET
A-7



GRADE OF RURAL PRIVATE DRIVEWAY



RURAL PRIVATE DRIVEWAY

GENERAL NOTES

1. THE DRAINAGE PIPE SHALL HAVE A MINIMUM DIAMETER OF 12". LARGER PIPES MAY BE REQUIRED BY THE CITY ENGINEER WHERE LARGER FLOWS OCCUR.
2. REFER TO APPROACH SECTION REGARDING LARGER CULVERTS

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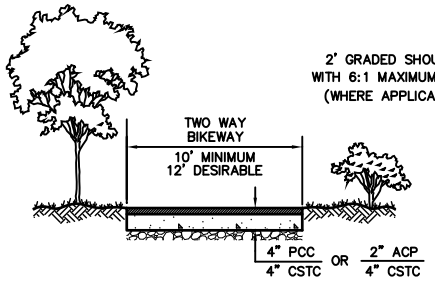
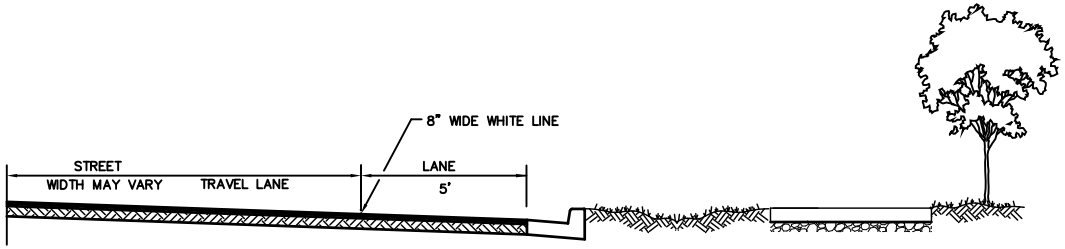
STANDARD
RURAL DRIVEWAY APPROACHES

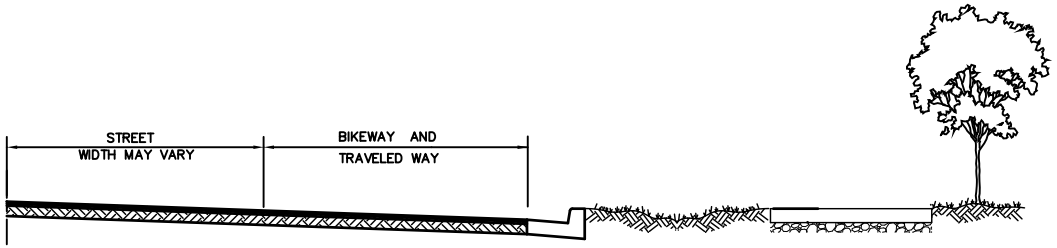
SHEET
A-8



SHARED USE PATHWAY



BIKE LANE



BIKE ROUTE

NOTE:

SIGNING FOR BIKEWAYS SHALL BE CONSISTENT WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES

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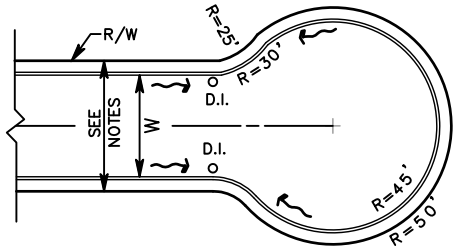
STANDARD

BIKE WAYS & SHARED USE PATHWAYS

SHEET
A-9



FULL CUL-DE-SAC

GENERAL NOTES

1. THE DRAINAGE INLETS (D.I.) SHOWN ON THIS SHEET ARE REQUIRED ONLY WHEN THE STREET SLOPES TOWARD THE CUL-DE-SAC.
2. THE WIDTH OF RIGHT-OF-WAY AND THE CURB TO CURB STREET DIMENSIONS SHALL BE SPECIFIED BY THE CITY ENGINEER.
3. MINIMUM CURB GRADES ON CUL-DE-SACS SHALL BE 1%.

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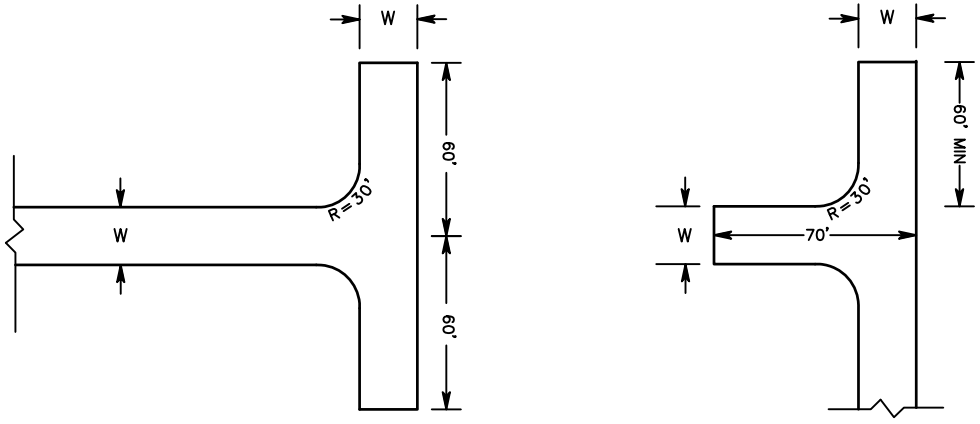
STANDARD
CUL-DE-SACS-ROADS

SHEET
A-10

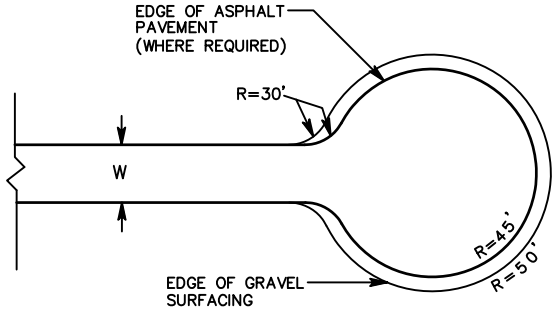


ALTERNATE TURN–AROUNDS

W = WIDTH OF ROADWAY BEING TERMINATED

NOTE:

ALTERNATE TURN–AROUNDS MAY BE USED WHEN THE TERRAIN PRECLUDES THE USE OF STANDARD CUL–DE–SAC.



STANDARD CUL–DE–SAC

NOT TO SCALE

STD–A11.dwg

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DEPARTMENT OF PUBLIC WORKS
LIBERTY LAKE, WA. 99019 509–755–6700

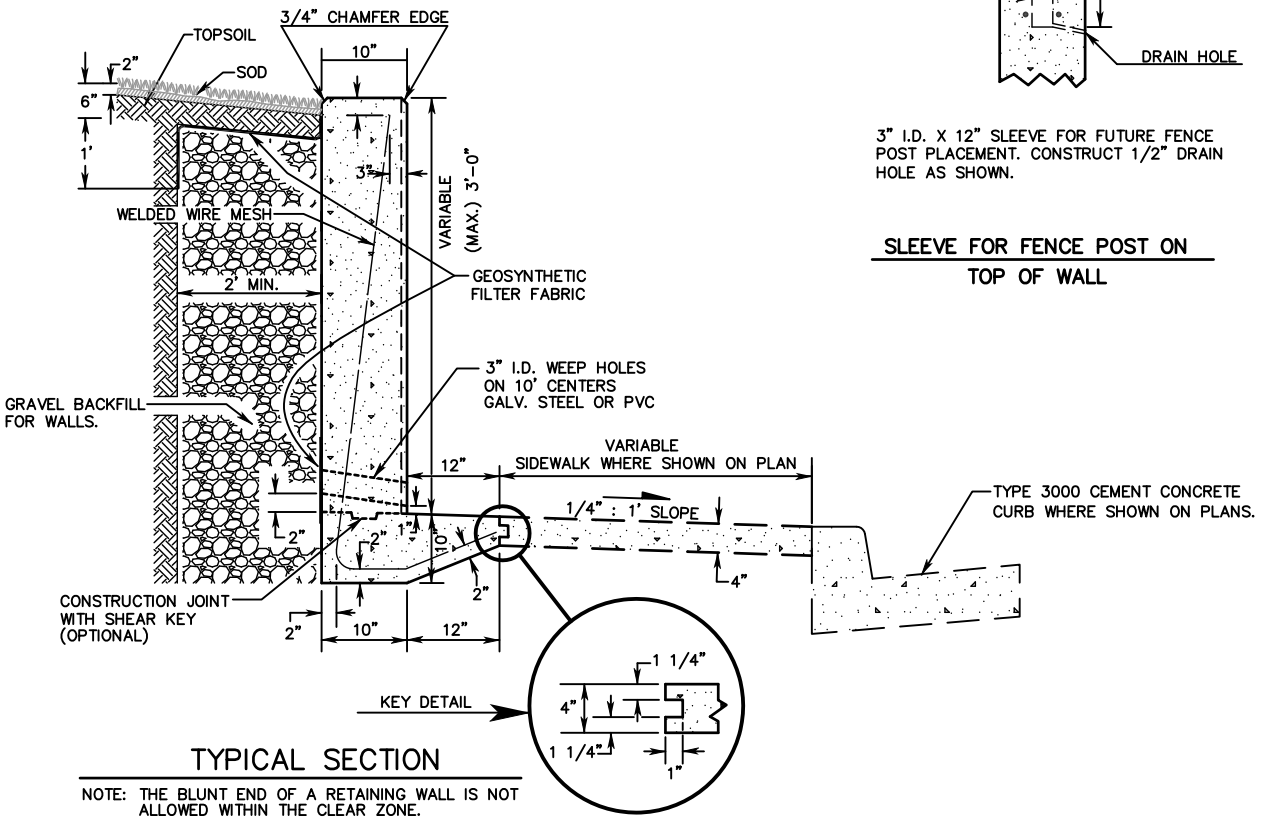
Andrew Staples
6-29-17

STANDARD
CUL–DE–SAC–PRIVATE ROADS

SHEET
A–11

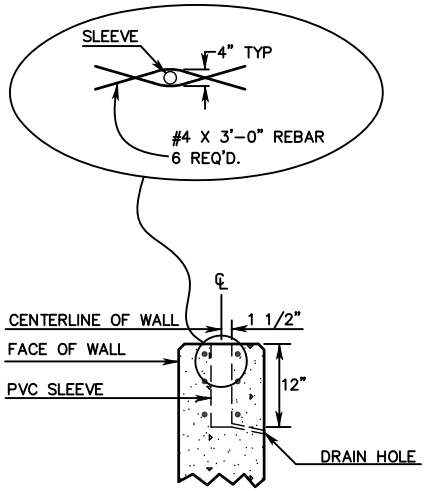
GENERAL NOTES

1. ALL CONCRETE SHALL BE CLASS 3000.
2. 1/2" PREMOLDED JOINT FILLER IN WALL AT MAXIMUM 25' CENTERS. JOINT SHALL OCCUR AT PANEL EDGE AND CONTINUE TRANSVERSELY THROUGH SIDEWALK.
3. REINFORCING SHALL BE A CURTAIN OF 4"X4" – W4/W4 WELDED WIRE MESH.
4. CLASS 1 SURFACE TREATMENT ON ALL EXPOSED WALL SURFACES.
5. ALL BACKFILL BEHIND WALL SHALL BE FREE DRAINING GRANULAR MATERIAL.
6. SLEEVES FOR FENCE POSTS SHALL BE CENTERED AS DIRECTED BY THE ENGINEER. WALLS 2'–6" OR TALLER REQUIRE A FENCE OR AS DIRECTED BY THE ENGINEER.
7. THIS WALL IS DESIGNED TO BE USED WITH A LEVEL BACKFILL AND NO SURCHARGE.



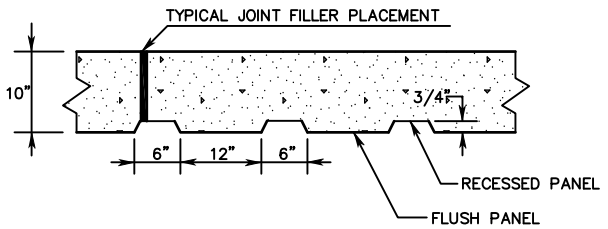
TYPICAL SECTION

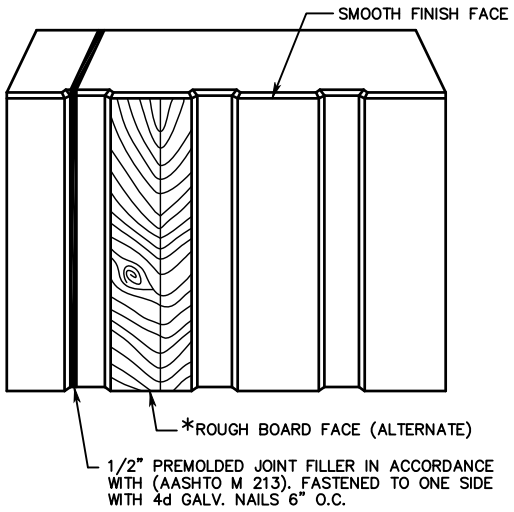
NOTE: THE BLUNT END OF A RETAINING WALL IS NOT ALLOWED WITHIN THE CLEAR ZONE.



3" I.D. X 12" SLEEVE FOR FUTURE FENCE POST PLACEMENT. CONSTRUCT 1/2" DRAIN HOLE AS SHOWN.

SLEEVE FOR FENCE POST ON TOP OF WALL





ALTERNATE FACE TREATMENT TO BE CONSTRUCTED WHERE DESIGNATED IN SPECIAL PROVISIONS.

