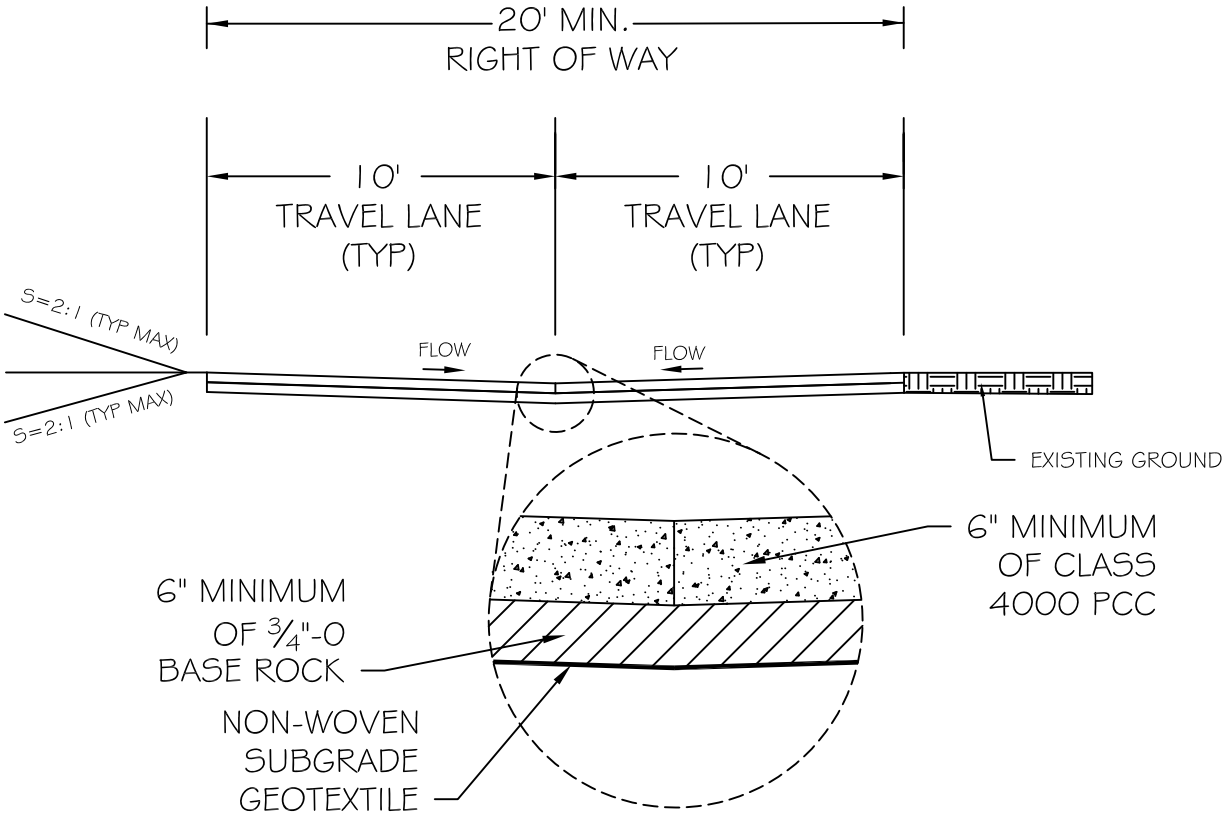
Standard Detail Drawings & Sample Test Report Forms

Appendix A

Note:
1) Per PWDS 1.10.b.9, the applicable City standard details shall be included on construction drawings submitted for City review and approval. See also PWDS 1.3.a.3 for detail sheet stamping requirements where engineered drawings are required.
2) Per PWDS 1.2.b, the standard details are intended to assist but not to substitute for competent work by design professionals where applicable. As noted in the PWDS, the standard details illustrate the minimum requirements and materials required by the Public Works Department for the construction of certain standard system components, and are thus not considered to be final documents until incorporated into a design approved by the City,

PUBLIC ALLEY
VIEW LOOKING NORTH OR EAST



NOTES:

1. WIDTH OF ALLEY DEPENDENT UPON EXISTING RIGHT OF WAY WIDTH. NEW ALLEYS SHALL HAVE A RIGHT OF WAY WIDTH OF 20 FEET MINIMUM.
2. ALLEY DRAINAGE SHALL FLOW TO CENTER OF RIGHT OF WAY TO INTERMEDIATE AREA DRAINS AND STORM SYSTEM.
3. "NO PARKING FIRE LANE" SIGNAGE AS REQUIRED.
4. ALLEYS ARE FOR VEHICLE ACCESS TO PROPERTIES ONLY.
5. ALLEY CROSS SLOPE SHALL NOT EXCEED 2%.
6. ALLEYS SHALL BE CONSTRUCTED OF 6-INCH THICK CLASS 4000 PCC MEETING THE REQUIREMENTS OF ODOT SSC SECTION 00756 PLAIN CONCRETE PAVEMENT.
7. BASE ROCK SHALL BE 6-INCH THICK COMPACTED $\frac{3}{4}$"-0 CRUSHED AGGREGATE WITH A NON-WOVEN SUBGRADE GEOTEXTILE.
8. SAW CUT JOINTS SHALL BE 2-INCH DEEP MINIMUM AND PLACED AT 10' INTERVALS.
9. POUR ONE SIDE OF ALLEY TO CONTROL CENTERLINE GRADE FOLLOWED BY POURING OF SECOND SIDE. SIDES SHALL NOT BE POURED MONOLITHICALLY.

CITY OF INDEPENDENCE
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PUBLIC ALLEY

DRAWN BY	PW	2/2025	R-1000
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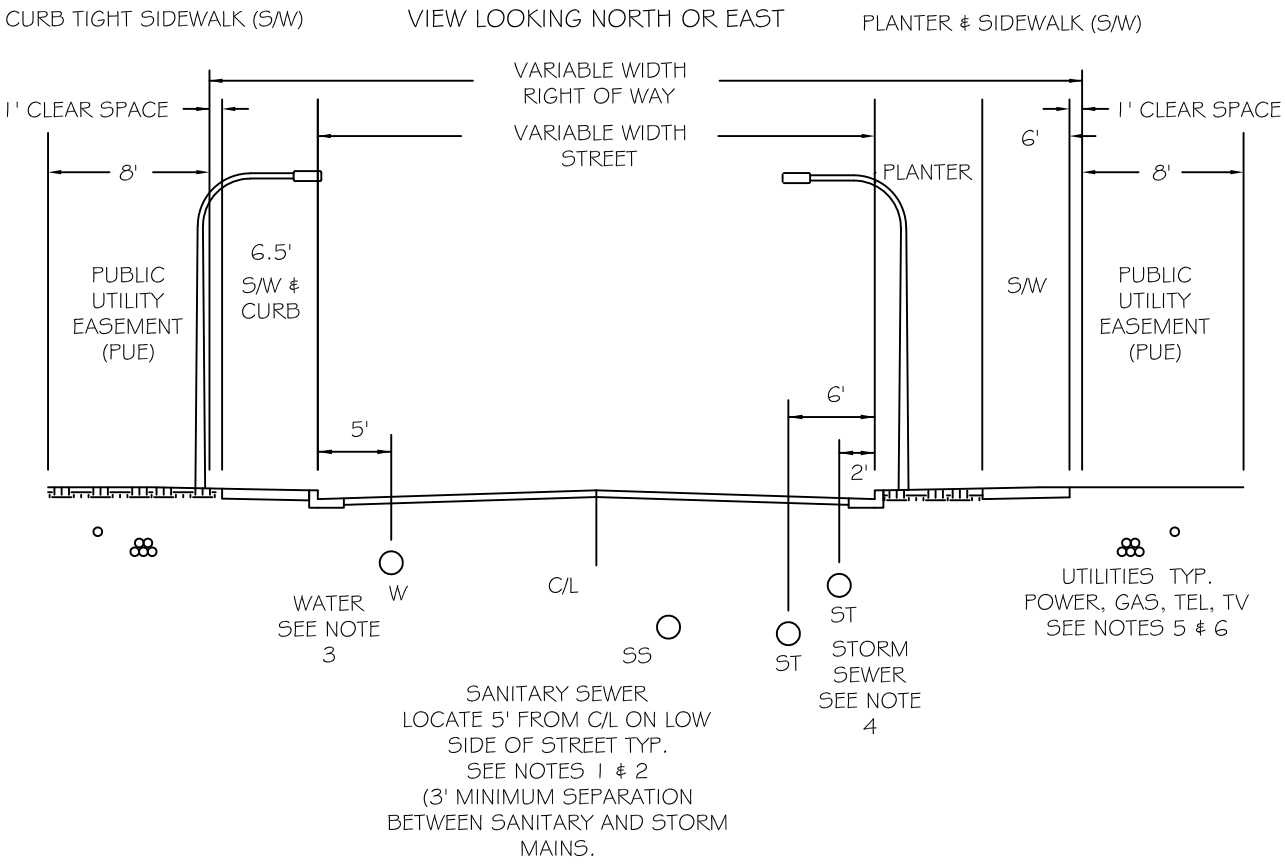

NOTES:

1. MINIMUM COVER OF 6' FOR SANITARY SEWER MAINS & MINIMUM 4' COVER FOR SANITARY SEWER LATERALS.
2. LATERALS AND P/L CLEANOUTS TO BE INSTALLED DURING CONSTRUCTION OF SANITARY SEWER & STORM SEWER MAINS, UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
3. WATER LOCATED IN STREET 5' FROM FACE OF CURB. 36" MINIMUM COVER ON ALL WATERLINES & 30" MINIMUM COVER ON SERVICES.
4. STORM DRAIN INSTALLED ON LOW SIDE OF STREET: 2' FROM FACE OF CURB FOR <4' RIM TO INVERT. 6' FROM FACE OF CURB FOR >4' RIM TO INVERT.
5. MAINTAIN MINIMUM 5' HORIZONTAL SEPARATION BETWEEN PUBLIC UTILITIES AND PARALLEL FRANCHISE UTILITIES. FRANCHISE UTILITY STREET CROSSINGS SHALL BE PERPENDICULAR TO STREET CENTERLINE. OTHER VERTICAL & HORIZONTAL SEPARATION SHALL BE AS SPECIFIED BY DEQ, OHA, AND OTHER PUBLIC/PRIVATE UTILITY COMPANIES.
6. STREET LIGHTS SHALL BE LOCATED BEHIND BACK OF WALK IN PUE ON CURB TIGHT SIDEWALK STREETS. STREET LIGHTS SHALL BE LOCATED IN PLANTER STRIP ON PLANTER & SIDEWALK STREETS.
7. COMBINED/UNITY TRENCH PER FRANCHISE UTILITY COMPANY REQUIREMENTS.

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TYPICAL UTILITY LOCATIONS (CURBED STREETS)

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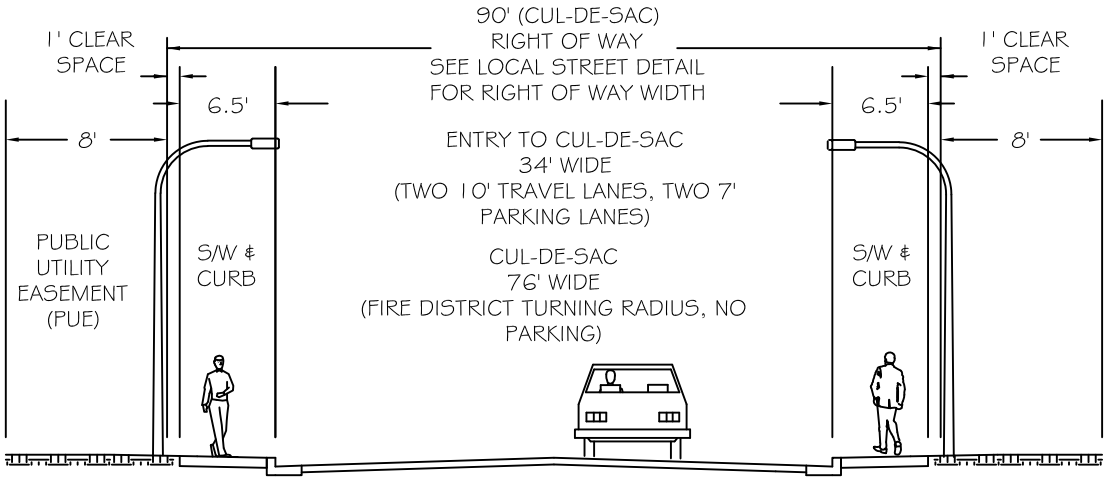
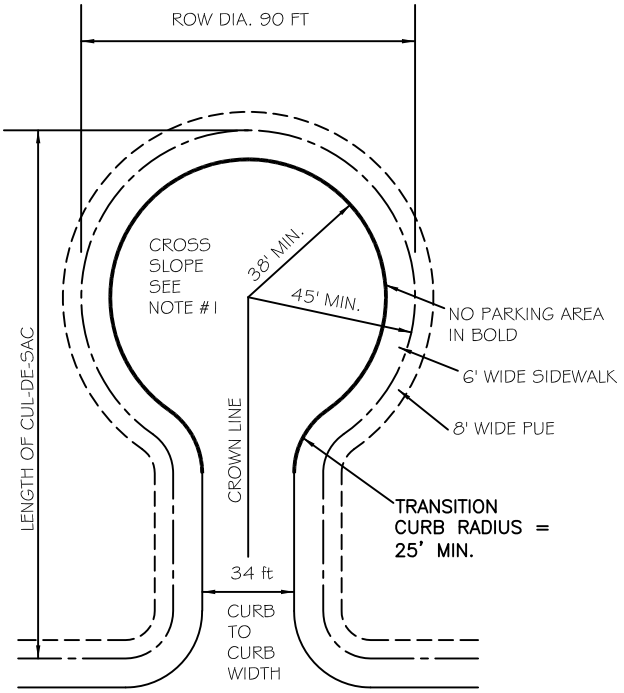
R-1005

LOCAL STREET CUL-DE-SAC
VIEW ALL DIRECTIONS



NOTES:

1. 2.5% MINIMUM, 5% MAXIMUM CROSS SLOPE FROM CENTER OF CUL-DE-SAC TO GUTTER.
2. A 6' WIDE SIDEWALK IS REQUIRED ON ALL CUL-DE-SACS.
3. 6" CURB WIDTH IS NOT INCLUDED IN SIDEWALK WIDTH.
4. STREET LIGHTS SHALL BE LOCATED BEHIND BACK OF WALK IN PUE.
5. NO STRIPING ON STREET. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
6. ON-STREET PARKING IS NOT ALLOWED IN THE CUL-DE-SAC.
7. CUL-DE-SAC LENGTH SHALL NOT EXCEED 200' AND SERVE NO MORE THAN 20 DWELLING UNITS (IDC 90.90.010.M)
8. THE DISTANCE SHALL BE MEASURED FROM THE OUTSIDE RIGHT-OF WAY OF BULB TO NEAR SIDE RIGHT-OF-WAY OF INTERSECTING STREET.
9. MINIMUM 38' OUTER TURNING RADII REQUIRED. CONSULT WITH FIRE DISTRICT.
10. USE OF OFFSET CUL-DE-SAC SHALL BE APPROVED BY CITY ENGINEER. OFFSET SHALL NOT EXCEED ONE HALF WIDTH OF ENTRY STREET TO CUL-DE-SAC.



Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF INDEPENDENCE
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LOCAL STREET CUL-DE-SAC

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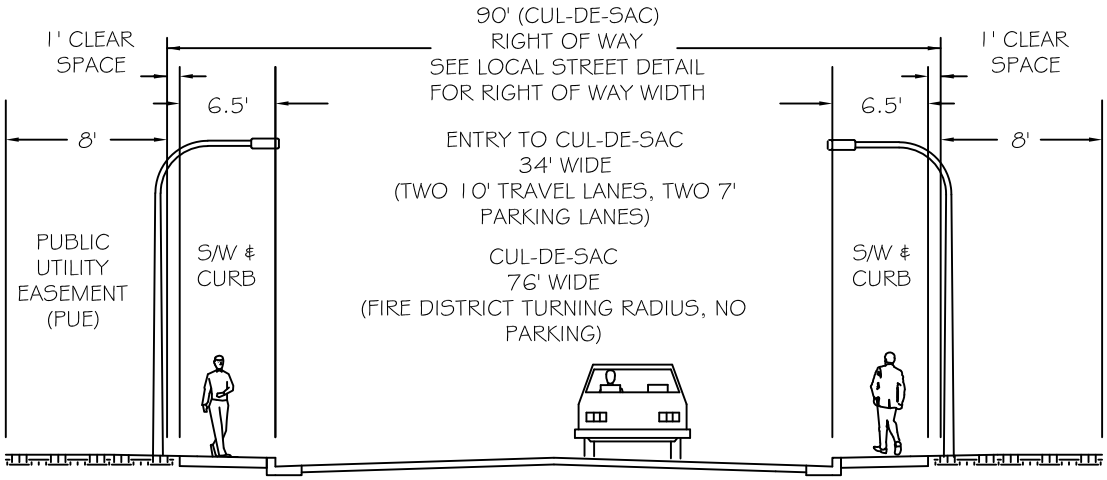
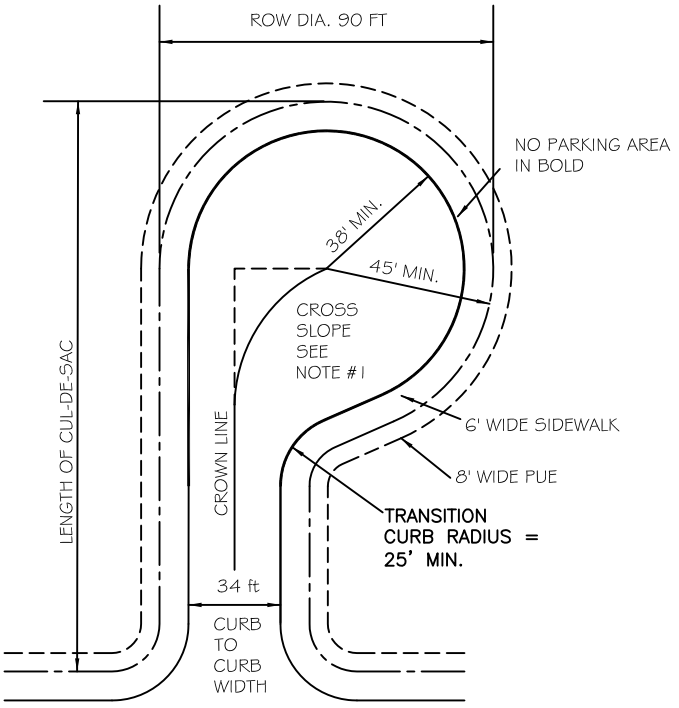
LOCAL STREET OFFSET CUL-DE-SAC
VIEW ALL DIRECTIONS



NOTES:

1. 2.5% MINIMUM, 5% MAXIMUM CROSS SLOPE FROM CENTER OF CUL-DE-SAC TO GUTTER. MAINTAIN CROWN LINE TO CENTER OF CUL-DE-SAC.
2. A 6' WIDE SIDEWALK IS REQUIRED ON ALL CUL-DE-SACS.
3. 6" CURB WIDTH IS NOT INCLUDED IN SIDEWALK WIDTH.
4. STREET LIGHTS SHALL BE LOCATED BEHIND BACK OF WALK IN PUE.
5. NO STRIPING ON STREET. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
6. ON-STREET PARKING IS NOT ALLOWED IN THE CUL-DE-SAC.
7. CUL-DE-SAC LENGTH SHALL NOT EXCEED 200' AND SERVE NO MORE THAN 20 DWELLING UNITS (IDC 90.90.010.M)
8. THE DISTANCE SHALL BE MEASURED FROM THE OUTSIDE RIGHT-OF WAY OF BULB TO NEAR SIDE RIGHT-OF-WAY OF INTERSECTING STREET.
9. MINIMUM 38' OUTER TURNING RADII REQUIRED. CONSULT WITH FIRE DISTRICT.
10. USE OF OFFSET CUL-DE-SAC SHALL BE APPROVED BY CITY ENGINEER. OFFSET SHALL NOT EXCEED ONE HALF WIDTH OF ENTRY STREET TO CUL-DE-SAC.



Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF INDEPENDENCE
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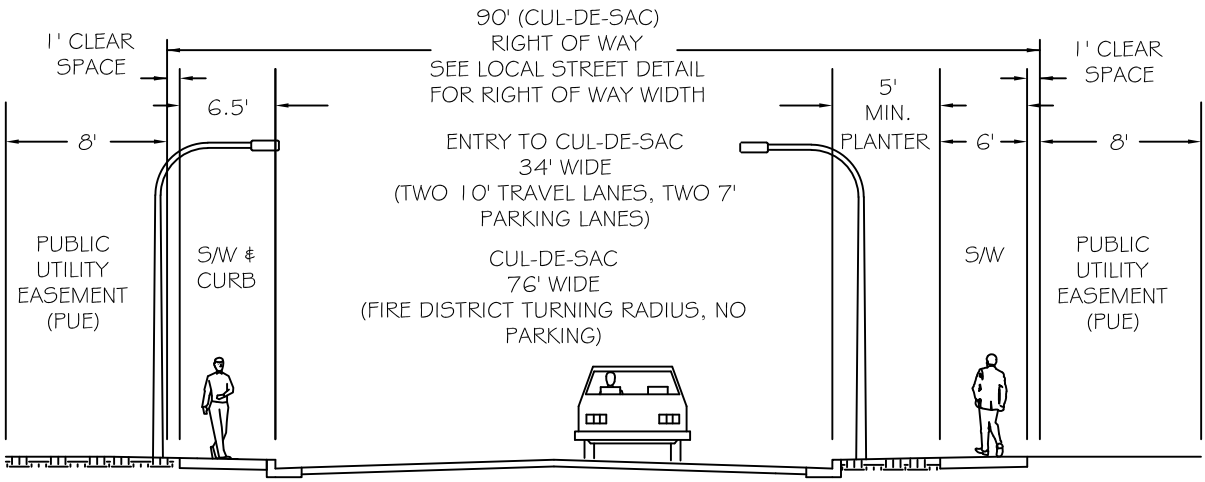
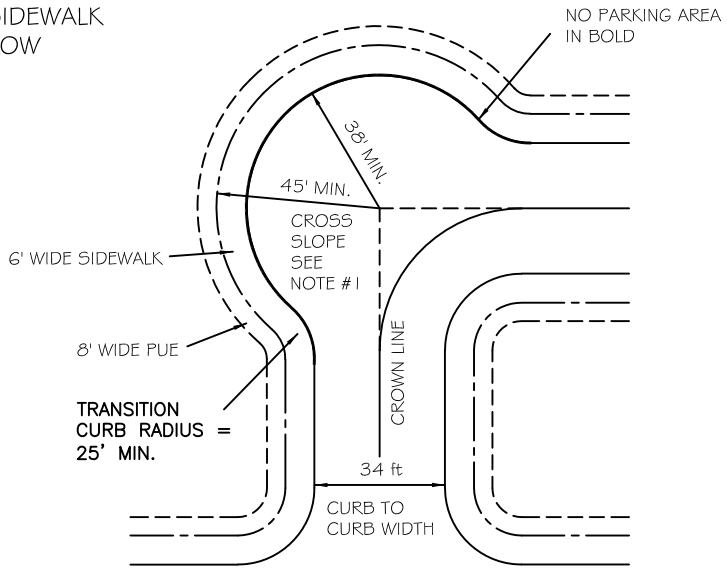
LOCAL STREET OFFSET CUL-DE-SAC

DRAWN BY	PW	2/2025	R-1015
CHECKED BY	MWH	2/2025	

LOCAL STREET EYEBROW CUL-DE-SAC
VIEW ALL DIRECTIONS



CURB TIGHT SIDEWALK IN EYEBROW



NOTES:

1. 2.5% MINIMUM, 5% MAXIMUM CROSS SLOPE FROM CENTER OF CUL-DE-SAC TO GUTTER. MAINTAIN CROWN LINE TO CENTER OF CUL-DE-SAC.
2. A 6' WIDE SIDEWALK IS REQUIRED ON ALL CUL-DE-SACS.
3. 6" CURB WIDTH IS NOT INCLUDED IN SIDEWALK WIDTH.
4. STREET LIGHTS SHALL BE LOCATED BEHIND BACK OF WALK IN PUE.
5. NO STRIPING ON STREET. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
6. ON-STREET PARKING IS NOT ALLOWED IN THE CUL-DE-SAC.
7. MINIMUM 38' OUTER TURNING RADII REQUIRED. CONSULT WITH FIRE DISTRICT.
8. USE OF EYEBROW CUL-DE-SAC SHALL BE APPROVED BY CITY ENGINEER.

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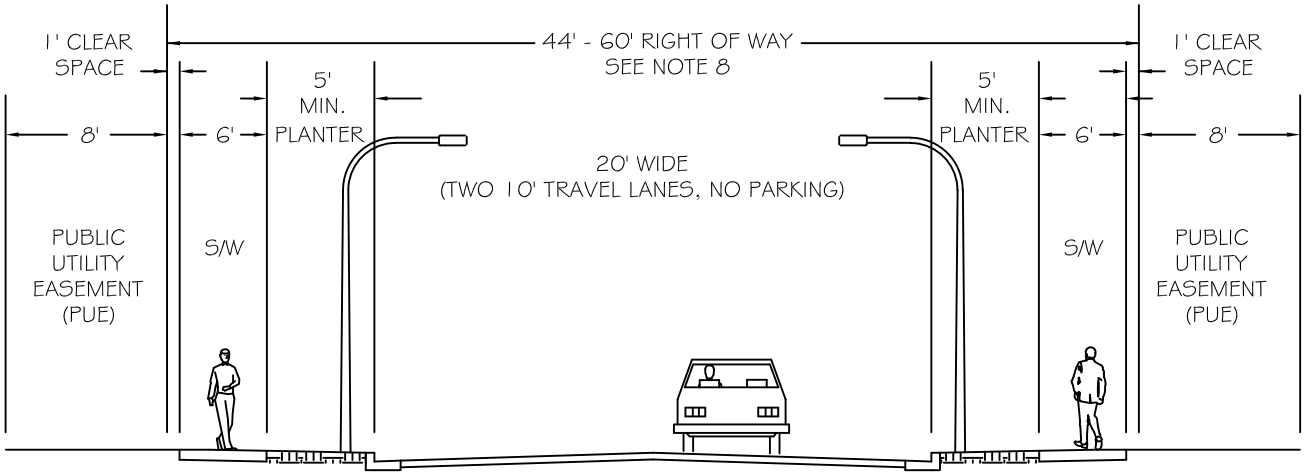
LOCAL STREET EYEBORW CUL-DE-SAC

DRAWN BY	PW	2/2025	R-1020
CHECKED BY	MWH	2/2025	

LOCAL STREET NO PARKING
VIEW ALL DIRECTIONS



NOTES:

1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL LOCAL STREETS.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS NOT ALLOWED.
8. LOCAL STREET WITH NO ON-STREET PARKING REQUIRES 44' RIGHT OF WAY FOR <400 ADT. THE CITY MAY REQUIRE 60' RIGHT OF WAY FOR >400 ADT.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

LOCAL STREET
NO ON-STREET PARKING

DRAWN BY	PW	2/2025
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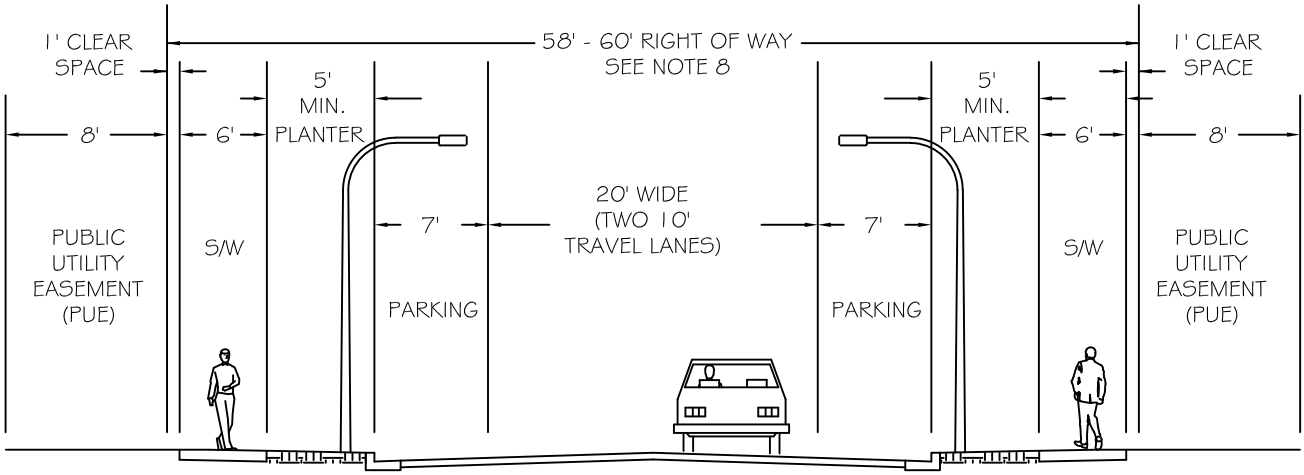
R-1025

LOCAL STREET WITH PARKING
VIEW ALL DIRECTIONS



NOTES:

1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL LOCAL STREETS.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS ALLOWED.
8. LOCAL STREET WITH ON-STREET PARKING REQUIRES 58' RIGHT OF WAY FOR <400 ADT. THE CITY MAY REQUIRE 60' RIGHT OF WAY FOR >400 ADT. THE CITY MAY REQUIRE UP TO 36' WIDE WIDTH (CURB TO CURB) AND NO PARKING AND/OR PLANTER STRIP NEAR INTERSECTIONS WITH HIGH CLASSIFICATION ROADWAYS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

LOCAL STREET WITH ON-STREET PARKING

DRAWN BY	PW	2/2025
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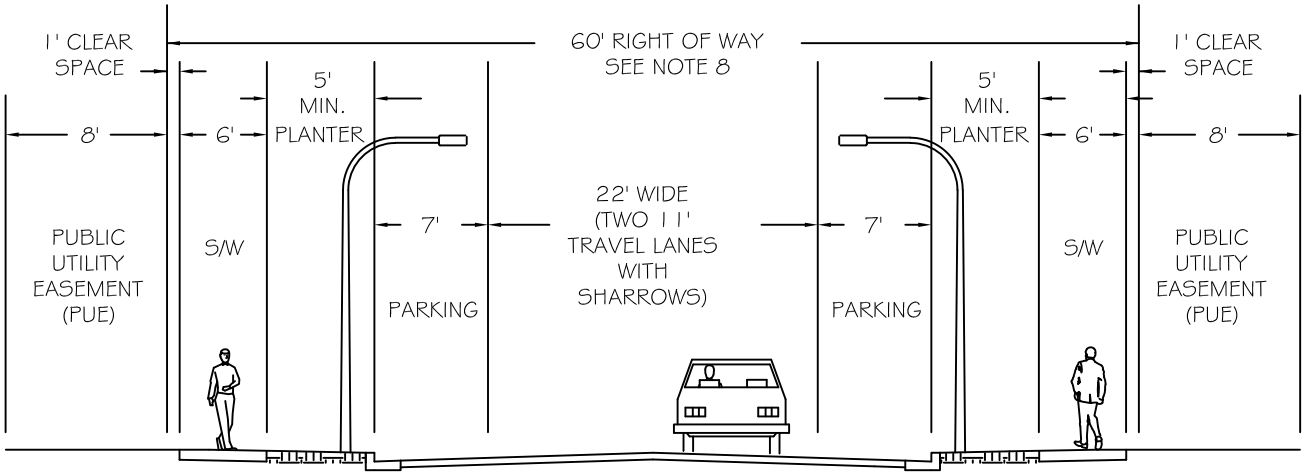
R-1030

COLLECTOR STREET WITH PARKING
VIEW ALL DIRECTIONS



NOTES:

1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL COLLECTOR STREETS.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS ALLOWED.
8. COLLECTOR STREET WITH ON-STREET PARKING REQUIRES 60' RIGHT OF WAY. THE CITY MAY REQUIRE ADDITIONAL RIGHT OF WAY FOR >2000 ADT. THE CITY MAY REQUIRE UP TO 36' WIDE WIDTH (CURB TO CURB) WITH TURN LANES AND NO PARKING AND/OR PLANTER STRIP NEAR INTERSECTIONS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.

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COLLECTOR STREET
ON-STREET PARKING (<2000 ADT)

DRAWN BY	PW	2/2025
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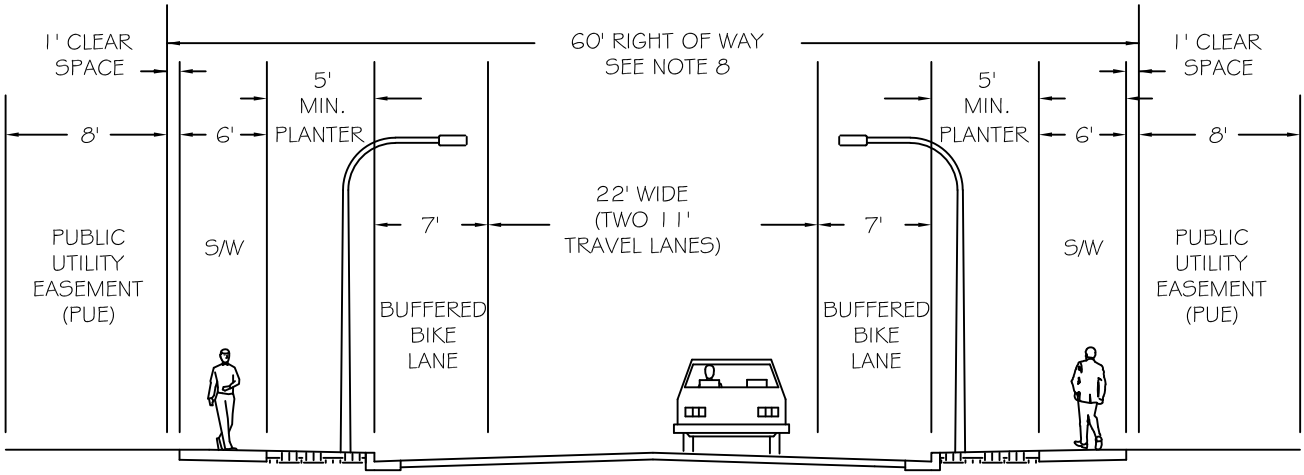
R-1035

COLLECTOR STREET WITH BIKE LANES
VIEW ALL DIRECTIONS



NOTES:

1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL COLLECTOR STREETS.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS NOT ALLOWED.
8. COLLECTOR STREET WITH BUFFERED BIKE LANES REQUIRES 60' RIGHT OF WAY. THE CITY MAY REQUIRE ADDITIONAL RIGHT OF WAY. THE CITY MAY REQUIRE UP TO 36' WIDE WIDTH (CURB TO CURB) WITH TURN LANES AND NO BIKE LANES AND/OR PLANTER STRIP NEAR INTERSECTIONS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.

CITY OF INDEPENDENCE
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COLLECTOR STREET WITH BIKE LANE (>2000 ADT)

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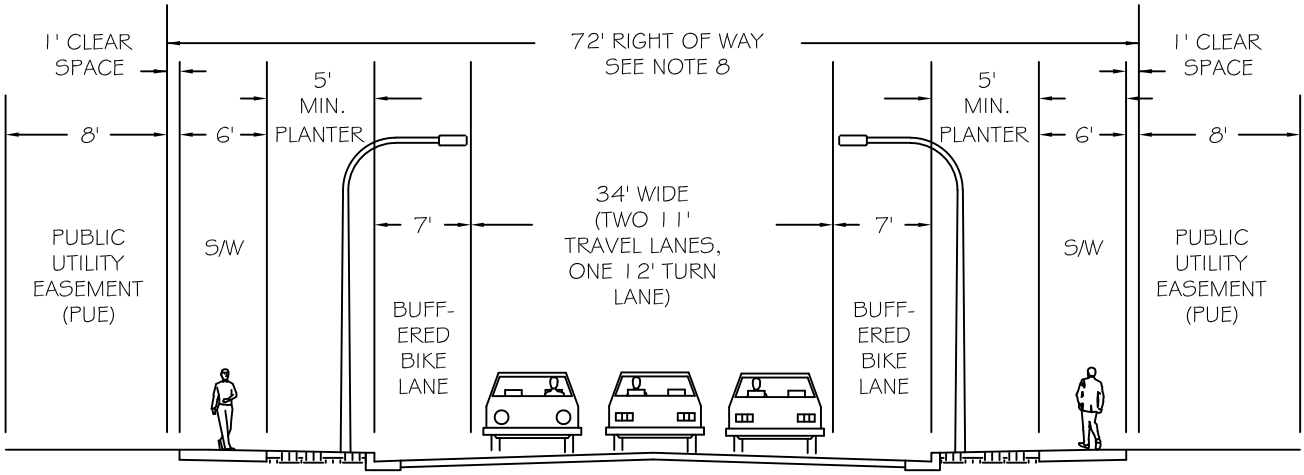
R-1040

COLLECTOR STREET WITH TURN LANE
VIEW ALL DIRECTIONS



NOTES:

1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL COLLECTOR STREETS.
6. PROVIDE TURN LANE AND OTHER STRIPING AS REQUIRED BY THE PUBLIC WORKS DIRECTOR.
7. ON-STREET PARKING IS NOT ALLOWED.
8. COLLECTOR STREET WITH BUFFERED BIKE LANES AND TURN LANE REQUIRES 72' RIGHT OF WAY. THE CITY MAY REQUIRE ADDITIONAL RIGHT OF WAY. THE CITY MAY REQUIRE NO BIKE LANES AND/OR PLANTER STRIP NEAR INTERSECTIONS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.

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DEPARTMENT OF PUBLIC WORKS

COLLECTOR STREET WITH TURN LANE

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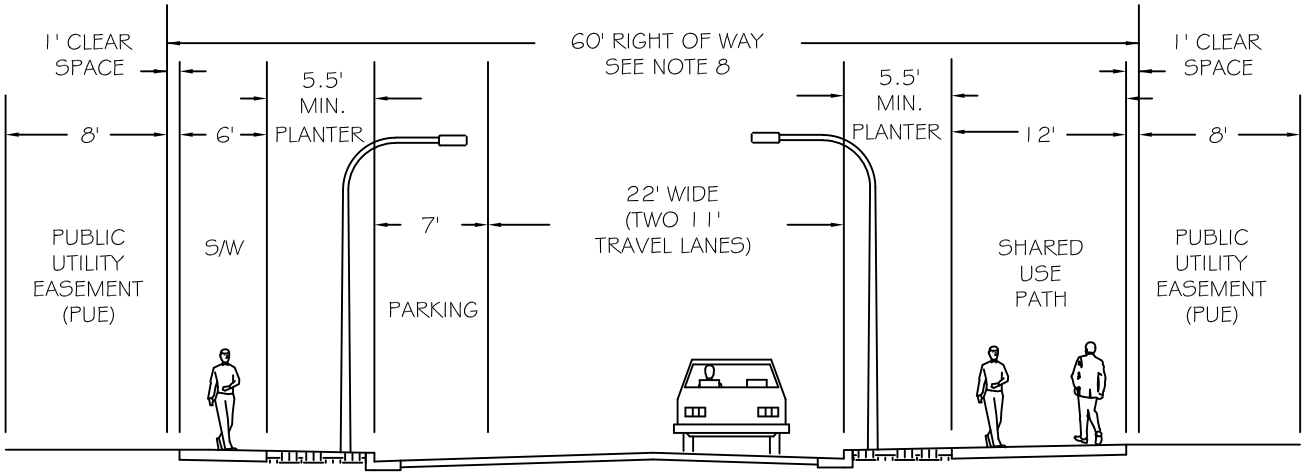
CHECKED BY	MWH	2/2025	

COLLECTOR STREET WITH PARKING
VIEW ALL DIRECTIONS



NOTES:

1. CROSS SECTION BASED ON CURRENT VERSION OF THE SOUTHWEST CONCEPT PLAN (SWCP) AS AN AMENDMENT TO THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ONE SIDE OF THE STREET AND 12' WIDE SHARED USE PATH ON THE OTHER SIDE OF THE STREET. SHARED USE PATH LOCATION SHALL BE APPROVED BY THE PLANNING DEPARTMENT AND PUBLIC WORKS DEPARTMENT.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS ALLOWED ONLY ON SIDE OPPOSITE OF SHARED USE PATH.
8. SW CONCEPT PLAN COLLECTOR STREET REQUIRES 60' RIGHT OF WAY. THE CITY MAY REQUIRE ADDITIONAL RIGHT OF WAY AND UP TO 36' WIDE WIDTH (CURB TO CURB) WITH TURN LANES AND NO PARKING AND/OR PLANTER STRIP NEAR INTERSECTIONS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.

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COLLECTOR STREET SW CONCEPT PLAN

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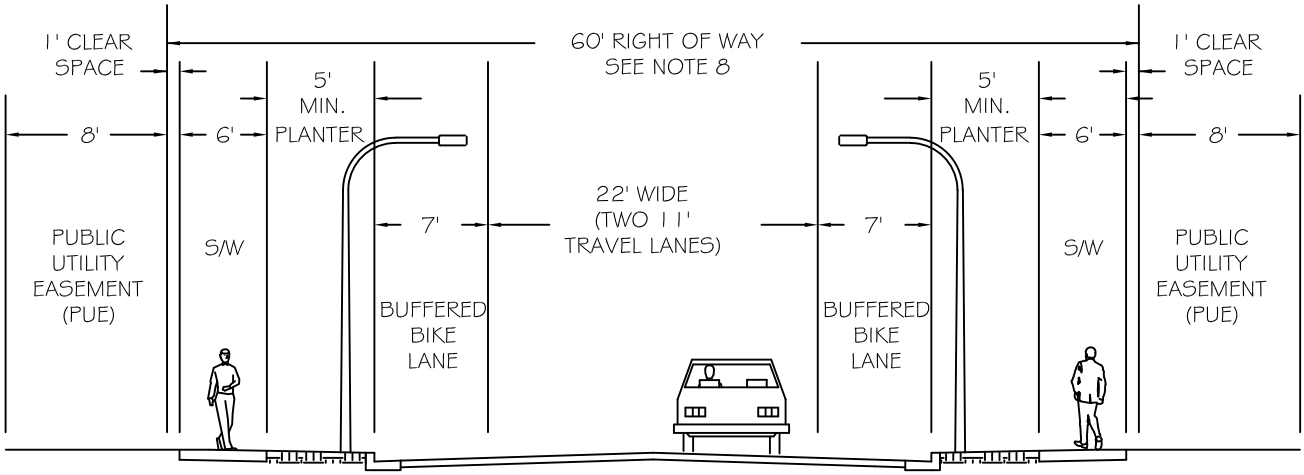
CHECKED BY	MWH	2/2025

R-1050

MINOR ARTERIAL STREET WITH BIKE LANE
VIEW ALL DIRECTIONS



NOTES:

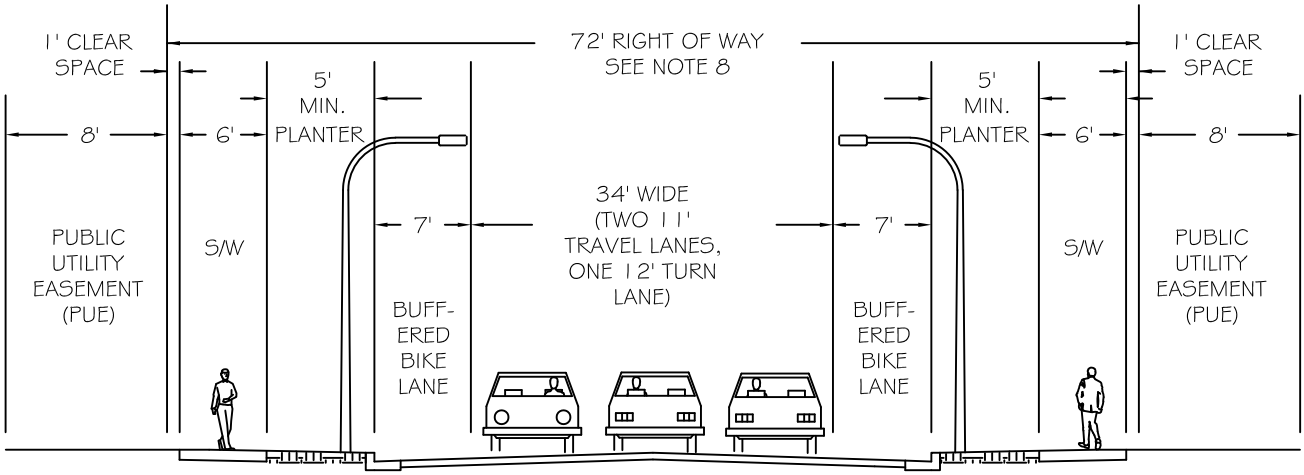
1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL MINOR ARTERIAL STREETS.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS NOT ALLOWED.
8. MINOR ARTERIAL STREET WITH BUFFERED BIKE LANES REQUIRES 60' RIGHT OF WAY. THE CITY MAY REQUIRE ADDITIONAL RIGHT OF WAY. THE CITY MAY REQUIRE UP TO 36' WIDE WIDTH (CURB TO CURB) WITH TURN LANES AND NO BIKE LANES AND/OR PLANTER STRIP NEAR INTERSECTIONS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

MINOR ARTERIAL STREET WITH BIKE LANE

DRAWN BY	PW	2/2025	R-1055
CHECKED BY	MWH	2/2025	

MINOR ARTERIAL STREET WITH TURN LANE
VIEW ALL DIRECTIONS



NOTES:

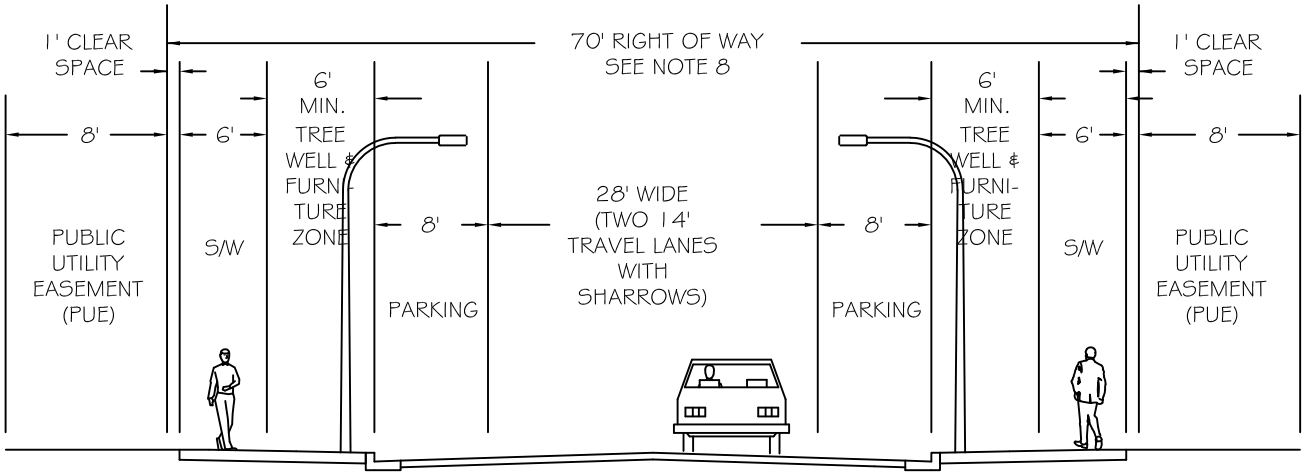
1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL COLLECTOR STREETS.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS NOT ALLOWED.
8. MINOR ARTERAIL STREET WITH BUFFERED BIKE LANES AND TURN LANE REQUIRES 72' RIGHT OF WAY. THE CITY MAY REQUIRE ADDITIONAL RIGHT OF WAY. THE CITY MAY REQUIRE NO BIKE LANES AND/OR PLANTER STRIP NEAR INTERSECTIONS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

MINOR ARTERIAL STREET WITH TURN LANE

DRAWN BY	PW	2/2025	R-1060
CHECKED BY	MWH	2/2025	

MAJOR ARTERIAL STREET WITH PARKING (DOWNTOWN)
VIEW ALL DIRECTIONS



NOTES:

1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL MAJOR ARTERIAL STREETS.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS ALLOWED.
8. MAJOR ARTERIAL STREET WITH ON-STREET PARKING REQUIRES 70' RIGHT OF WAY. STREET TREES ARE REQUIRED IN TREE WELLS. ALL AREAS BETWEEN THE CURB AND RIGHT OF WAY SHALL BE SIDEWALKS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.
10. CROSS SECTION FOR OR 51 (MAIN STREET) FROM MONMOUTH TO B STREET AND OR 51 (MONMOUTH STREET) FROM MAIN STREET TO 3RD STREET.

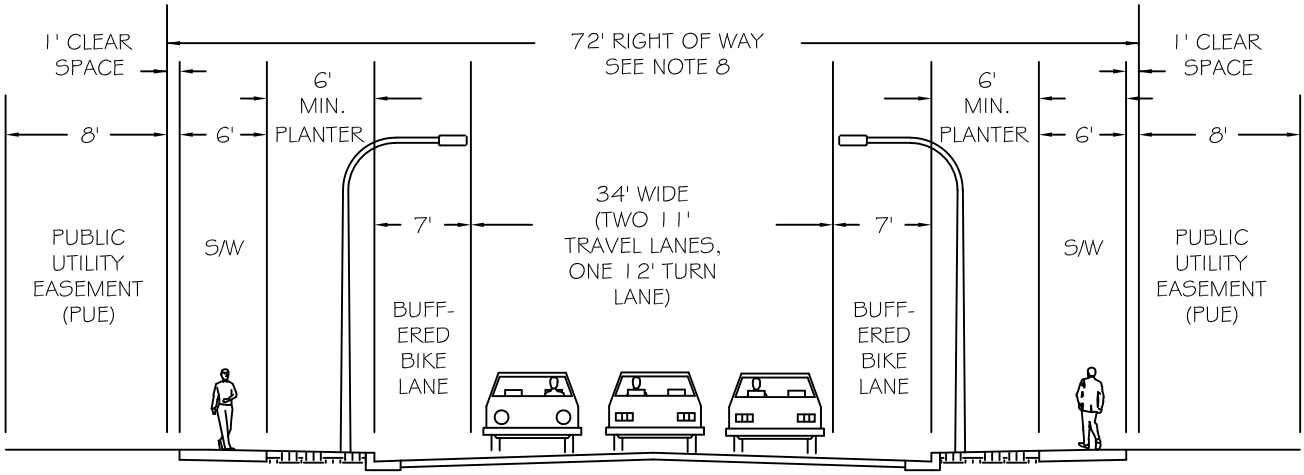
CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

MAJOR ARTERIAL STREET W/PARKING (OR-51-MAIN ST)

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1065

MAJOR ARTERIAL STREET WITH TURN LANE
VIEW ALL DIRECTIONS



NOTES:

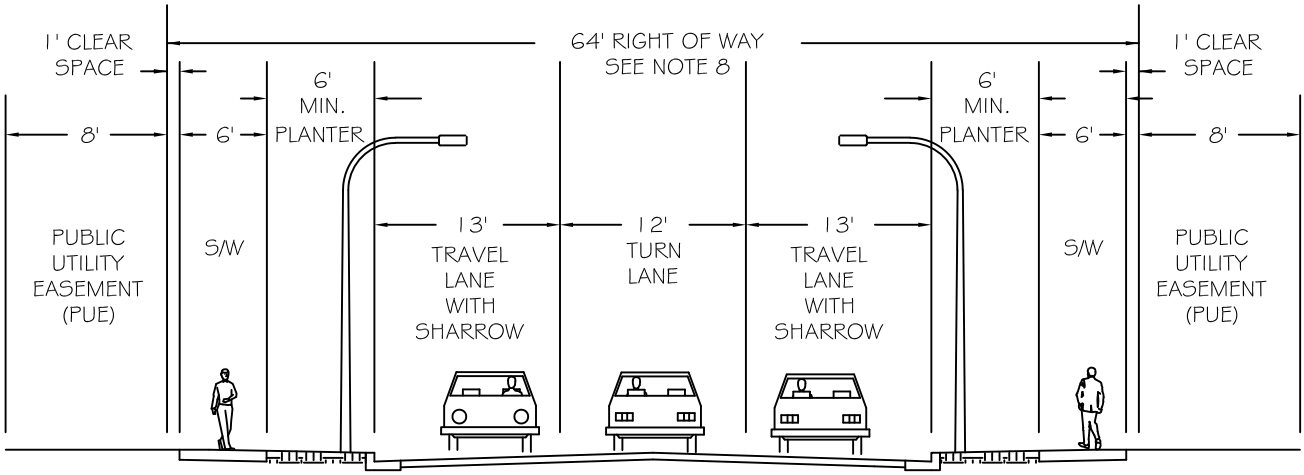
1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL MAJOR ARTERIAL STREETS.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS NOT ALLOWED.
8. MAJOR ARTERIAL STREET WITH BUFFERED BIKE LANES AND TURN LANE REQUIRES 74' RIGHT OF WAY. THE CITY MAY REQUIRE ADDITIONAL RIGHT OF WAY. THE CITY MAY REQUIRE NO BIKE LANES AND/OR PLANTER STRIP NEAR INTERSECTIONS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.
10. CROSS SECTION FOR OR 51 (MAIN STREET) NORTH OF DOWNTOWN, OR 51 (MONMOUTH STREET) WEST OF ASH CREEK, AND OTHER MAJOR ARTERIALS WITH TURN LANE AND BIKE LANES.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

MAJOR ARTERIAL STREET WITH TURN LANE

DRAWN BY	PW	2/2025	R-1070
CHECKED BY	MWH	2/2025	

MAJOR ARTERIAL STREET WITH TURN LANE
BETWEEN ASH CREEK AND DOWNTOWN
VIEW ALL DIRECTIONS



NOTES:

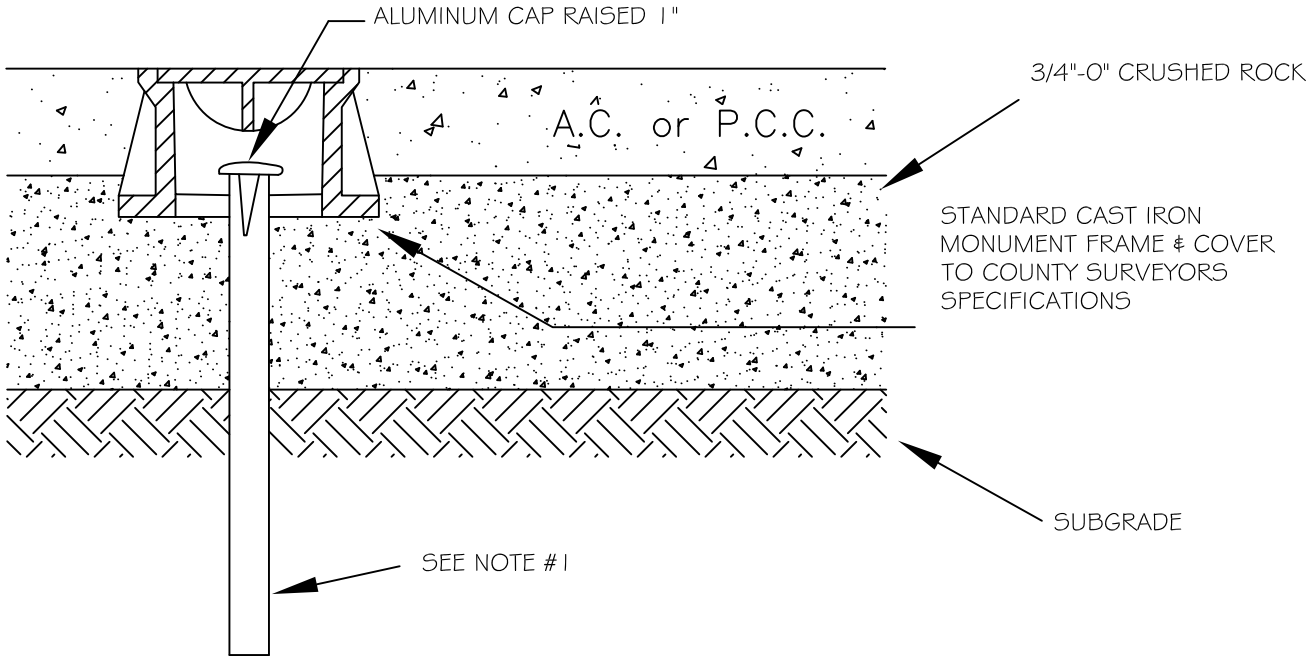
1. CROSS SECTION BASED ON CURRENT VERSION OF THE TRANSPORTATION SYSTEM MASTER PLAN (TSP OR TSMP).
2. PLANTER STRIPS SHALL BE USED FOR PLACEMENT OF STREET TREES, STREET LIGHTING, FIRE HYDRANTS, AND STREET SIGNAGE. ALL FRANCHISE UTILITIES SHALL BE PLACED IN THE PUE AND NOT LOCATED IN THE PUBLIC RIGHT OF WAY.
3. CROSS SLOPE FROM CENTERLINE TO GUTTER SHALL NOT EXCEED 2% MAXIMUM AT PEDESTRIAN CROSSING LOCATIONS AND 5% AT ALL OTHER LOCATIONS.
4. TYPE "A" CURB AND GUTTER REQUIRED ON ALL NEW AND RECONSTRUCTED STREETS.
5. A 6' WIDE SIDEWALK IS REQUIRED ON ALL MAJOR ARTERIAL STREETS.
6. NO STRIPING ON STREET EXCEPT AS REQUIRED FOR SHARED ROADWAYS, BIKE LANES, CROSSWALKS, SIGHT DISTANCE, AND FIRE HYDRANTS. NO PARKING FIRE LANE SIGNAGE AS REQUIRED.
7. ON-STREET PARKING IS NOT ALLOWED.
8. MAJOR ARTERIAL STREET WITH SHARED BIKE LANES AND TURN LANE REQUIRES 64' RIGHT OF WAY. THE CITY MAY REQUIRE ADDITIONAL RIGHT OF WAY. THE CITY MAY REQUIRE NO BIKE LANES AND/OR PLANTER STRIP NEAR INTERSECTIONS.
9. ALL RIGHT OF WAYS SHALL HAVE AN 8' WIDE PUBLIC UTILITY EASEMENT ON BOTH SIDES OF THE STREET. NO BUILDINGS, OVERHANGS, STAIRS OR PORCHES SHALL BE LOCATED IN THE PUBLIC UTILITY EASEMENT. WHERE BUILDINGS ARE REQUIRED TO BUILD TO THE RIGHT OF WAY, ALL PUBLIC UTILITY EASEMENTS SHALL BE LOCATED ON REAR LOTS OR PRIVATE ALLEYS.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

MAJOR ARTERIAL STREET W/TL (ASH CR TO DOWNTOWN)

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1075



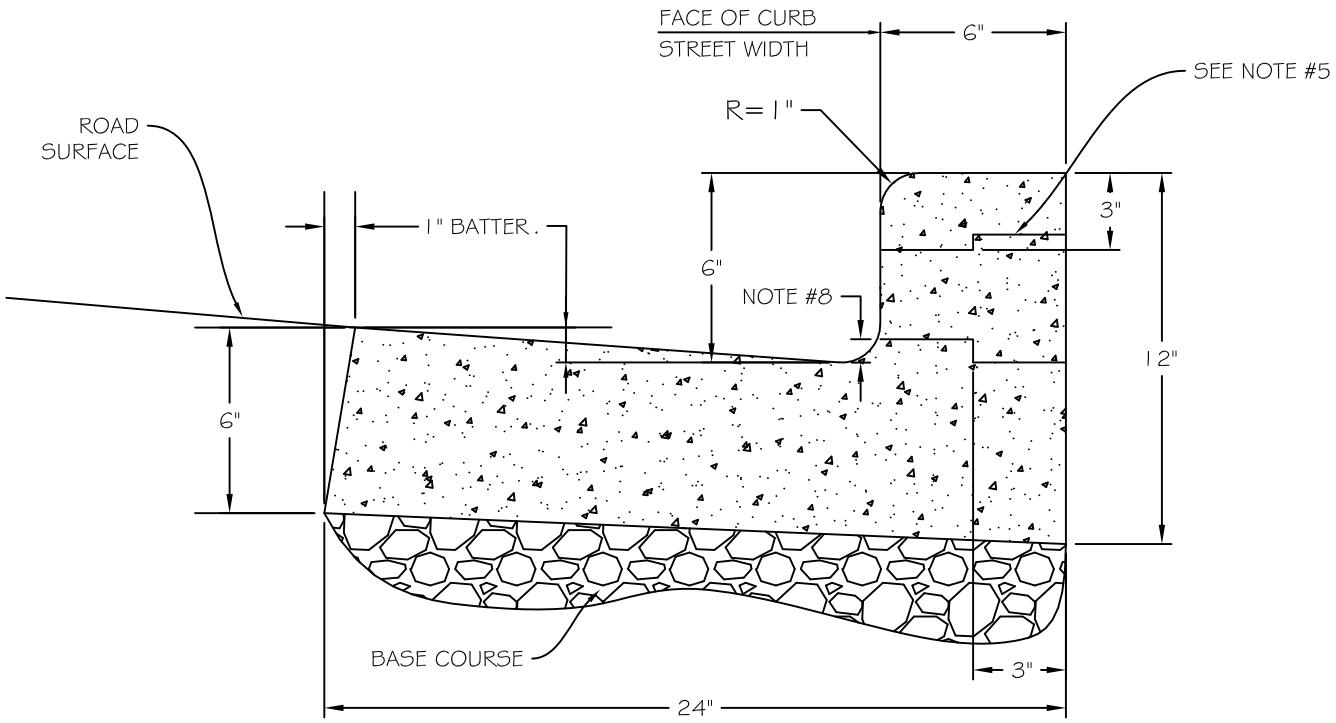
NOTE:

1. ALL MONUMENTS SHALL USE 5/8" DIA. X 30" LONG IRON ROD WITH ALUMINUM CAP OR AS APPROVED BY POLK COUNTY SURVEYORS OFFICE.
2. ALL MONUMENT BOXES SHALL CONFORM TO REQUIREMENTS SET BY POLK COUNTY SURVEYOR'S OFFICE.
3. 12" BOXES SHALL BE USED FOR DESIGN SPEEDS OF 35 MPH OR GREATER (EJ 3673Z BOX WITH 3673A LID).
4. 8" BOXES SHALL BE USED FOR DESIGN SPEEDS LESS THAN 35 MPH (EJ3614Z BOX WITH 3614A LID).
5. PER ORS 92.044(7), UTILITY INFRASTRUCTURE MAY NOT BE PLACED WITHIN ONE FOOT OF A SURVEY MONUMENT LOCATED OR NOTED ON A SUBDIVISION OR PARTITION PLAT.
6. SLOPE PAVEMENT AWAY FROM MONUMENT BOX TO AVOID LOW POINT AND WATER COLLECTION.
7. USE RISER RINGS FOR ADJUSTMENT OF PAVEMENT HEIGHT.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

CENTERLINE SURVEY MONUMENT

DRAWN BY	PW	2/2025	R-1080
CHECKED BY	MWH	2/2025	



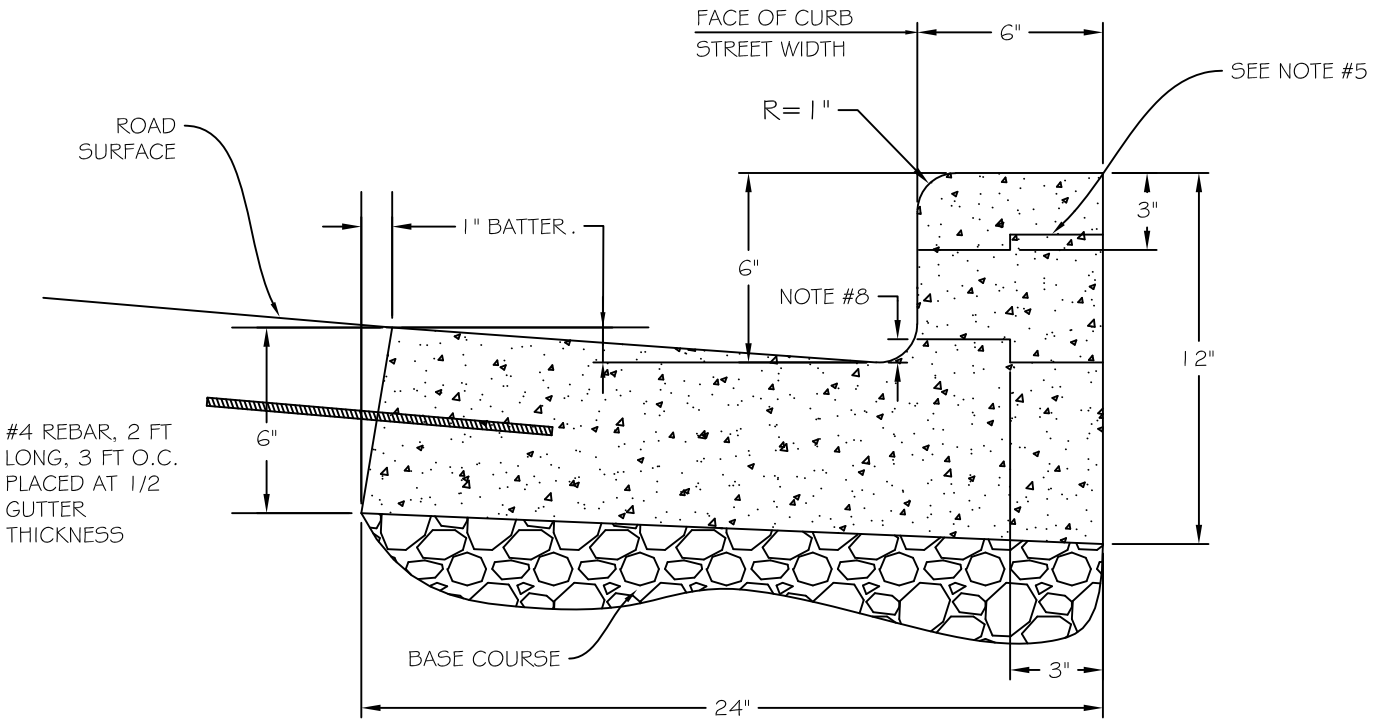
1. FOR USE ALONG MEDIANS, GUTTERS MAY BE REDUCED WITH PRIOR APPROVAL FROM THE CITY ENGINEER.
2. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
3. CONSTRUCTION JOINTS.
   - 3.1. SPACING TO BE NOT MORE THAN 12 FEET.
   - 3.2. THE DEPTH OF THE JOINT SHALL BE AT LEAST 2 INCHES.
4. BASE ROCK TO BE 3/4"-0 COMPACTED TO 95% OF AASHTO T-180 AND SHALL BE TO SUB GRADE, STREET STRUCTURE, OR 4" IN DEPTH, WHICHEVER IS GREATER.
5. DRAINAGE BLOCK OUT
   - 5.1. 3" I.D. PLASTIC PIPE WITH COUPLING.
   - 5.2. DRAINAGE ACCESS THRU EXISTING CURB SHALL BE CORE DRILLED.
6. FOR RECONSTRUCTED CURB, DRILL CONCRETE STREET AND SET DOWELS WITH EPOXY PRIOR TO CURB INSTALLATION.
7. BASE COURSE SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 50 DEGREES OR GREATER
8. CURB REVEAL
   - 8.1. DRIVEWAYS ½" AND PEDESTRIAN RAMP 0" REVEAL.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

TYPE "A" CURB AND GUTTER

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1085



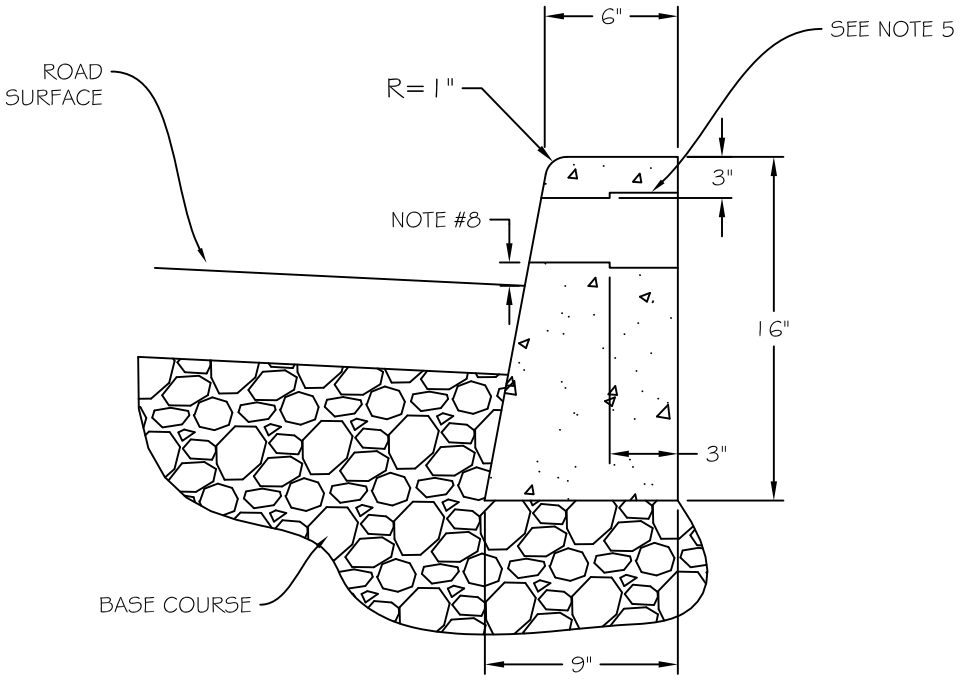
1. NOT FOR USE ALONG MEDIANS.
2. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS AND INCORPORATE MICRO-REINFORCEMENT "FIBERMESH 300" OR APPROVED EQUAL.
3. CONSTRUCTION JOINTS.
   - 3.1. SPACING TO BE NOT MORE THAN 12 FEET AND SHALL MATCH WITH STREET JOINT.
   - 3.2. JOINTS SHALL BE HAND SAWCUT, WHEN WET, THROUGH ENTIRE WIDTH AND FULL DEPTH OF CURB AND GUTTER.
4. BASE ROCK TO BE 3/4"-0 COMPACTED TO 95% OF AASHTO T-180 AND SHALL BE TO SUB GRADE, STREET STRUCTURE, OR 4" IN DEPTH, WHICHEVER IS GREATER.
5. DRAINAGE BLOCK OUT
   - 5.1. 3" I.D. PLASTIC PIPE WITH COUPLING.
   - 5.2. DRAINAGE ACCESS THRU EXISTING CURB SHALL BE CORE DRILLED.
6. FOR RECONSTRUCTED CURB, DRILL CONCRETE STREET AND SET DOWELS WITH EPOXY PRIOR TO CURB INSTALLATION.
7. BASE COURSE SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 50 DEGREES OR GREATER.
8. CURB REVEAL
   - 8.1. DRIVEWAYS ½" AND PEDESTRIAN RAMP 0" REVEAL.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

CONCRETE STREET CURB AND GUTTER

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1090



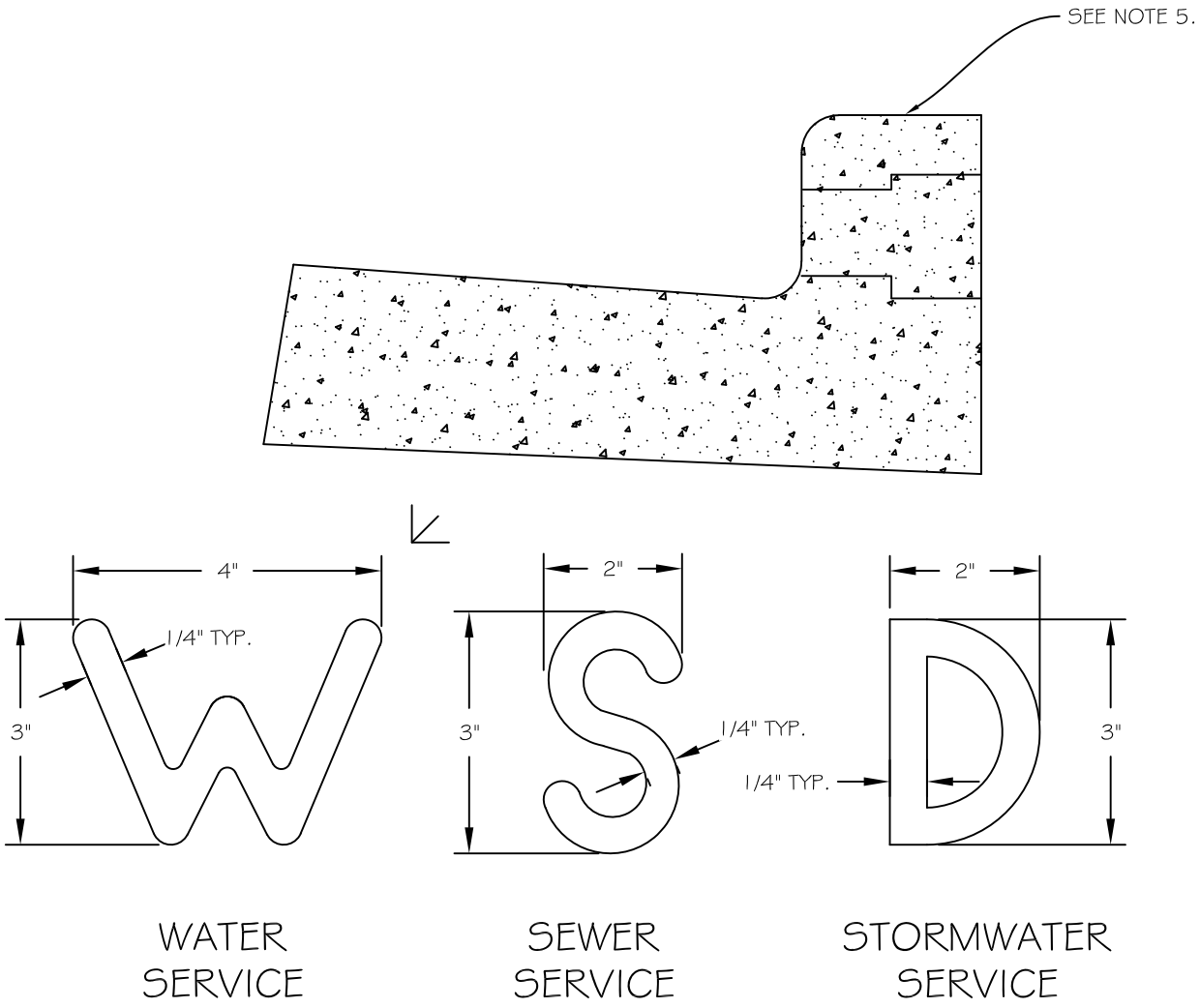
1. NOT FOR USE ALONG MEDIANS.
2. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS AND INCORPORATE MICRO-REINFORCEMENT "FIBERMESH 300" OR APPROVED EQUAL.
3. CONSTRUCTION JOINTS.
   - 3.1. SPACING TO BE NOT MORE THAN 12 FEET AND SHALL MATCH WITH STREET JOINT.
   - 3.2. JOINTS SHALL BE HAND SAWCUT, WHEN WET, THROUGH ENTIRE WIDTH AND FULL DEPTH OF CURB AND GUTTER.
4. BASE ROCK TO BE 3/4"-0 COMPACTED TO 95% OF AASHTO T-180 AND SHALL BE TO SUB GRADE, STREET STRUCTURE, OR 4" IN DEPTH, WHICHEVER IS GREATER.
5. DRAINAGE BLOCK OUT
   - 5.1. 3" I.D. PLASTIC PIPE WITH COUPLING.
   - 5.2. DRAINAGE ACCESS THRU EXISTING CURB SHALL BE CORE DRILLED.
6. FOR RECONSTRUCTED CURB, DRILL CONCRETE STREET AND SET DOWELS WITH EPOXY PRIOR TO CURB INSTALLATION.
7. BASE COURSE SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 50 DEGREES OR GREATER.
8. CURB REVEAL
   - 8.1. DRIVEWAYS ½" AND PEDESTRIAN RAMP 0" REVEAL.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

TYPE "C" CURB

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1095



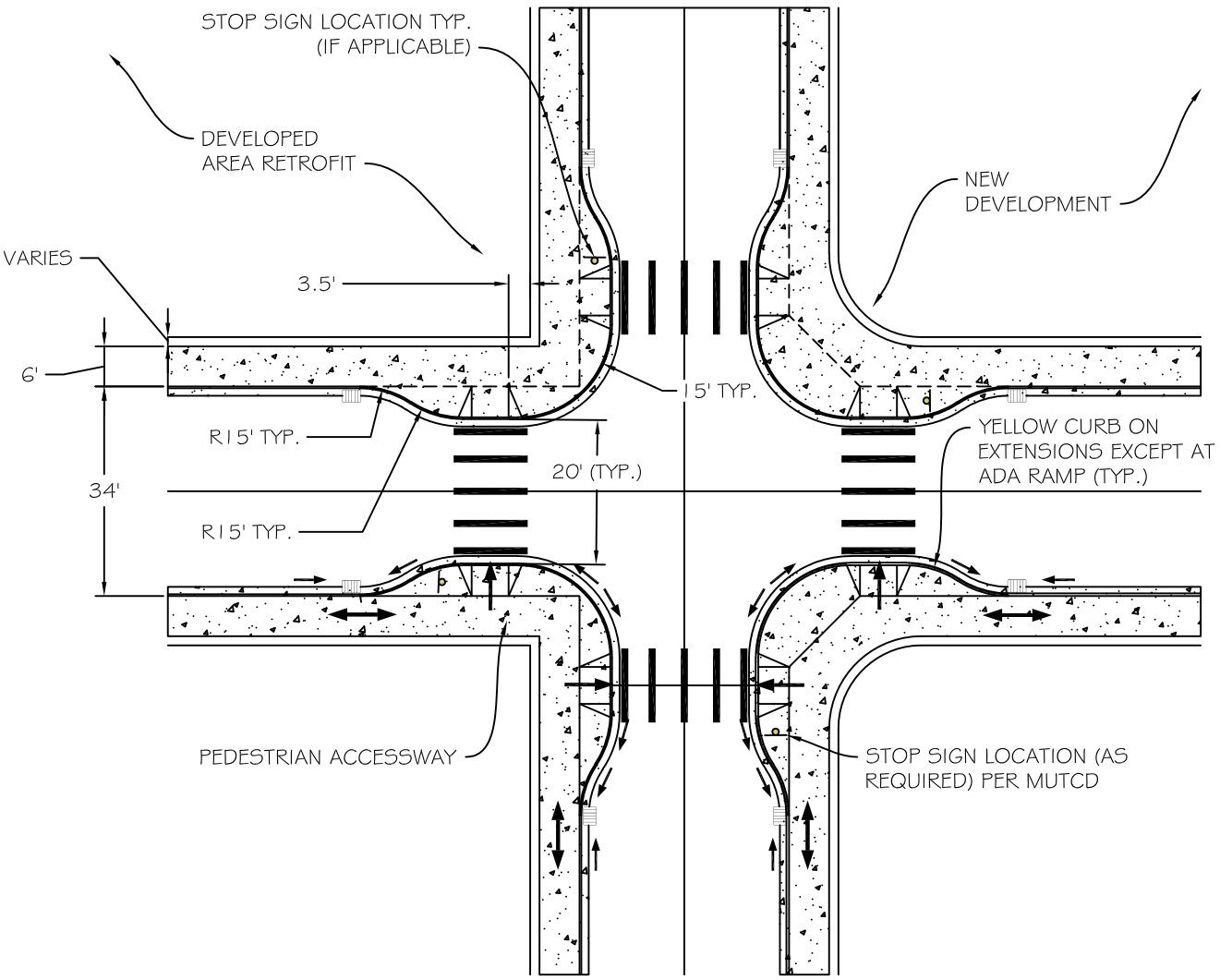
1. STAMPS SHALL BE OBTAINED AND PREPARED BY THE CONTRACTOR OR SUBCONTRACTOR INSTALLING THE CURBS.
2. CONTRACTOR SHALL OBTAIN PUBLIC WORKS APPROVAL OF STAMPS A MINIMUM OF TWO BUSINESS DAYS PRIOR TO PLACING CONCRETE.
3. STAMPS IN TOP OF CURB SHALL BE SET IN GREEN CONCRETE AFTER INITIAL FINISHING TO A MINIMUM DEPTH OF $\frac{3}{8}$".
4. FAILURE TO INSTALL STAMPS AT TIME OF CURB INSTALLATION WILL REQUIRE INSTALLATION OF BERNTSEN BP2-U UTILITY MARKERS WITH ANCHOR PLUG OR APPROVED EQUAL. PLASTIC MARKERS ARE NOT AN APPROVED SUBSTITUTE.
5. CENTER STAMP ON TOP OF CURB FACING CENTERLINE OF ROADWAY.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

CURB AND GUTTER STAMP

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1100



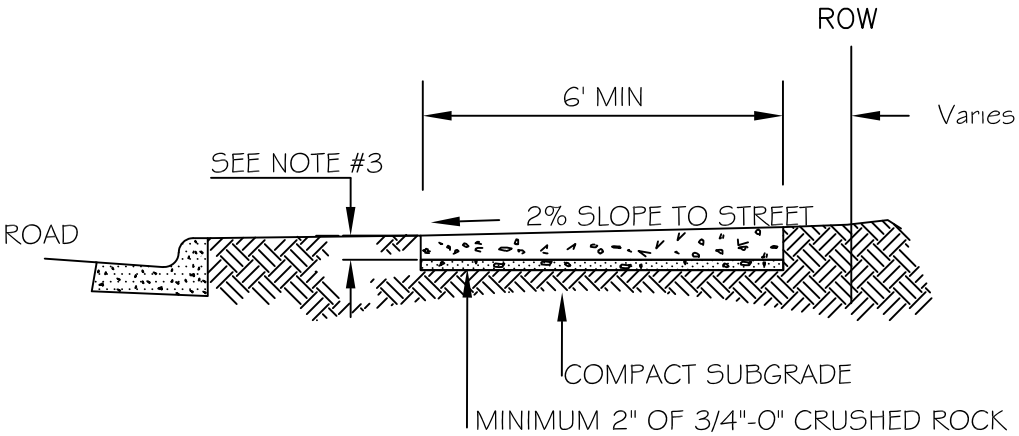
1. EXTENSIONS ARE INTENDED TO SIMULATE A PARKED VEHICLE, THEREFORE SHALL ONLY BE ALLOWED WITH ON-STREET PARKING.
2. EXTENSION SHALL BE CONCRETE SO AS NOT TO RESTRICT SIGHT DISTANCE. PCC SHALL BE 6" THICK WITH 4" OF COMPACTED BASE ROCK.
3. INTERSECTION RADII SHALL BE CHECKED TO ASSURE SAFE PASSAGE OF THE DESIGN VEHICLE. IN ALL CASES, EMERGENCY VEHICLES SHALL BE ACCOMMODATED. USE OF THE OPPOSING LANE MAY BE ALLOWED BY THE PUBLIC WORKS DIRECTOR.
4. DRAINAGE SHALL NOT TRAP WATER WITHIN THE ADA RAMP AND GRADING SHALL CONVEY RUNOFF AWAY FROM INTERSECTION TO STORM CATCH BASINS.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

