

HARRISVILLE CITY CORPORATION

PUBLIC WORKS STANDARD DRAWINGS

SUBMITTED & RECOMMENDED

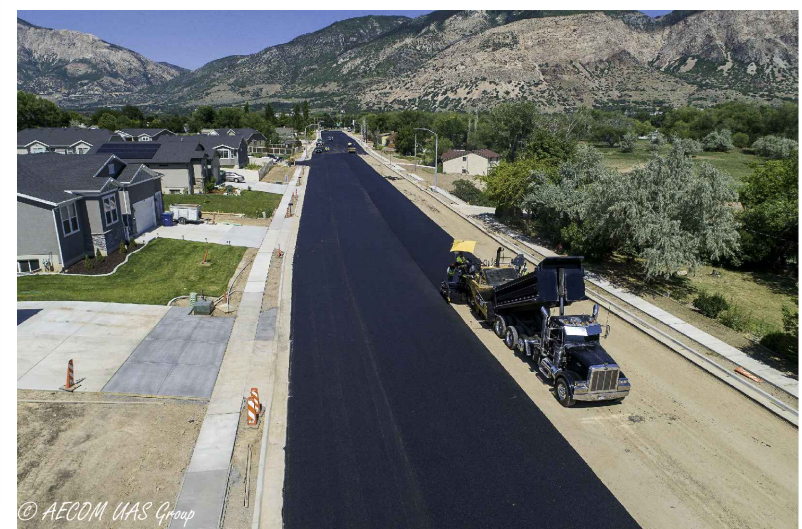
Matthew L. Robertson 3/3/2021
HARRISVILLE CITY ENGINEER SEAL
REGISTERED PROFESSIONAL ENGINEER
No. 9099925
MATTHEW L. ROBERTSON
State of Utah

APPROVAL

Michelle Lutz 3-8-2021
HARRISVILLE CITY MAYOR DATE

[Signature] 3/8/21
HARRISVILLE CITY PUBLIC WORKS DIRECTOR DATE

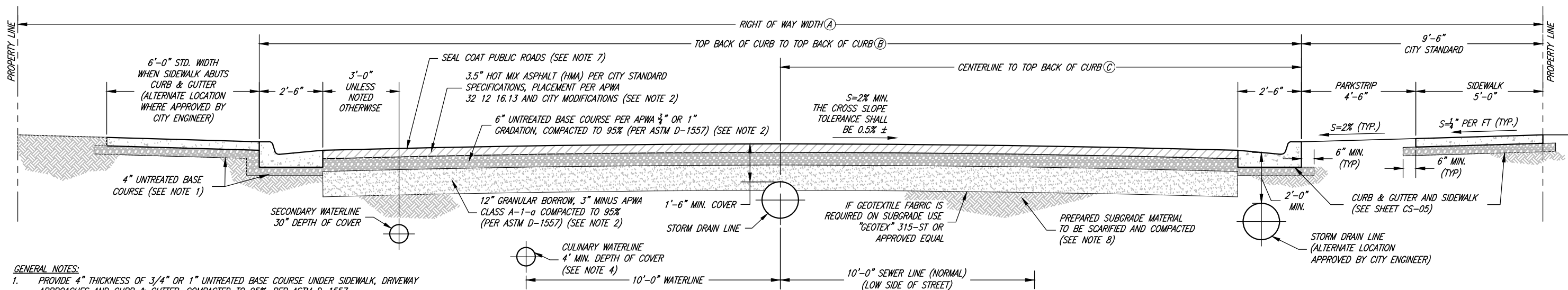
Jennie Knight 3/8/2021
ATTESST, CITY RECORDER DATE



MARCH 3, 2021

Index of Drawings

- CS-01 TITLE PAGE & INDEX OF DRAWINGS
- CS-02 PUBLIC ROADS - TYPICAL STREET SECTIONS & UTILITY LATERAL CONFIGURATION DETAILS
- CS-02a PUBLIC ROADS - ALTERNATE STREET SECTION DETAILS
- CS-03 PUBLIC ROADS - TYPICAL INTERSECTION & STREET DETAILS
- CS-04 PUBLIC ROADS - TYPICAL DRIVE APPROACH, ASPHALT PATCH & DEFECTIVE CONCRETE REPLACEMENT DETAILS
- CS-05 PUBLIC ROADS - TYPICAL ADA RAMP, SIDEWALK, CURB & GUTTER, AND CONCRETE JOINT DETAILS
- CS-06 PUBLIC ROADS - CUL-DE-SAC & TEMPORARY TURNAROUND DETAILS
- CS-07 SANITARY SEWER - SEWER LATERAL & MAIN LINE CONNECTION DETAILS
- CS-08 SANITARY SEWER - TYPICAL MANHOLES & DETAILS
- CS-09 STORM DRAIN - SINGLE AND DOUBLE CATCH BASIN DETAILS
- CS-10 STORM DRAIN - DRAINAGE INLET BOX AND GRATE AND FRAME DETAILS
- CS-11 STORM DRAIN - TYPICAL MANHOLE AND CLEANOUT DETAILS
- CS-12 STORM DRAIN - LARGE DETENTION BASIN DETAILS
- CS-13 STORM DRAIN - SMALL DETENTION BASIN DETAILS
- CS-14 SECONDARY WATER - TYPICAL SERVICE LATERALS
- CS-15 SECONDARY WATER - AIR/VAC, DRAIN, CONCRETE COLLAR, AND GATE VALVE DETAILS
- CS-16 SECONDARY WATER - PUMP CONTROL & FILTER STATION DETAILS
- CS-16a SECONDARY WATER - PUMP CONTROL & FILTER STATION DETAILS
- CS-16b SECONDARY WATER - PUMP CONTROL & FILTER STATION DETAILS
- CS-17 GENERAL - CHAIN LINK FENCE DETAILS
- CS-18 GENERAL - STREET LIGHTING DETAILS



- GENERAL NOTES:**
1. PROVIDE 4" THICKNESS OF 3/4" OR 1" UNTREATED BASE COURSE UNDER SIDEWALK, DRIVEWAY APPROACHES AND CURB & GUTTER, COMPACTED TO 95%, PER ASTM D-1557.
 2. THESE PAVEMENT THICKNESS SHALL BE CONSIDERED AS CITY MINIMUMS AND MAY BE INCREASED BY THE CITY ENGINEER WHEN A GREATER DEPTH IS NECESSARY TO PROVIDE SUFFICIENT STABILITY. DESIGNER AND/OR DEVELOPER MAY SUBMIT AN ALTERNATIVE PAVEMENT DESIGN BASED ON A DETAILED SOILS ANALYSIS FOR APPROVAL BY THE CITY ENGINEER WHICH MAY MODIFY PAVEMENT THICKNESS, BUT IN NO CASE SHALL THE BITUMINOUS SURFACE COURSE BE LESS THAN 3.5" THICK, UNTREATED BASE COURSE LESS THAN 6" THICK, AND GRANULAR BORROW LESS THAN 12" THICK.
 3. ALL ROAD CUTS SHALL BE PATCHED PER CS-04 AND CS-07
 4. ALL CULINARY WATER MAINS AND SERVICES MUST MAINTAIN A MINIMUM SEPARATION FROM ALL SEWER MAINS AND LATERALS OF 10'-0" HORIZONTAL AND 18" VERTICAL IN ACCORDANCE WITH THE STATE OF UTAH DIVISION OF DRINKING WATER RULES SECTION R309-550-7
 5. THE 5'-0" SIDEWALK SHOWN ABOVE IS TO BE CONSIDERED THE "CITY STANDARD." OTHER LOCATIONS AND TYPES OF SIDEWALK AS REQUESTED BY THE DEVELOPER MUST BE APPROVED BY THE CITY. IF SIDEWALK IS LOCATED AGAINST THE TBC, IT MUST BE A MINIMUM OF 6 FEET IN WIDTH.