* ROUGH BOARD FORM–FINISHED SURFACE OF FLUSH PANEL IS TO SIMULATE THE GRAIN OF ROUGH BOARDS. USE FORM LINER.

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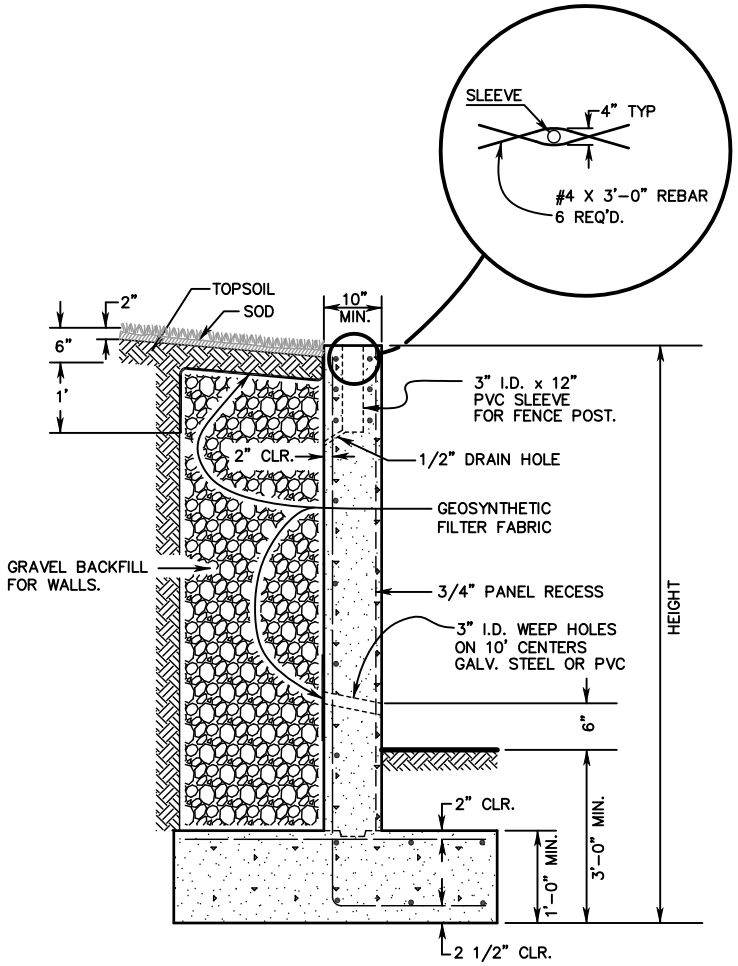
STANDARD

SIDEWALK RETAINING WALL

SHEET A–12

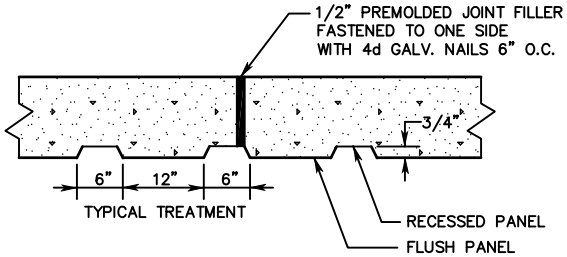


TYPICAL SECTION

NOTE: THE BLUNT END OF A RETAINING WALL IS NOT ALLOWED WITHIN THE CLEAR ZONE.

GENERAL NOTES

1. ALL CONCRETE CLASS 4000.
2. ALL EDGES TO BE 3/4" CHAMFER.
3. CONCRETE THICKNESS, STRUCTURAL DETAILS, SIZE AND NUMBER OF REINFORCEMENT SHALL BE DETERMINED BY ENGINEER.
4. 1/2" PREMOLDED JOINT FILLER IN WALL AT MAXIMUM 25' CENTERS. JOINT SHALL OCCUR AT PANEL EDGE AND CONTINUE TRANSVERSELY THROUGH SIDEWALK.
5. SLEEVES FOR FENCE POSTS SHALL BE CENTERED AS DIRECTED BY ENGINEER. WALLS 2'-6" OR TALLER REQUIRE A FENCE OR AS DIRECTED BY ENGINEER.



FACE TREATMENT ON WALL

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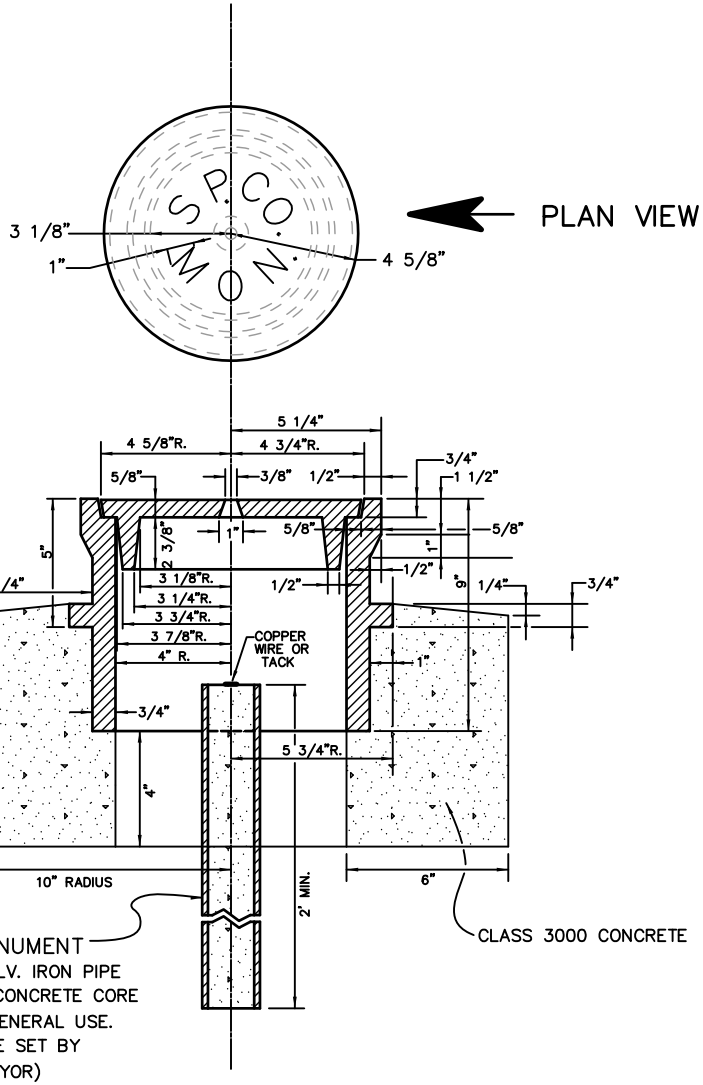
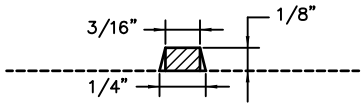
STANDARD
RETAINING WALL

SHEET
A-13



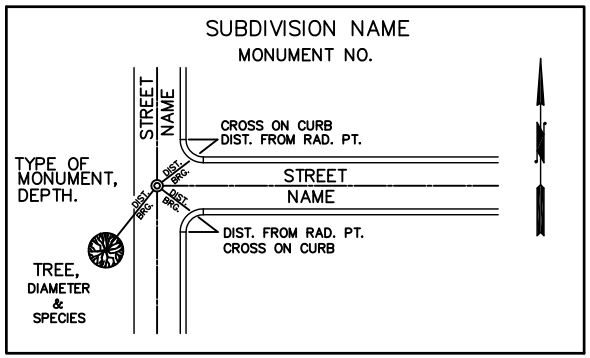
SECTION



SECTION OF LETTER

GENERAL NOTES

1. THE CASTINGS SHALL BE GREY IRON CASTINGS, AASHTO DESIGNATION M–105, CLASS 30B. THE COVER AND SEAT SHALL BE MACHINED SO AS TO HAVE CONTACT AROUND THE ENTIRE CIRCUMFERENCE AND FULL WIDTH OF BEARING SURFACE.
2. WHEN THE MONUMENT CASE AND COVER ARE PLACED IN CEMENT CONCRETE PAVEMENT THE CONCRETE BASE IS NOT NEEDED.
3. A RECORD OF REFERENCES TO SURVEY POINTS SHALL BE SUBMITTED TO THE COUNTY ENGINEERS OFFICE AS SHOWN ON SAMPLE.



SAMPLE REFERENCE CARD

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6-29-17

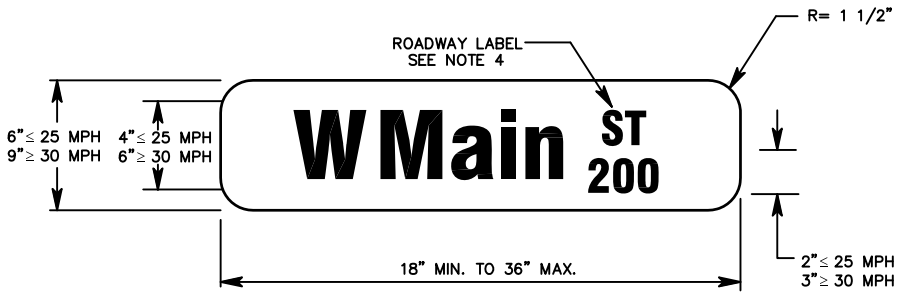
STANDARD

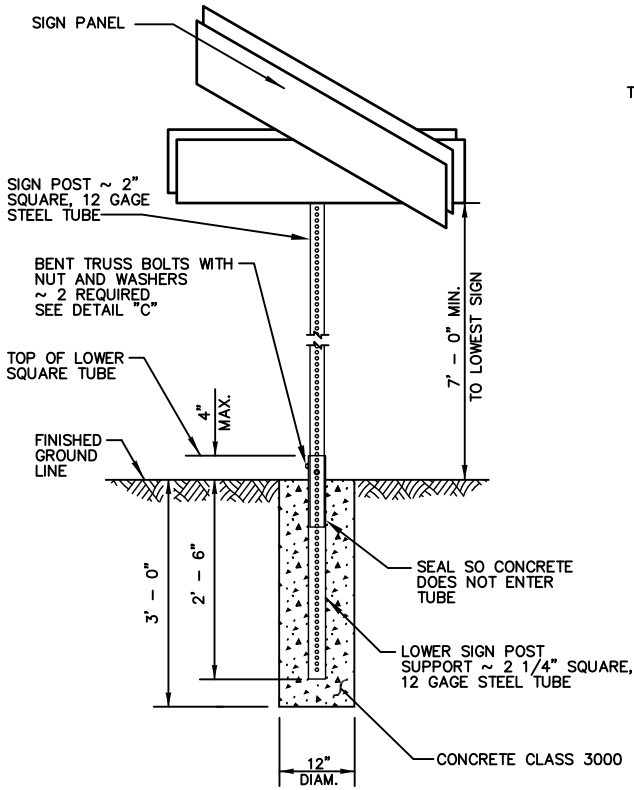
MONUMENT CASE & COVER

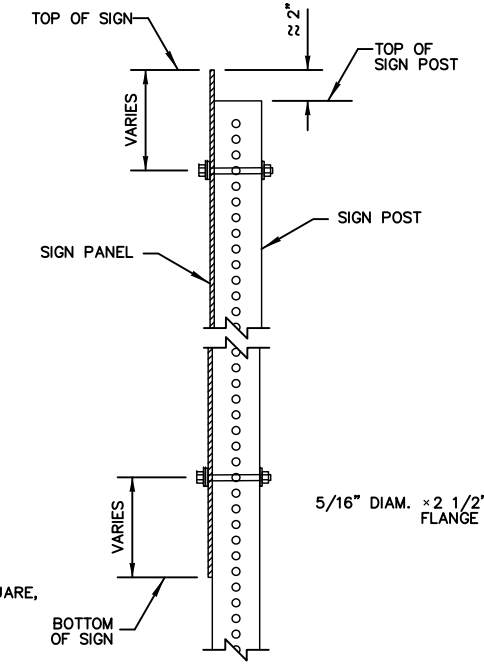
SHEET A–14

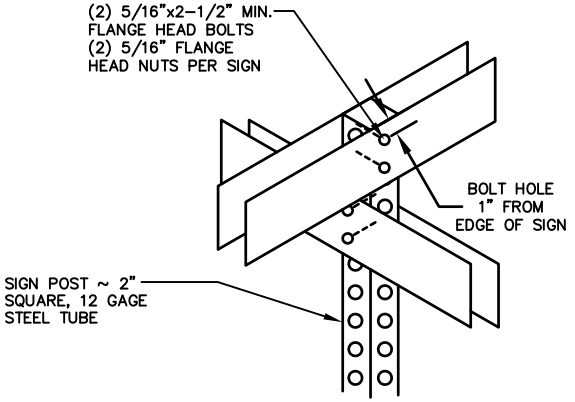
GENERAL NOTES

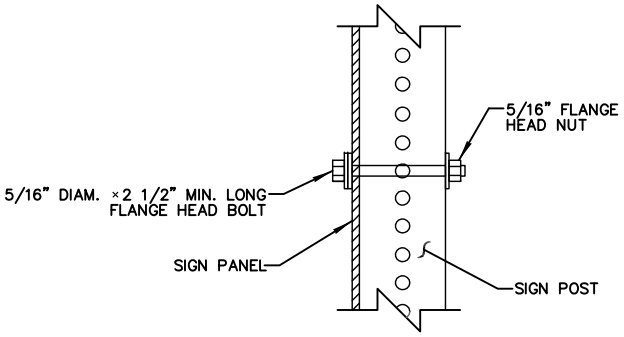
1. SIGNS SHALL MEET SPECIFICATIONS FOR FLAT PLATE ALUMINUM, 0.08" THICK, ALODINE 1200 OR EQUAL.
2. THE SIGN SURFACE SHALL BE GREEN TRANSPARENT ELECTRONIC CUTTABLE (EC) FILM REVERSE WEEDED ON WHITE BACKGROUND MEETING OR EXCEEDING ASTM 4956 TYPE IV (HIGH INTENSITY PRISMATIC) RETRO-REFLECTIVE SHEETING.
3. LETTERS SHALL BE SERIES B.
4. ALL ROADWAYS SHALL INCLUDE THE ABBREVIATED LABEL (I.E. – COURT – CT. DRIVE – DR. ETC.) ROAD NAME/NUMBER IN SENTENCE CASE.
5. FOUNDATION CHANGES MUST BE MADE IN WRITING TO THE CITY ENGINEER.