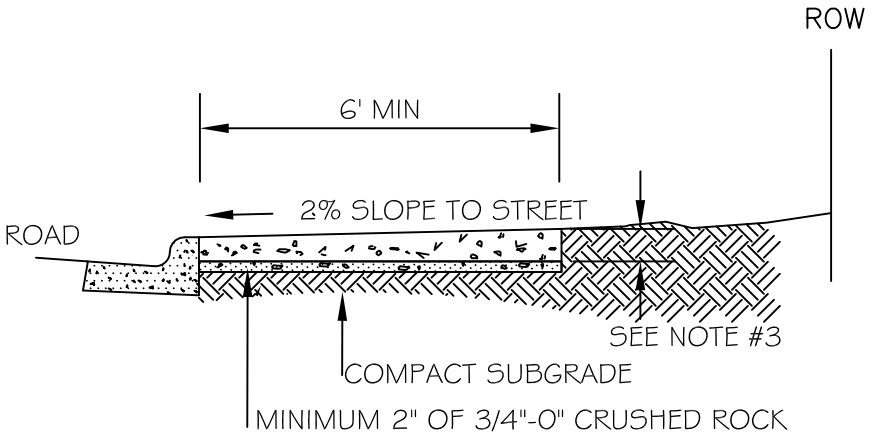
CURB EXTENSION - LOCAL STREET

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1105



OFFSET SIDEWALK



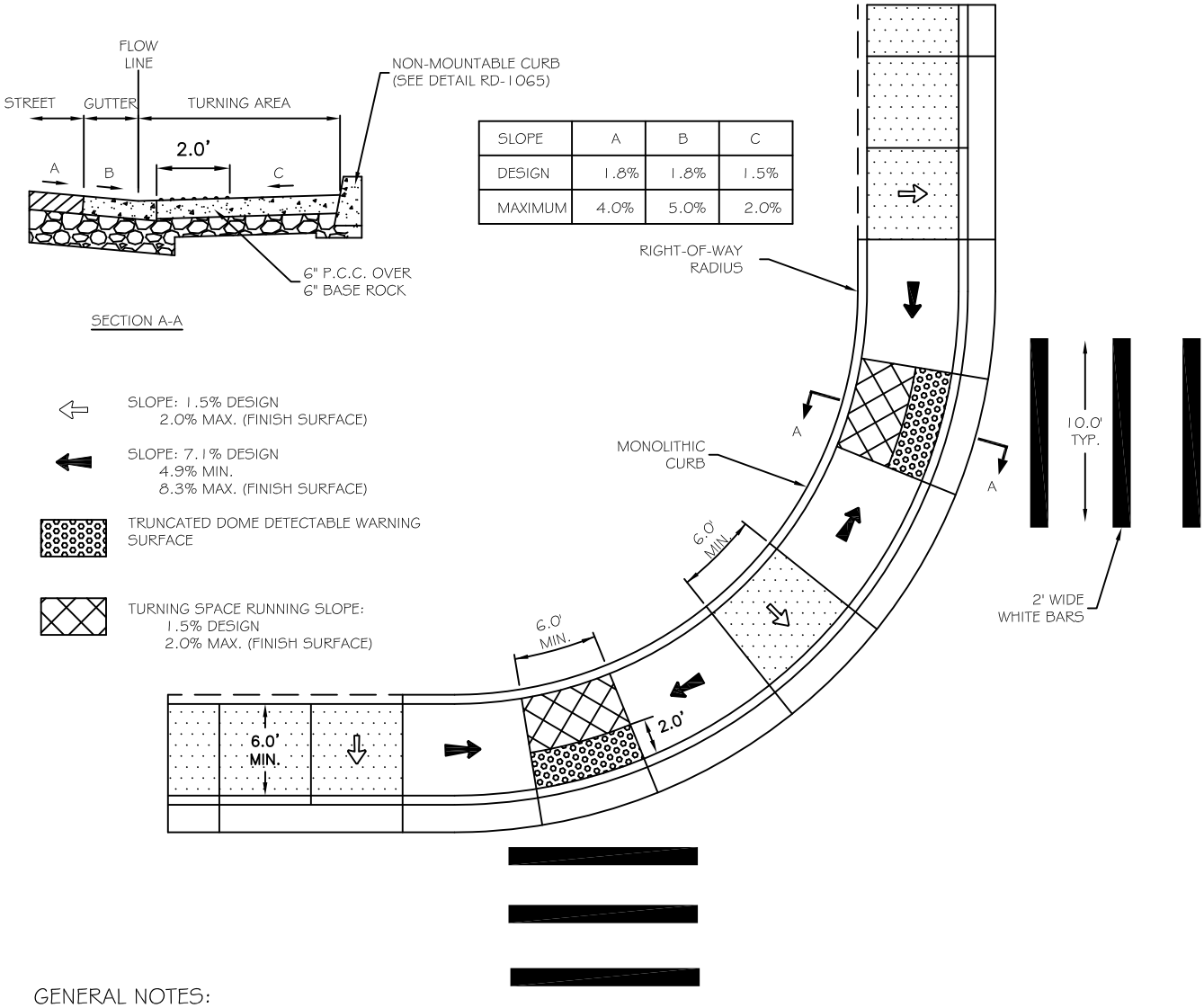
CURB TIGHT SIDEWALK

1. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI. AT 28 DAYS.
2. PANELS TO BE 6 FEET LONG.
3. SIDEWALK SHALL HAVE A MINIMUM THICKNESS OF 4". SIDEWALK THICKNESS SHALL BE INCREASED TO 6" AT:
   - 3.1. CURB TIGHT SIDEWALK AT INTERSECTION RADIUS.
   - 3.2. A MINIMUM OF ONE PANEL BEYOND EDGES OF ALL DRIVEWAYS.
4. DRAIN BLOCKOUTS IN CURBS SHALL BE EXTENDED TO BACK OF SIDEWALK WITH 3" DIA. PLASTIC PIPE AT MINIMUM 1% SLOPE. CONSTRUCTION JOINT TO BE PLACED OVER PIPE.
5. BASE ROCK SHALL BE COMPACTED TO PROVIDE A FIRM BASE FOR CONCRETE.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

CONCRETE SIDEWALK

DRAWN BY	PW	2/2025	R-1110
CHECKED BY	MWH	2/2025	



SLOPE	A	B	C
DESIGN	1.8%	1.8%	1.5%
MAXIMUM	4.0%	5.0%	2.0%

GENERAL NOTES:

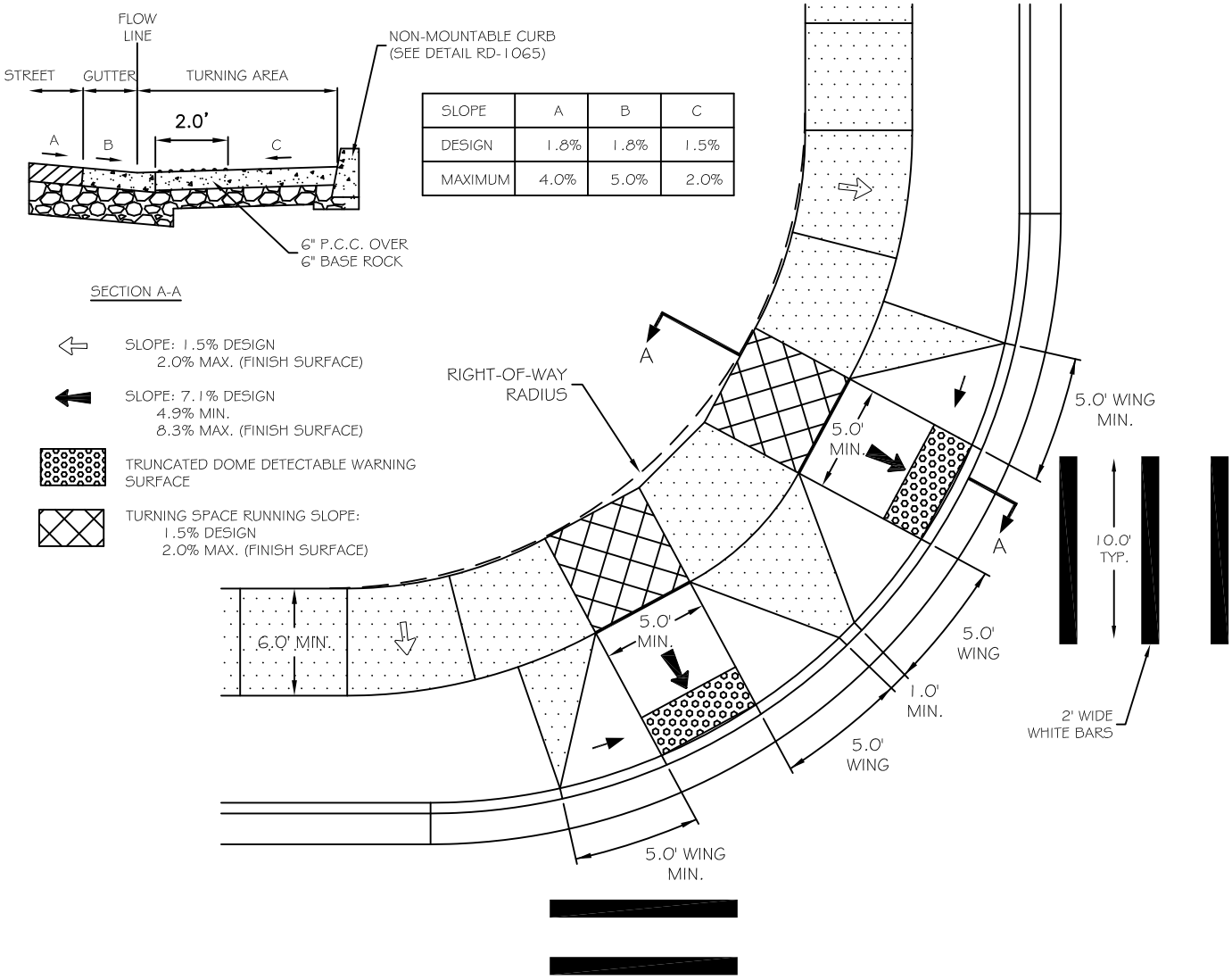
1. PARALLEL RAMPS ARE A SPECIAL APPLICATION AND MAY ONLY BE USED WITH PRIOR APPROVAL FROM THE CITY ENGINEER.
2. SIDEWALK RAMPS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG), JULY 2011 EDITION.
3. SIDEWALK RAMPS SHALL BE LOCATED TO MINIMIZE OUT-OF-DIRECTION TRAVEL WHILE MAINTAINING PEDESTRIAN VISIBILITY AND MINIMIZING STREET CROSSING DISTANCES.
4. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
5. BASE ROCK SHALL CONSIST OF COMPACTED 3/4"-0 CRUSHED ROCK.
6. BASE ROCK SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 80 DEGREES OR GREATER.
7. TRUNCATED DOME DETECTABLE WARNING SURFACE SHALL BE INSTALLED THE FULL WIDTH OF THE TURNING AREA AND CONSIST OF (SALEM RED) MASCO CAST-IN-TACT OR APPROVED EQUAL.
8. TURNING SPACES SHALL HAVE A MINIMUM WIDTH OF 6 FEET AND MINIMUM DEPTH OF 6 FEET. WHERE SIDEWALK RAMPS ARE USED TO PROVIDE BICYCLE ACCESS, THE MINIMUM TURNING SPACE WIDTH SHALL BE 8 FEET.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

CURB TIGHT SIDEWALK RAMP INTERSECTION

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1115



SLOPE	A	B	C
DESIGN	1.8%	1.8%	1.5%
MAXIMUM	4.0%	5.0%	2.0%

GENERAL NOTES:

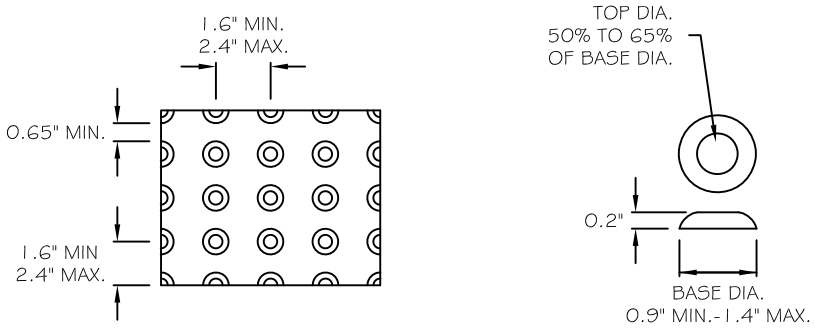
1. PARALLEL RAMPS ARE A SPECIAL APPLICATION AND MAY ONLY BE USED WITH PRIOR APPROVAL FROM THE CITY ENGINEER.
2. SIDEWALK RAMPS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG), JULY 2011 EDITION.
3. SIDEWALK RAMPS SHALL BE LOCATED TO MINIMIZE OUT-OF-DIRECTION TRAVEL WHILE MAINTAINING PEDESTRIAN VISIBILITY AND MINIMIZING STREET CROSSING DISTANCES.
4. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
5. BASE ROCK SHALL CONSIST OF COMPACTED 3/4"-0 CRUSHED ROCK.
6. BASE ROCK SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 80 DEGREES OR GREATER.
7. TRUNCATED DOME DETECTABLE WARNING SURFACE SHALL BE INSTALLED THE FULL WIDTH OF THE TURNING AREA AND CONSIST OF (SALEM RED) MASCO CAST-IN-TACT OR APPROVED EQUAL.
8. TURNING SPACES SHALL HAVE A MINIMUM WIDTH OF 6 FEET AND MINIMUM DEPTH OF 6 FEET. WHERE SIDEWALK RAMPS ARE USED TO PROVIDE BICYCLE ACCESS, THE MINIMUM TURNING SPACE WIDTH SHALL BE 8 FEET.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

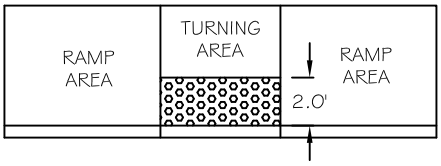
PROPERTY LINE SIDEWALK RAMP INTERSECTION

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

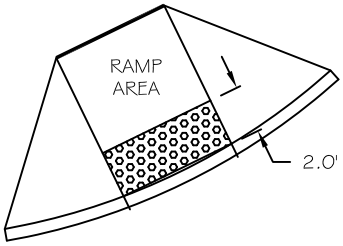
R-1120



TRUNCATED DOME DETECTABLE
WARNING SURFACE DETAIL



PARALLEL RAMP



STANDARD
PERPENDICULAR RAMP

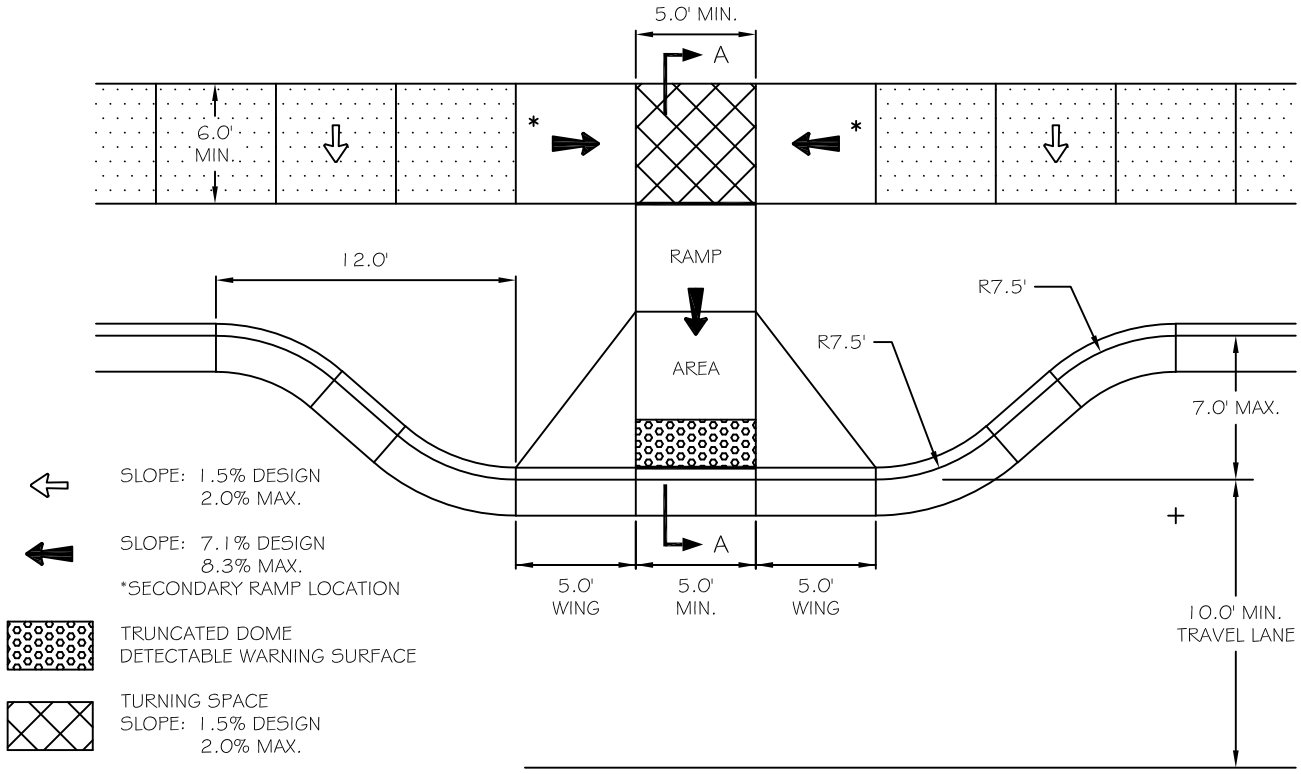
GENERAL NOTES:

1. DETECTABLE WARNING SURFACE SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG), CURRENT EDITION.
2. THE DETECTABLE WARNING SURFACE SHALL EXTEND 2.0 FEET MINIMUM IN THE DIRECTION OF PEDESTRIAN TRAVEL.
3. TRUNCATED DOME DETECTABLE WARNING SURFACE SHALL BE INSTALLED THE FULL WIDTH OF THE TURNING AREA ON PARALLEL RAMPS.
4. TRUNCATED DOME DETECTABLE WARNING SURFACE SHALL BE INSTALLED THE FULL WIDTH OF THE RAMP AREA ON PERPENDICULAR RAMPS.
5. TRUNCATED DOM DETECTABLE WARNING SURFACES SHALL CONSIST OF (BLACK) MASCO CAST-IN-TACT ¢ CAST-IN-TACT III OR APPROVED EQUAL.
6. ARRANGE TRUNCATED DOMES USING SQUARE IN-LINE PATTERN ONLY.

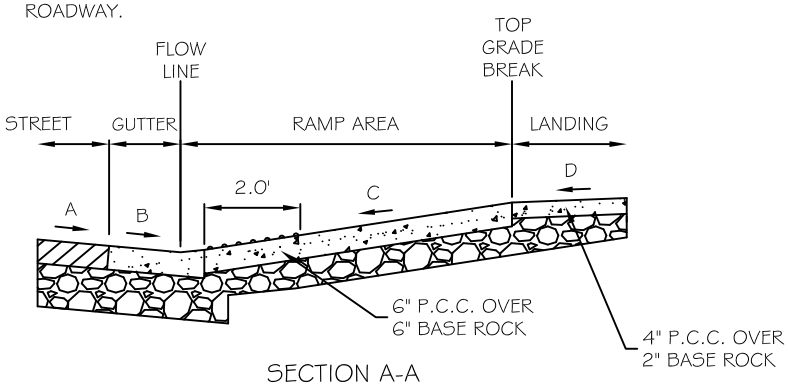
CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

DETECTABLE WARNING SURFACE

DRAWN BY	PW	2/2025	R-1130
CHECKED BY	MWH	2/2025	



CROSS SLOPE OF TURNING AREA, RAMP AREA, AND PEDESTRIAN STREET CROSSING SHALL NOT BE GREATER THAN THE SLOPE OF THE ADJACENT ROADWAY.



SECTION A-A

SLOPE	A	B*	C*,°	D
DESIGN	1.8%	1.8%	7.1%	1.5%
MAXIMUM	4.0%	5.0%	8.3%	2.0%

*THE ALGEBRAIC DIFFERENCE BETWEEN B & C SHALL NOT EXCEED 11.0%.
°THE MINIMUM SLOPE FOR THE PRIMARY RAMP AREA IS 4.9%

GENERAL NOTES:

1. SIDEWALK RAMPS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG), CURRENT EDITION.
2. SIDEWALK RAMPS SHALL BE LOCATED PERPENDICULAR TO THE CURBLINE.
3. PROVIDE CURB EXTENSION AT MID-BLOCK PEDESTRIAN STREET CROSSINGS WITH ON-STREET PARKING.
4. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3300 PSI AT 28 DAYS.
5. BASE ROCK SHALL CONSIST OF 3/4"-0 CRUSHED ROCK COMPACTED TO 95% OF AASHTO T-180.
6. BASE ROCK SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 80 DEGREES OR GREATER.
7. TRUNCATED DOME DETECTABLE WARNING SURFACE SHALL BE INSTALLED THE FULL WIDTH OF THE RAMP AND CONSIST OF (BLACK) MASCO CAST-IN-TACT & CAST-IN-TACT III OR APPROVED EQUAL.
8. ON STEEP SLOPES, SIDEWALK RAMPS SHALL HAVE A MAXIMUM SLOPE OF 8.3% OR MAXIMUM LENGTH OF 15 FEET CONSTRUCTED AT CONSTANT SLOPE.
9. SIDEWALK RAMPS SHALL HAVE A MINIMUM WIDTH OF 5 FEET. WHERE SIDEWALK RAMPS ARE USED TO PROVIDE BICYCLE ACCESS, THE MINIMUM RAMP WIDTH SHALL BE 8 FEET.

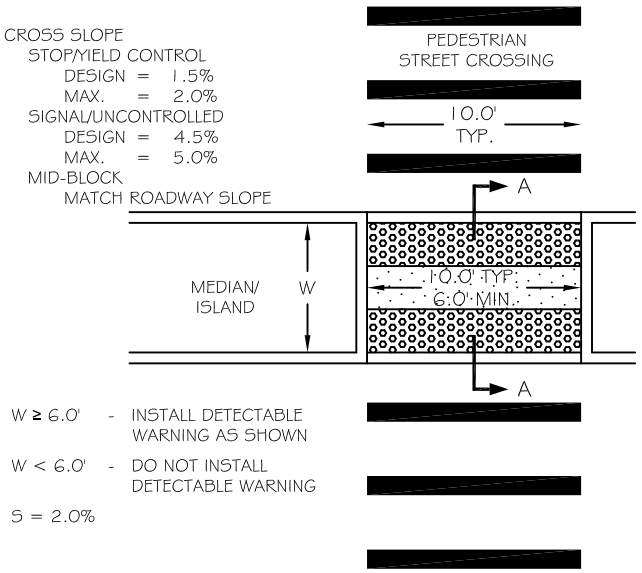
CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

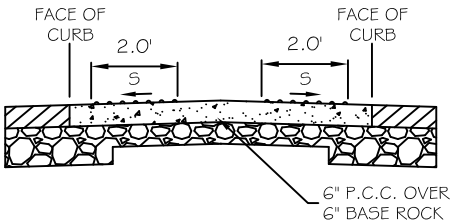
MID-BLOCK PERPENDICULAR RAMP

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1135

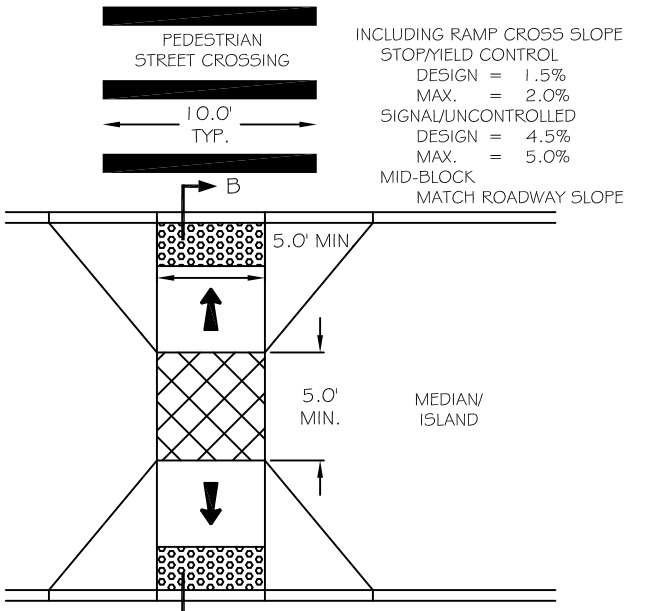
CUT THROUGH PEDESTRIAN REFUGE

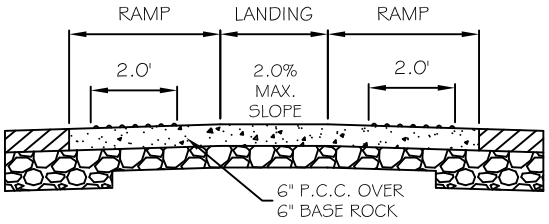




SECTION A-A

RAMPED PEDESTRIAN REFUGE





SECTION B-B

GENERAL NOTES:

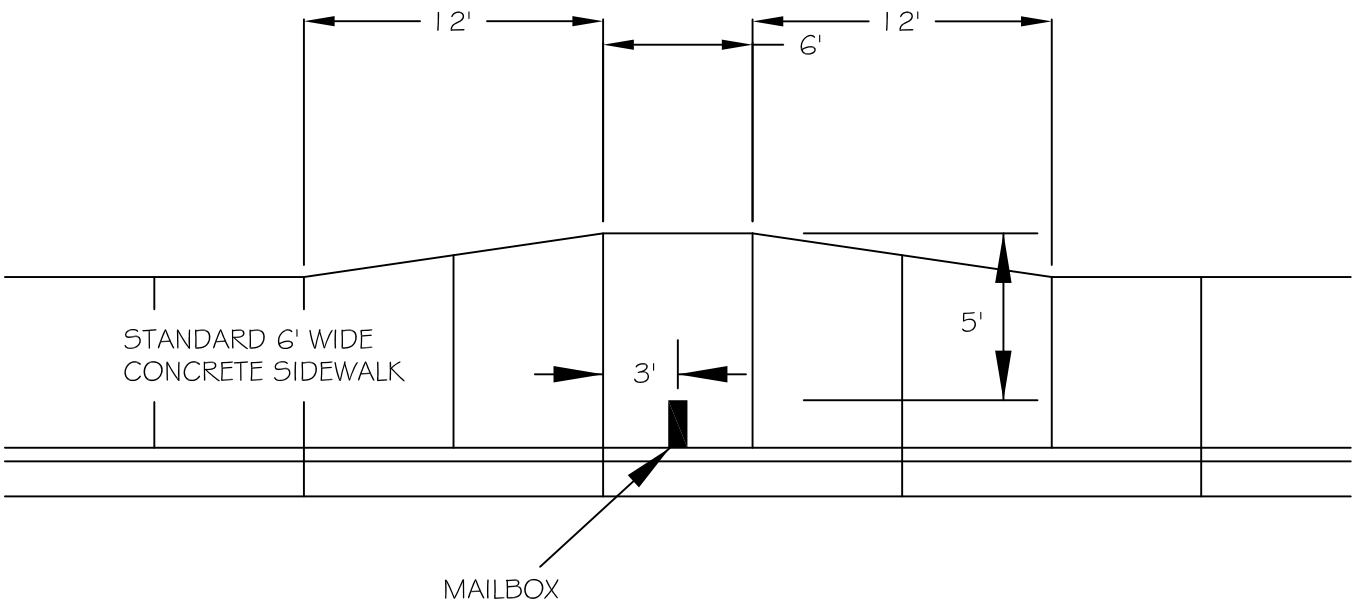
1. SIDEWALK RAMPS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG), CURRENT EDITION.
2. SIDEWALK RAMPS SHALL BE LOCATED PERPENDICULAR TO THE CURBLINE AND TO MINIMIZE OUT-OF-DIRECTION TRAVEL WHILE MAINTAINING PEDESTRIAN VISIBILITY AND MINIMIZING STREET CROSSING DISTANCES.
3. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
4. BASE ROCK SHALL CONSIST OF 3/4"-0 CRUSHED ROCK COMPACTED TO 95% OF AASHTO T-180.
5. BASE ROCK SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 80 DEGREES OR GREATER.
6. TRUNCATED DOME DETECTABLE WARNING SURFACE SHALL BE INSTALLED THE FULL WIDTH OF THE RAMP AND CONSIST OF (BLACK) MASCO CAST-IN-TACT ⅇ CAST-IN-TACT III OR APPROVED EQUAL.
7. ON STEEP SLOPES, SIDEWALK RAMPS SHALL HAVE A MAXIMUM SLOPE OF 8.3% OR MAXIMUM LENGTH OF 15 FEET CONSTRUCTED AT CONSTANT SLOPE.
8. SIDEWALK RAMPS SHALL HAVE A MINIMUM WIDTH OF 5 FEET. WHERE SIDEWALK RAMPS ARE USED TO PROVIDE BICYCLE ACCESS, THE MINIMUM RAMP WIDTH SHALL BE 8 FEET.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

PEDESTRIAN ISLAND REFUGE

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1140



STREET

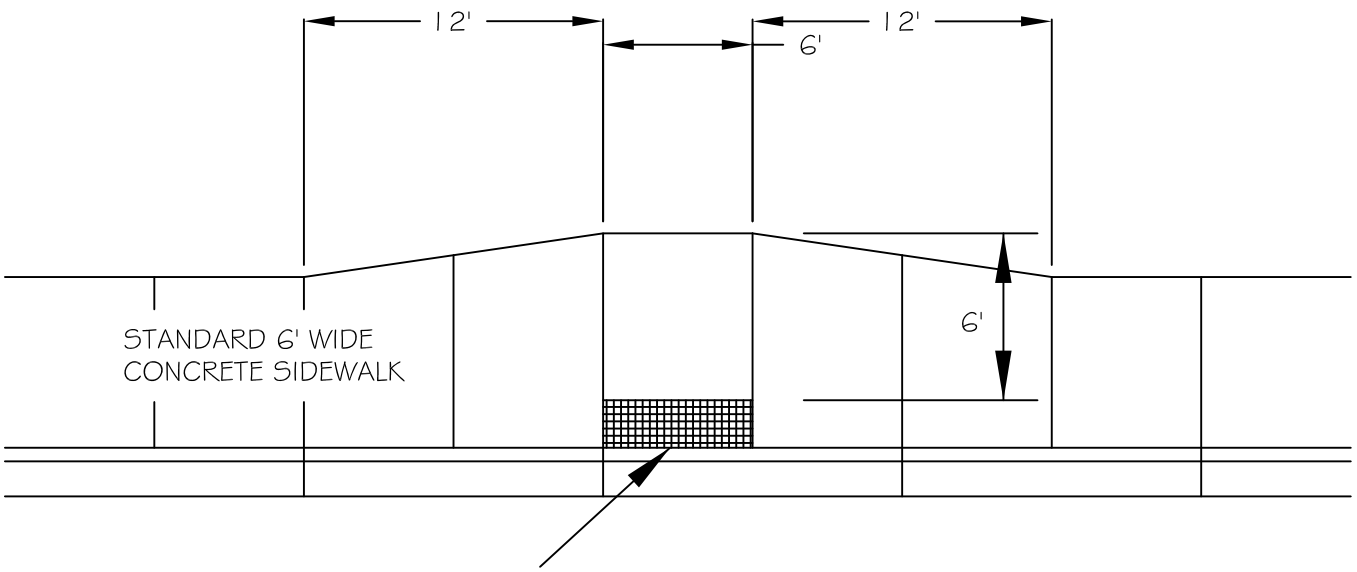
Notes:

1. CONSTRUCT WIDENED SIDEWALK AT ALL MAILBOX LOCATIONS.
2. MAILBOX PLACEMENT SPECIFICATIONS:
   - -FRONT FACE OF MAILBOX TO BE SET BACK 6" FROM FACE OF CURB.
   - -BASE OF MAILBOX TO BE 40" ABOVE PAVEMENT GRADE AT GUTTER.
   - -MAINTAIN 5' CLEARANCE BETWEEN BACK OF MAILBOX AND BACK OF WALK.
3. WIDENED SIDEWALK OUTSIDE OF PUBLIC RIGHT OF WAY SHALL HAVE A SIDEWALK EASEMENT DEDICATED TO THE CITY.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

SIDEWALK AT SINGLE MAILBOX

DRAWN BY	PW	2/2025	R-1145
CHECKED BY	MWH	2/2025	



Notes:

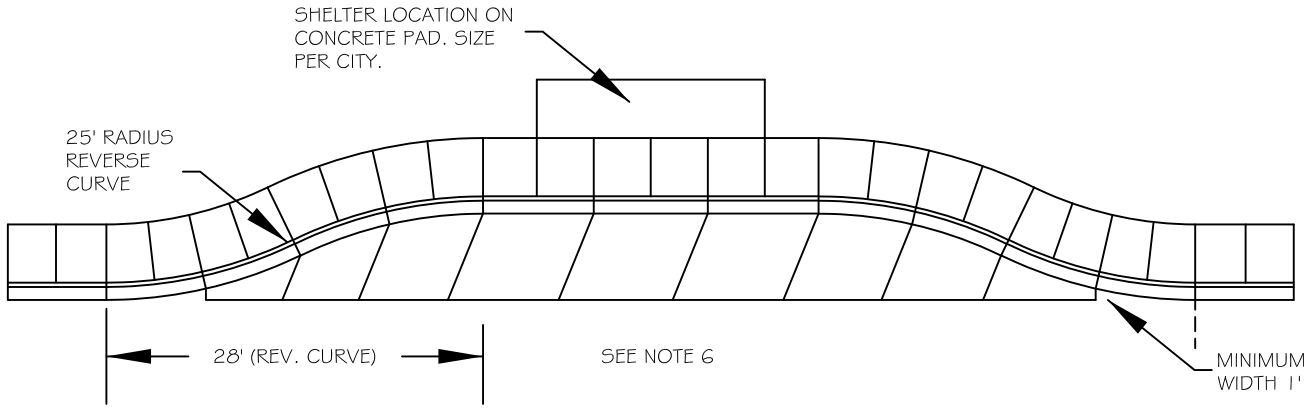
1. CLUSTERED MAILBOX/CENTRALIZED BOX UNITS ARE FREE STANDING MAILBOX UNITS WITH MULTIPLE LOCKED MAILBOXES.
2. CONSTRUCT WIDENED SIDEWALK WITH A MINIMUM OF 6 FEET OF CLEAR SPACE PROVIDED AT FRONT OF EACH MAILBOX UNIT.
3. AT LEAST ONE CLEAR PEDESTRIAN ACCESS ROUTE WITH CURB RAMP SHALL BE PROVIDED WITHIN 50 FEET OF CLUSTERED MAILBOX UNIT FROM THE VEHICULAR WAY
4. BACK OF CLUSTERED MAILBOX TO BE SET BACK 6" FROM FACE OF CURB.
5. WIDENED SIDEWALK OUTSIDE OF PUBLIC RIGHT OF WAY SHALL HAVE A SIDEWALK EASEMENT DEDICATED TO THE CITY.
6. LOCATION OF CLUSTERED MAILBOX SHALL BE COORDINATED WITH THE LOCAL POSTMASTER.

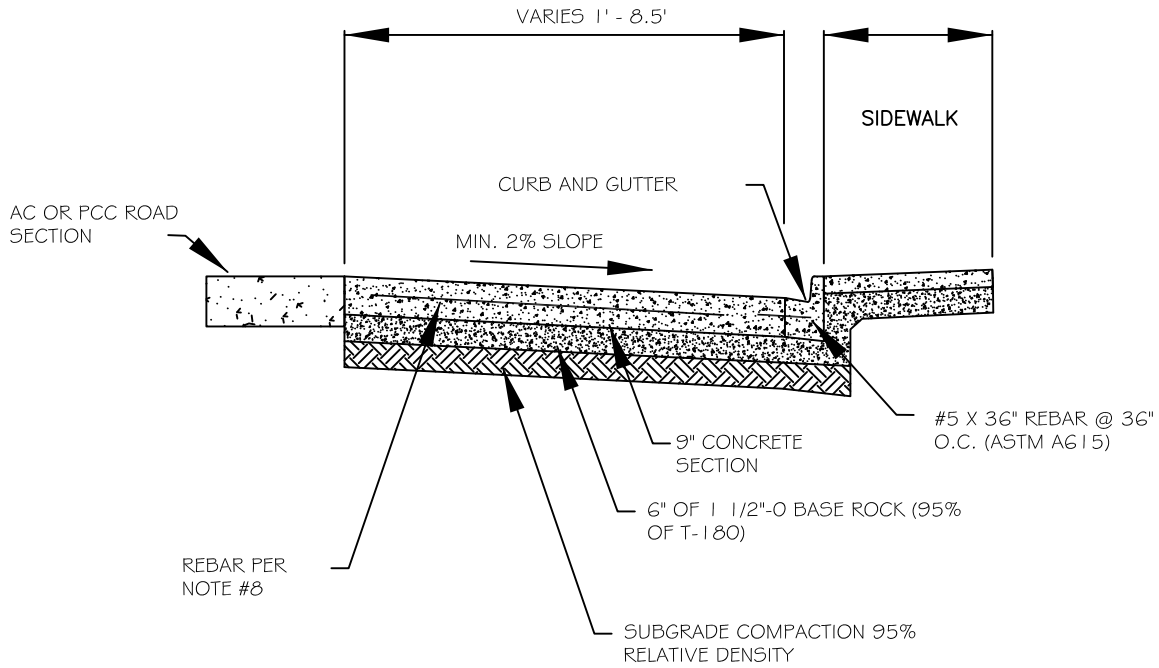
CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

SIDEWALK AT CLUSTERED MAILBOX

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1150





NOTES:

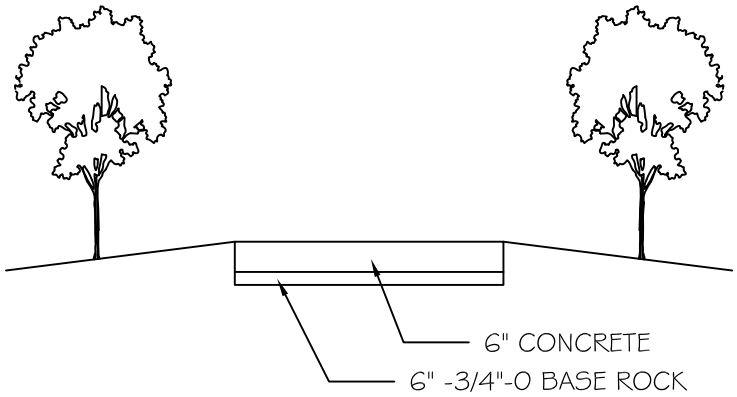
1. CONCRETE SHALL BE 4,000 PSI IN 28 DAYS.
2. TRANSVERSE CONTRACTION JOINTS SHALL BE SAWCUT AND FILLED WITH APPROVED JOINT SEALANT.
3. JOINT SPACING SHALL MATCH CURB JOINT SPACING BUT BE NO MORE THAN 12' O.C.
4. JOINT SKEW SHALL BE 6:1 AND MATCH SKEW IN CONCRETE STREETS.
5. CONSTRUCTION JOINTS WITH PCC STREET AND CURB SHALL BE DOWELED WITH #5 REBAR, 3' O.C..
6. MINIMUM LENGTH TO BE APPROVED BY THE TRANSIT DIRECTOR AND CITY ENGINEER.
7. BASE COURSE SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 80 DEGREES OR GREATER.
8. TRANSIT PAD SHALL BE REINFORCED WITH #4 REBAR, 1' O.C. EACH WAY, 2" ABOVE BASE ROCK.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

TRANSIT BUS TURNOUT

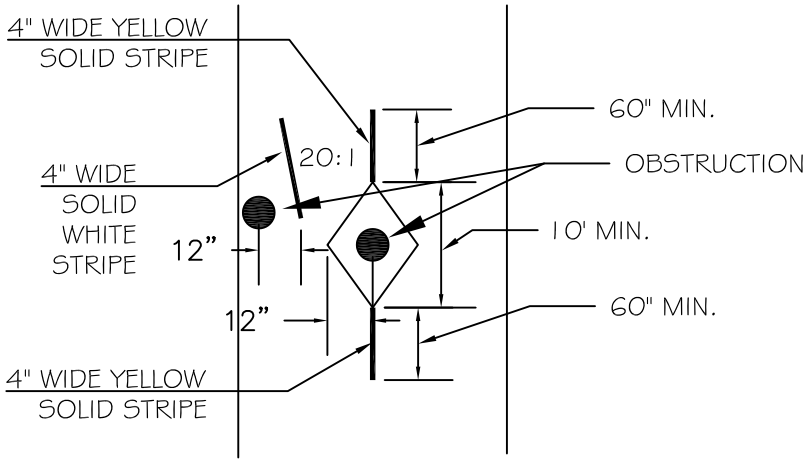
DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1155



NOTES:

1. SHARED USE PATHS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG) CURRENT EDITION.
2. SHARED USE PATHS SHALL HAVE A LIGHT BROOM FINISH TRANSVERSE TO THE LINE OF TRAVEL.
3. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
4. BASE ROCK SHALL BE COMPACTED TO 95% OF AASHTO T-180.
5. CONCRETE SHARED USE PATHS SHALL BE CONSTRUCTED OF PANELS THAT ARE OF EQUAL SIZE, SQUARE AND OF CONSISTANT DIMENSION ALONG THE FULL LENGTH OF THE PATH. PANELS SHALL HAVE NO DIMENSION GREATER THAN 6 FEET.
6. PATHS CONSTRUCTED ADJACENT TO SLOPES GREATER THAN 3H:1V OR A CHANGE OF ELEVATION GREATER THAN 18" SHALL BE PROTECTED WITH AN APPROVED HANDRAIL SYSTEM.
7. CITY APPROVED ROOT BARRIER METHOD TO BE USED FOR ALL STREET TREES LOCATED WITHIN 8 FEET OF SHARED USE PATHS. ROOT BARRIER SHALL EXTEND TO A DISTANCE OF 20' CENTERED WITH THE TREE BASE. BARRIER SHALL BE 2" - 4" FROM THE PATH FACE AND EXTEND A MINIMUM OF 24" IN DEPTH.



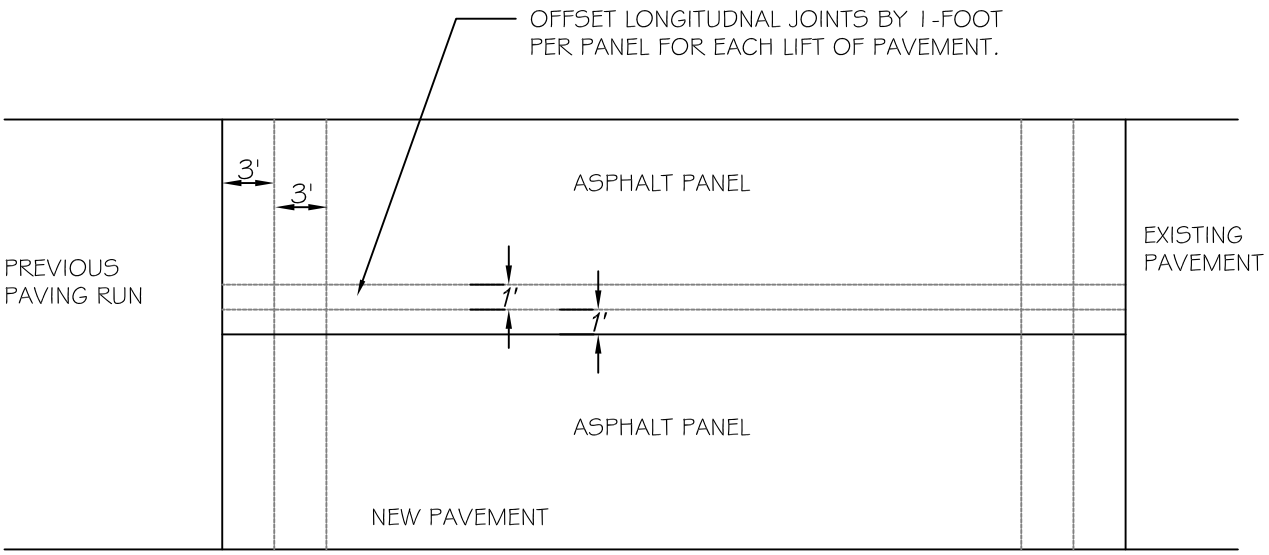
OBSTRUCTION NOTES:

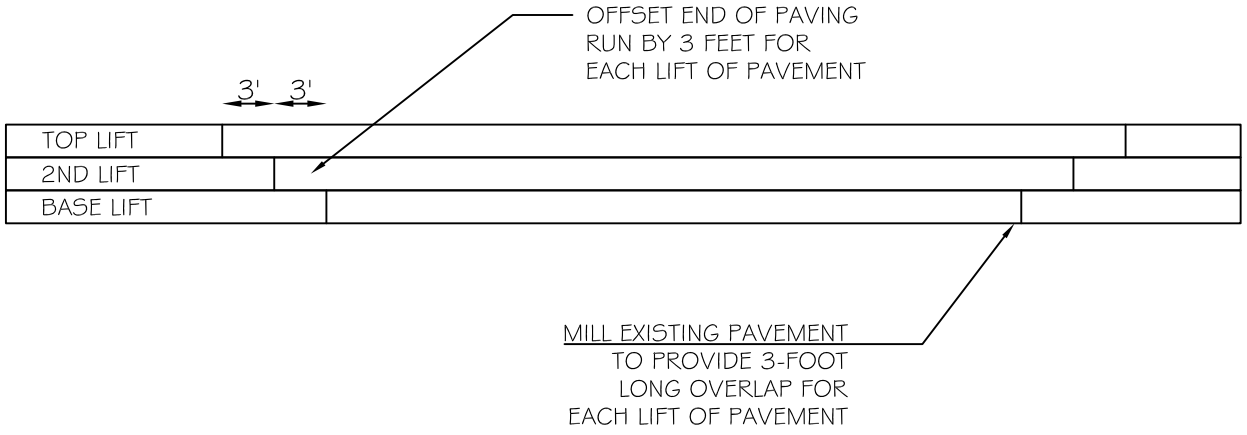
1. SIGNAGE AND PAVEMENT MARKINGS FOR SHARED USE PATHS SHALL BE PROVIDED IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MUTCD, PART 9.
2. ON PATHS WITH HEAVY VOLUMES OF TRAFFIC, PROVIDE A 4" WIDE YELLOW CENTERLINE SKIP STRIPE (3' STRIPE / 9' GAP.
3. ON PATHS WITH LIMITED SITE VISION OR CURVES, PROVIDE A 4" YELLOW CENTERLINE SOLID STRIPE.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

SHARED USE PATH

DRAWN BY	PW	2/2025	R-1160
CHECKED BY	MWH	2/2025	





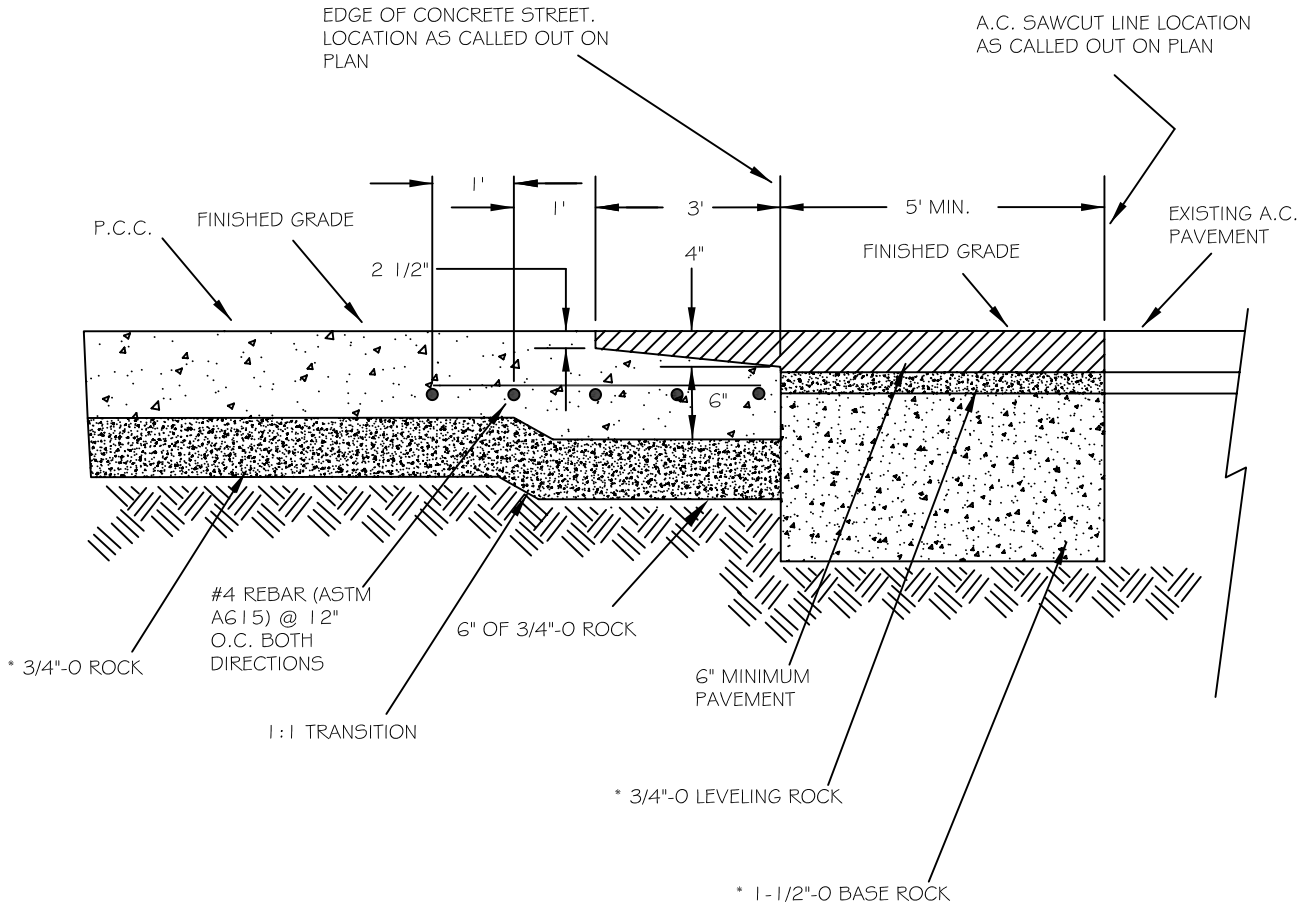
NOTES:
PRIOR TO PLACING NEW PAVEMENT, ASPHALT COLD JOINTS SHALL BE SAWCUT TO A STRAIGHT LINE, CREATING A SMOOTH, SOUND EDGE FOR JOINING NEW PAVEMENT.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

ASPHALT PAVEMENT PLACEMENT

DRAWN BY	PW	2/2025	R-1165
CHECKED BY	MWH	2/2025	



NOTES:

1. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
2. BASE ROCK SHALL BE COMPACTED TO 95% OF AASHTO T-180.
3. BASE COURSE SHALL BE THOROUGHLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 80 DEGREES OR GREATER

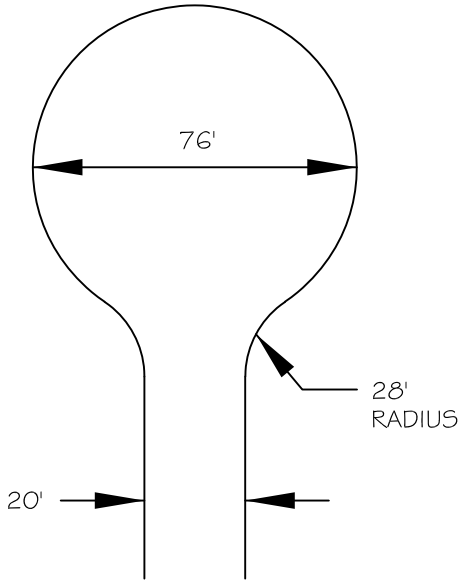
* ROCK SECTIONS VARY DEPENDING ON STRUCTURAL DESIGN OR STREET SECTIONS.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

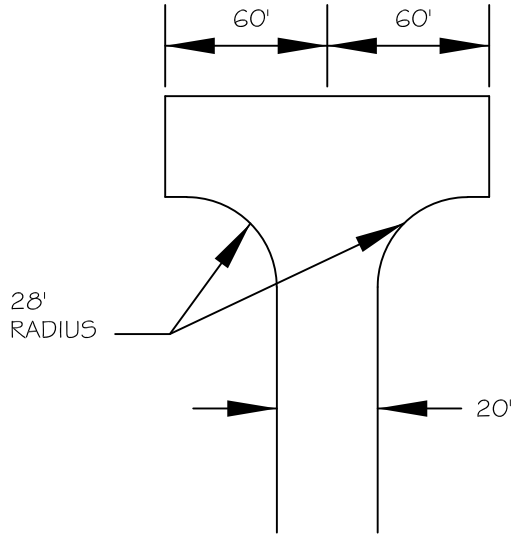
AC TO PCC PAVING CONNECTION

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

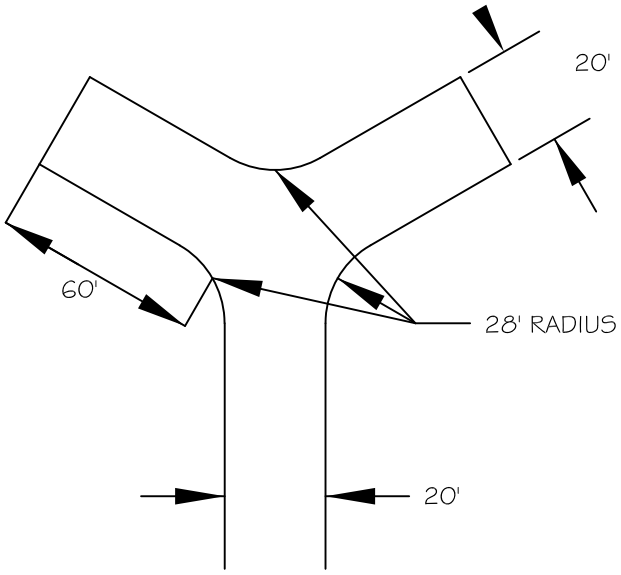
R-1170



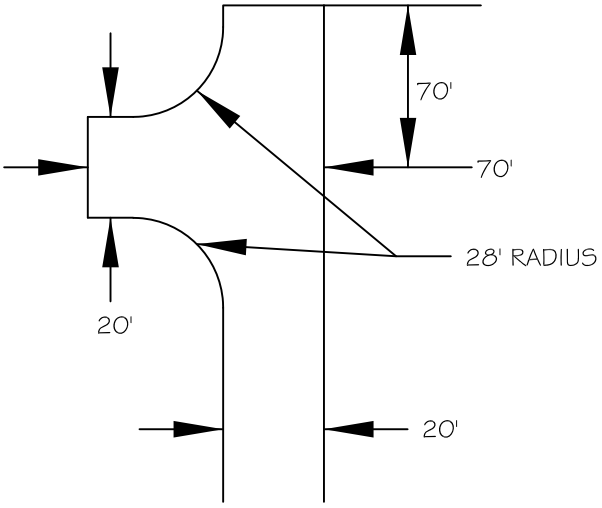
CUL-DE-SAC



HAMMERHEAD



HAMMERHEAD
ALTERNATIVE 1



HAMMERHEAD
ALTERNATIVE 2

NOTE:

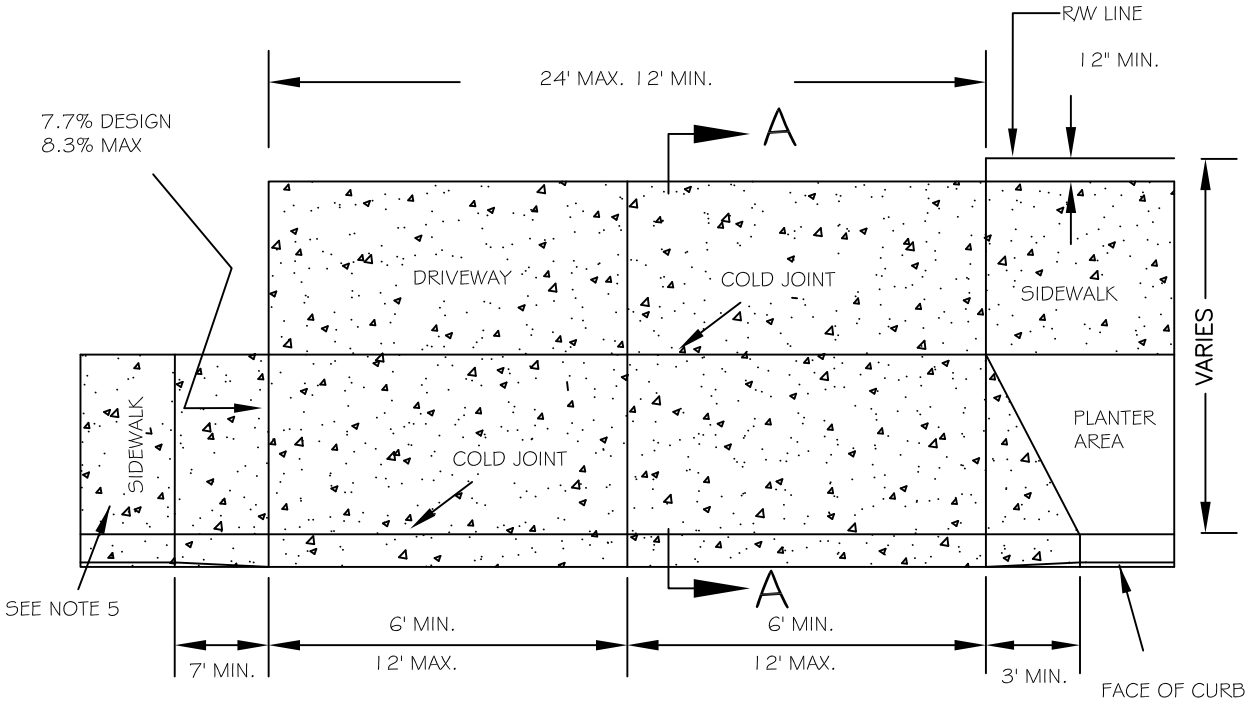
1. APPROVAL FOR ALTERNATIVE TO CUL-DE-SAC SHALL BE APPROVED BY THE CITY ENGINEER AND THE FIRE MARSHALL.
2. ALL DISTANCES ARE MEASURED TO THE FACE OF CURB.
3. ALL DIMENSIONS SHOWN ARE MINIMUM TURNING MOVEMENT CLEAR ZONES. STREET WIDTHS SHALL MEET THE CURRENT VERSION OF THE PUBLIC WORKS STANDARDS AND TRANSPORTATION MASTER PLAN.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

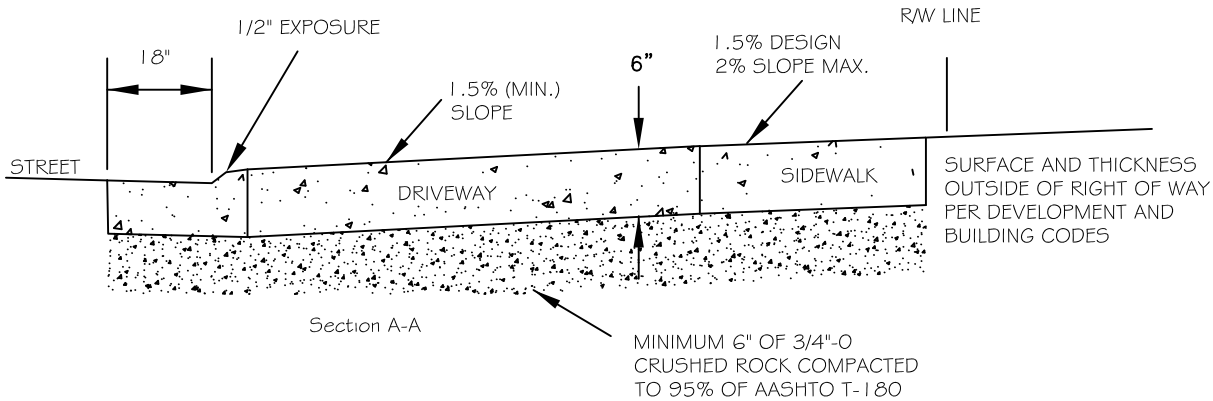
FIRE DISTRICT TURN AROUND

DRAWN BY	PW	2/2025	R-1175
CHECKED BY	MWH	2/2025	



CURB TIGHT SIDEWALK

SIDEWALK BEHIND PLANTER STRIP



NOTES

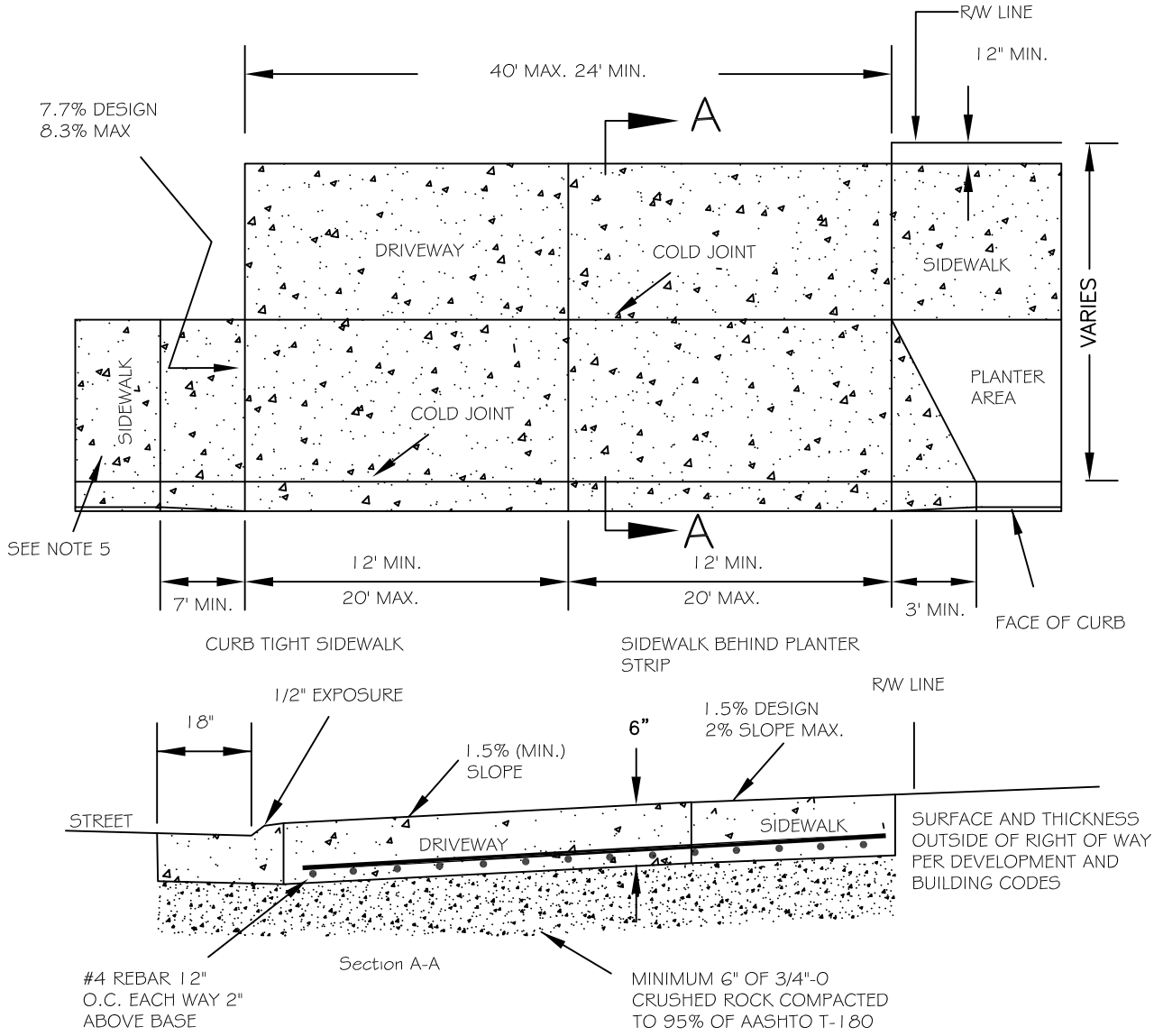
1. DRIVEWAYS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG) CURRENT EDITION.
2. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
3. BASE COURSE SHALL BE THOROUGHTLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 80 DEGREES OR GREATER.
4. CURB JOINT SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS ALONG THE BACK OF CURB.
5. SIDEWALK THICKNESS SHALL BE 6 INCHES MINIMUM AND EXTEND TO AT LEAST ONE PANEL BEYOND DRIVEWAY APRON. DRIVEWAY FINISH SHALL MATCH FINISH OF THE CONCRETE SIDEWALK.
6. THE CROSS SLOPE OF THE PEDESTRIAN ACCESS ROUTE SHALL BE DESIGNED AT 1.5% AND NOT EXCEED 2%.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

RESIDENTIAL DRIVEWAY

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1180



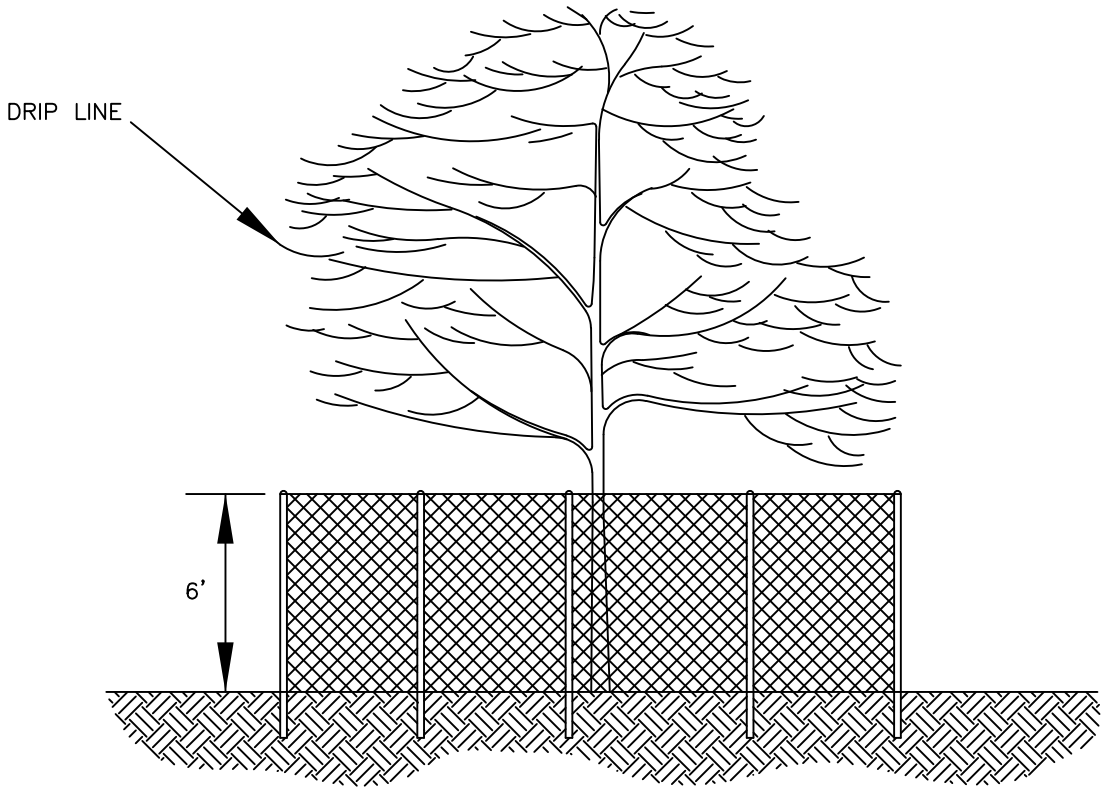
NOTES

1. DRIVEWAYS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH "PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG) CURRENT EDITION.
2. CONCRETE SHALL BE COMMERCIAL MIX, MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
3. BASE COURSE SHALL BE THOROUGHTLY WATERED IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE WHEN THE MEASURED OR FORECASTED ASCENDING AIR TEMPERATURE IS 80 DEGREES OR GREATER.
4. CURB JOINT SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS ALONG THE BACK OF CURB.
5. SIDEWALK THICKNESS SHALL BE 6 INCHES MINIMUM AND EXTEND TO AT LEAST ONE PANEL BEYOND DRIVEWAY APRON. DRIVEWAY FINISH SHALL MATCH FINISH OF THE CONCRETE SIDEWALK.
6. THE CROSS SLOPE OF THE PEDESTRIAN ACCESS ROUTE SHALL BE DESIGNED AT 1.5% AND NOT EXCEED 2%.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

COMMERCIAL-INDUSTRIAL DRIVEWAY

DRAWN BY	PW	2/2025	R-1185
CHECKED BY	MWH	2/2025	



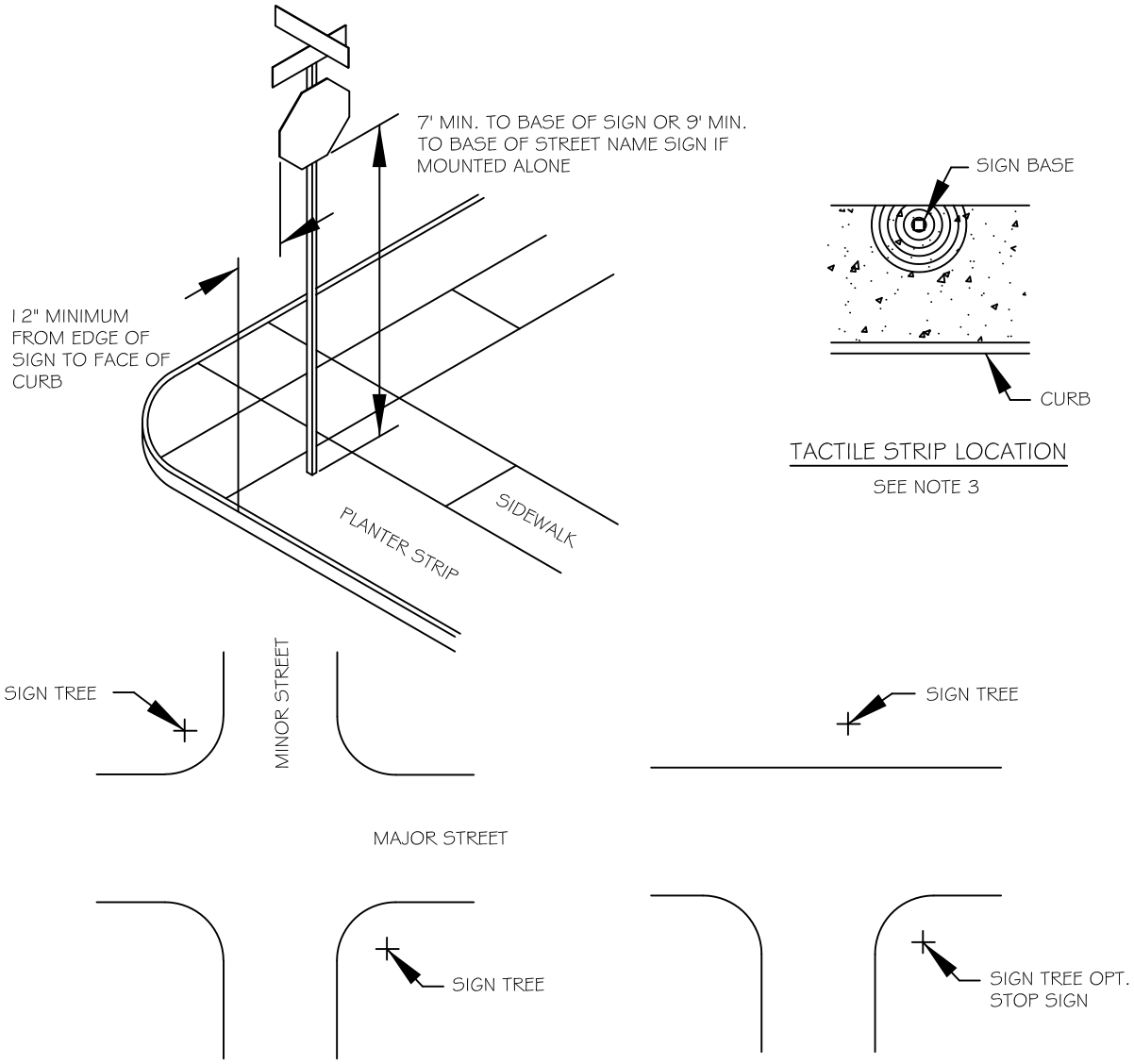
NOTES:

1. FENCE SHALL BE 6' IN HEIGHT AND SET AT TREE DRIP LINE.
2. FENCE MATERIALS SHALL CONSIST OF 2" MESH CHAIN LINKS SECURED TO A MINIMUM 1 1/2" DIA. STEEL OR ALUMINUM LINE POSTS.
3. POSTS SHALL BE SET TO A DEPTH OF NO LESS THAN 2 FEET IN NATIVE SOIL.
4. FENCE SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF CONSTRUCTION ACTIVITIES.
5. MOVEMENT OR REMOVAL OF FENCE REQUIRES APPROVAL BY CITY'S AUTHORIZED REPRESENTATIVE.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

TREE PROTECTION FENCING

DRAWN BY	PW	2/2025	R-1190
CHECKED BY	MWH	2/2025	



TACTILE STRIP LOCATION

SEE NOTE 3

CROSS INTERSECTION

TEE INTERSECTION

NOTE:

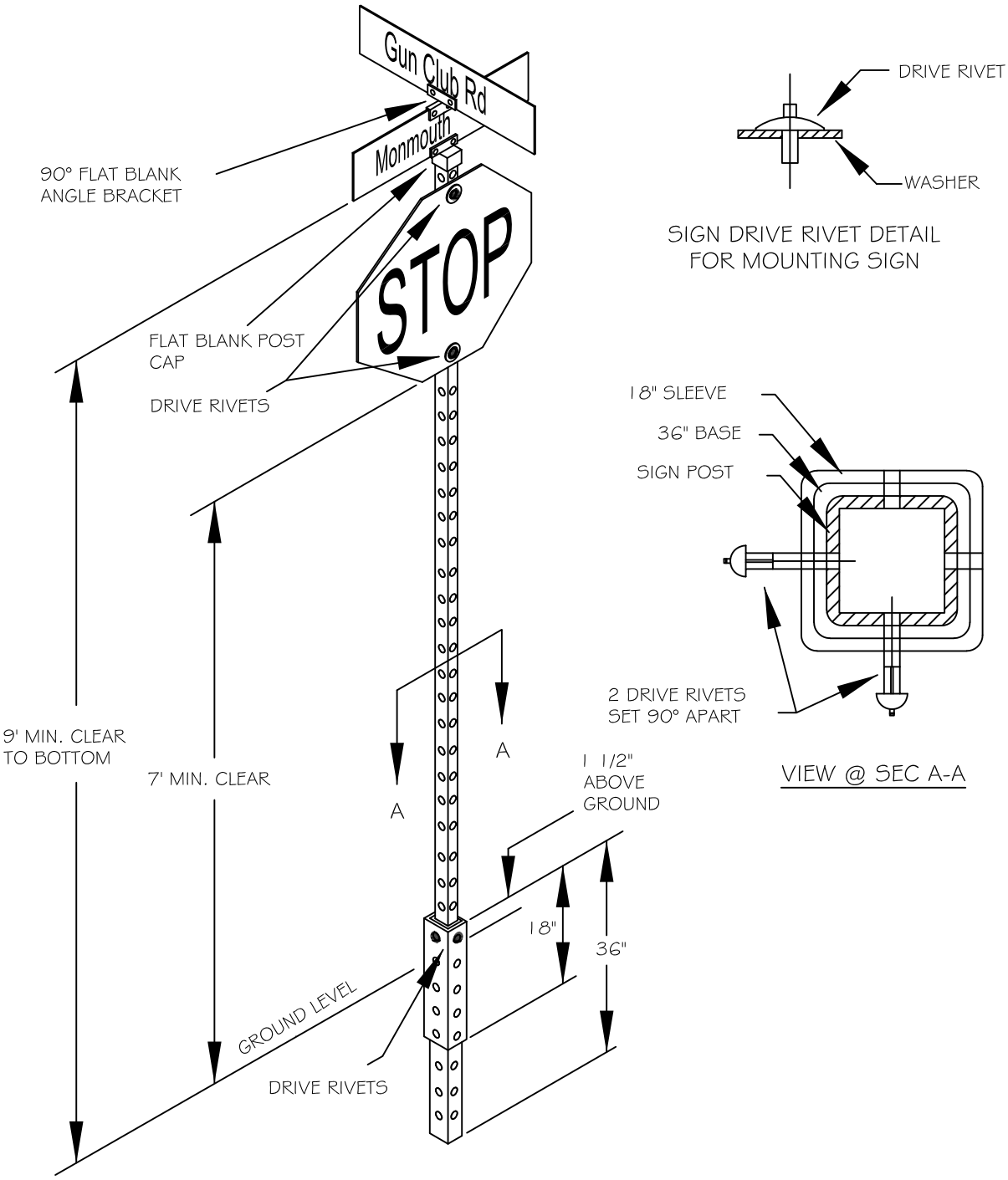
1. SIGN LOCATIONS SHALL BE ACCORDING TO MUTCD AND AS MODIFIED HEREIN.
2. SIGNS WHERE THE SIDEWALK IS CURB TIGHT SHALL BE LOCATED 6" OUTSIDE THE SIDEWALK TO MAXIMUM DISTANCE OF 7' FROM THE FACE OF CURB.
3. IF THE SIDEWALK IS LARGER THAN 6', A TACTILE STRIP 2' WIDE FROM A RADIUS POINT FROM THE BASE OF THE SIGN SHALL BE PLACED IN THE WET CONCRETE.
4. THE TACTILE STRIP SHALL BE MADE BY USING A 1/4" TINE METAL BROOM TO A DEPTH OF 1/4".

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

STREET SIGN LOCATIONS

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1195



NOTES:

1. SIGN POST SHALL BE EMBEDDED 12" INTO BASE.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

STREET SIGN ASSEMBLY

DRAWN BY	PW	2/2025	R-1200
CHECKED BY	MWH	2/2025	

S. Main St.

MATERIALS:
STREET NAME SIGN SHALL BE MINIMUM 6" HEIGHT, 0.100" GAUGE FLAT ALODINE FINISH ALUMINUM. THE MINIMUM LENGTH SHALL BE 24" AND MAXIMUM LENGTH SHALL BE 36". BOTH SIDES OF STREET NAME SIGNS SHALL BE GREEN 3M SCOTCHLITE BRAND HIGH INTENSITY REFLECTIVE SHEETING.

LETTERING:
ALL LETTERS AND NUMBERS USED TO FABRICATE A STREET NAME SIGN SHALL BE HIGH INTENSITY SILVER USING 3M SCOTCHLITE BRAND. THE ACTUAL NAME OF THE STREET IS A 4" SERIES 'B'.

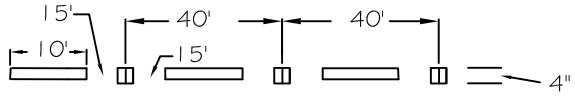
INSTALLATION:
MOUNTING HARDWARE SHALL BE STYLE #850F LONG (5") ALUMINUM CAPS/TEES.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

STREET NAME SIGN

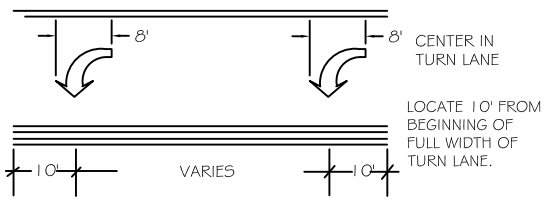
DRAWN BY	PW	2/2025	R-1205
CHECKED BY	MWH	2/2025	

A



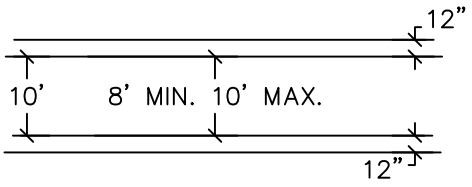
SKIP CENTERLINE:
4" YELLOW LINE WITH TYPE I BI- DIRECTIONAL YELLOW RAISED PAVEMENT MARKERS AT 40' O.C.

B



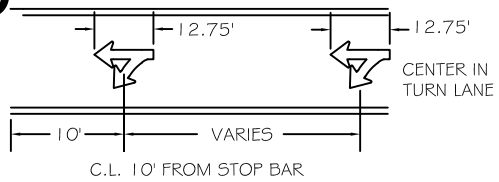
TURN LANE MARKINGS:
SEE MUTCD AND ODOT STANDARD DRAWING FOR DETAILS. ARROWS SHALL BE PREFORMED THERMOPLASTIC PAVEMENT MARKING MATERIAL.

C



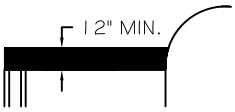
CROSSWALK:
SPACE TWO 12" WHITE LINES AS SHOWN ON PLANS. CROSSWALK SHALL BE THERMOPLASTIC PAVEMENT MARKING MATERIAL

D



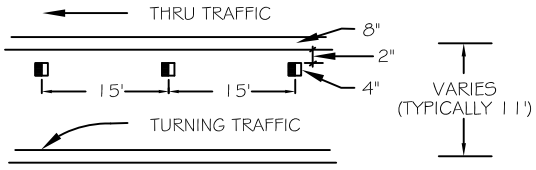
THRU AND TURN LANE MARKINGS
SEE MUTCD FOR DETAILS. TURN AND THRU ARROWS SHALL BE PREFORMED THERMOPLASTIC PAVEMENT MARKING MATERIAL

E



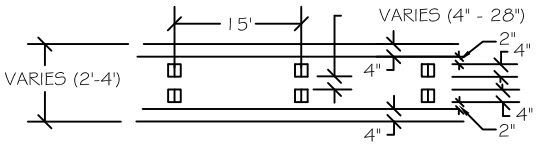
STOP BAR:
SHALL BE THERMOPLASTIC PAVEMENT MARKING MATERIAL. PER CITY AT INTERSECTIONS IF MARKED CROSSWALKS ARE INSTALLED.

F



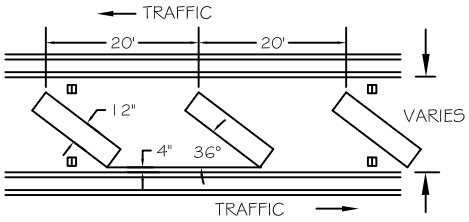
TURN LANE:
8" WHITE LINE WITH MONO-DIRECTIONAL CRYSTAL TYPE I MARKERS (WHITE) AT 15' O.C.

G



MEDIAN NOSE:
TWO 4" YELLOW LINES WITH BI- DIRECTIONAL YELLOW TYPE I MARKERS AT 15' O.C. FOR USE AT INTERSECTIONS WHERE MEDIAN NOSE IS LESS THAN 4' WIDE.

H



DIAGONAL LINES:
12" YELLOW OR WHITE LINES INSTALLED AS SHOWN.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

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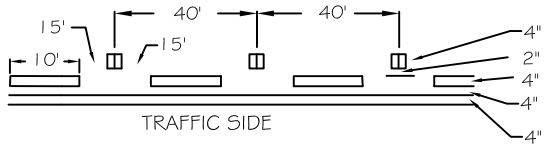
DEPARTMENT OF PUBLIC WORKS

PAVEMENT MARKINGS PAGE 1

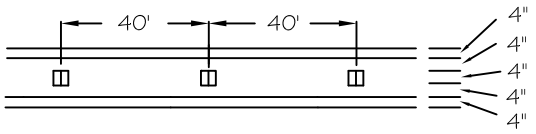
DRAWN BY	PW	2/2025	R-1210
CHECKED BY	MWH	2/2025	

I



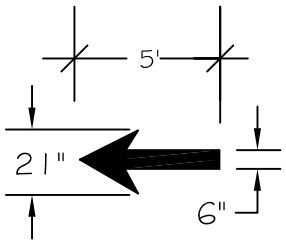
TWO WAY LEFT TURN STRIPE:
4" YELLOW LINES WITH TYPE I BI-DIRECTIONAL YELLOW RAISED PAVEMENT MARKERS AT 40' O.C.
OUTSIDE LINE IS SOLID INSIDE AT 10'/30' PATTERN.

J



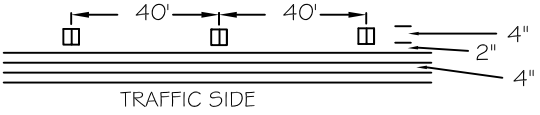
CENTERLINES:
TWO 4" YELLOW LINES WITH BI-DIRECTIONAL YELLOW TYPE I MARKERS AT 40' O.C.

K



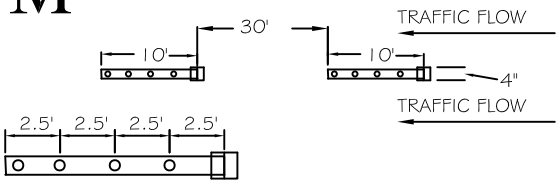
BICYCLE LANE ARROW:
SEE ODOT BIKE LANE STANDARDS. USE PREFORMED THERMOPLASTIC PAVEMENT MARKING MATERIAL.

L



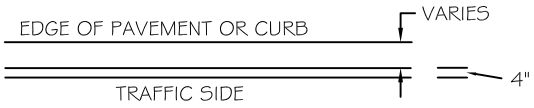
MEDIAN STRIPE:
TWO 4" YELLOW LINES WITH TYPE I BI-DIRECTIONAL YELLOW RAISED PAVEMENT MARKERS AT 40' O.C.

M



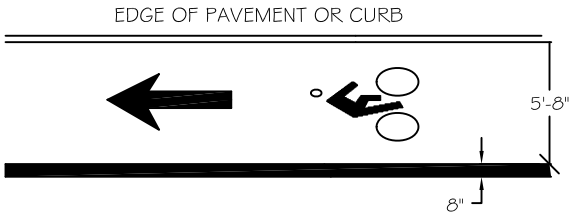
LANE LINE:
4" WHITE WITH CRYSTAL. TYPE I WHITE MONO-DIRECTIONAL MARKERS AT 40' O.C.

N



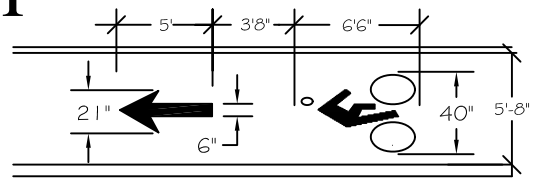
FOG LINE:
4" WHITE LINE AS SHOWN ON PLANS

O



BIKE LANE LINE - 8" WIDE WHITE LINE

P



BICYCLE LANE MARKING:
SEE ODOT BIKE LANE STANDARDS. USE PREFORMED THERMOPLASTIC PAVEMENT MARKING MATERIAL.