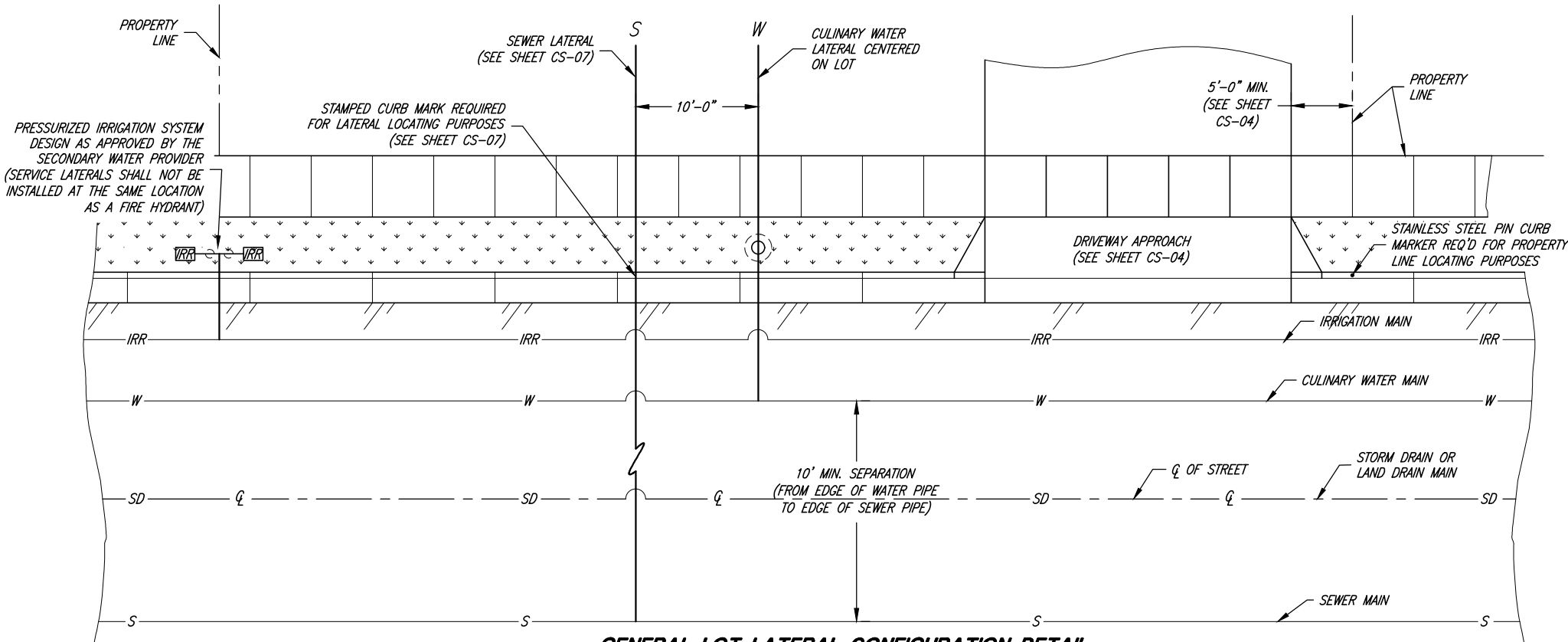
STANDARD STREET SECTION

- GENERAL NOTES CONT.:**
6. NATURAL GAS TYPICALLY LOCATED IN THE PARKSTRIP, POWER AND COMMUNICATION LINES TYPICALLY LOCATED BEHIND PROPERTY LINES OR IN LOT EASEMENTS.
 7. "SEAL COAT" CONSISTS OF THE FOLLOWING:
a. CHIP SEAL PER APWA 32 01 13.64 AND CITY MODIFICATIONS, AND
b. FOG SEAL PER APWA 32 01 13.50 AND CITY MODIFICATIONS.
 8. IMPORTED FILL UNDER ROADWAY SHALL BE GRANULAR BORROW, 3" MAX.
 9. ALL EARTHWORK SHALL BE SUBJECT TO SOIL TESTING.

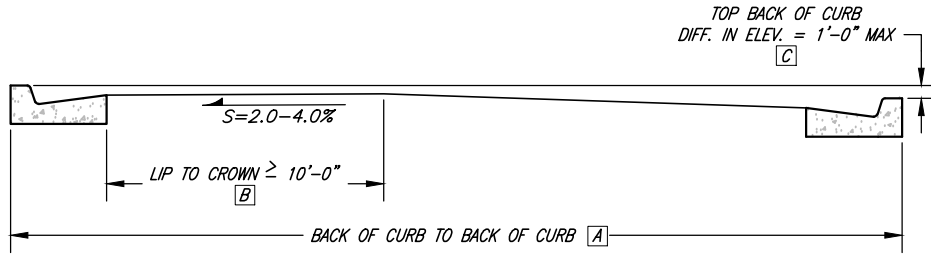
CURBED ROAD SECTION

| STREET DESIGNATION | R.O.W. WIDTH A | T.B.C. TO T.B.C. B | CL TO T.B.C. C |
|--------------------------|-------------------|-----------------------|-------------------|
| RESIDENTIAL | 60' | 41' | 20.5' |
| COMMERCIAL/MANUFACTURING | 60' | 41' | 20.5' |
| COLLECTOR | 66' | 47' | 23.5' |
| MINOR ARTERIAL | 84' | 65' | 32.5' |
| MAJOR ARTERIAL | 100' | 81' | 40.5' |

NOTE:
THE ABOVE AND ALTERNATIVE ROAD SECTIONS REQUIRED SHALL BE AS DETERMINED BY THE CITY ENGINEER & PLANNING COMMISSION BASED UPON ZONING, GENERAL PLAN, SIZE OF DEVELOPMENT, ESTIMATED TRAFFIC VOLUME, & AMOUNT OF OPEN SPACE ASSOCIATED WITH DEVELOPMENTS, AS WELL AS THEIR PROXIMITY TO HIGH VOLUME ROADS OR COMMERCIAL ZONING.



GENERAL LOT LATERAL CONFIGURATION DETAIL



- CROWN NOTES:**
1. MAXIMUM DIFFERENCE IN ELEVATION BETWEEN CURBS ON OPPOSITE SIDES OF THE STREET SHALL NOT EXCEED 1'-0" AS SHOWN IN DETAIL AND TABLE.
 2. ON ARTERIAL STREETS AND CERTAIN STREETS APPROVED BY THE CITY COUNCIL, THE CITY ENGINEER WILL PROVIDE A PAVEMENT DESIGN. LOCATION OF SIDEWALK AND CURB & GUTTER MAY VARY ON INDIVIDUAL ARTERIAL STREETS PER DIRECTION OF THE CITY ENGINEER.
 3. ALL OTHER PROPOSED STREET CROSS SECTIONS SHALL BE AS APPROVED BY THE CITY ENGINEER.

| CROWN LOCATION TABLE | | |
|----------------------|--------|------------|
| A | B | C |
| 41'-0" | 18'-0" | 0'-0" |
| 41'-0" | 12'-0" | 0'-6" |
| 41'-0" | 10'-0" | 1'-0" |
| 47'-0" | 21'-0" | 0'-0" |
| 47'-0" | 10'-6" | 0'-6" |
| 47'-0" | 10'-6" | 1'-0" |
| CUL-DE-SAC | | 1'-0" MAX. |

CROWN LOCATION FOR VARIOUS CROSS SLOPES

REGISTERED PROFESSIONAL ENGINEER
No. 9089925
MATTHEW L. ROBERTSON
State of Utah
PROJECT ENGINEER
3/3/2021
DATE

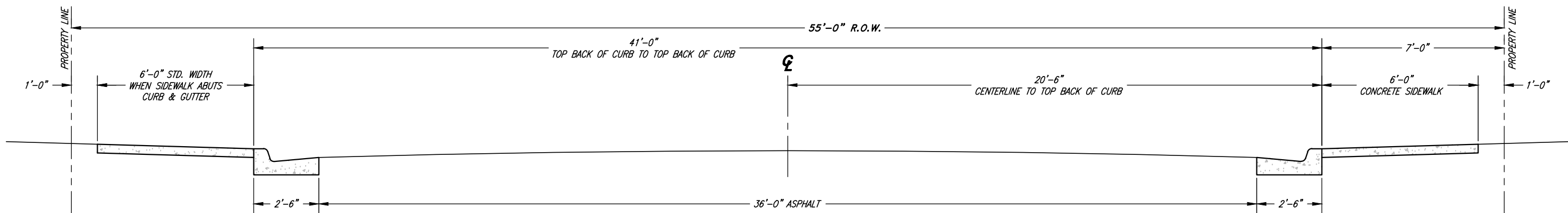
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DRAWN _____
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JA JONES & ASSOCIATES
CONSULTING ENGINEERS
6080 Fashion Point Drive
South Ogden, Utah 84403 (801) 476-9767
www.jonescivil.com

HARRISVILLE CITY CORPORATION
PUBLIC WORKS STANDARDS
PUBLIC ROADS - TYPICAL STREET SECTIONS & UTILITY LATERAL CONFIGURATION DETAILS