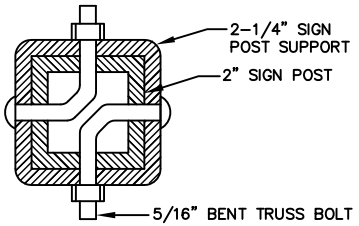












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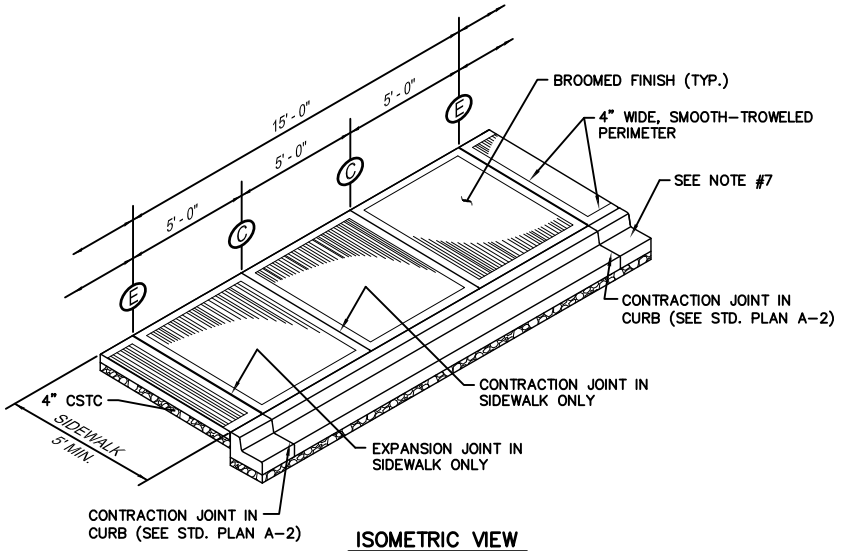
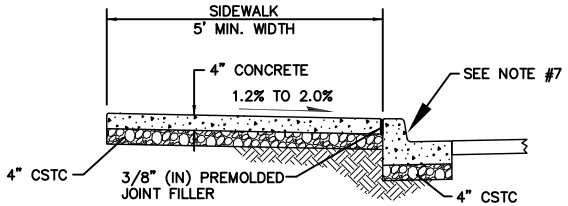
STANDARD
STREET NAME SIGNS

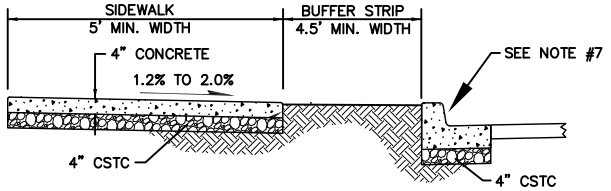
SHEET
A-15



ISOMETRIC VIEW



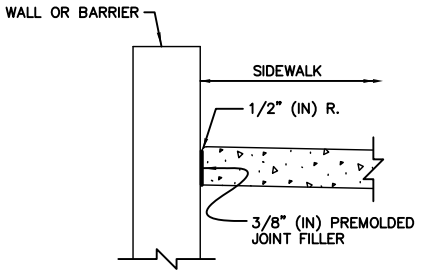
SIDEWALK ADJACENT TO CURB



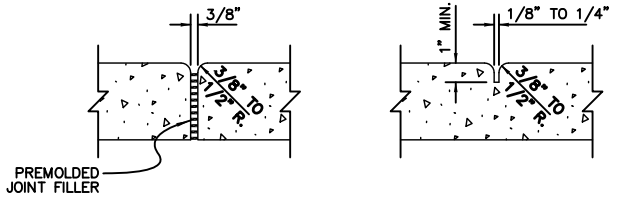
SIDEWALK ADJACENT TO BUFFER STRIP

GENERAL NOTES

1. EXPANSION JOINTS SHALL BE 3/8" PREMOLDED JOINT FILLER EXTENDING THROUGH THE FULL CONCRETE CROSS SECTIONS. IN ADDITION TO THE EXPANSION JOINT LOCATIONS SHOWN, EXPANSION JOINTS SHALL ALSO BE PLACED BETWEEN EXISTING AND NEW SIDEWALK INSTALLATIONS.
2. CONCRETE SHALL BE CLASS 3000, AIR ENTRAINED.
3. ALL EXTERNAL SIDEWALK EDGES TO BE TROWELED WITH 1/2" RADIUS EDGER.
4. BROOMED FINISH ON SIDEWALKS SHALL BE APPLIED PERPENDICULAR TO THE PEDESTRIAN DIRECTION OF TRAVEL.
5. 4" CSTC IS REQUIRED UNDER ALL CONCRETE.
6. 92% COMPACTION FOR SUBGRADE AND CSTC REQUIRED UNDER ALL CONCRETE SIDEWALKS.
7. TYPE "B" CURB AND GUTTER (SHOWN) IS REQUIRED IN ALL NEW DEVELOPMENTS. TYPE "A" CURB IS ALLOWED WHERE DRIVEWAYS ARE TO BE INSTALLED ON EXISTING ROADWAYS THAT DO NOT HAVE CURB AND GUTTER. SEE STANDARD PLAN A-2.



SIDEWALK ADJACENT TO WALL DETAIL



Ⓔ EXPANSION JOINT Ⓒ CONTRACTION JOINT

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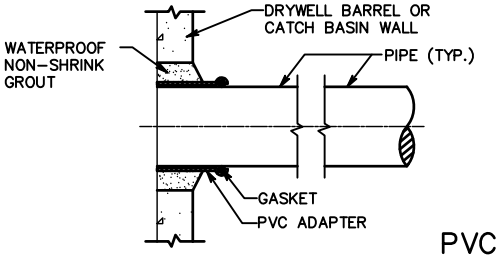
6-29-17

STANDARD
CEMENT CONCRETE SIDEWALKS

SHEET
A-16

GENERAL NOTES

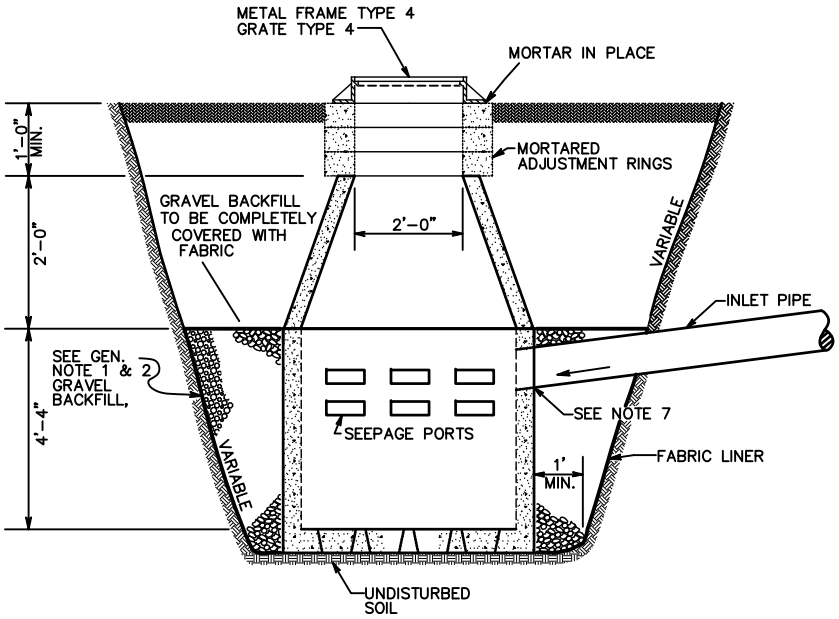
1. GRAVEL BACKFILL QUANTITY FOR DRYWELLS :
   TYPE "A" – 30 CUBIC YARDS MINIMUM / 42 TONS.
   TYPE "B" – 40 CUBIC YARDS MINIMUM / 56 TONS.
   OR AS SPECIFIED ON ROAD PLANS.
2. SPECIAL BACKFILL MATERIAL FOR DRYWELLS SHALL CONSIST OF WASHED GRAVEL GRADED FROM 1" TO 3" WITH A MAXIMUM OF 5% PASSING THE U.S. No. 200 SCREEN, AS MEASURED BY WEIGHT. A MAXIMUM OF 10% OF THE AGGREGATE, AS MEASURED BY WEIGHT, MAY BE CRUSHED OR FRACTURED ROCK. THE REMAINING 90% SHALL BE NATURALLY OCCURRING UNFRACTURED MATERIAL.
3. FABRIC SHALL BE MODERATE SURVIVABILITY AS OUTLINED IN STANDARD SPECIFICATIONS 9-33
4. SEE STANDARD PLANS SHEETS B-2 AND B-3 FOR PRECAST CONCRETE DETAILS.
5. ADJUSTMENT BLOCKS SHALL BE CEMENT CONCRETE.
6. PRECAST RISER MAY BE USED IN COMBINATION WITH OR IN LIEU OF ADJUSTING BLOCKS.
7. WHEN PVC PIPE IS USED A PVC ADAPTER SHALL BE INSTALLED.
8. PIPES SHALL BE GROUTED INTO DRYWELLS WITH NON-SHRINK GROUT.



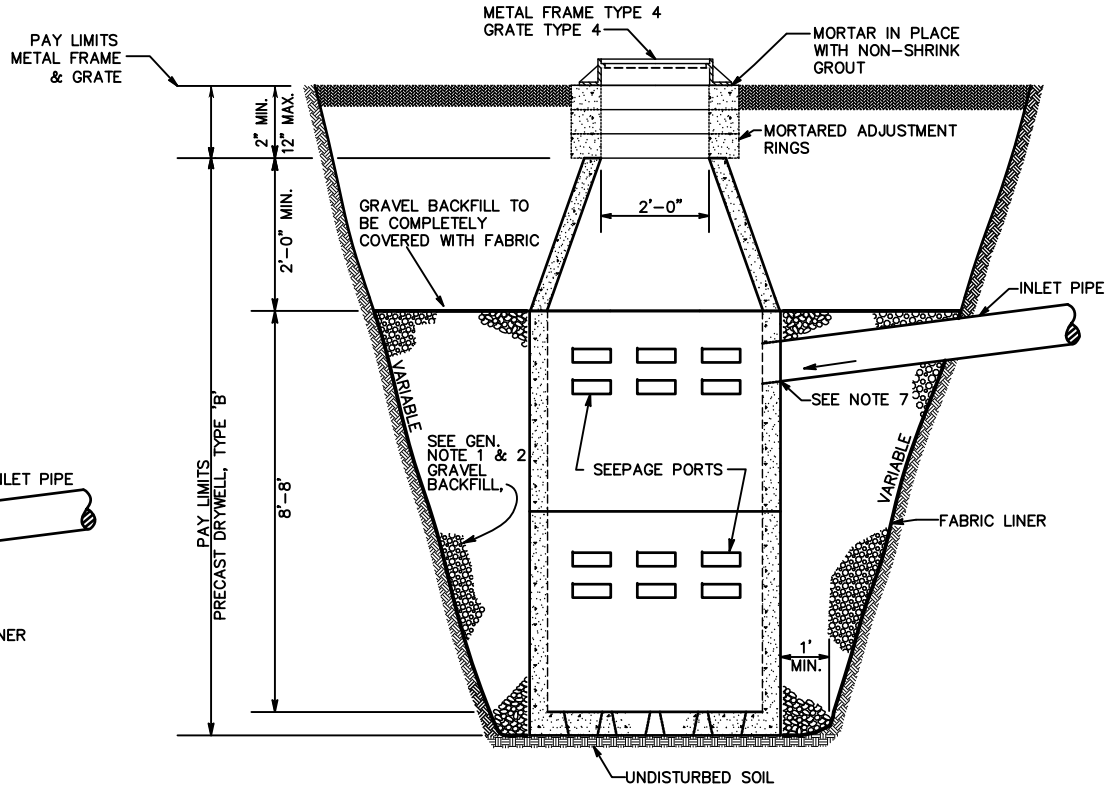
NOTE:

PVC PIPE ADAPTERS AND GASKET MAY VARY IN SHAPE AND SIZE AS ILLUSTRATED IN DETAIL BY ACCEPTABLE ALTERNATE IN ACCORDANCE WITH A.S.T.M.-C-428.