Detail Drawing may not be altered or changed in any manner except by the Public Works Director. It is the responsibility of the user to acquire the most current version.

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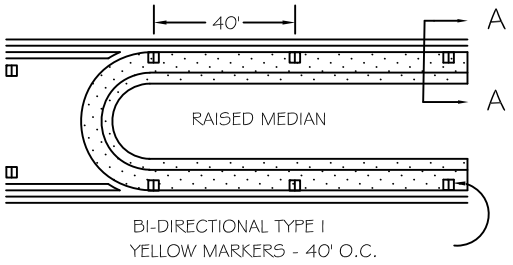
DEPARTMENT OF PUBLIC WORKS

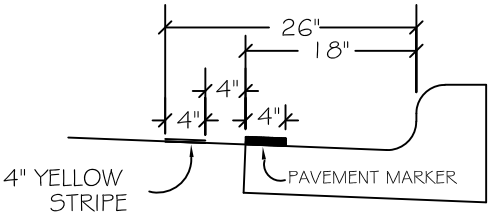
PAVEMENT MARKINGS PAGE 2

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1215

Q

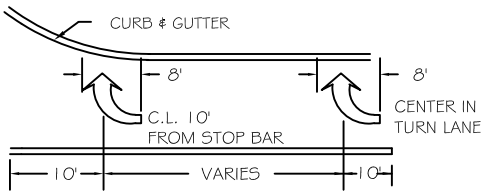




SECTION A - A

RAISED MEDIAN STRIPE:
4" YELLOW LINE WITH TYPE I BI-DIRECTIONAL YELLOW RAISED PAVEMENT MARKERS AT 40' O.C.

R



RIGHT TURN LANE MARKINGS:
SEE MUTCD FOR DETAILS. ARROWS SHALL BE THERMOPLASTIC PAVEMENT MARKING MATERIAL.

NOTES

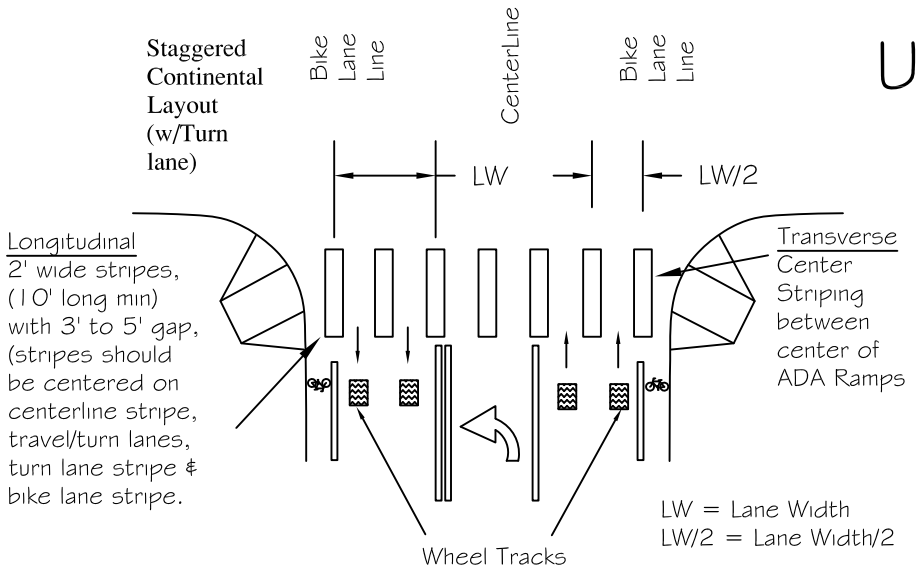
1. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
2. ALL STRIPING AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CITY OF INDEPENDENCE, AND ODOT TRAFFIC ENGINEERING DESIGN SPECIFICATIONS.
3. LOCATE STOP BARS 10' BACK OF THE EXTENDED FOG LINE, EDGE OF PAVEMENT, OR CURB FACE. VERIFY SIGHT DISTANCE.
4. LOCATE CROSSWALKS AS PER WHEELCHAIR RAMP LOCATIONS OR 5' BACK OF EXTENDED FOG LINE, EDGE OF PAVEMENT OR CURB FACE.
5. ANY REMOVAL OF EXISTING STRIPING TO BE DETERMINED IN THE FIELD AND IS CONSIDERED INCIDENTAL WORK. STRIPING SHALL BE BEAD BLASTED FOR PAINT AND GROUND FOR THERMOPLASTIC OR AS DIRECTED BY THE CITY'S AUTHORIZED REPRESENTATIVE.
6. ALL THERMOPLASTIC PAVEMENT MARKING MATERIALS SHALL BE INSTALLED AS PER SECTION 00850 OF THE ODOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
7. ALL PAVEMENT MARKING SHALL CONFORM TO THE MOST CURRENT ODOT SPECIFICATIONS FOR THERMOPLASTIC.
8. LANE WIDTHS SHALL BE MEASURED FROM CENTERLINE OF STRIPES.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

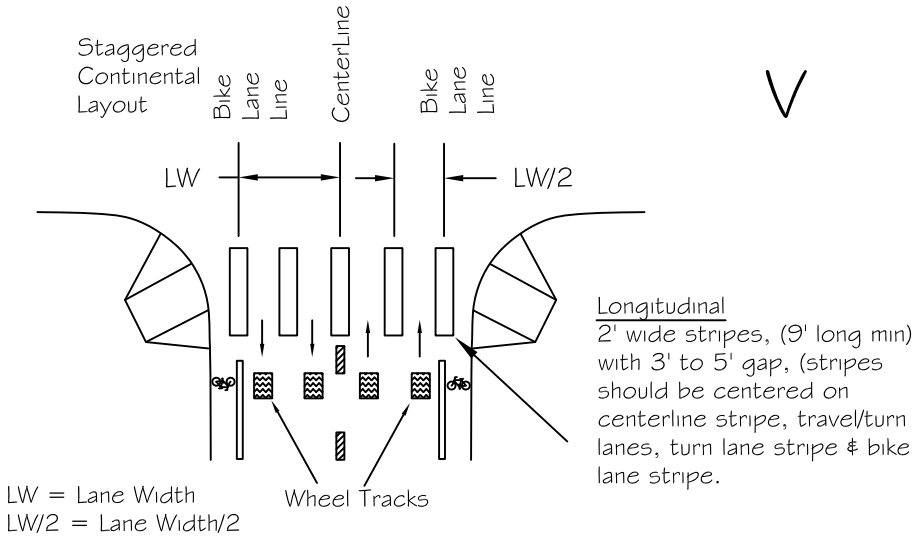
PAVEMENT MARKINGS PAGE 3

DRAWN BY	PW	2/2025	R-1220
CHECKED BY	MWH	2/2025	

U



V



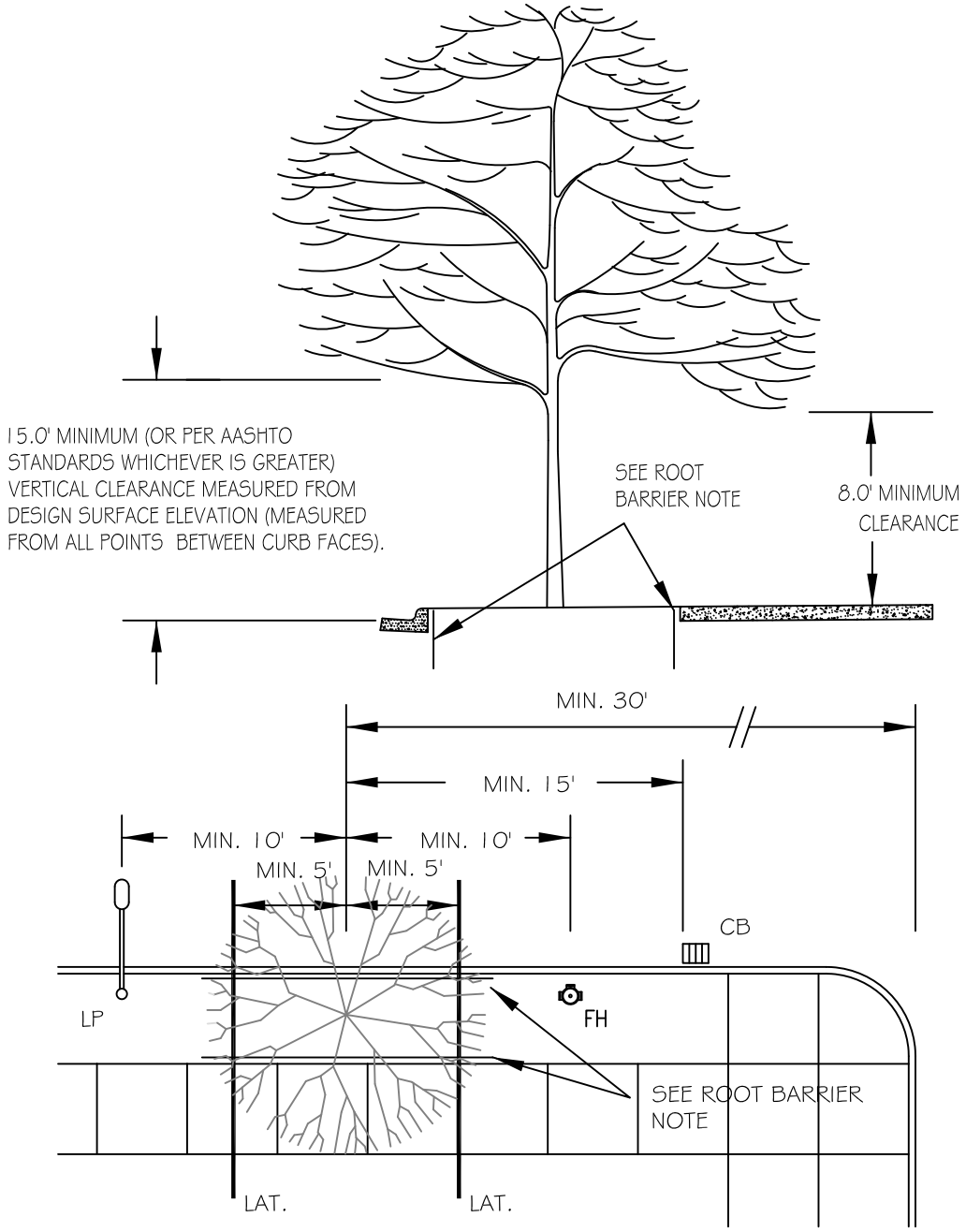
GENERAL NOTES FOR ALL PAVEMENT MARKINGS:

1. ALL STRIPING AND PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
2. ALL STRIPING AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE CITY OF INDEPENDENCE AND ODOT TRAFFIC ENGINEERING DESIGN SPECIFICATIONS.
3. LOCATE STOP BARS PER MUTCD REQUIREMENTS IF REQUIRED.
4. LOCATE CROSSWALKS AS PER SIDEWALK RAMP LOCATIONS OR 5' BACK OF EXTENDED FOG LINE, EDGE OF PAVEMENT OR CURB FACE.
5. ANY REMOVAL OF EXISTING STRIPING TO BE DETERMINED IN THE FIELD AND IS CONSIDERED INCIDENTAL WORK. STRIPING SHALL BE BEAD BLASTED FOR PAINT AND GROUND FOR THERMOPLASTIC OR AS DIRECTED BY THE CITY'S AUTHORIZED REPRESENTATIVE.
6. ALL THERMOPLASTIC PAVEMENT MARKING MATERIALS SHALL BE INSTALLED AS PER SECTION 00850 OF THE CURRENT VERSION OF THE ODOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
7. ALL PAVEMENT MARKING SHALL CONFORM TO THE MOST CURRENT ODOT SPECIFICATIONS THERMOPLASTIC.
8. LANE WIDTHS SHALL BE MEASURED FROM CENTERLINE OF STRIPE TO CENTERLINE OF STRIPE OR CURB FACE.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

PAVEMENT MARKINGS PAGE 4

DRAWN BY	PW	2/2025	R-1225
CHECKED BY	MWH	2/2025	



NOTES:

1. 5' MINIMUM CLEARANCE FROM UNDERGROUND UTILITIES AND LATERALS. LANDSCAPE DESIGN OF TREES AND ENGINEERING DESIGN OF UNDERGROUND SERVICES SHALL BE COORDINATED.
2. TREES SHALL BE CENTERED BETWEEN CURB AND SIDEWALK.
3. CITY APPROVED ROOT BARRIER METHOD TO BE USED FOR ALL STREET TREES AT CURBS AND SIDEWALKS. ROOT BARRIER SHALL EXTEND TO A DISTANCE OF 20' CENTERED WITH THE TREE BASE. BARRIER SHALL BE 2"-4" FROM CURB OR SIDEWALK AND EXTEND A MINIMUM OF 24" IN DEPTH.
4. 4. WHEN TREES ARE WITHIN TREE WELLS, ROOT BARRIER SHALL BE PLACED ON ALL SIDES.

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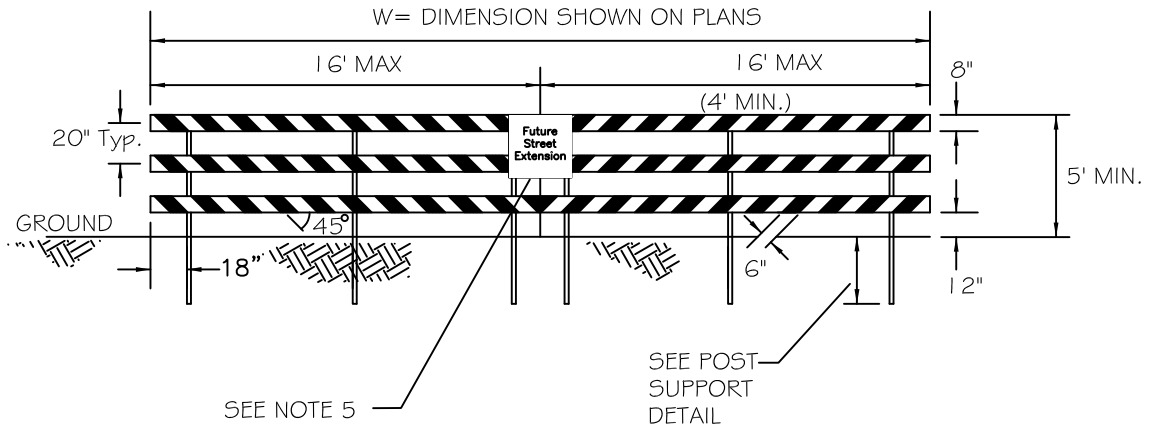
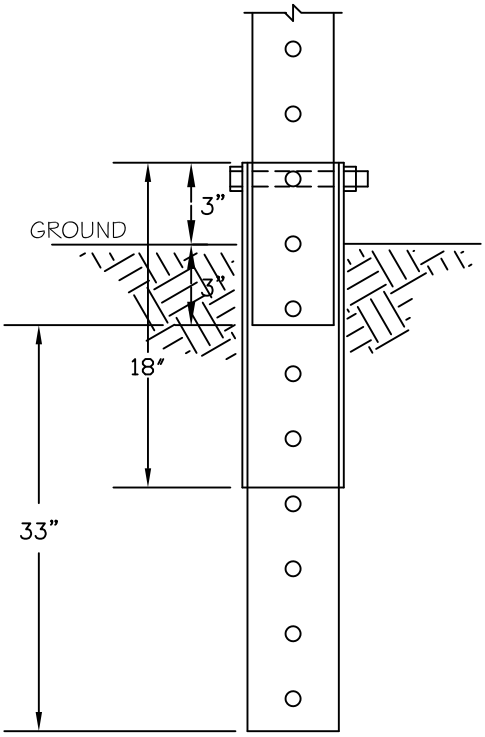
DEPARTMENT OF PUBLIC WORKS

STREET TREE LOCATIONS

DRAWN BY	PW	2/2025	R-1230
CHECKED BY	MWH	2/2025	





POST SUPPORT DETAIL

NOTES:

1. MATERIALS:
   - 2" X 2" X 63", GA. GALV. PERFORATED STEEL POST.
   - 2 1/2" X 2 1/2" X 18", 12 GA. GALV. PERFORATED STEEL STIFFNER POST.
   - 2 1/4" X 2 1/4" X 36", 12 GA GALV. PERFORATED STEEL ANCHOR.
   - 3/8" X 3 1/2", GALVANIZED HEX HEAD BOLT WITH LOCK WASHER, OR 5/16" CORNER BOLT.
   - 7/16" X 5", GALVANIZED CARRIAGE WITH FLAT AND LOCK WASHER, 2 BOLTS PER RAIL PER POST.
   - 2" X 8" CROSSRAILS WITH ALTERNATING RED AND WHITE STRIPES. ALL STRIPES SHALL HAVE RED AND WHITE ENCAPSULATED LENS SHEETING, OR ALUMINUM PANELS. ATTACHED WITH 3/4" #10 WOOD SCREWS.

2. SEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND THE OREGON SUPPLEMENT.

3. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STATE OF OREGON STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

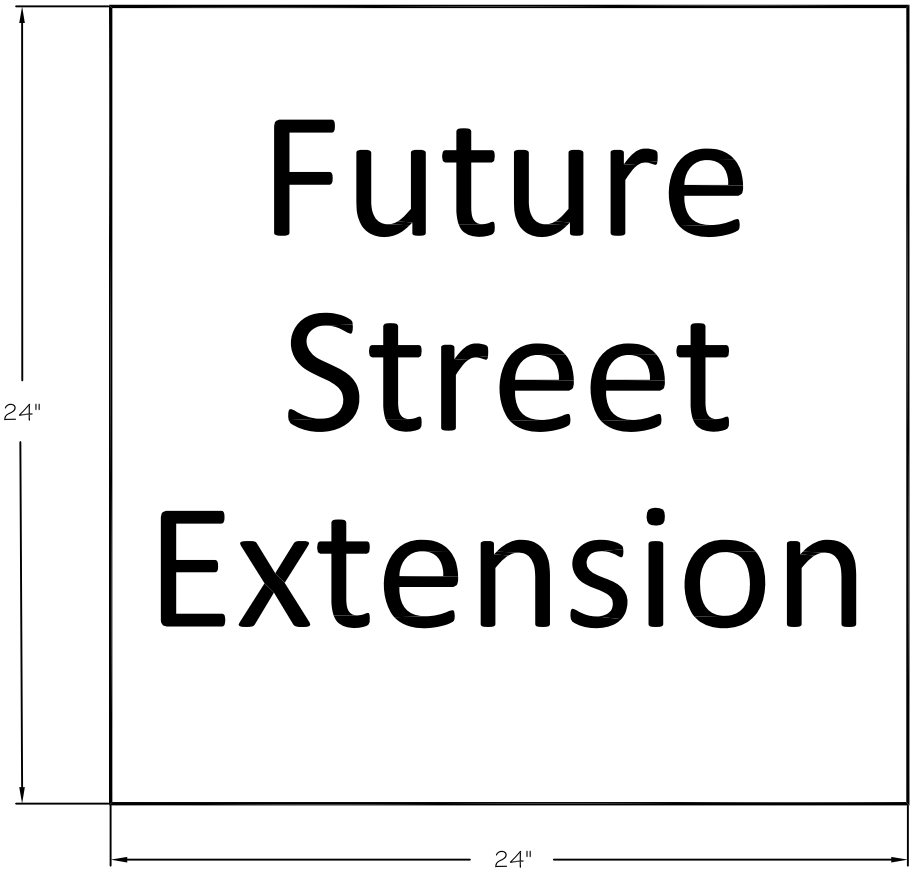
4. FOR EACH 4' OF PANEL OR SHEETING USE MINIMUM 15 SCREWS OR NAILS TO ATTACH.

5. INSTALL SIGN STREET EXTENSION SIGN DETAIL.

CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

STREET END BARRICADE (TYPE 3)

DRAWN BY	PW	2/2025	R-1235
CHECKED BY	MWH	2/2025	



NOTES:

1. USE 3.5" TALL WHITE LETTERING ON GREEN BACKGROUND.
2. SIGN SHALL HAVE A HI-INTENSITY PRISMATIC FINISH MEETING ASTM 4956 SPEC TYPE 4 STANDARDS.
3. LETTERING SHALL BE HIGH INTENSITY WHITE USING 3M SCOTCHLITE BRAND.
4. SIGN SHALL BE SECURELY MOUNTED TO THE TYPE II OR TYPE III BARRICADE USING A MINIMUM OF FOUR 3/8" X 2" GALVANIZED HEX HEAD BOLT WITH LOCK WASHER AND NUT.
5. SIGN SHALL BE MOUNTED ON BARRICADE AS DIRECTED BY CITY'S AUTHORIZED REPRESENTATIVE ON ANY STREET PLANNED TO BE EXTENDED AT SOME TIME IN THE FUTURE.

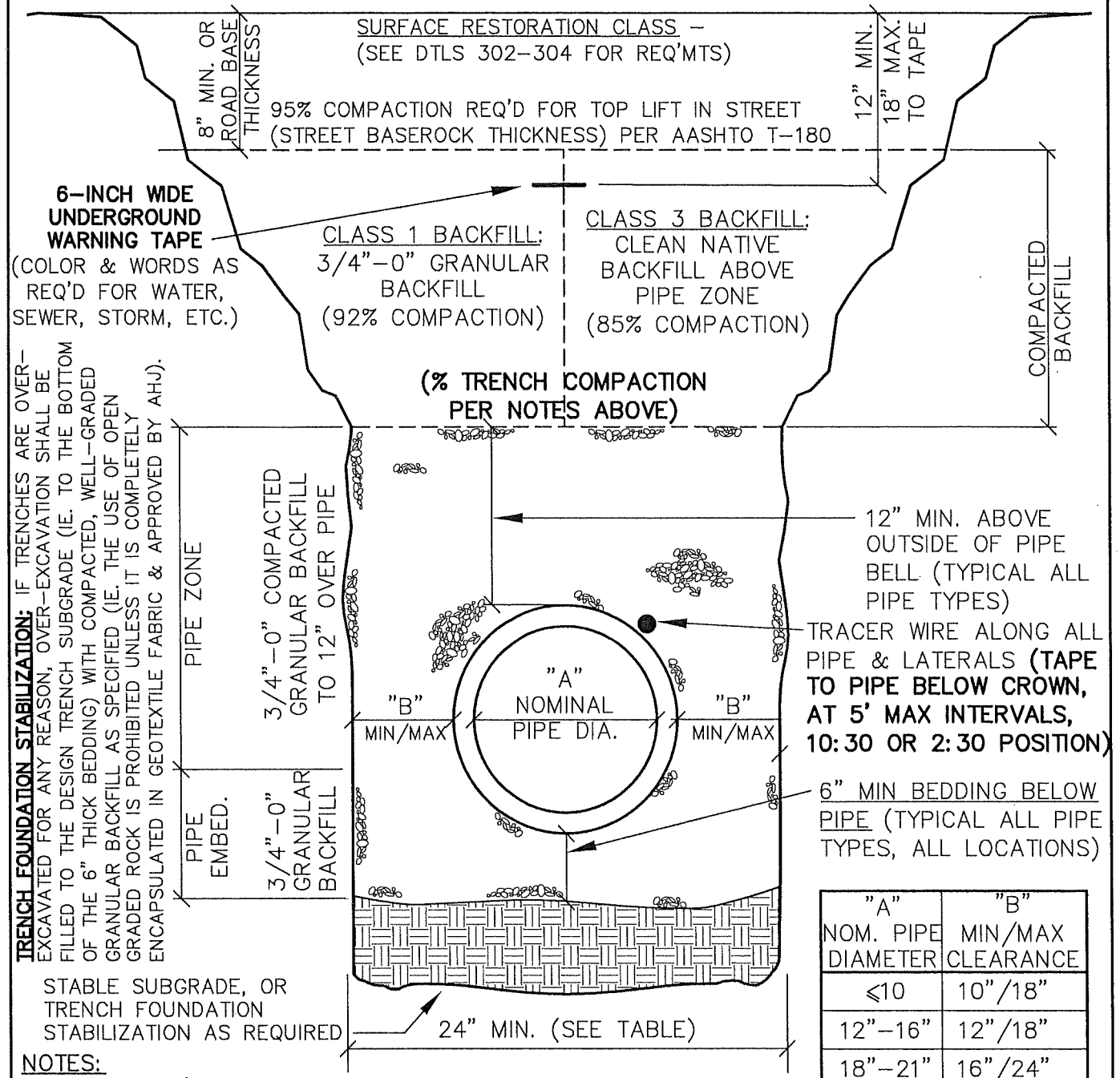
CITY OF INDEPENDENCE
DEPARTMENT OF PUBLIC WORKS

STREET EXTENSION SIGN

DRAWN BY	PW	2/2025
CHECKED BY	MWH	2/2025

R-1240

TRENCH COMPACTION: CLASS 1 GRANULAR BACKFILL – 92% OPTIMUM PER AASHTO T-180 (MODIFIED PROCTOR)
CLASS 3 NATIVE BACKFILL – 85% OPTIMUM PER AASHTO T-180



TRENCH FOUNDATION STABILIZATION: IF TRENCHES ARE OVER-EXCAVATED FOR ANY REASON, OVER-EXCAVATION SHALL BE FILLED TO THE DESIGN TRENCH SUBGRADE (IE. TO THE BOTTOM OF THE 6" THICK BEDDING) WITH COMPACTED, WELL-GRADED GRANULAR BACKFILL AS SPECIFIED (IE. THE USE OF OPEN GRADED ROCK IS PROHIBITED UNLESS IT IS COMPLETELY ENCAPSULATED IN GEOTEXTILE FABRIC & APPROVED BY AHJ).

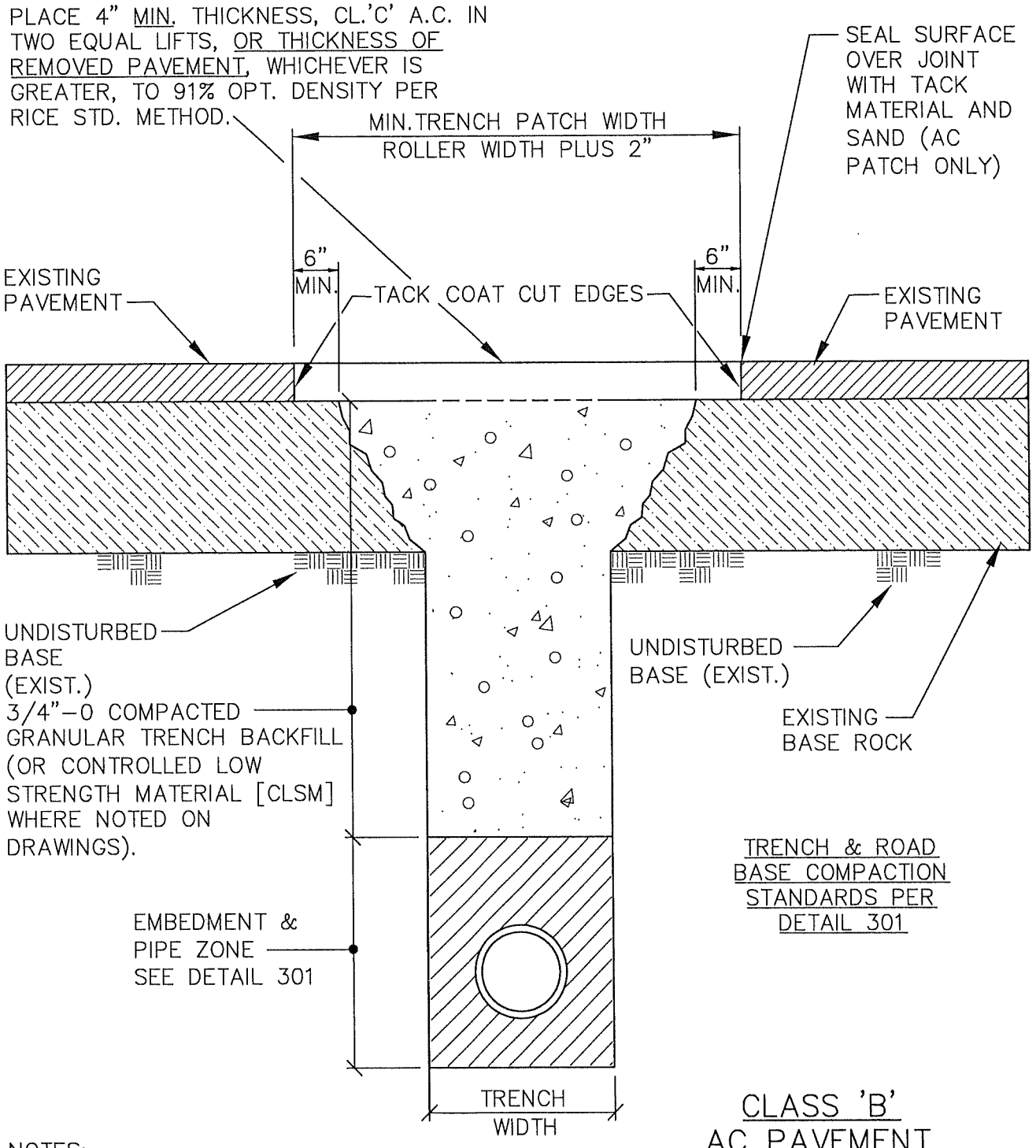
"A" NOM. PIPE DIAMETER	"B" MIN/MAX CLEARANCE
≤10	10"/18"
12"-16"	12"/18"
18"-21"	16"/24"
24"-30"	18"/30"
>30"	24"/36"

(SEE NOTE 4)

NOTES:

1. CLASS 1 REQ'D. UNDER ALL EXIST. OR FUTURE IMPROVED AREAS INCLUDING SIDEWALKS.
2. WHERE NEW PIPING IS IN SAME ALIGNMENT AS EXISTING PIPING, THE PIPE EMBEDMENT SHALL EXTEND TO A MIN. OF 6" BELOW THE NEW PIPING OR 6" BELOW EXISTING PIPING, WHICHEVER IS DEEPER.
3. FOR FLEXIBLE PIPE, BOTTOM OF TRENCH SHORING SHALL BE ABOVE PIPE SPRINGLINE PRIOR TO COMPACTING BACKFILL BELOW THE PIPE SPRINGLINE AND UNDER THE PIPE HAUNCHES.
4. MINIMUM CLEARANCES SHOWN ("B") ASSUMES STANDARD 6" WALL TRENCH BOXES SET ON TRENCH BOTTOM, AND REPRESENTS WIDTH REQUIRED TO CONSOLIDATE GRANULAR MATERIAL UNDER PIPE HAUNCHES (TO AVOID LOSS OF SIDE SUPPORT WHEN TRENCH BOX IS MOVED OR PULLED FORWARD). TRENCH WIDTH REDUCTION REQUIRES PRIOR APPROVAL BASED ON ACTUAL TRENCH SHORING PROPOSED.

LAST REVISION DATE: FEB 2020	
TRENCH BACKFILL, BEDDING, AND PIPE ZONE (NTS)	
INDEPENDENCE, OR	DETAIL NO. 301

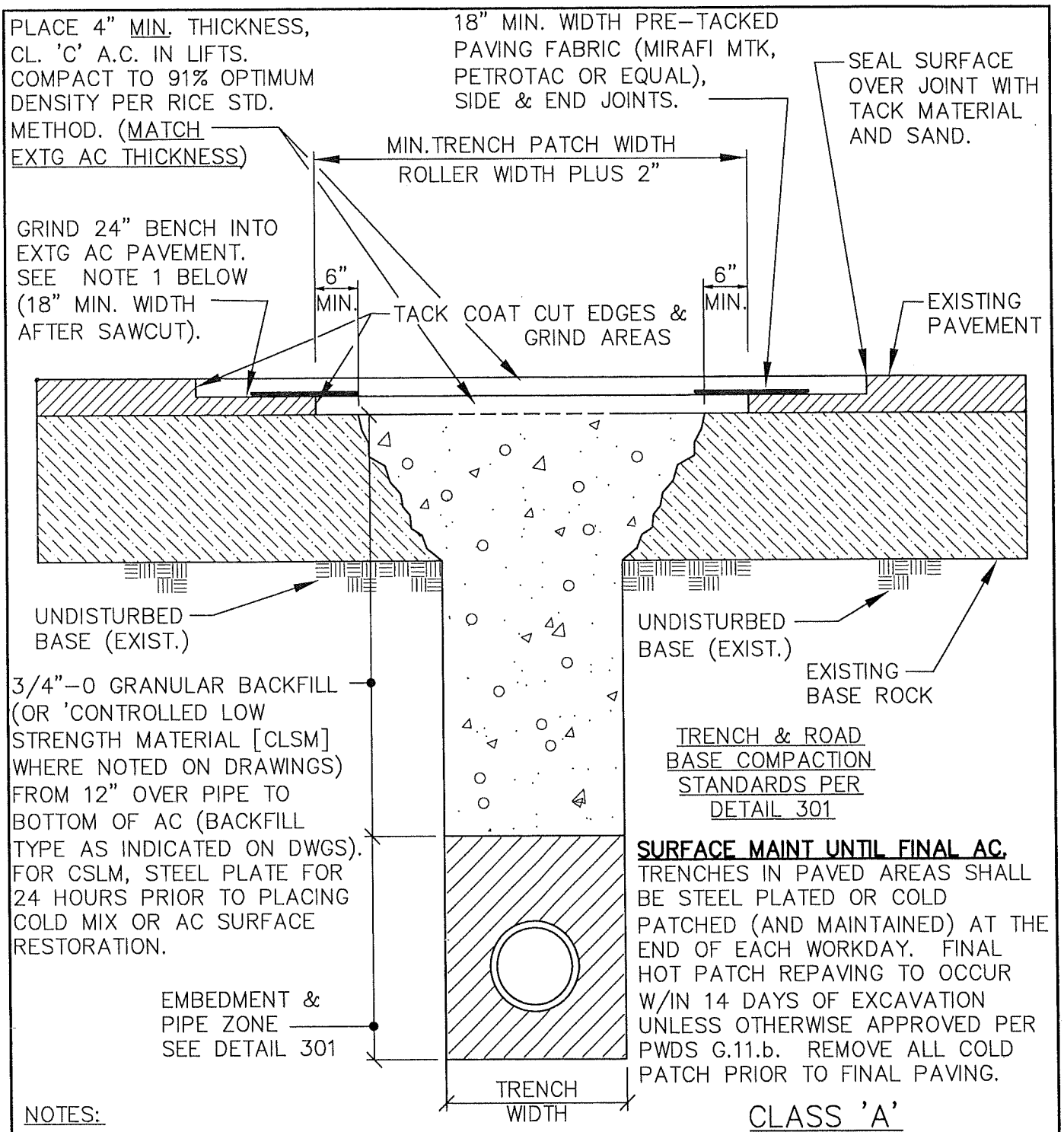


CLASS 'B' AC PAVEMENT RESTORATION

NOTES:

1. ALL EXISTING AC OR PCC PAVEMENT SHALL BE SAWCUT PRIOR TO REPAVING.
2. PCC CONCRETE PAVEMENT SHALL BE REPLACED WITH 3300 PSI PCC TO A MINIMUM THICKNESS OF 6" OR TO THE THICKNESS OF REMOVED CONCRETE, WHICHEVER IS GREATER.
3. FOR PAVED DRIVEWAYS (EXCEPT COMMERCIAL OR INDUSTRIAL) WITH LESS THAN 4" EXISTING AC, PAVEMENT THICKNESS MAY BE REDUCED TO 3" AC IN 2 LIFTS, AND OVERCUT MAY BE REDUCED TO 3" EACH SIDE.

LAST REVISION DATE: AUG 2018	
MINOR OR PRIVATE STREET AND AC DRIVEWAY CUT SURFACE RESTORATION (NTS)	
INDEPENDENCE, OR	DETAIL NO. 302



TRENCH & ROAD BASE COMPACTION STANDARDS PER DETAIL 301

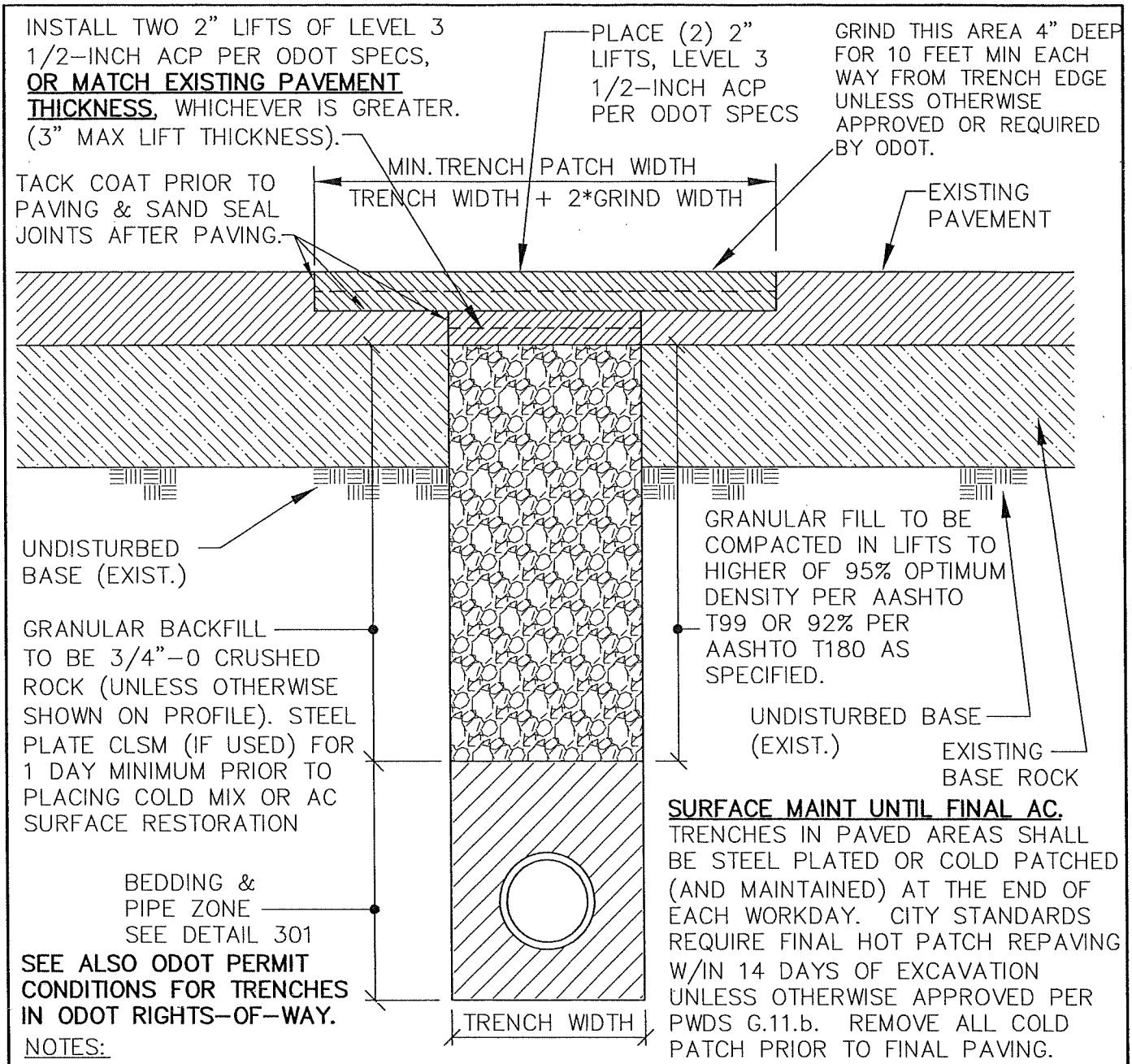
SURFACE MAINT UNTIL FINAL AC.
TRENCHES IN PAVED AREAS SHALL BE STEEL PLATED OR COLD PATCHED (AND MAINTAINED) AT THE END OF EACH WORKDAY. FINAL HOT PATCH REPAVING TO OCCUR W/IN 14 DAYS OF EXCAVATION UNLESS OTHERWISE APPROVED PER PWDS G.11.b. REMOVE ALL COLD PATCH PRIOR TO FINAL PAVING.

NOTES:

1. FOLLOWING BACKFILL COMPACTION OR CLSM INSTALLATION, GRIND 24" WIDE BENCH IN EXISTING AC ON BOTH SIDES & TRENCH ENDS, 2" DEEP OR HALF THE DEPTH OF EXISTING AC (3" MAX).
2. AFTER GRINDING, SAWCUT ALONG TRENCH SIDES, 6" BACK FROM TRENCH EDGE.
3. BASE LIFT(S). TACK COAT EDGES, INSTALL/COMPACT BASE LIFTS (3" MAX LIFT) TO LEVEL OF BENCH GRIND.
4. FINISH LIFT. INSTALL JOINT SEAL FABRIC, TACK COAT GRIND SURFACES & EDGES, & INSTALL TOP LIFT OF AC. SAND SEAL ALL JOINTS (REMOVE EXCESS SAND AFTER CURE).

CLASS 'A' AC PAVEMENT RESTORATION

LAST REVISION DATE: AUG 2018	
AC STREET CUT SURFACE RESTORATION W/BENCH GRIND (NTS)	
INDEPENDENCE, OR	DETAIL NO. 302A



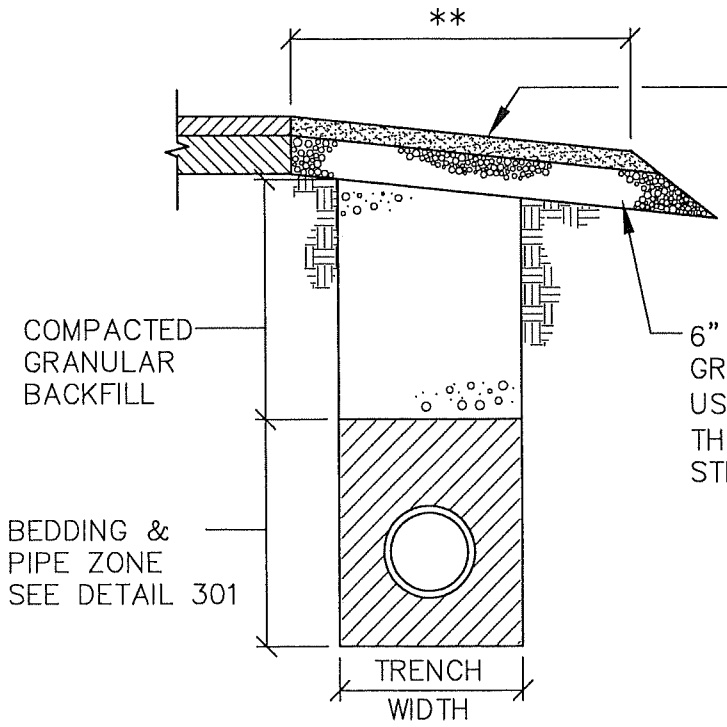
SEE ALSO ODOT PERMIT CONDITIONS FOR TRENCHES IN ODOT RIGHTS-OF-WAY.

SURFACE MAINT UNTIL FINAL AC.
TRENCHES IN PAVED AREAS SHALL BE STEEL PLATED OR COLD PATCHED (AND MAINTAINED) AT THE END OF EACH WORKDAY. CITY STANDARDS REQUIRE FINAL HOT PATCH REPAVING W/IN 14 DAYS OF EXCAVATION UNLESS OTHERWISE APPROVED PER PWDS G.11.b. REMOVE ALL COLD PATCH PRIOR TO FINAL PAVING.

NOTES:

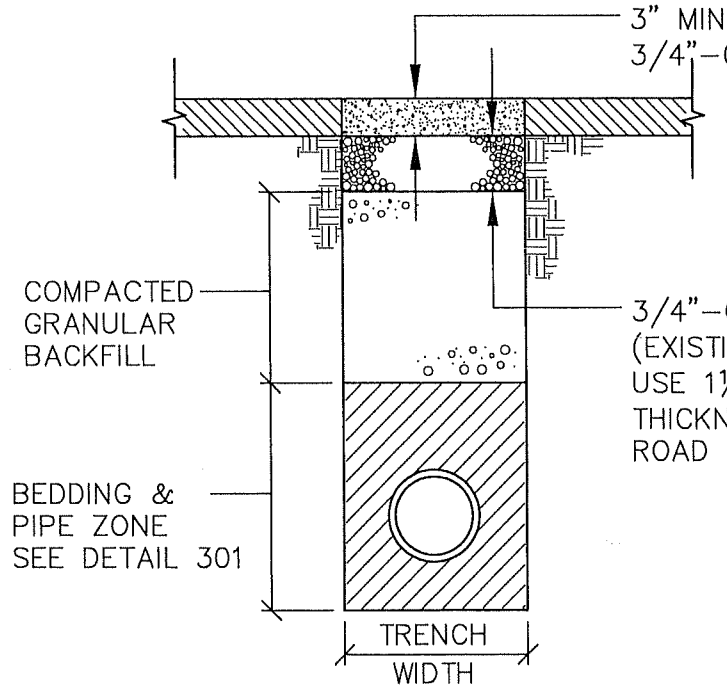
1. COMPACT ALL ACP LIFTS TO 91% OPTIMUM DENSITY PER RICE STANDARD METHOD.
2. ASPHALT EMULSION TACK COAT SHALL BE USED TO SEAL THE ACP TO THE EDGES OF THE EXISTING AC PAVEMENT. ALL AC PAVEMENT CUTS SHALL BE VERTICAL, CLEAN & ASPHALT SAND SEALED ALONG ALL EDGES AFTER INSTALLATION.
3. ALL PAVEMENT CUT AREAS SHALL BE COLD PATCHED OR PLATED AT THE END OF EACH WORK SHIFT, & THE PLATES OR PATCH MAINTAINED UNTIL FULL PAVEMENT RESTORATION IS MADE WITH ACP. COLD PATCH (IF USED) SHALL BE REPLACED WITH HOT MIX ACP WITHIN TIMEFRAME DIRECTED IN WRITING BY THE ODOT DISTRICT MANAGER OR MANAGER'S REPRESENTATIVE.
4. ACP SHALL BE A COMMERCIALLY PRODUCED PLANT MIXTURE CONFORMING TO ODOT STANDARDS, OSSC 00744 (OLD "B" OR "C" DESIGNATION ON CITY DETAILS REFERS TO AGGREGATE SIZE ONLY).
5. 48" MINIMUM COVER IS REQUIRED FOR ALL GAS, ELECTRIC, TELEPHONE, FIBER OPTIC AND OTHER POTENTIALLY DANGEROUS/HIGH IMPACT UTILITY FACILITIES, ALL OTHER FACILITIES REQUIRE 36" MINIMUM COVER DEPTH.

LAST REVISION DATE: NOV 2022	
ODOT TRENCH CROSSING, TRENCH BACKFILL & SURFACE RESTORATION (NTS)	
INDEPENDENCE, OR	DETAIL NO. 302D



**WHERE ANY PORTION OF TRENCH EXCAVATION FALLS WITHIN SHOULDER LIMITS, RESTORE SHOULDER FOR MIN. WIDTH OF 36" OR AS DIRECTED BY CITY.

CLASS 'C' GRAVEL SHOULDER RESTORATION



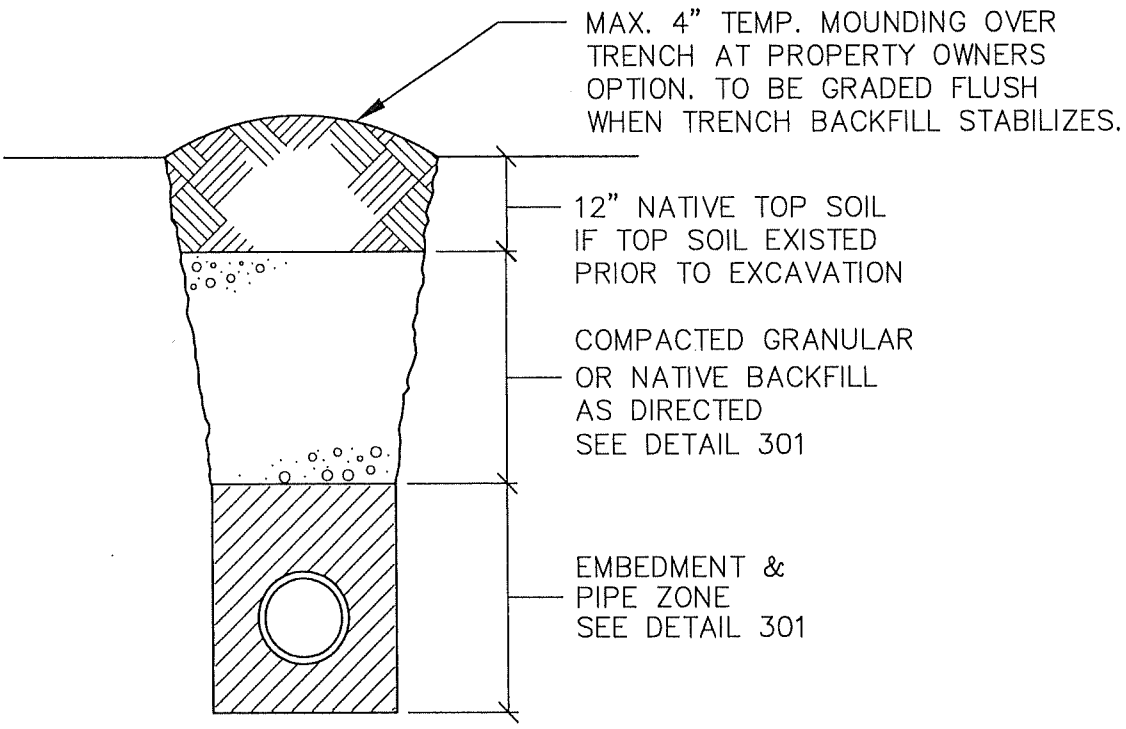
TRENCH & ROAD BASE COMPACTION STANDARDS PER DETAIL 301

CLASS 'D' GRAVEL STREET RESTORATION

NOTES:

1. SHOULDER ROCK TO BE COMPACTED TO ROAD BASEROCK STANDARDS.

LAST REVISION DATE: AUG 2018	
GRAVEL SURFACE RESTORATION (NTS)	
INDEPENDENCE, OR	DETAIL NO. 303



CLASS 'E'

UNIMPROVED & OPEN AREAS

TRENCH & ROAD BASE COMPACTION STANDARDS PER DETAIL 301

NOTES:

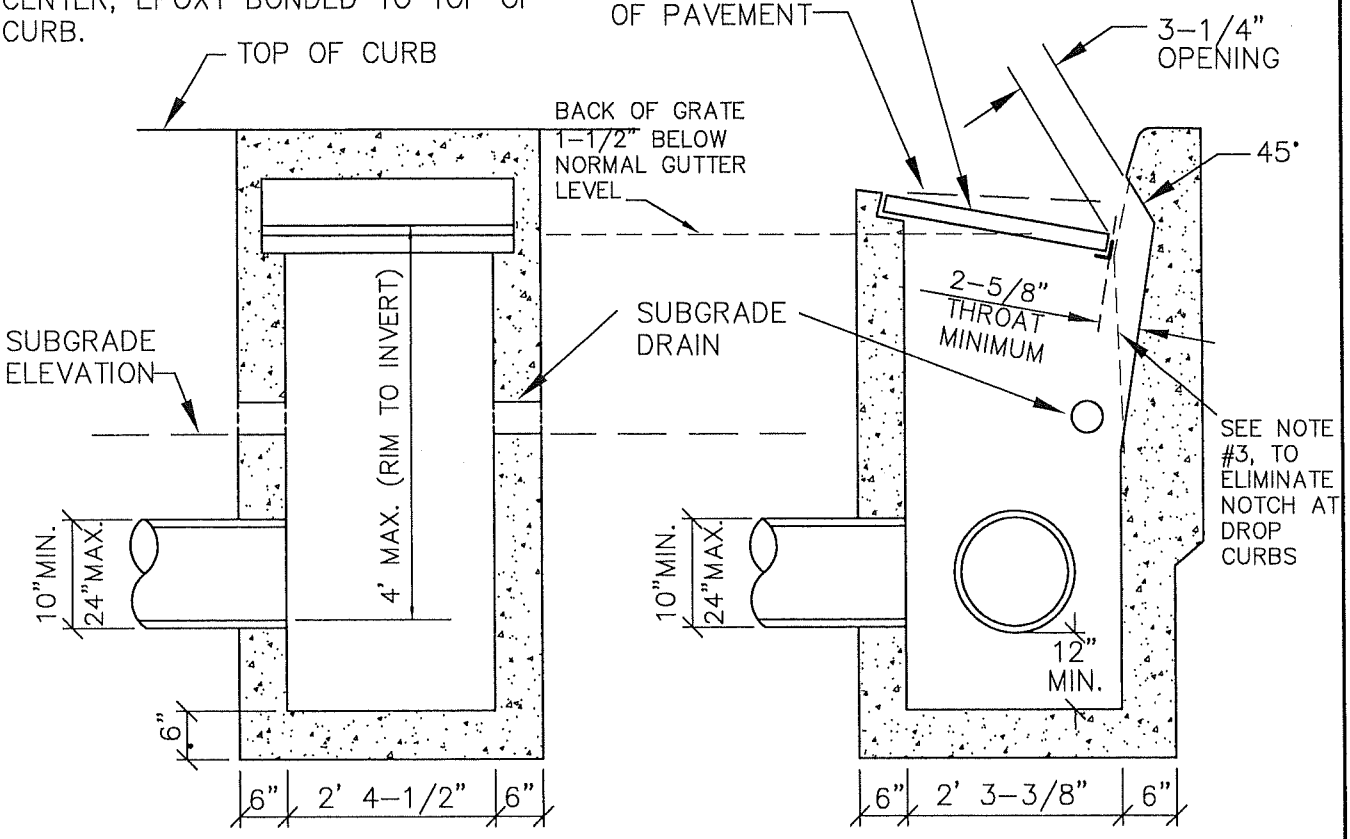
1. ANY TRENCH SETTLEMENT DURING WARRANTY PERIOD SHALL BE CORRECTED AT CONTRACTOR'S EXPENSE, INCLUDING SURFACE RESTORATION.

LAST REVISION DATE: AUG 2018	
NATIVE SURFACE RESTORATION (NTS)	
INDEPENDENCE, OR	DETAIL NO. 304

CATCH BASIN MARKER:

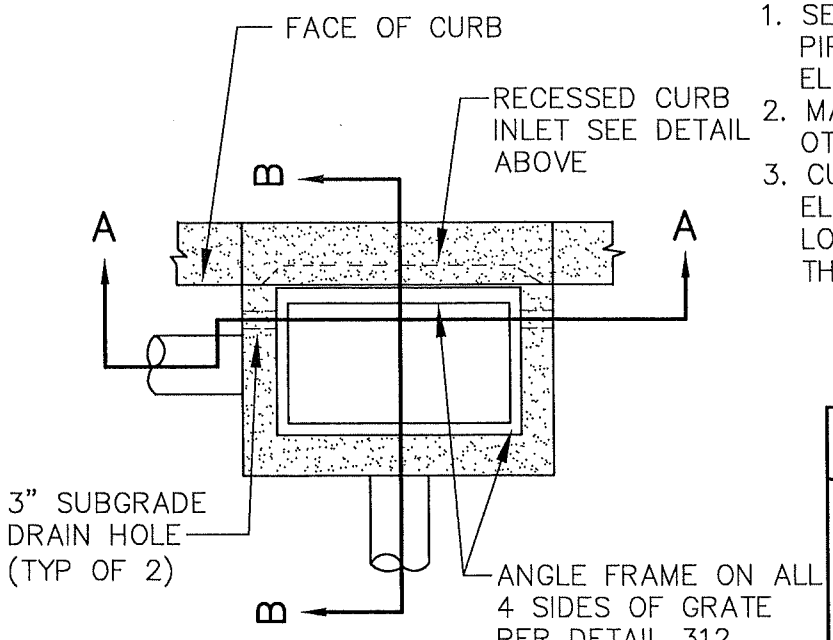
ALL CATCH BASINS TO BE PROVIDED WITH CITY APPROVED STORM DRAIN MARKER **"NO DUMPING, DRAINS TO RIVER"** WITH A FISH SYMBTOL IN THE CENTER, EPOXY BONDED TO TOP OF CURB.

ALL JOINTS & PENETRATIONS SHALL BE GROUTED SMOOTH, SO AS NOT TO RETAIN DEBRIS. BASE TO BE SMOOTH TO FACILITATE CLEANING.



SECTION A-A

SECTION B-B



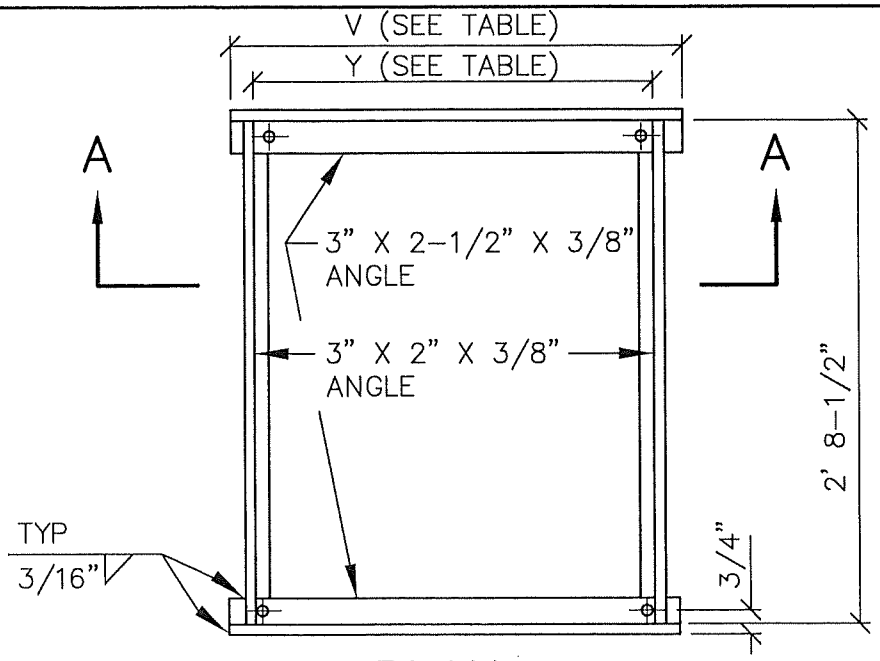
PLAN

NOTES:

1. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION AND INVERT ELEVATION.
2. MATCH EXISTING CURB UNLESS OTHERWISE NOTED.
3. CURB-INLET NOTCH TO BE ELIMINATED AT DROP CURB LOCATIONS WHERE APPROVED BY THE CITY ENGINEER.

PRECAST CONCRETE TO BE 4000 PSI @ 28 DAYS. CAST-IN-PLACE CONCRETE SHALL BE 3300 PSI @ 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).

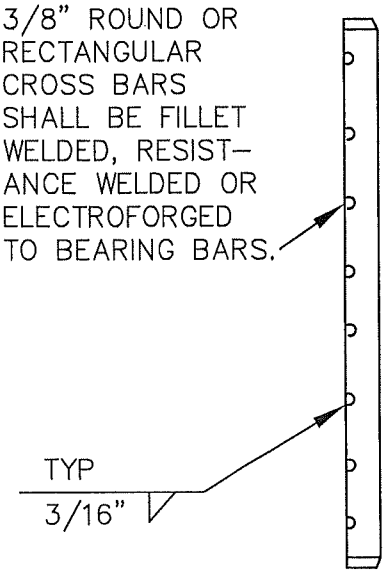
LAST REVISION DATE: SEPT 2020	
OVERSIZE SIDE-INLET GRATED CATCH BASIN (CG-2 EQUIVALENT) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 311



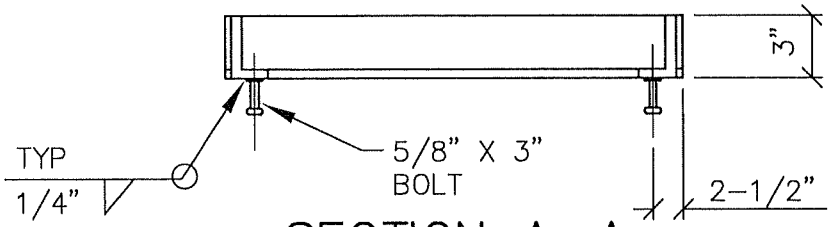
PLAN

NOTE:

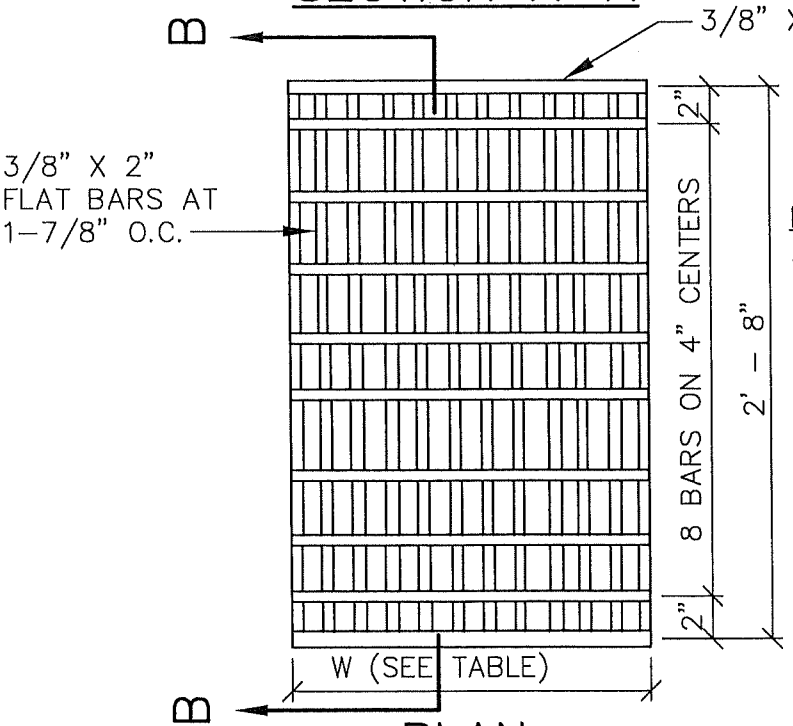
3/8" ROUND OR RECTANGULAR CROSS BARS SHALL BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.



SECTION B-B



SECTION A-A



PLAN

NOTE:

1. USE VERTICAL BEADS IN CORNERS, FILLET WELD JOINT ON BOTTOM OF FRAME. GRATE MUST REST FLAT ON FRAME SURFACE.
2. ALL STEEL SHALL BE ASTM A-36.
3. ANGLE FRAME REQUIRED ON ALL FOUR SIDES OF GRATE OPENING AS SHOWN.

INLET TYPE	FRAME		GRATE		
	V	Y	W	NO. OF BARS	REMARKS
STANDARD	1' 10-3/4"	1' 9-3/8"	1'- 9"	12	1-GRATE
OVERSIZE	2' 4-3/4"	2' 3-3/8"	1' 1-1/2"	8	2-GRATES

LAST REVISION DATE: AUG 2018

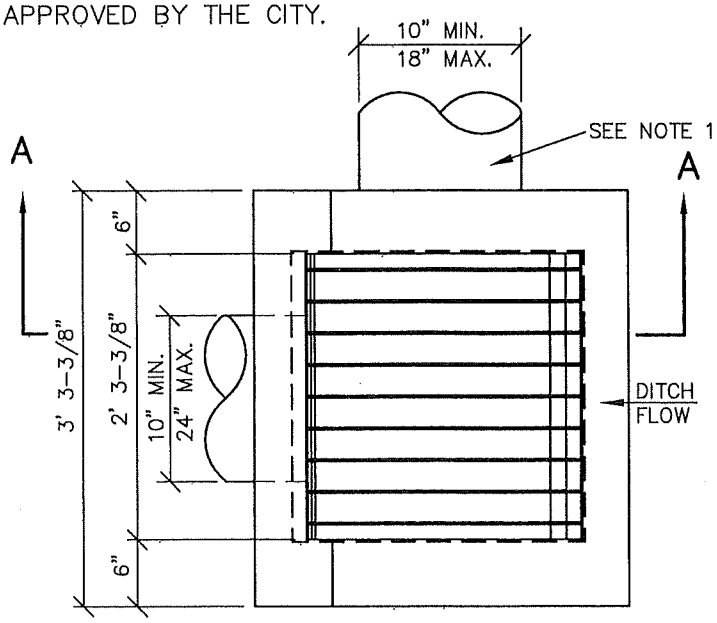
CATCH BASIN GRATE DETAILS

(NTS)

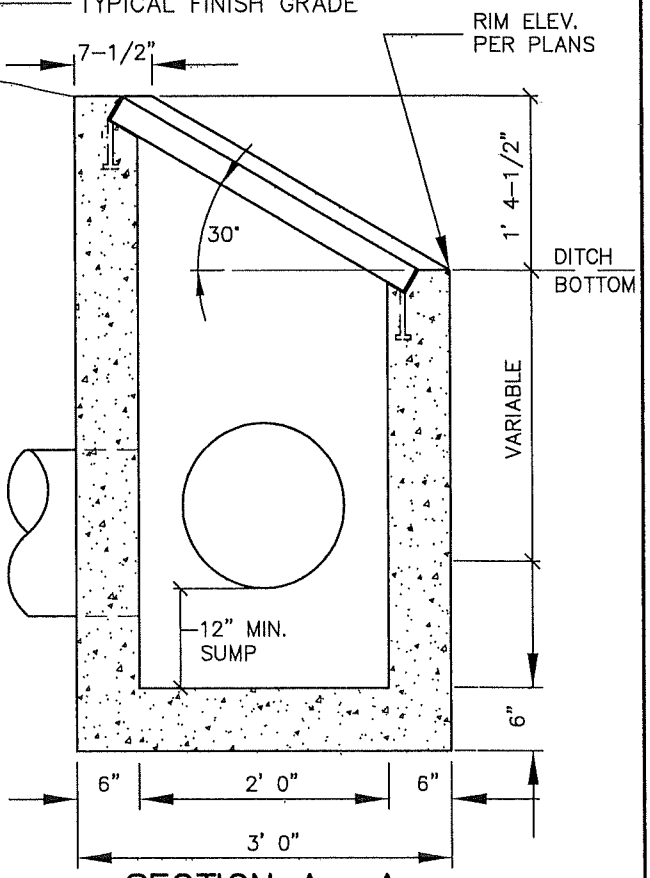
INDEPENDENCE, OR

DETAIL NO. 312

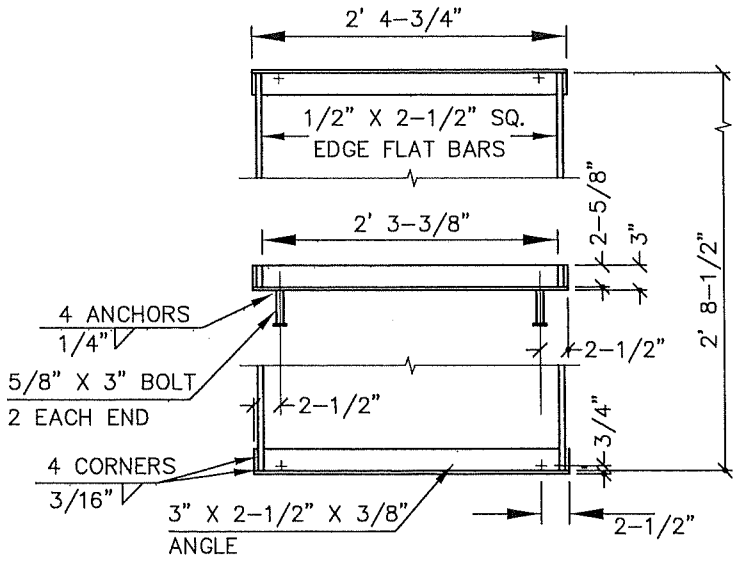
NOTE: CONTRACTOR TO VERIFY CB DATA & FINISH GRADE ELEV'S PRIOR TO INSTALLATION TO ENSURE THAT TOP OF CB DOES NOT EXTEND ABOVE SURROUNDING GRADE UNLESS OTHERWISE SPECIFICALLY NOTED ON THE DRAWINGS OR APPROVED BY THE CITY.

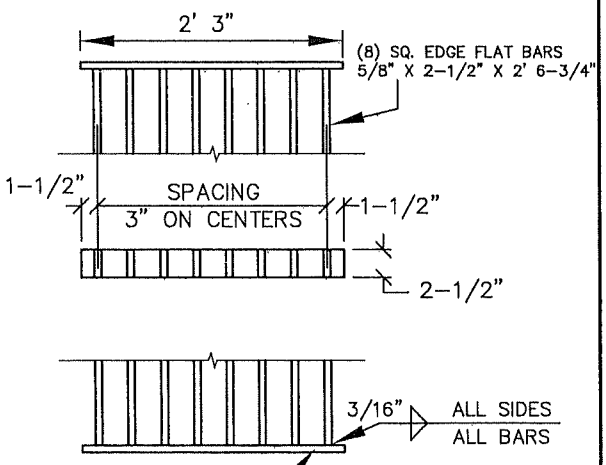


PLAN



SECTION A -A





ALL JOINTS & PENETRATIONS SHALL BE GROUTED SMOOTH, SO AS NOT TO RETAIN DEBRIS.

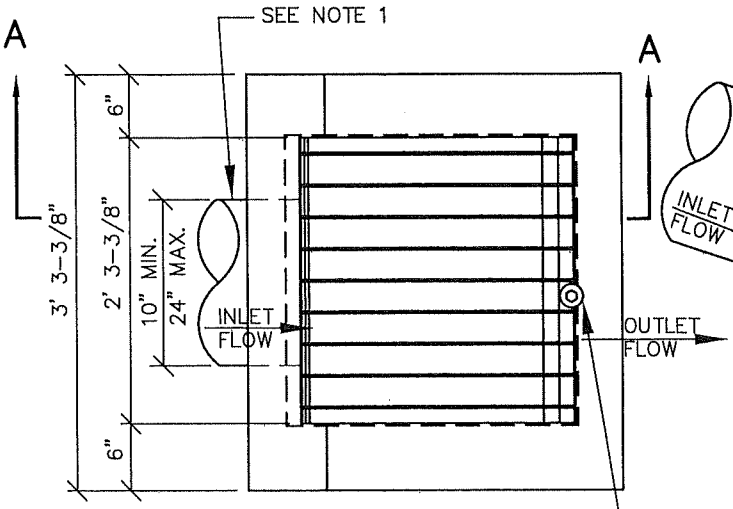
FRAME & GRATE

NOTES:

1. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION AND INVERT ELEVATION.
2. FRAME & GRATE SHALL BE ASTM A-36 STEEL, HOT-DIPPED GALV. AFTER CONSTRUCTION.
3. ALL CONCRETE TO BE 4000 PSI MIN AT 28 DAYS.
4. PRIOR TO CB INSTALLATION, CONTRACTOR SHALL VERIFY RIM ELEVATIONS LISTED AGAINST DITCH & FINISH GRADE ELEVATIONS, & NOTIFY CITY OF ANY DISCREPANCIES.

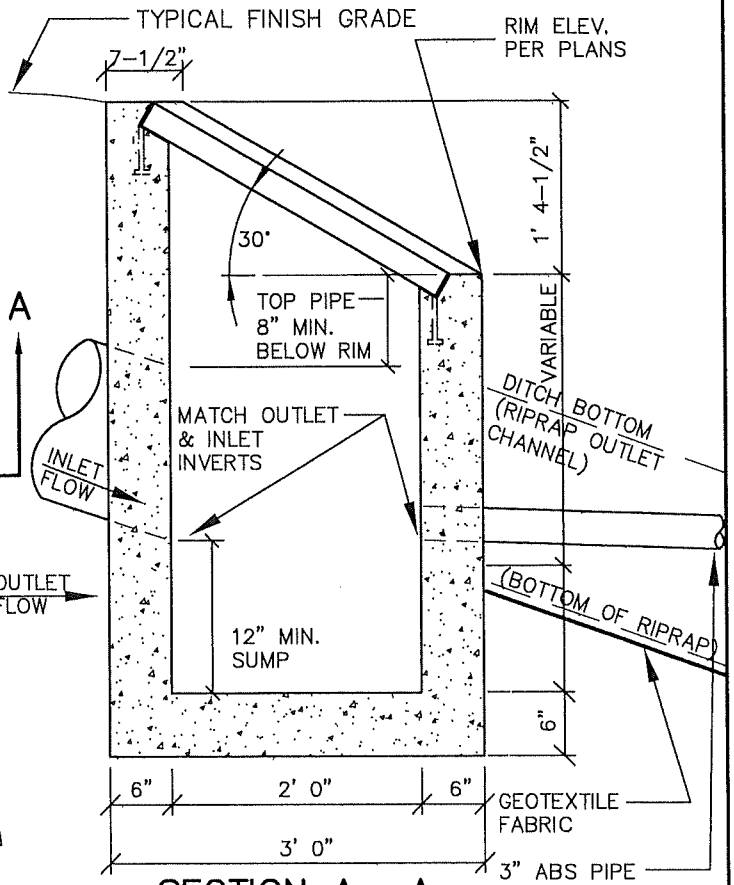
LAST REVISION DATE: SEPT 2020	
TYPE 3 DITCH INLET CATCH BASIN (NTS)	
INDEPENDENCE, OR	DETAIL NO. 313

NOTE: CONTRACTOR TO VERIFY FINISH GRADE ELEV'S PRIOR TO INSTALLATION TO ENSURE THAT TOP OF OUTLET STRUCTURE DOES NOT EXTEND ABOVE SURROUNDING GRADE UNLESS OTHERWISE NOTED ON DWGS OR APPROVED BY CITY. PROVIDE OUTLET PIPE & OUTLET CHANNEL (LENGTH & CONFIGURATION PER NOTE 4) AS NOTED UNLESS OTHERWISE SHOWN ON APPROVED DWGS OR REQUIRED BY CITY.

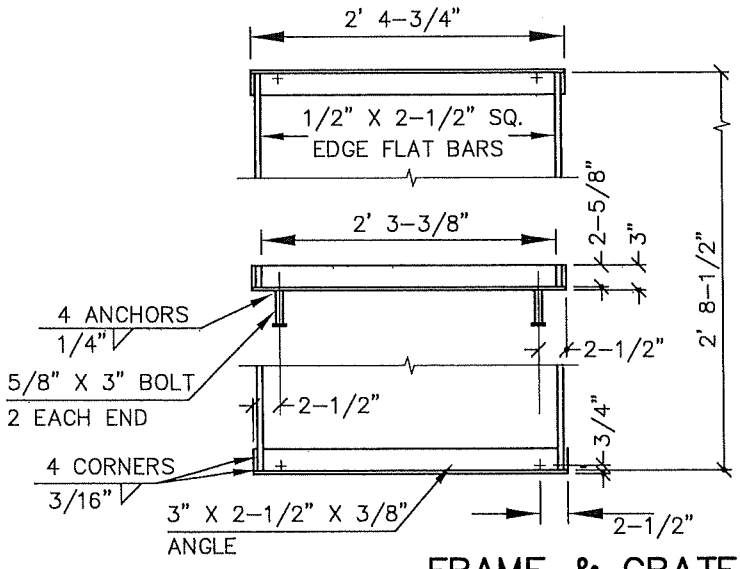


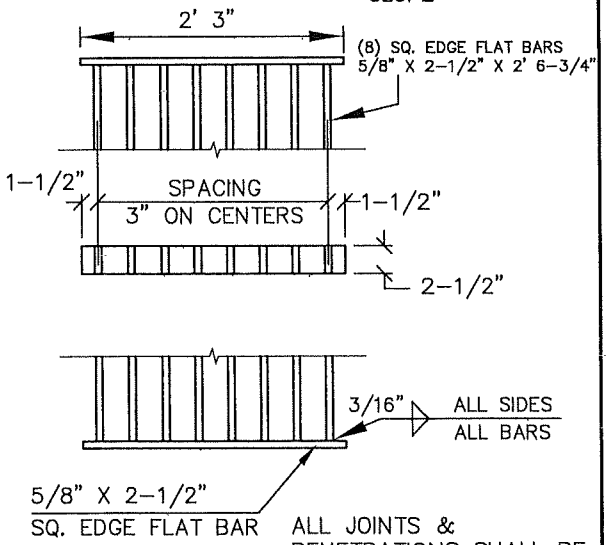
PLAN

INSTALL SINGLE 1/2" ST. STEEL EXPANSION ANCHOR BOLT & 2" SS PLATE WASHER UNLESS OTHERWISE APPROVED OR REQUIRED BY CITY



SECTION A –A





FRAME & GRATE

ALL JOINTS & PENETRATIONS SHALL BE GROUTED SMOOTH, SO AS NOT TO RETAIN DEBRIS.

NOTES:

1. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION AND INVERT ELEVATION.
2. FRAME & GRATE SHALL BE ASTM A–36 STEEL, HOT–DIP GALV AFTER CONSTRUCTION.
3. ALL CONCRETE TO BE 4000 PSI MIN AT 28 DAYS.
4. PROVIDE RIPRAP OUTLET CHANNEL (TYP 18" MIN THICK) W/2H:1V SIDE SLOPES, 12" MIN CHANNEL DEPTH & LENGTH AS NOTED ON DRAWINGS (10' MIN). PROVIDE GEOTEXTILE UNDER RIPRAP TO TOP OF BANK (NO LAPS). USE 5"–12" GRADED ANGULAR RIPRAP (TYP), FILL VOIDS BETWEEN STONE WITH 3/4"–0 BASEROCK.

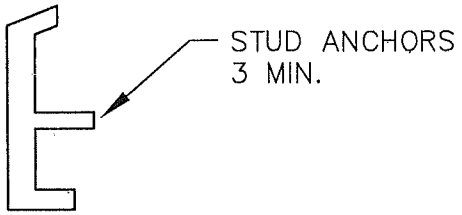
LAST REVISION DATE: SEPT 2020	
STORM OUTLET ENERGY DISSIPATOR BASIN (NTS)	
INDEPENDENCE, OR	DETAIL NO. 313A

FOR USE ONLY WHERE SPECIFICALLY APPROVED BY PUBLIC WORKS DIRECTOR AND CITY ENGINEER.

ALL JOINTS & PENETRATIONS SHALL BE GROUTED SMOOTH, SO AS NOT TO RETAIN DEBRIS. BASE TO BE SMOOTH TO FACILITATE CLEANING.

CATCH BASIN MARKER:

PROVIDE CITY APPROVED STORM DRAIN MARKER PER DETAIL 311.

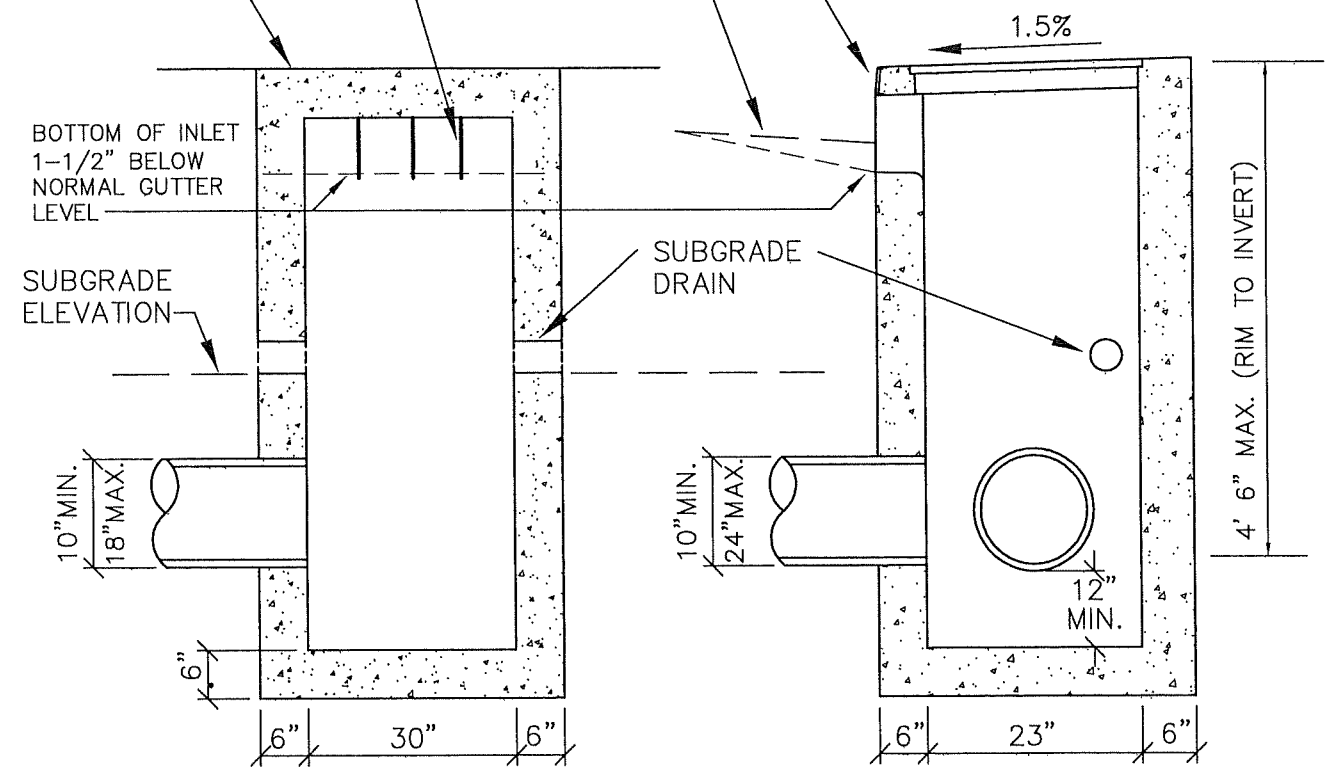


1/2" DIA GALVANIZED DEBRIS RODS, GROUT INTO CURB @ BASE

TOP OF CURB

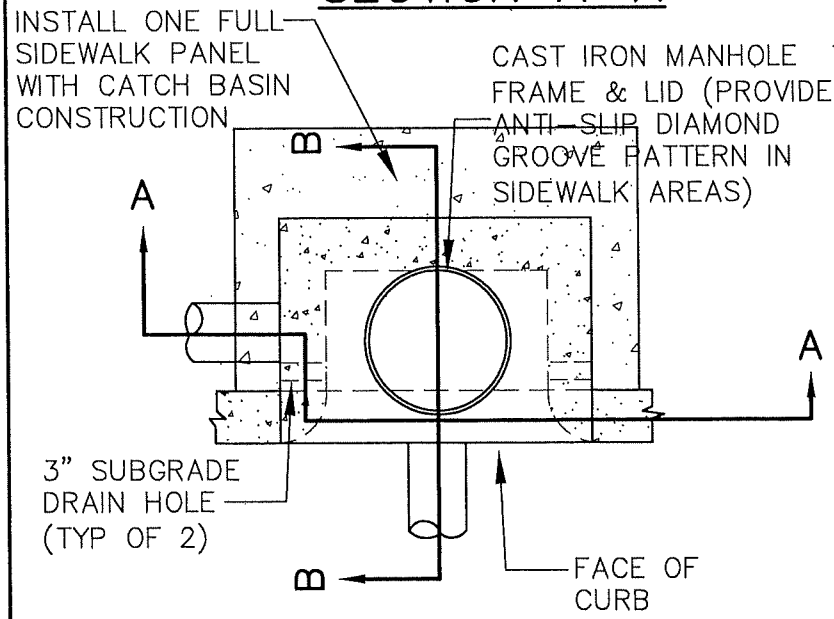
NORMAL SLOPE OF GUTTER PAN

1/4" x 3-1/2" x 1" GALVANIZED STEEL CHANNEL W/ANCHORS



SECTION A-A

SECTION B-B



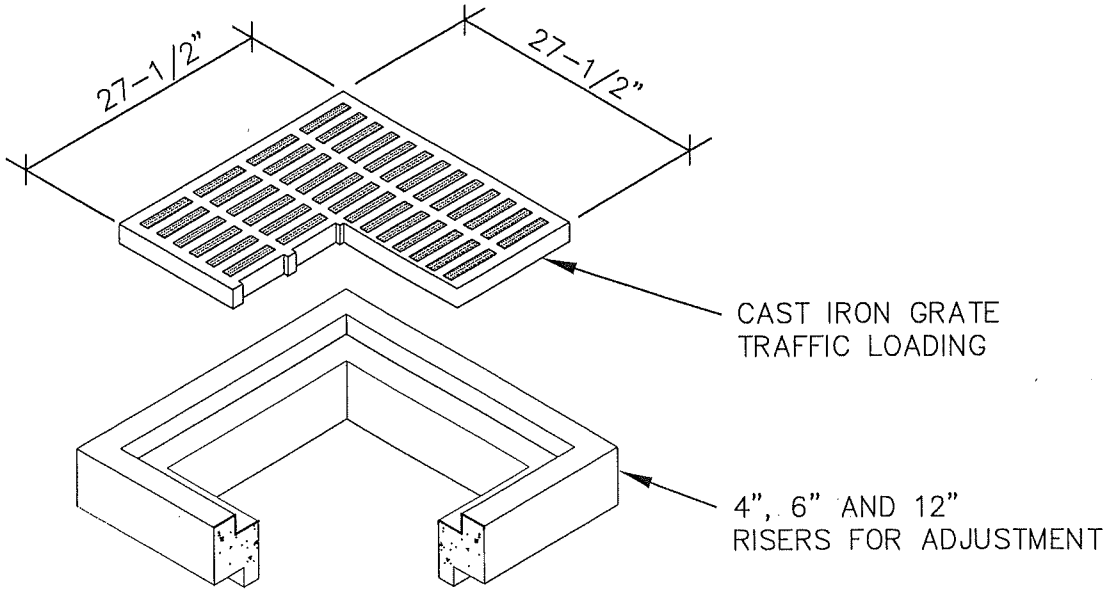
PLAN

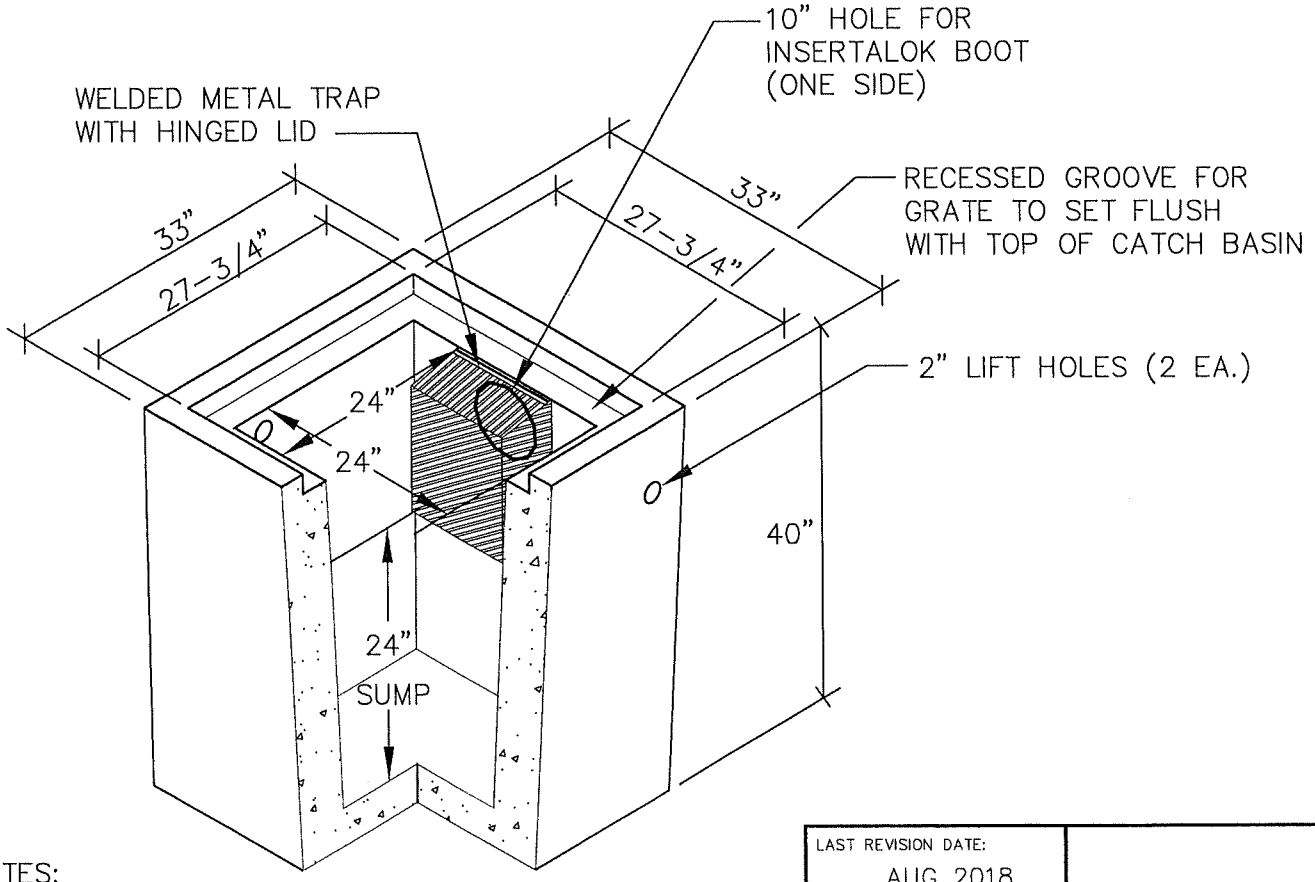
NOTES:

1. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION AND INVERT ELEVATION.
2. MATCH EXISTING CURB UNLESS OTHERWISE NOTED.