SHEET:
CS-02
OF 21 SHEETS
0



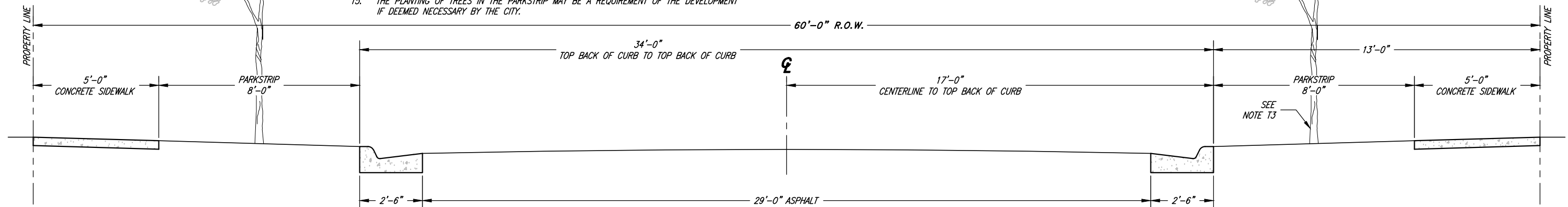
55' R.O.W. ROADWAY SECTION
REQUIRES CITY ENGINEER APPROVAL

TREE NOTES:

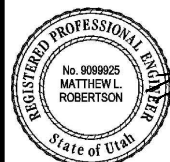
- T1. THE MINIMUM REQ'D WIDTH OF PARKSTRIP FOR TREES IS 6 FEET.
- T2. ALL PROPOSED TREES WITHIN THE CITY RIGHT-OF-WAY REQUIRE WRITTEN APPROVAL OF THE CITY OF THE TYPE OR SPECIES OF TREE PRIOR TO PLANTING. ANY TREE NOT APPROVED BY THE CITY SHALL BE REMOVED AT THE OWNER'S EXPENSE.
- T3. ALL PLANTED TREES TO BE SPACED IN ACCORDANCE WITH THE SPECIES CHARACTERISTICS SUCH THAT THE TREES' CROWNS AT MATURITY WILL NOT OVERLAP WITH ANOTHER TREE NOR TOUCH OR OVERHANG A BUILDING.
- T4. FOR ADDITIONAL HELP WITH TREE SELECTION VISIT WWW.TREEBROWSER.ORG FOR FURTHER INFORMATION ON NATIVE AND INTRODUCED TREES GROWING IN UTAH AND THE INTERMOUNTAIN WEST.
- T5. THE PLANTING OF TREES IN THE PARKSTRIP MAY BE A REQUIREMENT OF THE DEVELOPMENT IF DEEMED NECESSARY BY THE CITY.

| TREE PLANTING CHART | | | | |
|---------------------|--------------------|----------------------|--------------------------------------|---|
| SIZE | MATURE HEIGHT | CONCRETE OFFSET | STREET CORNER/FH | POWER/UTILITY DISTANCE |
| LARGE | OVER 40 FEET | 8 FEET MIN. DISTANCE | 30 FEET FROM STREET CORNER & 10 FEET | 10 LATERAL FEET OF ANY OVERHEAD UTILITY WIRE & 5 LATERAL FEET OF ANY UNDERGROUND UTILITY LINE |
| MEDIUM | 25 FEET TO 40 FEET | 6 FEET MIN. DISTANCE | FROM ANY FIRE HYDRANT | |
| SMALL | LESS THAN 25 FEET | 3 FEET MIN. DISTANCE | | |

CITY APPROVED DECIDUOUS TREE: 2"-2 1/2" CALIPER (TRUNK DIAMETER MEASURED 48" FROM GROUND SURFACE) CENTERED IN PARKSTRIP (SEE TREE PLANTING CHART AND TREE NOTES THIS SHEET)



60' R.O.W. MINOR STREET SECTION
REQUIRES CITY ENGINEER APPROVAL



| | | |
|---|------|-------|
| PROJECT ENGINEER <i>Matthew L. Robertson</i> DATE 3/3/2021 | | |
| REV. | DATE | APPR. |
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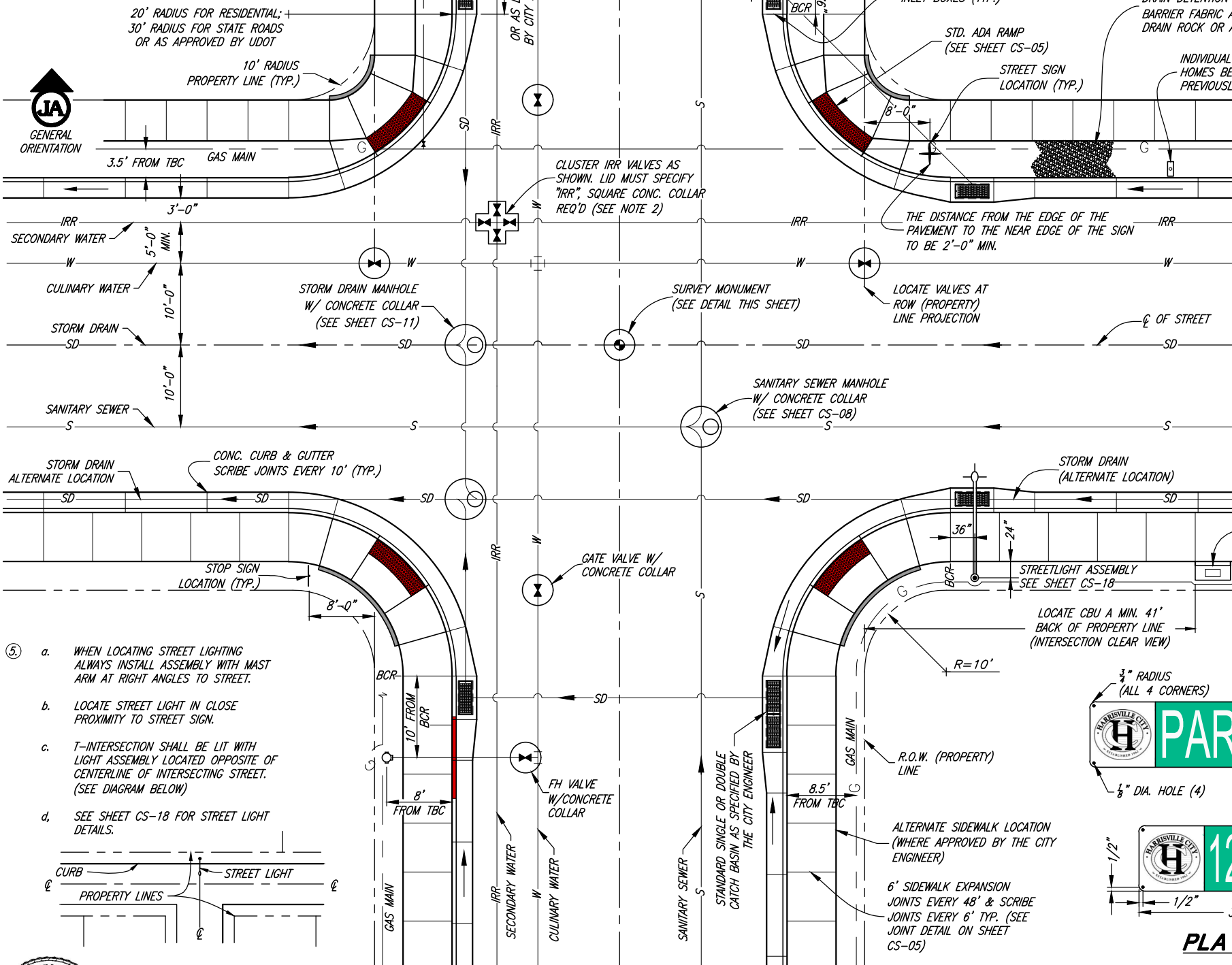


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www.jonescivil.com

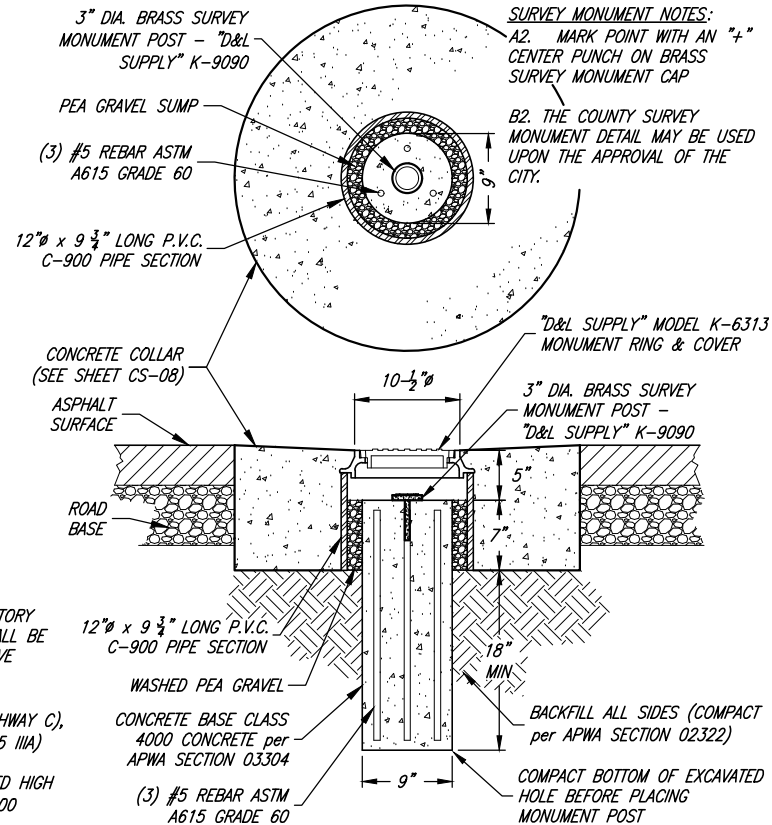
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| HARRISVILLE CITY CORPORATION | | SHEET: CS-02a |
| PUBLIC WORKS STANDARDS | | |
| PUBLIC ROADS - ALTERNATE STREET SECTION DETAILS | | OF 21 SHEETS 0 |