PVC ADAPTER (SAND COLLAR)



DRYWELL – TYPE 'A'



DRYWELL – TYPE 'B'

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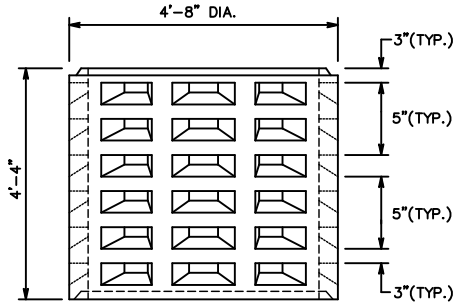
6-29-17

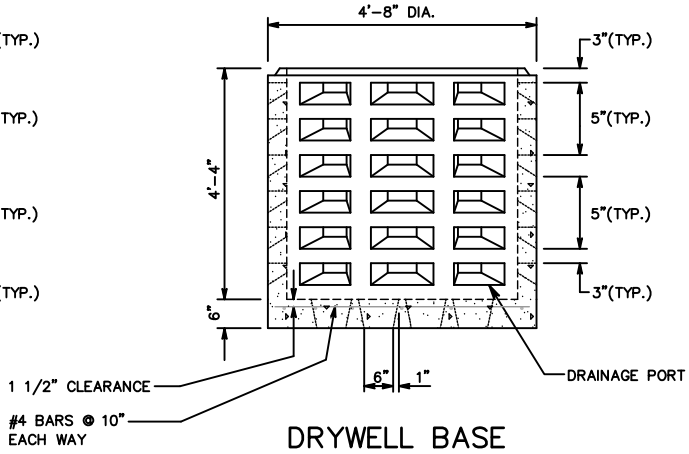
STANDARD
PRECAST DRYWELLS

SHEET
B-01



DRYWELL BARREL

(ELEVATION)

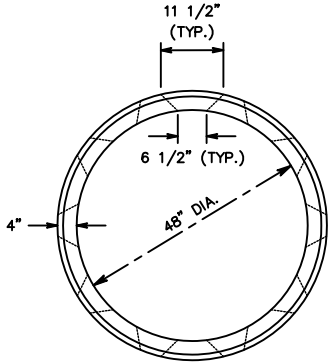


DRYWELL BASE

(ELEVATION)

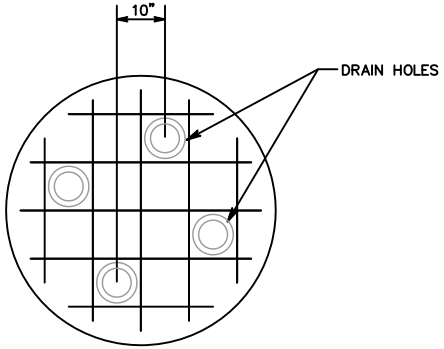
GENERAL NOTES

1. CONCRETE DRYWELL ITEMS SHALL BE CONSTRUCTED WITH THE BARRELS AND CONES REINFORCED WITH 0.12 SQ. IN. STEEL GRADE 40, PER LINEAL FOOT OF WALL.
2. TOLERANCE OF DIMENSIONS FOR DRAINAGE PORTS SHALL BE $\pm$ 1/2".
3. EACH BARREL SECTION SHALL A MINIMUM OF 6 ROWS OF DRAINAGE PORTS VERTICALY AND A MINIMUM OF 10 DRAINAGE PORTS AROUND THE CIRCUMFERENCE OF THE BARREL.



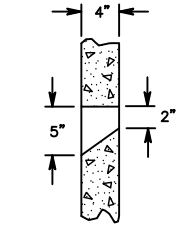
DRYWELL BARREL

(PLAN)

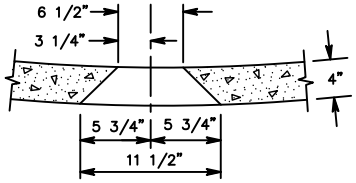


BASE DRAIN HOLE DETAIL

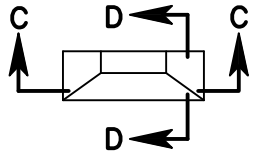
(PLAN)



SECTION D–D



SECTION C–C



DRAINAGE PORT

NOT TO SCALE

STD–B02.dwg

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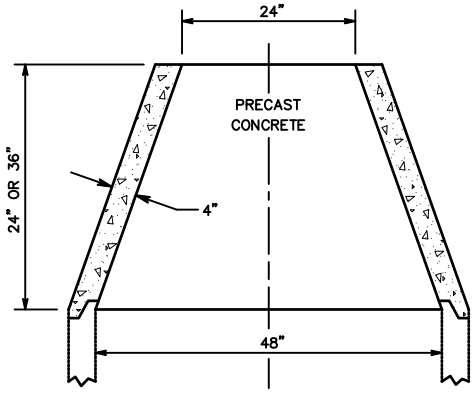
6-29-17

STANDARD
PRECAST DRYWELL DETAILS

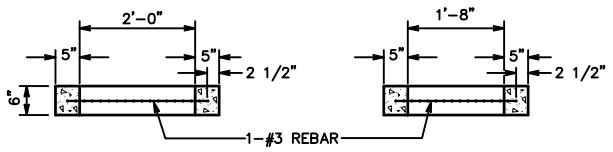
SHEET
B–2

GENERAL NOTES

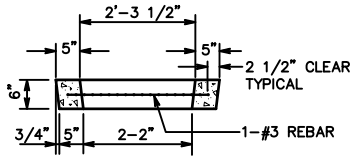
1. CONCRETE ITEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.



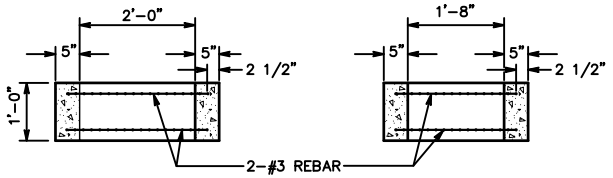
CONCENTRIC CONE



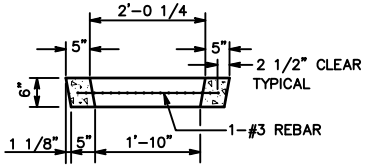
SECTION E-E SECTION F-F



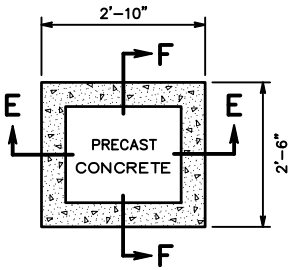
SECTION C-C

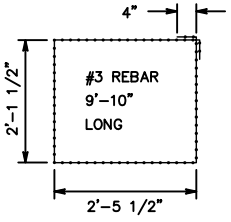


SECTION E-E SECTION F-F



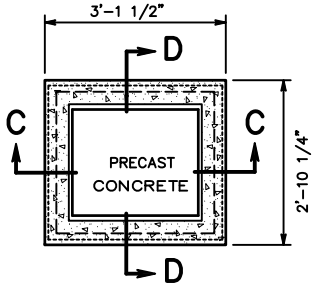
SECTION D-D





BENDING

RISER, TYPE 1



RISER, TYPE 2

Andrea Staples

NOT TO SCALE

STD-B03.dwg

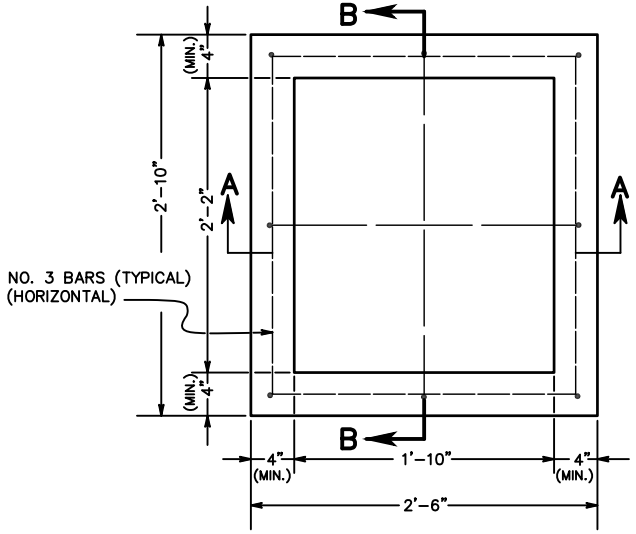
NO.	DATE	BY	CKD.	APPR.	REVISION

CITY OF LIBERTY LAKE
DEPARTMENT OF PUBLIC WORKS
LIBERTY LAKE, WA. 99019 509-755-6700

6-29-17

STANDARD
ROADWAY SECTION – CURBED

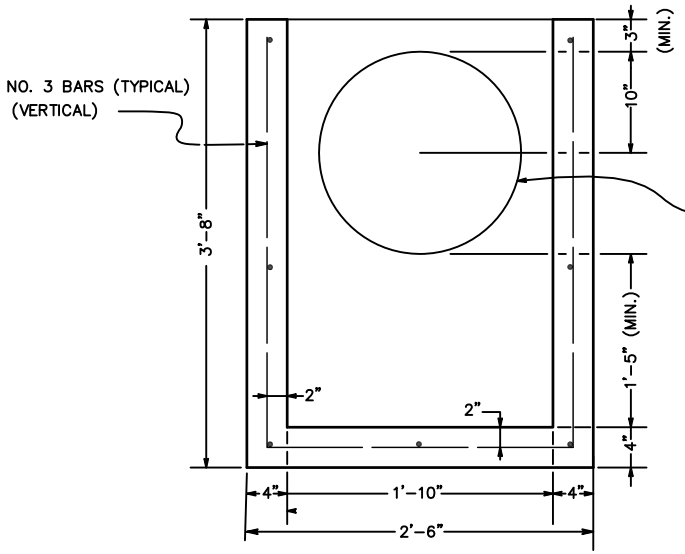
SHEET
B-3



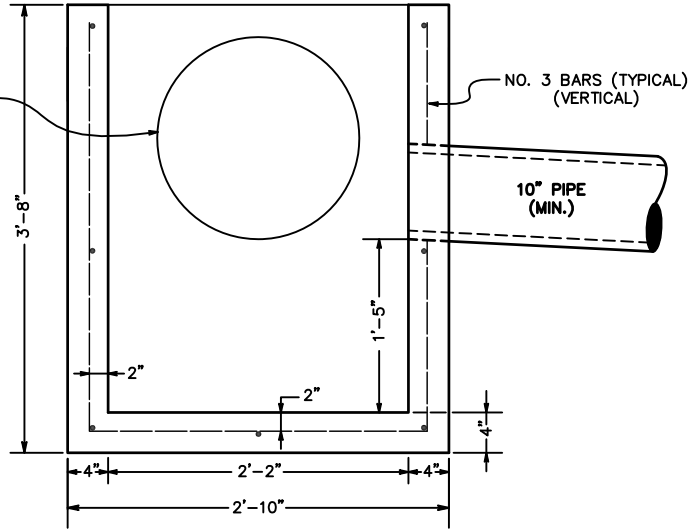
PLAN

GENERAL NOTES

1. CATCH BASIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.
3. PRECAST BASINS SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUTS SHALL BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 20". KNOCKOUTS SHALL BE ROUND. PIPE SHALL BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCH BASIN WALL THICKNESS.
6. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
7. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
8. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT.
9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
10. WHEN PVC PIPE IS USED, A PVC ADAPTER SHALL BE INSTALLED. SEE DETAIL ON SHT B-1.
11. PVC ADAPTER SHALL BE GROUTED INTO CATCH BASIN, WITH WATERPROOF NON-SHRINK GROUT.



SECTION A-A



SECTION B-B

Andrew Staples

NOT TO SCALE

STD-B04.dwg

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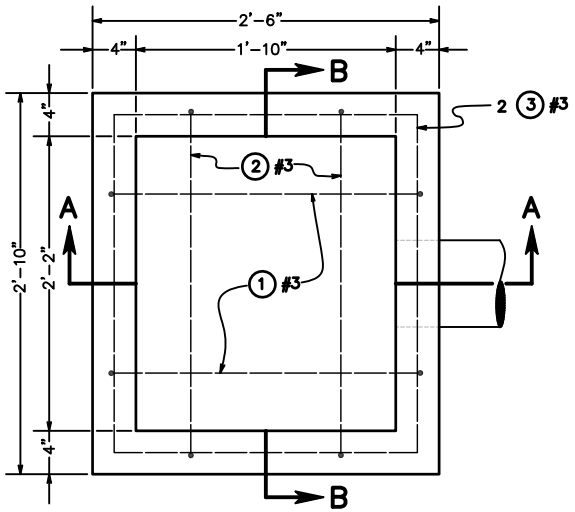
DEPARTMENT OF PUBLIC WORKS
LIBERTY LAKE, WA. 99019 509-755-6700

6-29-17

STANDARD

CATCH BASIN TYPE 1

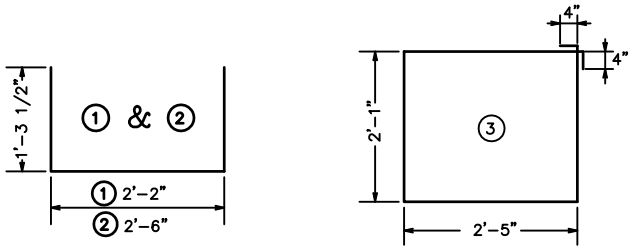
SHEET B-4



PLAN

MARK	LOCATION	NO.	SIZE	LENGTH
①	BOTTOM SLAB & SIDEWALLS	2	3	4'– 9"
②	BOTTOM SLAB & SIDEWALLS	2	3	5'– 1"
③	SIDEWALLS	2	3	9'– 8"