PRECAST CONCRETE TO BE 4000 PSI @ 28 DAYS. CAST-IN-PLACE CONCRETE SHALL BE 3300 PSI @ 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).

LAST REVISION DATE: SEPT 2020	
CURB-INLET CATCH BASIN (NTS)	
INDEPENDENCE, OR	DETAIL NO. 314

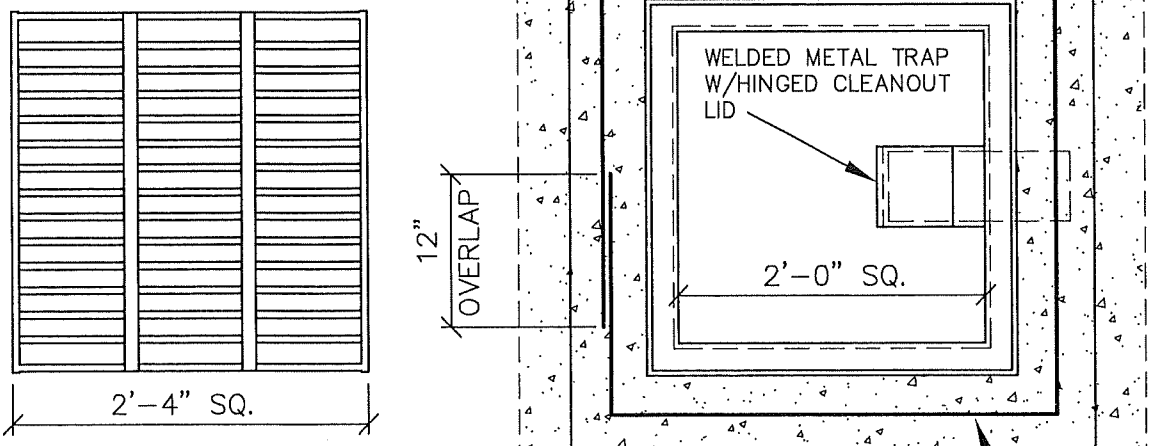




NOTES:

1. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION AND INVERT ELEVATION.
2. CONCRETE SHALL BE 4000 PSI @ 28 DAYS.
3. REBAR SHALL CONFORM TO ASTM A615 GRADE 60.
4. REBAR SHALL BE MIN. #4 BARS @ 6" C.C.
5. SET CB SQUARE WITH BUILDINGS OR WITH EDGE OF PARKING LOT OR DRIVEWAY WHEREIN IT LIES.
6. ADJUST PAVING SO WATER FLOWS TO CB WITH NO PONDING.

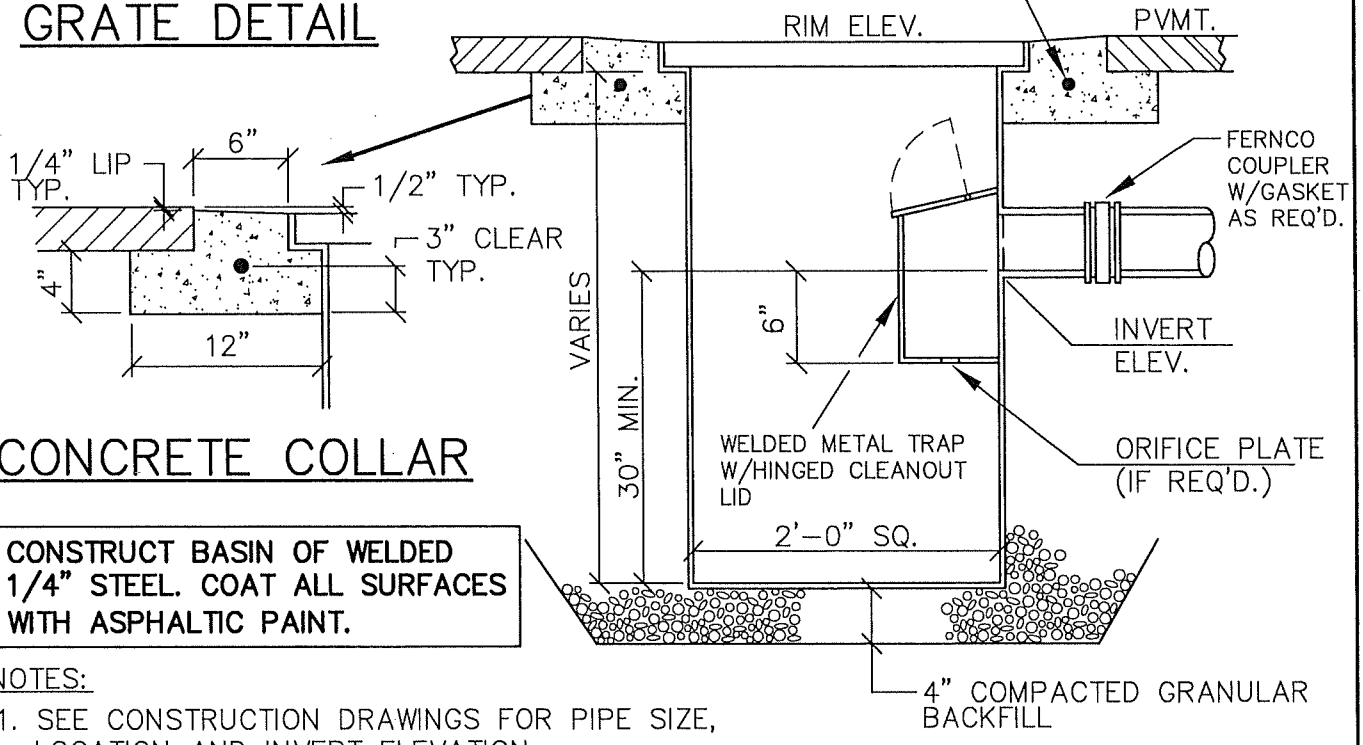
LAST REVISION DATE: AUG 2018	
PARKING LOT CATCH BASIN (PRECAST CONCRETE) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 315



GRATE: WELDED STEEL DROP-IN BAR GRATE (ASTM A36).
END BARS: 1/2" X 2"
CROSS BARS: 1/2" X 2" @ 2" O.C.
BIKE STRAPS: 1/8" X 1" (2 REQ'D)
16,000 LB. UNIFORM LOAD CAPACITY

GRATE DETAIL

PLAN VIEW



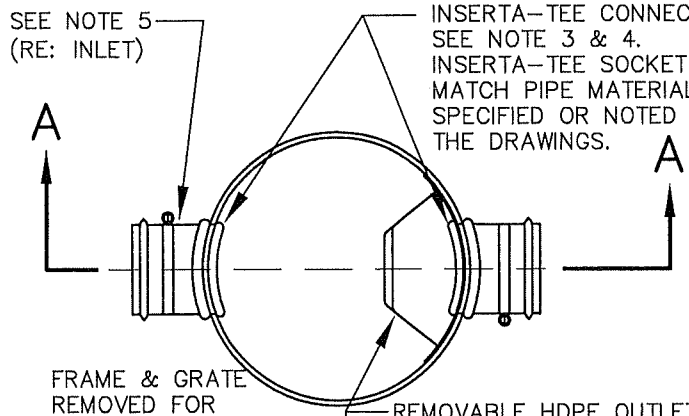
CONCRETE COLLAR

CONSTRUCT BASIN OF WELDED 1/4" STEEL. COAT ALL SURFACES WITH ASPHALTIC PAINT.

NOTES:

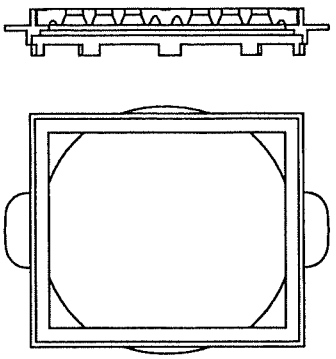
1. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION AND INVERT ELEVATION.
2. OUTLET: SIZE AS REQ'D. FOR INDICATED PIPE SIZE.
3. FOR JUNCTION BOX, REPLACE GRATE WITH 3/4" STEEL PLATE. DRILL ONE, 1" LIFTING HOLE, CENTERED IN ONE END OF THE PLATE. WELD SHIMS TO RIM AS REQUIRED TO RAISE PLATE TO RIM ELEVATION.
4. SET CB SQUARE WITH BUILDINGS OR WITH EDGE OF PARKING LOT OR DRIVEWAY WHEREIN IT LIES.
5. ADJUST PAVING SO WATER FLOWS TO CB WITH NO PONDING.

LAST REVISION DATE: AUG 2018	
PARKING LOT CATCH BASIN (LYNCH STYLE) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 316



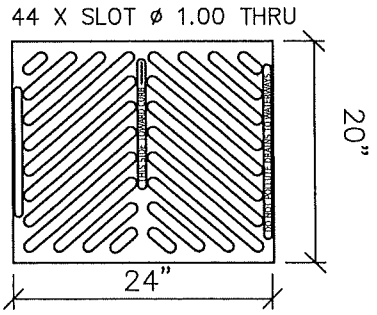
PLAN

REMOVABLE HDPE OUTLET TRAP REQUIRED ON ALL PRIVATE CATCH BASINS (OMIT FOR FLOW-THRU JUNCTION STRUCTURES). ALL CLIPS & HARDWARE TO BE STAINLESS STEEL.



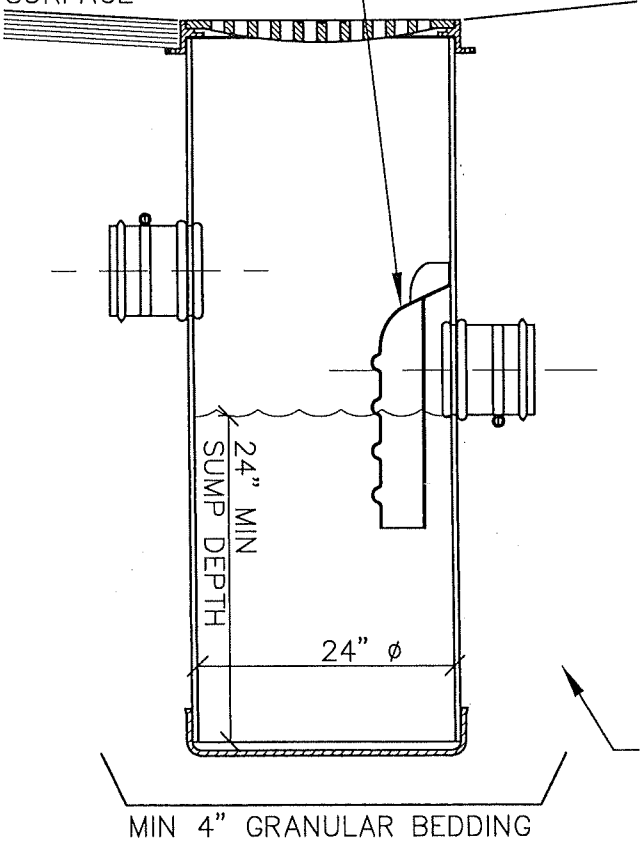
FRAME TO INCLUDE TABS THAT MATCH BASIN OD TO PREVENT DISPLACEMENT. FRAME BODY TO BEAR ON COMPACTED BASEROCK (SEE SECTION A-A)

FRAME



APPROX. DRAIN AREA = 202.48 SQ IN

GRATE



SECTION A-A

NOTE: PER ORS 92.044(7), AREA DRAIN MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

NOTES:

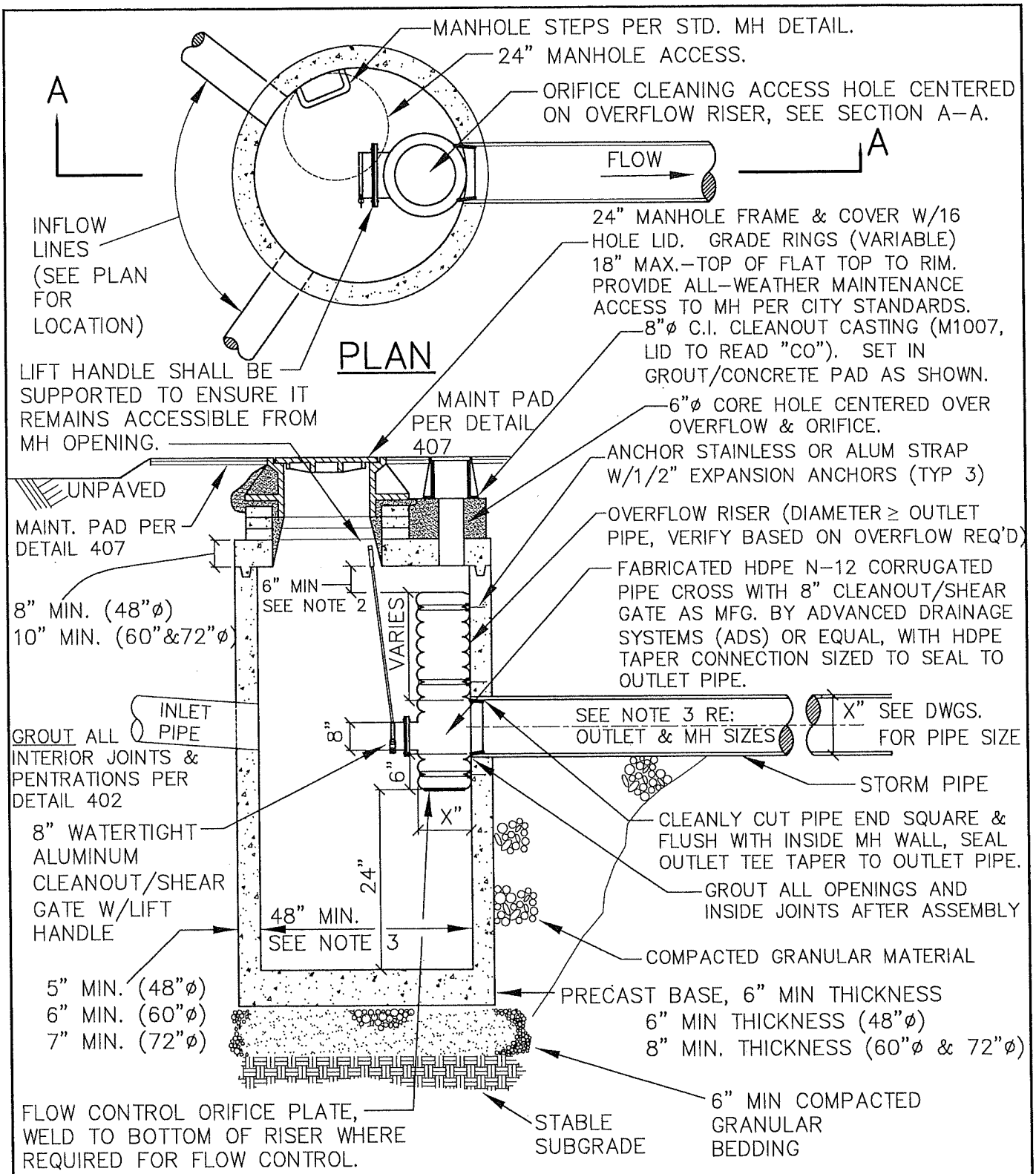
1. NYLOPLAST TRAFFIC RATED DRAIN BASIN OR APPROVED EQUAL W/NYLOPLAST FRAME & GRATE.
2. HERRING-BONE STYLE GRATE TO BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION, ORIENTATION AND INVERT ELEVATIONS.
4. CONNECTIONS TO PVC CATCH BASIN TO BE INSERTA-TEE STYLE FITTINGS (FACTORY OR FIELD INSTALLED).
5. FLOW-THRU CONFIGURATION SHOWN IS ALLOWED ONLY FOR AREA DRAINS OR JUNCTION BOXES.
6. SET CB GRATE SQUARE WITH BUILDINGS OR WITH EDGE OF PARKING LOT OR DRIVEWAY WHEREIN IT LIES.
7. ADJUST PAVING OR GRADING SO WATER FLOWS TO STRUCTURE INLET WITH NO PONDING.

LAST REVISION DATE:	JO #
AUG 2018	

PARKING LOT CATCH BASIN (TRAFFIC RATED PVC w/TRAP, DUCTILE IRON FRAME/GRATE)

(NTS)

INDEPENDENCE, OR	DETAIL NO. 317

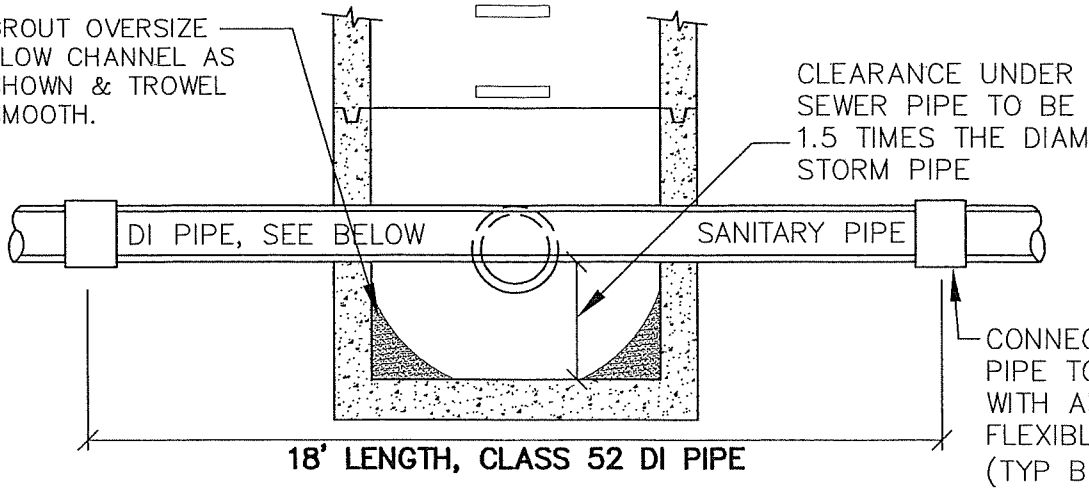


SECTION A–A

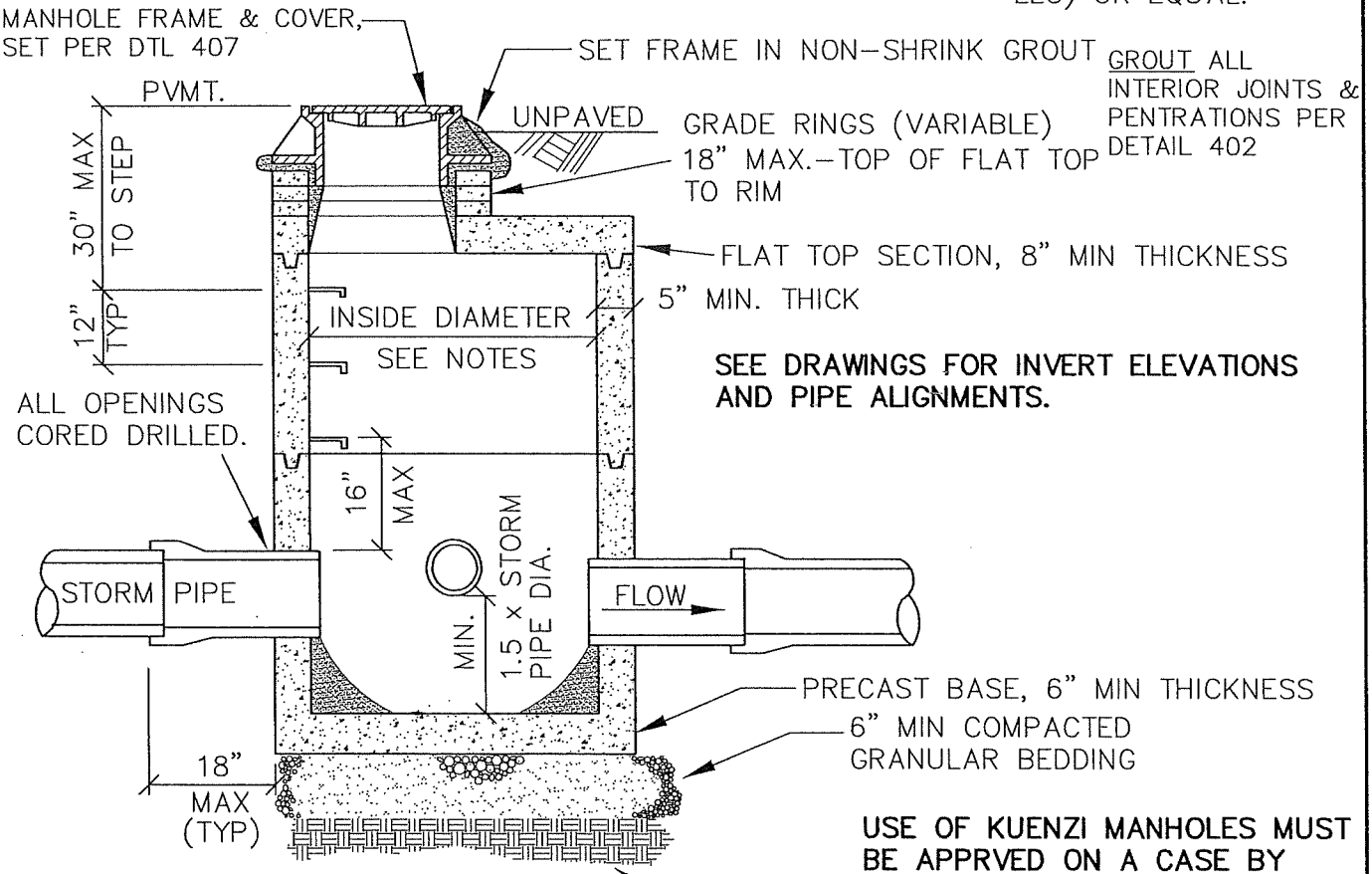
NOTES:

1. PRECAST SECTIONS SHALL CONFORM TO ASTM C–478.
2. DISTANCE FROM TOP OF OVERFLOW TO MH RIM SHALL BE BASED ON OVERFLOW CAPACITY CALC'S BY DESIGN ENGINEER (ASSUME ORIFICE CONTROL).
3. 60" MINIMUM DIA. MANHOLE REQUIRED FOR OUTLET PIPE LARGER THAN 15" OR INLET > 21".
4. ORIFICE CLEANING ACCESS TO BE 6" CORE HOLE THROUGH FLAT–TOP (CENTERED ON OVERFLOW) WITH CI CLEANOUT BOX GROUTED TO SLAB.

LAST REVISION DATE: MAR 2022	
POLLUTION/FLOW CONTROL MANHOLE W/OVERFLOW (NTS)	
INDEPENDENCE, OR	DETAIL NO. 320



SECTION THRU SANITARY SEWER



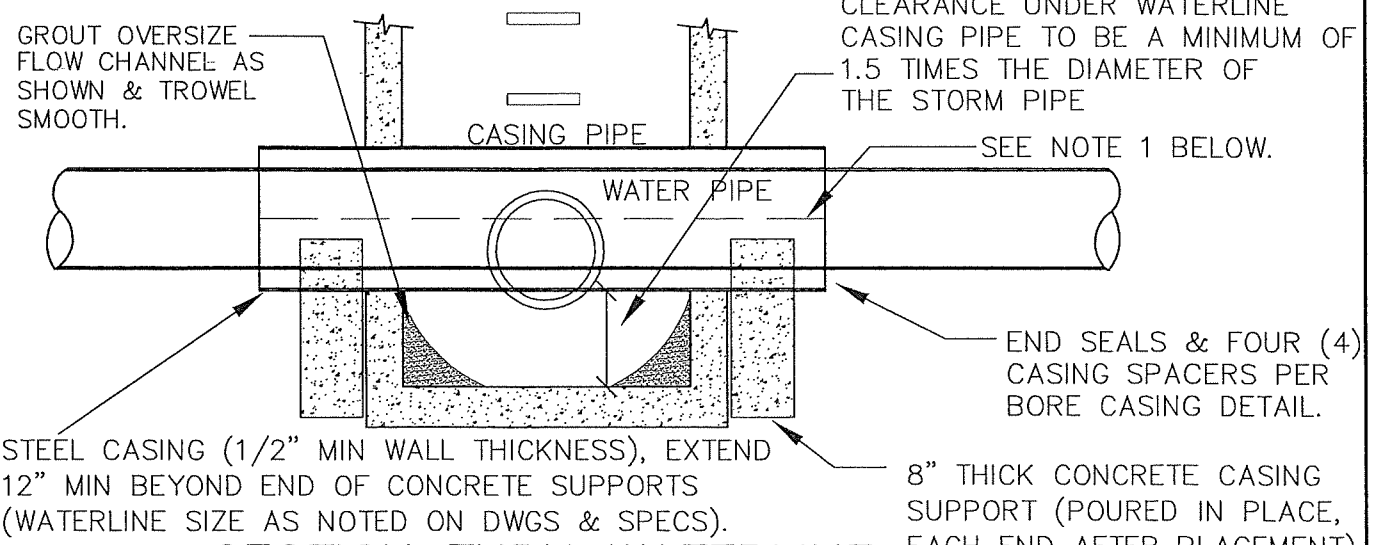
SECTION THRU STORM

USE OF KUENZI MANHOLES MUST BE APPRVED ON A CASE BY CASE BASIS BY THE PUBLIC WORKS DIRECTOR.

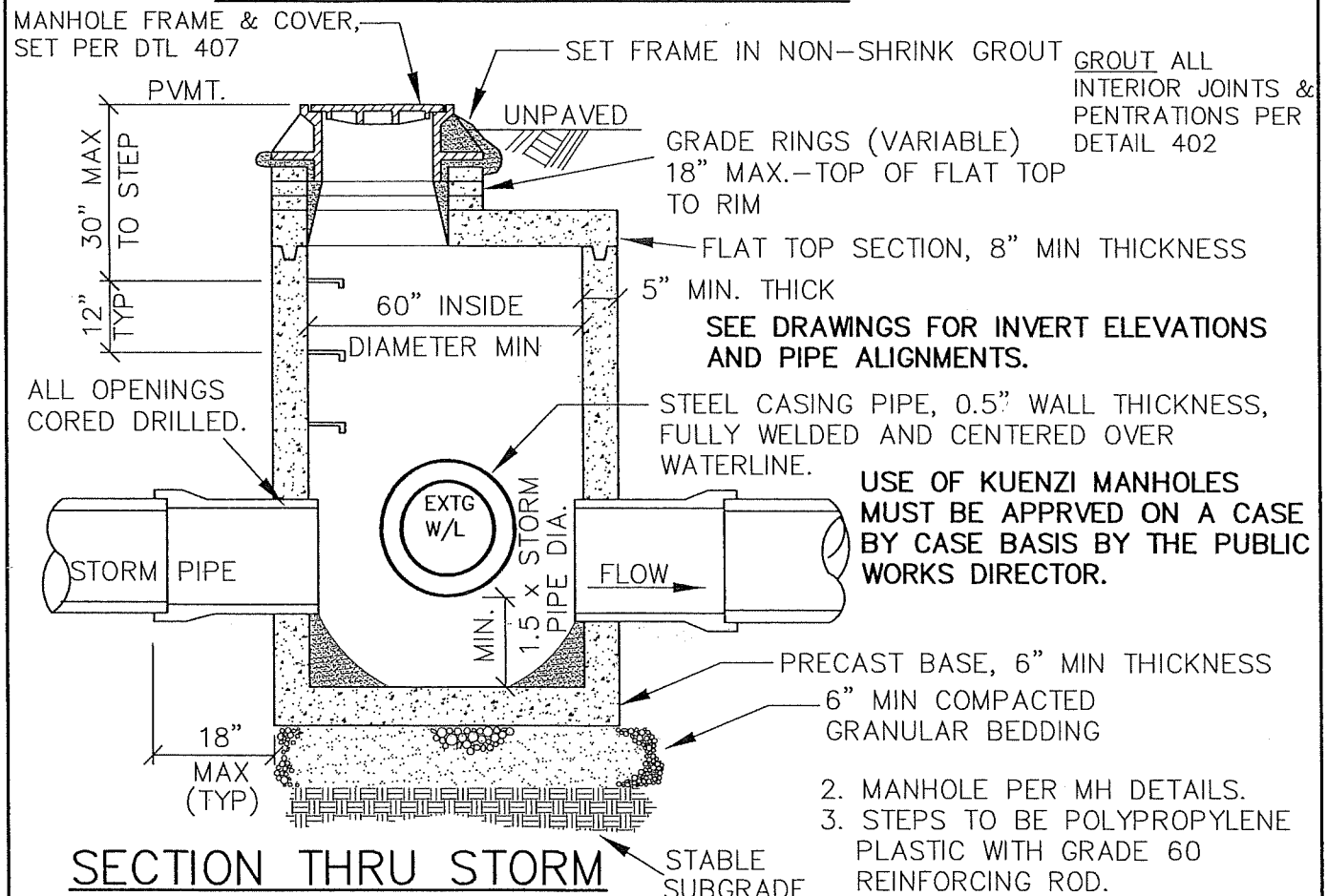
NOTES:

1. UNLESS OTHERWISE SHOWN ON DRAWINGS, USE 48" MANHOLE FOR SANITARY SEWER UP TO 12" DIA. & STORM DRAIN UP TO 18" DIAMETER (LARGER DIAMETER MANHOLE OTHERWISE, PER DWGS).
2. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. WATERTIGHT O-RING OR MASTIC KEYLOCK JOINTS REQUIRED.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD.

LAST REVISION DATE: JULY 2022	
KUENZI MANHOLE (SEWER PIPE CROSSING) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 330



SECTION THRU WATERLINE



SECTION THRU STORM

2. MANHOLE PER MH DETAILS.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD.

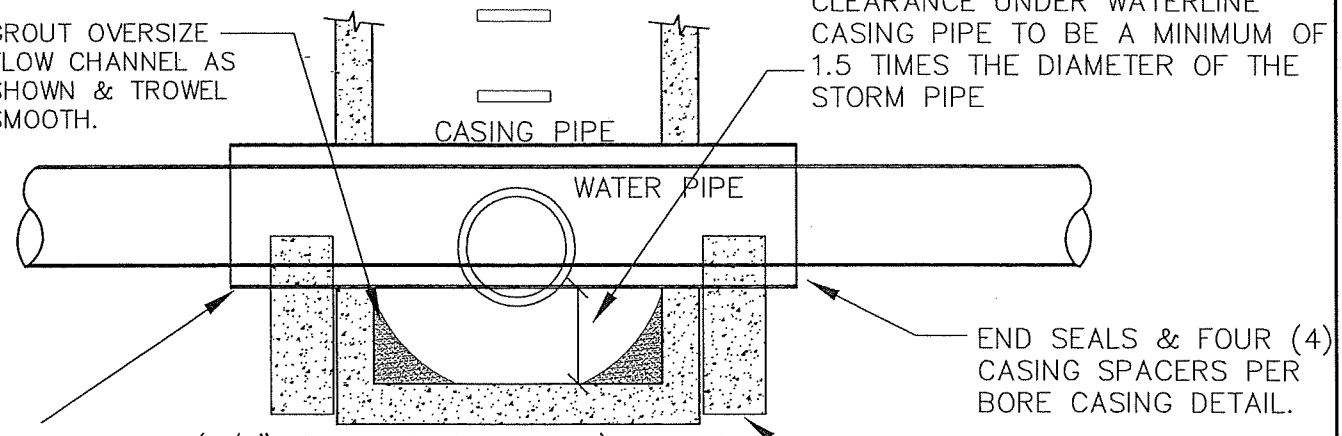
1. SHOP CUT 30" CASING PIPE IN HALF (LENGTHWISE, ACROSS RADIUS) AND SHOP GRIND BEVELED EDGES FOR FULL PENETRATION WELDS. BLOCK BOTTOM HALF OF CASING PIPE IN PLACE UNDER EXISTING WATERLINE & POUR CONCRETE SUPPORTS. INSTALL CASING SPACERS (DETAIL 5080) TO SUPPORT WATERLINE & WELD HALVES OF CASING TOGETHER. USE WATER IN BOTTOM OF CASING DURING WELDING AS REQUIRED TO AVOID OVER-HEATING CASING SPACER SUPPORT LEGS.

LAST REVISION DATE:	JO #
JULY 2022	STANDARD

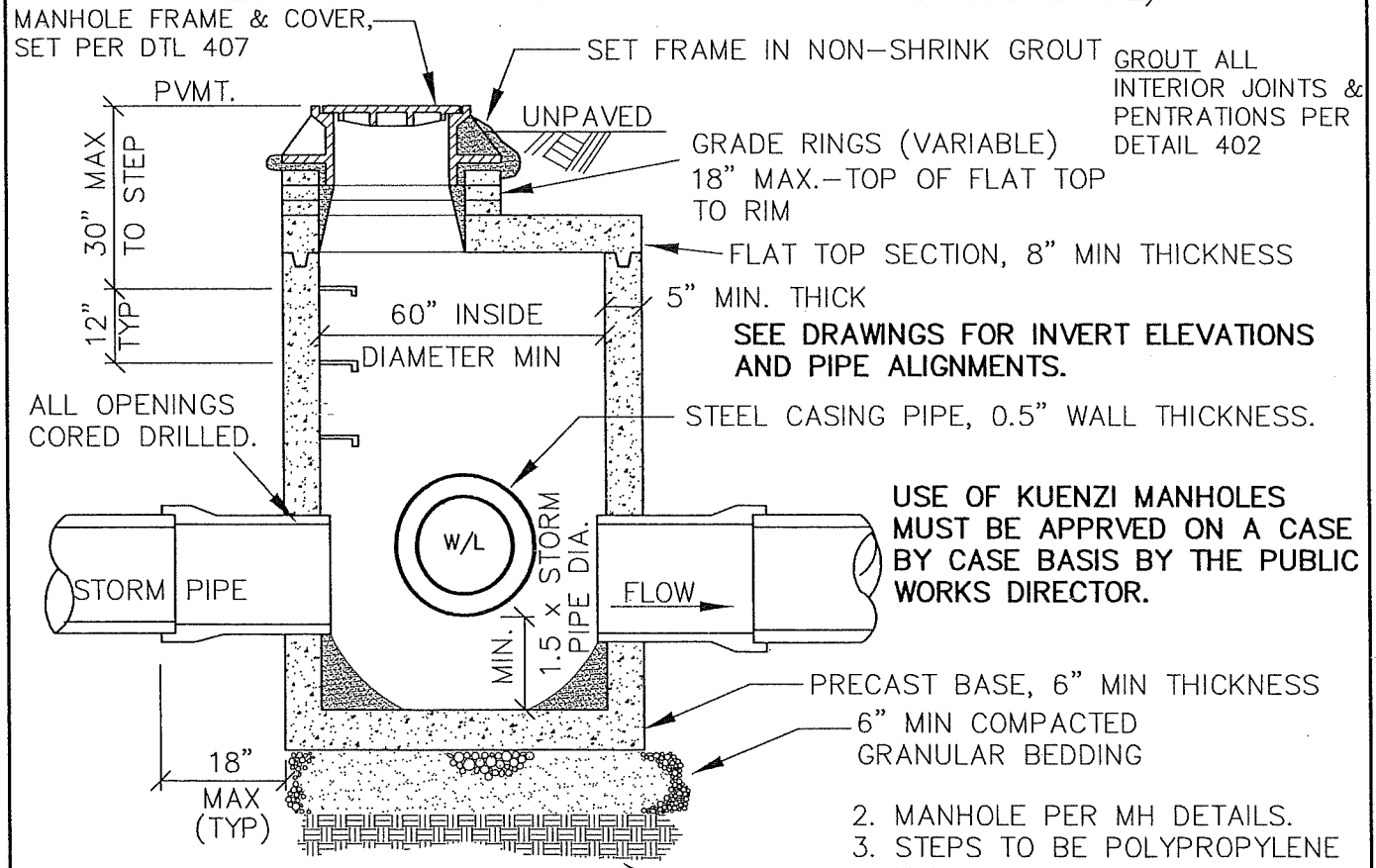
KUENZI MANHOLE W / WATERLINE CASING (EXISTING WATERLINE)

(NTS)

INDEPENDENCE, OR	DETAIL NO. 331



SECTION THRU WATERLINE



SECTION THRU STORM

2. MANHOLE PER MH DETAILS.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD.

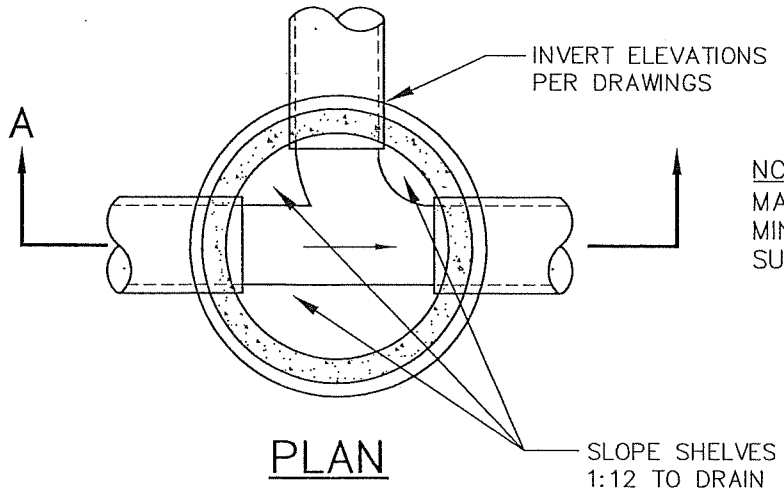
1. BLOCK CASING PIPE IN PLACE & POUR CONCRETE SUPPORTS. INSTALL CASING SPACERS TO SUPPORT WATERLINE THROUGH CASING (DETAIL 5080). INSTALL END SEALS.
2. SEE PLAN VIEWS FOR WATERLINE & STORM SIZE & CONFIGURATION. USE 72" MANHOLE UNLESS OTHERWISE SHOWN ON DRAWINGS.

LAST REVISION DATE:	JO #
JULY 2022	STANDARD

KUENZI MANHOLE W / WATERLINE CASING (NEW WATERLINE)

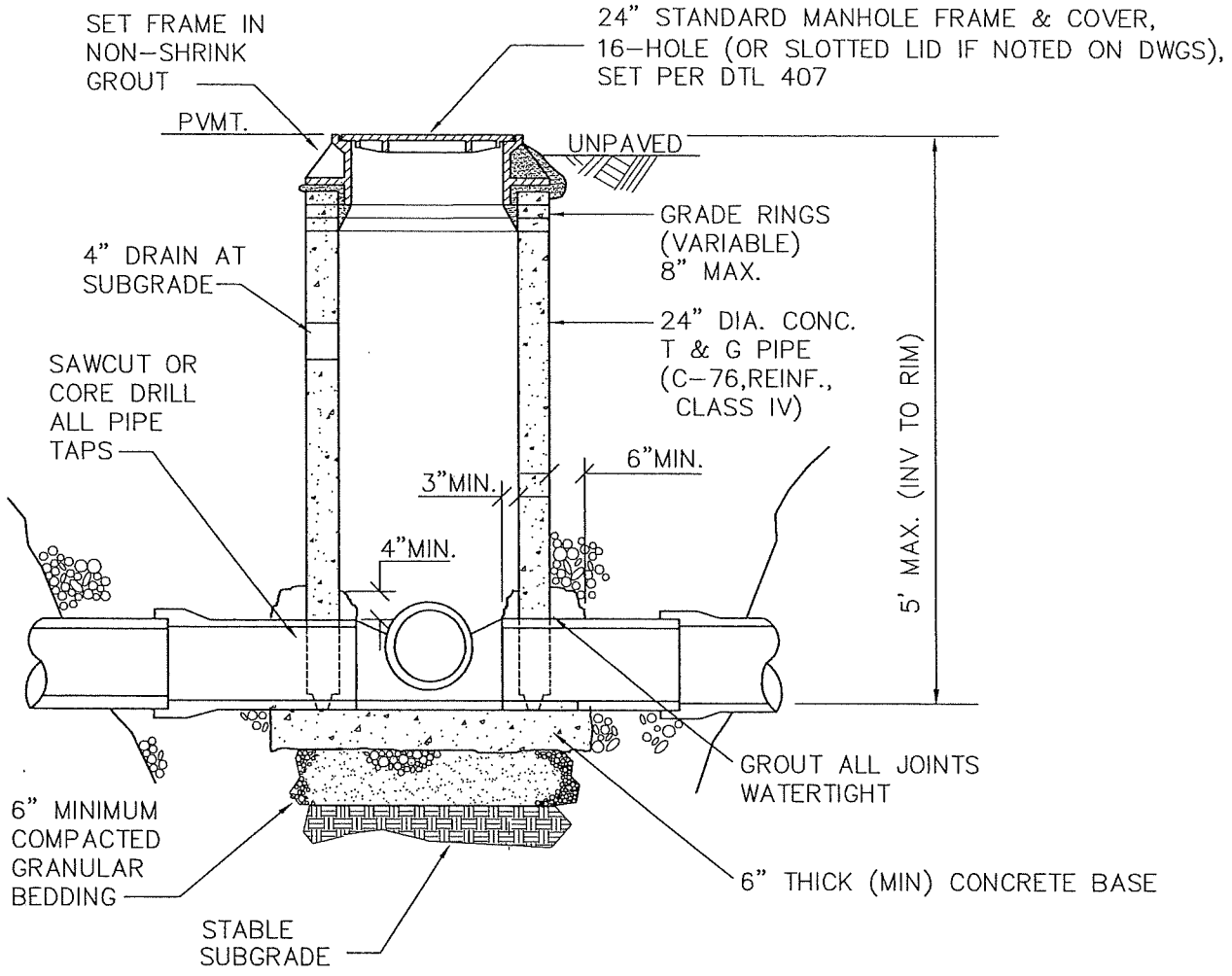
(NTS)

INDEPENDENCE, OR	DETAIL NO. 332



NOTE: PER ORS 92.044(7), MANHOLE MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

PLAN

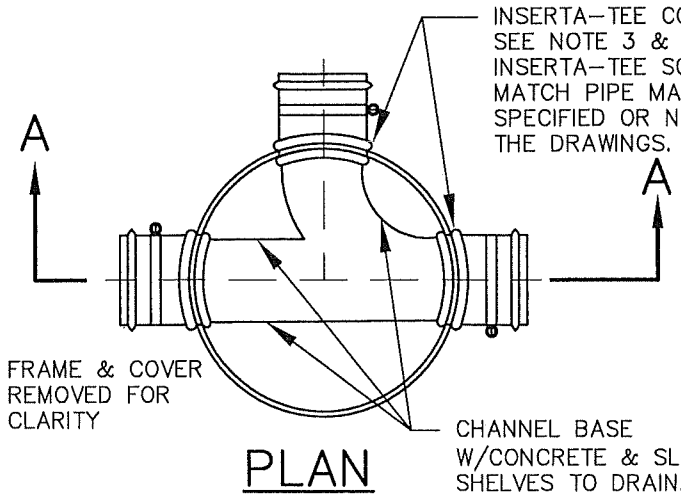


SECTION A-A

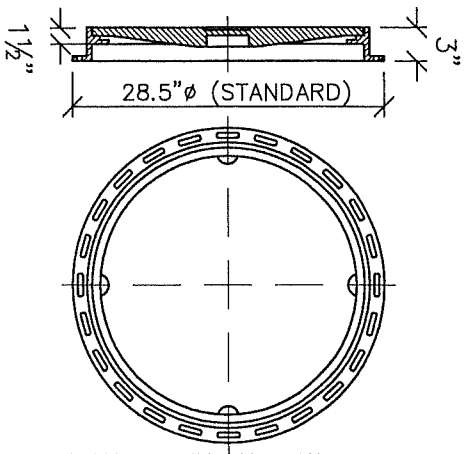
NOTE:

1. MAXIMUM PIPE NUMBER & DIAMETERS AS FOLLOWS:
   12" DIAMETER OR LESS - 4 MAXIMUM.
   15" DIAMETER - 2 MAXIMUM.
   ALL OTHER CONFIGURATIONS REQUIRE STANDARD MANHOLE.

LAST REVISION DATE: JULY 2022	
24" DIA. STORM MANHOLE (NTS)	
INDEPENDENCE, OR	DETAIL NO. 350

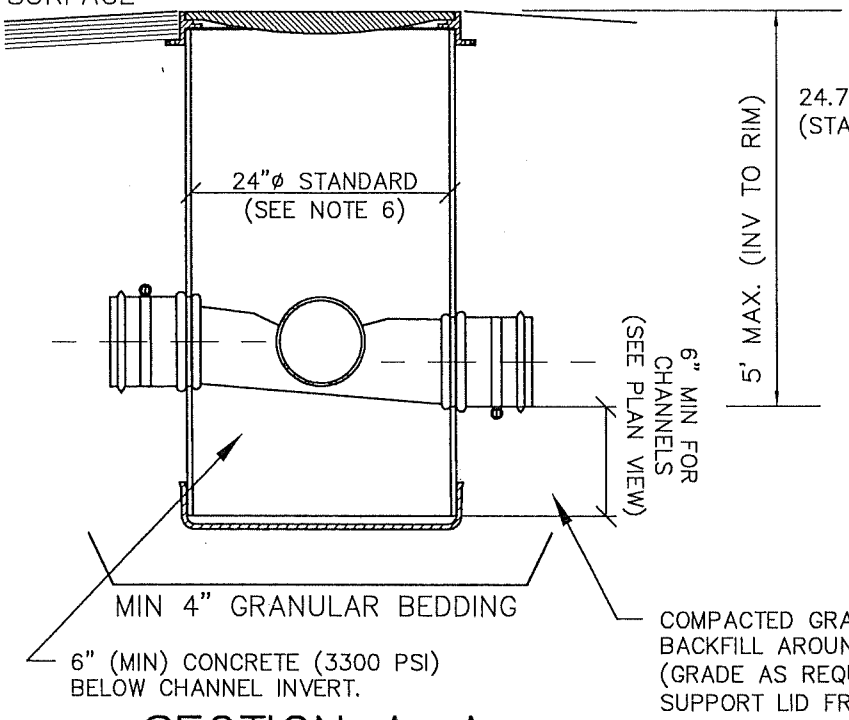


PLAN

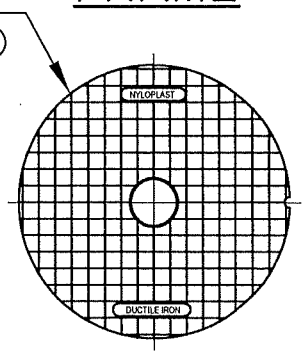


FRAME TO INCLUDE TABS THAT MATCH BASIN OD TO PREVENT DISPLACEMENT. FRAME BODY TO BEAR ON COMPACTED BASEROCK (SEE SECTION A-A)

FRAME



SECTION A-A



PROVIDE A MINIMUM OF (2) 1" DIAMETER PICK HOLES IN SOLID LID, OR PROVIDE STANDARD 16-HOLE STORM MANHOLE LID.

SOLID LID

NOTES:

1. NYLOPLAST TRAFFIC RATED DRAIN BASIN OR APPROVED EQUAL WITH NYLOPLAST FRAME & MH LID.
2. MH FRAME & COVER TO BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION, ORIENTATION AND INVERT ELEVATIONS.
4. CONNECTIONS TO PVC MANHOLE TO BE INSERTA-TEE STYLE FITTINGS (FACTORY OR FIELD INSTALLED).
5. FIVE (5) FOOT MAXIMUM ALLOWABLE DEPTH FROM RIM TO OUTLET INVERT (DEEPER APPLICATIONS REQUIRE 48" MANHOLE).
6. MAXIMUM NUMBER & CONFIGURATION OF PIPE CONNECTIONS TO BE BASED ON INSERTA-TEE RECOMMENDATIONS. PROVIDE 30" DIAMETER BASIN & 30" SOLID COVER IF REQUIRED DUE TO NO. OF PIPES, SPACING &/OR ANGLES (30" MH TO MEET ALL DETAIL REQUIREMENTS SHOWN EXCEPT DIAMETER).

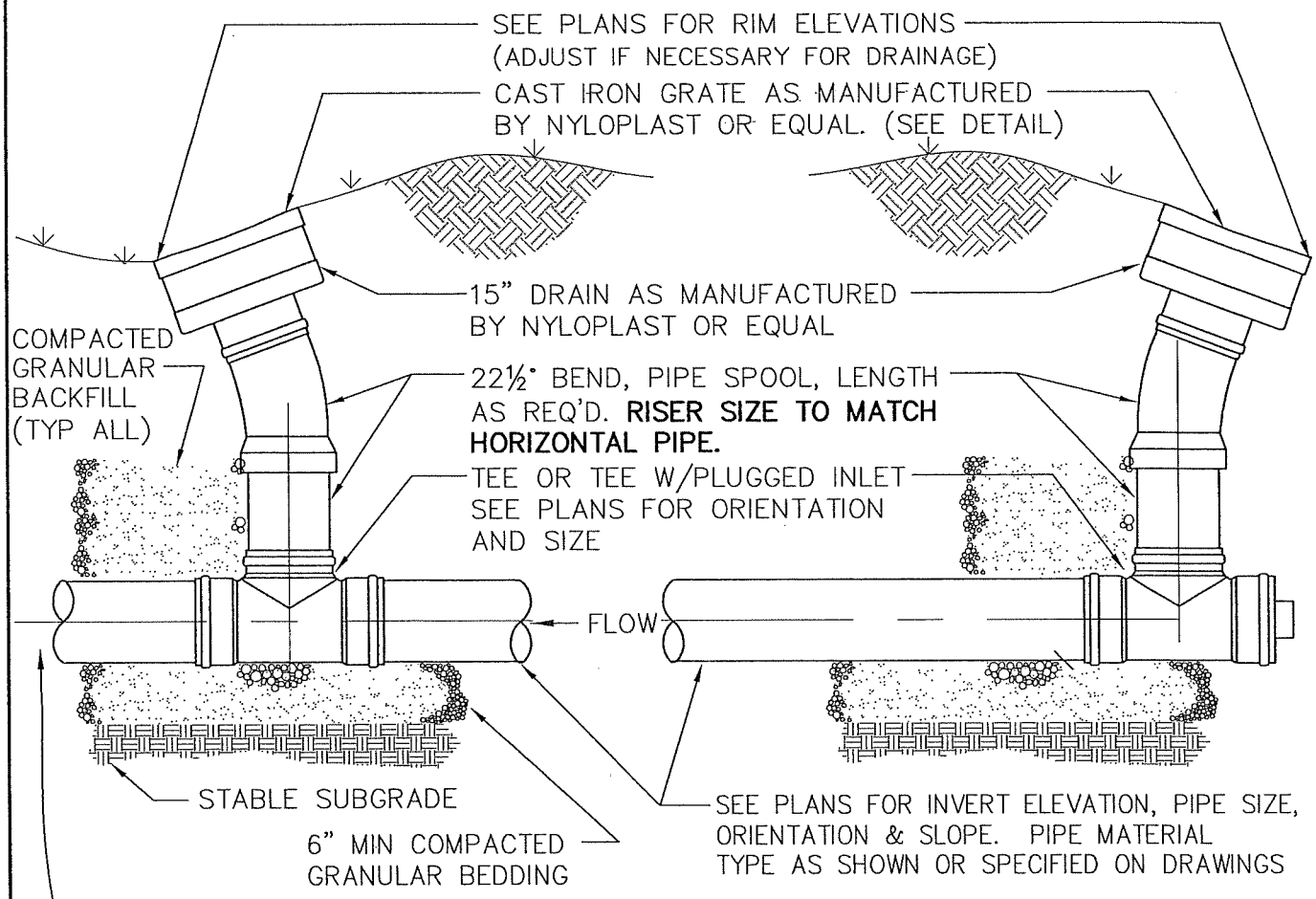
NOTE: PER ORS 92.044(7), MANHOLE MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

LAST REVISION DATE:	JO #
AUG 2018	

24" DIA. STORM MANHOLE (TRAFFIC RATED PVC W/SOLID DUCTILE IRON FRAME/COVER)

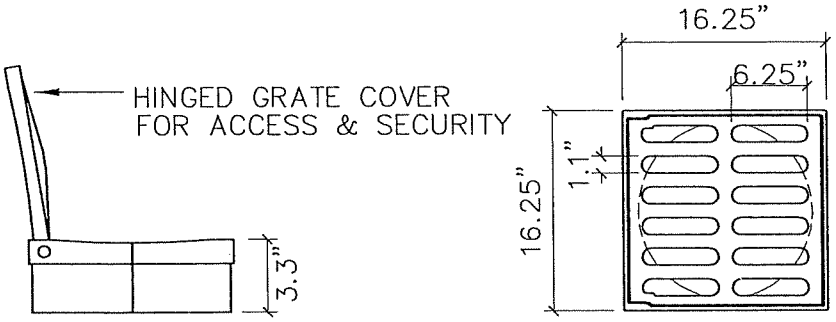
(NTS)

INDEPENDENCE, OR	DETAIL NO. 351



AREA DRAIN

NTS



STANDARD

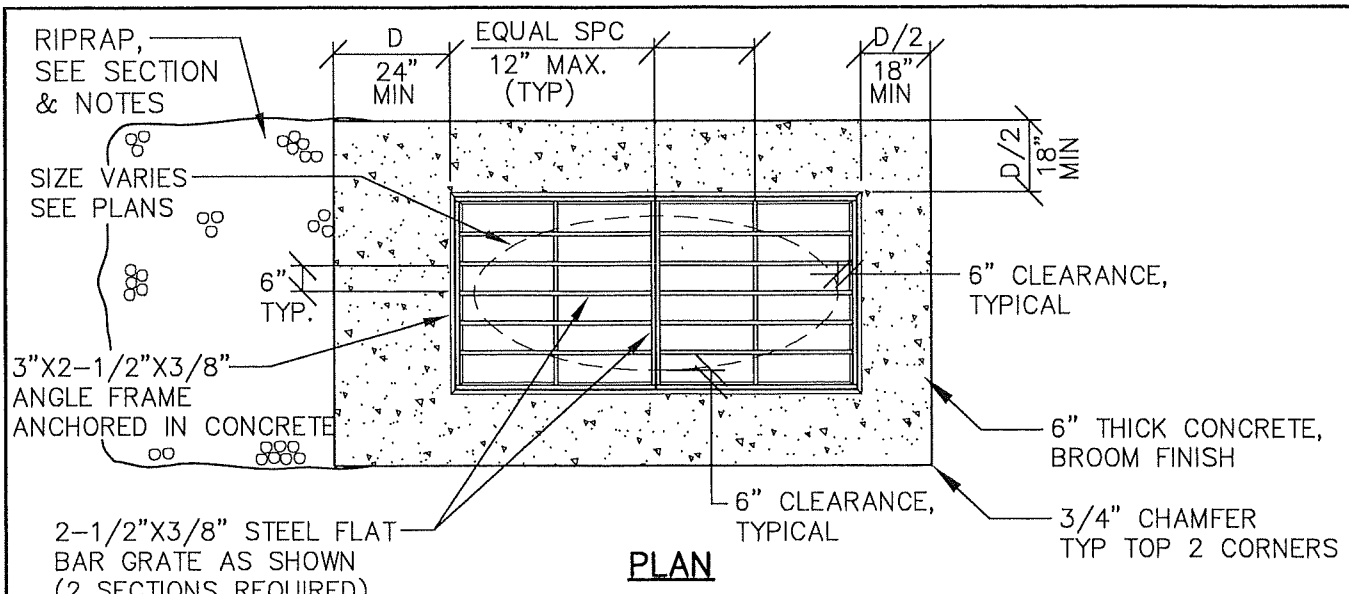
15" CAST IRON GRATE DETAIL

NTS

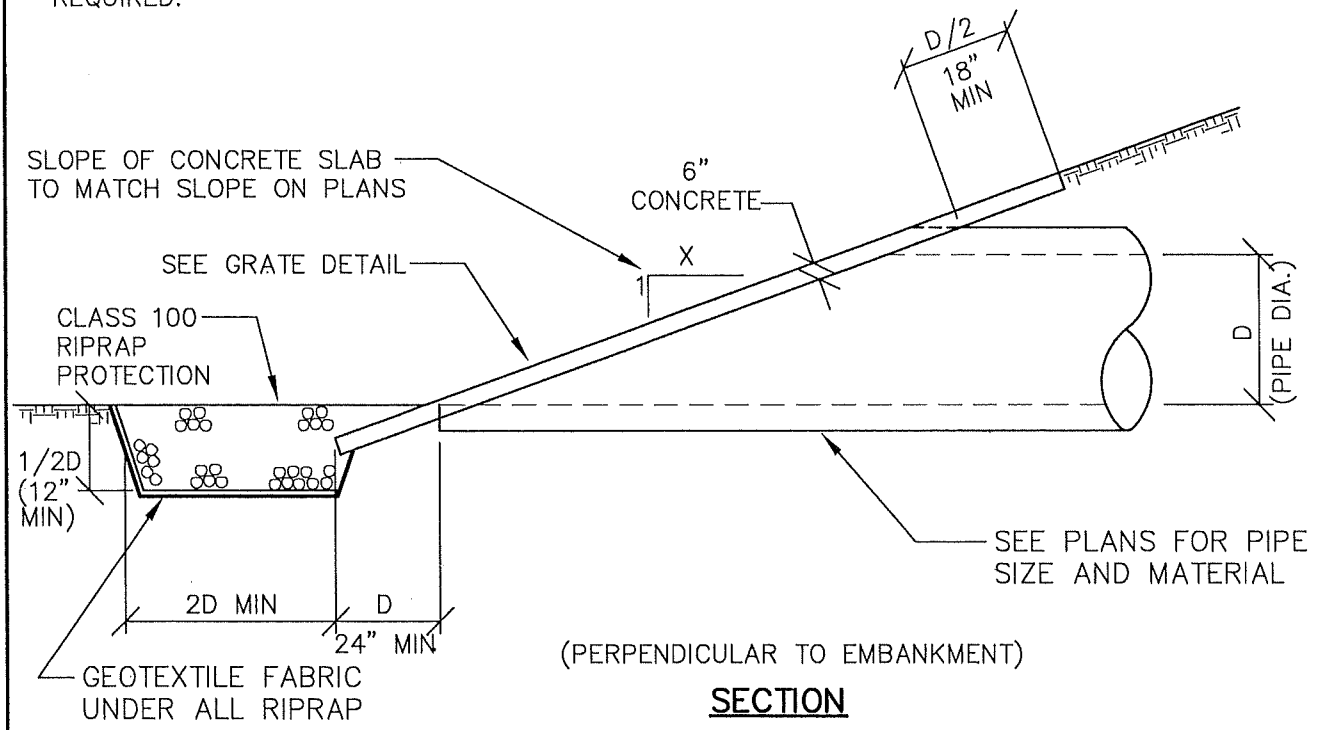
NOTES:

1. AREA DRAIN NOT FOR USE IN AREAS SUBJECT TO VEHICLE TRAFFIC.
2. USE WATERTIGHT GASKETED FITTINGS AND ADAPTORS FOR ALL PIPE CONNECTIONS.
3. ALTERNATE PRODUCTS OR CONFIGURATIONS PROPOSED SHALL INCLUDE SLANTED GRATE CONFIGURATION TO MINIMIZE GRATE BLIND-OFF BY LEAVES OR DEBRIS.
4. ANY GRATES SET IN SURFACED PEDESTRIAN AREAS SHALL CONFORM WITH ADA REQUIREMENTS, INCLUDING GRATE OPENING SIZE.

LAST REVISION DATE: JULY 2022	JO # STANDARD
PRIVATE AREA DRAIN, NON-TRAFFIC AREAS (NTS)	
INDEPENDENCE, OR	DETAIL NO. 355



PLAN



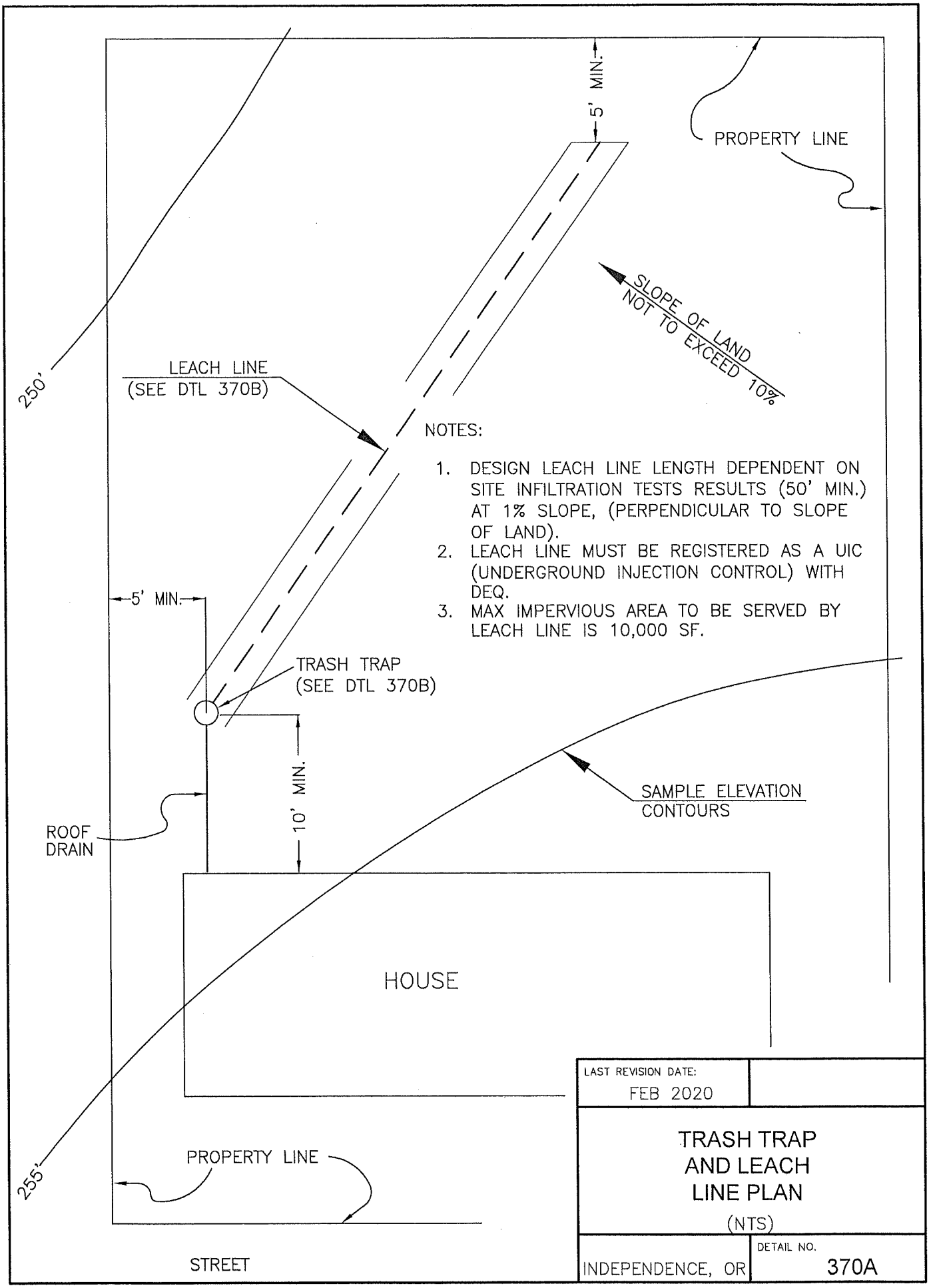
(PERPENDICULAR TO EMBANKMENT)

SECTION

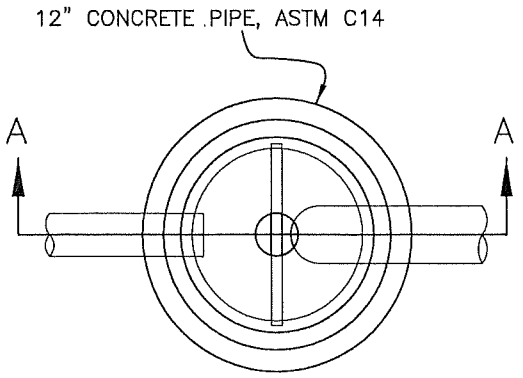
NOTES:

1. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION AND INVERT ELEVATION.
2. FRAME & GRATE SHALL BE ASTM A36 STEEL, HOT DIP GALVANIZED AFTER FABRICATION.
3. ALL CONCRETE TO BE 3300 PSI AT 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).
4. GRATED CONFIGURATION SHOWN IS TYPICALLY USED WHERE OUTFALL PIPE DISCHARGES THROUGH EMBANKMENT PERPENDICULAR TO THE DRAINAGE CHANNEL, AND WHERE REQUIRED TO ACCOMMODATE BANK MOWING EQUIP.
5. USE NON-GRATED CONFIGURATION WHERE APPROVED BY PUBLIC WORKS DIRECTOR.
6. ARMORING OF FAR CHANNEL BANK (TO BANK TOP) IS REQUIRED UNLESS NO EROSION POTENTIAL EXISTS (AS DETERMINED BY CITY). ARMOR BOTTOM & BANK 10 FEET MINIMUM IN EACH DIRECTION FROM OUTFALL CENTERLINE, UNLESS FURTHER SHOWN ON DWGS.
7. FILL ALL VOIDS IN RIP-RAP WITH 3/4"-0 GRANULAR BASEROCK.

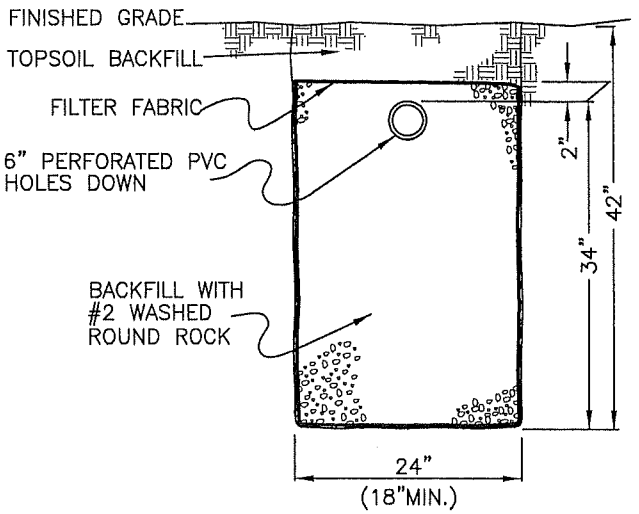
LAST REVISION DATE: SEPT 2021	
CONCRETE PIPE END CAP WITH GRATE (NTS)	
INDEPENDENCE, OR	DETAIL NO. 362



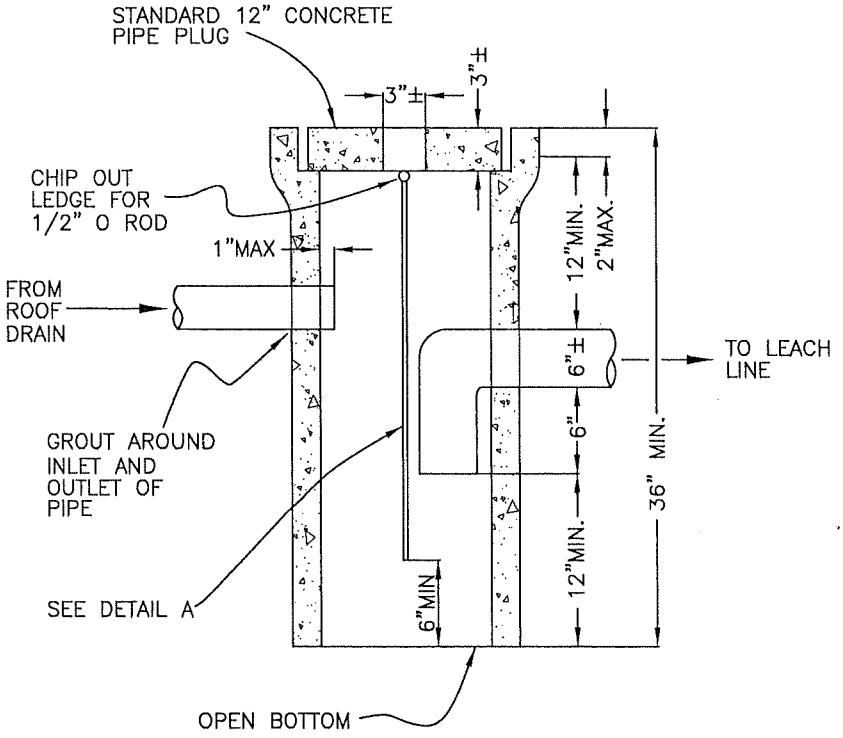
LAST REVISION DATE: FEB 2020	
TRASH TRAP AND LEACH LINE PLAN (NTS)	
INDEPENDENCE, OR	DETAIL NO. 370A



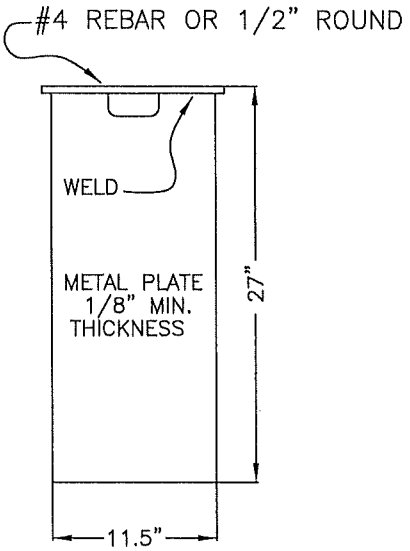
TRASH TRAP



TYPICAL SECTION LEACH LINE



SECTION A–A

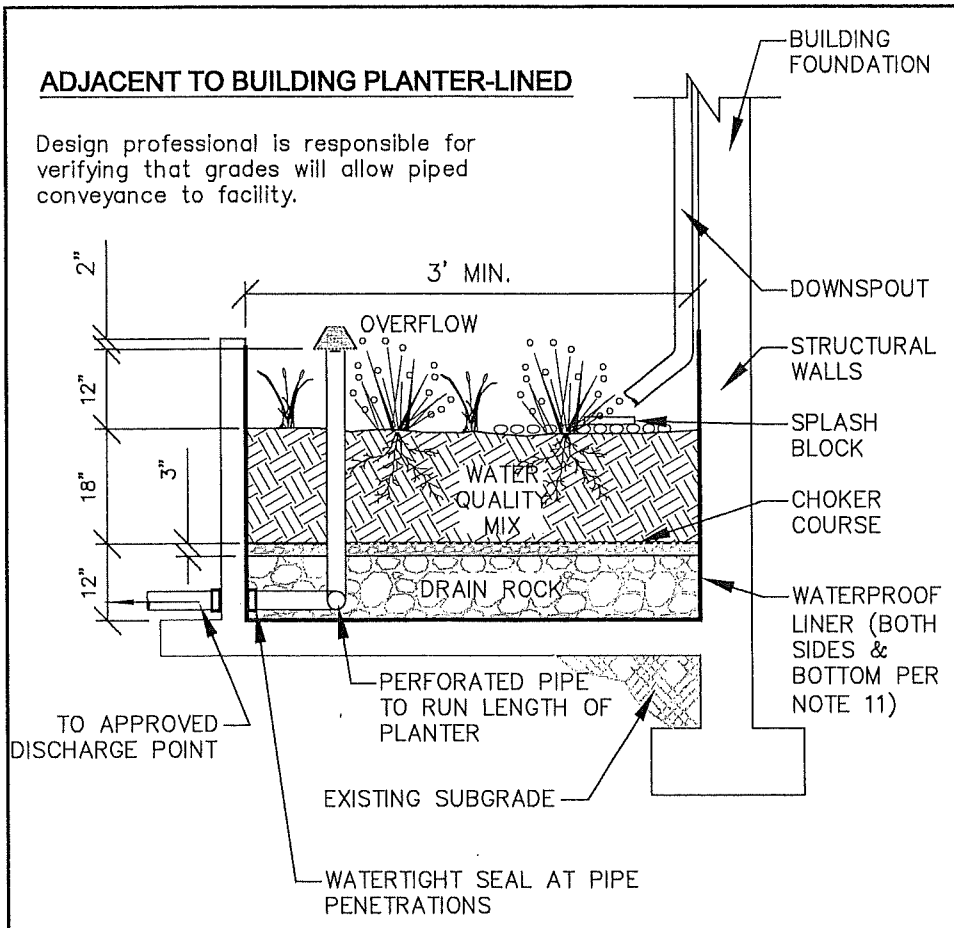


DETAIL A

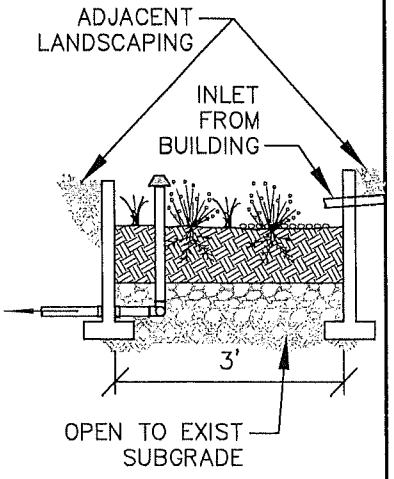
LAST REVISION DATE: FEB 2020	
TRASH TRAP AND LEACH LINE DETAILS (NTS)	
INDEPENDENCE, OR	DETAIL NO. 370B

ADJACENT TO BUILDING PLANTER-LINED

Design professional is responsible for verifying that grades will allow piped conveyance to facility.



FREESTANDING PLANTER - UNLINED



FREESTANDING PLANTERS MUST BE >10' FROM BLDG FOUNDATION & NOT IMMEDIATELY UPSLOPE FROM BLDG STRUCTURES.

1. DIMENSIONS:
   WIDTH OF PLANTER: 36" MINIMUM.
   DEPTH OF PLANTER (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION): 12".
   LONGITUDINAL SLOPE OF PLANTER: 0.5% OR LESS.
   TOP OF PLANTER WALL MUST BE LESS THAN 30" IN HEIGHT ABOVE FINISH GRADE.

2. SETBACKS:
   SETBACKS FROM PROPERTY LINES VARY DEPENDING ON SITE CONDITIONS (SEE DWGS).

3. PLANTER WALLS:
   MATERIAL MUST BE 4" REINFORCED CONCRETE, STONE BRICK, OR OTHER DURABLE MATERIAL. WALLS MUST BE INCLUDED ON FOUNDATION PLANS.

4. PIPING MUST BE CAST IRON, ABS OR PVC. 3" PIPE REQUIRED FOR FACILITIES DRAINING UP TO 1500 S.F., OTHERWISE 4" MINIMUM PIPE. UNIFORM PLUMBING CODE ALSO APPLIES.

5. DRAIN ROCK:
   3/4" – 1 1/2" WASHED AGGREGATE WITH 40% VOIDS.
   DEPTH: 9".

6. CHOKER COURSE:
   BETWEEN DRAIN ROCK AND GROWING MEDIUM:
   3/4"–1 1/4" CLEAN, OPEN–GRADED CRUSHED ROCK.

7. OVERFLOW:
   PLANTERS MUST CONNECT TO APPROVED DISCHARGE POINT. OVERFLOW INLET ELEVATION MUST ALLOW FOR 2" OF FREEBOARD, MINIMUM. PROTECT FROM DEBRIS AND SEDIMENT WITH STRAINER OR GRATE.

8. WATER QUALITY MIX:
   18" MINIMUM DEPTH. USE COMPOST/ GRAVEL, SANDY LOAM 3–WAY MIX PER PWDS DIVISION 3.19.

9. VEGETATION: REFER TO PWDS DIVISION 3.19

10. SPLASH BLOCK:
    INSTALL 4–6" WASHED RIVER ROCK OR SPLASH PAD FOR EROSION CONTROL AT INLETS AND DOWNSPOUT.

11. WATERPROOF LINER:
    MUST BE 30 MIL PVC, HDPE, OR EQUIVALENT. WATERPROOF LINER IS NOT REQUIRED IF FOUNDATION & PLANTER WALL MATERIAL IS WATERPROOF REINFORCED CONCRETE, OR APPROVED EQUAL.

LAST REVISION DATE: FEB 2020	
STORMWATER PLANTER (NTS)	
INDEPENDENCE, OR	DETAIL NO. 371

STORM SEWER MANDREL TEST REPORT

Project Location: (City)	Project Name:
Inspector: (Print)	Date: (Separate Report Required for Each Test Session)
Mandrel Diameters Verified? Yes / No	

Station (& Manhole #)		Size & Material	Length (ft)	Results	Backfill Compaction Completed?	Date Sewer Flushed & Cleaned	Comments
From	To						
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		

1. Mandrel testing shall conducted on a manhole to manhole (or cleanout) basis and shall be done after the line has been completely flushed out with water.

2. Mandrel testing shall be conducted after trench backfill and compaction has been completed.

3. The mandrel diameter shall be 95% of the pipe initial inside diameter. The inspector shall verify the diameter of each mandrel used during each test session.

STORM PIPELINE TV INSPECTION REPORT *(sample only)*

Page ___ of ____

Date:	Client: City:					Basin No.	
Technician:	Inspector:		Weather:	Cleaned By:		Report No.	Tape No.
From M.H. #: Street:	Pipe Dia. (in)	Joint Length (ft)	Section Length (ft)	Joint Type:	Pipe Material	To M.H. #: Street:	

PIPELINE DATA;

Cleanliness: _______________

Alignment: _______________

Grade: _______________

Age: _______________

%Est. Leaking Joints: _________

Other:_________________________

____

PROBLEM CODE LEGEND:

BP = Broken Pipe
CC = Circumferential Crack
LC = Longitudinal Crack
G = Break in Grade
L = Leak
PJ = Pulled Joint
PT = Protruding Tap
ST = Service Tap
SL = Service Left
SR = Service Right
RT = Roots
U = Unpassable

PIPE MATERIAL **LEGEND:**

AC = Asbestos Cement
CIP = Cast Iron Pipe
C(M) = Conc., Mortar Joint
C(R) = Conc., Rubr. Gasket Jnt
DI = Ductile Iron Pipe
PVC = Polyvinylchloride Pipe
TC = Terra Cotta
VC = Vitrified Clay

TURNAROUND:

Requested (Date/time):________

Authorized (Date/time):

Footage	Problem Code	Comments	I/I (gpm)

NOTE: PER ORS 92.044(7), MANHOLE MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

PROVIDE GASKETED PVC CAP ON ALL STUBS FOR FUTURE CONNECTION SHOWN ON DWGS (EXTEND PIPE 2' MIN BEYOND MH WALL), SLOPE PER DWGS.

A — MH STEPS. VERIFY LOCATION TO AVOID CONFLICTS WITH INSIDE OR OUTSIDE DROPS

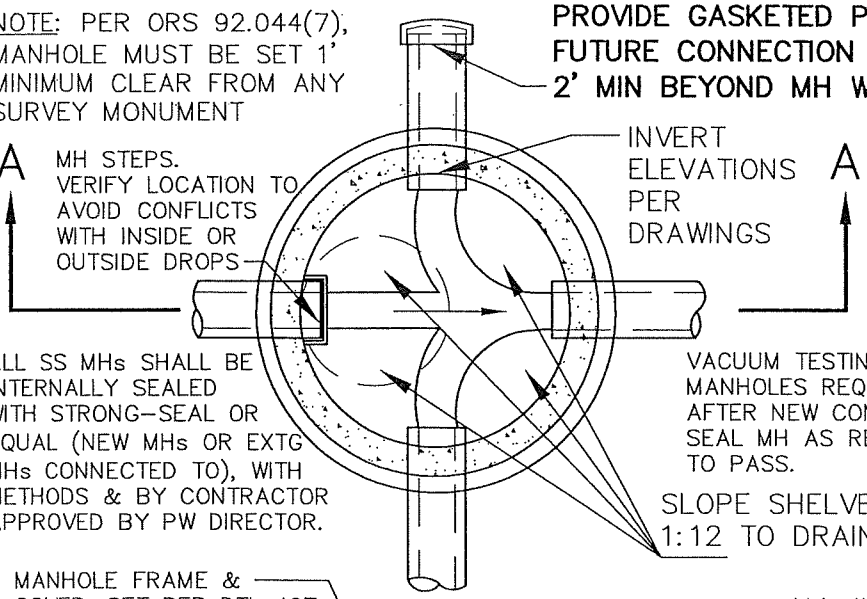
INVERT ELEVATIONS PER DRAWINGS

A

ALL SS MHs SHALL BE INTERNALLY SEALED WITH STRONG-SEAL OR EQUAL (NEW MHs OR EXTG MHs CONNECTED TO), WITH METHODS & BY CONTRACTOR APPROVED BY PW DIRECTOR.

VACUUM TESTING OF EXTG MANHOLES REQUIRED AFTER NEW CONNECTIONS. SEAL MH AS REQUIRED TO PASS.

SLOPE SHELVES 1:12 TO DRAIN



PLAN

MANHOLE FRAME & COVER, SET PER DTL 407

MANPAN MH LID INSERT AS REQ'D (SEE DTL 407)

SET FRAME IN NON-SHRINK GROUT

PAVED SURFACE

UNPAVED

30" MAX

8" MIN

12" TYP

GRADE RINGS (VARIABLE) 18" MAX.-TOP OF CONE TO RIM

SLOPE OF PRECAST ECCENTRIC CONE SHALL FACE DOWN GRADE. LOCATE STEPS ON UPSTREAM SIDE OF MANHOLE.