- STREET NOTES:**
1. EXACT LOCATION OF STREET AND REGULATORY SIGNS SHALL BE SPECIFIED BY THE PUBLIC WORKS DEPARTMENT FOR SPECIFIC INTERSECTIONS.
 2. PRESSURIZED IRRIGATION SYSTEM LAYOUT AS APPROVED BY THE SECONDARY WATER PROVIDER.
 3. CULINARY WATER SYSTEM LAYOUT AS APPROVED BY BONA VISTA WATER.
 4. CITY UTILITY LINES MUST BE LOCATED IN A PUBLIC RIGHT-OF-WAY. NO CITY UTILITIES MAY BE CONSTRUCTED ON PRIVATE PROPERTY. ANY UTILITY LINES MAINTAINED BY THE CITY MUST ALSO BE IN A PUBLIC RIGHT-OF-WAY.

(CONTINUED BELOW)



- MAILBOX/CBU NOTES:**
- A1. MAILBOXES SHALL NOT BE PLACED IN THE SIDEWALK. NO MAILBOX OR CBU BOX EDGES SHALL EXTEND PAST THE TBC.
 - B1. CONTACT THE LOCAL POSTMASTER FOR APPROVAL ON THE LOCATION OF THE MAILBOX OR CBU PRIOR TO INSTALLATION.
 - C1. FOLLOW USPS GUIDELINES & POLICIES FOR THE PLACEMENT, INSTALLATION, AND ACCESS REQUIREMENTS FOR ALL MAILBOX AND CBU UNITS.



SURVEY MONUMENT DETAIL

- TRAFFIC SIGN NOTES:**
- A. STREET SIGN BACKGROUND SHALL BE REGULATORY GREEN. BOTH STREET AND TRAFFIC SIGNS SHALL BE AT THE VERY LEAST HIGH INTENSITY REFLECTIVE SHEETING (9FP-85 TYPE IIA).
 - B. LEGEND SHALL BE WHITE LETTERS (FONT: HIGHWAY C), HIGH INTENSITY REFLECTIVE SHEETING (9FP-85 IIA).
 - C. SIGN BLANK SHALL BE 6081-T6 HEAT TREATED HIGH TENSILE DEGRADED ALUMINUM W/ALODINE 1200 FINISH-THICKNESS SHALL BE 0.08"
 - D. EACH SIGN SHALL CONSIST OF TWO PLATES RIVETED TOGETHER & MOUNTED AS SHOWN
 - E. SIGNS ON PRIVATE ROADS SHALL MEET ALL SPECIFICATIONS FOR STANDARD SIGNS, EXCEPT BACKGROUND SHALL BE BLUE. (PRIVATE SIGNS WILL NOT BE MAINTAINED BY THE CITY.)
 - F. ALL STREETS WITH NAMES MUST ALSO SHOW LOCATIONS COORDINATE DESIGNATION
 - G. CONTACT CITY PRIOR TO MAKING SIGNS TO VERIFY PROPER NAMES AND COORDINATES

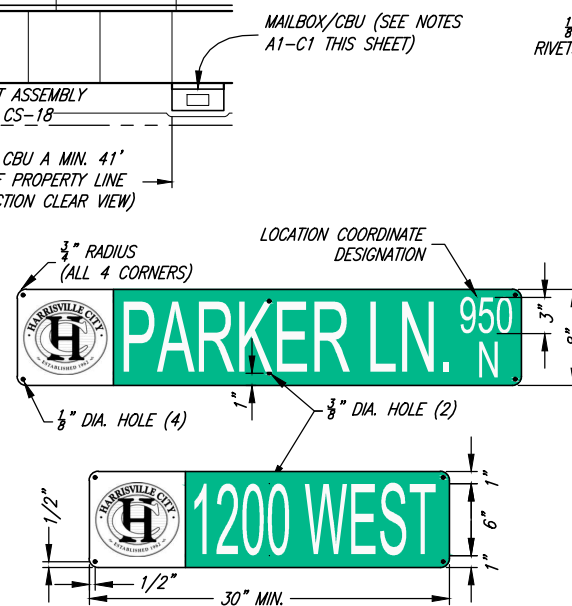
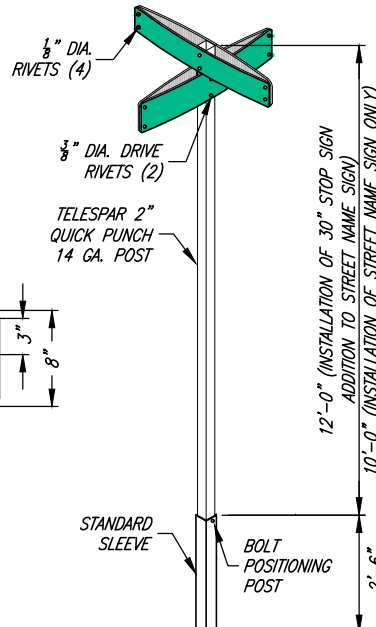
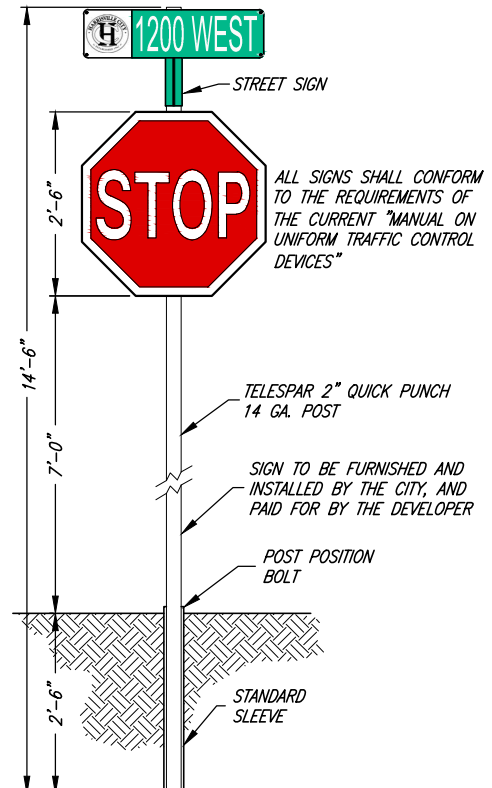