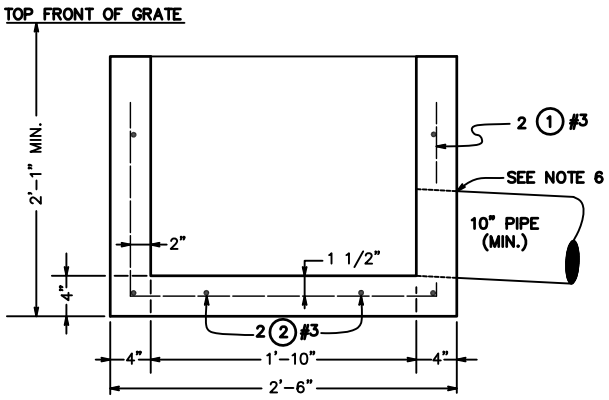
BAR LIST



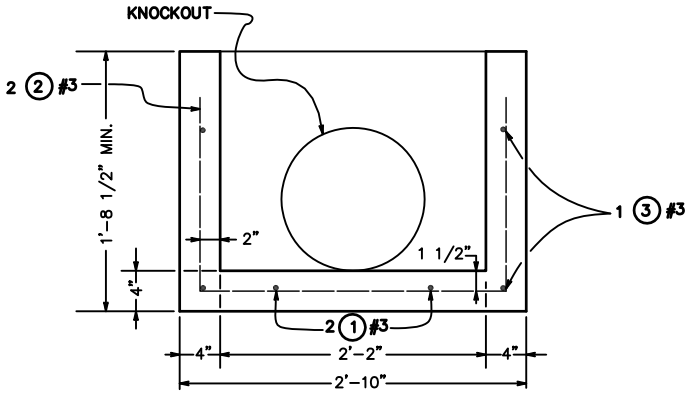
BENDING DIAGRAM

GENERAL NOTES

1. CONCRETE INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. REINFORCING STEEL SHALL BE GRADE 40 OR GRADE 60.
3. CONCRETE INLETS SHALL BE SET ON A COMPACTED OR UNDISTURBED LEVEL FOUNDATION.
4. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF .12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.
5. WHEN PVC PIPE IS USED, A SAND COLLAR SHALL BE INSTALLED. SEE DETAIL SHT. B–1.
6. INLET PIPE SHALL BE GROUTED INTO CONCRETE INLET, WITH WATERPROOF NON–SHRINK GROUT.
7. KNOCKOUTS SHALL BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 17". KNOCKOUTS SHALL BE ROUND. PIPE SHALL BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.



SECTION A–A



SECTION B–B

Andrew Staples

NOT TO SCALE
STD–B05.dwg

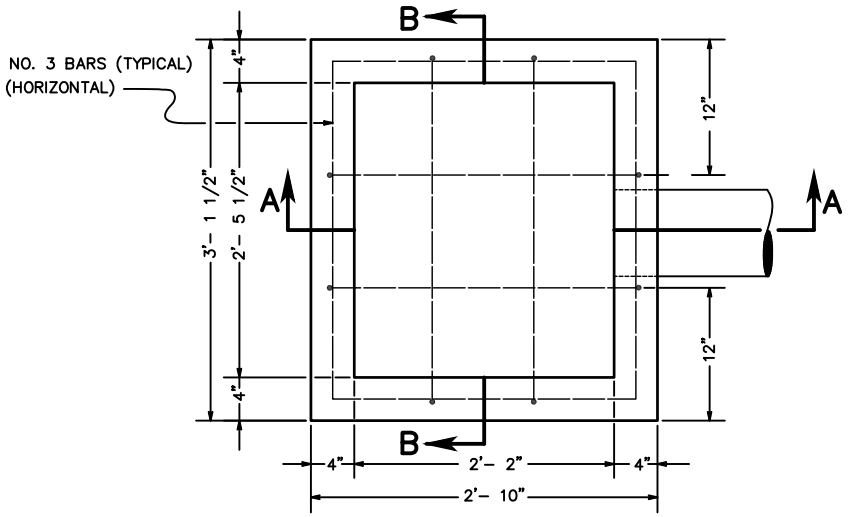
NO.	DATE	BY	CKD.	APPR.	REVISION

CITY OF LIBERTY LAKE
DEPARTMENT OF PUBLIC WORKS
LIBERTY LAKE, WA. 99019 509–755–6700

6-29-17

STANDARD
CONCRETE INLET TYPE 1

SHEET
B–5



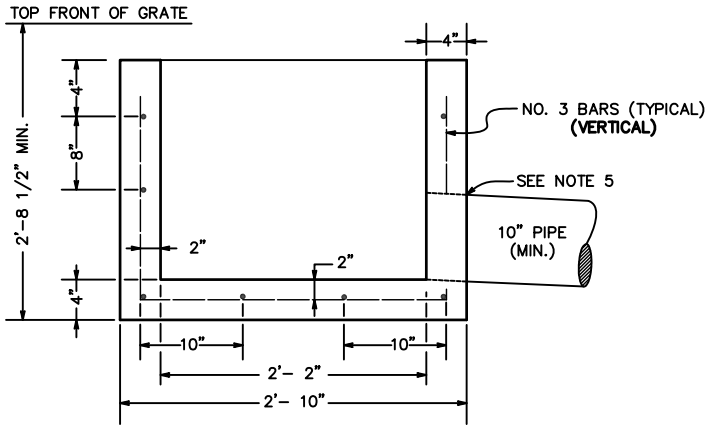
PLAN

TABLE

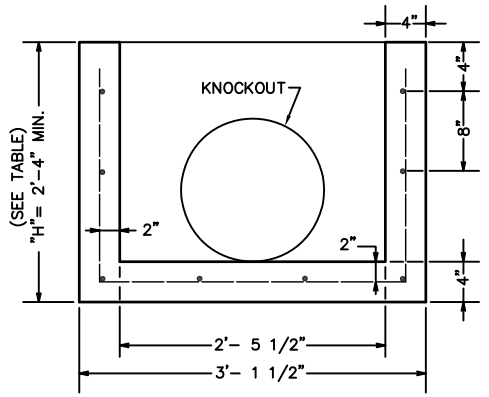
PIPE DIAMETER	"H"
10"	2'- 4"
12"	2'- 5 1/2"
15"	2'- 9"
18"	3'- 0"

GENERAL NOTES

1. CONCRETE INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. CONCRETE INLETS SHALL BE SET ON A LEVEL, COMPACTED FOUNDATION.
3. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.
4. WHEN PVC PIPE IS USED, A SAND COLLAR SHALL BE INSTALLED. SEE DETAIL ON SHT B-1
5. INLET PIPE SHALL BE GROUTED INTO CONCRETE INLET, WITH WATERPROOF NON-SHRINK GROUT.



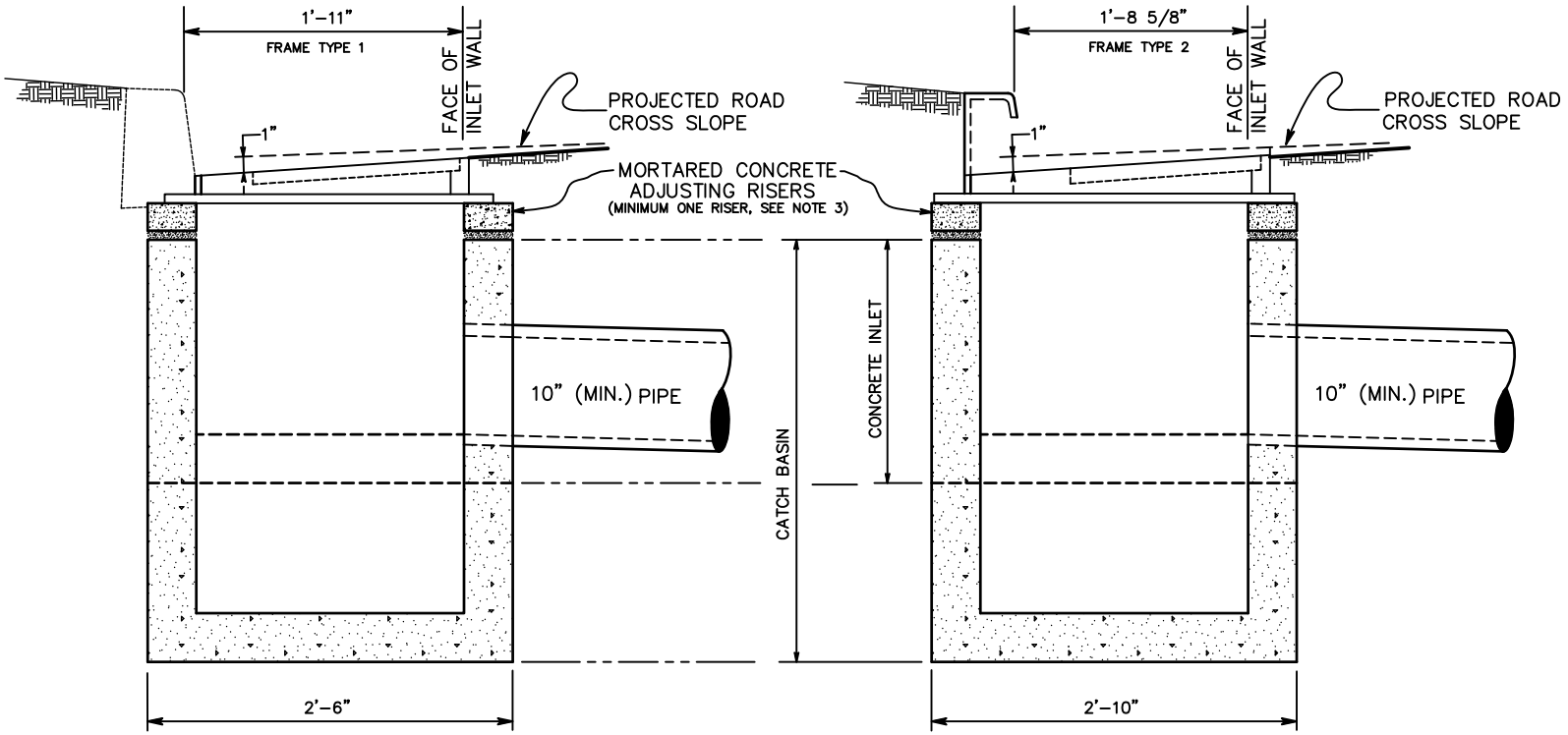
SECTION A-A



SECTION B-B

GENERAL NOTES

1. THE TOP OF GRATE SHALL BE INSTALLED 1" LOWER THAN THE PROJECTED GUTTER GRADE. (ALSO SEE STD. PLAN B-18 GUTTER DEPRESSION DETAIL)
2. THE PRECAST CONCRETE INLET SHALL BE PLACED ON THE SAME GRADE AS THE CURB.
3. RISER TYPE 2 TO BE USED WITH CATCH BASIN.



CATCH BASIN & INLET TYPE 1

CATCH BASIN & INLET TYPE 2

Andrew Staples

6-29-17

NOT TO SCALE

STD-B07.dwg

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DEPARTMENT OF PUBLIC WORKS
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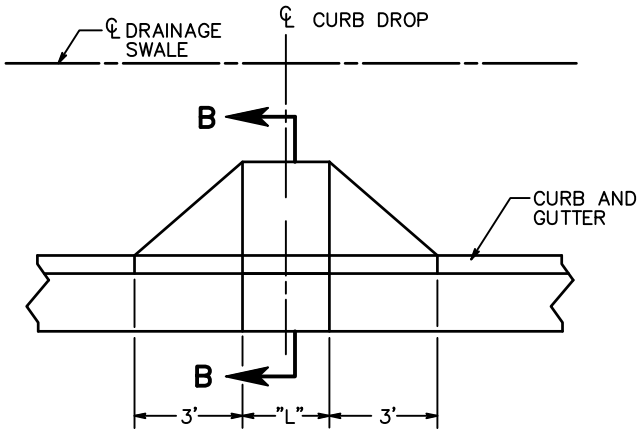
STANDARD

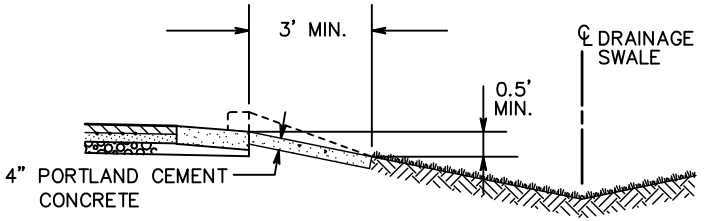
CATCH BASIN & INLET INSTALLATION

SHEET B-7

GENERAL NOTES

1. CURB INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. TOP SURFACE TO BE BROOM FINISHED.
3. ALL EXTERNAL EDGES NOT LABELED SHALL BE TROWELLED WITH 1/4" RADIUS EDGER.
4. DIMENSION "L" SHALL BE SHOWN ON THE PLANS.