MASTIC WRAP AS SPEC'D

5" MIN. THICK

48" INSIDE DIA. MIN

ALL OPENINGS CORED DRILLED.

CHANNEL DEPTH= 2/3 PIPE DIA. MIN.

16" MAX

ALL PIPE PENETRATIONS ON SANITARY SEWER MANHOLES TO HAVE RUBBER BOOTS AS SPECIFIED.

ROUTE TONING WIRE UP OUTSIDE OF MH AS SHOWN (TYP ALL PIPES).

FLOW

PRECAST BASE, 6" MIN THICK

6" MIN COMPACTED GRANULAR BEDDING

18" MAX (CONC PIPE, TYP)

STABLE SUBGRADE

SECTION A-A

FLAT TOP MH'S SHALL BE USED FOR ALL MH'S LESS THAN 6' RIM TO INVERT, OR WITH TOP OF PIPE CONNECTIONS WITHIN 5 FEET OF RIM ELEV

4. ALL SS MANHOLES TO BE INTERNALLY SEALED WITH STRONG SEAL PER STAND NOTES (NEW MHs & EXTG MHs WORKED ON FOR TAPS, REPAIRS, ETC.).

O-RING or BUTYL RESIN MASTIC AS SPEC'D

OFFSET JOINT

BUTYL RESIN MASTIC

ALL INSIDE JOINTS & WALL PENETRATIONS TO BE GROUTED FOLLOWING MH ASSEMBLY (TYP).

KEYLOCK JOINT

9" WIDE EXTERNAL MASTIC WRAP @ ALL JOINTS & PICKHOLES (TRELLEBORG BIDCO) **ALL SS MHs**

MANHOLE BARREL JOINT OPTIONS

NOTES:

1. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. ALL CHANNELS & GROUTING TO BE SMOOTH.
2. WATERTIGHT O-RING OR MASTIC JOINTS REQUIRED, W/EXTERNAL SEAL AT BARREL JOINTS & PICKHOLES.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD. ADD STEPS TO EXTG CONNECTION MH IF EXTG STEPS ARE ABSENT.

LAST REVISION DATE: AUG 2022

STANDARD MANHOLE FOR 21" PIPE AND SMALLER (SEWER & STORM)

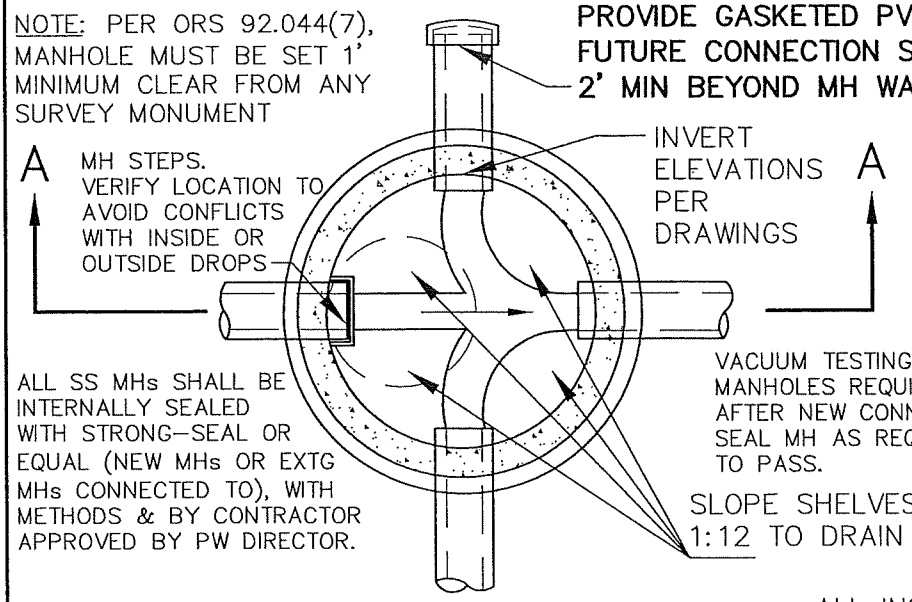
(NTS)

INDEPENDENCE, OR

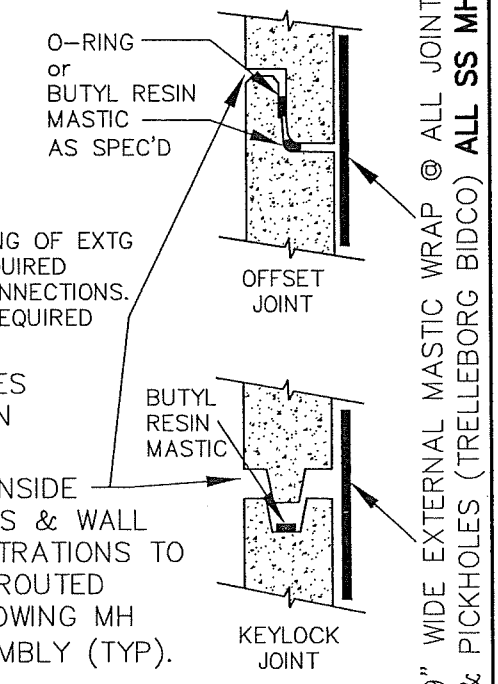
DETAIL NO. 401

NOTE: PER ORS 92.044(7), MANHOLE MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

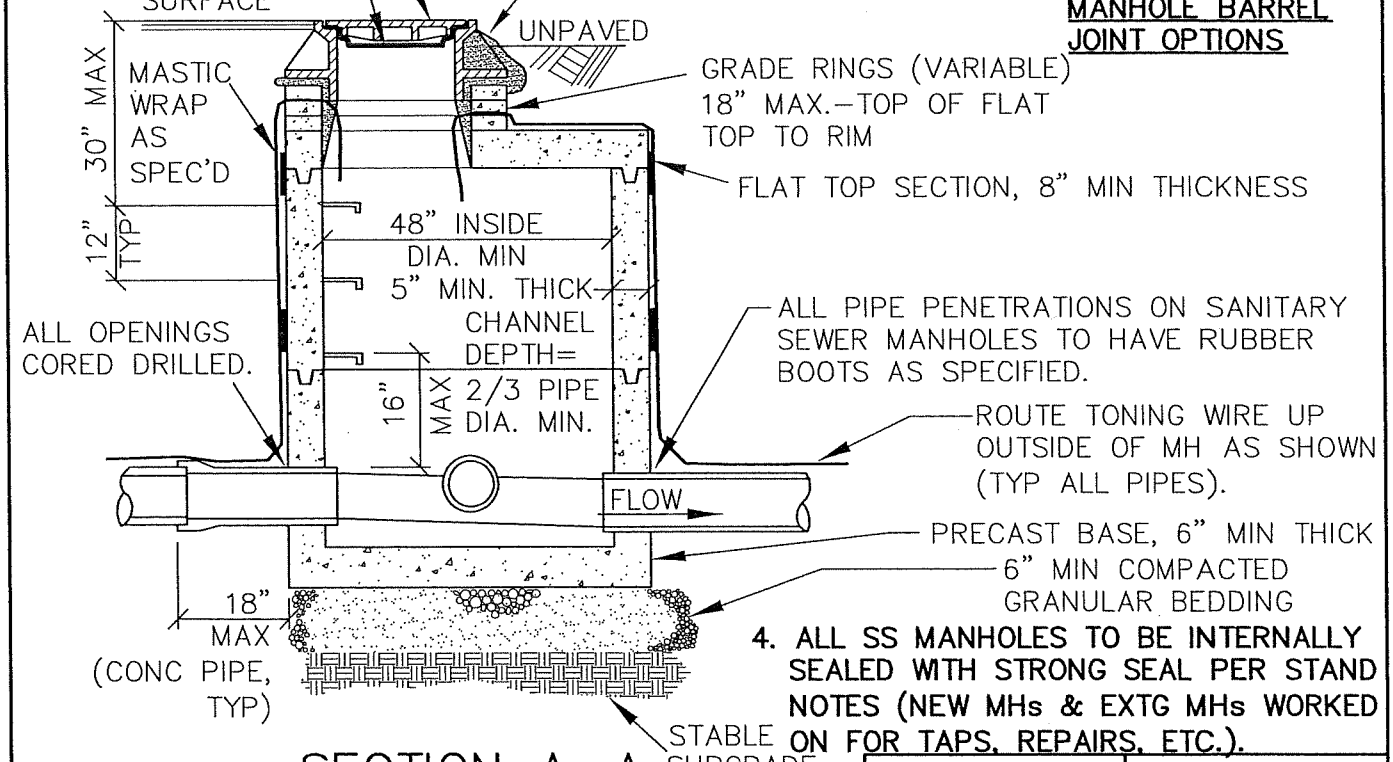
PROVIDE GASKETED PVC CAP ON ALL STUBS FOR FUTURE CONNECTION SHOWN ON DWGS (EXTEND PIPE 2' MIN BEYOND MH WALL), SLOPE PER DWGS.



PLAN



MANHOLE BARREL JOINT OPTIONS



SECTION A-A

4. ALL SS MANHOLES TO BE INTERNALLY SEALED WITH STRONG SEAL PER STAND NOTES (NEW MHs & EXTG MHs WORKED ON FOR TAPS, REPAIRS, ETC.).

NOTES:

1. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. ALL CHANNELS & GROUTING TO BE SMOOTH.
2. WATERTIGHT O-RING OR MASTIC JOINTS REQUIRED, W/EXTERNAL SEAL AT BARREL JOINTS & PICKHOLES.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD. ADD STEPS TO EXTG CONNECTION MH IF EXTG STEPS ARE ABSENT.

LAST REVISION DATE: JULY 2022	
FLAT TOP MANHOLE FOR 21" PIPE AND SMALLER (SEWER & STORM) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 402

NOTE: PER ORS 92.044(7), MANHOLE MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

A — A

MH STEPS. VERIFY LOCATION TO AVOID CONFLICTS WITH INSIDE OR OUTSIDE DROPS

PROVIDE GASKETED PVC CAP ON ALL STUBS FOR FUTURE CONNECTION SHOWN ON DWGS (EXTEND PIPE 2' MIN BEYOND MH WALL), SLOPE PER DWGS.

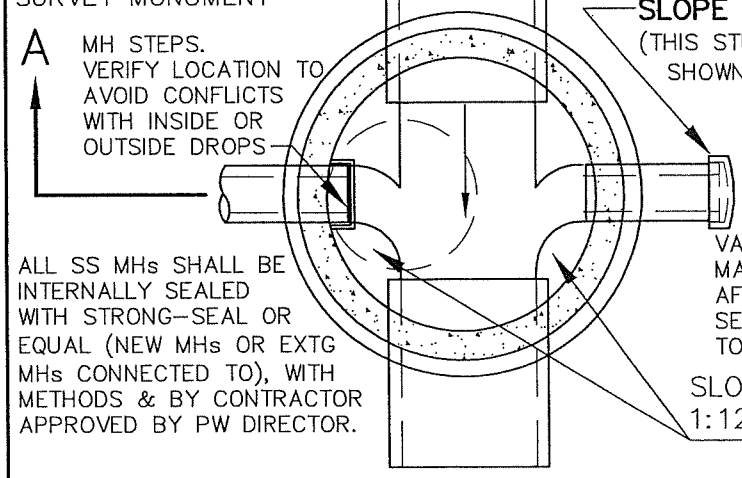
(THIS STUB NOT SHOWN BELOW)

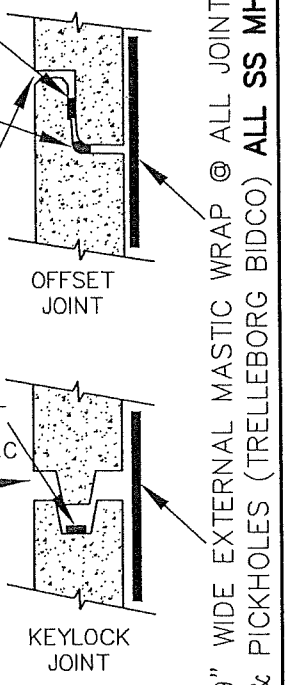
ALL SS MHs SHALL BE INTERNALLY SEALED WITH STRONG-SEAL OR EQUAL (NEW MHs OR EXTG MHs CONNECTED TO), WITH METHODS & BY CONTRACTOR APPROVED BY PW DIRECTOR.

VACUUM TESTING OF EXTG MANHOLES REQUIRED AFTER NEW CONNECTIONS. SEAL MH AS REQUIRED TO PASS.

SLOPE SHELVES 1:12 TO DRAIN

PLAN

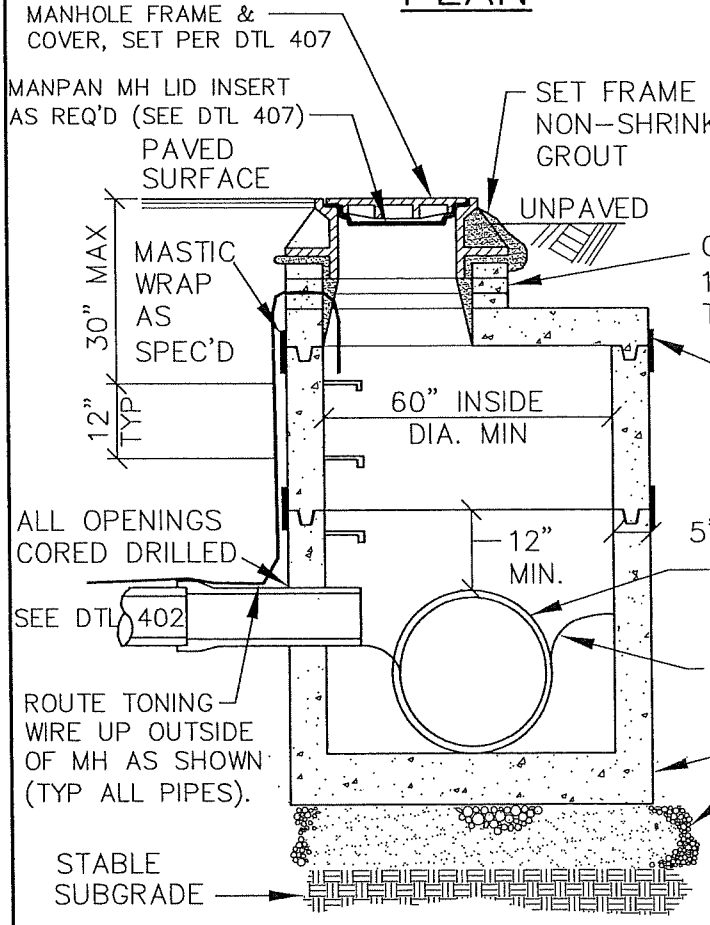




ALL INSIDE JOINTS & WALL PENETRATIONS TO BE GROUTED FOLLOWING MH ASSEMBLY (TYP).

9" WIDE EXTERNAL MASTIC WRAP @ ALL JOINTS & PICKHOLES (TRELLEBORG BIDCO) **ALL SS MHs**

MANHOLE BARREL JOINT OPTIONS



SECTION A-A

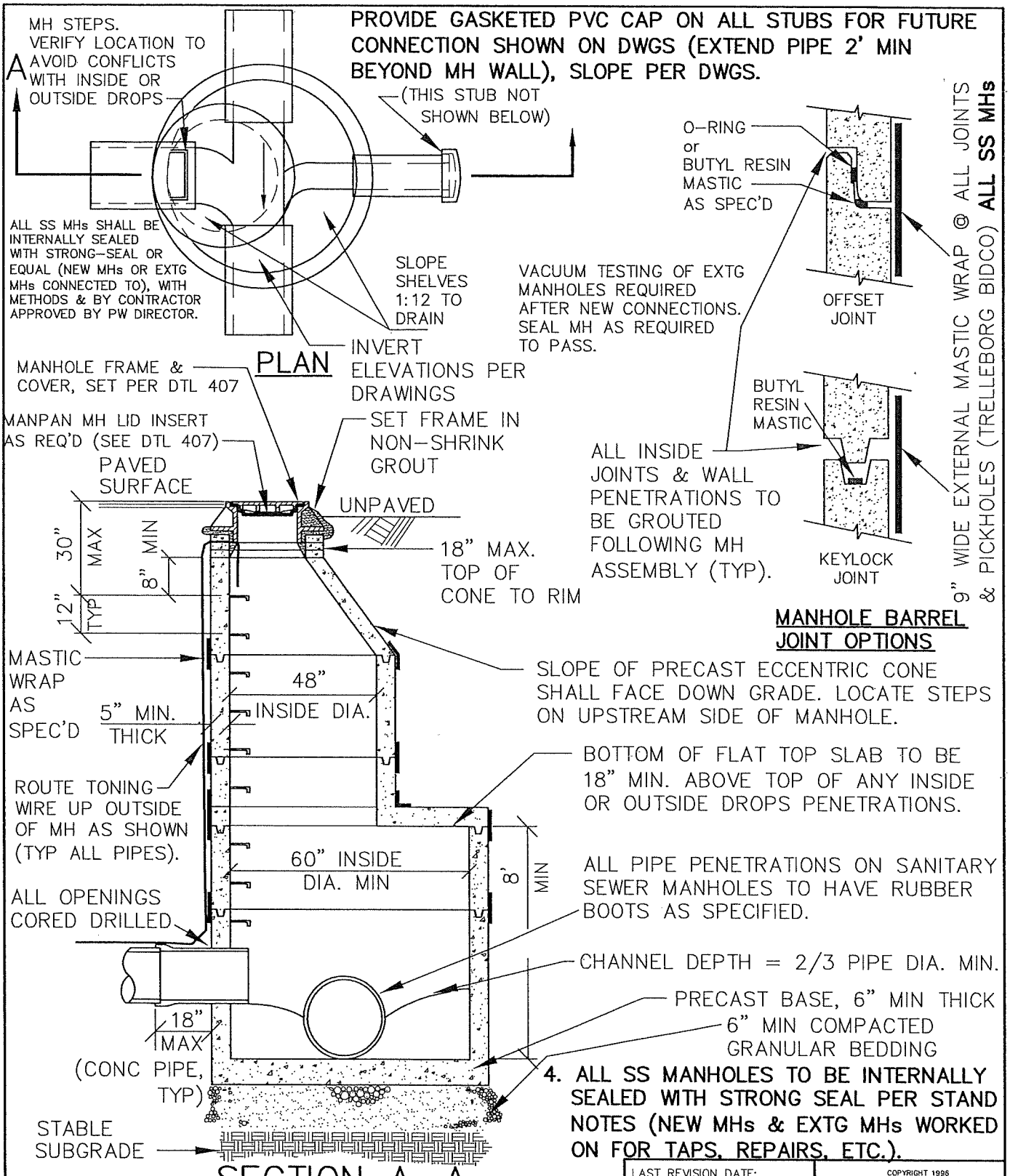
FOR MANHOLES DEEPER THAN 11 FT. RIM TO INVERT, SEE DETAIL 403A

4. **ALL SS MANHOLES TO BE INTERNALLY SEALED WITH STRONG SEAL PER STAND NOTES (NEW MHs & EXTG MHs WORKED ON FOR TAPS, REPAIRS, ETC.).**

NOTES:

1. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. ALL CHANNELS & GROUTING TO BE SMOOTH.
2. WATERTIGHT O-RING OR MASTIC JOINTS REQUIRED, W/EXTERNAL SEAL AT BARREL JOINTS & PICKHOLES.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD. ADD STEPS TO EXTG CONNECTION MH IF EXTG STEPS ARE ABSENT.

LAST REVISION DATE: JULY 2022	
MANHOLE FOR 24" AND 27" PIPE (SEWER & STORM) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 403

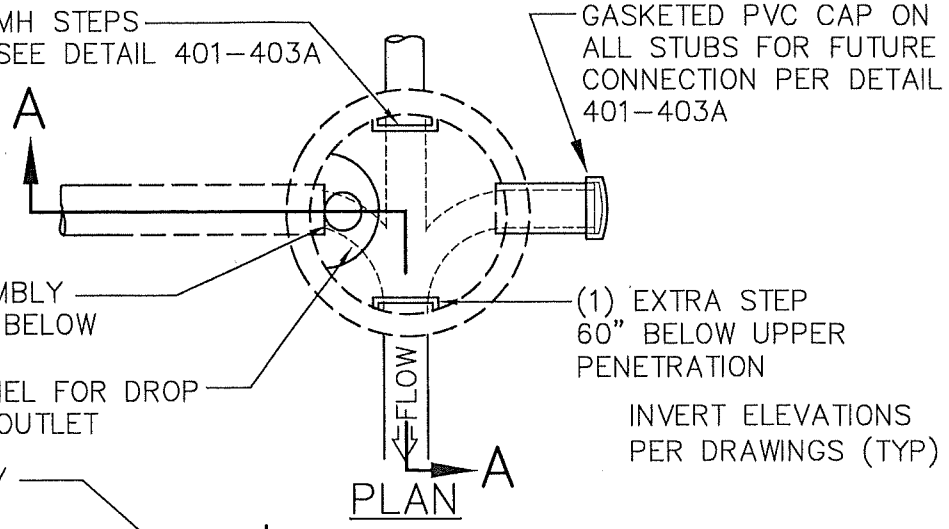


NOTES:

1. PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478. ALL CHANNELS & GROUTING TO BE SMOOTH.
2. WATERTIGHT O-RING OR MASTIC JOINTS REQUIRED, W/EXTERNAL SEAL AT BARREL JOINTS & PICKHOLES.
3. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD. ADD STEPS TO EXTG CONNECTION MH IF EXTG STEPS ARE ABSENT.

LAST REVISION DATE: JULY 2022	
DEEP MANHOLE FOR 24" AND 27" PIPE (SEWER & STORM) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 403A

ALL SS MHs SHALL BE INTERNALLY SEALED WITH STRONG-SEAL OR EQUAL (NEW MHs OR EXTG MHs CONNECTED TO), WITH METHODS & BY CONTRACTOR APPROVED BY PW DIRECTOR.



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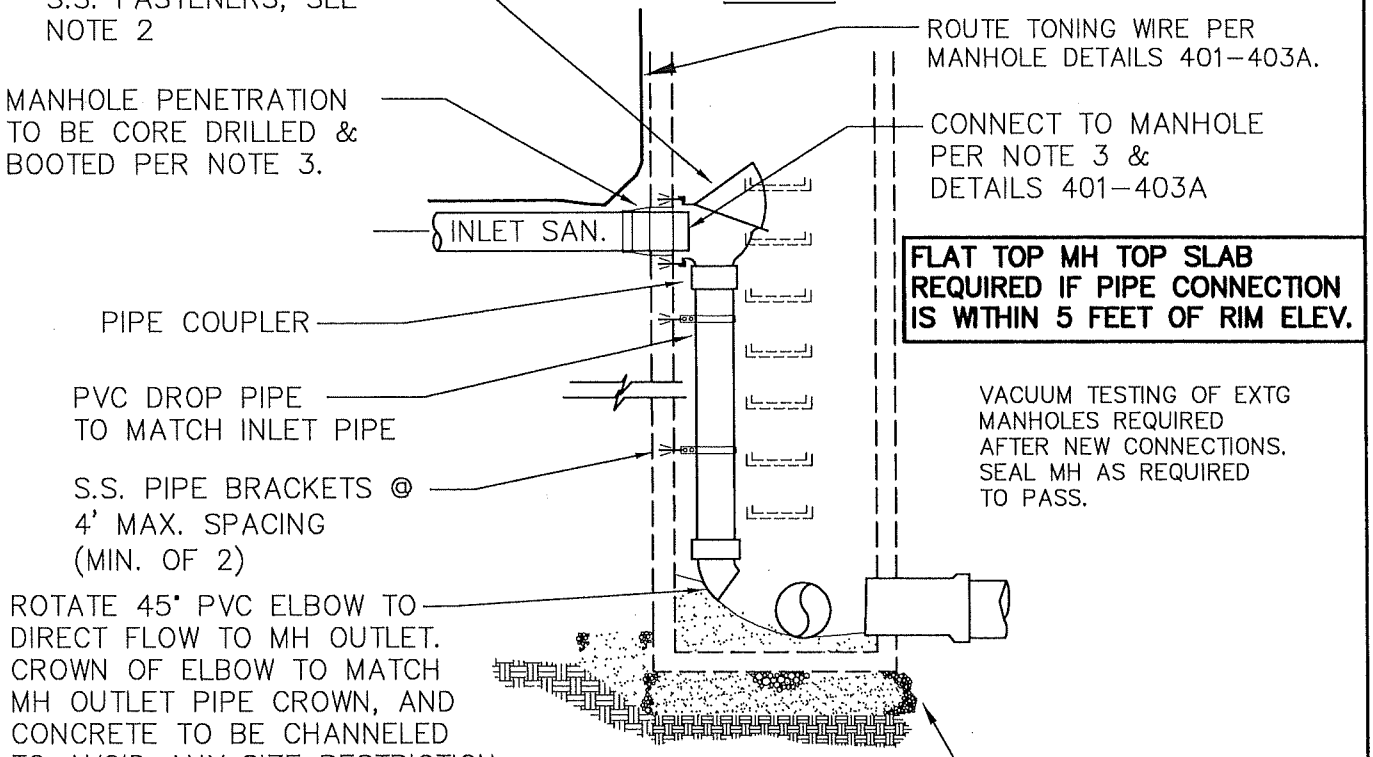


FLAT TOP MH TOP SLAB REQUIRED IF PIPE CONNECTION IS WITHIN 5 FEET OF RIM ELEV.

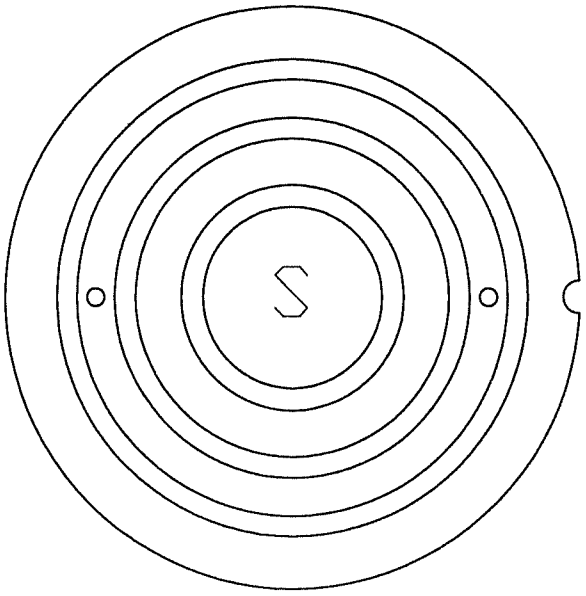
VACUUM TESTING OF EXTG MANHOLES REQUIRED AFTER NEW CONNECTIONS. SEAL MH AS REQUIRED TO PASS.

SECTION A-A

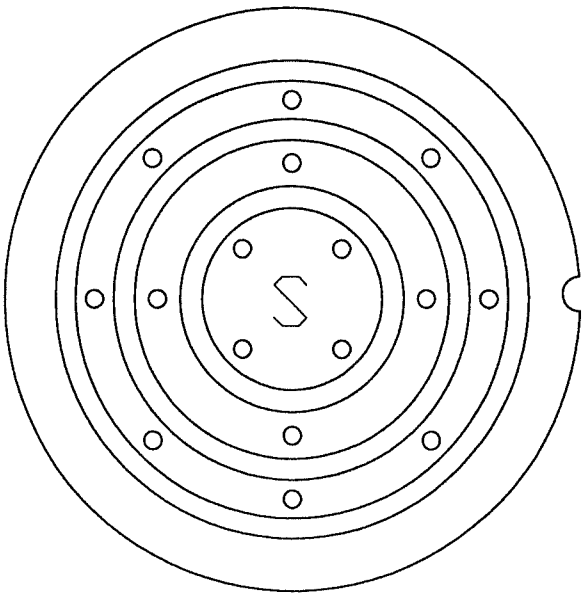
NOTES:

1. ALL INSIDE DROPS MUST BE APPROVED ON A CASE BY CASE BASIS BY THE PUBLIC WORKS DIRECTOR. MINIMUM 60" DIAMETER MANHOLE REQUIRED FOR INSIDE DROPS UNLESS OTHERWISE APPROVED IN WRITING BY THE PUBLIC WORKS DIRECTOR.
2. PROVIDE "RELINER" INSIDE DROP BOWL BY DURAN, INC. OR APPROVED EQUAL. WHERE NOTED ON DRAWINGS, FOR INLET PIPES WITH SLOPES GREATER THAN 5%, OR WHERE REQUIRED BY PUBLIC WORKS, PROVIDE BOWL WITH OPTIONAL HOOD AS SHOWN.
3. ALL PIPE PENETRATIONS SHALL HAVE RUBBER BOOTS. MANHOLE BASE, BARREL & TOP TO CONFORM WITH DETAILS 401-403A.
4. STEPS TO BE POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD. ADD STEPS TO EXTG CONNECTION MH IF EXTG STEPS ARE ABSENT.

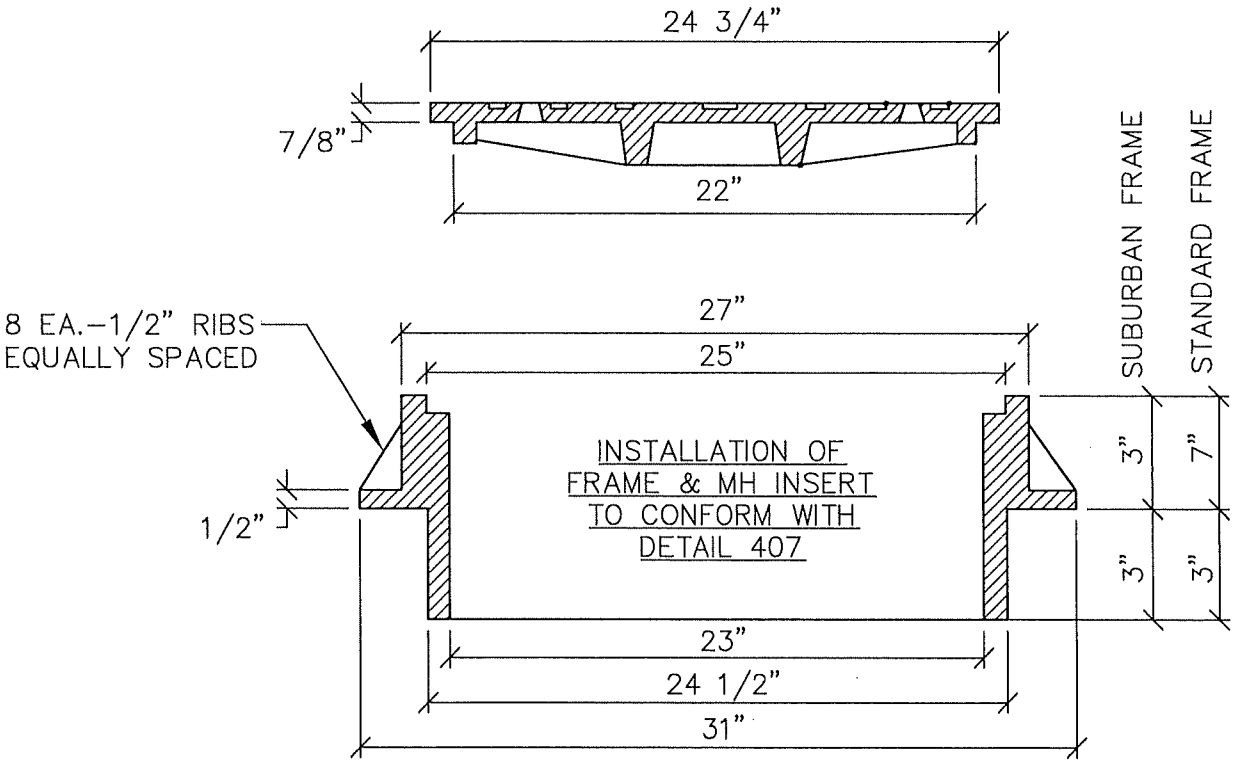
LAST REVISION DATE: MAR 2022	
INSIDE DROP CONNECTION FOR SANITARY SEWER OR STORM MANHOLE (NTS)	
INDEPENDENCE, OR	DETAIL NO. 404



SANITARY



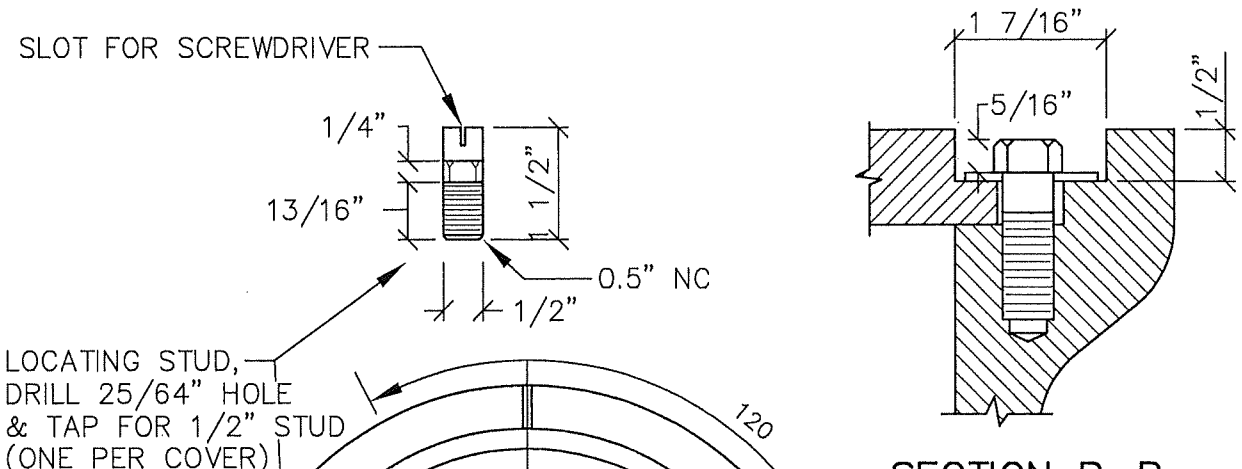
STORM



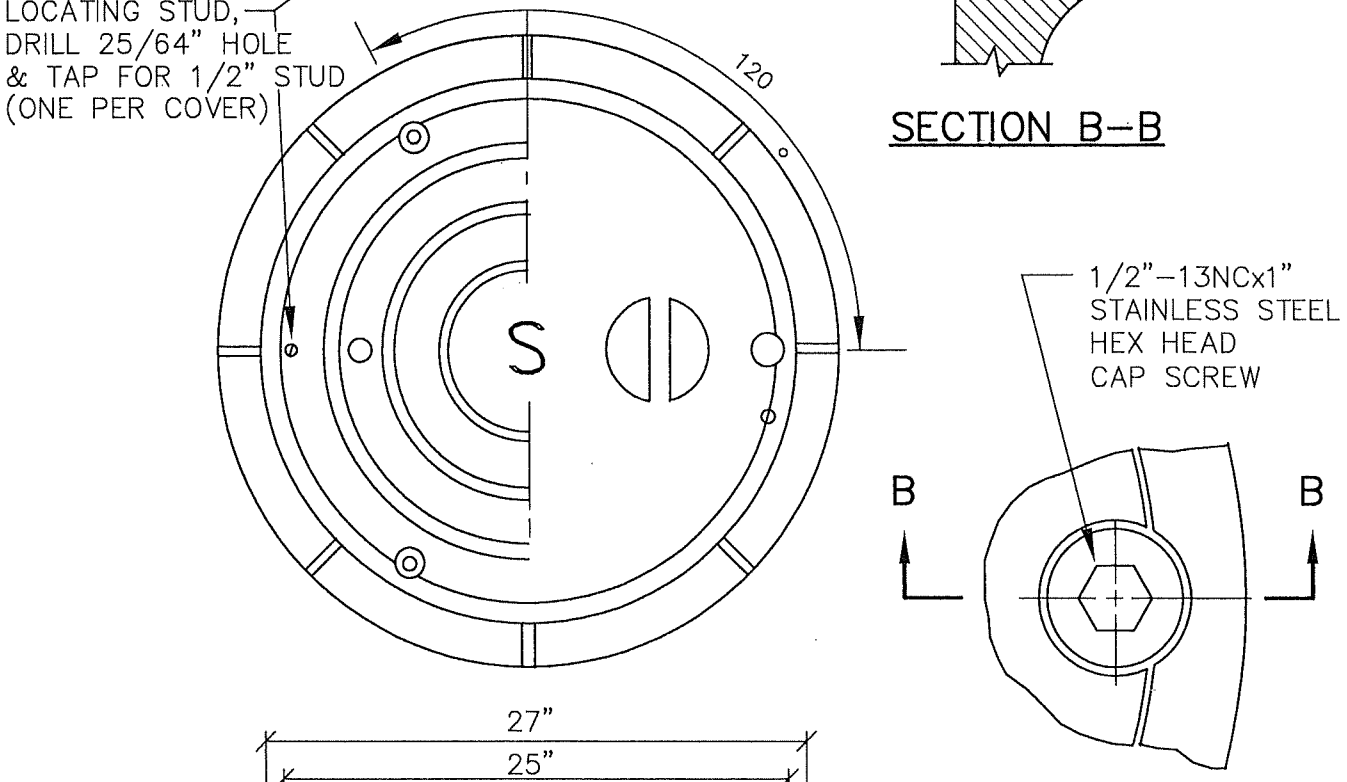
NOTES:

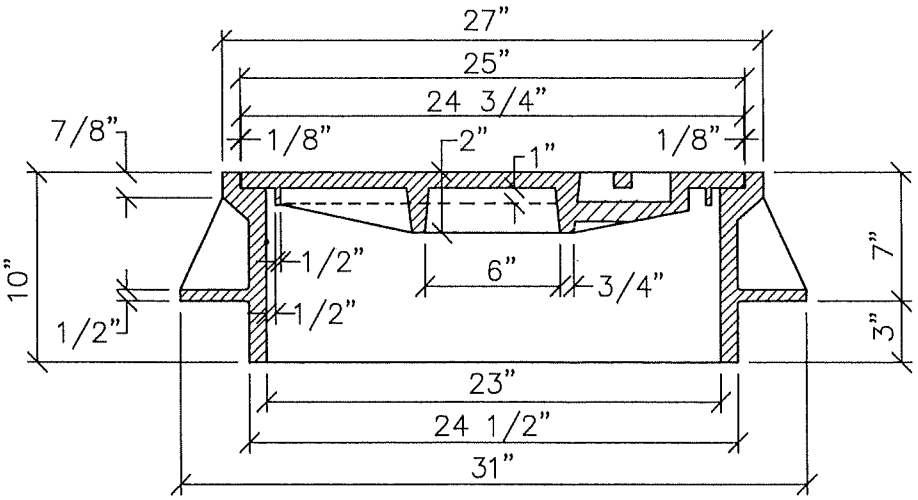
1. COVER AND FRAME SHALL BE GRAY CAST IRON ASTM A–48, CLASS 30.
2. COVER AND FRAME TO BE MACHINED TO A TRUE BEARING ALL AROUND.
3. NOTCH LID FOR LIFTING HOOK.

LAST REVISION DATE: AUG 2018	
MANHOLE FRAME AND COVER (STANDARD AND SUBURBAN) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 405



SECTION B–B





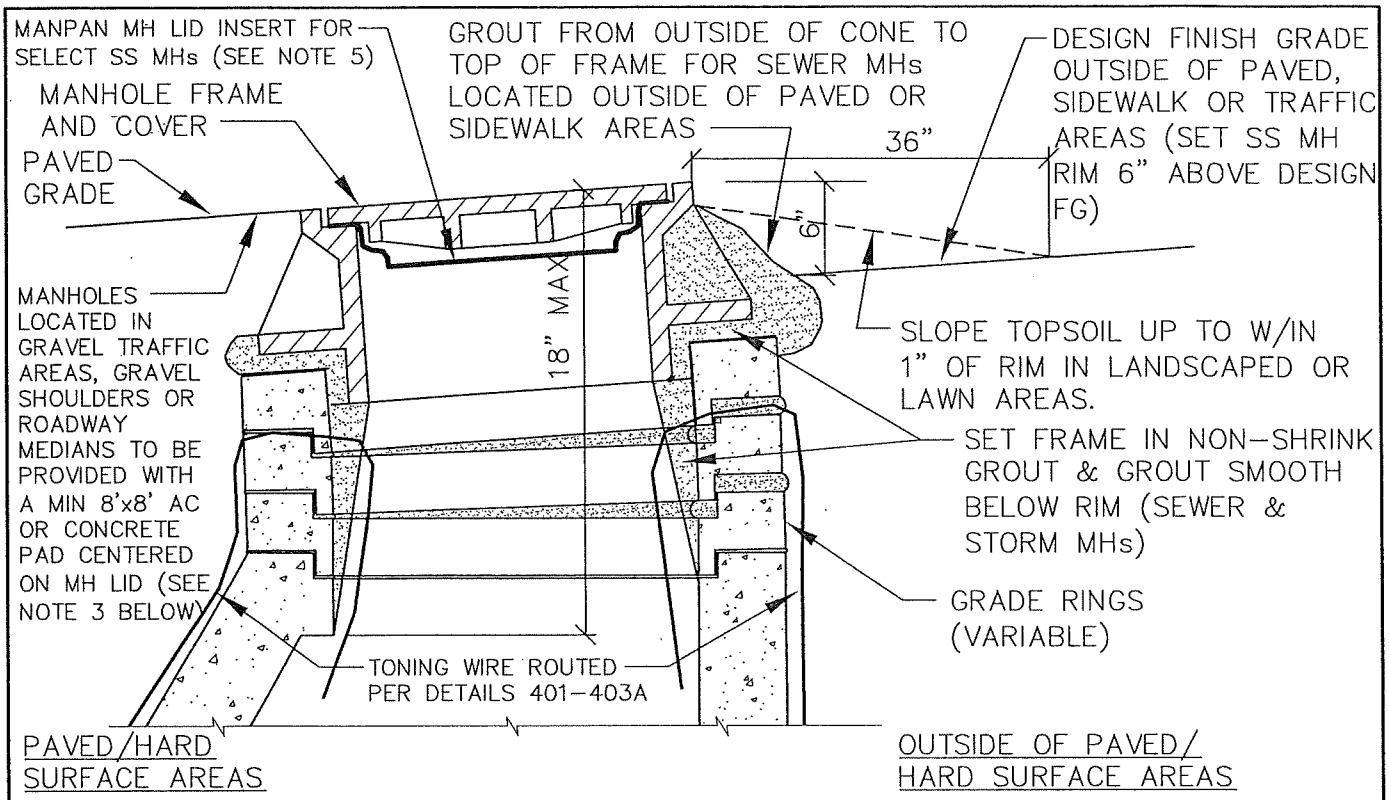
SECTION A–A

INSTALLATION OF FRAME & MH INSERT TO CONFORM WITH DETAIL 407

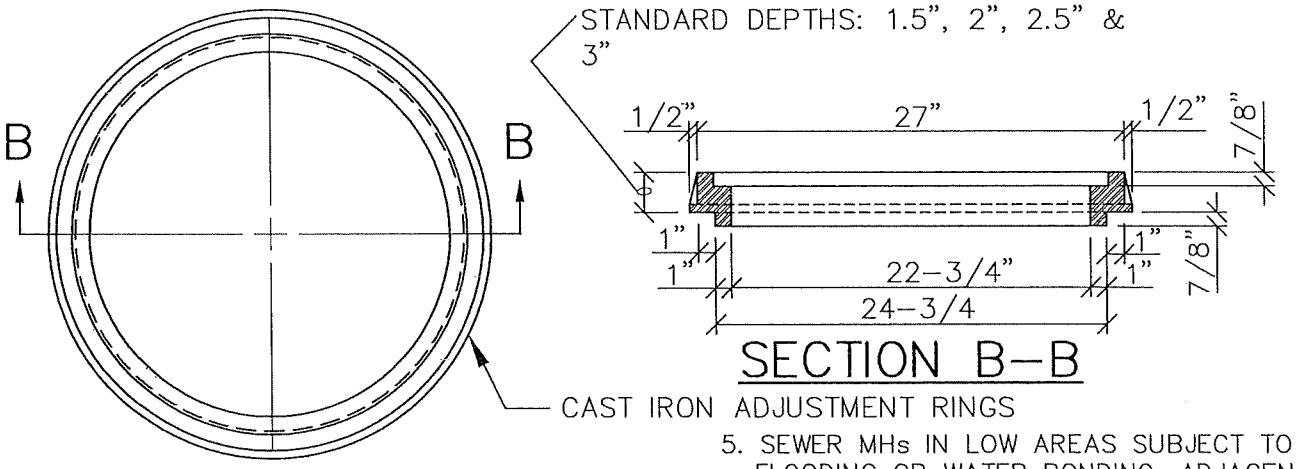
NOTES:

1. COVER AND FRAME TO BE MACHINED TO A TRUE BEARING ALL AROUND.
2. MATERIAL SHALL BE OF GRAY CAST IRON, ASTM A–48, CLASS 30.
3. **LOCKDOWN FRAME & COVER SHALL BE USED ONLY WHERE SPECIFICALLY REQUIRED BY PUBLIC WORKS.**

LAST REVISION DATE: AUG 2018	
LOCKDOWN MANHOLE FRAME AND COVER (NTS)	
INDEPENDENCE, OR	DETAIL NO. 406



TYPICAL MANHOLE GRADE ADJUSTMENT



SECTION B-B

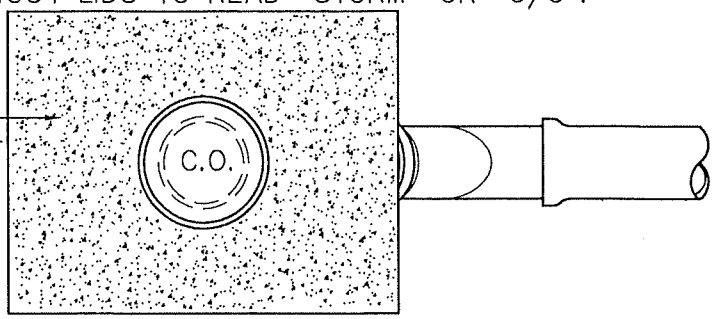
MANHOLE ADJUSTMENT RINGS FOR RESURFACING ONLY

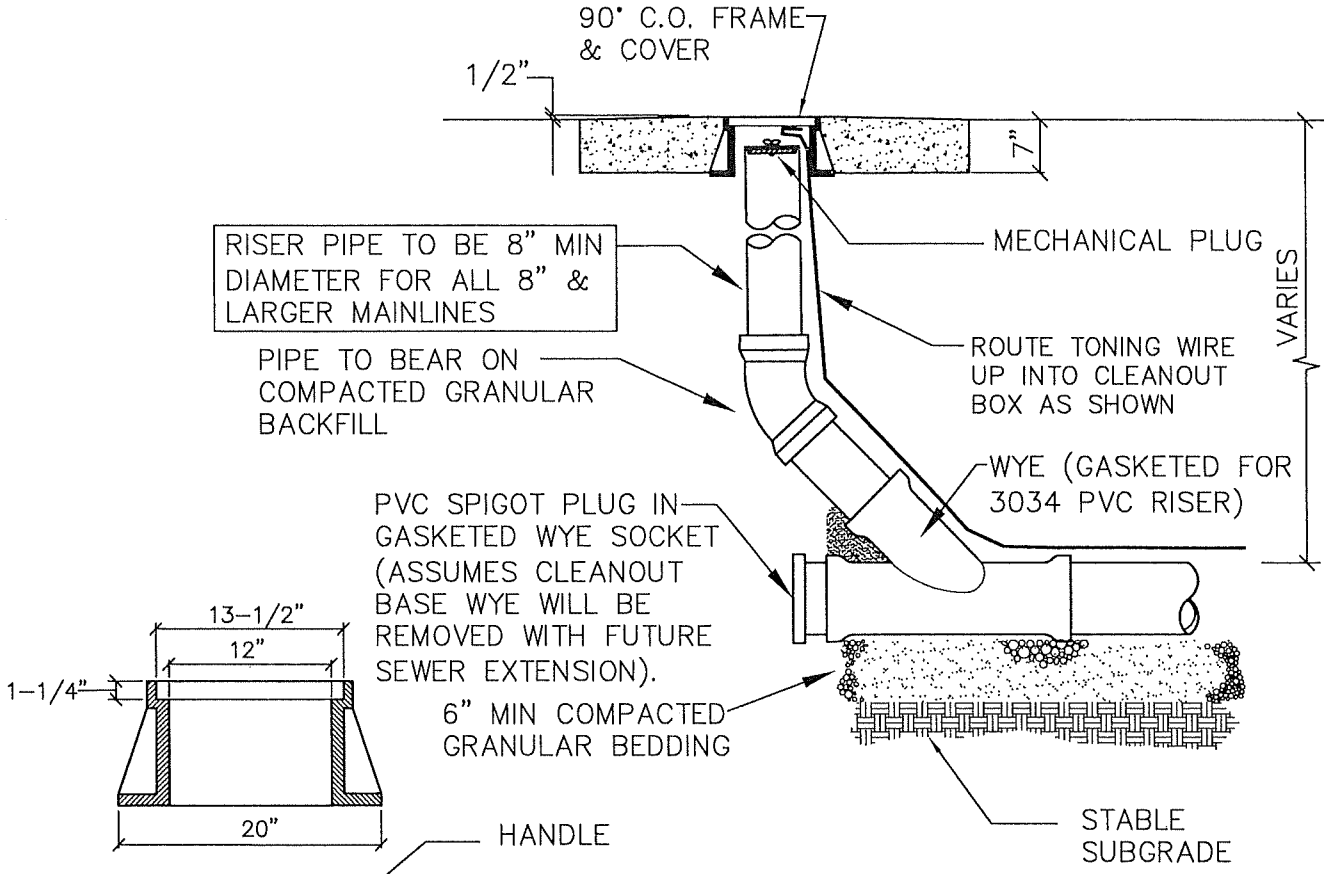
NOTES:

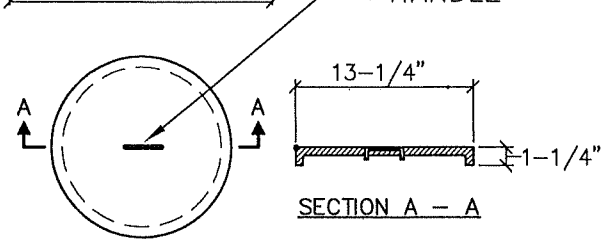
1. CAST IRON ADJUSTMENT RINGS ALLOWED ONLY WITH OVERLAYS AND **NOT ON NEW MANHOLES.** MAXIMUM 1 ADJUSTMENT RING PER MANHOLE.
2. SANITARY SEWER MHs – 2 HOLE LIDS
   STORM DRAIN MHs – 16 HOLE LIDS
3. MH PADS IN UNPAVED TRAFFIC AREAS (OR FLOW CONTROL MH) – 8'x8' MIN SIZE OF (A) 3" MIN. AC OVER 10" COMPACTED BASEROCK (OR PUBLIC ROAD STANDARD THICKNESS IF LOCATED IN R.O.W), OR (B) 8" CONCRETE OVER 2" BACKROCK.
4. MH PADS IN ROAD MEDIAN PLANTER AREAS – 4" CONC (PER DTL 212, 10' MIN SQUARE W/5' SCORING PATTERN).
5. SEWER MHs IN LOW AREAS SUBJECT TO FLOODING OR WATER PONDING, ADJACENT TO CURBLINES OR DITCHES, ETC. SHALL BE PROVIDED WITH INFLOW PROTECTOR LID INSERTS (MAN PAN OR EQUAL). SEE CITY STANDARD CONSTRUCTION NOTES FOR LOCATION CRITERIA.

LAST REVISION DATE: AUG 2022	JO #
MANHOLE RIM ADJUSTMENT DETAILS (SEWER & STORM) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 407

CLEANOUT COVERS: ALL SEWER CLEANOUT LIDS TO READ "SEWER"
ALL STORM CLEANOUT LIDS TO READ "STORM" OR "C/O".







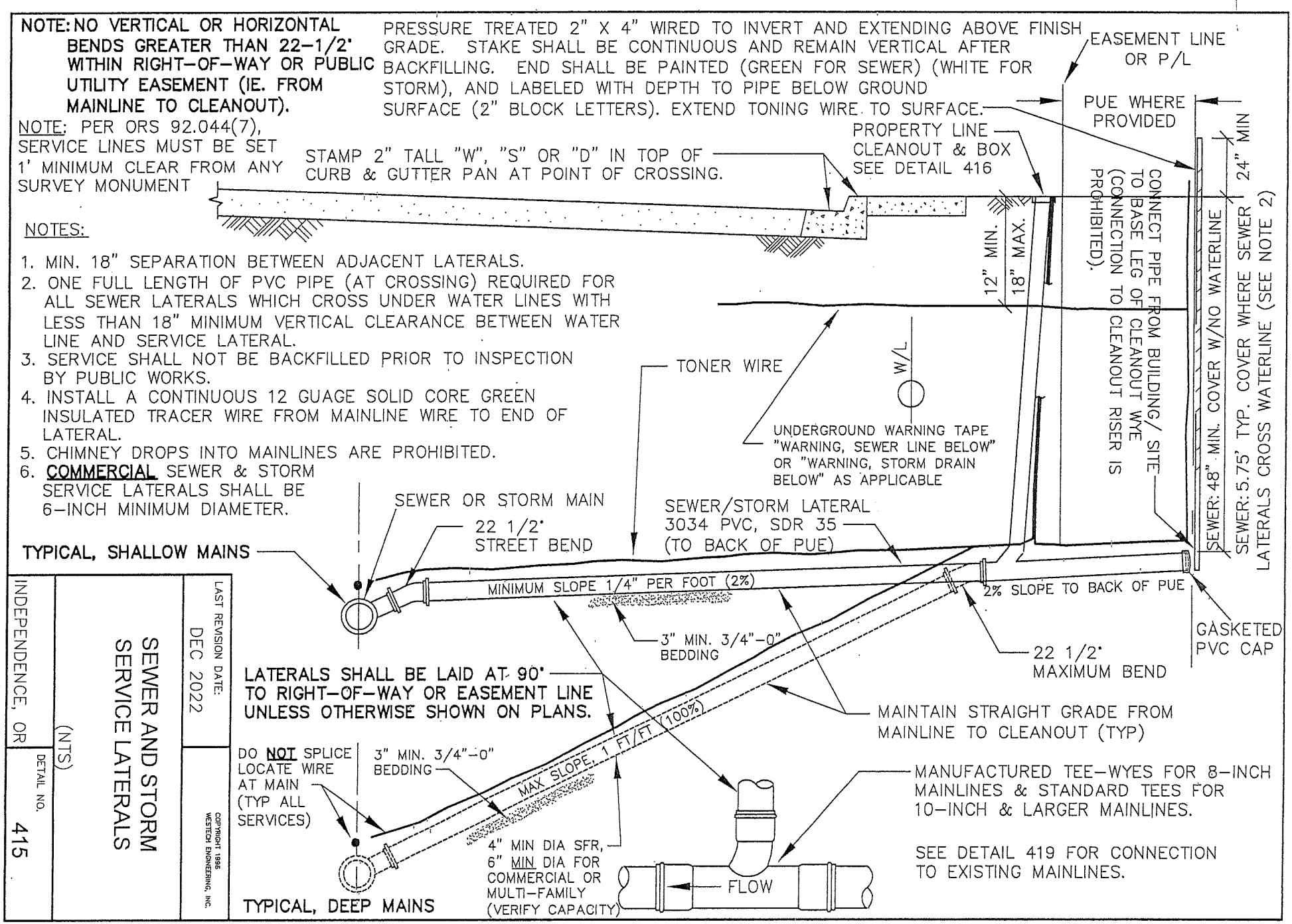
CLEANOUT FRAME & COVER

ALL CONCRETE SHALL BE 3300 PSI @ 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).

NOTES:

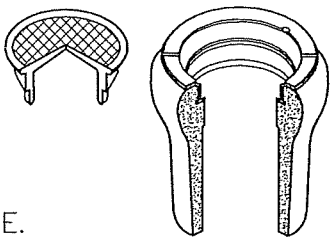
1. USE INLAND FOUNDRY MODEL 240 FRAME & COVER IN ALL AREAS.
2. COVER AND FRAME SHALL BE GRAY CAST IRON ASTM A-48, CLASS 30.
3. COVER AND FRAME TO BE MACHINED TO A TRUE BEARING ALL AROUND.

LAST REVISION DATE: AUG 2020	
MAINLINE CLEANOUT (NTS)	
INDEPENDENCE, OR	DETAIL NO. 411

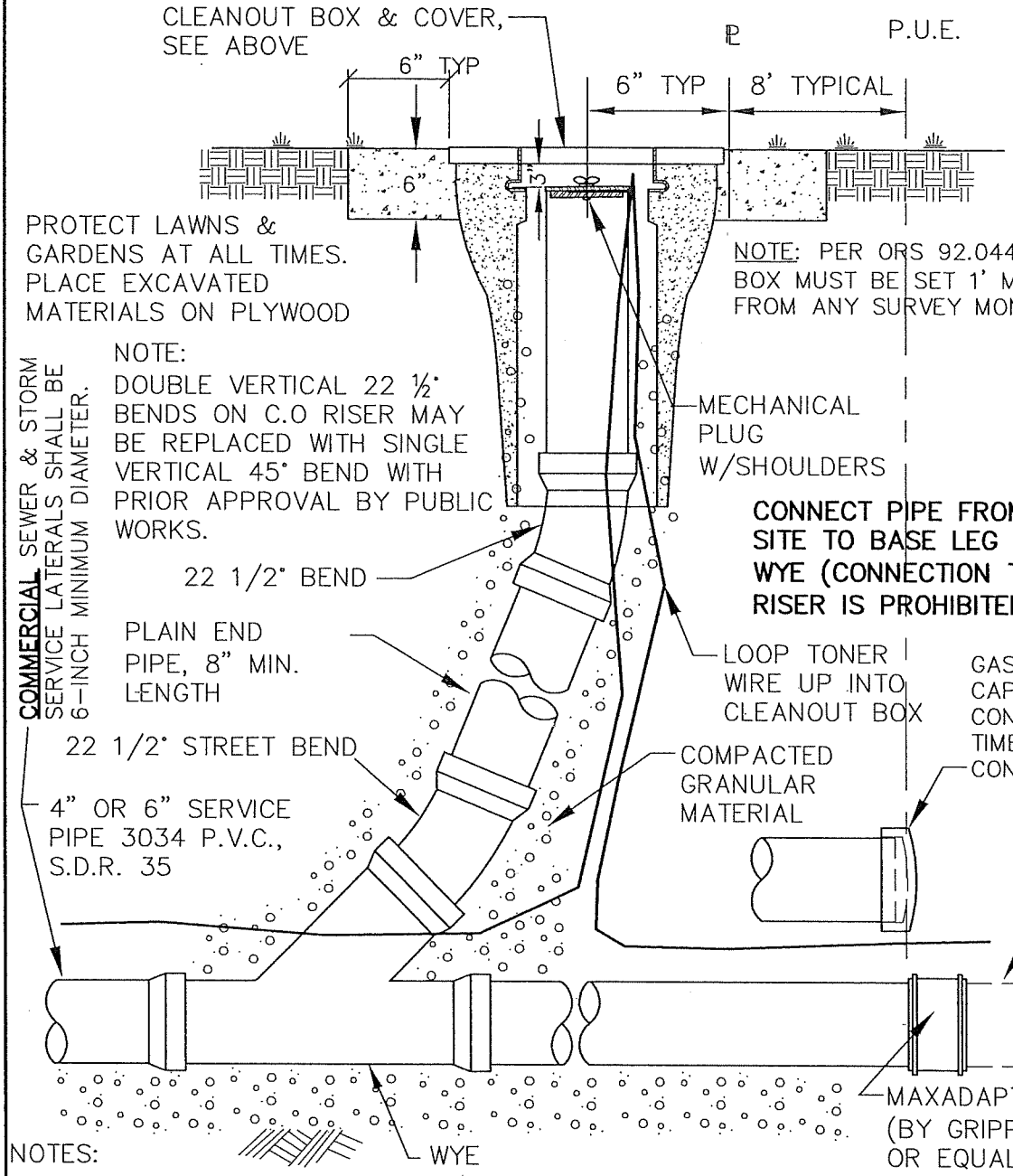

NOTE: NO VERTICAL OR HORIZONTAL BENDS GREATER THAN 22-1/2° WITHIN RIGHT-OF-WAY OR PUBLIC UTILITY EASEMENT (IE. FROM MAINLINE TO CLEANOUT).
NOTE: PER ORS 92.044(7), SERVICE LINES MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT
PRESSURE TREATED 2" X 4" WIRED TO INVERT AND EXTENDING ABOVE FINISH GRADE. STAKE SHALL BE CONTINUOUS AND REMAIN VERTICAL AFTER BACKFILLING. END SHALL BE PAINTED (GREEN FOR SEWER) (WHITE FOR STORM), AND LABELED WITH DEPTH TO PIPE BELOW GROUND SURFACE (2" BLOCK LETTERS). EXTEND TONING WIRE TO SURFACE.
EASEMENT LINE OR P/L
PUE WHERE PROVIDED
PROPERTY LINE CLEANOUT & BOX SEE DETAIL 416
STAMP 2" TALL "W", "S" OR "D" IN TOP OF CURB & GUTTER PAN AT POINT OF CROSSING.
NOTES:
1. MIN. 18" SEPARATION BETWEEN ADJACENT LATERALS.
2. ONE FULL LENGTH OF PVC PIPE (AT CROSSING) REQUIRED FOR ALL SEWER LATERALS WHICH CROSS UNDER WATER LINES WITH LESS THAN 18" MINIMUM VERTICAL CLEARANCE BETWEEN WATER LINE AND SERVICE LATERAL.
3. SERVICE SHALL NOT BE BACKFILLED PRIOR TO INSPECTION BY PUBLIC WORKS.
4. INSTALL A CONTINUOUS 12 GUAGE SOLID CORE GREEN INSULATED TRACER WIRE FROM MAINLINE WIRE TO END OF LATERAL.
5. CHIMNEY DROPS INTO MAINLINES ARE PROHIBITED.
6. COMMERCIAL SEWER & STORM SERVICE LATERALS SHALL BE 6-INCH MINIMUM DIAMETER.
12" MIN.
18" MAX.
CONNECT PIPE FROM BUILDING/ SITE TO BASE LEG OF CLEANOUT WYE (CONNECTION TO CLEANOUT RISER IS PROHIBITED).
24" MIN
SEWER: 48" MIN. COVER W/NO WATERLINE
SEWER: 5.75' TYP. COVER WHERE SEWER LATERALS CROSS WATERLINE (SEE NOTE 2)
TONER WIRE
W/L
UNDERGROUND WARNING TAPE "WARNING, SEWER LINE BELOW" OR "WARNING, STORM DRAIN BELOW" AS APPLICABLE
TYPICAL, SHALLOW MAINS
SEWER OR STORM MAIN
22 1/2° STREET BEND
SEWER/STORM LATERAL 3034 PVC, SDR 35 (TO BACK OF PUE)
MINIMUM SLOPE 1/4" PER FOOT (2%)
2% SLOPE TO BACK OF PUE
GASKETED PVC CAP
3" MIN. 3/4"-0" BEDDING
22 1/2° MAXIMUM BEND
LATERALS SHALL BE LAID AT 90° TO RIGHT-OF-WAY OR EASEMENT LINE UNLESS OTHERWISE SHOWN ON PLANS.
MAINTAIN STRAIGHT GRADE FROM MAINLINE TO CLEANOUT (TYP)
DO NOT SPLICE LOCATE WIRE AT MAIN (TYP ALL SERVICES)
3" MIN. 3/4"-0" BEDDING
MAX SLOPE 1 FT/FT (100%)
4" MIN DIA SFR, 6" MIN DIA FOR COMMERCIAL OR MULTI-FAMILY (VERIFY CAPACITY)
FLOW
MANUFACTURED TEE-WYES FOR 8-INCH MAINLINES & STANDARD TEES FOR 10-INCH & LARGER MAINLINES.
SEE DETAIL 419 FOR CONNECTION TO EXISTING MAINLINES.
TYPICAL, DEEP MAINS
INDEPENDENCE, OR
(NTS)
SEWER AND STORM SERVICE LATERALS
LAST REVISION DATE: DEC 2022
DETAIL NO. 415
COPYRIGHT 1996 WESTECH ENGINEERING, INC.

CLEANOUT COVERS: ALL SEWER CLEANOUT LIDS TO READ "S" or "SEWER"
ALL STORM CLEANOUT LIDS TO READ "STORM" or "CO".

1. ALL AREAS, INCLUDING DRIVEWAYS:
   BROOKS 1–RT BOX & LID
   (FOR CLEANOUTS IN UNPAVED TRAFFIC AREAS OR DRIVEWAYS, SET IN 6" THICK CONCRETE PAD, 3500 PSI CONCRETE)



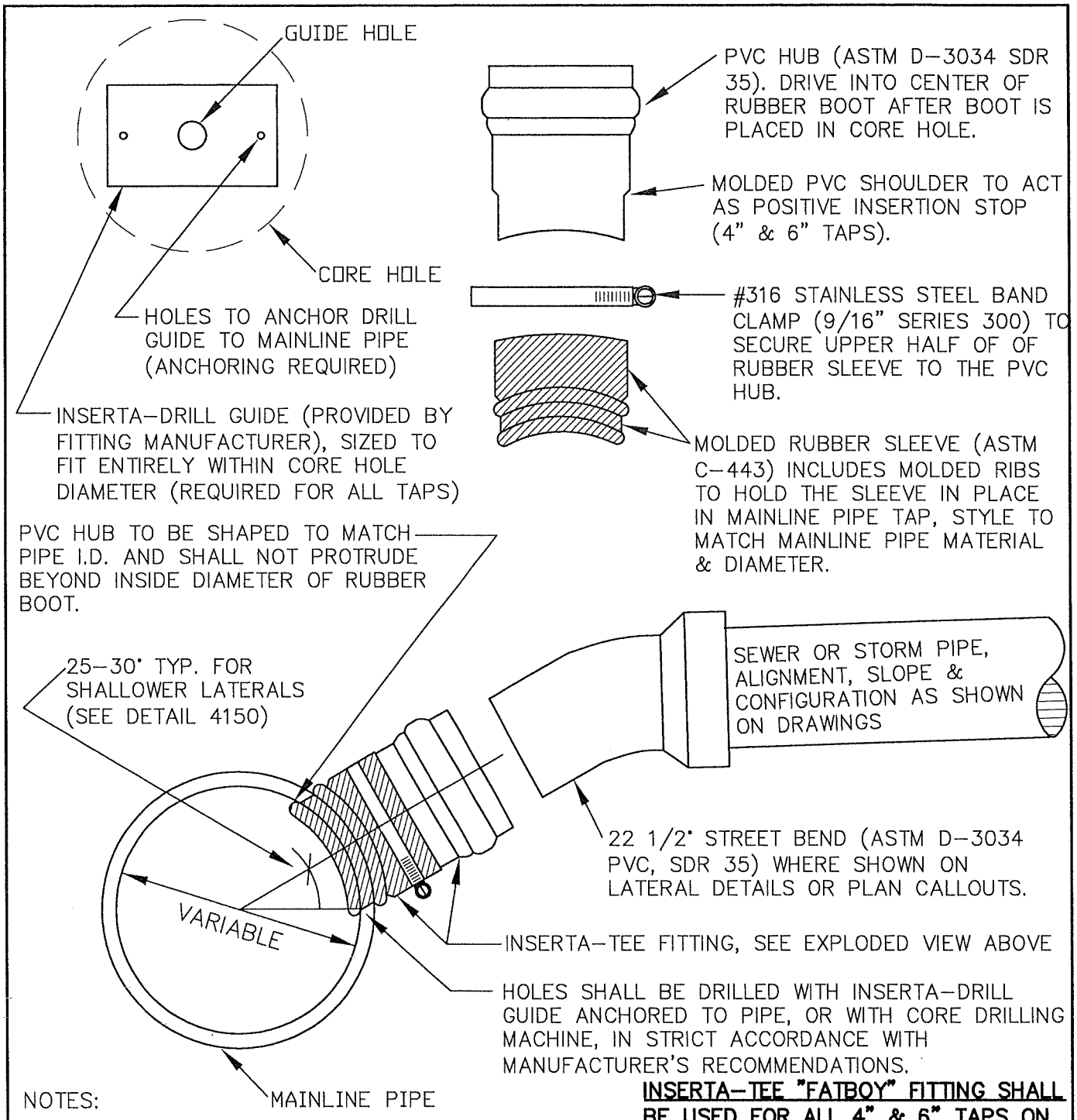
BROOKS 1–RT BOX



NOTES:

1. CLEANOUT RISER SHALL BE SAME SIZE AND MATERIAL AS LATERAL PIPE.
2. CLEANOUT PIPE SHALL BE LEFT A MINIMUM OF 18" ABOVE EXISTING GRADE UNTIL ALL CURBING IS INSTALLED AND ALL PRIVATE UTILITY TRENCHES ARE BACKFILLED. CLEANOUT RISER SHALL THEN BE SET BELOW FINISH GRADE AS SHOWN, AND CLEANOUT BOXES SET FLUSH WITH FINISH GRADE.

LAST REVISION DATE: AUG 2022	
STANDARD SERVICE LATERAL CLEANOUT (SEWER & STORM) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 416



NOTES:

1. EXISTING SANITARY SEWERS – INSERTA-TEES ALLOWED ON EXISTING PVC OR DUCTILE IRON SEWER MAINS. USE ON OTHER PIPE TYPES IS SUBJECT TO CITY APPROVAL AND ACCEPTABLE PIPE CONDITION.
2. EXISTING STORM DRAINS – INSERTA-TEES ALLOWED ON ALL PIPE TYPES, SUBJECT TO CITY APPROVAL AND ACCEPTABLE PIPE CONDITION.
3. NEW MAINLINES – MANUFACTURED FITTINGS (PER DETAIL 415) SHALL BE USED FOR CONNECTION ON ALL NEW SEWER AND STORM MAINLINES.
4. THE TAP SHALL NOT BE MADE EXCEPT IN THE PRESENCE OF A CITY INSPECTOR; NOR SHALL ANY CONNECTION BE MADE WITHOUT PRIOR CITY APPROVAL.
5. CENTERLINE OF TAP SHALL BE ABOVE SPRINGLINE.

INSERTA-TEE "FATBOY" FITTING SHALL BE USED FOR ALL 4" & 6" TAPS ON EXTG PIPE (TV & 95% MANDREL TESTING OF EXISTING MAINLINES AFTER TAP MAY BE REQUIRED AT DISCRETION OF PUBLIC WORKS DIRECTOR).

LAST REVISION DATE:	JO #
AUG 2018	STANDARD

INSERTA-TEE CONNECTION TO EXISTING SEWER OR STORM DRAIN

(NTS)

INDEPENDENCE, OR	DETAIL NO. 419

MANHOLE VACUUM TEST REPORT

Project Location: (City)	Project Name:
Inspector: (Print)	Date: (Separate Report Required for Each Test Session)
Testing Company: (Name & Phone #)	

Manhole No.	Manhole Diameter (inch)	Manhole Depth (ft)	Surface Restoration Complete?	Time Required[3] (sec)	Time to Drop from 10" Hg to 9" Hg (sec)	Results	Comments
			Yes / No			Pass / Fail	
			Yes / No			Pass / Fail	
			Yes / No			Pass / Fail	
			Yes / No			Pass / Fail	
			Yes / No			Pass / Fail	
			Yes / No			Pass / Fail	
			Yes / No			Pass / Fail	
			Yes / No			Pass / Fail	
			Yes / No			Pass / Fail	

1. All adjacent surface restoration shall be completed prior to conducting manhole acceptance tests, including finish paving and final adjustments to grade. Any test conducted prior to completion of surface restoration shall be considered informal, and will not count for acceptance.

2. The vacuum test head seal shall be inflated in accordance with the manufacturer's recommendations, but in all cases the grade rings and casting shall be included in the test. A vacuum of 10-inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to 9-inches.

3. The manhole shall pass if the time for the vacuum reading to drop to 9-inches meets or exceeds the values indicated on the following table. Times for deeper depths as required by the City Engineer. Note: Visible groundwater infiltration or leakage constitutes a failed test.

REQUIRED MANHOLE VACUUM TEST TIMES

Manhole Depth (feet)	Required Time (sec)		
	48-inch diameter	60-inch diameter	72-inch diameter
8	20	26	33
10	25	33	41
12	30	39	49
14	35	46	57
18	40	52	65
20	45	59	73
22	50	65	81

SANITARY SEWER AIR TEST REPORT

Project Location:	Project Name:
Inspector: (Print)	Date: (Separate Report Required for Each Test Session)
TV Inspection Required? Yes / No	Mandrel Testing Completed? Date Completed or Scheduled:
Verify that all sewer laterals and associated cleanouts installed and cleanout risers are visible at or above finish grade? Yes / No	Verify that all franchise utilities which cross sewer laterals have been installed and trenches backfilled? Yes / No

Station (& Manhole #)		Main/ Lateral	Size & Material	Total Length (ft)	C[1]	K[1]	Test Time (Seconds) for Pressure Drop Shown (psi)			Comments
From	To						Required[2]	4.0 - 3.5	3.5 - 2.5	
		Main								Pass / Fail
		Laterals								
		Totals								
		Main								Pass / Fail
		Laterals								
		Totals								
		Main								Pass / Fail
		Laterals								
		Totals								
		Main								Pass / Fail
		Laterals								
		Totals								

[1] For C and K values, see table and formulas on reverse side.
[2] For total C ≤ 1.0, test time (seconds) required = 2 times K
For total C > 1.0, test time (seconds) required = 2 times (K/C)

TEST PROCEDURE

1. Add air slowly to the portion of the pipe installation under test until the internal air pressure is raised to 4.0 psig (or higher pressure as required to address groundwater). *Increase the test pressure by 0.433 psi for each foot of average ground water depth over the exterior crown of the pipe under test, with the maximum test pressure not to exceed 9.0 psi.*
2. Add air slowly until the internal air pressure is raised to 4.0 psig (or higher pressure as required due to groundwater).
3. After required test pressure is reached, allow 2-minutes minimum for air temperature to stabilize, adding only the amount of air required to maintain pressure.
4. After the temperature stabilization period, disconnect the air supply.
5. Record the time required for the internal air pressure to drop from 3.5 psi (or higher as required due to groundwater backpressure) to 2.5 psi (or higher as required due to groundwater backpressure). If this time exceeds the required time (or if there is less than 1.0 psi pressure drop), the test is successful.

ACCEPTANCE: The tested sewer section shall be considered acceptable if the pressure drop during the test time is less than 1.0 psi from the starting pressure.

SEWER AIR TEST C AND K VALUES

Pipe Size (inch)	C-Value[1] per foot length	K-Value[2] per foot length
4	0.00155	0.176
6	0.00233	0.396
8	0.00311	0.704
10	0.00388	1.100
12	0.00466	1.584
15	0.00582	2.475
18	0.00699	3.564
21	0.00815	4.851

[1] $C = 0.0003882dL$ Where d = diameter (inches)
[2] $K = 0.011d^2L$ L = Length (ft)

Example:

Air Test a system consisting of two mainline segments as follows:
Segment 1: 395 feet of 8-inch mainline, 100 feet of 4-inch laterals, and 35 feet of 6 inch laterals.
Segment 2: 200 feet of 8-inch mainline, 30 feet of 4-inch laterals, and 20 feet of 6 inch laterals.

Station (& Manhole #)		Main/ Lateral	Size & Material	Total Length (ft)	C[1]	K[1]	Test Time (Seconds) for Pressure Drop Shown (psi)			Comments
From	To						Required[2]	4.0 - 3.5	3.5 - 2.5	
0+00 MH A1	3+95 MH A2	Main	8" PVC	395	1.227	278.1	310/1.46= 212			Pass / Fail
		Laterals	4" PVC 6" PVC	100 35	0.155 0.082	17.6 13.86	212*2= 414 sec			
		Totals			1.464	309.54				
3+95 MH A2	5+95 MH A3	Main	8" PVC	200	0.621	140.8	2*154= 308 sec			Pass / Fail
		Laterals	4" PVC 6" PVC	20 30	0.047 0.047	5.28 7.92				
		Totals			0.714	154.0				

Note: For total C □ 1.0, test time (seconds) required = 2 times K
For total C > 1.0, test time (seconds) required = 2 times (K/C)

The tested sewer section shall be considered acceptable when tested as described herein if the section under test does not loose air at a rate greater than 0.0015 cfm per square foot of internal sewer surface.

SANITARY SEWER MANDREL TEST REPORT

Project Location: (City)	Project Name:
Inspector: (Print)	Date: (Separate Report Required for Each Test Session)
Mandrel Diameters Verified? Yes / No	

Station (& Manhole #)		Size & Material	Length (ft)	Results	Backfill Compaction Completed?	Date Sewer Flushed & Cleaned	Comments
From	To						
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		
				Pass / Fail	Yes / No		

1. Mandrel testing shall conducted on a manhole to manhole (or cleanout) basis and shall be done after the line has been completely flushed out with water.

2. Mandrel testing shall be conducted after trench backfill and compaction has been completed.

3. The mandrel diameter shall be 95% of the pipe initial inside diameter. The inspector shall verify the diameter of each mandrel used during each test session.

SEWER PIPELINE TV INSPECTION REPORT *(sample only)*

Page ___ of ____

Date:	Client: City:					Basin No.	
Technician:	Inspector:		Weather:	Cleaned By:		Report No.	Tape No.
From M.H. #: Street:	Pipe Dia. (in)	Joint Length (ft)	Section Length (ft)	Joint Type:	Pipe Material	To M.H. #: Street:	

PIPELINE DATA;

Cleanliness: _____

Alignment: _____

Grade: _____

Age: _____

%Est. Leaking Joints: _____

Other:_____

_____

Footage	Problem Code	Comments	I/I (gpm)

PROBLEM CODE LEGEND:

BP = Broken Pipe
CC = Circumferential Crack
LC = Longitudinal Crack
G = Break in Grade
L = Leak
PJ = Pulled Joint
PT = Protruding Tap
ST = Service Tap
SL = Service Left
SR = Service Right
RT = Roots
U = Unpassable

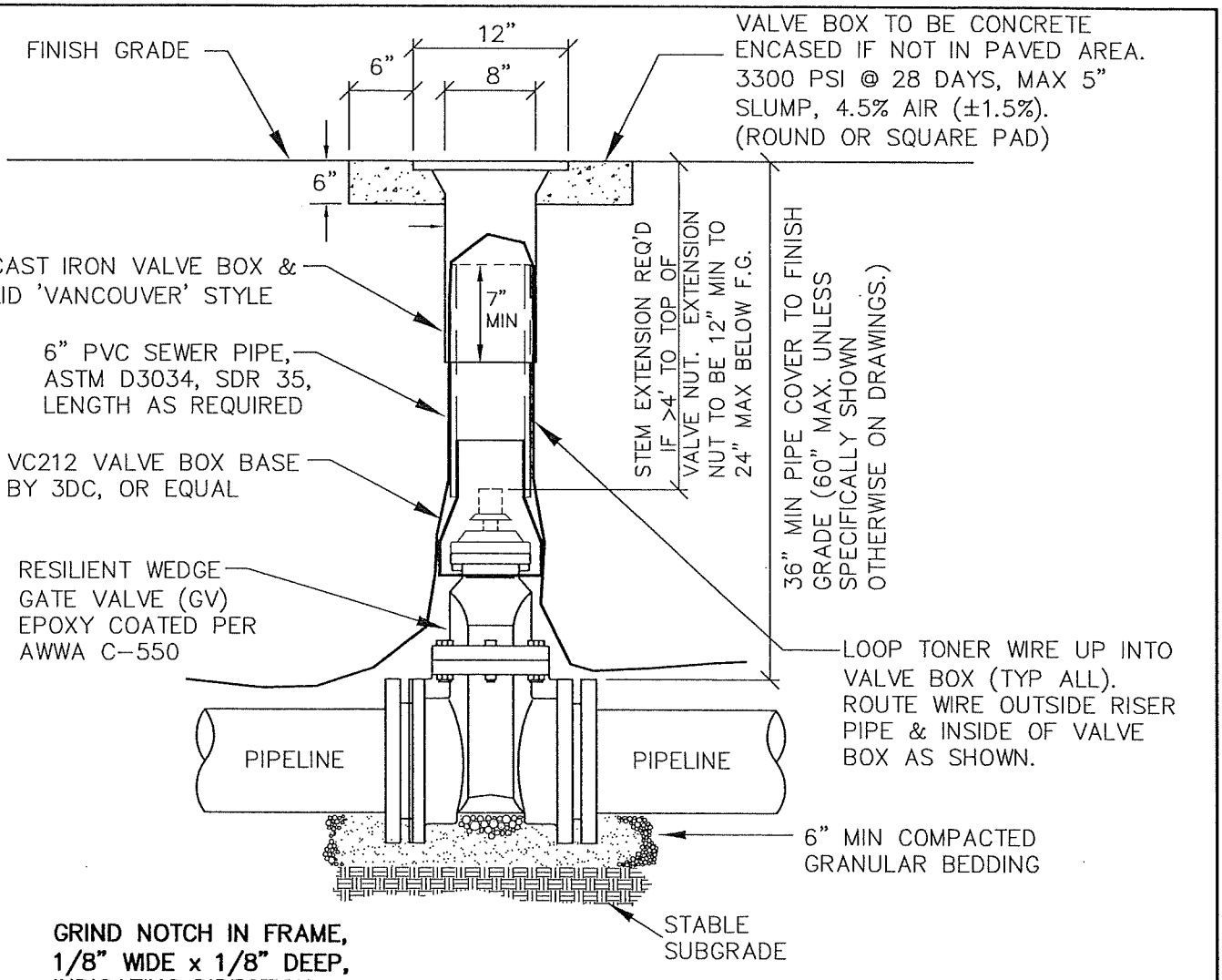
PIPE MATERIAL **LEGEND:**

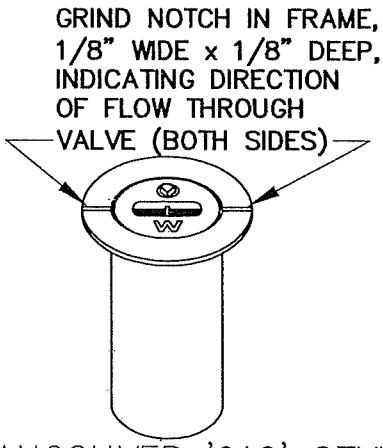
AC = Asbestos Cement
CIP = Cast Iron Pipe
C(M) = Conc., Mortor Joint
C(R) = Conc., Rubr. Gasket Jnt
DI = Ductile Iron Pipe
PVC = Polyvinylchloride Pipe
TC = Terra Cotta
VC = Vitrified Clay

TURNAROUND:

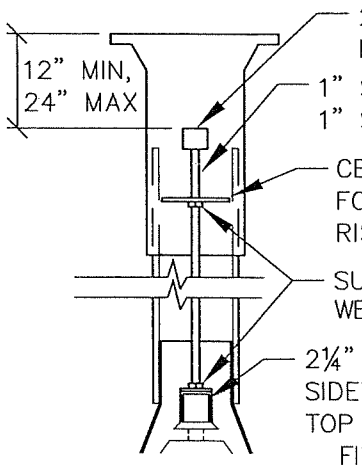
Requested (Date/time):_____

Authorized (Date/time):





VANCOUVER '910' STYLE
18" TALL VALVE BOX



STEM EXTENSION

NOTES:

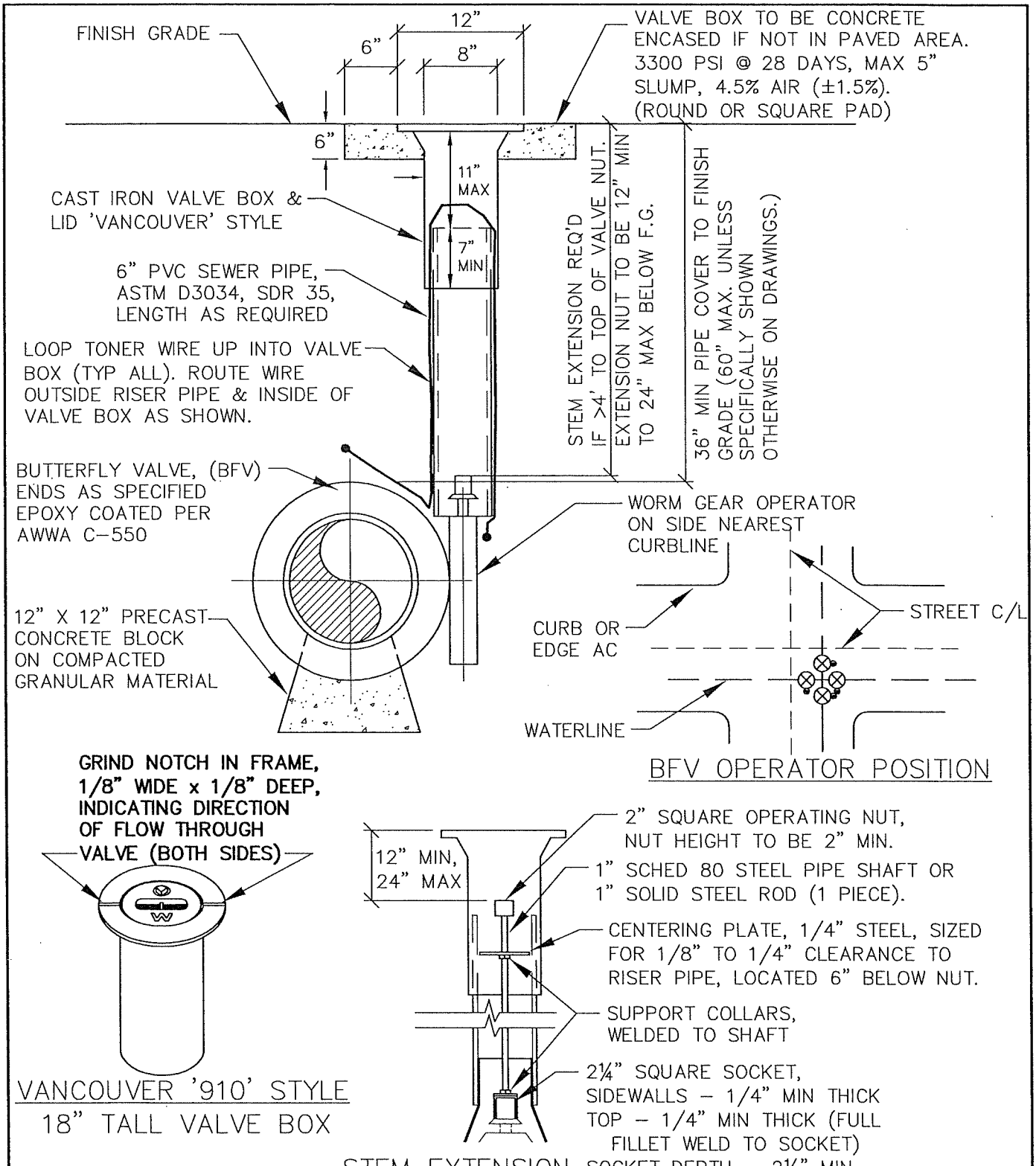
1. GV SHALL CONFORM TO AWWA C-509.
2. VALVE BOXES SHALL BE PLUMB AND CENTERED DIRECTLY OVER THE VALVE NUT, INSTALLED ON VALVE BOX BASE AS SHOWN.
3. VALVE BOX TOP SHALL BE ADJUSTED TO FINISHED GRADE.
4. PVC SHALL BE ONE CONTINUOUS PIECE, NO BELLS OR COUPLERS.
5. VALVE BOX LIDS ON PRESSURE SEWERS TO READ "S" OR "SEWER".
6. COMPLETELY CLEAN OUT ALL VALVE BOX COVER PICKHOLES PRIOR TO REQUESTING FINAL INSPECTION.