PLATE DETAIL



STREET SIGN & POST



STREET / TRAFFIC SIGN & POST

REGISTERED PROFESSIONAL ENGINEER
No. 908925
MATTHEW L. ROBERTSON
State of Utah
PROJECT ENGINEER
3/3/2021
DATE

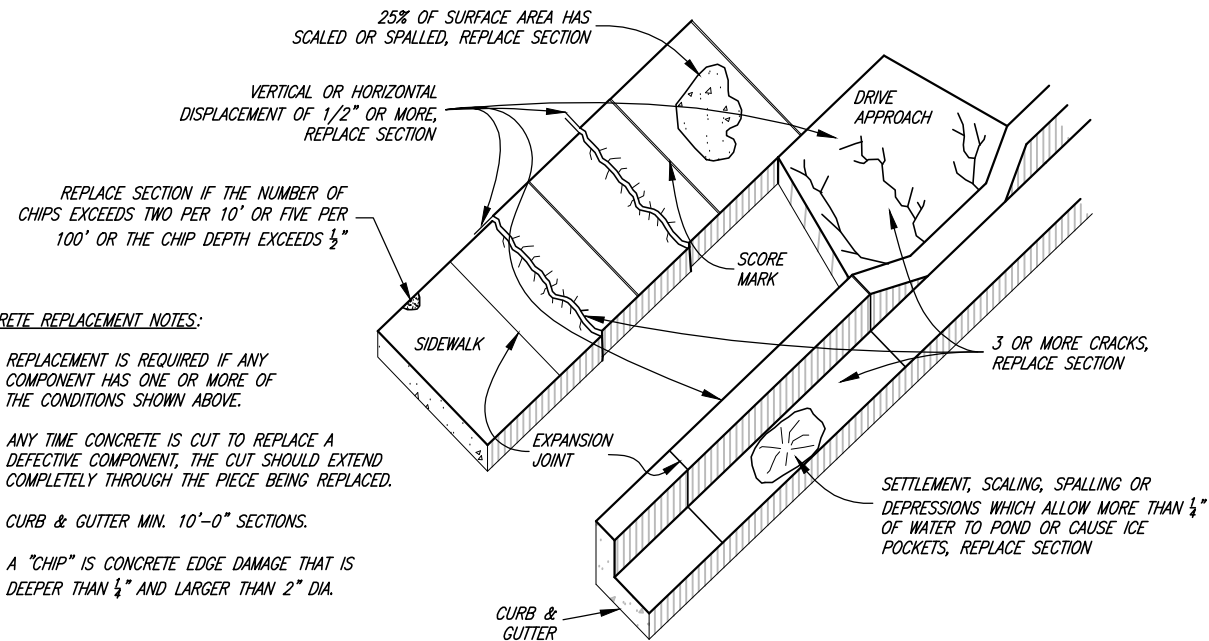
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HARRISVILLE CITY CORPORATION
PUBLIC WORKS STANDARDS
PUBLIC ROADS - TYPICAL INTERSECTION & STREET DETAILS

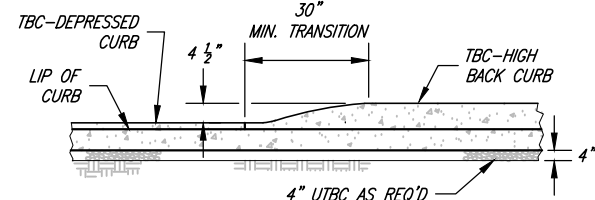
SHEET:
CS-03
OF 21 SHEETS
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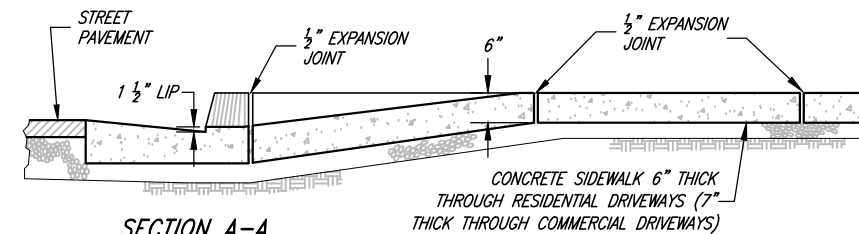
CONCRETE REPLACEMENT NOTES:

- REPLACEMENT IS REQUIRED IF ANY COMPONENT HAS ONE OR MORE OF THE CONDITIONS SHOWN ABOVE.
- ANY TIME CONCRETE IS CUT TO REPLACE A DEFECTIVE COMPONENT, THE CUT SHOULD EXTEND COMPLETELY THROUGH THE PIECE BEING REPLACED.
- CURB & GUTTER MIN. 10'-0" SECTIONS.
- A "CHIP" IS CONCRETE EDGE DAMAGE THAT IS DEEPER THAN $\frac{1}{4}$ " AND LARGER THAN 2" DIA.