SECTION B–B

CURB INLET TYPE 1

NOT TO SCALE

STD–B08.dwg

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DEPARTMENT OF PUBLIC WORKS
LIBERTY LAKE, WA. 99019 509-755-6700

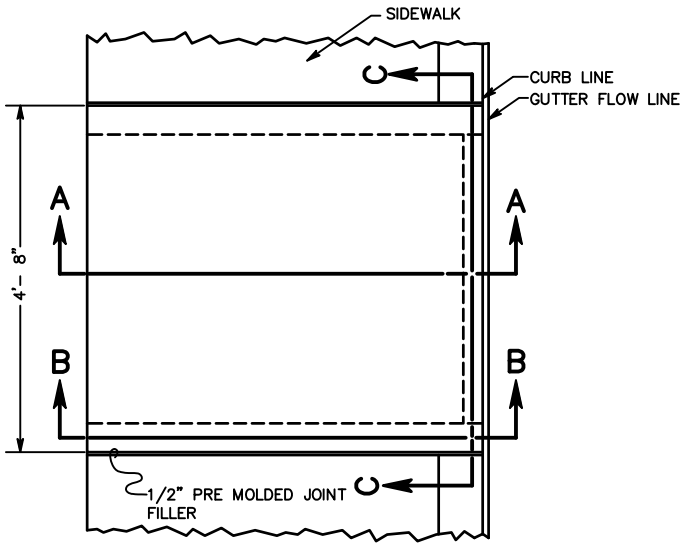
Andrew Staples
6-29-17

STANDARD
CURB INLET TYPE 1

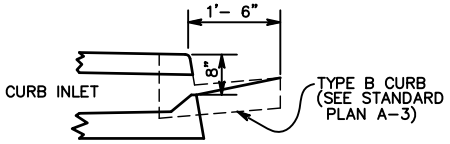
SHEET
B–8

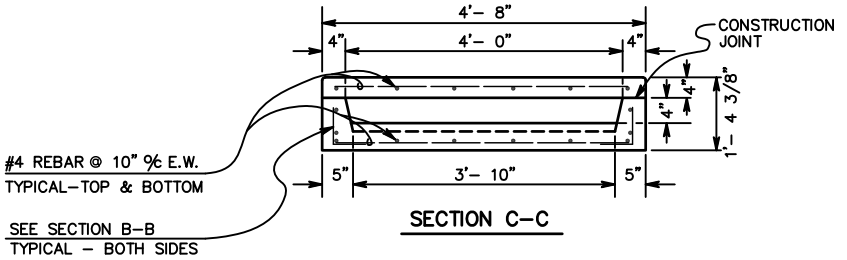
GENERAL NOTES

1. CURB INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. TOP SURFACE TO BE BROOM FINISHED.
3. ALL EXTERNAL EDGES NOT LABELED SHALL BE TROWELLED WITH 1/4" RADIUS EDGER.

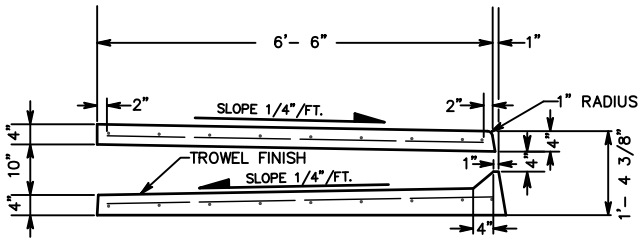


PLAN

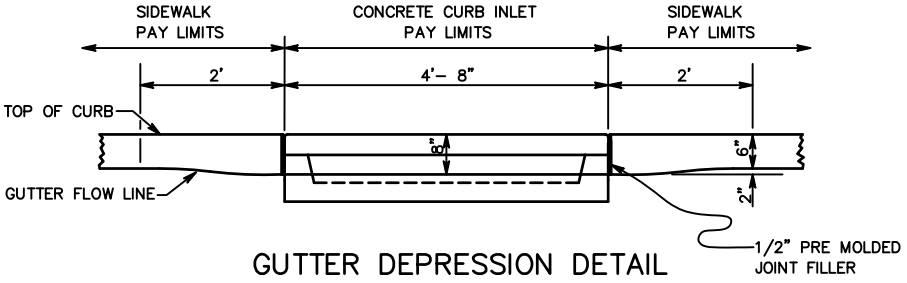




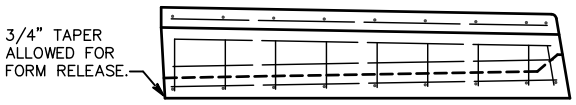
SECTION C-C



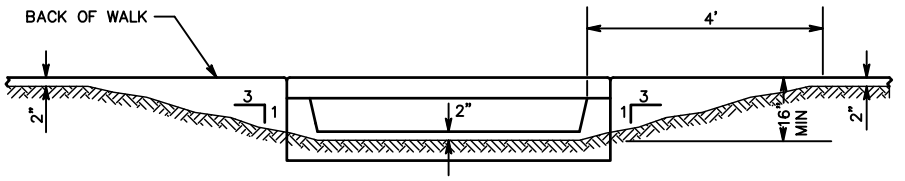
SECTION A-A



GUTTER DEPRESSION DETAIL



SECTION B-B
REBAR PLACEMENT



OUTLET SWALE GRADING DETAIL

CURB INLET

NOT TO SCALE

STD-B09.dwg

NO.	DATE	BY	CKD.	APPR.	REVISION

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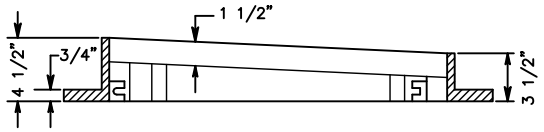
DEPARTMENT OF PUBLIC WORKS
LIBERTY LAKE, WA. 99019 509-755-6700

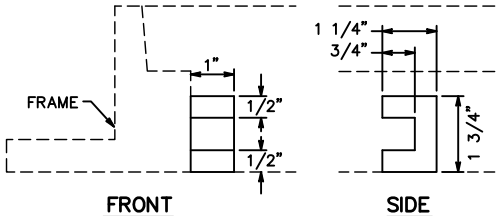
Andrew Staples
6-29-17

STANDARD
CURB INLET TYPE 2

SHEET
B-9

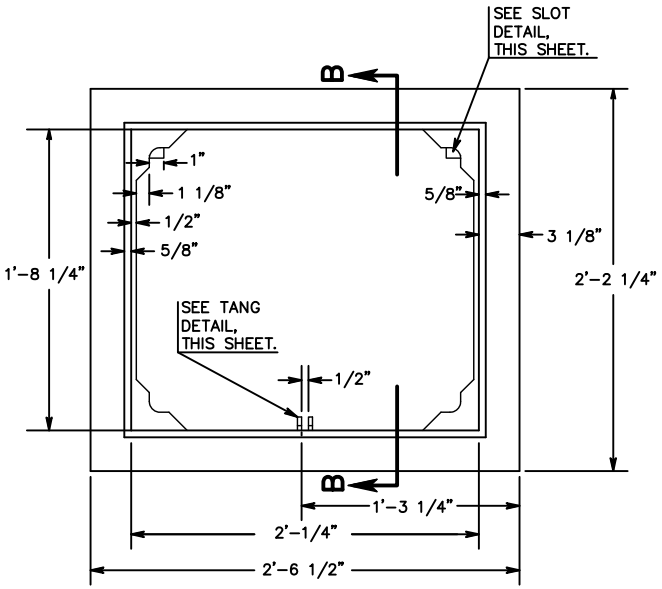


SECTION B–B

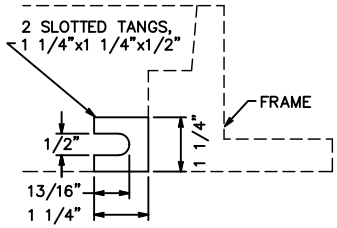


FRONT SIDE

SLOT DETAIL



FRAME – TYPE 1



TANG DETAIL

GENERAL NOTES

1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48–03 CLASS 35 GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536–84, GRADE 80–55–06.
2. USE WITH CATCH BASIN AND CONCRETE INLET TYPE 1, SEE STD. PLAN SHEETS B–4,5 & 7.
3. FIT TOLERANCE SHALL BE 1/8"
4. WELDING IS NOT PERMITTED.
5. GRATE GUARD REQUIRED. SEE SHEET B–17.
6. FOR GRATE DETAIL SEE STD. PLAN, SHEET B–12.

Andrew Staples

6-29-17

NOT TO SCALE

STD–B10.dwg

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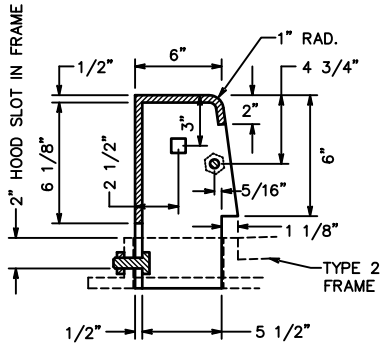
LIBERTY LAKE, WA. 99019 509–755–6700

STANDARD
METAL FRAME TYPE 1

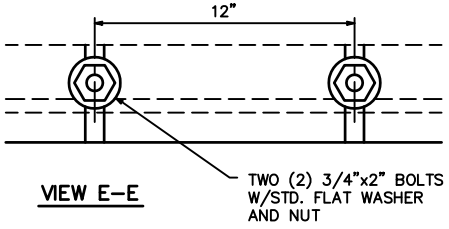
SHEET
B–10

GENERAL NOTES

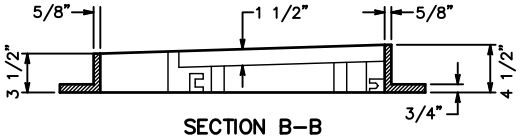
1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-03 CLASS 35. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, GRADE 80-55-06.
2. BOLTS AND ROD SHALL CONFORM TO A.S.T.M. DESIGNATION A307, GRADE A.
3. USE WITH CATCH BASIN AND CONCRETE INLET TYPE 2, SEE STD. PLAN SHEETS B-4,6 & 7.
4. FIT TOLERANCE SHALL BE 1/8" ±.
5. FOR GRATE DETAILS SEE STD. PLAN, SHEET B-13 OR B-14.
6. GRATE GUARD REQUIRED. SEE SHEET B-17.