LAST REVISION DATE:	JO #
DEC 2022	STANDARD

GATE VALVE AND VALVE BOX DETAIL

(NTS)

	DETAIL NO.
INDEPENDENCE, OR	501



NOTES:

1. BFV SHALL BE SHORT BODY TYPE B PER AWWA C-504.
2. VALVE BOXES SHALL BE PLUMB AND CENTERED DIRECTLY OVER THE VALVE NUT.
3. VALVE BOX TOP SHALL BE ADJUSTED TO FINISHED GRADE.
4. PVC SHALL BE ONE CONTINUOUS PIECE, NO BELLS OR COUPLERS.
5. BFV ACTUATOR TO BE LOCATED ON THE CURBLINE SIDE OF WATERLINE AS SHOWN. INSTALL DI SPOOLS OR FLEX ADAPTER IF REQUIRED FOR ACTUATOR CLEARANCE.
6. COMPLETELY CLEAN OUT ALL VALVE BOX COVER PICKHOLES PRIOR TO REQUESTING FINAL INSPECTION.

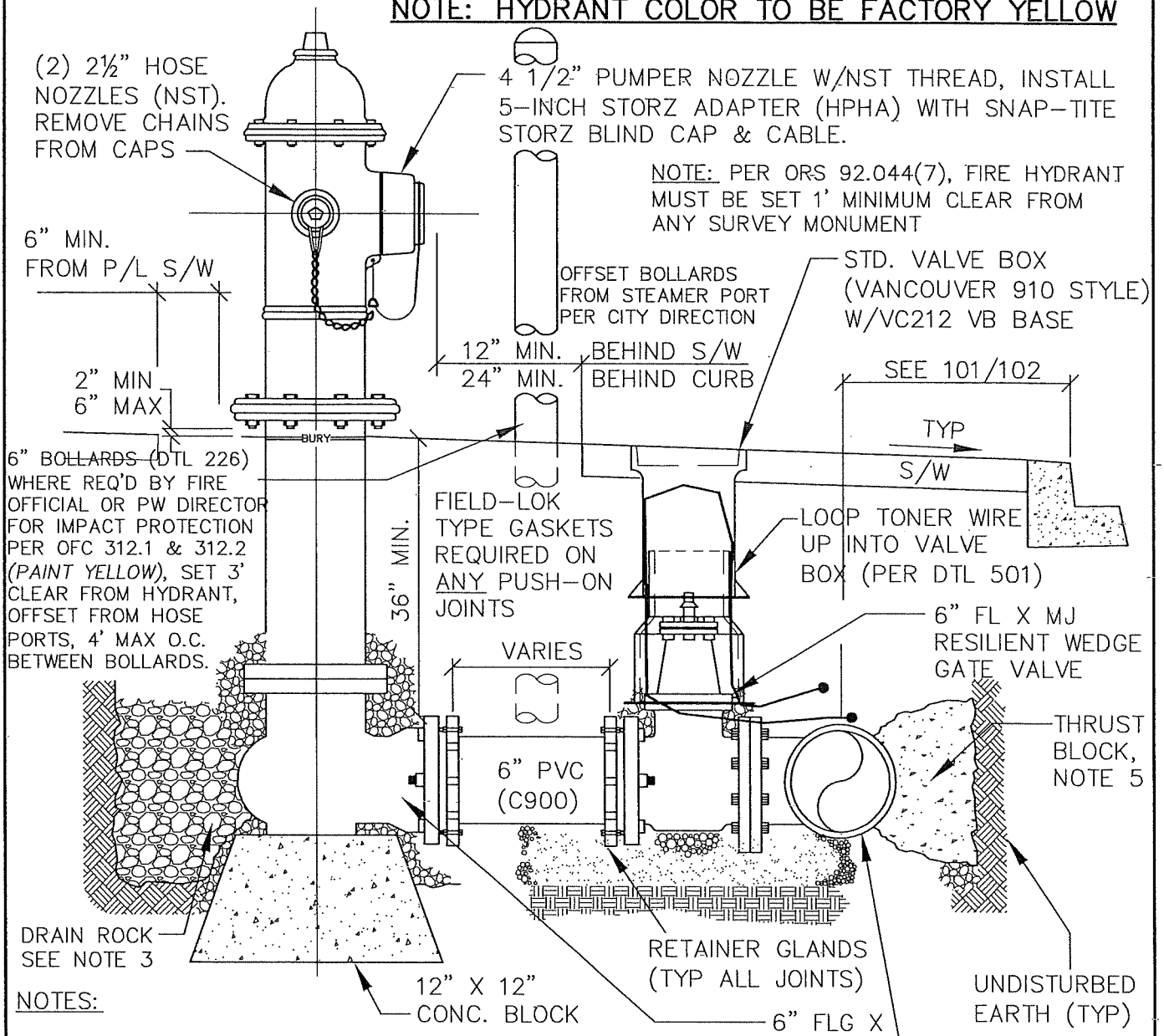
LAST REVISION DATE:	JO #
DEC 2022	STANDARD

BUTTERFLY VALVE AND VALVE BOX DETAILS

(NTS)

INDEPENDENCE, OR	DETAIL NO. 502

NOTE: HYDRANT COLOR TO BE FACTORY YELLOW



NOTES:

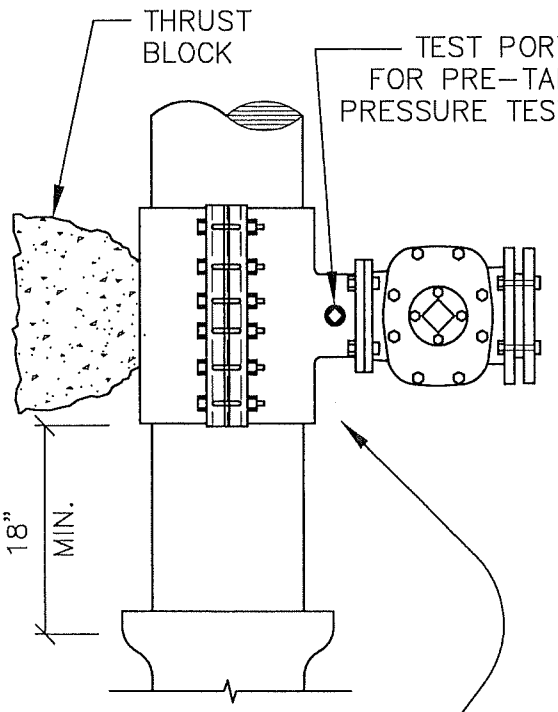
1. HYDRANTS TO BE WATEROUS PACER WITH FULL SIZE (5¼") FOOT VALVE.
2. **ALL FITTINGS IN CONTACT WITH CONCRETE SHALL BE WRAPPED IN PLASTIC.** HYDRANT DRAIN HOLES TO REMAIN OPEN TO DRAIN ROCK AND OPERATIONAL.
3. 1-1/2" TO 3/4" CLEAN DRAIN ROCK SHALL BE PLACED TO A MIN. OF 6" ABOVE DRAIN OUTLET.
4. WHERE PLANTER STRIP EXISTS, HYDRANT SHALL BE PLACED SO FRONT PORT IS A MIN. OF 24" BEHIND FACE OF CURB.
5. THRUST BLOCK AT STANDARD 6" FIRE HYDRANT TEE SHALL HAVE MIN. 3.7 SQ. FT. BEARING AREA.
6. ALL HYDRANTS SHALL BE SET PLUMB.
7. FOR HYDRANT LEADS LONGER THAN 30', AN ADDITIONAL GATE VALVE SHALL BE PROVIDED WITHIN 3 FT. OF THE HYDRANT.
8. RESTRAIN ALL JOINTS ON ALL HYDRANT LEADS. RETAINER GLANDS SHALL TO BE USED IN LEIU OF THRUST BLOCK BEHIND HYDRANT.
9. PAINT CURB (TOP & FACE) RED 10 FEET EACH WAY FROM HYDRANT & INSTALL REFLECTIVE BLUE TRAFFIC MARKER @ STREET CENTERLINE.

LAST REVISION DATE: SEPT 2022	

STANDARD FIRE HYDRANT ASSEMBLY

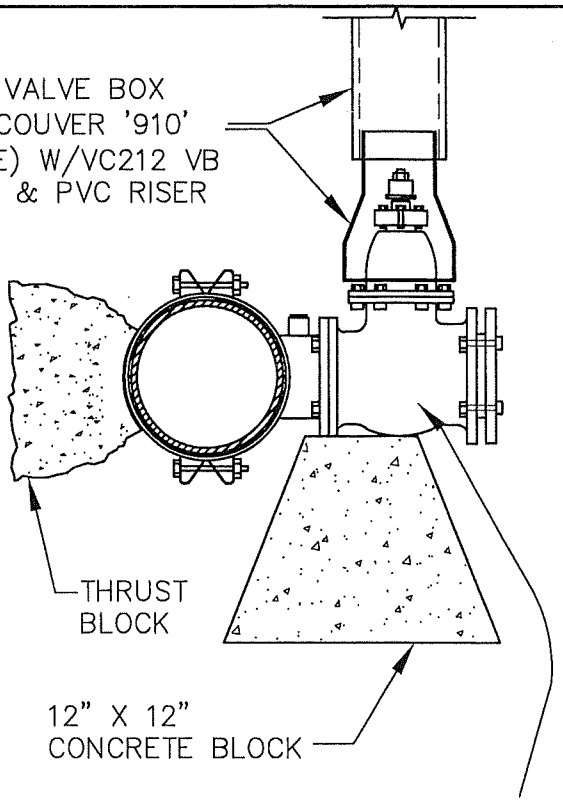
(NTS)

INDEPENDENCE, OR	DETAIL NO. 503



ROMAC SST/SSTIII, MUELLER H304, JCM MODEL 432 OR APPROVED EQUAL (STAINLESS STEEL SLEEVE AND STAINLESS STEEL FLANGE)

TOP VIEW



RESILIENT WEDGE GATE VALVE (FL x MJ UNLESS OTHERWISE NOTED ON PLANS)

SIDE VIEW

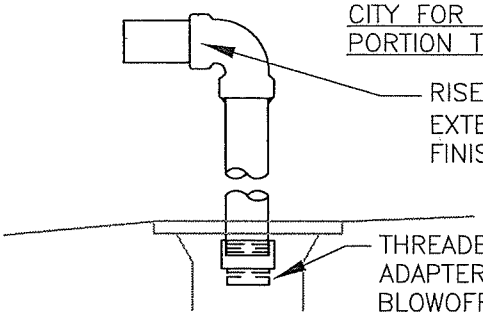
NOTES:

1. WATER MAIN SHALL BE CLEANED & SPRAYED WITH CHLORINE SOLUTION IN TAP AREA BEFORE ATTACHING SLEEVE.
2. TAPPING SLEEVE SHALL BE ALL STAINLESS STEEL WITH FULL PERIMETER GASKET.
3. TAPPING VALVE SHALL BE EPOXY COATED PER AWWA C-550.
4. PRE-TAP PRESSURE TEST. SLEEVE AND VALVE SHALL BE PRESSURE TESTED BEFORE MAKING TAP. PRESSURE TEST AND TAP SHALL BE MADE IN THE PRESENCE OF AN AUTHORIZED WATER SYSTEM REPRESENTATIVE.
5. APPROVED TAPPING MACHINE SHALL BE USED TO MAKE TAP.
6. 3/4" GRANULAR BACKFILL SHALL BE PLACED AND COMPACTED TO 92% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
7. THRUST BLOCKING PER DETAIL 510.
8. TAP SHALL BE MADE NO CLOSER THAN 18" FROM THE NEAREST JOINT.
9. **SLEEVE AND VALVE SHALL BE WRAPPED WITH 8 MIL PLASTIC PRIOR TO CONCRETE PLACEMENT.**
10. CONCRETE BLOCK(S) SHALL COMPLETELY SUPPORT TAPPING TEE AND VALVE.
11. CONTRACTOR SHALL COORDINATE ALL TAPS WITH CITY AND PERFORM ALL TAPS WITH PUBLIC WORKS STAFF PRESENT.
12. ALL TAPPING EQUIPMENT (AND ANY TOOL COMING IN CONTACT WITH THE PIPE THOUGH THE TAPPING SLEEVE) SHALL BE CHLORINE DISINFECTED WITH A 300 MG/L CHLORINE SOLUTION.

LAST REVISION DATE: SEPT 2018	
TAPPING TEE AND VALVE (NTS)	
INDEPENDENCE, OR	DETAIL NO. 505

BLOW-OFF SIZES REQUIRED (ASSUMES 40 PSI RESIDUAL PRESS.)	
MAIN SIZE	BLOW-OFF SIZE
6" – 8"	2"
10" – 12"	4"
>12"	BY ENGR.

PROVIDE ONE RISER ASSEMBLY TO CITY FOR EACH 3 BLOWOFFS OR PORTION THEREOF.

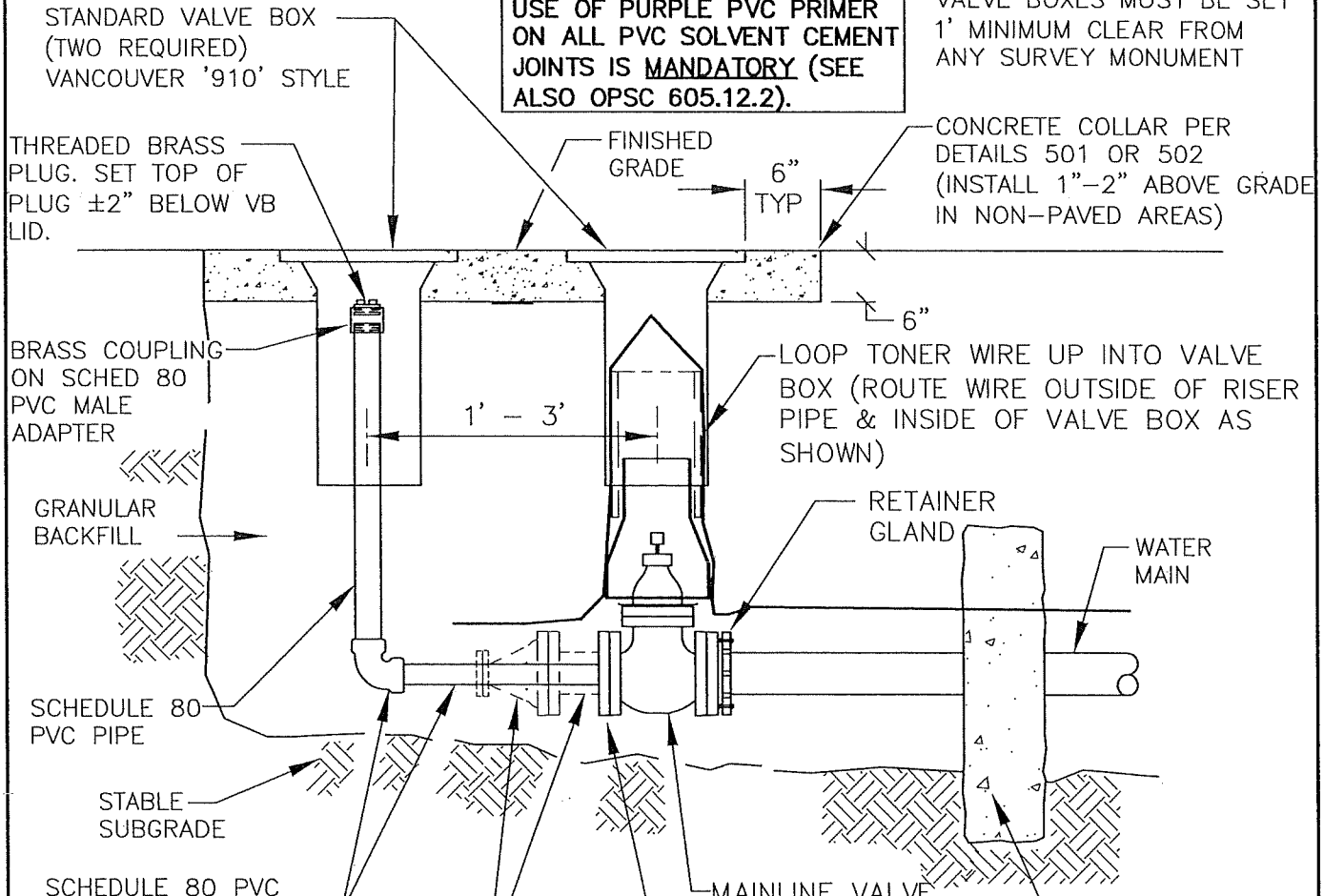


RISER ASSEMBLY

(BY CONTRACTOR)

USE OF PURPLE PVC PRIMER ON ALL PVC SOLVENT CEMENT JOINTS IS MANDATORY (SEE ALSO OPSC 605.12.2).

NOTE: PER ORS 92.044(7), VALVE BOXES MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT



ALL CONCRETE SHALL BE 3300 PSI @ 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).

NOTES:

1. BACKFILL WITH GRANULAR BACKFILL.
2. REQUIRED ON ALL LINES WHICH MAY BE EXTENDED IN FUTURE OR AS DIRECTED BY CITY ENGINEER.
3. ALL CONCRETE TO BE 3500 PSI @ 28 DAYS.
4. FLANGED DUCTILE IRON PIPE AND FITTINGS MAY BE REQUIRED FOR 4" & LARGER BLOWOFFS.

LAST REVISION DATE: AUG 2022

MAINLINE BLOWOFF ASSEMBLY

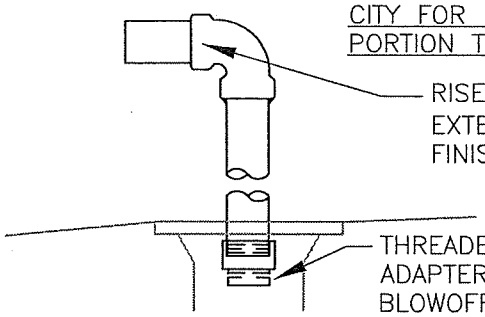
(NTS)

INDEPENDENCE, OR

DETAIL NO. 506

PROVIDE ONE RISER ASSEMBLY TO CITY FOR EACH 3 BLOWOFFS OR PORTION THEREOF.

NOTE: PER ORS 92.044(7), VALVE BOXES MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

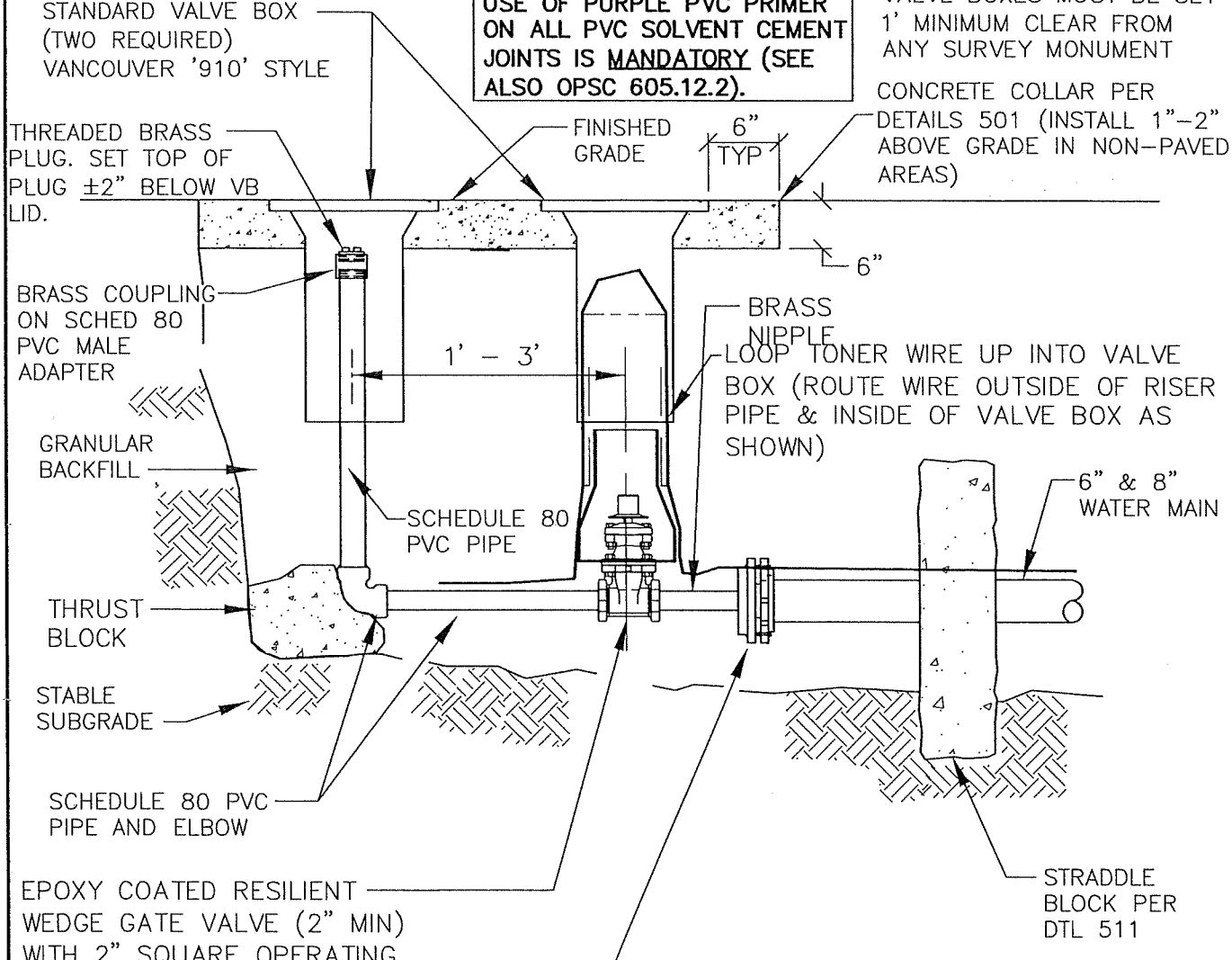


RISER ASSEMBLY

(BY CONTRACTOR)

USE OF PURPLE PVC PRIMER ON ALL PVC SOLVENT CEMENT JOINTS IS MANDATORY (SEE ALSO OPSC 605.12.2).

NOTE: PER ORS 92.044(7), VALVE BOXES MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

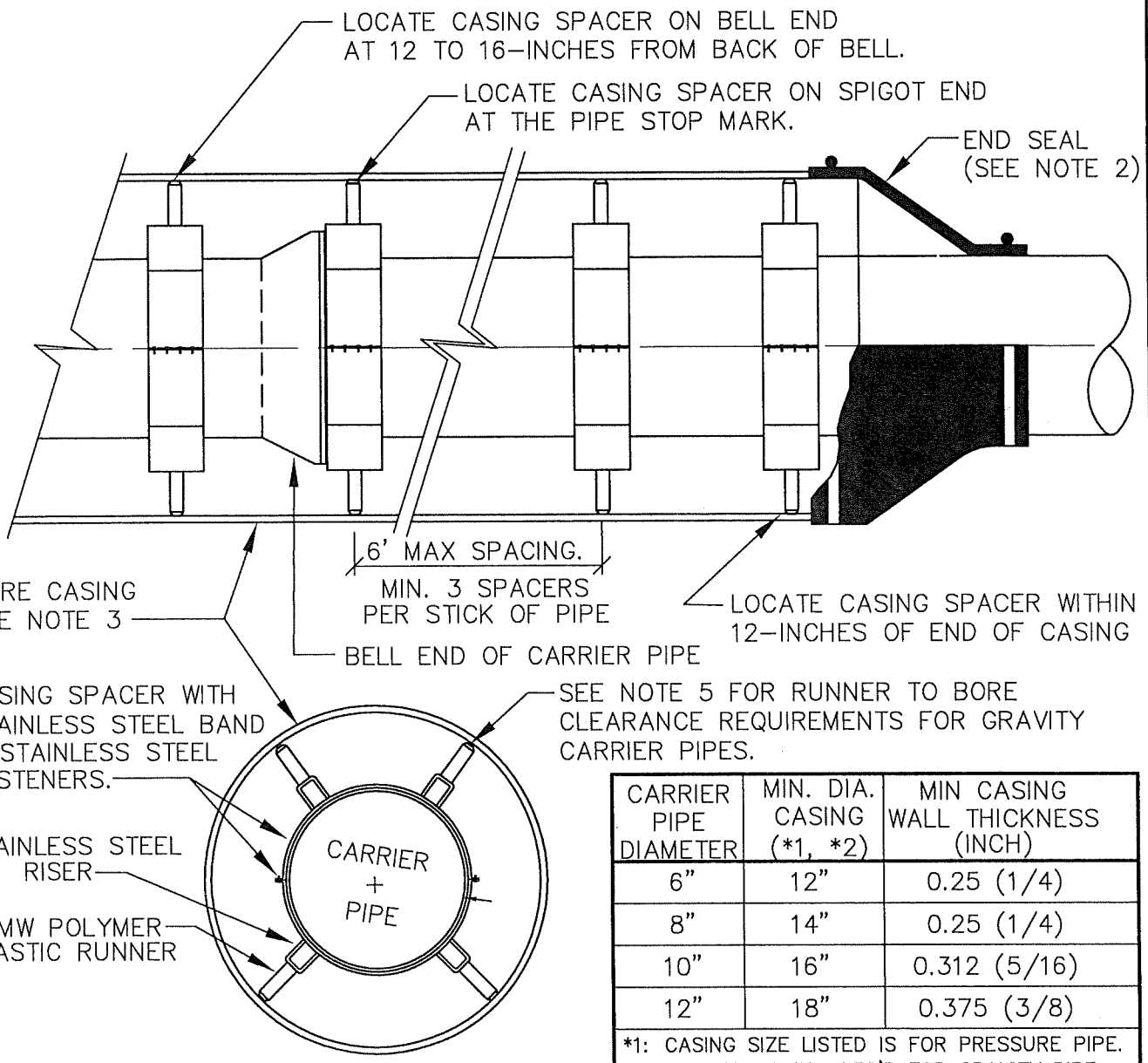


ALL CONCRETE SHALL BE 3300 PSI @ 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).

NOTES:

1. BACKFILL WITH GRANULAR BACKFILL.
2. ALLOWED ONLY ON PERMANENT DEAD END LINES IN CUL–DE–SACS WHICH CANNOT BE EXTENDED IN THE FUTURE.
3. ALL CONCRETE TO BE 3500 PSI @ 28 DAYS.
4. 2" BLOWOFF SIZE ASSUMES 40 PSI RESIDUAL PRESSURE.

LAST REVISION DATE: AUG 2022	
STANDARD BLOWOFF WITH PLUGGED END (NTS)	
INDEPENDENCE, OR	DETAIL NO. 507



CARRIER PIPE DIAMETER	MIN. DIA. CASING (*1, *2)	MIN CASING WALL THICKNESS (INCH)
6"	12"	0.25 (1/4)
8"	14"	0.25 (1/4)
10"	16"	0.312 (5/16)
12"	18"	0.375 (3/8)

*1: CASING SIZE LISTED IS FOR PRESSURE PIPE. LARGER DIA CASING REQ'D FOR GRAVITY PIPE.
*2: SEE PWDS 5.8.m FOR GRAVITY PIPE CASING SIZE REQUIREMENTS OR LARGER CASING SIZES.

NOTES:

1. CASING SPACERS – APS MODEL SSI, CALPICO M–SS SERIES OR APPROVED EQUIV. 4"–18" CARRIER PIPE, USE 8" WIDE BAND. >18" CARRIER PIPE, USE 12" WIDE BAND.
2. SEAL BOTH ENDS OF BORE CASING WITH END SEALS. WITHOUT SAND FILL, USE APS MODEL AZ OR APPROVED EQUIV. FASTEN TO CASING AND CARRIER PIPE WITH ST. STEEL BANDS. WITH SAND FILL, USE GROUT END CAPS (PLUG VENT TUBES AFTER SAND FILL)
3. CASING SHALL BE WELDED SMOOTH STEEL PIPE CONFORMING TO ASTM A–53, GRADE B OR APPROVED EQUIVALENT (Fy = 35,000 psi).
4. CARRIER PIPE DIAMETER & MATERIAL AS PER DWGS.
5. FOR GRAVITY SEWER OR STORM CARRIER PIPES, THE CASING ANNULAR SPACE SHALL BE COMPLETELY FILLED WITH SAND TO PREVENT FLOATATION OF CARRIER PIPE BY GROUNDWATER.
6. CARRIER PIPE SHALL BE COMPLETELY FILLED WITH WATER PRIOR TO INSTALLING OR BLOWING SAND.
7. INCREASE CASING DIA AS REQ'D TO ALLOW TRIMMING OF CASING SPACERS ON GRADE CRITICAL BORES

LAST REVISION DATE:	
AUG 2018	

BORE CASING, CARRIER PIPE AND CASING SPACER DETAIL

(NTS)

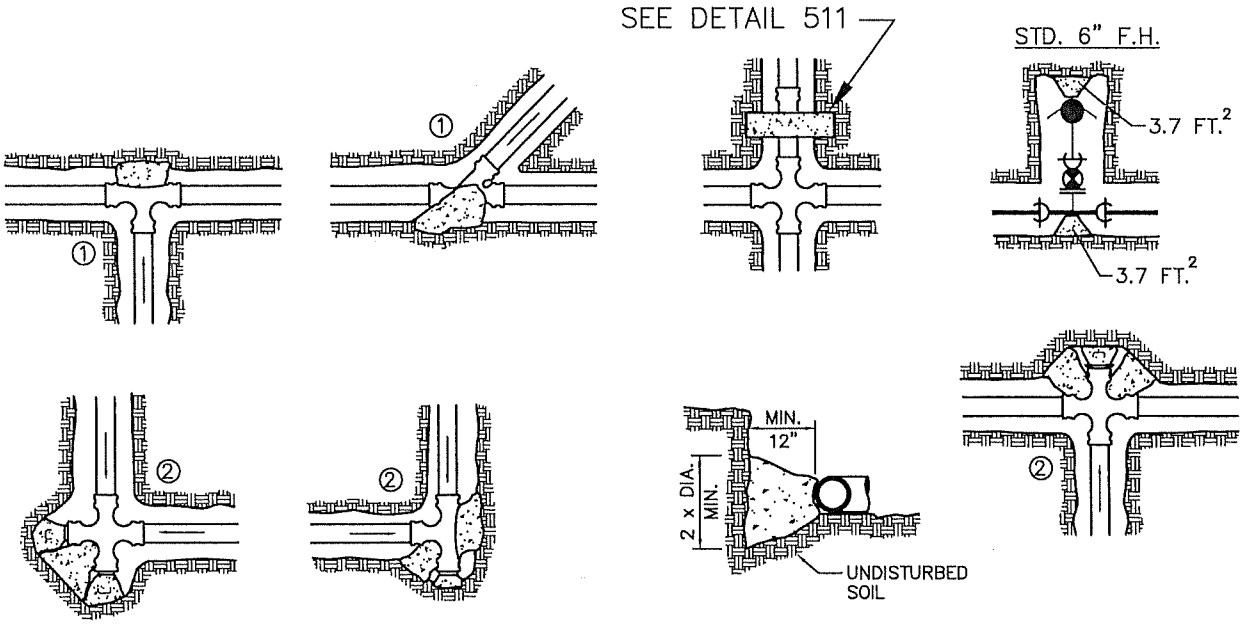
INDEPENDENCE, OR	DETAIL NO. 508

FITTING SIZE (Inches)	TEE, WYE, & ① HYDRANTS	90° BEND ② PLUGGED CROSS TEE PLUGGED–RUNS	45° BEND ③	22 1/2° BEND ③	11 1/4° BEND ③
2	*	*	*	*	*
4	1.7	2.4	1.3	*	*
6	3.7	5.3	2.9	1.5	*
8	6.7	9.5	5.1	2.7	1.3
10	10.5	14.8	8	4.1	2
12	15.1	21.3	11.6	5.9	2.9
16	26.8	37.9	20.5	10.4	5.2
18	33.9	47.9	25.9	12.8	6.7
LARGER	* *	* *	* *	* *	* *
	BEARING AREA OF THRUST BLOCKS (sq. ft.)				

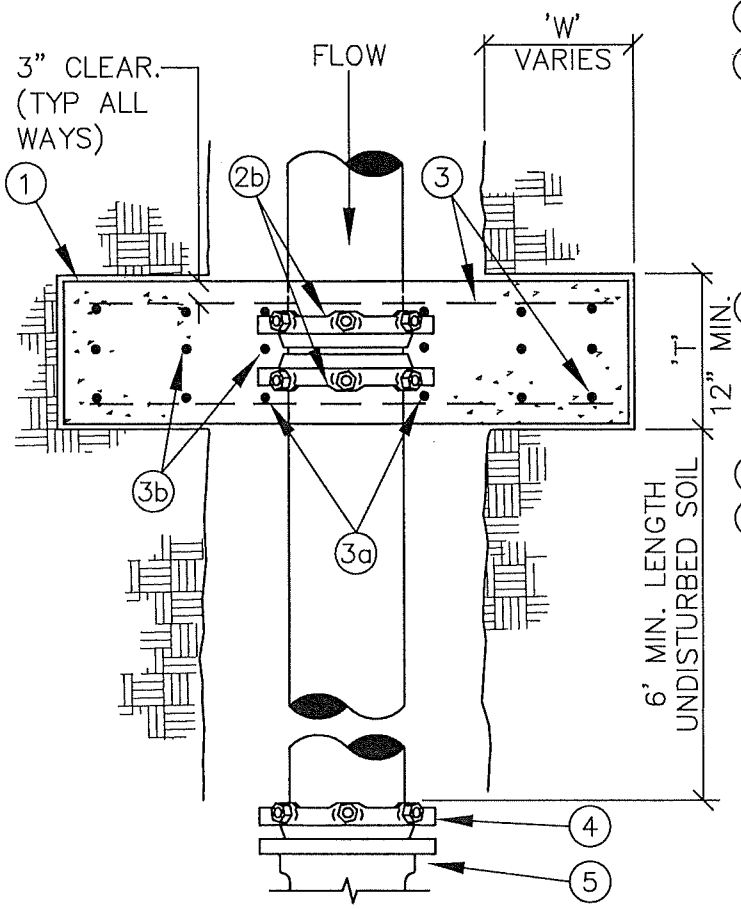
1. ALL VALUES ARE BASED ON THE FOLLOWING ASSUMPTIONS:
   AVG. PRESSURE = 100 PS1 x 2 (safety factor); 1500 PSF SOIL BEARING CAPACITY;
   NORMAL DISTRIBUTION SYSTEM DESIGN VELOCITY NOT TO EXCEED 5 FPS.
2. **ALL FITTINGS SHALL BE WRAPPED IN PLASTIC PRIOR TO PLACEMENT OF CONCRETE.**
3. BEARING SURFACE OF THRUST BLOCKING SHALL BE AGAINST UNDISTURBED SOIL.
4. TRUCK–MIXED CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3500 PSI (5" MAX SLUMP). USE OF HAND–MIXED SACK–CRETE TYPE CONCRETE REQUIRES WRITTEN CITY APPROVAL PRIOR TO USE, AND SHALL BE 4000 PSI MIX, MIXED WITH MIN AMOUNT OF WATER NECESSARY FOR WORKABILITY (5" MAX SLUMP). USE OF DRY SACK–CRETE MIX (BAGS OR LOOSE MIX) IS PROHIBITED FOR PERMANENT THRUST RESTRAINT.
5. ALL PIPE ZONES SHALL BE BACKFILLED WITH GRANULAR BACKFILL AND COMPACTED.
6. THRUST BLOCKS FOR PLUGGED CROSS AND PLUGGED TEE SHALL HAVE #4 REBAR LIFTING LOOPS INSTALLED AS SHOWN.
7. VERTICAL THRUST DETAILS–SEE DWG. 512.
8. STRADDLE BLOCK DETAILS–SEE DWG. 511.

* BLOCK TO UNDISTURBED TRENCH WALLS

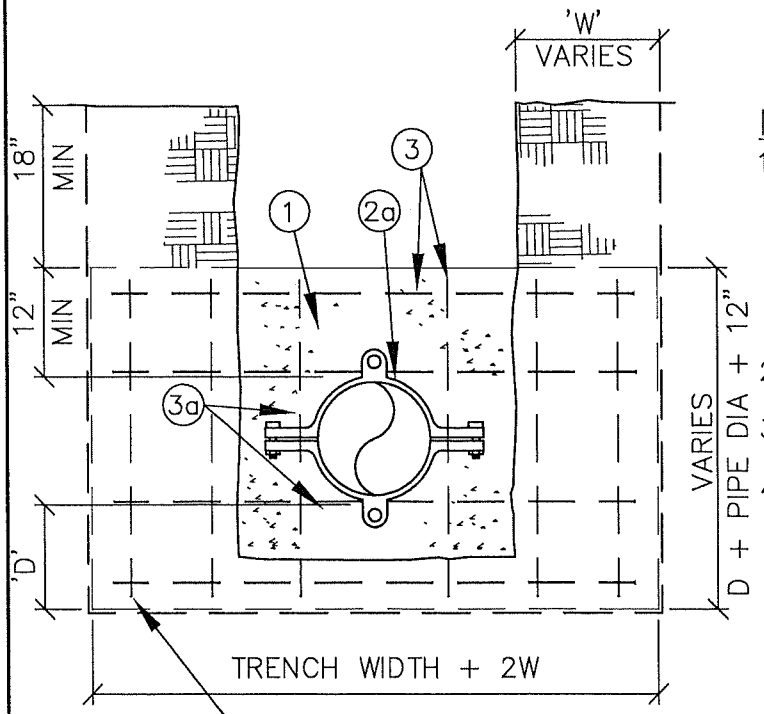
* * THRUST BLOCKS FOR PIPES LARGER THAN 18" WILL BE INDIVIDUALLY DESIGNED BY THE ENGINEER.



LAST REVISION DATE: AUG 2018	
HORIZONTAL THRUST BLOCKING (NTS)	
INDEPENDENCE, OR	DETAIL NO. 510



TOP VIEW



FRONT VIEW

MATERIALS

(1) CONCRETE STRADDLE BLOCK.

(2) –EITHER **(2a)** ONE SERRATED–LOCK STYLE SPLIT–RING RESTRAINT HARNESS (ROMAC 600 OR EQUAL), OR **(2b)** TWO RETAINER GLAND WEDGE–STYLE RESTRAINTS, SET OPPOSED (EBBA MEGA–LUG OR EQUAL).
–WEDGE STYLE RESTRAINTS SHALL BE WRAPPED WITH PLASTIC PRIOR TO CONCRETE PLACEMENT.

(3) ≤12" PIPE, #4 REBAR @12" O.C. E.W., **(3a)** INSTALL REBAR EACH SIDE OF RESTRAINT FITTING INSIDE CONCRETE AS SHOWN. **(3b)** INSTALL 3 MATS OF REBAR FOR PIPE LARGER THAN 12" DIAMETER.

(4) RETAINER GLAND, ON ADJACENT FITTING.

(5) MJ FITTING, BEND, VALVE OR BLOWOFF.

PIPE SIZE	'W'	'D'	'T'
6"	12"	8"	12"
8"	16"	10"	12"
10"	20"	12"	12"
12"	24"	18"	18"
14"&16"	**28"**	**24"**	**18"**
18"	**32"**	**30"**	**18"**
>12"	**SIZE TO BE VERIFIED BY DESIGN ENG (NOTE 1).**		

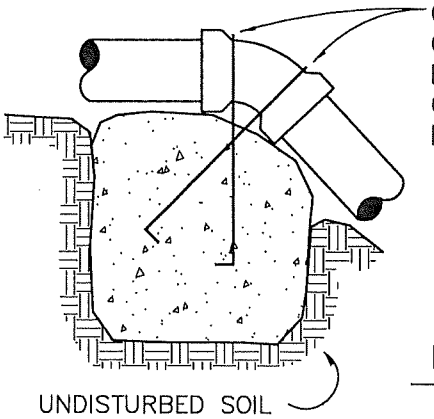
NOTES:

1. STRADDLE BLOCKS FOR >12" PIPE SHALL BE VERIFIED INDIVUALLY FOR APPLICATION BY THE DESIGN ENGINEER AND SHALL BE BASED ON THE FOLLOWING:
   a.) 200 PSI WATER TEST PRESSURE.
   b.) SOIL BEARING CAPACITY, REBAR SIZE & SPACING VERIFIED BY THE ENGINEER.
2. BEARING AREA OF BLOCK SHALL BE AGAINST UNDISTURBED SOIL.
3. STRADDLE BLOCK SHALL HAVE A MINIMUM OF 18" COVER.
4. CONCRETE SHALL HAVE A MIN. 28 DAY STRENGTH OF 3300 PSI.

LAST REVISION DATE: DEC 2021	
STRADDLE BLOCK FOR 12" AND SMALLER PIPE (NTS)	
INDEPENDENCE, OR	DETAIL NO. 511

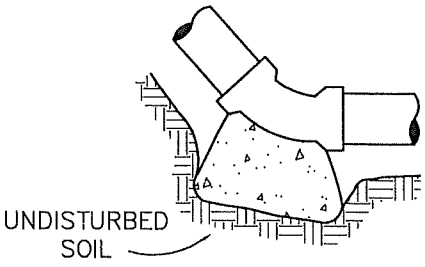
NOTES:

1. GRAVITY VERTICAL THRUST BLOCKS SHALL BE DESIGNED BY THE ENGINEER.
2. **KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES. FITTINGS SHALL BE WRAPPED IN PLASTIC PRIOR TO PLACEMENT OF CONCRETE.**
3. CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
4. CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3000 P.S.I.
5. THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS ARE BASED ON TEST PRESSURE OF 150 P.S.I.G. AND THE WEIGHT OF CONCRETE = 4050 LBS./CU.YD.
6. VERTICAL BENDS THAT REQUIRE A THRUST BLOCK VOLUME EXCEEDING 5 CUBIC YARDS REQUIRE SPECIAL BLOCKING DETAILS. SEE PLANS FOR VOLUMES SHOWN INSIDE HEAVY LINE IN TABLE.
7. ALL REBAR SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM–123 (MIN. 3.4 MIL). REBAR SHALL BE BENT BEFORE GALVANIZATION, AND LAST 4" OF BAR SHALL BE BENT 90 DEGREES WITH A 1/2" RADIUS BEND. REBAR SHALL BE TIGHTLY FIT TO RESTRAINED FITTING.
8. FOR HORIZONTAL THRUST BLOCK DETAILS SEE DRAWING NO. 510.



PROFILE

GRAVITY VERTICAL THRUST BLOCK



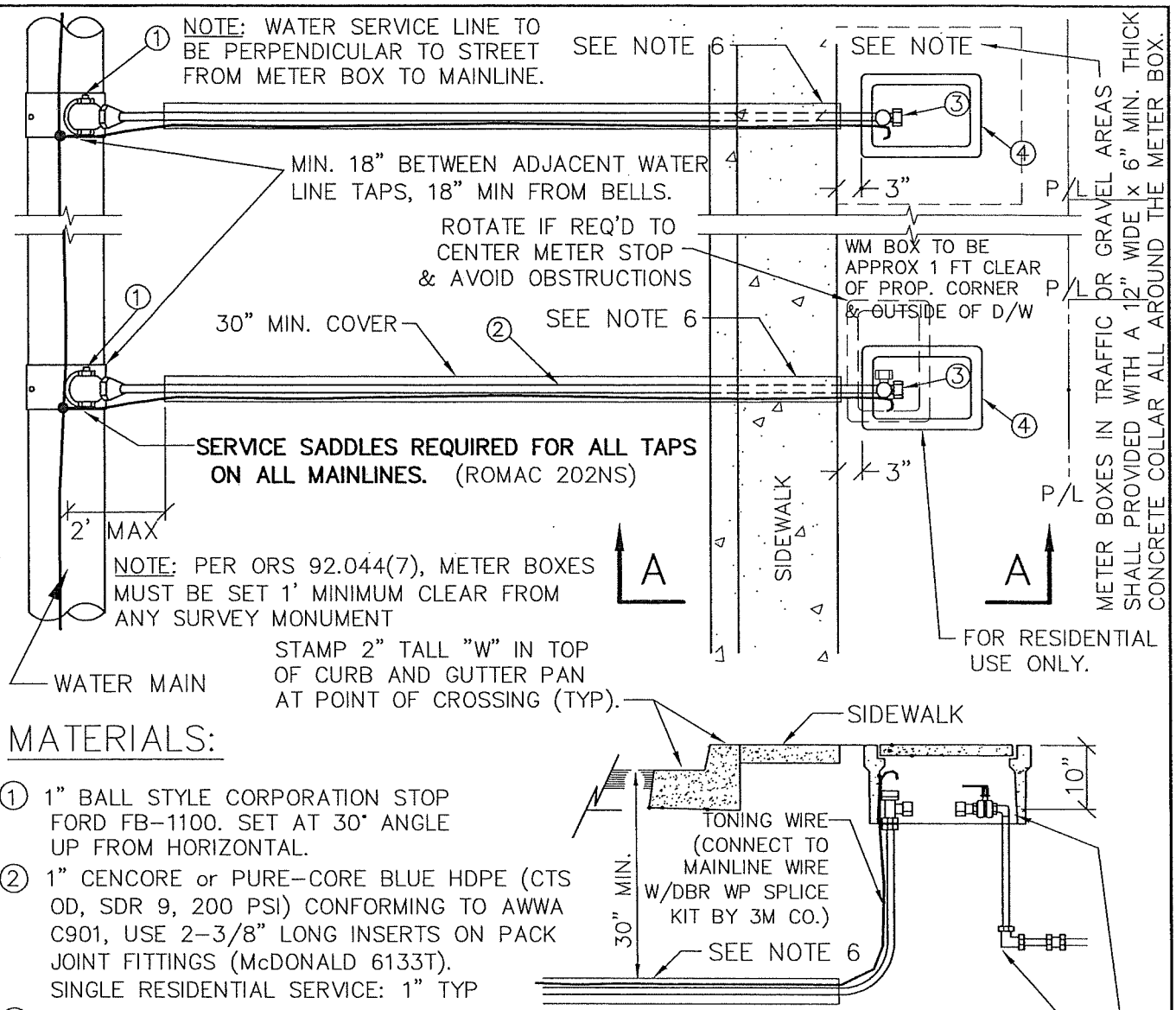
PROFILE

NORMAL VERTICAL THRUST BLOCK

VOLUME OF THRUST BLOCK IN CUBIC YARDS (VERTICAL BENDS)			
FITTING SIZE	BEND ANGLE		
	45°	22 1/2°	11 1/4°
4	1.1	0.4	0.2
6	2.7	1.0	0.4
8	4.0	1.5	0.6
10	6.0	2.3	0.9
12	8.5	3.2	1.3
14	11.5	4.3	1.8
16	14.8	5.6	2.3

FITTING SIZE	ROD SIZE	EMBED–MENT
12" AND LESS	#6	30"
14" – 16"	#8	36"

LAST REVISION DATE: AUG 2018	
VERTICAL THRUST BLOCKING (NTS)	
INDEPENDENCE, OR	DETAIL NO. 512



MATERIALS:

① 1" BALL STYLE CORPORATION STOP FORD FB-1100. SET AT 30° ANGLE UP FROM HORIZONTAL.

② 1" CENCORE or PURE-CORE BLUE HDPE (CTS OD, SDR 9, 200 PSI) CONFORMING TO AWWA C901, USE 2-3/8" LONG INSERTS ON PACK JOINT FITTINGS (McDONALD 6133T). SINGLE RESIDENTIAL SERVICE: 1" TYP

③ 1" BALL STYLE LOCKING ANGLE METER STOP, FORD BA43-444WPJ OR EQUAL. PROVIDE ALL METER STOPS WITH 1" x 3/4" METER ADAPTER (FORD A24 OR EQUAL).

④ WATER METER BOX PER PWDS 5.8.h.1 (13"x24" ID, H20): -ARMORCAST A6001868x12 W/ A6001866/A6000487 LID. PROVIDE ALL METER BOXES WITHOUT KNOCKOUTS (RADIO-READ HEADS).

SECTION A-A

NOTES:

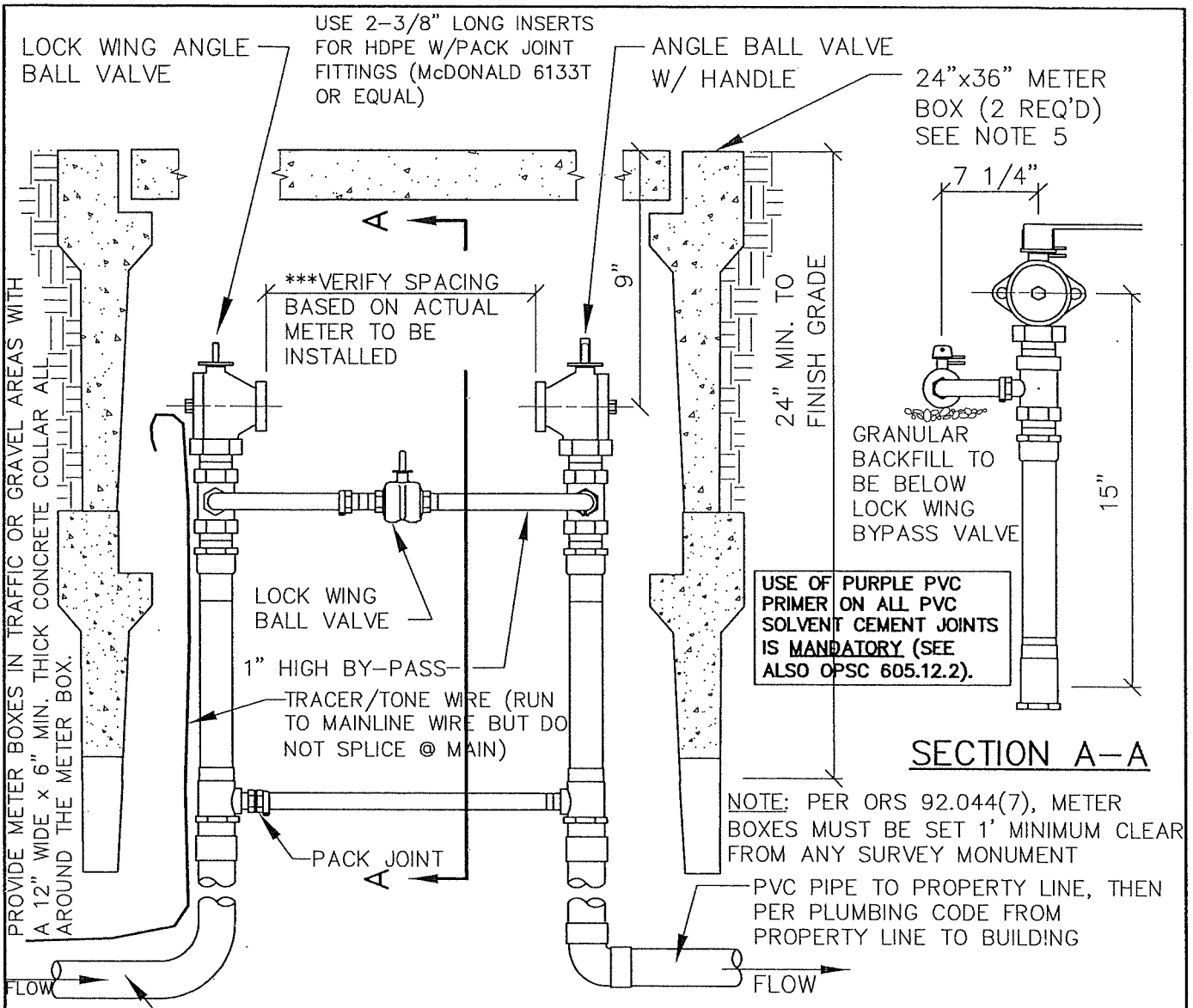
1. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE APPROVED BY THE PUBLIC WORKS DIRECTOR.
2. ALL PIPE AND BACKFILL ZONES SHALL BE BACKFILLED USING 3/4" MINUS GRANULAR MATERIAL AND COMPACTED TO 92% MAX. DENSITY DETERMINED BY AASHTO T-180.
3. SET FRONT OF METER BOX BEHIND BACK OF SIDEWALK LOCATION AS SHOWN.
4. METER BOX SHALL BE CENTERED OVER THE COMPLETED METER ASSEMBLY.
5. 1½-INCH MIN. PIPE SIZE FOR COMMERCIAL SERVICES.
6. FAR SIDE COMMERCIAL SERVICES SHALL BE INSTALLED IN A 4" MIN DIA SCHED 40 PVC SLEEVE WHICH BEGINS 2' FROM MAIN AND EXTENDS TO BACK OF FAR SIDE SIDEWALK.
7. RUN TRACER WIRE FROM METER BOX TO MAIN, USE TYPE DBR DIRECT BURY SPLICE KIT BY 3M (OR EQUAL), AT SPLICE TO MAINLINE WIRE.

LAST REVISION DATE: DEC 2022	

TYPICAL 1" WATER SERVICE (HDPE SERVICE LINE)

(NTS)

INDEPENDENCE, OR	DETAIL NO. 515



NOTES:

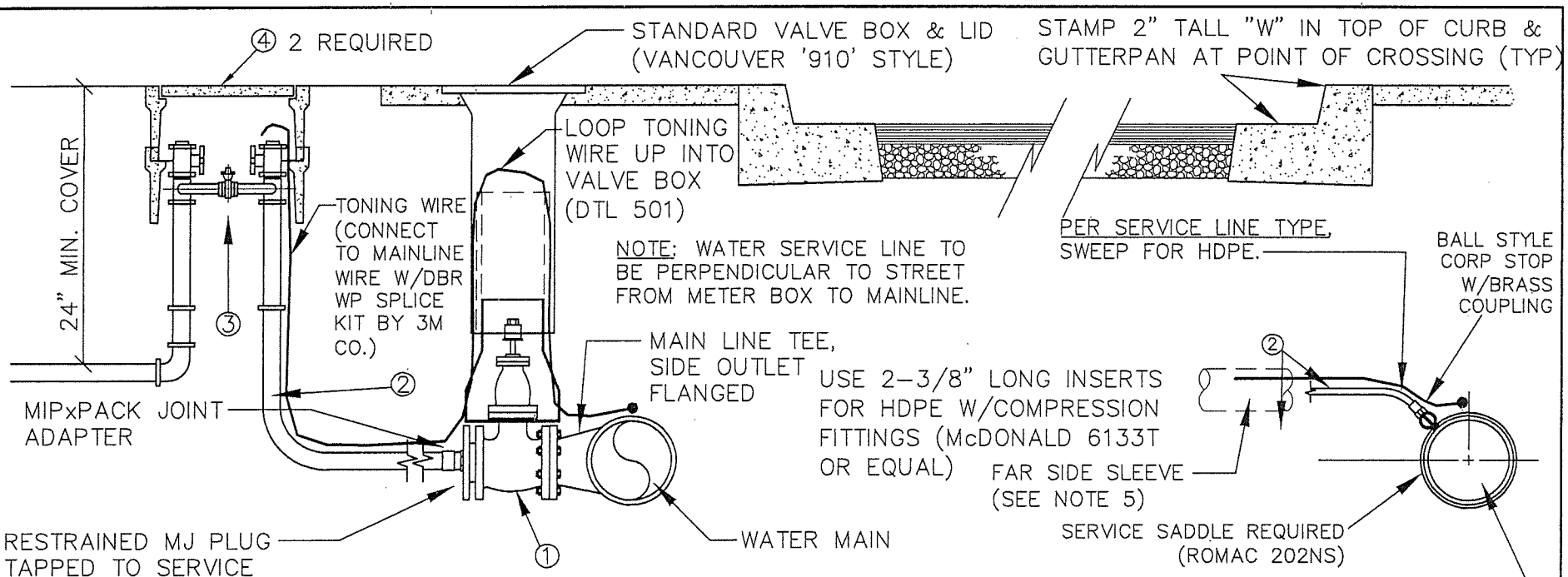
1. METERSET TO BE FORD 70 SERIES COPPERSETTER, #VBB86-15HB-11-66 (1½") OR #VBB87-15HB-11-77 (2") WITH RAISED LOCKING BYPASS OR APPROVED EQUAL.
2. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE APPROVED BY THE CITY ENGINEER.
3. ALL PIPE AND BACKFILL ZONES SHALL BE BACKFILLED USING 3/4" MINUS GRANULAR MATERIAL AND COMPACTED TO 92% OPTIMUM DENSITY PER AASHTO T-180.
4. SET FRONT OF METER BOX 3-INCHES FROM SIDEWALK (TYPICAL). NO METERS ON PRIVATE PROPERTY WITHOUT A RECORDED EASEMENT.
5. METER BOX SHALL BE CENTERED OVER THE COMPLETED METER ASSEMBLY. METER BOX PER PWDS 5.8.H.1 (24"x36" ID, H20, GREY)
   - ARMORCAST A6001974x12 W/ A6001975/A6000482 LID. PROVIDE LID WITHOUT KNOCKOUTS (RADIO-READ SENSOR).
6. COPPERSETTER, METER BOX, & ALL FITTINGS PROVIDED BY CONTRACTOR. CONTRACTOR TO VERIFY DIMENSIONS & CLEARANCE BASED ON ACTUAL METER TO BE PROVIDED BY THE CITY. WATER METER INSTALLED BY CONTRACTOR UNDER CITY INSPECTION & APPROVAL.
7. SEE DETAIL 517 FOR TAPPING REQUIREMENTS.
8. **THREADED FEMALE PVC FITTINGS ARE NOT ALLOWED.**

LAST REVISION DATE:	
AUG 2022	

1-1/2" AND 2" METER SET W/1" HIGH BY-PASS (HDPE SERVICE LINE)

(NTS)

INDEPENDENCE, OR	DETAIL NO. 516



2" & LARGER SERVICE

NOTE: PER ORS 92.044(7), METER BOXES MUST BE SET 1' MINIMUM CLEAR FROM ANY SURVEY MONUMENT

1-1/2" SERVICE

MATERIALS

① FLG X MJ RESILIENT WEDGE GATE VALVE PER AWWA C-509. 4" DIA. OR SERVICE SIZE, WHICHEVER IS LARGER. EPOXY COATED PER AWWA C-550.

② CENCORE or PURE-CORE BLUE HDPE (CTS, DR 9, 200 PSI, ≤2"ϕ) W/OUT JOINTS PER DETAIL 516 (30" MIN COVER TO METER). FOR SERVICES >2"ϕ, USE CL 52 DI PIPE. FOR SERVICES ≤2"ϕ, SEE DTL 516 FOR CONFIG. AT METER BOX.

③ METER STOP ASSEMBLY W/BYPASS PER PUBLIC WORKS REQUIREMENTS. SEE DETAIL 516 FOR 1-1/2 & 2" SERVICES (DTL 523-526 FOR LARGER).

④ METER BOX FOR 1-1/2" AND 2" SHALL BE PER DETAIL 516. USE TRAFFIC RATED VERSION OF BOX/LID FOR TRAFFIC AREAS. METER VAULT FOR LARGER SERVICE PER PUBLIC WORKS REQUIREMENTS. PROVIDE W/OUT SENSOR KNOCKOUT.

NOTES

1. SUBSTITUTES FOR ANY MATERIAL SHOWN SHALL BE APPROVED BY THE CITY ENGINEER.
2. ALL PIPE AND STRUCTURE ZONES SHALL BE BACKFILLED USING 3/4" MINUS GRANULAR MATERIAL AND COMPACTED TO 95% MAX DENSITY AS DETERMINED BY ASHTO T-180.
3. METER BOX SHALL BE CENTERED OVER THE COMPLETED METER AND FITTING ASSEMBLY.
4. CUSTOMER SHALL INSTALL AN APPROVED BACKFLOW PREVENTION DEVICE ON PRIVATE PROPERTY IMMEDIATELY DOWNSTREAM OF WATER METER IF REQUIRED BY PUBLIC WORKS.
5. FAR SIDE COMMERCIAL SERVICES SHALL BE INSTALLED IN A 4" MIN DIA SCHED 40 PVC SLEEVE WHICH BEGINS 12" FROM MAIN AND EXTENDS TO BACK OF FAR SIDE SIDEWALK.
7. METER BOXES IN TRAFFIC OR GRAVEL AREAS SHALL PROVIDED WITH A 12" WIDE x 6" MIN. THICK CONCRETE COLLAR ALL AROUND THE METER BOX.

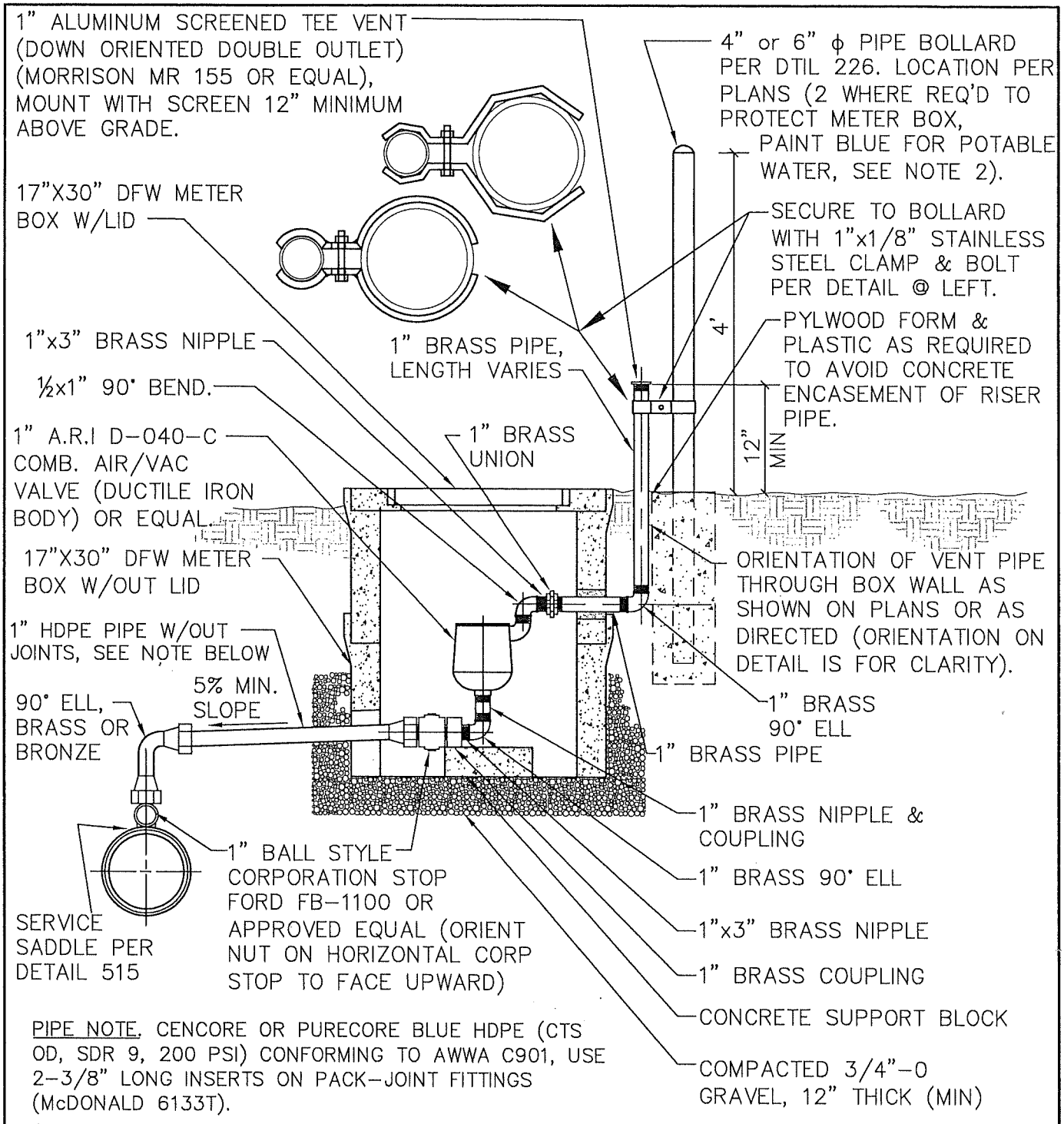
INDEPENDENCE, OR

TAPPING REQUIREMENTS, 1-1/2" AND LARGER SERVICE (HDPE or DI SERVICE LINE)

(NTS)

LAST REVISION DATE: DEC 2022

DETAIL NO. 517



PIPE NOTE. CENCORE OR PURECORE BLUE HDPE (CTS OD, SDR 9, 200 PSI) CONFORMING TO AWWA C901, USE 2-3/8" LONG INSERTS ON PACK-JOINT FITTINGS (McDONALD 6133T).

NOTES:

1. RISER SHALL BE PROTECTED FROM VEHICULAR OR PEDESTRIAN TRAFFIC AS APPROVED BY THE CITY ENGINEER & PUBLIC WORKS.
2. PAINT BOLLARD & TOP SAFETY BLUE FOR POTABLE WATER APPLICATIONS.
3. WHERE ARV ASSEMBLIES ARE INSTALLED ADJACENT TO FENCES, BOLLARDS SHALL BE SET 3" MIN CLEAR FROM FENCE UNLESS OTHERWISE APPROVED BY PROPERTY OWNER.
4. EXACT LOCATION OF RISER PENTRATION THROUGH BOX & BOLLARDS TO BE VERIFIED IN FIELD WITH CITY ENGINEER & PUBLIC WORKS PRIOR TO RISER & BOLLARD INSTALLATION.

LAST REVISION DATE: MAR 2020	JO #

1" COMBINATION AIR RELEASE VALVE (CARV)

(NTS)

INDEPENDENCE, OR	DETAIL NO. 518

NOTES:

1. METER VAULT & PIPING SHALL CONFORM TO REQUIREMENTS OF ALL PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.

2. METER VAULT SHALL BE PLACED WITHIN RIGHT-OF-WAY UNLESS OTHERWISE APPROVED (RECORDED EASEMENT TO THE CITY REQUIRED FOR ANY METER ON PRIVATE PROPERTY).

3. ALL MATERIALS (EXCEPT THE METER) SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL INSTALL A TEMPORARY SPACER SPOOL BETWEEN METER ISOLATION VALVES FOR TESTING. THE TEMPORARY SPOOL SHALL MATCH THE LENGTH OF THE ACTUAL METER TO BE PROVIDED BY THE CITY.

4. PIPING INSIDE VAULT & THROUGH WALLS TO BE C900 PVC, EXCEPT AS OTHERWISE SHOWN.

5. METER WILL BE SUPPLIED BY THE CITY, BUT SHALL BE INSTALLED (AFTER PRESSURE & OTHER TESTING OF METER VAULT PIPING) BY THE CONTRACTOR UNDER CITY INSPECTION AND APPROVAL.

6. ISOLATION VALVES IN METER VAULT SHALL BE NON-RISING STEM GATE VALVE (EPOXY COATED) WITH 2-INCH SQUARE OPERATING NUT.

7. ALL MJ CONNECTIONS (INCLUDING BYPASS LINE FITTINGS) SHALL BE ASSEMBLED WITH RETAINER GLANDS (EBBA MEGA-LUGS OR APPROVED EQUAL). ROMAC ALPHA FC ALLOWED AS EQUAL FOR HYMAX GRIP FC.

8. ALL PIPE OPENINGS SHALL BE CORE DRILLED (REGARDLESS OF PRESENCE OF 'KNOCKOUTS'), AND SEALED WATERTIGHT WITH NON-SHRINK GROUT.

9. PIPE SUPPORTS SHALL BE GALVANIZED STANDON S89 & S92 OR APPROVED EQUAL AT EACH ISOLATION VALVE AND AT BYPASS VALVE.

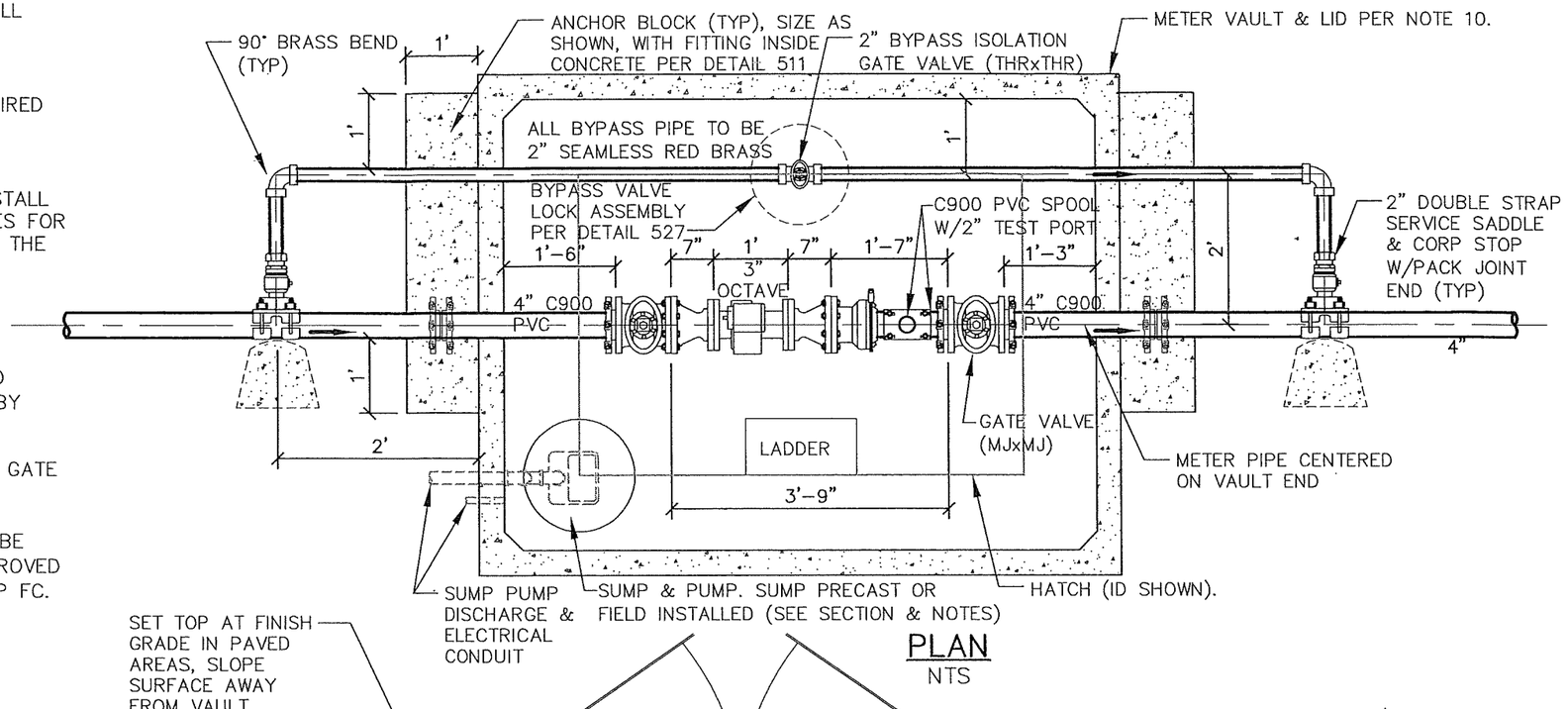
10. METER VAULT TO BE UTILITY VAULT 687-WA OR APPROVED EQUAL, CONFORMING WITH ASTM C-857. PROVIDE ALUMINUM ANGLE FRAME HATCH (48"x 72" MIN) BY USF FABRICATION OR APPROVED EQUAL (HATCH COVER TOP TO BE SAND BLASTED NON-SLIP).
    (1) TO BE 300 PSF PEDESTRIAN RATED WHERE LID IS SET MIN. OF 9" ABOVE GRADE.
    (2) TO BE H-20 RATED IF LID IS LESS THAN 9" ABOVE GRADE, OR IF LOCATED IN TRAFFIC AREA.

11. METER VAULT SHALL BE PROVIDED WITH AN OSHA APPROVED GALVANIZED STEEL LADDER AND ALUMINUM LADDER SAFETY EXTENSION. ATTACH TO VAULT WITH STAINLESS STEEL BOLTS.

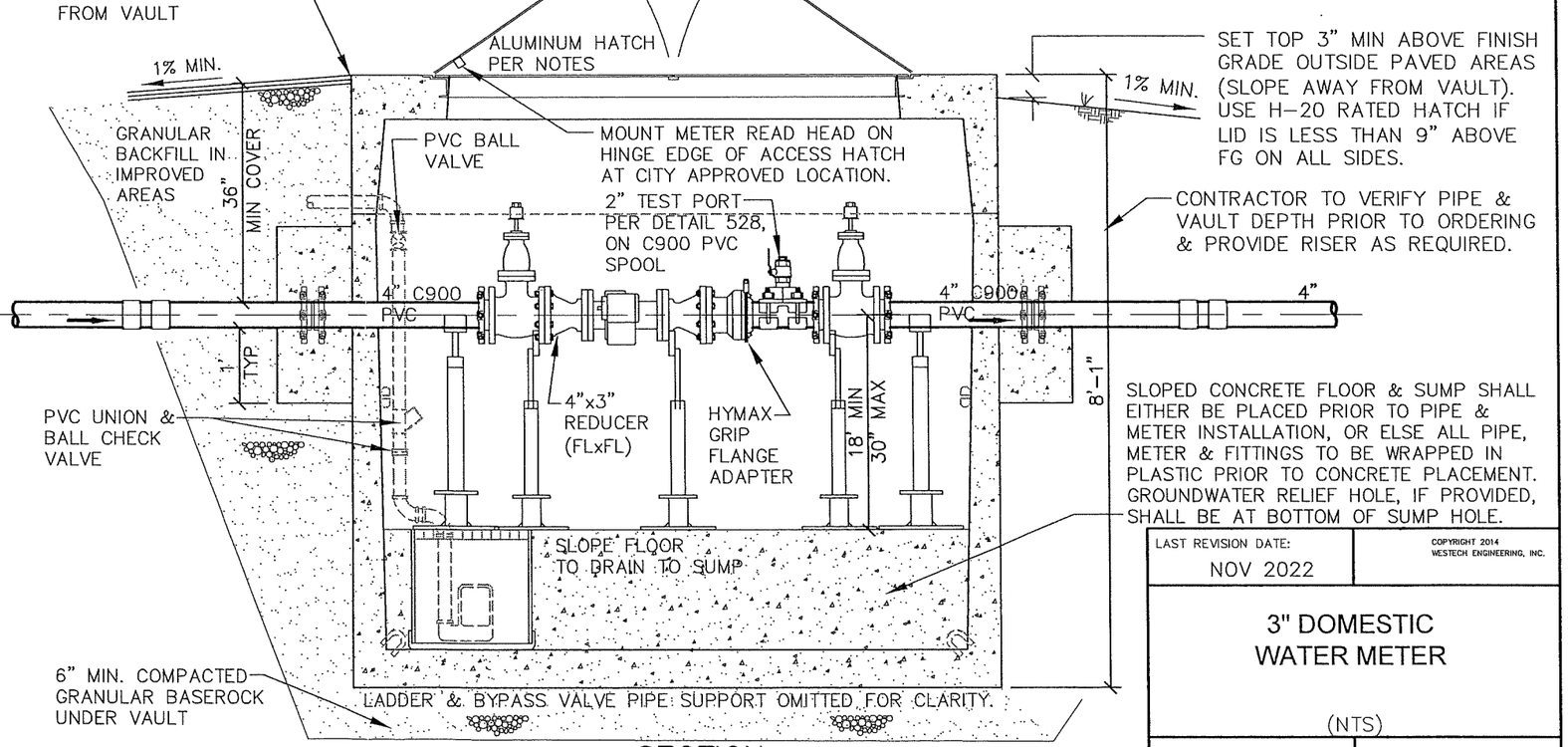
12. CONTRACTOR TO INSTALL SUMP PUMP (5 GPM MIN) WITH 120V POWER SUPPLY, ALONG WITH PRIVATE POWER SOURCE (RESPONSIBILITY OF CONTRACTOR INSTALLING VAULT). SCHED 40 CONDUIT, WIRE, ETC. FOR SUMP PUMP POWER SHALL CONFORM WITH NEC REQUIREMENTS.

13. SUMP PUMP DISCHARGE PIPE SHALL BE 1½-INCH SCHEDULE 40 PVC, PROVIDED WITH UNION (FOR PUMP REMOVAL), CHECK VALVE AND ISOLATION BALL VALVE. CONNECT DISCHARGE TO GRAVITY STORM DRAIN OR CURB WEEP HOLE (AT LOCATION APPROVED BY PUBLIC WORKS).

14. SUMP TO BE 18" ROUND CONCRETE PIPE OR EQUAL. PROVIDE FRP GRATE (OR SLOTTED MH LID) WITH COPED CUTOUT FOR DISCHARGE PIPING (IE. LID TO BE REMOVABLE WITHOUT DISASSEMBLING DISCHARGE PIPING). SUMP TO BE LARGE ENOUGH & DEEP ENOUGH TO HOUSE PUMP & FLOAT, AND KEEP WATER LEVEL BELOW SLOPED FLOOR.



PLAN
NTS



SECTION
NTS

LAST REVISION DATE: NOV 2022

3" DOMESTIC WATER METER

(NTS)

INDEPENDENCE, OR

DETAIL NO. 523

NOTES:

1. METER VAULT & PIPING SHALL CONFORM TO REQUIREMENTS OF ALL PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.

2. METER VAULT SHALL BE PLACED WITHIN RIGHT-OF-WAY UNLESS OTHERWISE APPROVED (RECORDED EASEMENT TO THE CITY REQUIRED FOR ANY METER ON PRIVATE PROPERTY).

3. ALL MATERIALS (EXCEPT THE METER) SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL INSTALL A TEMPORARY SPACER SPOOL BETWEEN METER ISOLATION VALVES FOR TESTING. THE TEMPORARY SPOOL SHALL MATCH THE LENGTH OF THE ACTUAL METER TO BE PROVIDED BY THE CITY.

4. PIPING INSIDE VAULT & THROUGH WALLS TO BE C900 PVC, EXCEPT AS OTHERWISE SHOWN.

5. METER WILL BE SUPPLIED BY THE CITY, BUT SHALL BE INSTALLED (AFTER PRESSURE & OTHER TESTING OF METER VAULT PIPING) BY THE CONTRACTOR UNDER CITY INSPECTION AND APPROVAL.

6. ISOLATION VALVES IN METER VAULT SHALL BE NON-RISING STEM GATE VALVE (EPOXY COATED) WITH 2-INCH SQUARE OPERATING NUT.

7. ALL MJ CONNECTIONS (INCLUDING BYPASS LINE FITTINGS) SHALL BE ASSEMBLED WITH RETAINER GLANDS (EBBA MEGA-LUGS OR APPROVED EQUAL). ROMAC ALPHA FC ALLOWED AS EQUAL FOR HYMAX GRIP FC.

8. ALL PIPE OPENINGS SHALL BE CORE DRILLED (REGARDLESS OF PRESENCE OF 'KNOCKOUTS'), AND SEALED WATERTIGHT WITH NON-SHRINK GROUT.

9. PIPE SUPPORTS SHALL BE GALVANIZED STANDON S89 & S92 OR APPROVED EQUAL AT EACH ISOLATION VALVE AND AT BYPASS VALVE.

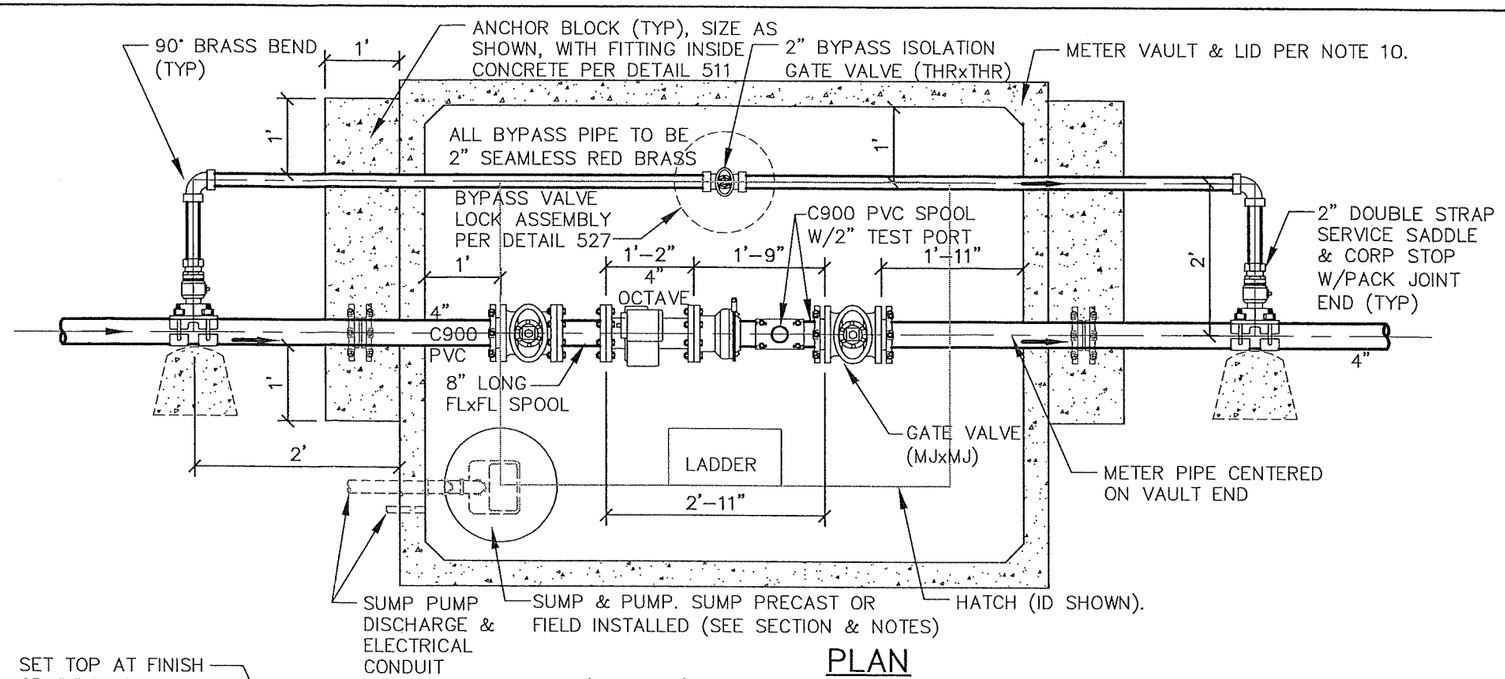
10. METER VAULT TO BE UTILITY VAULT 687-WA OR APPROVED EQUAL, CONFORMING WITH ASTM C-857. PROVIDE ALUMINUM ANGLE FRAME HATCH (48"x 72" MIN) BY USF FABRICATION OR APPROVED EQUAL (HATCH COVER TOP TO BE SAND BLASTED NON-SLIP).
    (1) TO BE 300 PSF PEDESTRIAN RATED WHERE LID IS SET MIN. OF 9" ABOVE GRADE.
    (2) TO BE H-20 RATED IF LID IS LESS THAN 9" ABOVE GRADE, OR IF LOCATED IN TRAFFIC AREA.