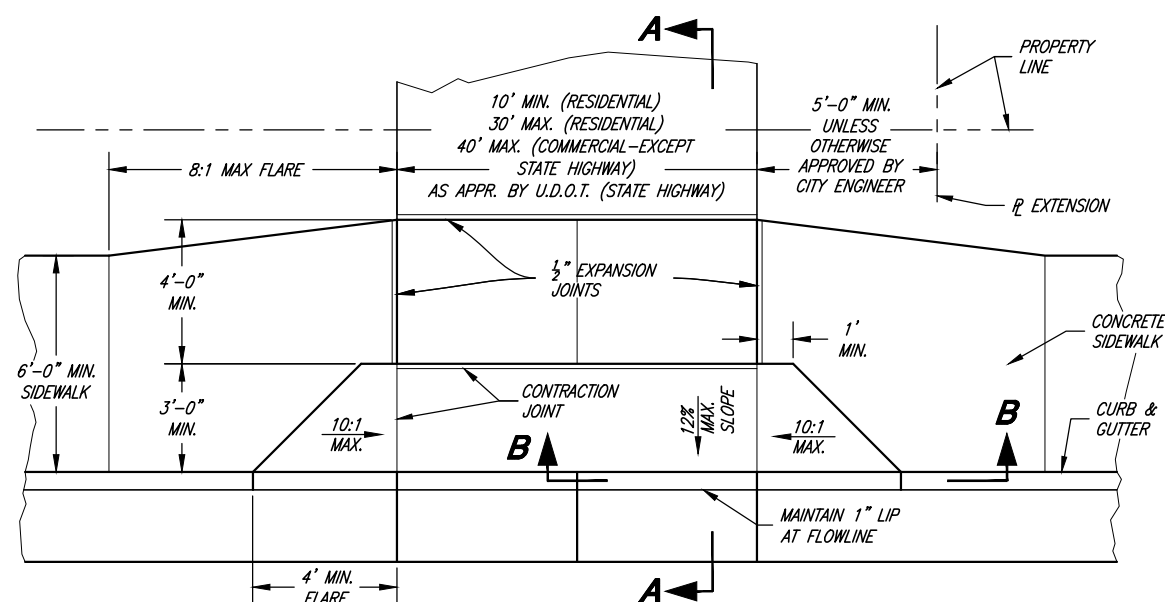
DEFECTIVE CONCRETE REPLACEMENT CRITERIA



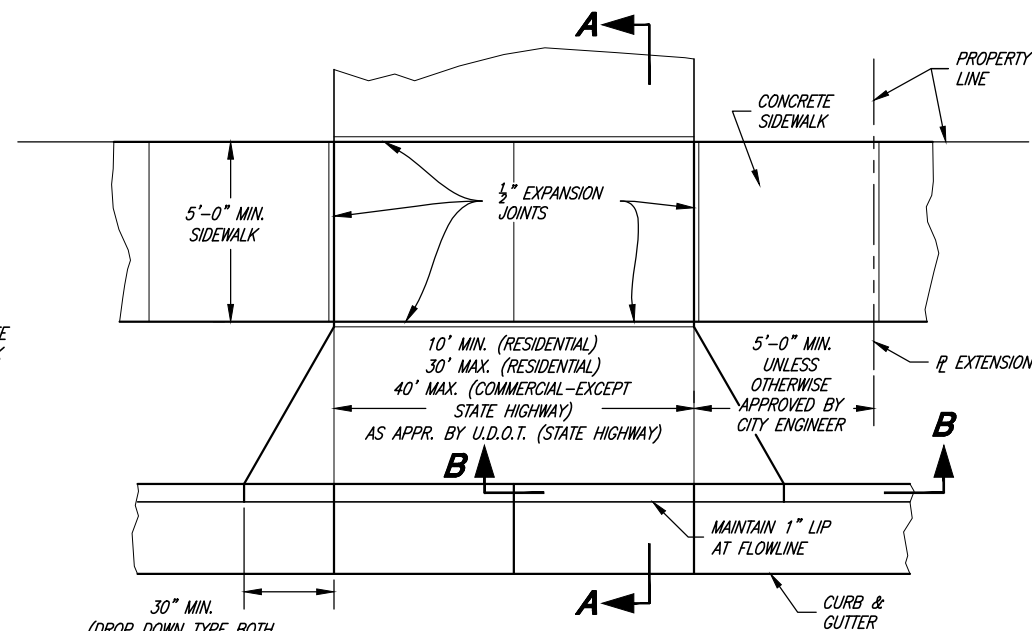
SECTION B-B



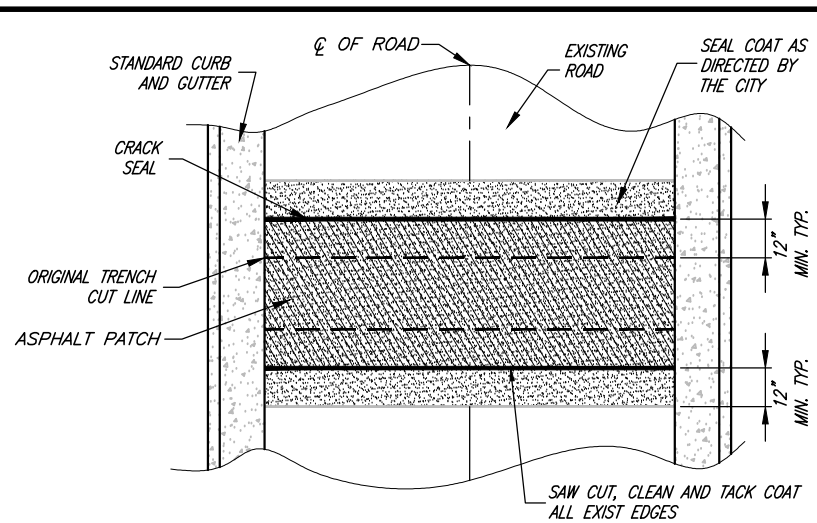
SECTION A-A



DRIVEWAY APPROACH W/ ADJACENT SIDEWALK



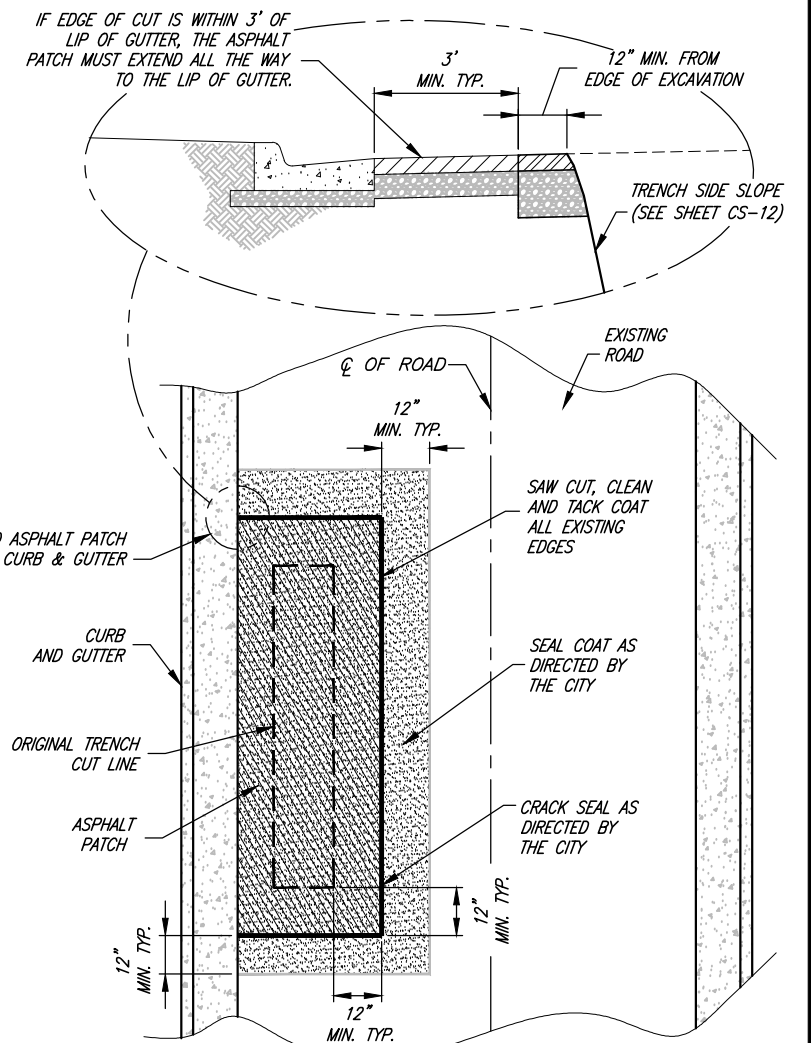
DRIVEWAY APPROACH W/ PARKSTRIP
DROP DOWN STYLE (CITY STANDARD)



TYPICAL HORIZONTAL ASPHALT PATCH PLAN

ASPHALT PATCH NOTES:

- ON ANY ROAD PAVED OR OVERLAYED WITHIN THE LAST 10 YEARS, THE PATCH MUST BE COMPLETED PER APWA PLAN 255 (BITUMINOUS PAVEMENT T-PATCH).
- NO ANGLED ASPHALT PATCHING ALLOWED.



TYPICAL PARALLEL ASPHALT PATCH PLAN

DRIVEWAY APPROACH NOTES:

- IN NEW SUBDIVISIONS WHERE FUTURE DRIVEWAY LOCATIONS ARE UNKNOWN, THE DRIVEWAY APPROACH SHALL BE MADE BY SAW CUTTING THE BACK OF THE EXISTING CURB TO THE REQUIRED DRIVEWAY WIDTH. ALL SAW CUTTING SHALL BE ACCOMPLISHED BY A CITY APPROVED LICENSED CONTRACTOR.
- SCORE SIDEWALK $\frac{1}{2}$ OF SIDEWALK THICKNESS AT EACH 5'-0" OR 6'-0" SECTION. EXPANSION JOINTS AT EACH 50'-0" (5'-0" SIDEWALK) OR 48'-0" (6'-0" SIDEWALK), PROVIDE ADDITIONAL CONTRACTION JOINTS ON OVERSIZED DRIVEWAYS AT 5'-0" MAX. SPACING
- APPROACHES SHALL NOT BE ALLOWED ON CORNER LOTS WITHIN THE CLEAR VIEW AREA.



PROJECT ENGINEER
3/3/2021
DATE

| REV. | DATE | APPR. |
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HARRISVILLE CITY CORPORATION
PUBLIC WORKS STANDARDS

PUBLIC ROADS - TYPICAL DRIVE APPROACH, ASPHALT
PATCH & DEFECTIVE CONCRETE REPLACEMENT DETAILS

SHEET:
CS-04
OF 21 SHEETS
0

1. LOCATE THE DETECTABLE WARNING SURFACE SO THE OUTSIDE CORNER NEAREST THE STREET IS WITHIN 1 INCH OF THE BACK OF CURB (TBC). PROVIDE 2-FOOT MINIMUM DEPTH.
2. PROVIDE DETECTABLE WARNING SURFACE FOR FULL WIDTH OF CURB CUT.
3. THE DETECTABLE WARNING SURFACE DOMES SHALL BE ORIENTED SUCH THAT THE ROWS ARE PARALLEL WITH THE DIRECTION OF PEDESTRIAN TRAVEL TO THE RAMP ON THE OPPOSITE SIDE OF THE STREET.
4. THE STANDARD COLOR FOR THE DETECTABLE WARNING SURFACE SHALL BE RED OR PRE-APPROVED CONTRASTING COLOR. WHEN THE EXISTING SIDEWALK COLOR IS NOT STANDARD CONCRETE, THE COLOR OF THE DETECTABLE WARNING SURFACE SHALL BE DETERMINED BY THE CITY ENGINEER OR AUTHORIZED REPRESENTATIVE.
5. WHEN A DETECTABLE WARNING SURFACE DOME IS CUT, THE REMAINING PORTION OF THE DOME SHALL BE BEVELED TO A MAXIMUM SLOPE OF 1:2.



- A. WHERE DESIGNATED BY THE CITY, ALTERNATE UDOT OR APWA RAMP DESIGNS MAY BE USED WITH THE PRIOR APPROVAL OF THE CITY ENGINEER AND THE CITY PUBLIC WORKS DEPARTMENT. SUBMIT ENGINEERED CONSTRUCTION PLANS TO CITY ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
- B. SITE CONDITIONS WILL VARY. CONFIGURATION OF RAMP, LANDING, AND TRANSITION MAY BE CHANGED, BUT THEY MUST MEET DIMENSIONS AND SLOPES AS SHOWN IN THE MOST RECENT EDITION OF THE U.D.O.T. STANDARDS & SPECIFICATIONS (SHEETS PA1 THROUGH PA5). THE USE OF FLARES, CURB WALLS, ETC. ARE AT THE DISCRETION OF THE ENGINEER.
- C. LOCATE CURB CUT WITHIN CROSSWALK.
- D. RAMP GRADE BREAK MUST BE PERPENDICULAR TO THE RUNNING SLOPE.
- E. DIRECTIONAL (DUAL PARALLEL) RAMPS ARE REQUIRED ON COLLECTOR AND ARTERIAL ROADS.

| SLOPE TABLE | | | |
|-------------|----------------------------|---------------------------|-------------------|
| | ITEM | MAX RUNNING SLOPE* | MAX. CROSS SLOPE* |
| (T) | TURNING SPACE ² | 2% (1V:48H) | 2% (1V:48H) |
| (R) | RAMP | 8.3% (1V:12H) | 2% (1V:48H) |
| (S) | SIDEWALK | 5% (1:20) ¹ | 2% (1V:48H) |
| (F1) | TRAVERSABLE SURFACE | 10% (1V:10H) | -- |
| (F2) | NON-TRAVERSABLE SURFACE | 25% (1V:4H) | -- |
| (B) | BLENDED TRANSITION | 5% (1V:20H) 2% MIN. | 2% (1V:48H) |

¹ 5% MAX OR NATURAL SLOPE OF LAND
² NOT TO EXCEED 2% IN ANY DIRECTION



JONES & ASSOCIATES

SIDEWALK SECTION
(CITY STANDARD)



A2. INSTALLATION TOLERANCES ON CURB & GUTTER AND SIDEWALK PER APWA 32 16 13, 3.7.