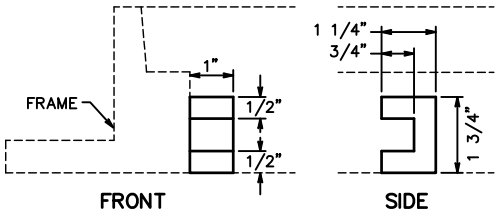
SECTION D-D



VIEW E-E

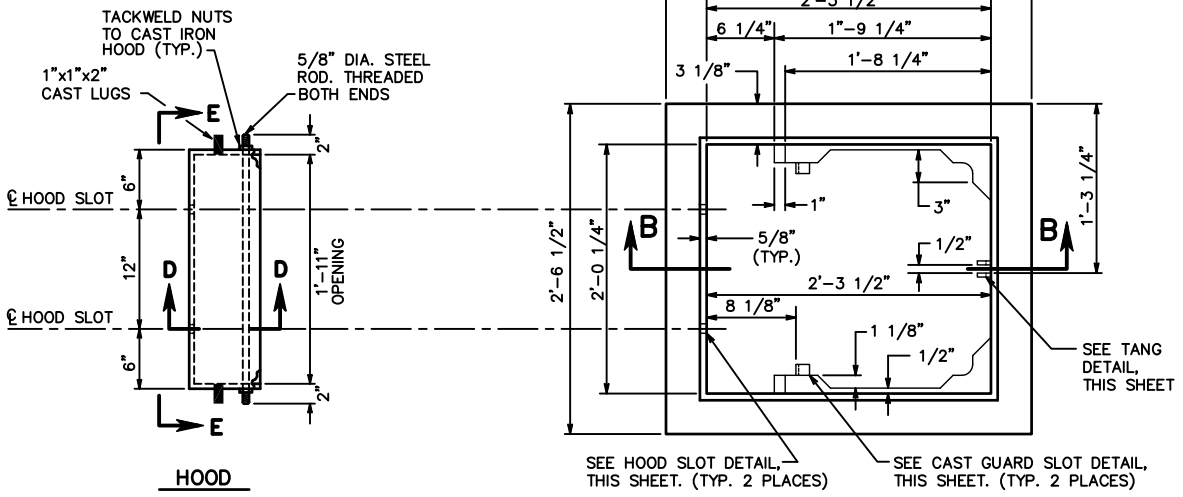


SECTION B-B

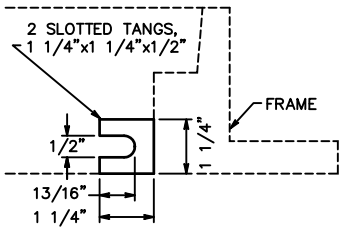


FRONT SIDE

GUARD SLOT DETAIL



HOOD



TANG DETAIL

FRAME - TYPE 2

Andrew Staples
ANDREW DONN STAPLES
STATE OF WASHINGTON
44738
REGISTERED PROFESSIONAL ENGINEER
6-29-17

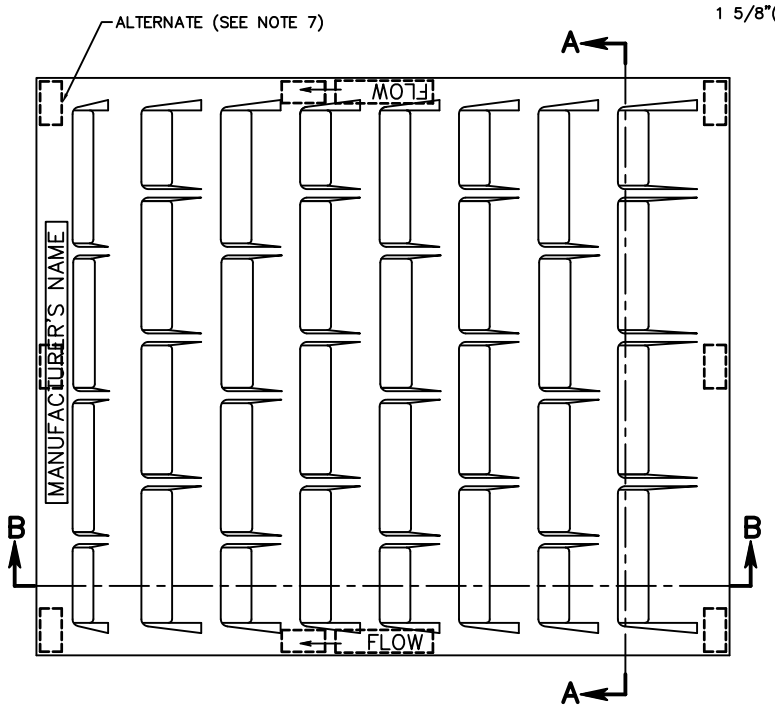
NOT TO SCALE
STD-B11.dwg

NO.	DATE	BY	CKD.	APPR.	REVISION

CITY OF LIBERTY LAKE
DEPARTMENT OF PUBLIC WORKS
LIBERTY LAKE, WA. 99019 509-755-6700

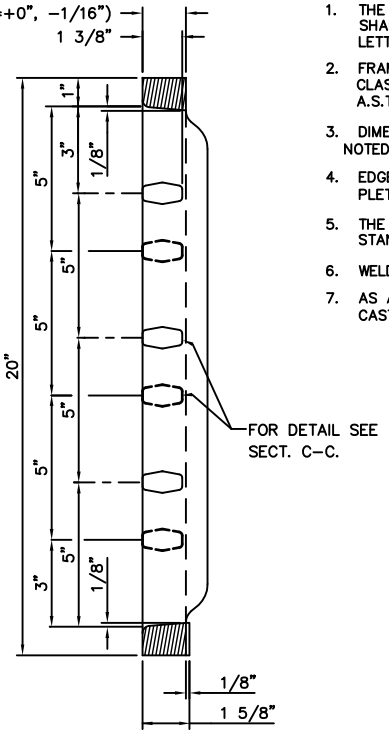
STANDARD
METAL FRAME TYPE 2

SHEET
B-11



TOP VIEW

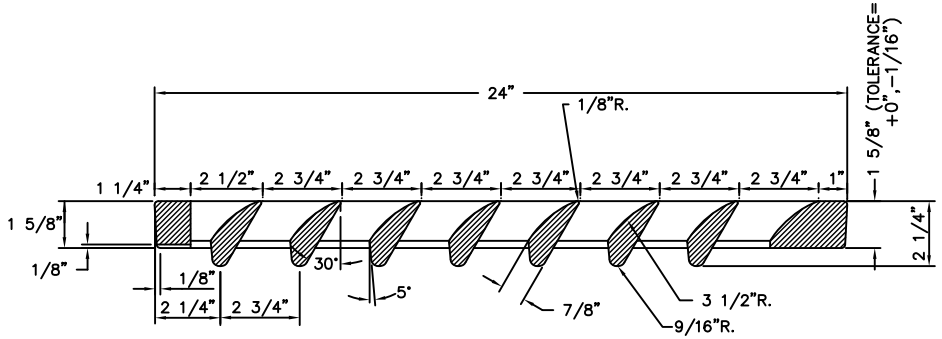
APPROXIMATE WEIGHT=101 LBS.



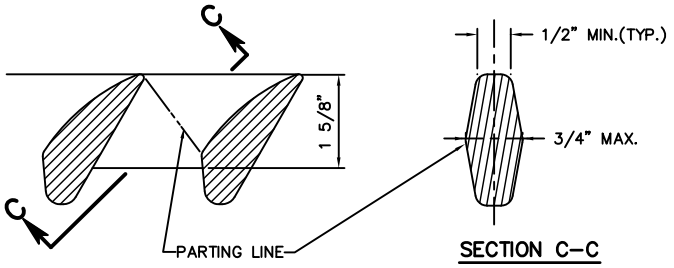
SECTION A-A

GENERAL NOTES

1. THE NAME OF THE MANUFACTURER AND DIRECTION OF FLOW SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RECESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-03, CLASS 35. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE ±1/16" TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COMPLETE DEBURRING.
5. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STANDARD PLAN B-10.
6. WELDING IS NOT PERMITTED.
7. AS AN ALTERNATE, 8 PADS 1 1/2" X 3/4" X 1/8", INTEGRALLY CAST WITH THE GRATE, MAY BE USED.



SECTION B-B



SECTION C-C

VANE DETAIL

Andrew Staples

6-29-17

NOT TO SCALE

STD-B12.dwg

NO.	DATE	BY	CKD.	APPR.	REVISION

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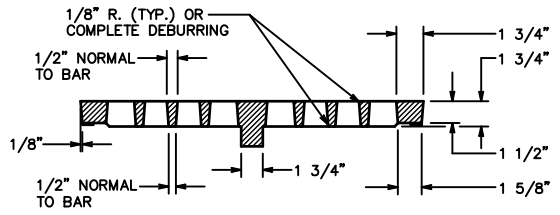
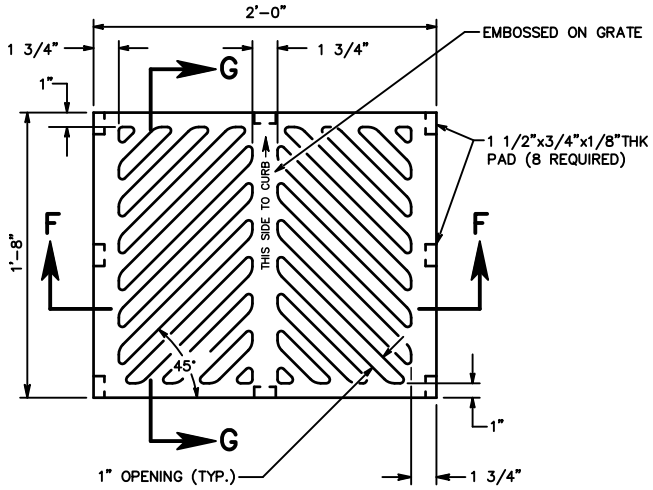
DEPARTMENT OF PUBLIC WORKS
LIBERTY LAKE, WA. 99019 509-755-6700

STANDARD
METAL GRATE TYPE 1

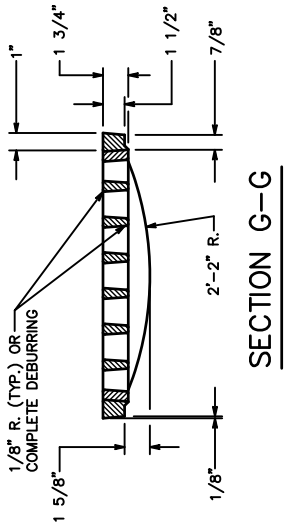
SHEET
B-12



SECTION F–F



GRATE



SECTION G–G

GENERAL NOTES

1. THE WORDS "THIS SIDE TO CURB" SHALL BE EMBOSSED ON THE TOP OF THE GRATE, WITH AN ARROW INDICATING THE CURB SIDE OF THE GRATE.
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48–90, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536–84, GRADE 80–55–06.
3. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STD. PLAN, B–11.
4. WELDING IS NOT PERMITTED.
5. AS AN ALTERNATE 8 PADS 1 1/2" x 3/4" x 1/8" INTEGRALLY CAST WITH THE GRATE MAY BE USED.

Andrew Staples
ANDREW DONN STAPLES
STATE OF WASHINGTON
44738
REGISTERED
PROFESSIONAL ENGINEER
6-29-17

NOT TO SCALE
STD–B13.dwg

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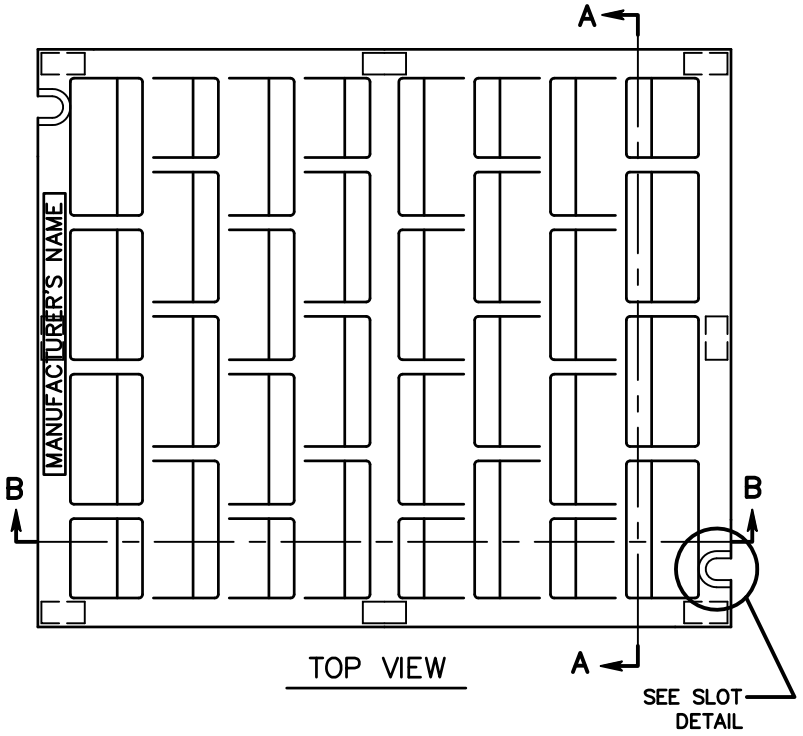
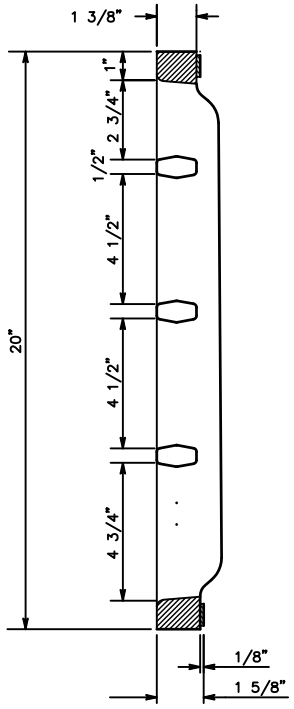
STANDARD
METAL GRATE TYPE 2

SHEET
B–13



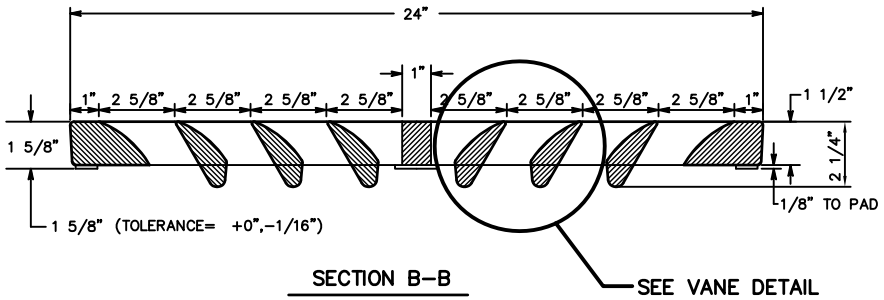
TOP VIEW



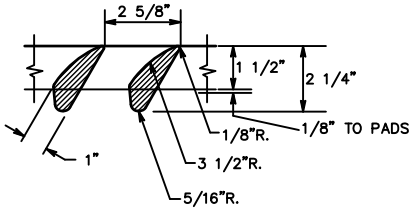
SECTION A–A

GENERAL NOTES

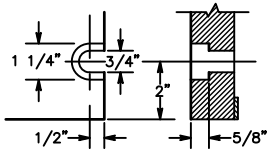
1. THE NAME OF THE MANUFACTURER AND THE DIRECTION OF FLOW SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RESESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48–03, GRADE 35. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536–84 GRADE 80–55–06.
3. DIMENSIONS SHALL HAVE ±1/16" TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COMPLETE DEBURRING.
5. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STANDARD PLAN B–11.
6. WELDING IS NOT PERMITTED.



SECTION B–B



VANE DETAIL



BOLT–DOWN SLOT DETAIL

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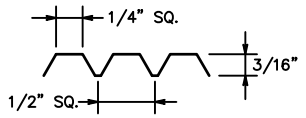
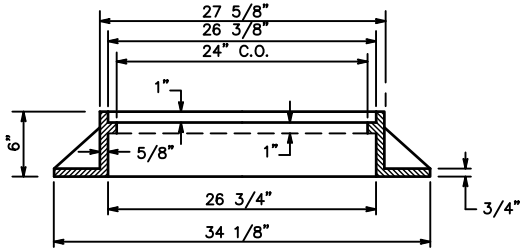
STANDARD

METAL GRATE TYPE 3

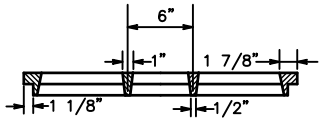
SHEET B–14



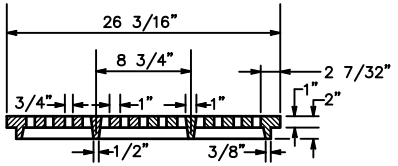
COVER SKID DESIGN DETAIL



SECTION A–A



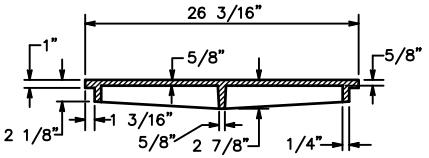
SECTION J–J



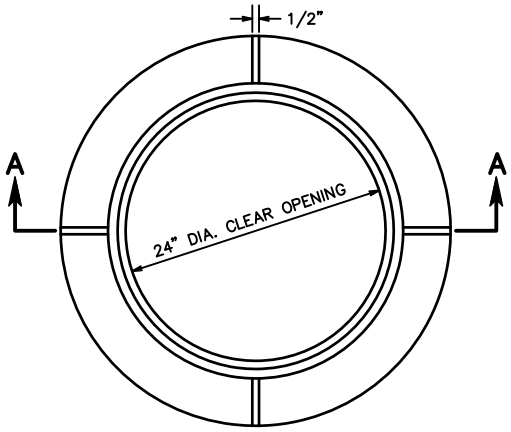
SECTION H–H

GENERAL NOTES

1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48–03, CLASS 35. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536–84, CLASS 80–55–06.
2. METAL FRAME AND GRATE TYPE 4 SHALL ONLY BE USED WHERE SHOWN ON THE CONSTRUCTION PLANS. IT SHALL NOT BE USED AT A CURB LINE.
3. DRAINAGE SLOTS SHALL BE PLACED PARALLEL TO THE DIRECTION OF FLOW.
5. FIT TOLERANCE SHALL BE 1/8"±.
6. WELDING IS NOT PERMITTED.