11. METER VAULT SHALL BE PROVIDED WITH AN OSHA APPROVED GALVANIZED STEEL LADDER AND ALUMINUM LADDER SAFETY EXTENSION. ATTACH TO VAULT WITH STAINLESS STEEL BOLTS.

12. CONTRACTOR TO INSTALL SUMP PUMP (5 GPM MIN) WITH 120V POWER SUPPLY, ALONG WITH PRIVATE POWER SOURCE (RESPONSIBILITY OF CONTRACTOR INSTALLING VAULT). SCHED 40 CONDUIT, WIRE, ETC. FOR SUMP PUMP POWER SHALL CONFORM WITH NEC REQUIREMENTS.

13. SUMP PUMP DISCHARGE PIPE SHALL BE 1½-INCH SCHEDULE 40 PVC, PROVIDED WITH UNION (FOR PUMP REMOVAL), CHECK VALVE AND ISOLATION BALL VALVE. CONNECT DISCHARGE TO GRAVITY STORM DRAIN OR CURB WEEP HOLE (AT LOCATION APPROVED BY PUBLIC WORKS).

14. SUMP TO BE 18" ROUND CONCRETE PIPE OR EQUAL. PROVIDE FRP GRATE (OR SLOTTED MH LID) WITH COPED CUTOUT FOR DISCHARGE PIPING (IE. LID TO BE REMOVABLE WITHOUT DISASSEMBLING DISCHARGE PIPING). SUMP TO BE LARGE ENOUGH & DEEP ENOUGH TO HOUSE PUMP & FLOAT, AND KEEP WATER LEVEL BELOW SLOPED FLOOR.



PLAN
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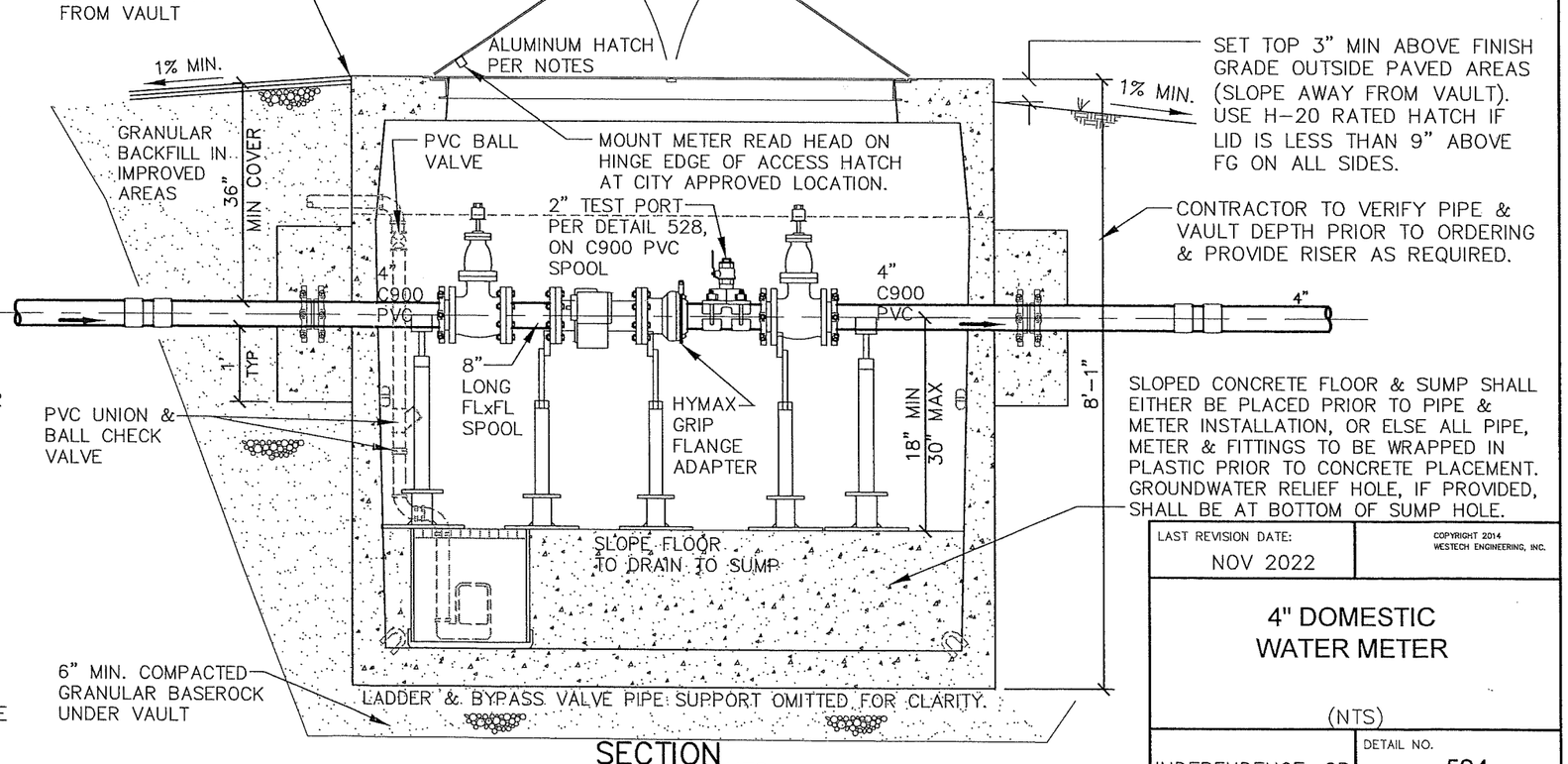


SECTION
NTS

LAST REVISION DATE: NOV 2022	
4" DOMESTIC WATER METER (NTS)	
INDEPENDENCE, OR	DETAIL NO. 524

NOTES:

1. METER VAULT & PIPING SHALL CONFORM TO REQUIREMENTS OF ALL PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.

2. METER VAULT SHALL BE PLACED WITHIN RIGHT-OF-WAY UNLESS OTHERWISE APPROVED (RECORDED EASEMENT TO THE CITY REQUIRED FOR ANY METER ON PRIVATE PROPERTY).

3. ALL MATERIALS (EXCEPT THE METER) SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL INSTALL A TEMPORARY SPACER SPOOL BETWEEN METER ISOLATION VALVES FOR TESTING. THE TEMPORARY SPOOL SHALL MATCH THE LENGTH OF THE ACTUAL METER TO BE PROVIDED BY THE CITY.

4. PIPING INSIDE VAULT & THROUGH WALLS TO BE C900 PVC, EXCEPT AS OTHERWISE SHOWN.

5. METER WILL BE SUPPLIED BY THE CITY, BUT SHALL BE INSTALLED (AFTER PRESSURE & OTHER TESTING OF METER VAULT PIPING) BY THE CONTRACTOR UNDER CITY INSPECTION AND APPROVAL.

6. ISOLATION VALVES IN METER VAULT SHALL BE NON-RISING STEM GATE VALVE (EPOXY COATED) WITH 2-INCH SQUARE OPERATING NUT.

7. ALL MJ CONNECTIONS (INCLUDING BYPASS LINE FITTINGS) SHALL BE ASSEMBLED WITH RETAINER GLANDS (EBBA MEGA-LUGS OR APPROVED EQUAL). ROMAC ALPHA FC ALLOWED AS EQUAL FOR HYMAX GRIP FC.

8. ALL PIPE OPENINGS SHALL BE CORE DRILLED (REGARDLESS OF PRESENCE OF 'KNOCKOUTS'), AND SEALED WATERTIGHT WITH NON-SHRINK GROUT.

9. PIPE SUPPORTS SHALL BE GALVANIZED STANDON S89 & S92 OR APPROVED EQUAL AT EACH ISOLATION VALVE AND AT BYPASS VALVE.

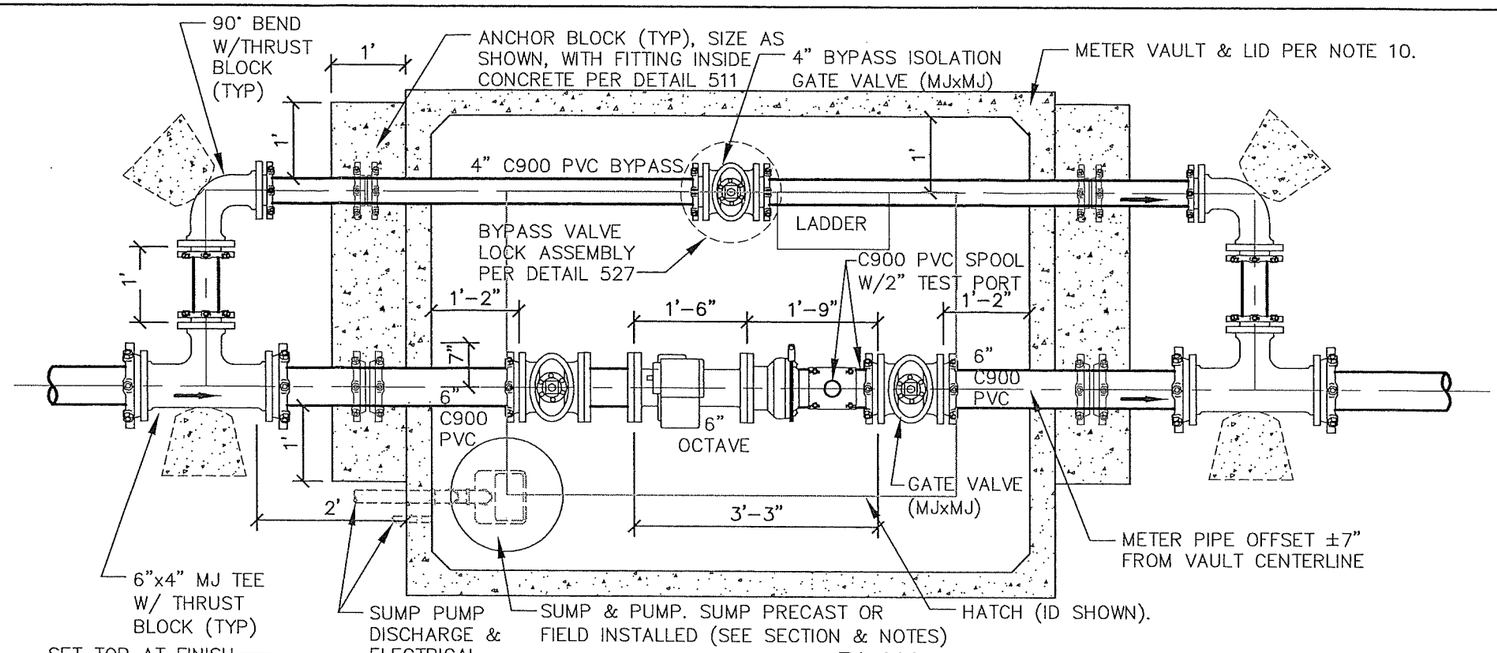
10. METER VAULT TO BE UTILITY VAULT 687-WA OR APPROVED EQUAL, CONFORMING WITH ASTM C-857. PROVIDE ALUMINUM ANGLE FRAME HATCH (48"x 72" MIN) BY USF FABRICATION OR APPROVED EQUAL (HATCH COVER TOP TO BE SAND BLASTED NON-SLIP).
    (1) TO BE 300 PSF PEDESTRIAN RATED WHERE LID IS SET MIN. OF 9" ABOVE GRADE.
    (2) TO BE H-20 RATED IF LID IS LESS THAN 9" ABOVE GRADE, OR IF LOCATED IN TRAFFIC AREA.

11. METER VAULT SHALL BE PROVIDED WITH AN OSHA APPROVED GALVANIZED STEEL LADDER AND ALUMINUM LADDER SAFETY EXTENSION. ATTACH TO VAULT WITH STAINLESS STEEL BOLTS.

12. CONTRACTOR TO INSTALL SUMP PUMP (5 GPM MIN) WITH 120V POWER SUPPLY, ALONG WITH PRIVATE POWER SOURCE (RESPONSIBILITY OF CONTRACTOR INSTALLING VAULT). SCHED 40 CONDUIT, WIRE, ETC. FOR SUMP PUMP POWER SHALL CONFORM WITH NEC REQUIREMENTS.

13. SUMP PUMP DISCHARGE PIPE SHALL BE 1½-INCH SCHEDULE 40 PVC, PROVIDED WITH UNION (FOR PUMP REMOVAL), CHECK VALVE AND ISOLATION BALL VALVE. CONNECT DISCHARGE TO GRAVITY STORM DRAIN OR CURB WEEP HOLE (AT LOCATION APPROVED BY PUBLIC WORKS).

14. SUMP TO BE 18" ROUND CONCRETE PIPE OR EQUAL. PROVIDE FRP GRATE (OR SLOTTED MH LID) WITH COPED CUTOUT FOR DISCHARGE PIPING (IE. LID TO BE REMOVABLE WITHOUT DISASSEMBLING DISCHARGE PIPING). SUMP TO BE LARGE ENOUGH & DEEP ENOUGH TO HOUSE PUMP & FLOAT, AND KEEP WATER LEVEL BELOW SLOPED FLOOR.



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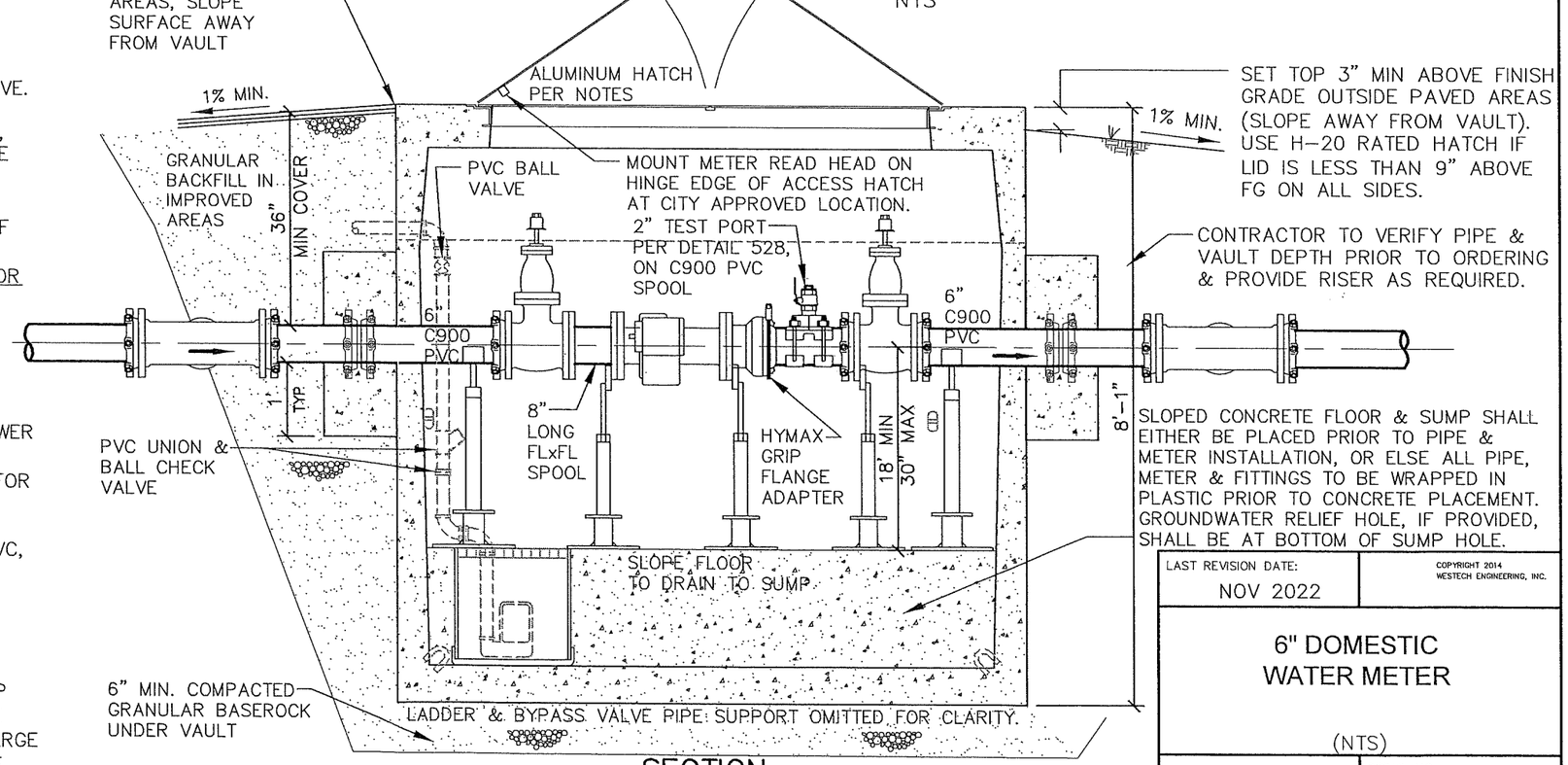
NTS



SECTION
NTS

LAST REVISION DATE: NOV 2022

6" DOMESTIC WATER METER

(NTS)

INDEPENDENCE, OR

DETAIL NO. 525

NOTES:

1. METER VAULT & PIPING SHALL CONFORM TO REQUIREMENTS OF ALL PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.

2. METER VAULT SHALL BE PLACED WITHIN RIGHT-OF-WAY UNLESS OTHERWISE APPROVED (RECORDED EASEMENT TO THE CITY REQUIRED FOR ANY METER ON PRIVATE PROPERTY).

3. ALL MATERIALS (EXCEPT THE METER) SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL INSTALL A TEMPORARY SPACER SPOOL BETWEEN METER ISOLATION VALVES FOR TESTING. THE TEMPORARY SPOOL SHALL MATCH THE LENGTH OF THE ACTUAL METER TO BE PROVIDED BY THE CITY.

4. PIPING INSIDE VAULT & THROUGH WALLS TO BE C900 PVC, EXCEPT AS OTHERWISE SHOWN.

5. METER WILL BE SUPPLIED BY THE CITY, BUT SHALL BE INSTALLED (AFTER PRESSURE & OTHER TESTING OF METER VAULT PIPING) BY THE CONTRACTOR UNDER CITY INSPECTION AND APPROVAL.

6. ISOLATION VALVES IN METER VAULT SHALL BE NON-RISING STEM GATE VALVE (EPOXY COATED) WITH 2-INCH SQUARE OPERATING NUT.

7. ALL MJ CONNECTIONS (INCLUDING BYPASS LINE FITTINGS) SHALL BE ASSEMBLED WITH RETAINER GLANDS (EBBA MEGA-LUGS OR APPROVED EQUAL). ROMAC ALPHA FC ALLOWED AS EQUAL FOR HYMAX GRIP FC.

8. ALL PIPE OPENINGS SHALL BE CORE DRILLED (REGARDLESS OF PRESENCE OF 'KNOCKOUTS'), AND SEALED WATERTIGHT WITH NON-SHRINK GROUT.

9. PIPE SUPPORTS SHALL BE GALVANIZED STANDON S89 & S92 OR APPROVED EQUAL AT EACH ISOLATION VALVE AND AT BYPASS VALVE.

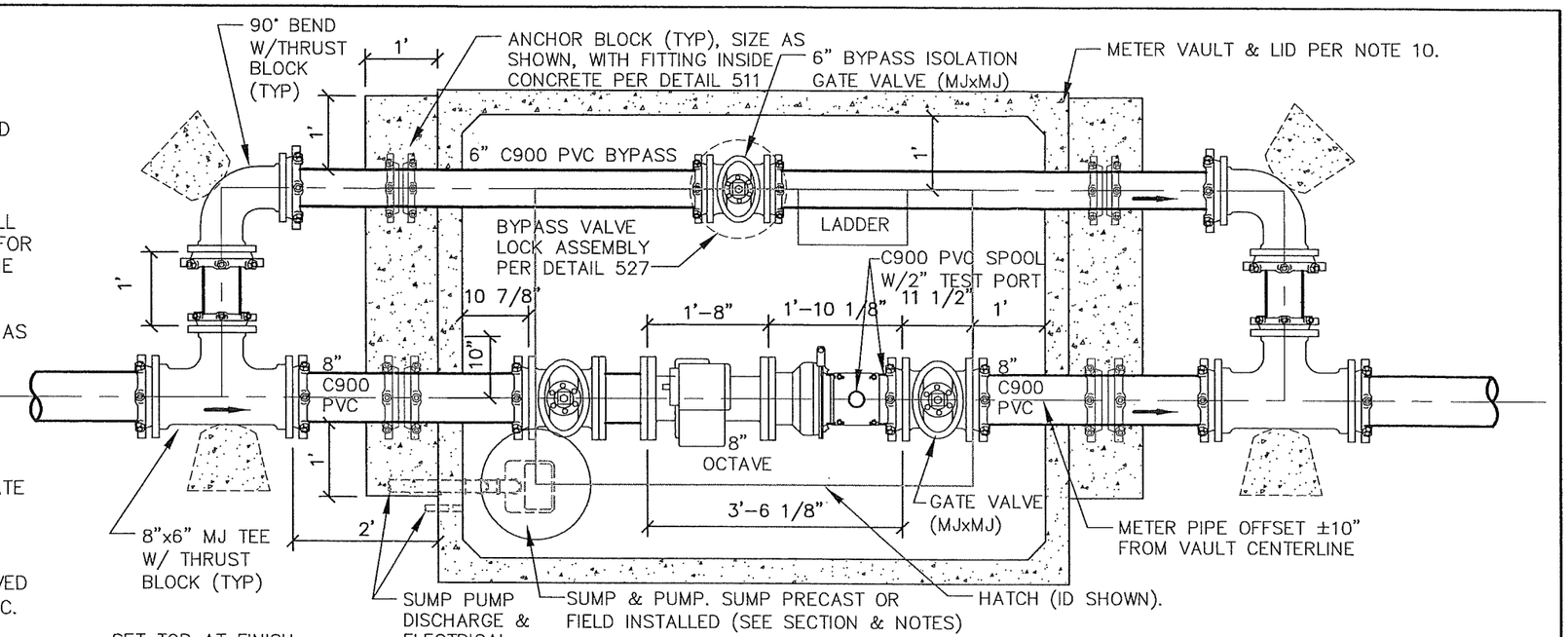
10. METER VAULT TO BE UTILITY VAULT 687-WA OR APPROVED EQUAL, CONFORMING WITH ASTM C-857. PROVIDE ALUMINUM ANGLE FRAME HATCH (48"x 72" MIN) BY USF FABRICATION OR APPROVED EQUAL (HATCH COVER TOP TO BE SAND BLASTED NON-SLIP).
    (1) TO BE 300 PSF PEDESTRIAN RATED WHERE LID IS SET MIN. OF 9" ABOVE GRADE.
    (2) TO BE H-20 RATED IF LID IS LESS THAN 9" ABOVE GRADE, OR IF LOCATED IN TRAFFIC AREA.

11. METER VAULT SHALL BE PROVIDED WITH AN OSHA APPROVED GALVANIZED STEEL LADDER AND ALUMINUM LADDER SAFETY EXTENSION. ATTACH TO VAULT WITH STAINLESS STEEL BOLTS.

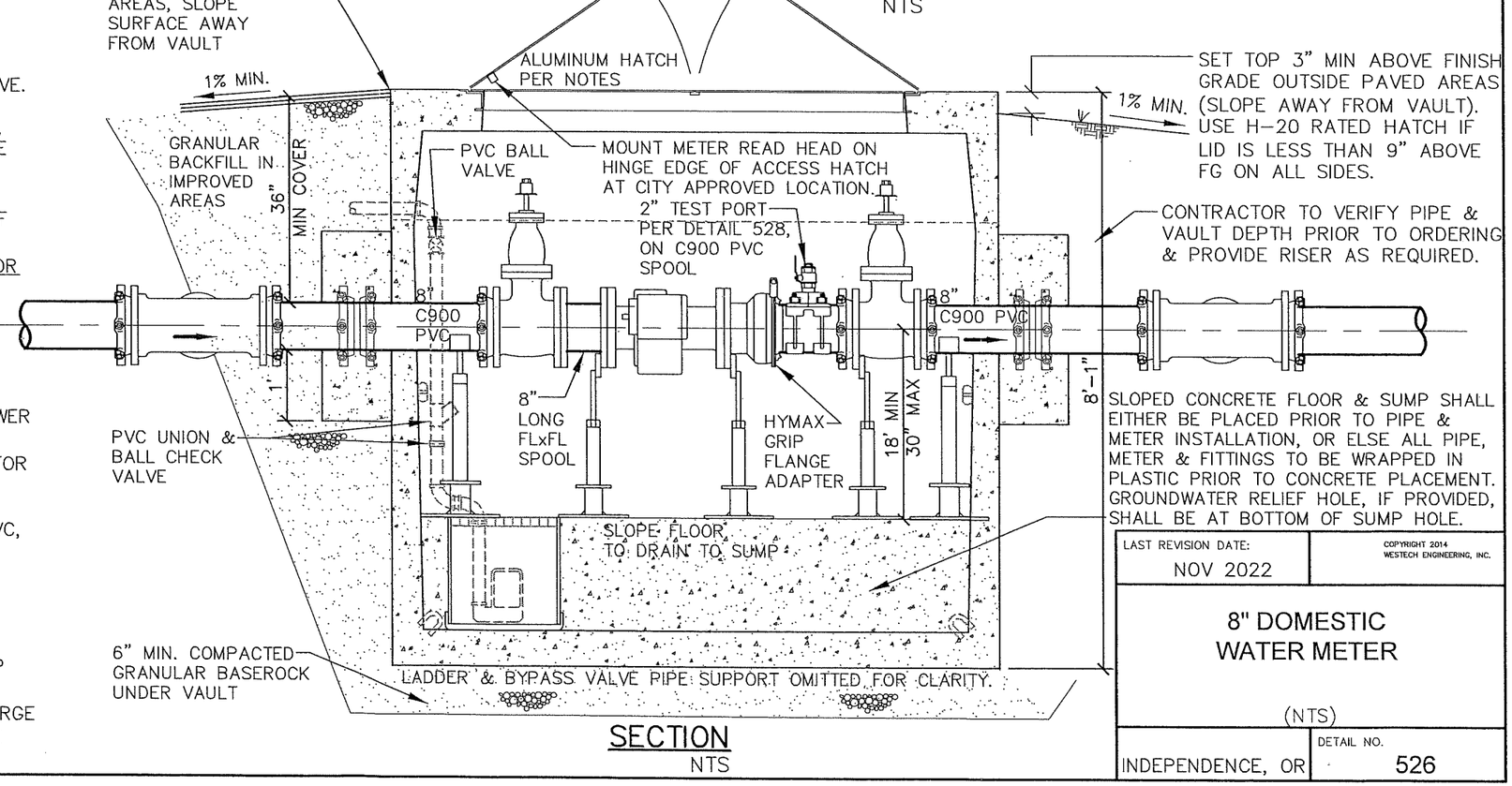
12. CONTRACTOR TO INSTALL SUMP PUMP (5 GPM MIN) WITH 120V POWER SUPPLY, ALONG WITH PRIVATE POWER SOURCE (RESPONSIBILITY OF CONTRACTOR INSTALLING VAULT). SCHED 40 CONDUIT, WIRE, ETC. FOR SUMP PUMP POWER SHALL CONFORM WITH NEC REQUIREMENTS.

13. SUMP PUMP DISCHARGE PIPE SHALL BE 1½-INCH SCHEDULE 40 PVC, PROVIDED WITH UNION (FOR PUMP REMOVAL), CHECK VALVE AND ISOLATION BALL VALVE. CONNECT DISCHARGE TO GRAVITY STORM DRAIN OR CURB WEEP HOLE (AT LOCATION APPROVED BY PUBLIC WORKS).

14. SUMP TO BE 18" ROUND CONCRETE PIPE OR EQUAL. PROVIDE FRP GRATE (OR SLOTTED MH LID) WITH COPED CUTOUT FOR DISCHARGE PIPING (IE. LID TO BE REMOVABLE WITHOUT DISASSEMBLING DISCHARGE PIPING). SUMP TO BE LARGE ENOUGH & DEEP ENOUGH TO HOUSE PUMP & FLOAT, AND KEEP WATER LEVEL BELOW SLOPED FLOOR.



PLAN
NTS



SECTION
NTS

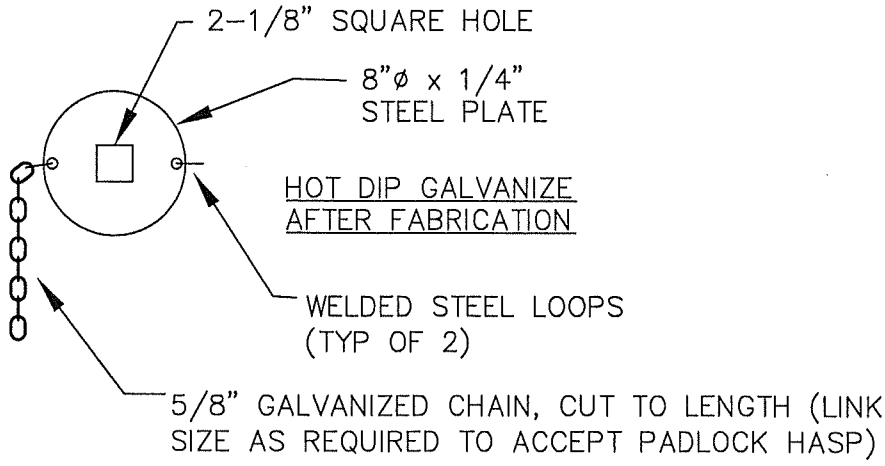
LAST REVISION DATE: NOV 2022

8" DOMESTIC WATER METER

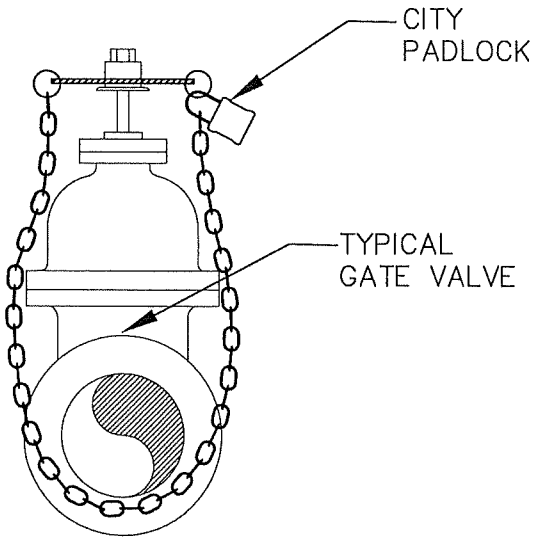
(NTS)

INDEPENDENCE, OR

DETAIL NO. 526



TOP VIEW

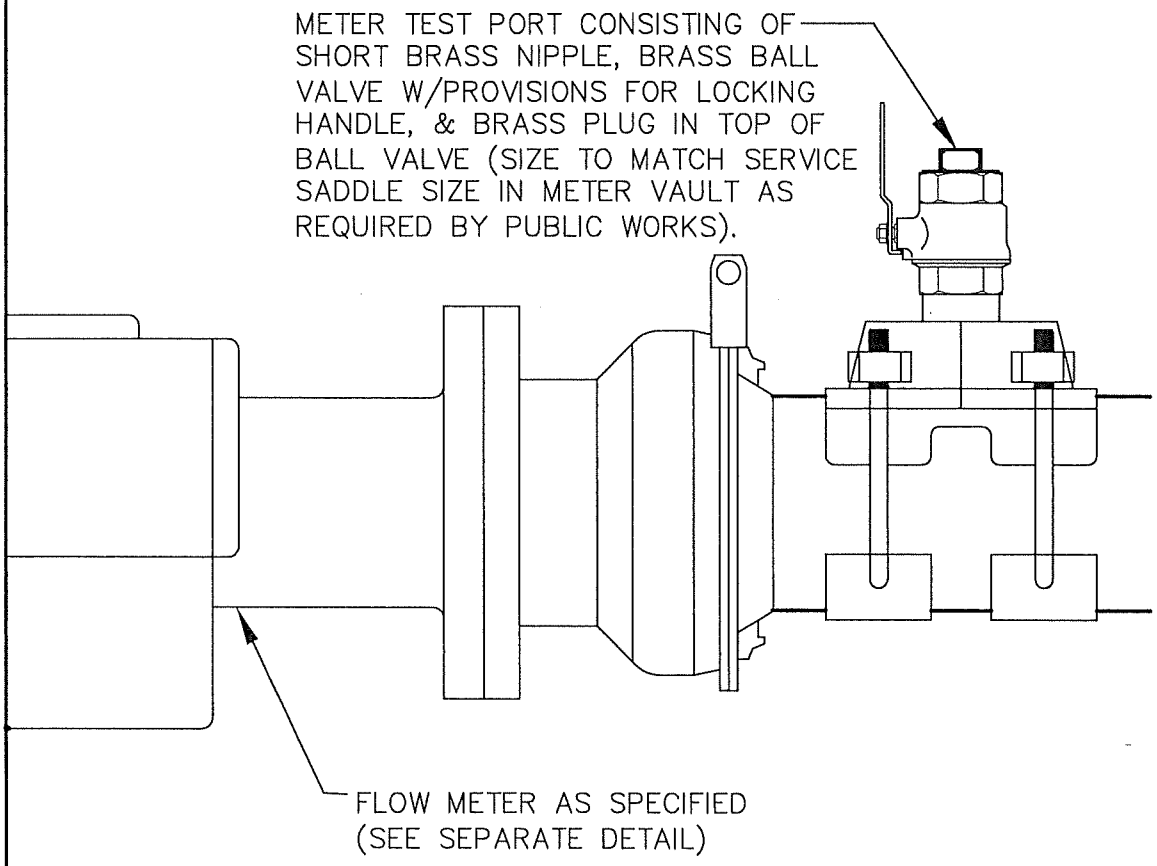


SIDE VIEW

NOTES:

1. UNLESS OTHERWISE REQUIRED BY PUBLIC WORKS, PROVIDE ONE LOCK ASSEMBLY PER VAULT.
2. VALVE LOCK ASSEMBLY TO BE HOT DIP GALVANIZED AFTER FABRICATION.

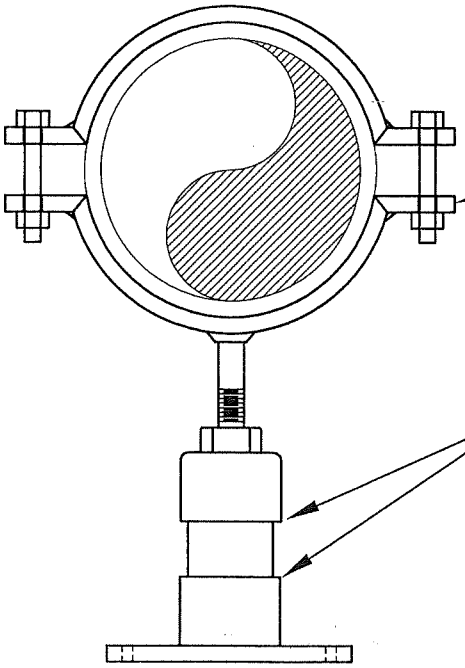
LAST REVISION DATE: AUG 2018	JO #
WATER METER VAULT BYPASS VALVE LOCK (NTS)	
INDEPENDENCE, OR	DETAIL NO. 527



NOTES:

1. UNLESS NOTED OTHERWISE ON DRAWINGS, ALL METERS 3" & LARGER SHALL BE PROVIDED WITH A TEST PORT ASSEMBLY CONSISTING OF NIPPLE, BALL VALVE AND PLUG AS NOTED.

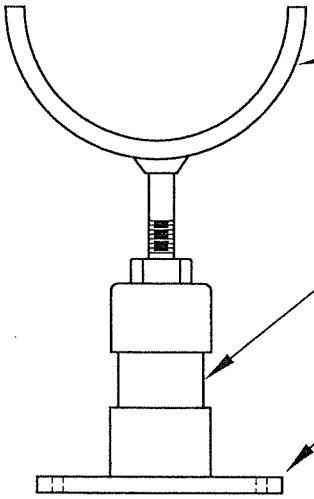
LAST REVISION DATE: AUG 2018	
WATER METER TEST PORT ASSEMBLY (NTS)	
INDEPENDENCE, OR	DETAIL NO. 528



STANDON MODEL C92 ADJUSTABLE PIPE SUPPORT (GALVANIZED STEEL TOP & BASE) OR EQUAL (PROVIDE NEOPRENE LINER FOR STEEL OR PVC PIPE)

WHERE FULLY RESTAINED SUPPORTS ARE SPECIFIED OR NOTED ON THE DRAWING, FILLET TACK WELD SUPPORT PIPE TO BASE AND TOP COLLARS AFTER INSTALLATION (E70XX ELECTRODES FOR WELDS). COAT WELDS WITH HIGH ZINC PAINT (2 COATS), TYP ALL.

FULL CIRCLE CLAMP STYLE SUPPORT

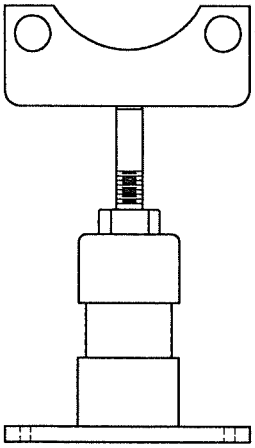


STANDON MODEL S92 ADJUSTABLE PIPE SUPPORT (GALVANIZED STEEL TOP & BASE) OR EQUAL (PROVIDE NEOPRENE LINER FOR STEEL OR PVC PIPE)

SCHEDULE 40 GALVANIZED STEEL PIPE (TYP ALL STYLES, LENGTH AS REQUIRED), DIA. PER MANUFACTURER'S RECOMMENDATIONS

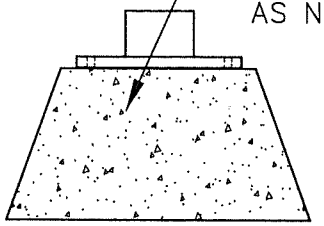
INSTALL (4) EACH 1/2" X 4" STAINLESS STEEL CONCRETE ANCHORS OR STUD ANCHORS WITH NUTS (TYP ALL STYLES).

SADDLE STYLE SUPPORT



STANDON MODEL C89 ADJUSTABLE PIPE SUPPORT (GALVANIZED STEEL TOP & BASE) OR EQUAL

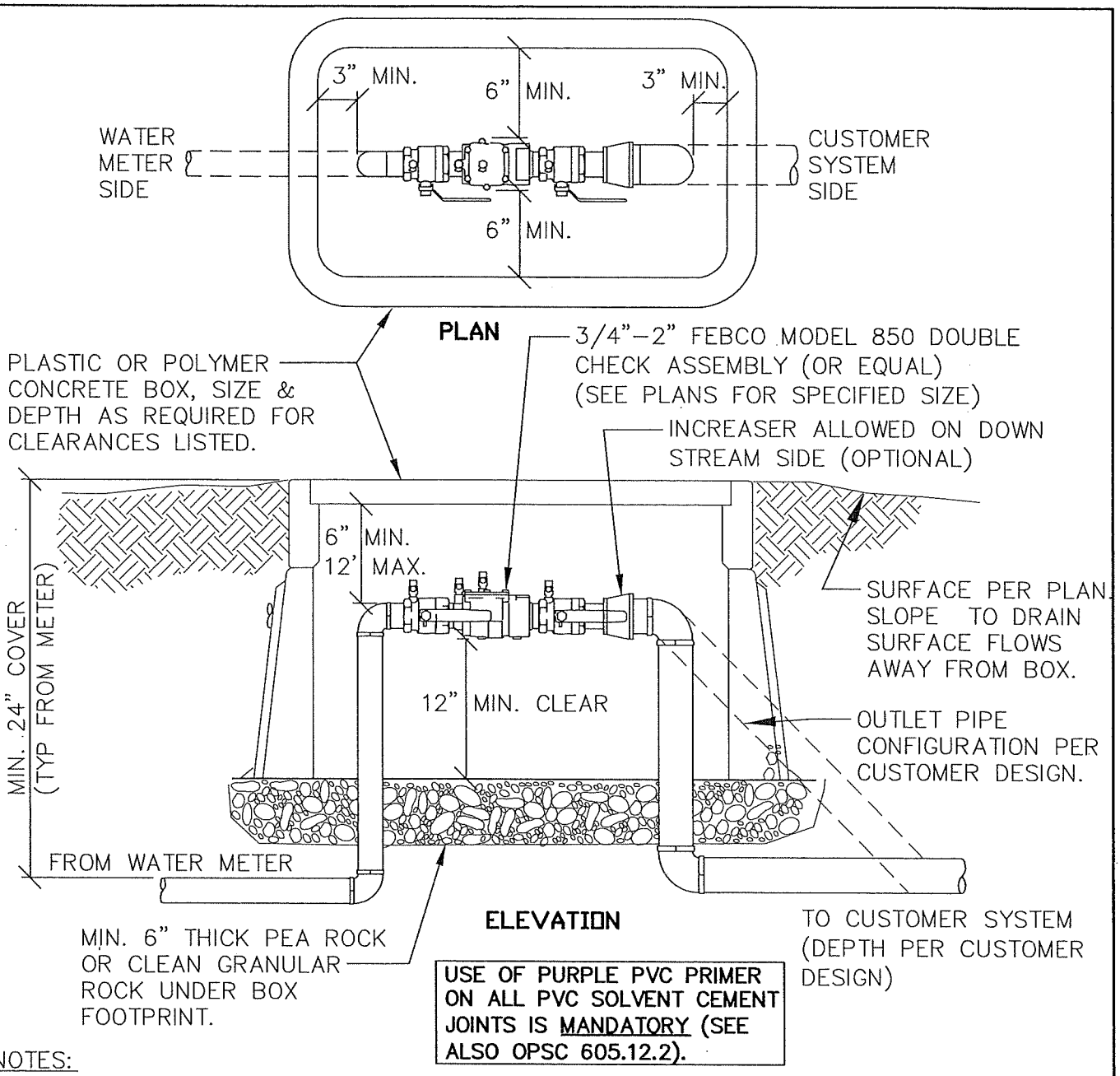
FLANGE STYLE SUPPORT



12" SQUARE CONCRETE PIER BLOCK FOR SUPPORT IN AREAS WITHOUT SLAB OR PAVEMENT. ANCHOR BOLTS/STUDS AS NOTED ABOVE.

BASE IN AREA W/OUT HARD SURFACE

LAST REVISION DATE: AUG 2018	
GALVANIZED PIPE SUPPORTS W/GALVANIZED EXT. PIPE (FLANGE, SADDLE & CLAMP) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 529



USE OF PURPLE PVC PRIMER ON ALL PVC SOLVENT CEMENT JOINTS IS MANDATORY (SEE ALSO OPSC 605.12.2).

NOTES:

1. VERIFY THE ENCLOSURE/BOX DIMENSIONS & DEPTH ARE ADEQUATE FOR CLEARANCES SHOWN, BASED ON THE SIZE OF THE DCA AND FITTINGS ACTUALLY PROVIDED & INSTALLED.
2. ENCLOSURE/BOX SHALL BE CENTERED OVER THE COMPLETED DOUBLE CHECK ASSEMBLY.
3. PER OAR 333–61–0071, DCA SHALL NOT BE SUBJECT TO CONTINUOUS IMMERSION.
4. DCA's SHALL BE INSTALLED ABOVE THE 100 YEAR FLOOD LEVEL UNLESS OTHERWISE APPROVED IN WRITING BY THE PUBLIC WORKS DIRECTOR.
5. BYPASS LINES AROUND DOUBLE CHECK ASSEMBLIES ARE NOT ALLOWED.
6. DCA's SHALL BE PROVIDED WITH BRASS OR PLASTIC PLUGS IN ALL TEST PORTS.
7. DCA SHALL BE LOCATED ON PRIVATE PROPERTY, AND SHALL NOT BE INSTALLED IN SIDEWALKS OR AREAS SUBJECT TO VEHICULAR TRAFFIC.
8. THE PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN A MINIMUM OF 3 FEET OF MAINTENANCE ACCESS WORKING CLEARANCE AROUND DCA ENCLOSURES/BOXES.
9. PRIOR TO REQUESTING APPROVAL OR FINAL INSPECTION BY THE CITY, CONTRACTOR SHALL HAVE DCA TESTED, AND COPIES OF TEST REPORTS PROVIDED TO PUBLIC WORKS.
10. PROPERTY OWNER SHALL BE RESPONSIBLE TO PROVIDE FREEZE PROTECTION DURING COLD WEATHER PERIODS AS NECESSARY.

LAST REVISION DATE:	JO #
AUG 2022	STANDARD

2" AND SMALLER DOUBLE CHECK VALVE ASSEMBLY (DCA)

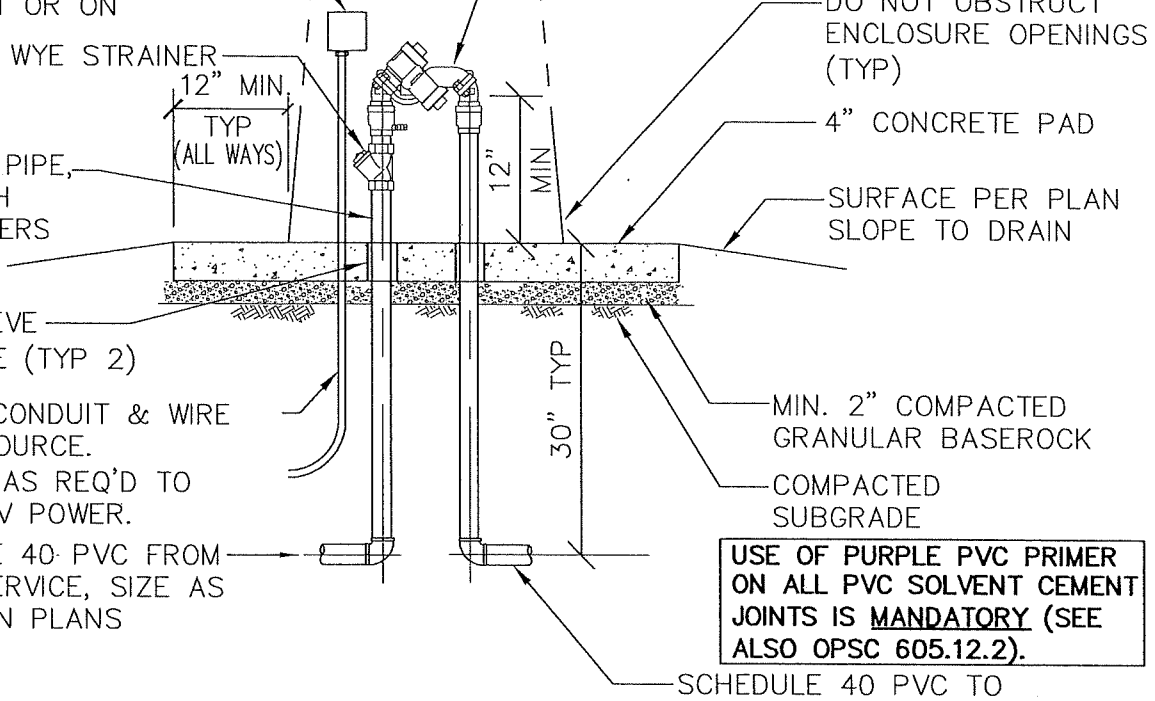
(NTS)

INDEPENDENCE, OR	DETAIL NO. 531

PAD MOUNTED FIBERGLASS INSULATED ENCLOSURE W/HEATER, HOT BOX MODEL AS SHOWN ON TABLE (OR APPROVED EQUIVALENT). ANCHOR ENCLOSURE TO CONCRETE PAD PER MANUFACTURER'S REQUIREMENTS.

RPBA DIAMETER	HOT BOX MODEL
1"	HB1
1½"	HB1
2"	HB1.5

NOTE: VERIFY HB SIZE FOR OTHER CONFIGURATION OR MODEL OF RPBA DEVICE, TO ENSURE 3" MIN CLEARANCE AT EACH END (OAR 333-061-0071).



USE OF PURPLE PVC PRIMER ON ALL PVC SOLVENT CEMENT JOINTS IS MANDATORY (SEE ALSO OPSC 605.12.2).

NOTES:

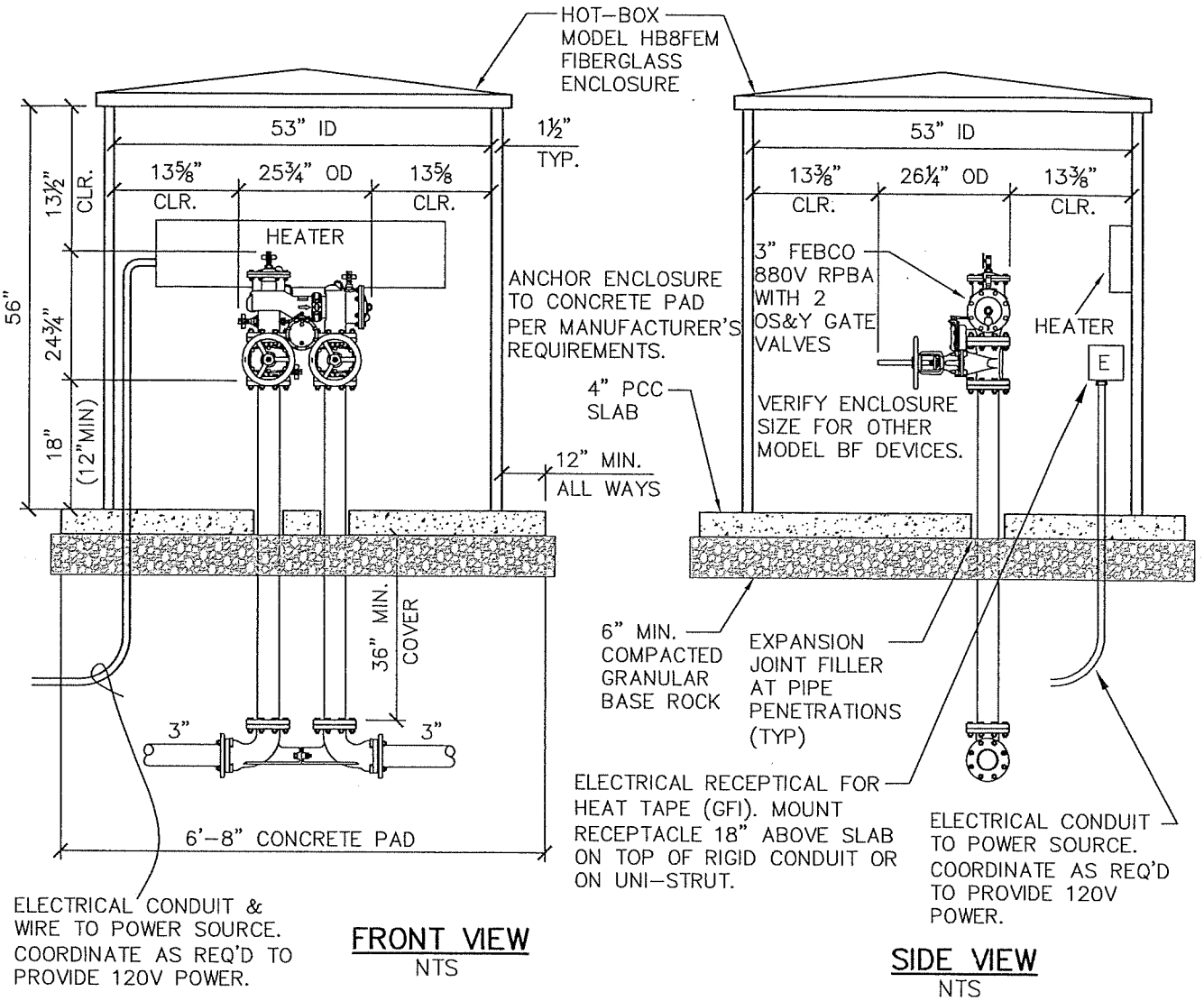
1. RPBA- REDUCED PRESSURE BACKFLOW ASSEMBLY.
2. INSTALLATION OF RPBA & ENCLOSURE SHALL MEET OREGON HEALTH AUTHORITY, DRINKING WATER SERVICES REQUIREMENTS.
3. CONTRACTOR SHALL HAVE RPBA TESTED AND CERTIFIED PRIOR TO APPROVAL BY THE CITY, AND COPIES OF TEST REPORTS PROVIDED TO CITY.
4. RPBA & ENCLOSURE SHALL CONFORM TO REQUIREMENTS OF PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.
5. VAULTS SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL OTHER VAULTS OR STRUCTURES.
6. VERIFY ENCLOSURE DIMENSIONS ARE ADEQUATE FOR CLEARANCE BASED ON HEIGHT OF REDUCED PRESSURE ASSEMBLY.
7. ENCLOSURE SHALL BE CENTERED OVER THE COMPLETED REDUCED PRESSURE BACKFLOW ASSEMBLY.
8. POWER SHALL BE INSTALLED IN SCHEDULE 40 RIGID CONDUIT PER NEC REQUIREMENTS.
9. ALL CONCRETE SHALL BE 3,300 PSI @ 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).
10. HOT BOX DRAINAGE OPENINGS SHALL NOT BE OBSTRUCTED BY GRADING OR PLANTINGS.
11. RPBA SHALL BE INSTALLED A MIN. OF 12 INCHES ABOVE THE 100-YEAR FLOOD ELEVATION AS DETERMINED BY FEMA.
12. FINISH GRADE TO SLOPE AWAY FROM ENCLOSURE SLAB AT 2% MIN. SLOPE.
13. AFTER CONSTRUCTION COMPLETION & ACCEPTANCE, PROPERTY OWNER IS RESPONSIBLE TO ENSURE FREEZE PROTECTION IS PLUGGED IN & WORKING DURING COLD WEATHER PERIODS AS NECESSARY.

LAST REVISION DATE:	JO #
AUG 2022	STANDARD

2" AND SMALLER REDUCED PRESSURE BACKFLOW ASSEMBLY

(NTS)

INDEPENDENCE, OR	DETAIL NO. 541



FRONT VIEW
NTS

SIDE VIEW
NTS

NOTES:

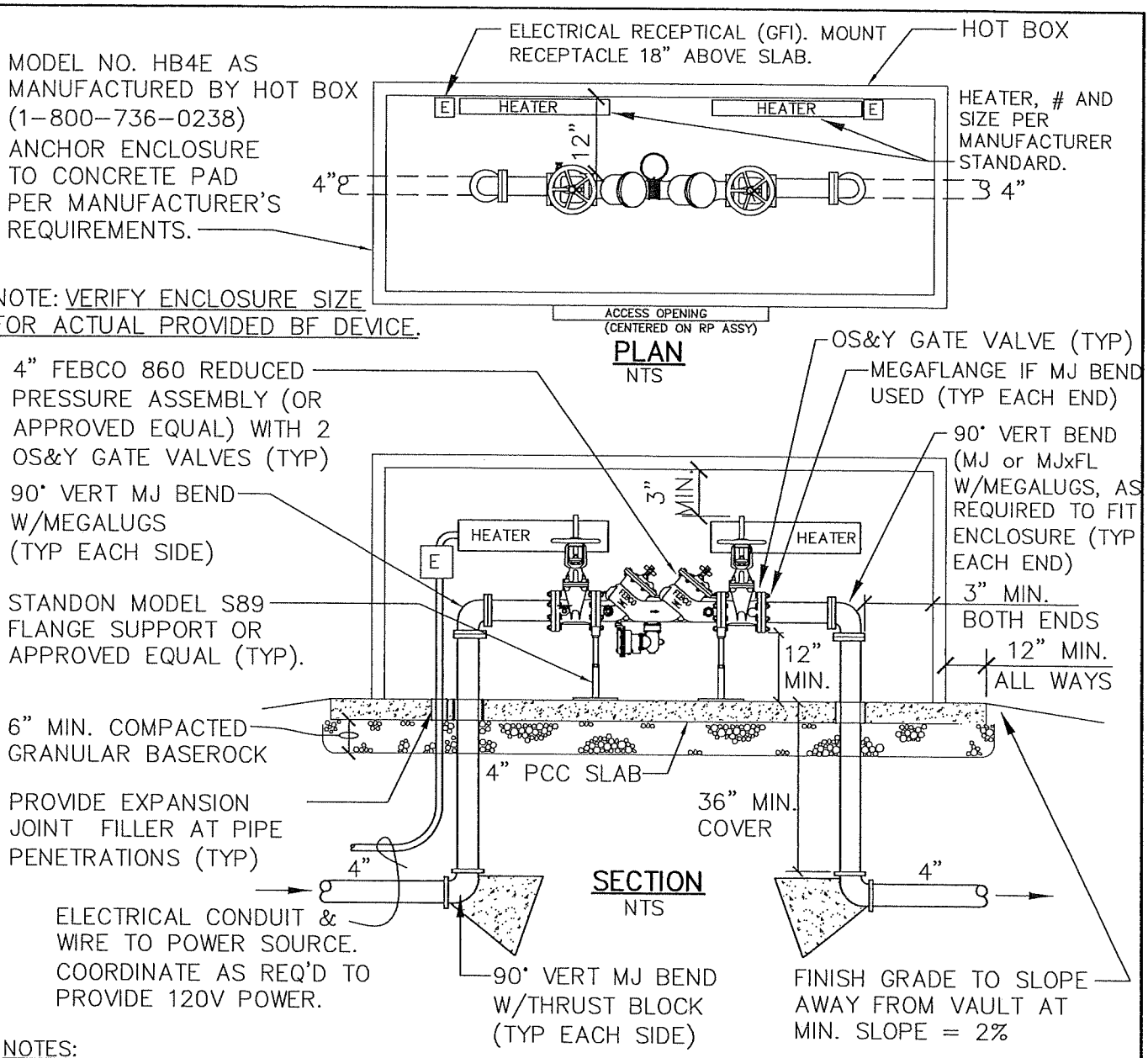
1. RPBA- REDUCED PRESSURE BACKFLOW ASSEMBLY.
2. INSTALLATION OF RPBA & ENCLOSURE SHALL MEET OREGON HEALTH AUTHORITY, DRINKING WATER SERVICES REQUIREMENTS.
3. CONTRACTOR SHALL HAVE RPBA TESTED AND CERTIFIED PRIOR TO APPROVAL BY THE CITY, AND COPIES OF TEST REPORTS PROVIDED TO CITY.
4. RPBA & ENCLOSURE SHALL CONFORM TO REQUIREMENTS OF PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.
5. ENCLOSURES SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL OTHER VAULTS OR STRUCTURES.
6. VERIFY ENCLOSURE DIMENSIONS ARE ADEQUATE FOR CLEARANCE BASED ON HEIGHT OF REDUCED PRESSURE ASSEMBLY.
7. ENCLOSURE SHALL BE CENTERED OVER THE COMPLETED REDUCED PRESSURE BACKFLOW ASSEMBLY.
8. POWER SHALL BE INSTALLED IN SCHEDULE 40 RIGID CONDUIT PER NEC REQUIREMENTS.
9. ALL CONCRETE SHALL BE 3,300 PSI @ 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).
10. HOT BOX DRAINAGE OPENINGS SHALL NOT BE OBSTRUCTED BY GRADING OR PLANTINGS.
11. RPBA SHALL BE INSTALLED A MIN. OF 12 INCHES ABOVE THE 100-YEAR FLOOD ELEVATION AS DETERMINED BY FEMA.
12. FINISH GRADE TO SLOPE AWAY FROM ENCLOSURE SLAB AT 2% MIN. SLOPE.
13. RISER PIPES & ABOVE GRADE PIPING SHALL BE DUCTILE IRON (CL 52 MIN).

LAST REVISION DATE:	JO #
SEPT 2021	

3" REDUCED PRESSURE ASSEMBLY

(NTS)

SUBLIMITY, OR	DETAIL NO. 543



NOTES:

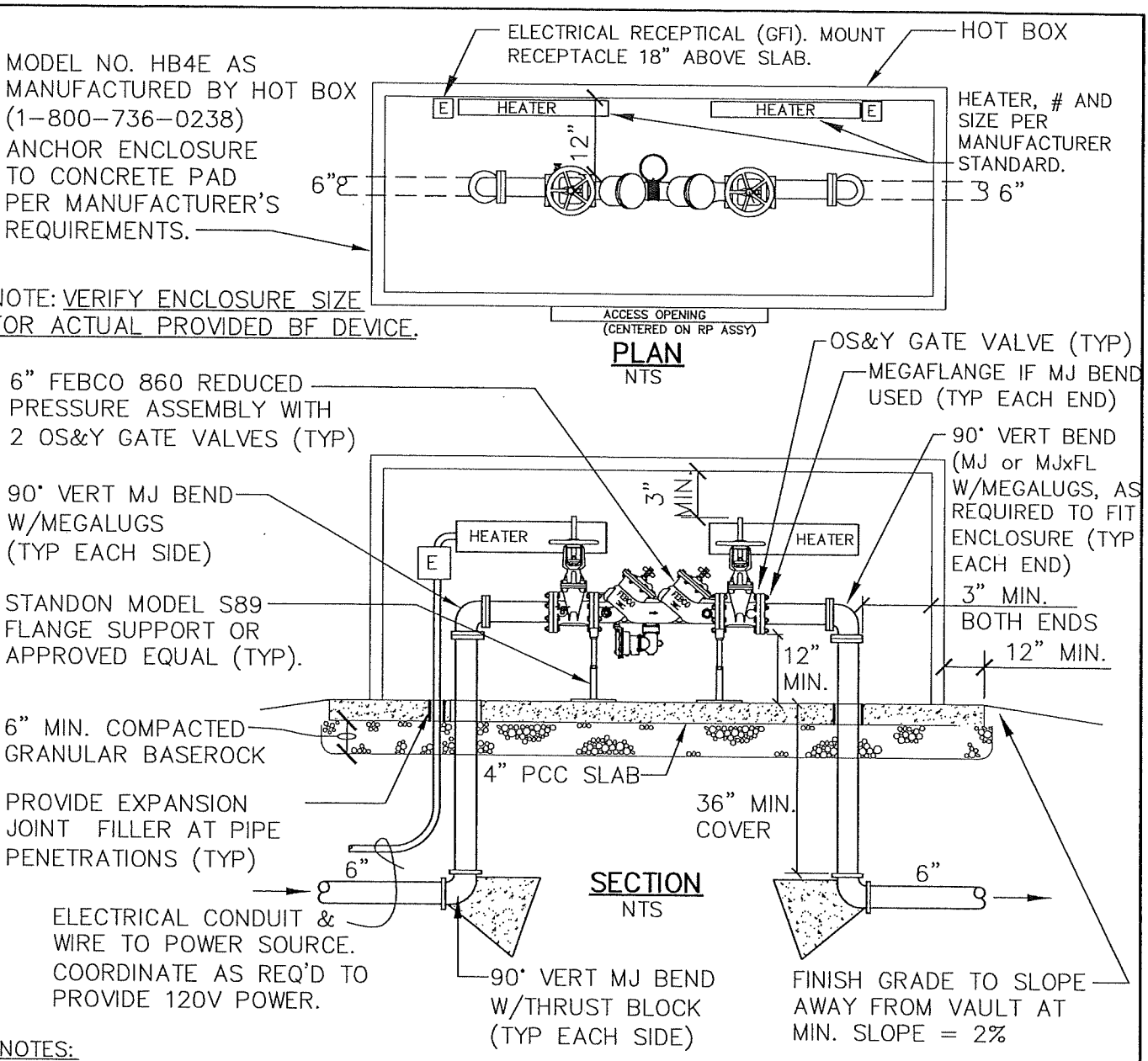
1. RPA- REDUCED PRESSURE ASSEMBLY
2. INSTALLATION OF RPA & ENCLOSURE SHALL MEET OREGON HEALTH AUTHORITY, DRINKING WATER SERVICES REQUIREMENTS.
3. CONTRACTOR SHALL HAVE RPA TESTED AND CERTIFIED PRIOR TO APPROVAL BY THE CITY, AND COPIES OF TEST REPORTS PROVIDED TO CITY.
4. RPA & ENCLOSURE SHALL CONFORM TO REQUIREMENTS OF PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.
5. ENCLOSURE SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL OTHER VAULTS OR STRUCTURES.
6. VERIFY ENCLOSURE DIMENSIONS ARE ADEQUATE FOR CLEARANCE BASED ON DIMENSIONS OF REDUCED PRESSURE ASSEMBLY PROVIDED.
7. ENCLOSURE SHALL BE CENTERED OVER THE COMPLETED REDUCED PRESSURE ASSEMBLY (LENGTH-WISE).
8. POWER SHALL BE INSTALLED IN SCHEDULE 40 RIGID CONDUIT PER NEC REQUIREMENTS.
9. 'E' INDICATES THE ELECTRICAL RECEPTACLE. IT SHALL BE MOUNTED A MIN. OF 18" ABOVE THE SLAB.
10. ALL CONCRETE SHALL BE 3,300 PSI @ 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).
11. HOT BOX DRAINAGE OPENINGS SHALL NOT BE OBSTRUCTED BY GRADING OR PLANTINGS.
12. RPA SHALL BE INSTALLED A MIN. OF 12 INCHES ABOVE THE 100-YEAR FLOOD ELEVATION AS DETERMINED BY FEMA.
13. RISER PIPES & ABOVE GRADE PIPING SHALL BE DUCTILE IRON (CL 52 MIN).

LAST REVISION DATE:	JO #
SEPT 2021	STANDARD

4" REDUCED PRESSURE ASSEMBLY

(NTS)

	DETAIL NO.
SUBLIIMITY, OR	544



NOTES:

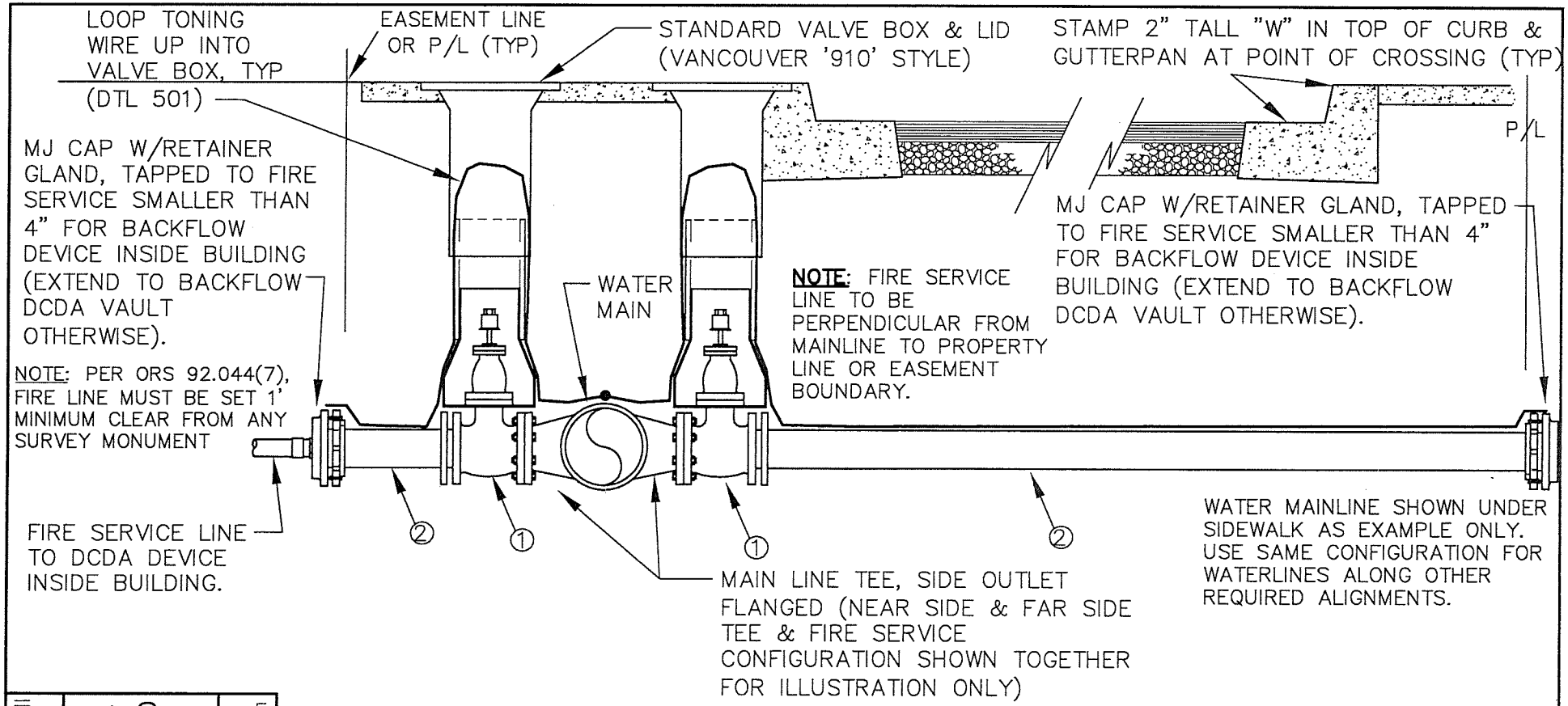
1. RPA– REDUCED PRESSURE ASSEMBLY
2. INSTALLATION OF RPA & ENCLOSURE SHALL MEET OREGON HEALTH AUTHORITY, DRINKING WATER SERVICES REQUIREMENTS.
3. CONTRACTOR SHALL HAVE RPA TESTED AND CERTIFIED PRIOR TO APPROVAL BY THE CIT, AND COPIES OF TEST REPORTS PROVIDED TO CITYY.
4. RPA & ENCLOSURE SHALL CONFORM TO REQUIREMENTS OF PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.
5. ENCLOSURE SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL OTHER VAULTS OR STRUCTURES.
6. VERIFY ENCLOSURE DIMENSIONS ARE ADEQUATE FOR CLEARANCE BASED ON DIMENSIONS OF REDUCED PRESSURE ASSEMBLY PROVIDED.
7. ENCLOSURE SHALL BE CENTERED OVER THE COMPLETED REDUCED PRESSURE ASSEMBLY (LENGTH-WISE).
8. POWER SHALL BE INSTALLED IN SCHEDULE 40 RIGID CONDUIT PER NEC REQUIREMENTS.
9. 'E' INDICATES THE ELECTRICAL RECEPTACLE. IT SHALL BE MOUNTED A MIN. OF 18" ABOVE THE SLAB.
10. ALL CONCRETE SHALL BE 3,300 PSI @ 28 DAYS, MAX 5" SLUMP, 4.5% AIR (±1.5%).
11. HOT BOX DRAINAGE OPENINGS SHALL NOT BE OBSTRUCTED BY GRADING OR PLANTINGS.
12. RPA SHALL BE INSTALLED A MIN. OF 12 INCHES ABOVE THE 100-YEAR FLOOD ELEVATION AS DETERMINED BY FEMA.
13. RISER PIPES & ABOVE GRADE PIPING SHALL BE DUCTILE IRON (CL 52 MIN).

LAST REVISION DATE:	JO #
SEPT 2021	STANDARD

6" REDUCED PRESSURE ASSEMBLY

(NTS)

SUBLIMITY, OR	DETAIL NO. 545



FIRE SERVICE LINE CONNECTION REQUIREMENTS (1-1/2" AND LARGER SERVICE)

(NTS)

INDEPENDENCE, OR

DETAIL NO. 550

LAST REVISION DATE: AUG 2018

MATERIALS

① FLG X MJ RESILIENT WEDGE GATE VALVE (PER AWWA C-509), 4" DIA. MINIMUM OR FIRE SERVICE SIZE, WHICHEVER IS LARGER. VALVE TO BE EPOXY COATED PER AWWA C-550. PROVIDE APPROVED RETAINER GLAND ON MJ JOINT.

② C900 PVC (DR 18) PIPE REQUIRED WITHIN RIGHT-OF-WAY OR EASEMENT BOUNDARY OR TO DCDA VAULT (WHERE DCDA NOT INSTALLED IN BUILDING), TYP. 4" DIA OR FIRE SERVICE SIZE, WHICHEVER IS LARGER. EPOXY COATED BELL RESTRAINTS REQUIRED ON ALL PUSH-ON JOINTS BETWEEN MAINLINE VALVE AND DCDA VAULT.

NOTES

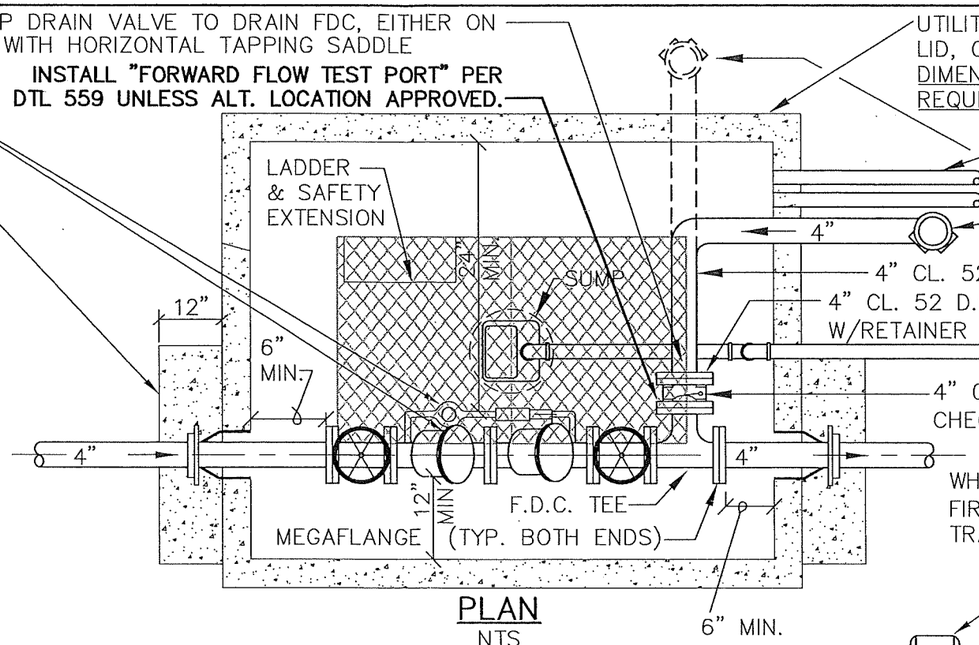
1. SUBSTITUTES FOR ANY MATERIAL SHOWN SHALL BE APPROVED BY THE CITY ENGINEER.
2. ALL PIPE AND BACKFILL ZONES SHALL BE BACKFILLED USING 3/4" MINUS GRANULAR MATERIAL AND COMPACTED TO 92% MAX DENSITY AS DETERMINED BY ASHTO T-180.
3. FIRE SERVICE LINE BEYOND PROPERTY OR EASEMENT LINE (TO BACKFLOW DEVICE) TO BE NFPA & NSF 61 APPROVED.
4. CUSTOMER SHALL INSTALL AN APPROVED BACKFLOW PREVENTION DEVICE ON PRIVATE PROPERTY AT A LOCATION APPROVED BY PUBLIC WORKS.

4" FEBCO 856 DOUBLE CHECK DETECTOR ASSEMBLY WITH 2 OS&Y GATE VALVES, OR APPROVED EQUAL.

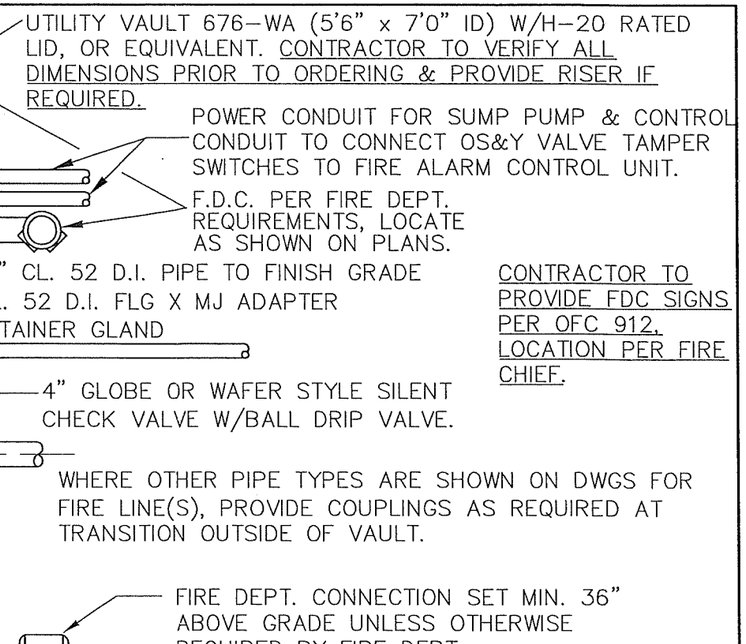
36" WIDE CAST-IN-PLACE CONCRETE THRUST COLLAR WITH RETAINER GLAND CENTERED IN CONCRETE (TYPICAL BOTH ENDS)

NOTES:

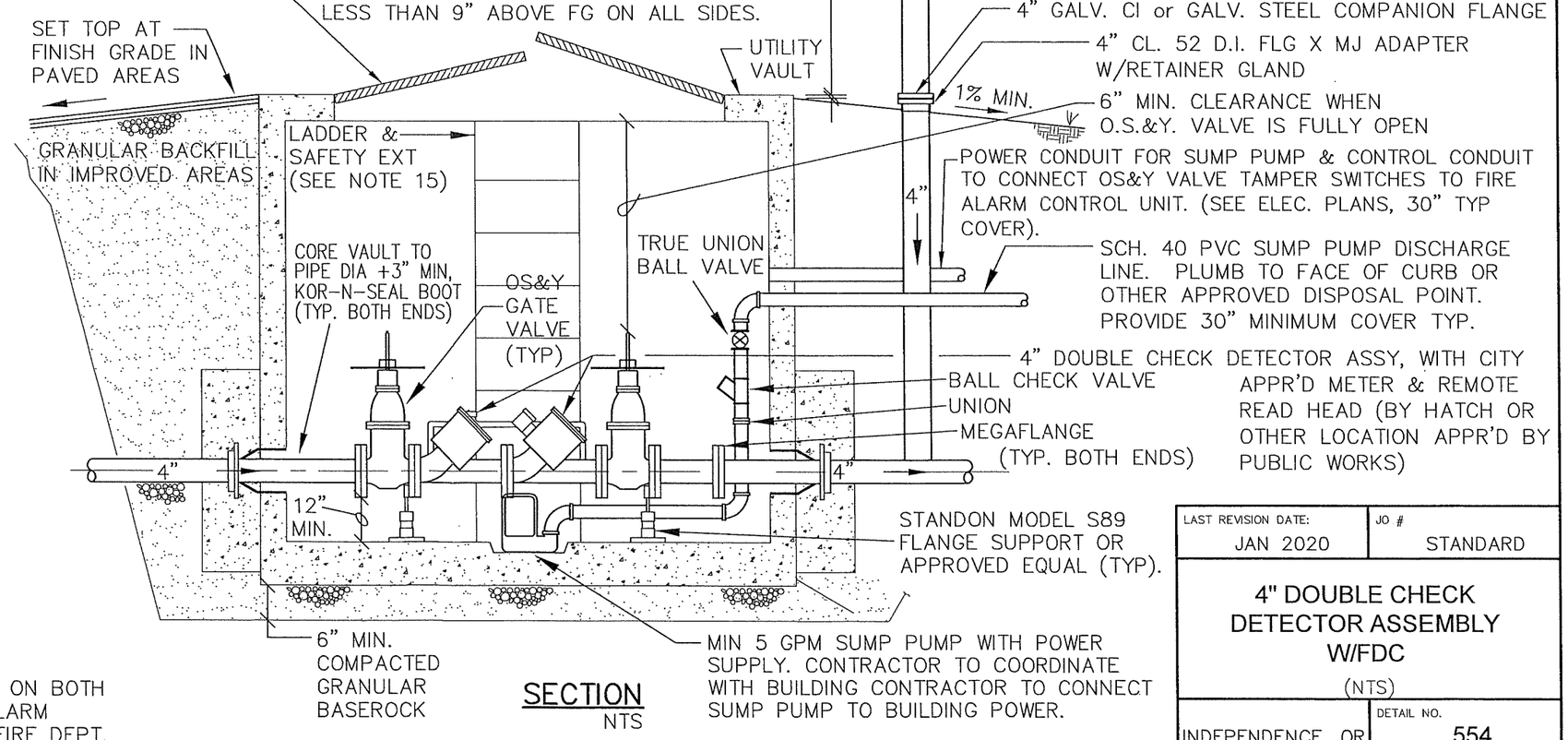
1. DCDA- DOUBLE CHECK DETECTOR ASSEMBLY FDC-FIRE DEPARTMENT CONNECTION.
2. DCDA SHALL CONFORM TO REQUIREMENTS OF PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.
3. DCDA & VAULT INSTALLATION SHALL MEET REQUIREMENTS OF OREGON HEALTH AUTHORITY, DRINKING WATER SERVICES (DWS).
4. CONTRACTOR SHALL HAVE DCDA TESTED AND CERTIFIED PRIOR TO ACCEPTANCE BY OWNER.
5. FDC SHALL NOT EXIT THROUGH THE TOP OF THE VAULT.
6. ALL PIPE OPENINGS SHALL BE SEALED WITH NON-SHRINK WATERTIGHT GROUT.
7. BENDS, CROSSES AND TEES SHALL NOT BE INSTALLED WITHIN 5 FEET OF THE OUTSIDE VAULT WALL.
8. ALL VAULTS SHALL MEET OR EXCEED ASTM C-857. ALL VAULT CONCRETE TO BE 4500 PSI @ 28 DAYS. REBAR TO BE ASTM A-615 GRADE 60.
9. SUMP PUMP WITH POWER SUPPLY SHALL BE INSTALLED UNLESS OTHERWISE APPROVED BY PUBLIC WORKS.
10. SUMP PUMP DISCHARGE PIPE TO BE 1½-INCH SCHED 40 PVC SHALL BE PLUMBED TO FACE OF STREET CURB OR OTHER DISPOSAL POINT APPROVED BY LOCAL JURISDICTION (SEE OAR 333-061-0071.3.f).
11. CONTRACTOR TO INSTALL SUMP PUMP (5 GPM MIN) WITH 120V POWER SUPPLY, ALONG WITH PRIVATE POWER SOURCE (RESPONSIBILITY OF CONTRACTOR INSTALLING VAULT). SCHED 40 CONDUIT, WIRE, ETC. FOR SUMP PUMP POWER SHALL CONFORM WITH NEC REQUIREMENTS.
12. THRUST COLLAR CONCRETE SHALL BE 3300 PSI @ 28 DAYS.
13. PROVIDE REMOTE READER (TOUCH READ HEAD) FOR DETECTOR LOOP METER PER LOCAL JURISDICTION REQUIREMENTS, MOUNTED ON HINGE EDGE OF HATCH.
14. ALUMINUM ANGLE FRAME HATCH (3'0"x 5'6" MIN) SHALL BE BY USF FABRICATION OR APPROVED EQUAL (SAND BLASTED NON-SLIP).
    (1) TO BE 300 PSF PEDESTRIAN RATED WHERE LID IS SET MIN. OF 9" ABOVE GRADE.
    (2) TO BE H-20 RATED IF LID IS LESS THAN 9" ABOVE GRADE, OR IF LOCATED IN TRAFFIC AREA.
15. OSHA APPROVED GALVANIZED STEEL LADDER & ALUMINUM LADDER SAFETY EXTENSION.
16. PER OFC 903.4, INSTALL APPROVED TAMPER SWITCH ON BOTH OS&Y VALVES IN VAULT, WIRED TO A LISTED FIRE ALARM CONTROL UNIT, UNLESS EXEMPTION IS GRANTED BY FIRE DEPT.



PLAN
NTS



CONTRACTOR TO PROVIDE FDC SIGNS PER OFC 912, LOCATION PER FIRE CHIEF.



SECTION
NTS

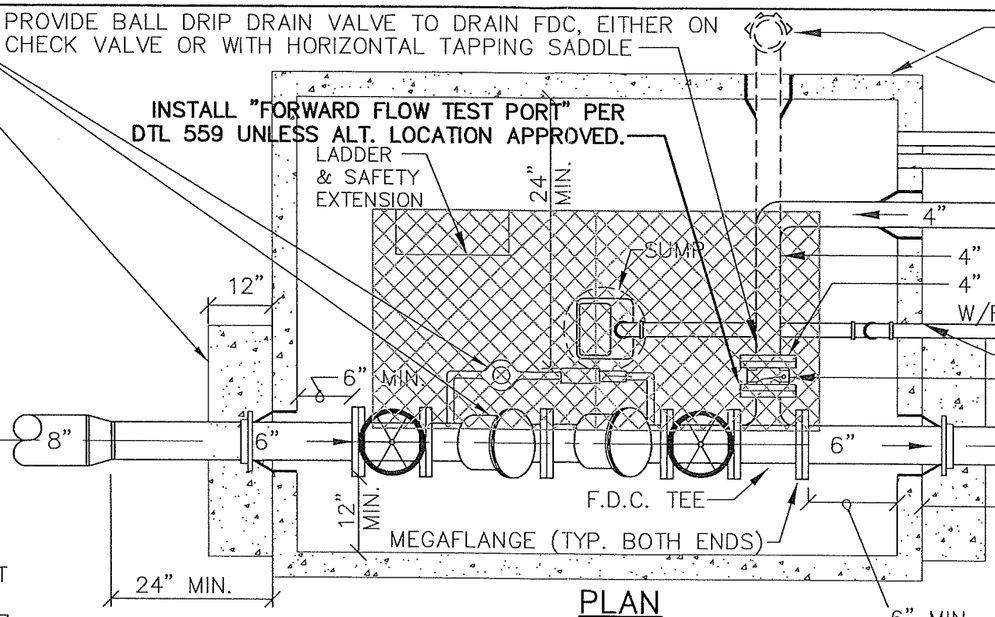
LAST REVISION DATE: JAN 2020	JO # STANDARD
4" DOUBLE CHECK DETECTOR ASSEMBLY W/FDC (NTS)	
INDEPENDENCE, OR	DETAIL NO. 554

6" FEBCO 856 DOUBLE CHECK DETECTOR ASSEMBLY WITH 2 OS&Y GATE VALVES, OR APPROVED EQUAL.

36" WIDE CAST-IN-PLACE CONCRETE THRUST COLLAR WITH RETAINER GLAND CENTERED IN CONCRETE (TYPICAL BOTH ENDS)

NOTES:

1. DCDA- DOUBLE CHECK DETECTOR ASSEMBLY FDC-FIRE DEPARTMENT CONNECTION.
2. DCDA SHALL CONFORM TO REQUIREMENTS OF PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.
3. DCDA & VAULT INSTALLATION SHALL MEET REQUIREMENTS OF OREGON HEALTH AUTHORITY, DRINKING WATER SERVICES (DWS).
4. CONTRACTOR SHALL HAVE DCDA TESTED AND CERTIFIED PRIOR TO ACCEPTANCE BY OWNER.
5. FDC SHALL NOT EXIT THROUGH THE TOP OF THE VAULT.
6. ALL PIPE OPENINGS SHALL BE SEALED WITH NON-SHRINK WATERTIGHT GROUT.
7. BENDS, CROSSES AND TEES SHALL NOT BE INSTALLED WITHIN 5 FEET OF THE OUTSIDE VAULT WALL.
8. ALL VAULTS SHALL MEET OR EXCEED ASTM C-857. ALL VAULT CONCRETE TO BE 4500 PSI @ 28 DAYS. REBAR TO BE ASTM A-615 GRADE 60.
9. SUMP PUMP WITH POWER SUPPLY SHALL BE INSTALLED UNLESS OTHERWISE APPROVED BY PUBLIC WORKS.
10. SUMP PUMP DISCHARGE PIPE TO BE 1½-INCH SCHED 40 PVC SHALL BE PLUMBED TO FACE OF STREET CURB OR OTHER DISPOSAL POINT APPROVED BY LOCAL JURISDICTION (SEE OAR 333-061-0071.3.f).
11. CONTRACTOR TO INSTALL SUMP PUMP (5 GPM MIN) WITH 120V POWER SUPPLY, ALONG WITH PRIVATE POWER SOURCE (RESPONSIBILITY OF CONTRACTOR INSTALLING VAULT). SCHED 40 CONDUIT, WIRE, ETC. FOR SUMP PUMP POWER SHALL CONFORM WITH NEC REQUIREMENTS.
12. THRUST COLLAR CONCRETE SHALL BE 3300 PSI @ 28 DAYS.
13. PROVIDE REMOTE READER (TOUCH READ HEAD) FOR DETECTOR LOOP METER PER LOCAL JURISDICTION REQUIREMENTS, MOUNTED ON HINGE EDGE OF HATCH.
14. ALUMINUM ANGLE FRAME HATCH (3'0"x 5'6" MIN) SHALL BE BY USF FABRICATION OR APPROVED EQUAL (SAND BLASTED NON-SLIP).
    (1) TO BE 300 PSF PEDESTRIAN RATED WHERE LID IS SET MIN. OF 9" ABOVE GRADE.
    (2) TO BE H-20 RATED IF LID IS LESS THAN 9" ABOVE GRADE, OR IF LOCATED IN TRAFFIC AREA.
15. OSHA APPROVED GALVANIZED STEEL LADDER & ALUMINUM LADDER SAFETY EXTENSION.
16. PER OFC 903.4, INSTALL APPROVED TAMPER SWITCH ON BOTH OS&Y VALVES IN VAULT, WIRED TO A LISTED FIRE ALARM CONTROL UNIT, UNLESS EXEMPTION IS GRANTED BY FIRE DEPT.



PLAN
NTS

SECTION
NTS

UTILITY VAULT 687-WA (6'0" x 8'0" ID) W/H-20 RATED LID, OR EQUIVALENT. CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO ORDERING & PROVIDE RISER IF REQUIRED.

POWER CONDUIT FOR SUMP PUMP & CONTROL CONDUIT TO CONNECT OS&Y VALVE TAMPER SWITCHES TO FIRE ALARM CONTROL UNIT.

F.D.C. PER FIRE DEPT. REQUIREMENTS, LOCATE AS SHOWN ON PLANS.

4" CL. 52 D.I. PIPE TO FINISH GRADE

4" CL. 52 D.I. FLG X MJ ADAPTER W/RETAINER GLAND

GROUT

4" GLOBE OR WAFER STYLE SILENT CHECK VALVE W/BALL DRIP VALVE.

6" x 8" REDUCER (TYP BOTH ENDS)

CONTRACTOR TO PROVIDE FDC SIGNS PER OFC 912, LOCATION PER FIRE CHIEF.

WHERE OTHER PIPE TYPES ARE SHOWN ON DWGS FOR FIRE LINE(S), PROVIDE COUPLINGS AS REQUIRED AT TRANSITION OUTSIDE OF VAULT.

SET TOP 1" MIN. ABOVE FG. OUTSIDE PAVED AREAS. USE H-20 RATED HATCH IF LID IS LESS THAN 9" ABOVE FG ON ALL SIDES.

FIRE DEPT. CONNECTION SET MIN. 36" ABOVE GRADE UNLESS OTHERWISE REQUIRED BY FIRE DEPT.

4" SCH, 80 GALV. STEEL NIPPLE

4" GALV. CI or GALV. STEEL COMPANION FLANGE

4" CL. 52 D.I. FLG X MJ ADAPTER W/RETAINER GLAND

1% MIN.

6" MIN. CLEARANCE WHEN O.S.&Y. VALVE IS FULLY OPEN

POWER CONDUIT FOR SUMP PUMP & CONTROL CONDUIT TO CONNECT OS&Y VALVE TAMPER SWITCHES TO FIRE ALARM CONTROL UNIT. (SEE ELEC. PLANS, 30" TYP COVER).

SCH 40 PVC SUMP PUMP DISCHARGE LINE. PLUMB TO FACE OF CURB OR OTHER APPROVED DISPOSAL POINT. PROVIDE 30" MINIMUM COVER TYP.

6" DOUBLE CHECK DETECTOR ASSY, WITH CITY APPR'D METER & REMOTE READ HEAD (BY HATCH OR OTHER LOCATION APPR'D BY PUBLIC WORKS)

BALL CHECK VALVE

UNION

MEGAFLANGE (TYP. BOTH ENDS)

STANDON MODEL S89 FLANGE SUPPORT OR APPROVED EQUAL (TYP).

MIN 5 GPM SUMP PUMP WITH POWER SUPPLY. CONTRACTOR TO COORDINATE WITH BUILDING CONTRACTOR TO CONNECT SUMP PUMP TO BUILDING POWER.

UTILITY VAULT

TRUE UNION BALL VALVE

LAST REVISION DATE:	JO #
JAN 2020	STANDARD

6" DOUBLE CHECK DETECTOR ASSEMBLY W/FDC

(NTS)

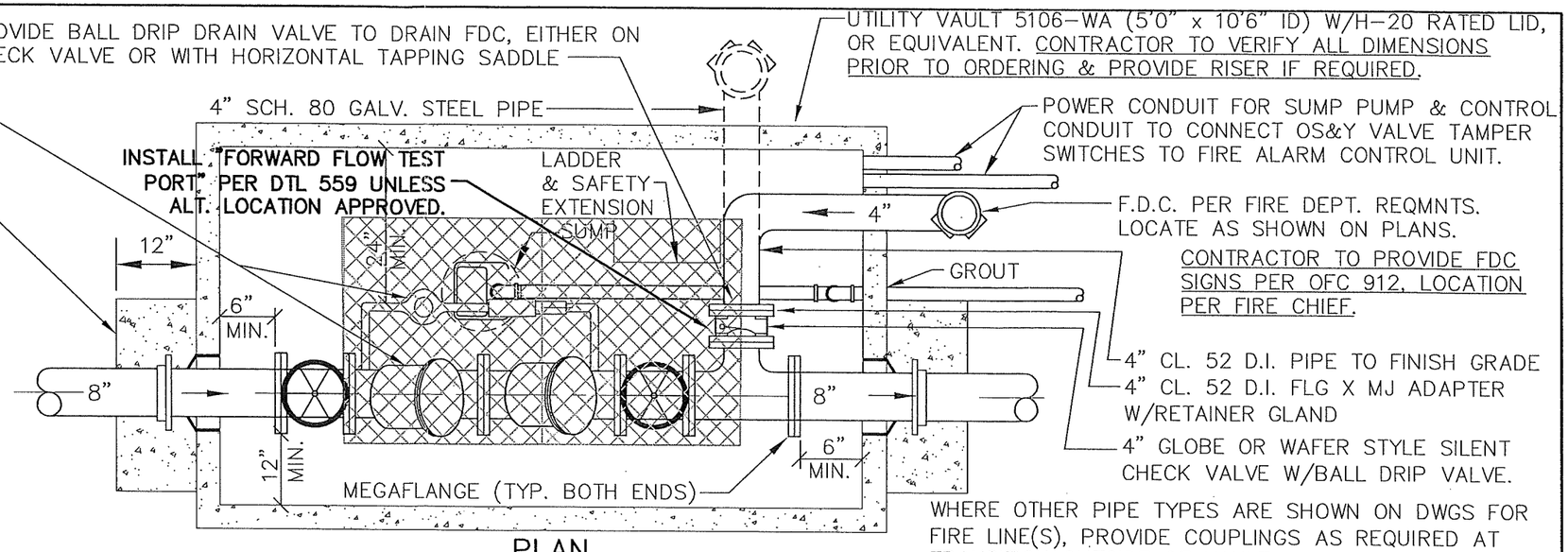
INDEPENDENCE, OR	DETAIL NO.
	555

8" FEBCO 856 DOUBLE CHECK DETECTOR ASSEMBLY WITH 2 OS&Y GATE VALVES, OR APPROVED EQUAL.

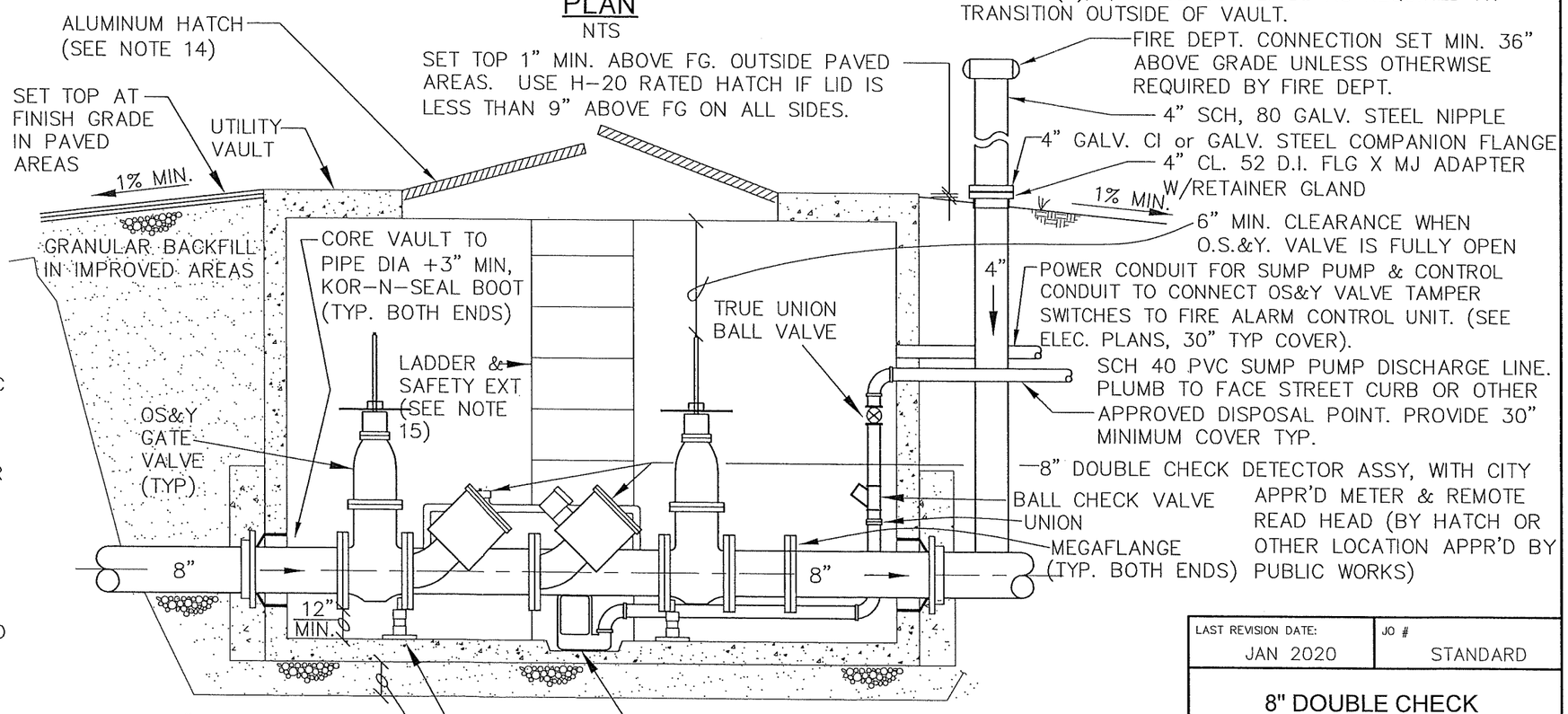
36" WIDE CAST-IN-PLACE CONCRETE THRUST COLLAR WITH RETAINER GLAND CENTERED IN CONCRETE (TYPICAL BOTH ENDS)

NOTES:

1. DCDA- DOUBLE CHECK DETECTOR ASSEMBLY FDC-FIRE DEPARTMENT CONNECTION.
2. DCDA SHALL CONFORM TO REQUIREMENTS OF PUBLIC/PRIVATE AGENCIES HAVING JURISDICTION.
3. DCDA & VAULT INSTALLATION SHALL MEET REQUIREMENTS OF OREGON HEALTH AUTHORITY, DRINKING WATER SERVICES (DWS).
4. CONTRACTOR SHALL HAVE DCDA TESTED AND CERTIFIED PRIOR TO ACCEPTANCE BY OWNER.
5. FDC SHALL NOT EXIT THROUGH THE TOP OF THE VAULT.
6. ALL PIPE OPENINGS SHALL BE SEALED WITH NON-SHRINK WATERTIGHT GROUT.
7. BENDS, CROSSES AND TEES SHALL NOT BE INSTALLED WITHIN 5 FEET OF THE OUTSIDE VAULT WALL.
8. ALL VAULTS SHALL MEET OR EXCEED ASTM C-857. ALL VAULT CONCRETE TO BE 4500 PSI @ 28 DAYS. REBAR TO BE ASTM A-615 GRADE 60.
9. SUMP PUMP WITH POWER SUPPLY SHALL BE INSTALLED UNLESS OTHERWISE APPROVED BY PUBLIC WORKS.
10. SUMP PUMP DISCHARGE PIPE TO BE 1½-INCH SCHED 40 PVC SHALL BE PLUMBED TO FACE OF STREET CURB OR OTHER DISPOSAL POINT APPROVED BY LOCAL JURISDICTION (SEE OAR 333-061-0071.3.f).
11. CONTRACTOR TO INSTALL SUMP PUMP (5 GPM MIN) WITH 120V POWER SUPPLY, ALONG WITH PRIVATE POWER SOURCE (RESPONSIBILITY OF CONTRACTOR INSTALLING VAULT). SCHED 40 CONDUIT, WIRE, ETC. FOR SUMP PUMP POWER SHALL CONFORM WITH NEC REQUIREMENTS.
12. THRUST COLLAR CONCRETE SHALL BE 3300 PSI @ 28 DAYS.
13. PROVIDE REMOTE READER (TOUCH READ HEAD) FOR DETECTOR LOOP METER PER LOCAL JURISDICTION REQUIREMENTS, MOUNTED ON HINGE EDGE OF HATCH.
14. ALUMINUM ANGLE FRAME HATCH (3'0"x 5'6" MIN) SHALL BE BY USF FABRICATION OR APPROVED EQUAL (SAND BLASTED NON-SLIP).
    (1) TO BE 300 PSF PEDESTRIAN RATED WHERE LID IS SET MIN. OF 9" ABOVE GRADE.
    (2) TO BE H-20 RATED IF LID IS LESS THAN 9" ABOVE GRADE, OR IF LOCATED IN TRAFFIC AREA.
15. OSHA APPROVED GALVANIZED STEEL LADDER & ALUMINUM LADDER SAFETY EXTENSION.
16. PER OFC 903.4, INSTALL APPROVED TAMPER SWITCH ON BOTH OS&Y VALVES IN VAULT, WIRED TO A LISTED FIRE ALARM CONTROL UNIT, UNLESS EXEMPTION IS GRANTED BY FIRE DEPT.

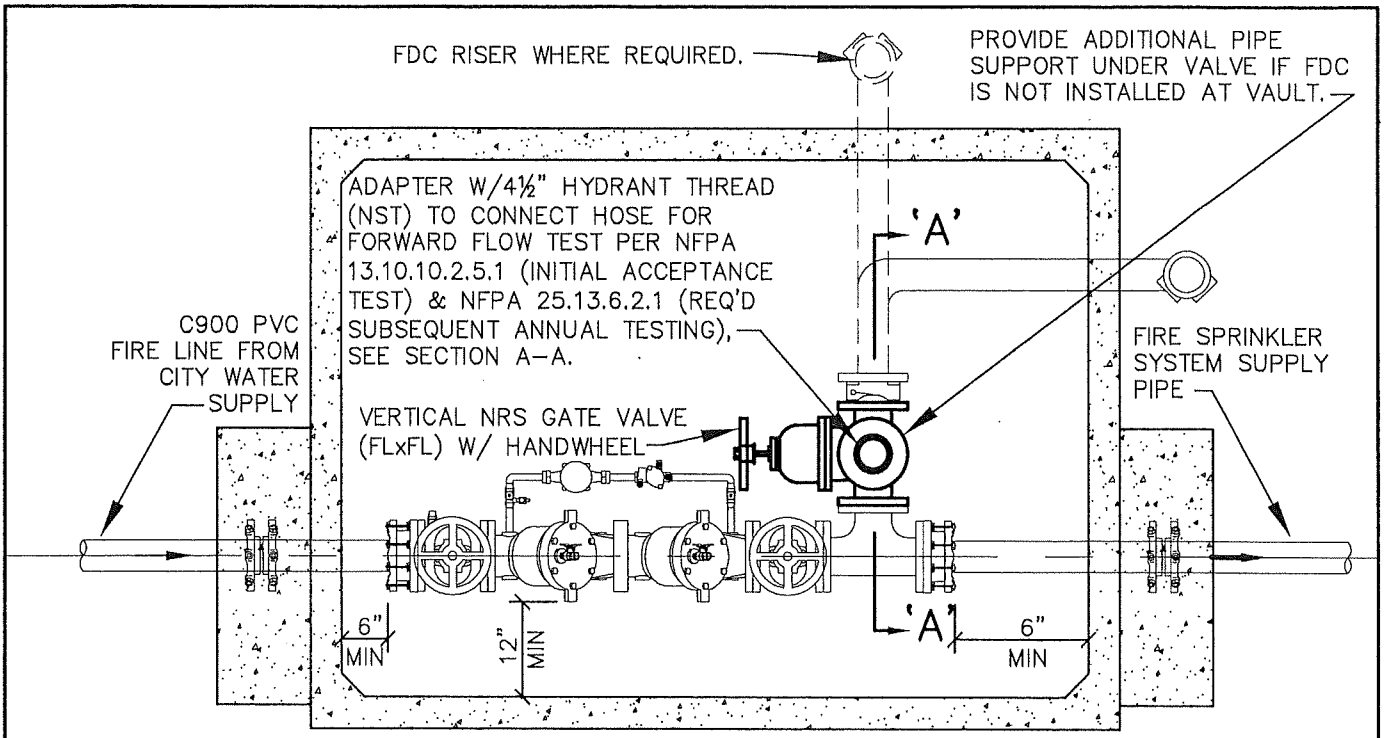


PLAN
NTS

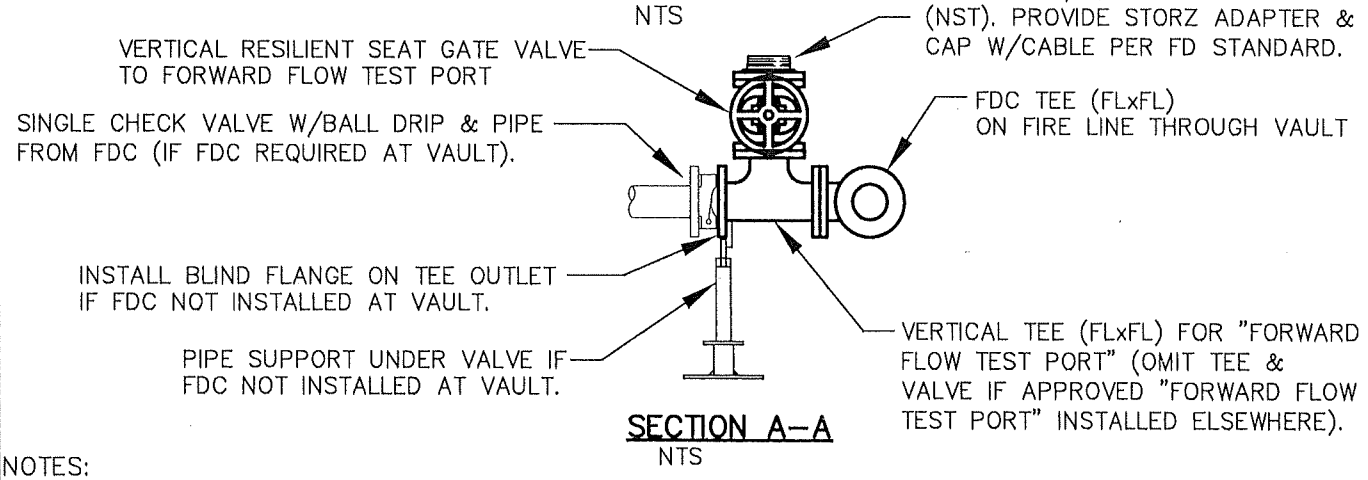


SECTION
NTS

LAST REVISION DATE: JAN 2020	JO # STANDARD
8" DOUBLE CHECK DETECTOR ASSEMBLY W/FDC (NTS)	
INDEPENDENCE, OR	DETAIL NO. 556



PLAN
NTS



SECTION A–A
NTS

NOTES:

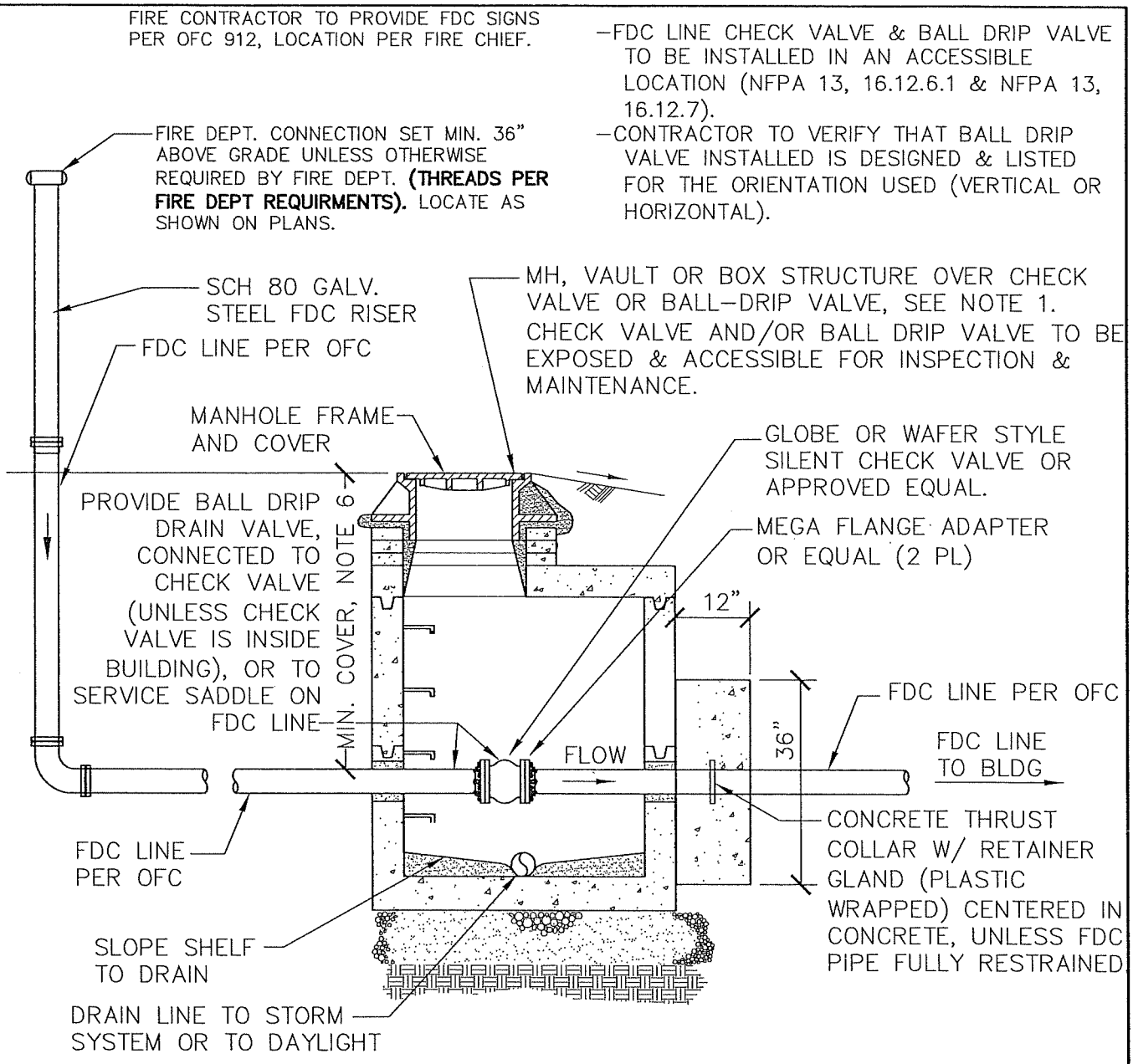
1. THE "FORWARD FLOW TEST PORT" SHALL BE INSTALLED IN THE DCDA VAULT AS SHOWN AND SPECIFIED BY THIS DETAIL, UNLESS AN ALTERNATE PERMANENT "FORWARD FLOW TEST PORT" LOCATION IS APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE AND AN AUTHORIZED FIRE DEPT REPRESENTATIVE, OR IF A PRIVATE FIRE HYDRANT DOWNSTREAM OF THE DCDA VAULT IS DESIGNATED AS THE REQUIRED "FORWARD FLOW TEST PORT".

2. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE FIRE SPRINKLER SYSTEM DESIGNER/ INSTALLER TO VERIFY THE FLOWRATE REQUIRED FOR THE "FORWARD FLOW TEST" OF THE BACKFLOW DEVICE, AND SHALL COORDINATE TO ENSURE THAT ALL HOSE & FLOW MEASUREMENT EQUIPMENT (HOSE MONSTER OR EQUAL) IS PROVIDED AS REQUIRED TO CONDUCT THE ACCEPTANCE "FORWARD FLOW TEST" AS REQUIRED BY NFPA 13.10.10.2.5.1.

3. ALL COMPONENTS OF THE FORWARD FLOW TEST PORT (EXCLUDING THE FIRE HOSES & FLOW MEASUREMENT EQUIPMENT) SHALL REMAIN IN PLACE TO ALLOW SUBSEQUENT "FORWARD FLOW TESTS" TO BE CONDUCTED WITHOUT ANY SYSTEM MODIFICATIONS (IE. ANNUAL FLOW TESTS AS REQUIRED PER NFPA 25.13.6.2.1).

4. CONFORM TO ALL OTHER REQUIREMENTS OF APPLICABLE DOUBLE CHECK DETECTOR ASSEMBLY DETAIL(S), NOTES & SPECIFICATIONS.

LAST REVISION DATE: NOV 2018	JO #
4" FORWARD FLOW TEST PORT INSIDE DCDA VAULT (FOR NFPA 13 & 25 TESTS) (NTS)	
INDEPENDENCE, OR	DETAIL NO. 559



-FDC LINE CHECK VALVE & BALL DRIP VALVE TO BE INSTALLED IN AN ACCESSIBLE LOCATION (NFPA 13, 16.12.6.1 & NFPA 13, 16.12.7).

-CONTRACTOR TO VERIFY THAT BALL DRIP VALVE INSTALLED IS DESIGNED & LISTED FOR THE ORIENTATION USED (VERTICAL OR HORIZONTAL).

NOTES:

1. INSTALL 48" PRECAST MANHOLE PER DETAIL 402, UNLESS OTHER APPROVED VAULT OR BOX IS SHOWN OR NOTED ON DWGS.
2. ALL PIPE OPENINGS SHALL BE SEALED WITH NON-SHRINK WATERTIGHT GROUT.
3. WHERE REQUIRED, THRUST COLLAR CONCRETE SHALL BE 3300 PSI @ 28 DAYS.
4. IF AN FDC LINE CHECK VALVE IS PROVIDED INSIDE BUILDING, AN EXTERIOR FDC LINE CHECK VALVE IS NOT REQUIRED UNLESS OTHERWISE DIRECTED IN WRITING BY FIRE CODE OFFICIAL. A BALL DRIP AUTOMATIC DRAIN VALVE SHALL BE INSTALLED ON CHECK VALVE OR AT THE LOW POINT ON FDC LINE (DETAIL 562), TO DRAIN HORIZONTAL FDC LINE BETWEEN CHECK VALVE & FDC RISER.
5. PER NFPA 13, A10.4.2, 40" MIN COVER IS REQUIRED FOR "WET" FIRE LINES & FDC LINES (ANY PORTION OF LINES WHICH REMAIN FILLED WHEN NOT IN USE AND SUBJECT TO FREEZING). COVER DEPTH MAY BE REDUCED TO 30" MIN ON "DRY" FDC LINE WHICH IS DRAINED COMPLETELY WHEN NOT IN USE (NFPA 13, 6.4.2.2.2 & NFPA 24, 10.4.2.2.2).
6. THIS DETAIL PROVIDES GUIDANCE ONLY, AND DOES NOT SUPERCEDE REQUIREMENTS UNDER THE OREGON FIRE CODE, NFPA STANDARDS OR DIRECTION FROM FIRE CODE OFFICIAL.

LAST REVISION DATE:	JO #
AUG 2022	STANDARD

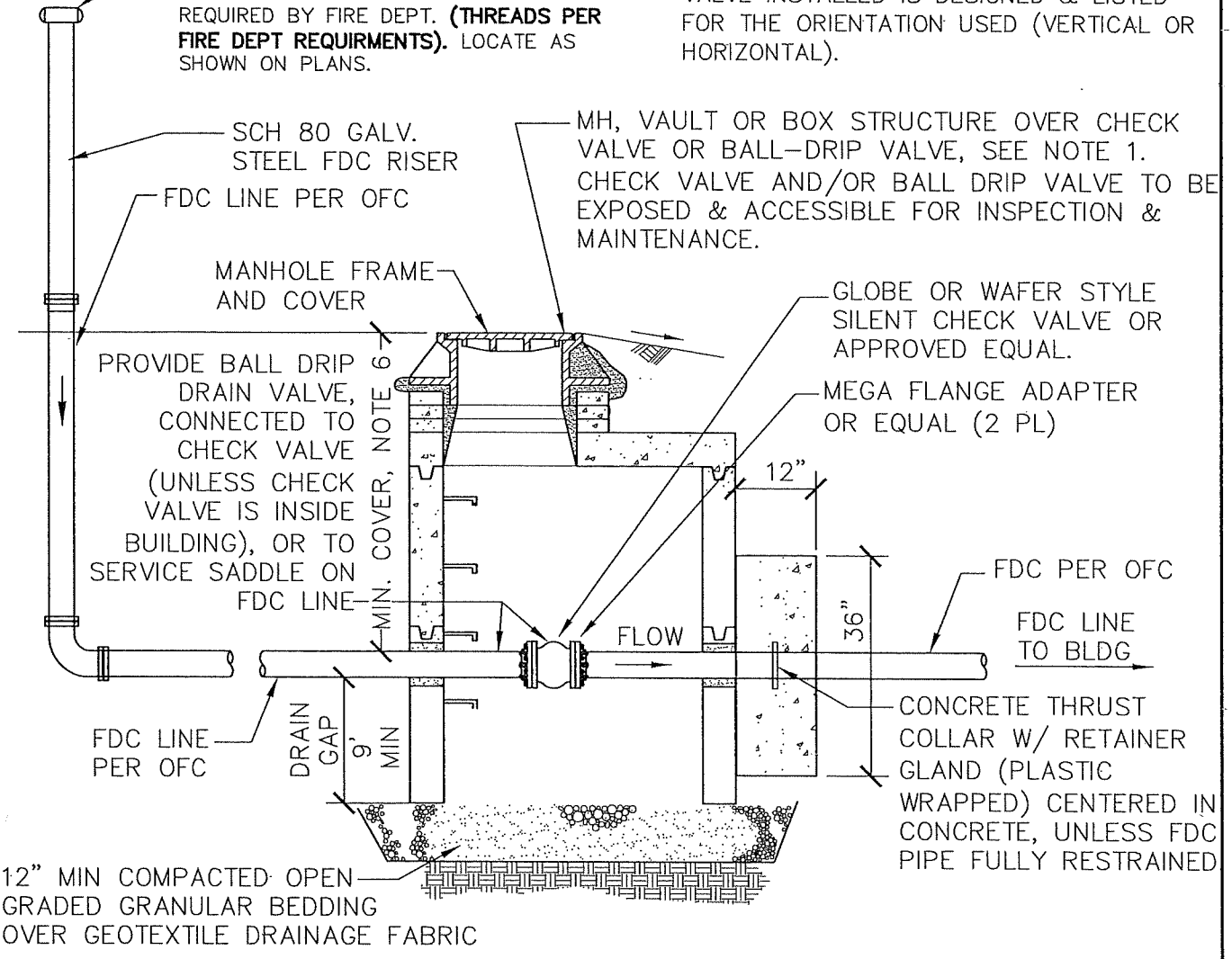
BELOW GRADE CHECK VALVE & BALL DRIP VALVE, IN CLOSE BOTTOM DRAIN STRUCT

(NTS)

INDEPENDENCE, OR	DETAIL NO. 560

FIRE CONTRACTOR TO PROVIDE FDC SIGNS PER OFC 912, LOCATION PER FIRE CHIEF.

- FDC LINE CHECK VALVE & BALL DRIP VALVE TO BE INSTALLED IN AN ACCESSIBLE LOCATION (NFPA 13, 16.12.6.1 & NFPA 13, 16.12.7).
- CONTRACTOR TO VERIFY THAT BALL DRIP VALVE INSTALLED IS DESIGNED & LISTED FOR THE ORIENTATION USED (VERTICAL OR HORIZONTAL).



NOTES:

1. INSTALL 48" PRECAST MANHOLE PER DETAIL 402, UNLESS OTHER APPROVED VAULT OR BOX IS SHOWN OR NOTED ON DWGS.
2. ALL PIPE OPENINGS SHALL BE SEALED WITH NON-SHRINK WATERTIGHT GROUT.
3. WHERE REQUIRED, THRUST COLLAR CONCRETE SHALL BE 3300 PSI @ 28 DAYS.
4. IF AN FDC LINE CHECK VALVE IS PROVIDED INSIDE BUILDING, AN EXTERIOR FDC LINE CHECK VALVE IS NOT REQUIRED UNLESS OTHERWISE DIRECTED IN WRITING BY FIRE CODE OFFICIAL. A BALL DRIP AUTOMATIC DRAIN VALVE SHALL BE INSTALLED ON CHECK VALVE OR AT THE LOW POINT ON FDC LINE (DETAIL 562), TO DRAIN HORIZONTAL FDC LINE BETWEEN CHECK VALVE & FDC RISER.
5. PER NFPA 13, A10.4.2, 40" MIN COVER IS REQUIRED FOR "WET" FIRE LINES & FDC LINES (ANY PORTION OF LINES WHICH REMAIN FILLED WHEN NOT IN USE AND SUBJECT TO FREEZING). COVER DEPTH MAY BE REDUCED TO 30" MIN ON "DRY" FDC LINE WHICH IS DRAINED COMPLETELY WHEN NOT IN USE (NFPA 13, 6.4.2.2.2 & NFPA 24, 10.4.2.2.2).
6. THIS DETAIL PROVIDES GUIDANCE ONLY, AND DOES NOT SUPERCEDE REQUIREMENTS UNDER THE OREGON FIRE CODE, NFPA STANDARDS OR DIRECTION FROM FIRE CODE OFFICIAL.

LAST REVISION DATE:	JO #
SEPT 2022	STANDARD

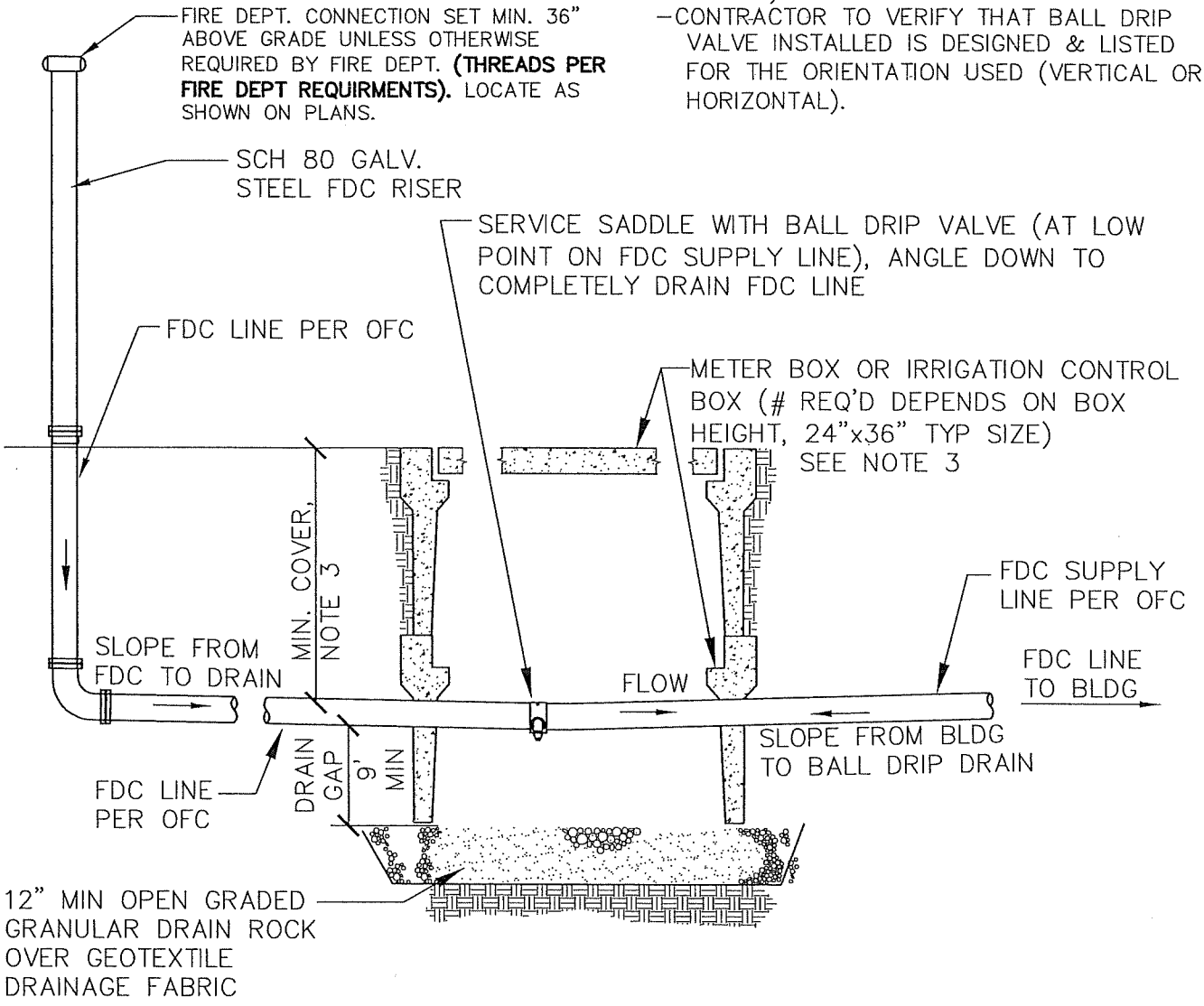
BELOW GRADE CHECK VALVE & BALL DRIP VALVE, IN OPEN BOTTOM DRAIN STRUCTURE

(NTS)

INDEPENDENCE, OR	DETAIL NO. 561

FIRE CONTRACTOR TO PROVIDE FDC SIGNS PER OFC 912, LOCATION PER FIRE CHIEF.

- FDC LINE CHECK VALVE & BALL DRIP VALVE TO BE INSTALLED IN AN ACCESSIBLE LOCATION (NFPA 13, 16.12.6.1 & NFPA 13, 16.12.7).
- CONTRACTOR TO VERIFY THAT BALL DRIP VALVE INSTALLED IS DESIGNED & LISTED FOR THE ORIENTATION USED (VERTICAL OR HORIZONTAL).



NOTES:

1. INSTALL BALL-DRIP DRAIN VALVE & BOX AT LOW POINT IN FDC LINE PROFILE (IE. BALL DRIP VALVE SHALL BE CONFIGURED TO DRAIN ENTIRE HORIZONTAL FDC PIPE BETWEEN FDC RISER & BUILDING WHEN FDC IS NOT IN USE).
2. CONFIGURATION SHOWN IS BASED ON FDC LINE CHECK VALVE INSIDE BUILDING (IE. FDC LINE "DRY" WHEN NOT IN USE).
3. UNLESS DEEPER DEPTH REQUIRED TO ADDRESS UTILITY CONFLICTS OR OTHER ISSUES, COVER DEPTH FOR "DRY" FDC LINE SHALL BE 30" MIN AT ALL LOCATIONS (NFPA 13, 6.4.2.2.2 & NFPA 24, 10.4.2.2.2).
4. BALL DRIP VALVE SHALL BE ACCESSIBLE IN BOX FOR INSPECTION & MAINTENANCE AS SHOWN (PROVIDE LARGER BOXES AS NECESSARY TO ACCOMPLISH THIS).
5. THIS DETAIL PROVIDES GUIDANCE ONLY, AND DOES NOT SUPERCEDE REQUIREMENTS UNDER THE OREGON FIRE CODE, NFPA STANDARDS OR DIRECTION FROM FIRE CODE OFFICIAL.

LAST REVISION DATE: SEPT 2022	JO # STANDARD
FDC LINE BALL DRIP DRAIN VALVE (CHECK VALVE IN BLDG) OPEN BOTTOM DRAIN STRUCT (NTS)	
INDEPENDENCE, OR	DETAIL NO. 562

WATERLINE PRESSURE TEST REPORT

Project Location:	Project Name:	Date:
Inspector: (Print)	**Waterline to be tested.** From Station:	To Station:
Verify that all in-line valves, including hydrant mainline valves, are open? Yes / No		
Verify that all corp stops are open? Yes / No		
Verify that pressure gauge is mounted at high point of line to be tested? Yes / No If no, correct for elevation difference ***(ie. add 0.433 psi per foot elevation difference)***.		
System Static Pressure (psi):	Starting Pressure (psi): ***(greater of 150 psi or 1.5 times static)***	Ending Pressure (psi):
Pipe Lengths & φ's:	Starting Time:	Ending Time (***2 hours minimum***):
Volume Required to Reach Initial Test Pressure (gal):	Allowable Leakage (gal): ***(2 times table or calculated value below)***	Measured Leakage (gal):
TEST RESULTS: Pass / Fail		

ALLOWABLE LEAKAGE PER 1,000 FEET OF PIPELINE - *gph* *(NOTE: double the values from table below for a 2 hour test)*

Test Pressure ***psi***	**NOMINAL PIPE DIAMETER - *in.***									
	3	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12
175	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98
150	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84

If the pipeline under test contains various diameters, the allowable leakage shall be the sum of the allowable leakage for each size.
No additional leakage allowance will be given for fire hydrant assemblies or valves.

Sample: 700' 8" and 55' 6" pipe. → → 0.74 gph / 1,000' * 700') + (0.55 gph / 1,000' * 55') = 0.548 gph * 2 hours = ~1.1 gallon allowable leakage loss.

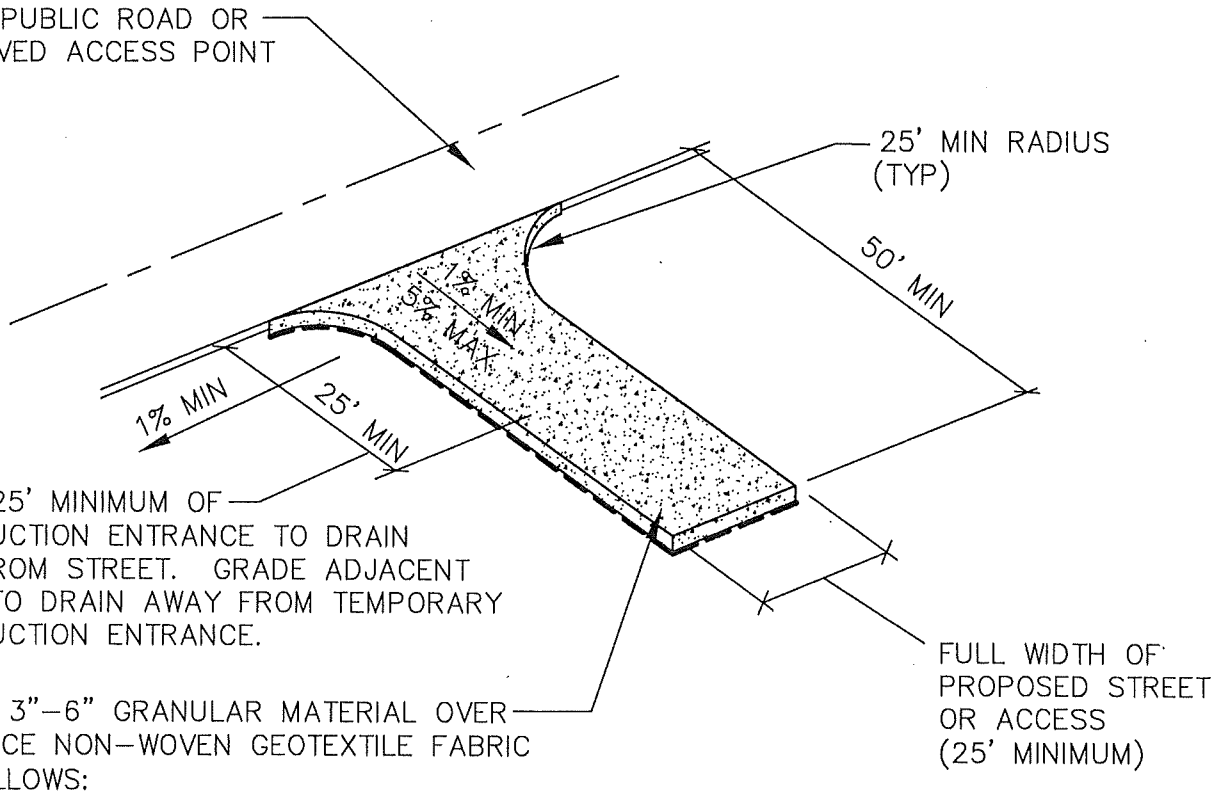
Allowable leakage based on : $L = SD(P)^{1/2}/133,200$
Where:
L = allowable leakage, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of the pipe, in inches
P = test pressure during the leakage test, in psig

Regardless of leakage, maximum pressure drop during test period shall not exceed 5 psi over the 2 hour test period .
Any visible leaks shall be repaired regardless of the whether or not the pipeline meets leakage allowance.

TEST PROCEDURE

1. Apply hydrostatic pressure by pumping water from an auxiliary supply basin. Accurately determine the amount of water required to reach the initial test pressure by refilling the supply basin with a calibrated container following pressurization of pipeline.
2. Monitor test pressure for 2 hour period.
3. At the completion of the test period, re-pressurize the pipeline by pumping water from the auxiliary supply basin *(mark the water surface level in the auxiliary supply basin prior to re-pressurization)*.
4. **Accurately determine the amount of water required to reach the test pressure by refilling the supply basin *to the marked line* with a calibrated container following re-pressurization of pipeline.** If the measured leakage is less than the allowable leakage, the test is successful.

Reference: For summary of disinfection & bacteriological testing procedures, see construction notes under Appendix B.



DRY WEATHER ACCESS

14–INCH MIN. DEPTH OVER COMPACTED SUBGRADE & FABRIC

WET WEATHER ACCESS

24–INCH MIN. DEPTH OVER UNDISTURBED SUBGRADE & FABRIC

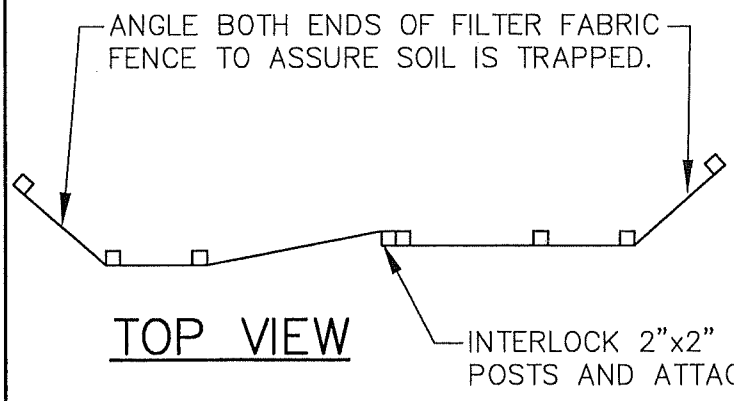
CONSTRUCTION NOTES:

1. THE AREA OF THE CONSTRUCTION ENTRANCE SHALL BE STRIPPED OF ALL TOPSOIL, VEGETATION, ROOTS, AND OTHER NON–COMPACTABLE MATERIAL.
2. SUBGRADE SHALL BE COMPACTED AND PROOFROLLED PRIOR TO PLACEMENT OF GRANULAR MATERIAL. FAILURE TO PASS PROOFROLL WILL REQUIRE USE OF WET WEATHER SECTION.
3. FAILURE OR PUMPING OF THE DRY WEATHER SECTION WILL REQUIRE REMOVAL OF THE GRANULAR MATERIAL AND INSTALLATION OF THE WET WEATHER SECTION.

MAINTENANCE NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 3"–6" INCH STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEAN–OUT OF STRUCTURES USED TO TRAP SEDIMENT.
2. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
3. ALL TRUCKS TRANSPORTING SATURATED SOILS SHALL BE WELL SEALED. WATER DRIPPAGE FROM TRUCKS MUST BE REDUCED TO 1 GALLON PER HOUR PRIOR TO LEAVING THE SITE.

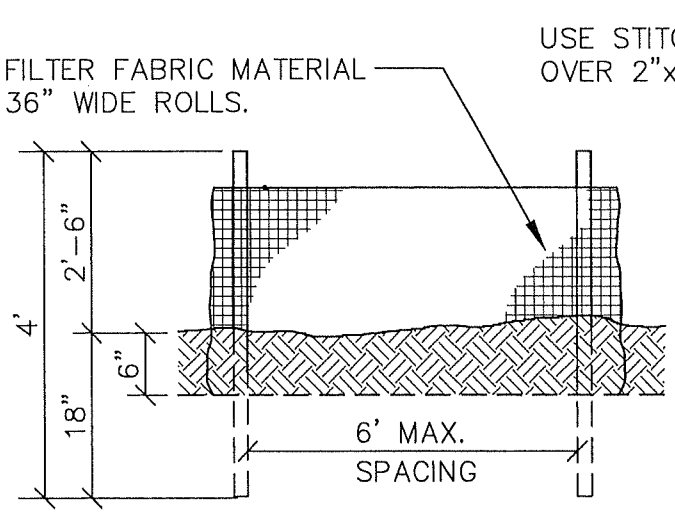
LAST REVISION DATE: AUG 2018	JO # STANDARD
TEMPORARY CONSTRUCTION ENTRANCE (NTS)	
INDEPENDENCE, OR	DETAIL NO. 610



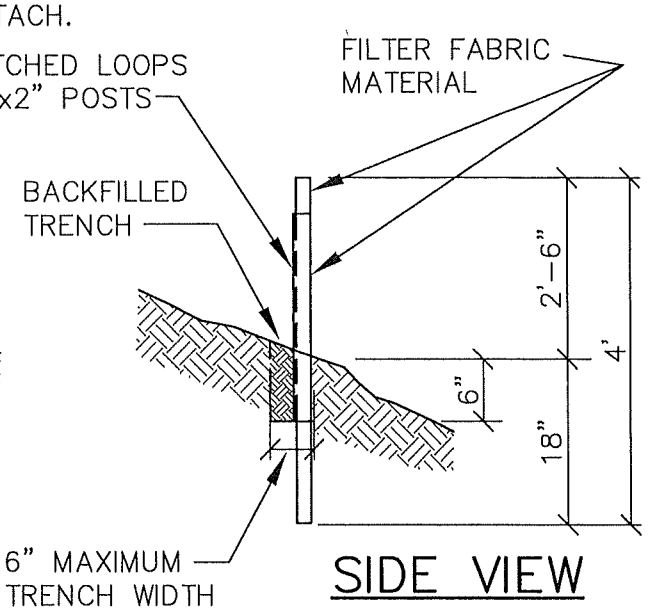
TOP VIEW

SILT FENCE NOTES:

1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. TRENCH TO BE DUG WITH DITCH-WITCH, BY HAND OR OTHER METHOD AS REQUIRED TO MINIMIZE WIDTH.
3. BACKFILL & COMPACT NATIVE SOIL IN TRENCH AFTER FENCE INSTALLATION.
4. STITCHED LOOPS TO BE INSTALLED TO THE UPHILL SIDE OF THE FENCE.



FRONT VIEW

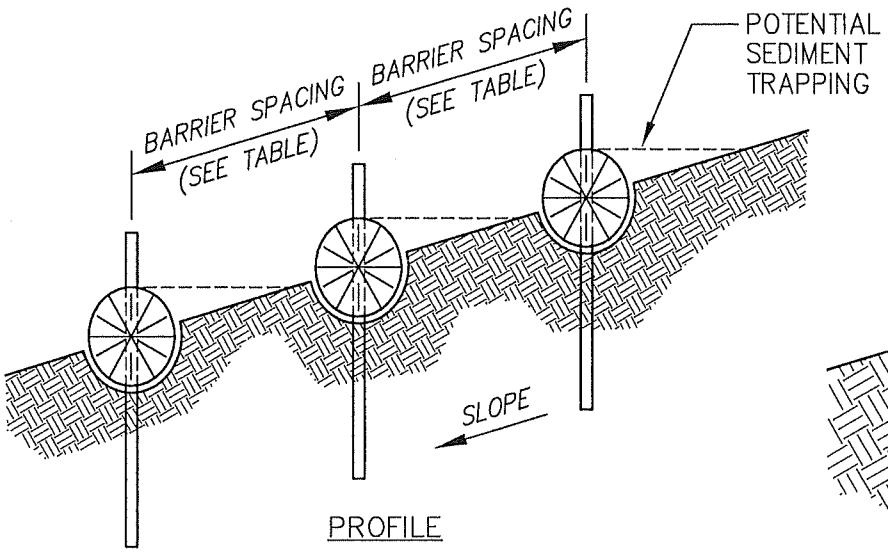


SIDE VIEW

MAINTENANCE NOTES:

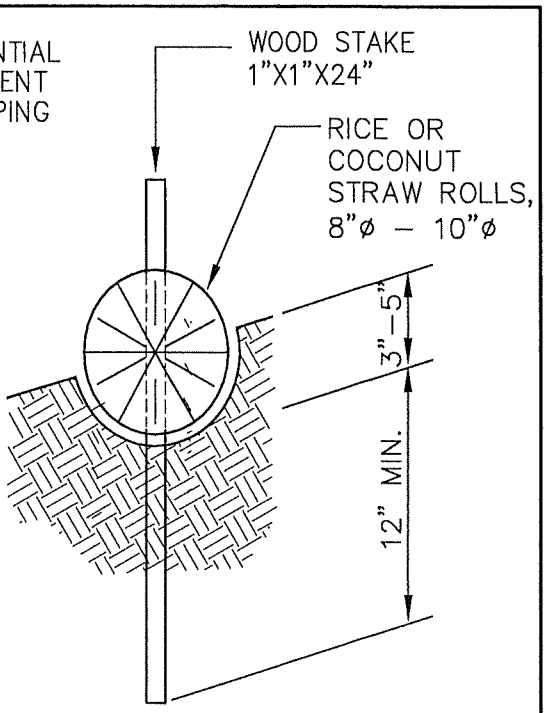
1. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UP-SLOPE AREA IS PERMANENTLY STABILIZED.
2. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE BEHIND SEDIMENT FENCES OR BIOFILTER BAGS.
3. NEW SEDIMENT BARRIERS SHALL BE INSTALLED UPHILL AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

LAST REVISION DATE: AUG 2018	JO # STANDARD
SEDIMENT BARRIERS (NTS)	
INDEPENDENCE, OR	DETAIL NO. 611

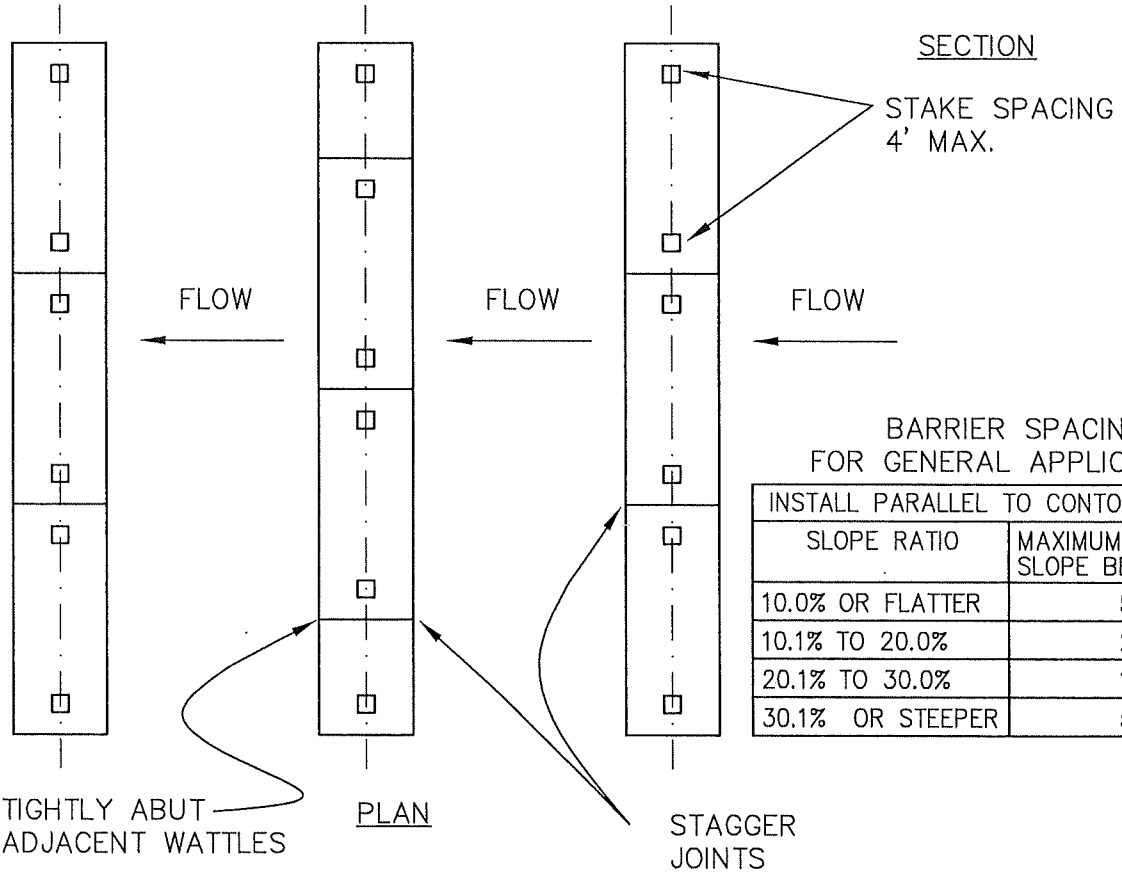


PROFILE

PLACE STRAW WATTLES PARALLEL TO SLOPE CONTOURS



SECTION



PLAN

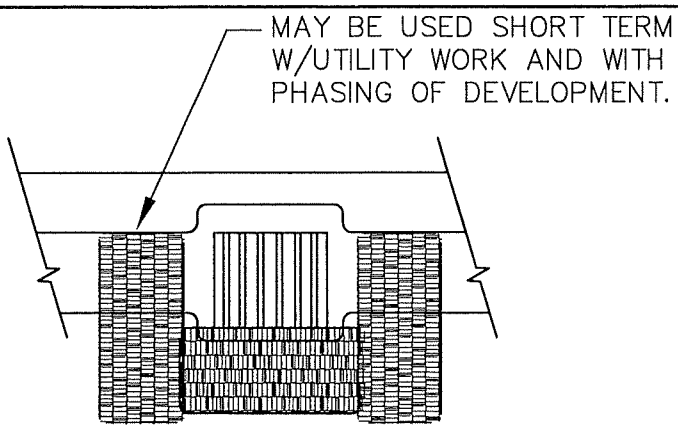
BARRIER SPACING
FOR GENERAL APPLICATION

INSTALL PARALLEL TO CONTOURS AS FOLLOWS	
SLOPE RATIO	MAXIMUM SPACING ON SLOPE BETWEEN WATTLES
10.0% OR FLATTER	50' O.C.
10.1% TO 20.0%	25' O.C.
20.1% TO 30.0%	10' O.C.
30.1% OR STEEPER	5' O.C.

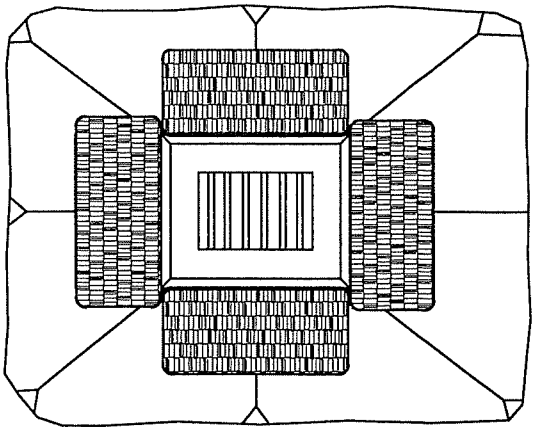
NOTES:

1. ALL MATERIAL SHALL CONFORM TO OSSC (ODOT/APWA) SPECIFICATIONS, CURRENT EDITION.
2. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UP–SLOPE AREA IS PERMANENTLY STABILIZED.
3. AT NO TIME SHALL SEDIMENT BE ALLOWED TO ACCUMULATE ABOVE THE TOP OF THE STRAW WATTLE.
4. NEW SEDIMENT BARRIERS SHALL BE INSTALLED UPHILL AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

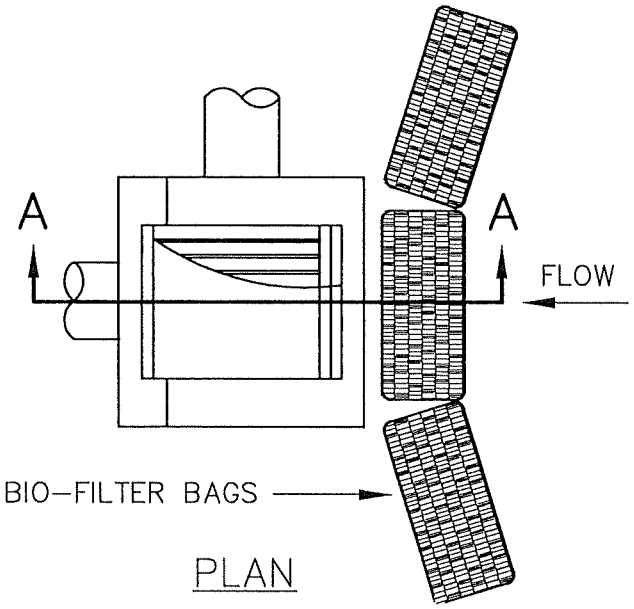
LAST REVISION DATE: AUG 2018	JO # STANDARD
STRAW WATTLE SEDIMENT BARRIER (NTS)	
INDEPENDENCE, OR	DETAIL NO. 612



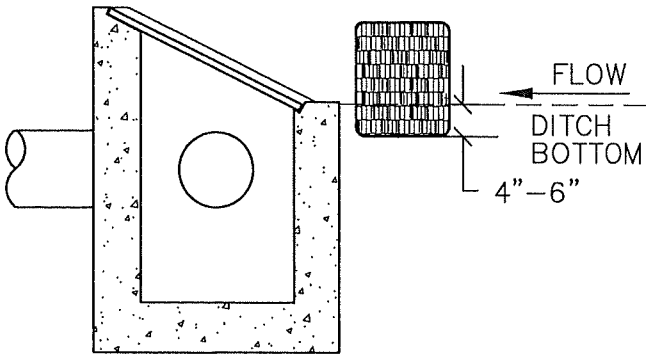
CURB INLET C.B.



AREA DRAIN



PLAN



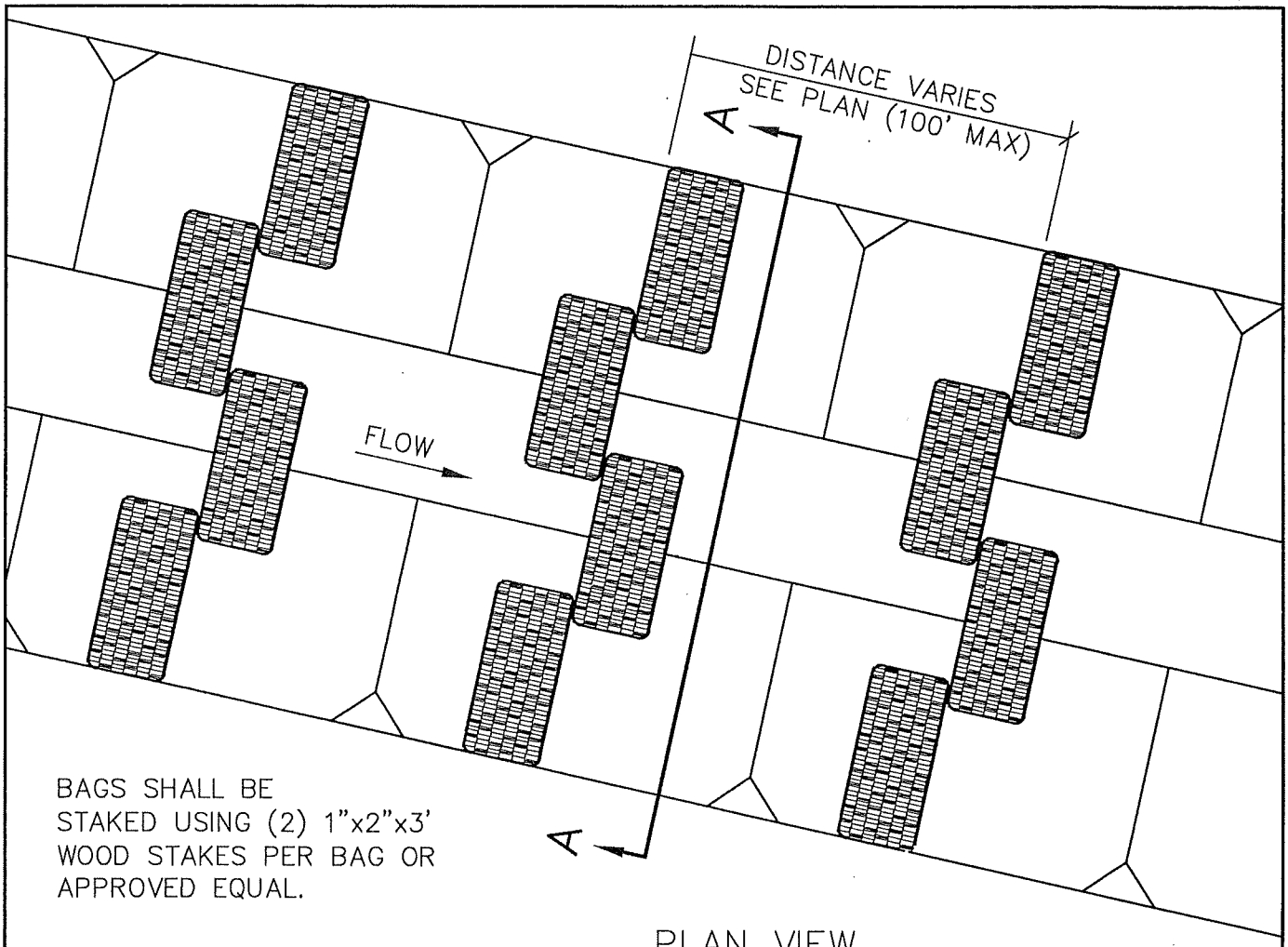
SECTION A-A

DITCH INLET C.B.

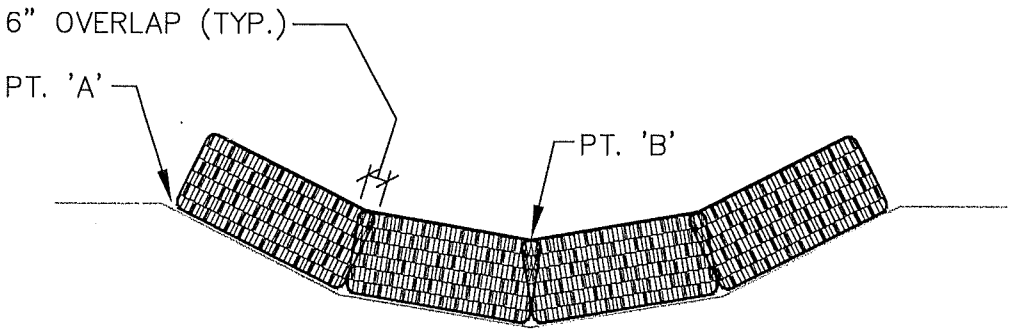
MAINTENANCE NOTES:

1. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UP-SLOPE AREA IS PERMANENTLY STABILIZED.
2. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE BEHIND SEDIMENT FENCES OR BIOFILTER BAGS.
3. NEW SEDIMENT BARRIERS SHALL BE INSTALLED UPHILL AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

LAST REVISION DATE:	JO #
AUG 2018	STANDARD
INLET SEDIMENT CONTROL (NTS)	
INDEPENDENCE, OR	DETAIL NO. 613



PLAN VIEW

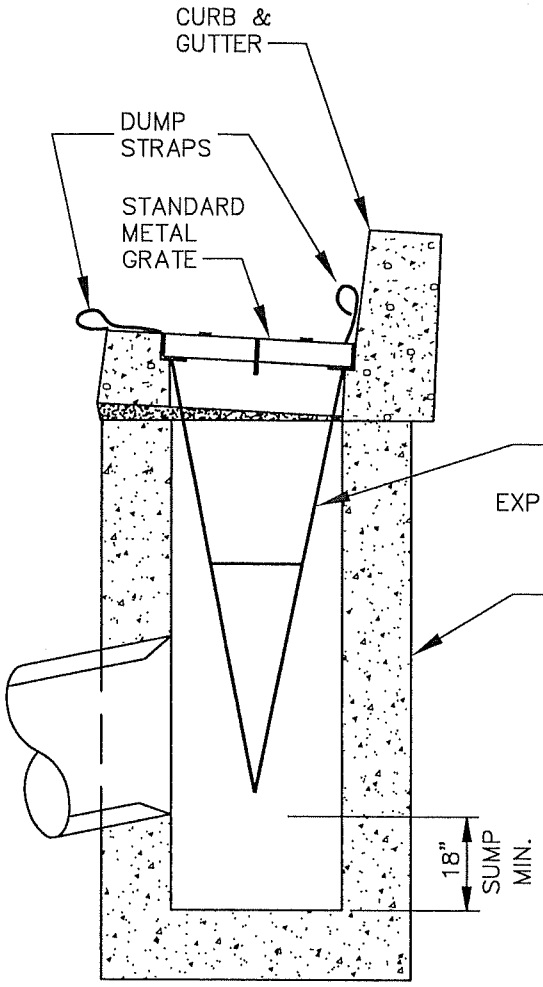


SECTION A–A

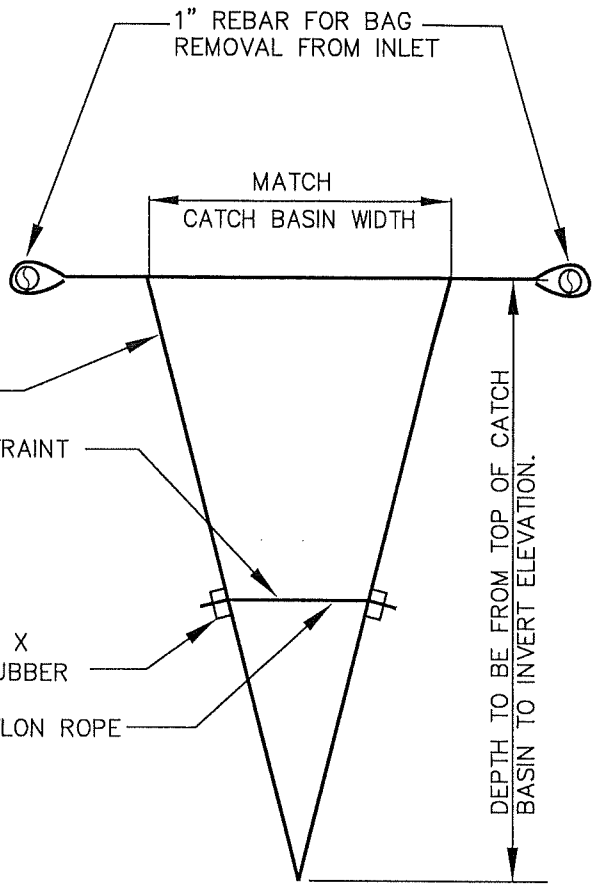
MAINTENANCE NOTES:

1. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UP–SLOPE AREA IS PERMANENTLY STABILIZED.
2. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE BEHIND BIOFILTER BAGS.
3. NEW SEDIMENT BARRIERS SHALL BE INSTALLED UPHILL AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.
4. PT. 'A' SHALL BE 6" MIN. HIGHER THAN PT. 'B'.

LAST REVISION DATE: AUG 2018	JO # STANDARD
DITCH AND SWALE EROSION PROTECTION (NTS)	
INDEPENDENCE, OR	DETAIL NO. 614



INSTALLATION DETAIL

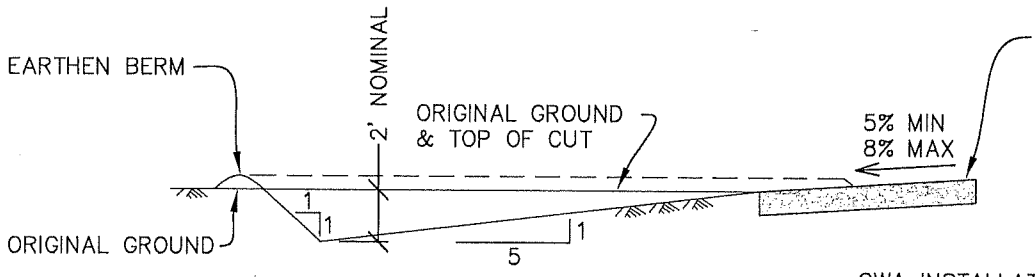


BAG DETAIL

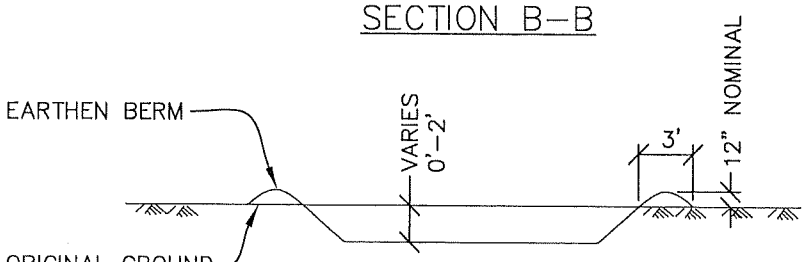
NOTES:

1. EMPTY SILT SACK AS NECESSARY.
2. SILTSACK SEDIMENT CONTROL DEVICE AS MANUFACTURED BY ACF ENVIRONMENTAL AND SUPPLIED BY ACF WEST (503) 771-5115 OR APPROVED EQUAL.

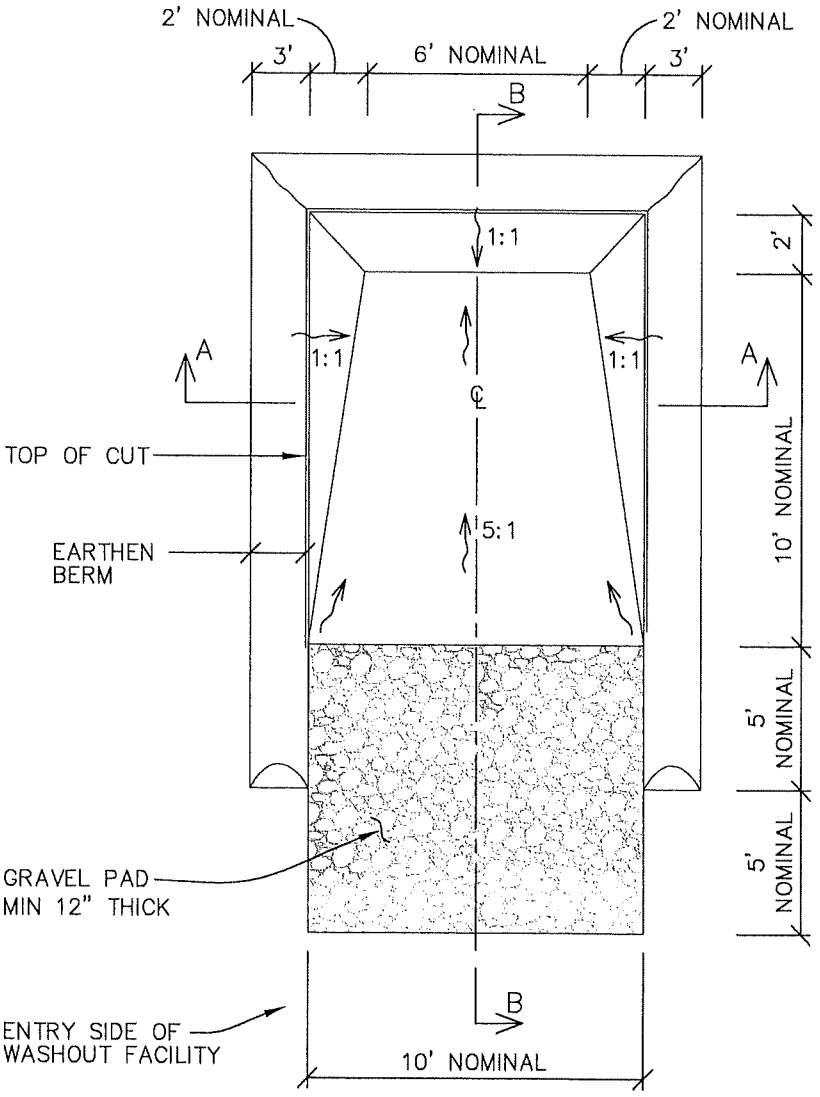
LAST REVISION DATE: AUG 2018	
SILT SACK INLET DETAIL (NTS)	
INDEPENDENCE, OR	DETAIL NO. 615



SECTION B–B



SECTION A–A



CONCRETE WASHOUT AREA PLAN

N.T.S.

CWA INSTALLATION NOTES:

1. SEE DRAWINGS FOR CWA INSTALLATION LOCATION.
2. DO NOT LOCATE WASHOUT AREA WITHIN 200' OF ANY NATURAL DRAINAGE WAY.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. VEHICLE TRACKING PAD SHALL BE SLOPED 5% TOWARDS THE CWA.

CWA MAINTENANCE NOTES:

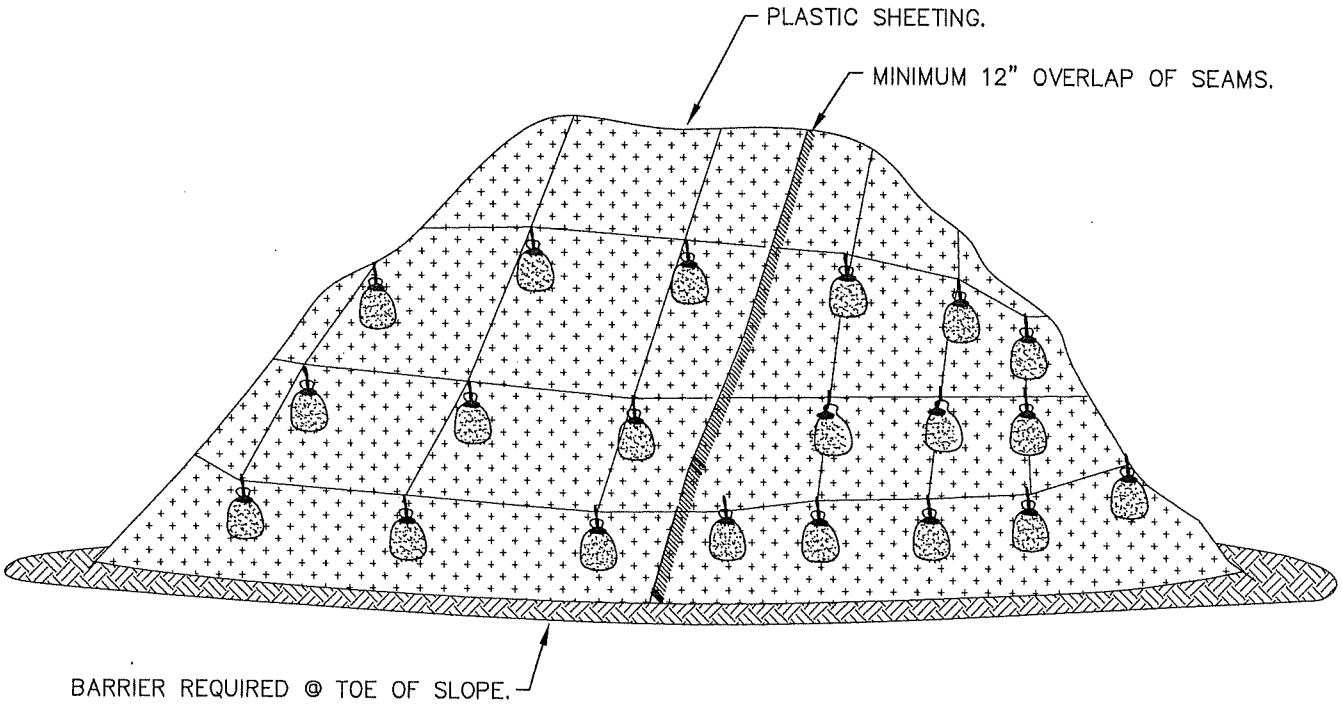
1. INSPECT BMP'S EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION.
2. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN PIT SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 18".
3. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE, AND ALL OTHER DEBRIS IN THE PIT SHALL BE REMOVED FROM THE JOB SITE.
4. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
5. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL. SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

LAST REVISION DATE:	JO #
NOV 2018	STANDARD

TEMPORARY CONCRETE WASHOUT AREA (CWA)

(NTS)

INDEPENDENCE, OR	DETAIL NO. 616



STOCKPILE DETAIL

NOTES:

1. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
2. SEDIMENT BARRIER REQUIRED @ TOE OF STOCK PILE.
3. COVERING MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR TIRES ON ROPES WITH A MAXIMUM 10' GRID SPACING IN ALL DIRECTIONS.
4. PLASTIC SHEETING TO EXTEND A MINIMUM OF 12" PAST THE BOTTOM OF THE PILE ONTO SURROUNDING GRADE ON ALL SIDES.

LAST REVISION DATE: JAN 2019	JO # STANDARD
STOCKPILE COVER DETAIL (NTS)	
INDEPENDENCE, OR	DETAIL NO. 617