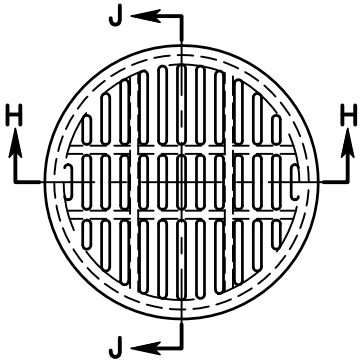


SECTION B–B



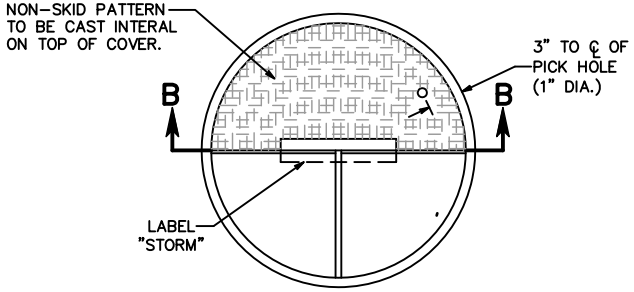
MIN. WEIGHT 168 LBS.

FRAME – TYPE 4



GRATE – TYPE 4

NOT TO BE INSTALLED ON TRAVELED WAY DUE TO DANGER TO BIKES.



SOLID COVER

MIN. WEIGHT 118 LBS.

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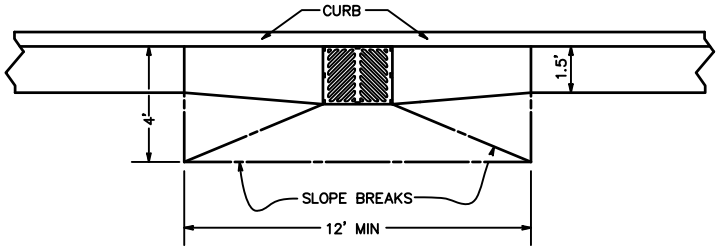
6-29-17

STANDARD

METAL FRAME, GRATE & SOLID COVER – TYPE 4

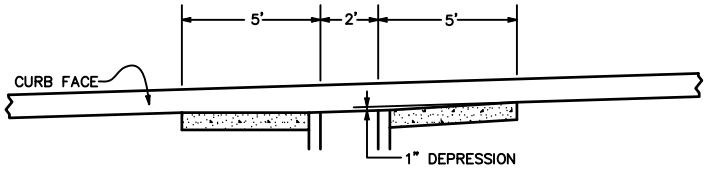
SHEET B–15

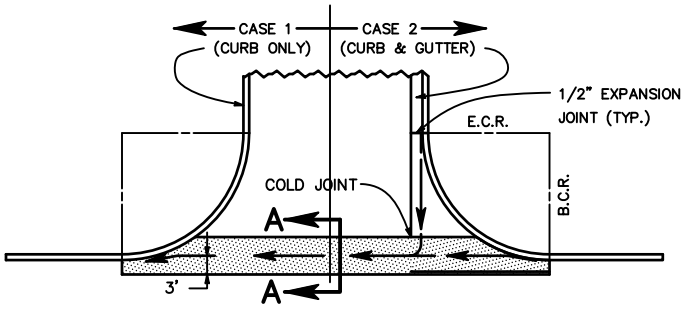


GUTTER DEPRESSION

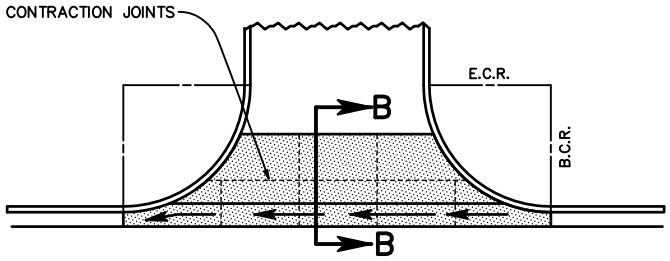
GENERAL NOTES

1. THE GUTTER DEPRESSION SHALL BE CONSTRUCTED OF ASPHALT CONCRETE WHERE NO CONCRETE GUTTER IS SPECIFIED. A.C. THICKNESS SHALL BE THE SAME AS SPECIFIED FOR THE ROAD.
2. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000.

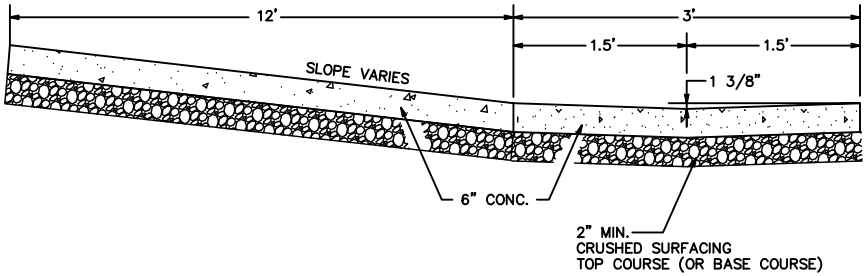




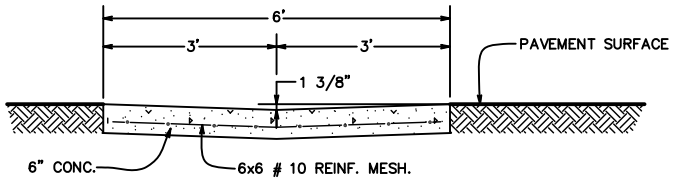
CROSS GUTTER TYPE 1



CROSS GUTTER TYPE 2



SECTION B–B



SECTION A–A

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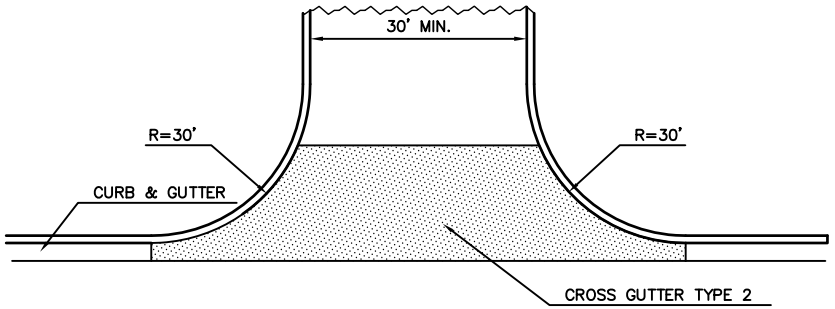
STANDARD
CONCRETE GUTTERS

SHEET
B–16



HIGH VOLUME DRIVEWAY APPROACH

GENERAL NOTES

1. THE GUTTER DEPRESSION SHALL BE CONSTRUCTED OF ASPHALT CONCRETE WHERE NO CONCRETE GUTTER IS SPECIFIED. A.C. THICKNESS SHALL BE THE SAME AS SPECIFIED FOR THE ROAD.
2. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000.

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6-29-17

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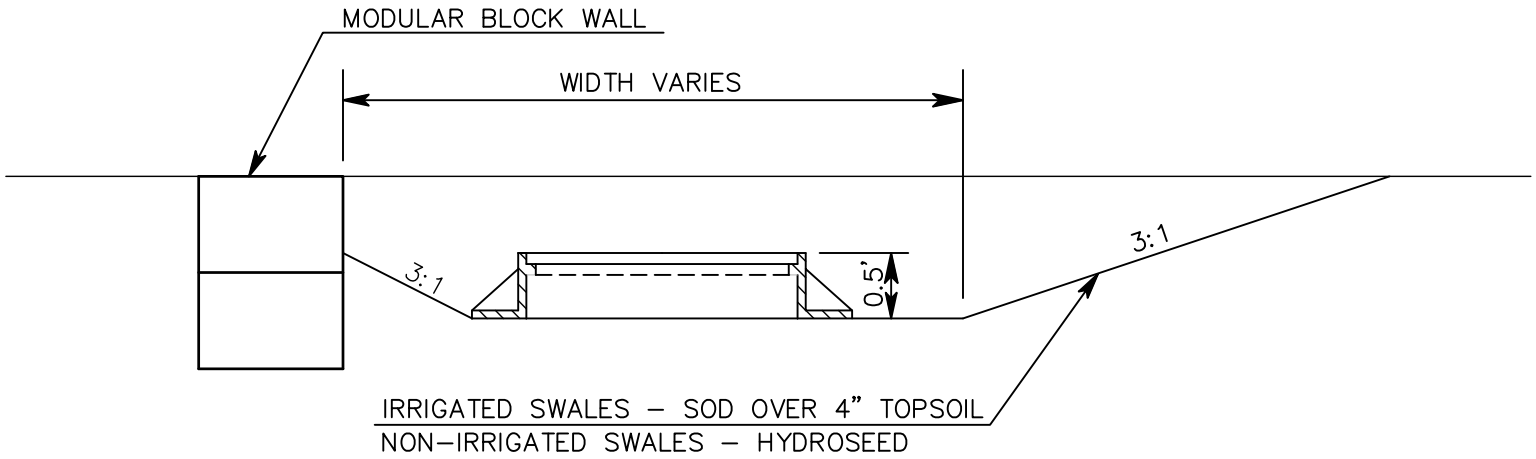
STANDARD
HIGH VOLUME DRIVEWAY APPROACH

SHEET
B-17



SWALE SECTION WITH MODULAR BLOCK WALL

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Andrew Staples
6-29-17

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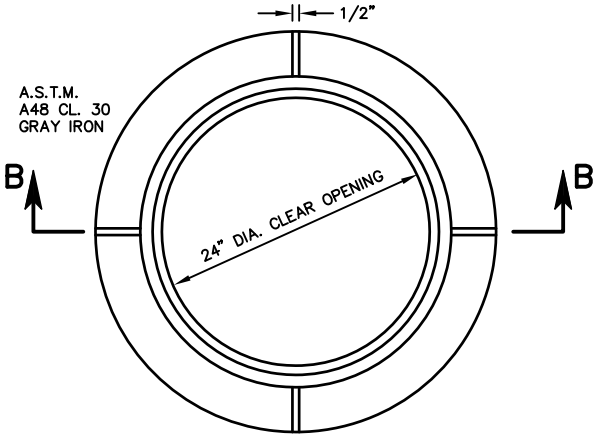
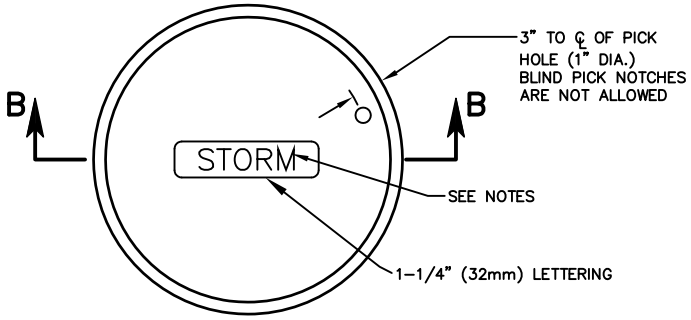
STANDARD
SWALE SECTION WITH MODULAR BLOCK WALL

SHEET
B-18

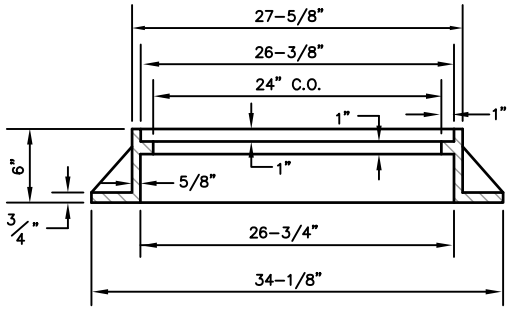


CAST IRON FRAME
MIN. WEIGHT 168 LBS.

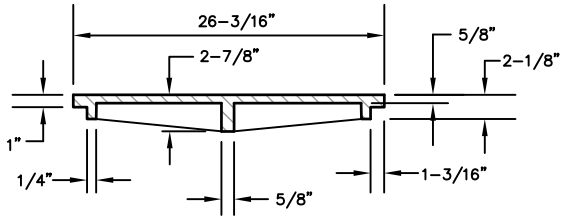


DUCTILE IRON COVER MIN.
WEIGHT 118 LBS.

A.S.T.M. A536
CL. 80-55-06
DUCTILE IRON



SECTION A-A



SECTION B-B

NOTES

1. THE WORD "STORM" SHALL BE EMBOSSED ON EACH STORM DRAIN MANHOLE COVER WITH 1-1/4" RAISED LETTERS.
2. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621E.
3. MATING SURFACES SHALL BE FINISHED TO ASSURE NON- ROCKING FIT WITH ANY COVER POSITION.

Andrew Staples

6-25

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STANDARD
STORM DRAIN MANHOLE RING AND COVER

SHEET
B-19