B2. AS-BUILT SURVEY MAY BE REQUIRED TO VERIFY COMPLIANCE WITH TOLERANCES.

C2. GRINDING OF CONCRETE, TO MEET TOLERANCES, WILL NOT BE ALLOWED.



REQUIRES CITY ENGINEER APPROVAL (WITHOUT PARK STRIP)

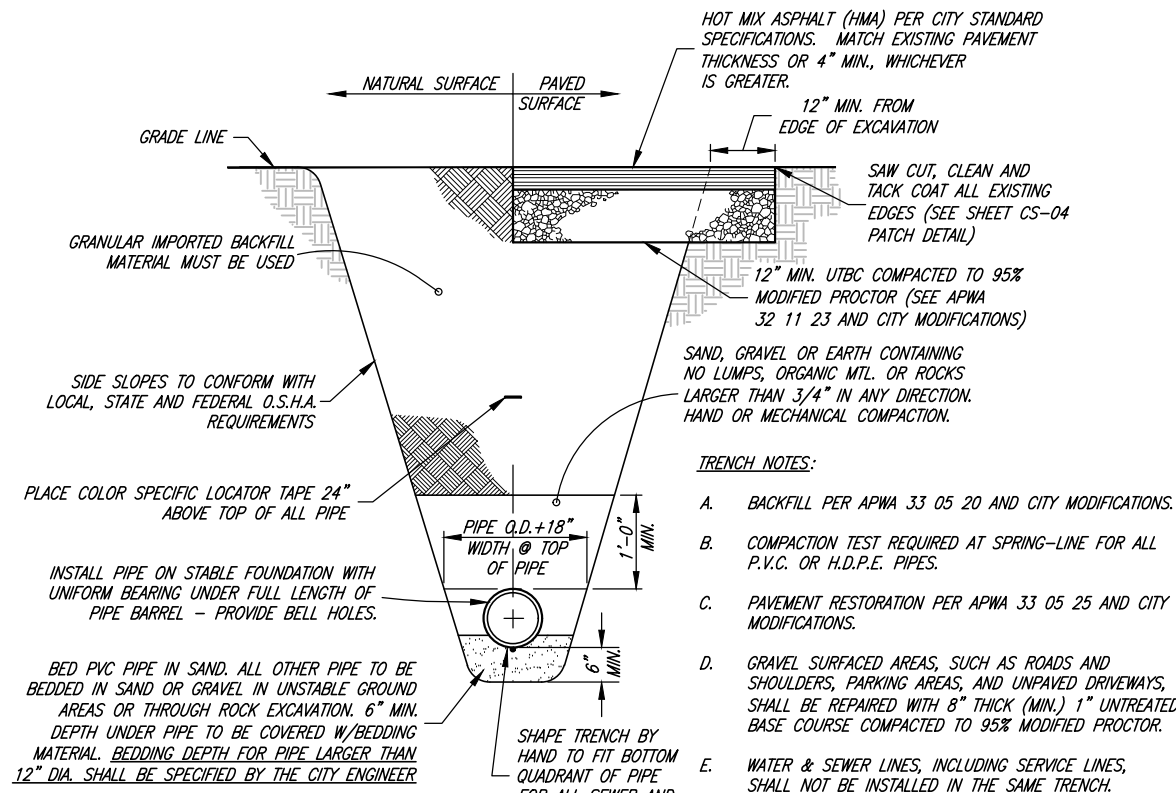
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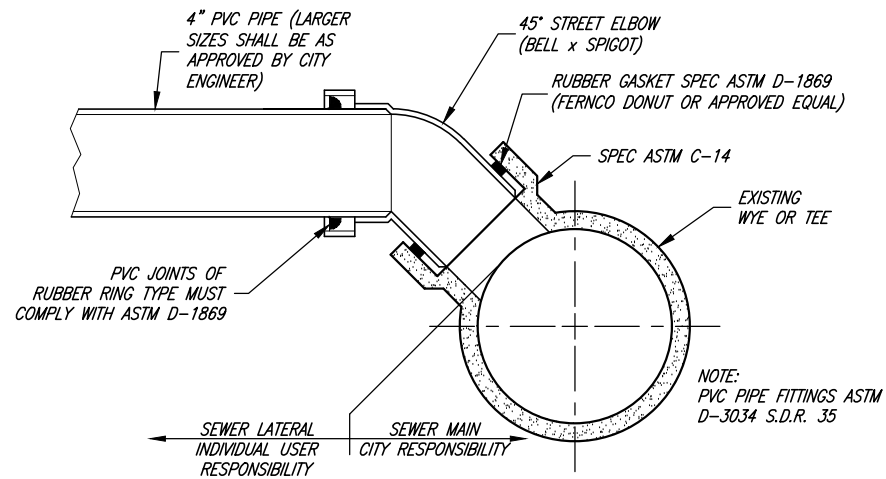
***PUBLIC ROADS - ADA RAMP, SIDEWALK, CURB & GUTTER,
AND CONCRETE JOINT DETAILS***



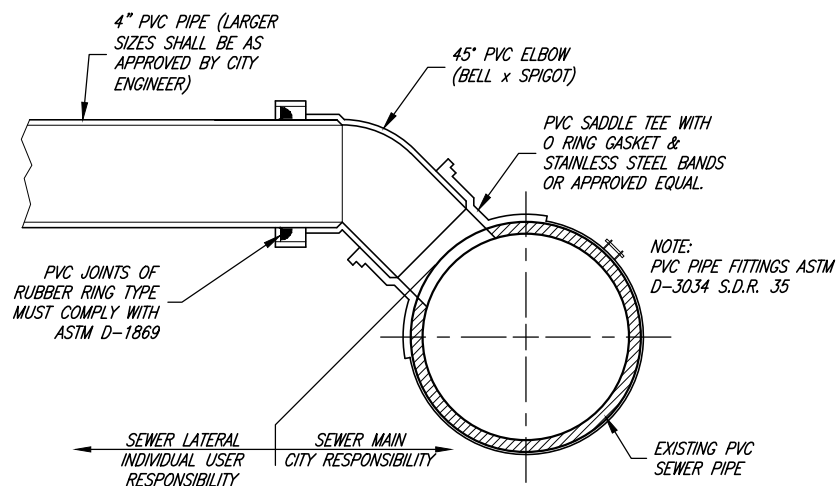
TYPICAL TRENCH SECTION
(SEWER AND STORM DRAIN)

GENERAL NOTES:

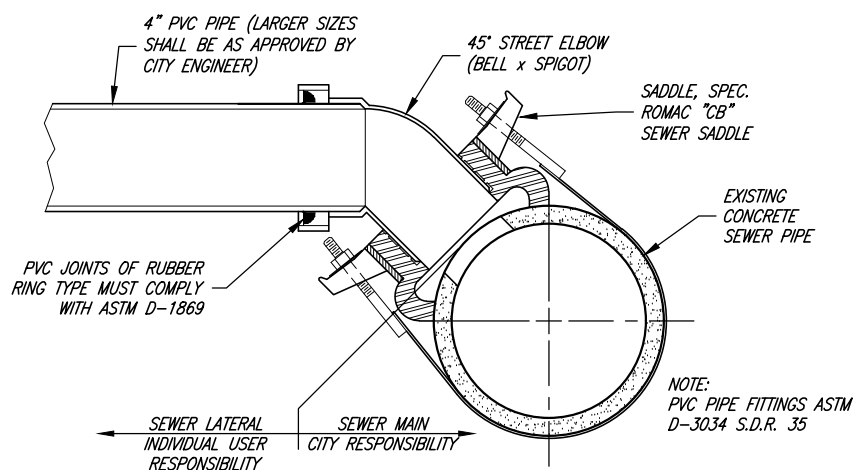
- ALL SANITARY SEWER LATERAL CONNECTIONS ON SEWER MAINS IN NEW SUBDIVISIONS SHALL BE MADE WITH IN LINE PRE-FORMED WYES OR TEES UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
- FLOWLINE ELEVATION OF LATERALS SHALL EQUAL THE INSIDE TOP OF PIPE ON MAINLINE AT THE CONNECTING POINT (THE LATERAL TAP SHALL BE IN THE TOP QUARTER OF THE SEWER MAIN LINE PREFERABLY IN THE 10:00 OR 2:00 POSITION).
- SANITARY SEWER SERVICE LATERAL CONNECTIONS SHALL NOT BE ALLOWED IN SEWER MANHOLES.
- SANITARY SEWER MAINS AND LATERALS SHALL BE "GREEN" IN COLOR. IRRIGATION PIPES SHALL BE "PURPLE" IN COLOR. PREVIOUS YEARS PIPE COLORS VARY THROUGHOUT THE CITY. CONTRACTOR TO VERIFY EXISTING PIPE PRIOR TO MAKING ANY CONNECTION.
- INSERTA TEE PRODUCT IS NOT APPROVED BY THE CITY.
- ALL CLEANOUTS SHALL BE MARKED AND FITTED WITH A BRASS PLUG FOR LOCATION PURPOSES.
- ALL CULINARY WATER MAINS AND SERVICES MUST MAINTAIN A MINIMUM SEPARATION ABOVE ALL SEWER MAINS AND LATERALS OF 18" VERTICAL AND 10'-0" HORIZONTAL IN ACCORDANCE WITH THE STATE OF UTAH DIVISION OF DRINKING WATER (DDW) RULES SECTION R309-550-7. EXCEPTIONS MUST BE APPROVED BY DDW.
- ALL SANITARY SEWER LINES SHALL BE INSPECTED BY MEANS OF VIDEO CAMERA AND AIR TESTED WHEN CONSTRUCTED. SEE APWA 33 08 00 AND CITY MODIFICATIONS FOR MORE INFORMATION.
- STAMPED CONCRETE CURB MARKS USED FOR LATERAL LOCATING ARE REQUIRED BY THE CITY. STAMPED CURB MARKS SHALL BE INSTALLED DURING ALL NEW CONSTRUCTION OR RESTORED WHEN REPLACING DAMAGED CURB & GUTTER DUE TO ANY CONSTRUCTION RELATED ACTIVITY. STAMP "S" FOR SANITARY SEWER.
- THE LOCATION OF THE SEWER LATERAL MUST BE DOCUMENTED AND SUBMITTED TO THE CITY ON SCALED AS-BUILT DRAWINGS



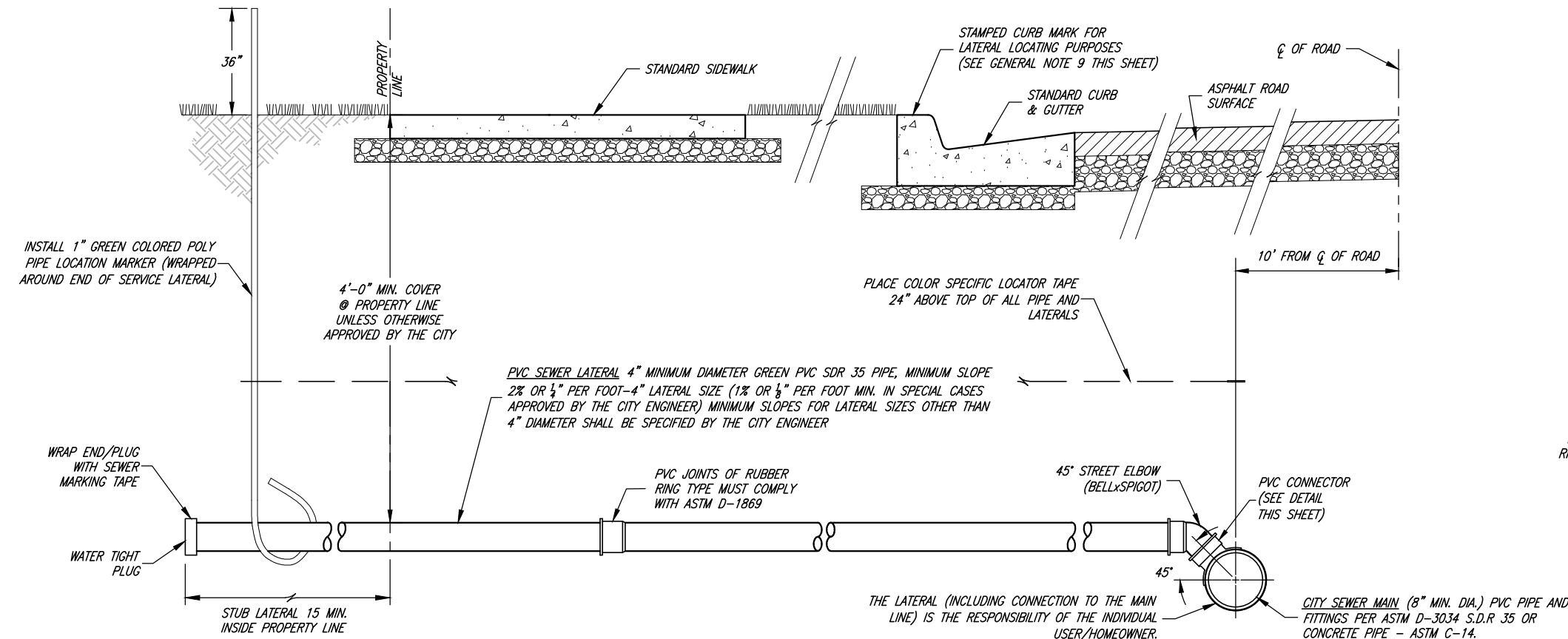
CONNECTING INTO EXISTING WYE OR TEE



TAPPING INTO EXISTING PVC PIPE



TAPPING INTO EXISTING CONCRETE PIPE



TYPICAL SEWER LATERAL CONNECTION



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| PROJECT ENGINEER | DATE | REV. | DATE | APPR. |
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HARRISVILLE CITY CORPORATION
PUBLIC WORKS STANDARDS
SANITARY SEWER - SEWER LATERAL & MAIN LINE CONNECTION DETAILS

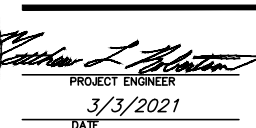
SHEET:
CS-07
OF 21 SHEETS
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- A1. ALL CONCRETE COLLARS TO BE INSTALLED WITHIN 14 DAYS AFTER PAVING.
- B1. COLLARS AROUND MANHOLES AND CULINARY WATER VALVES ARE TO BE ROUND.
- C1. COLLARS AROUND IRRIGATION VALVES AND MANHOLES ARE TO BE SQUARE.
- D1. FIBER MESH SHALL BE ADDED TO ALL CONCRETE COLLARS.



1. SECURE INVERTS IN ALL MANHOLES DURING CONSTRUCTION SO AS TO PREVENT GRAVEL AND OTHER DEBRIS FROM COLLECTING INSIDE.
2. A LARGER DIAMETER MANHOLE MAY BE REQUIRED BY THE DESIGN ENGINEER AFTER EVALUATION OF THE NUMBER, SIZE, AND ANGLE OF THE PIPES THAT CONNECT TO THE MANHOLE.
3. NO MORE THAN 12" OF GRADE RINGS TO BE ALLOWED ON ANY MANHOLE.
4. ALL TERMINATING SEWER MAINS SHALL END WITH A CITY STANDARD MANHOLE.
5. SERVICE LATERAL CONNECTIONS SHALL NOT BE ALLOWED IN SEWER MANHOLES.
6. ALL SANITARY SEWER LINES SHALL BE INSPECTED BY MEANS OF VIDEO CAMERA AND AIR TESTED WHEN CONSTRUCTED. SEE APWA 33 08 00 AND CITY MODIFICATIONS FOR MORE INFORMATION.
7. WHERE THE DIFFERENCE IN ELEVATION BETWEEN THE INCOMING SEWER AND MANHOLE INVERT IS LESS THAN 24 INCHES, THE INVERT SHOULD BE FILLETED.
8. FLAT MANHOLE RINGS & COVERS (SLAB CONSTRUCTION) ARE NOT ALLOWED ON ANY MANHOLE CONE SECTION.

- A. *USE DROP MANHOLE ONLY WHEN DROP EXCEEDS 2'-0". (UAC R317-3)*
- B. *DROP MANHOLE SHALL CONSIST OF ASTM D3034 SDR 35 PVC PIPE WITH SDR 35 PVC GASKETED FITTINGS.*
- C. *DUE TO THE UNEQUAL EARTH PRESSURES THAT WOULD RESULT FROM THE BACKFILLING OPERATION IN THE VICINITY OF THE MANHOLE, THE ENTIRE OUTSIDE DROP CONNECTIONS SHALL BE ENCASED IN FLOWABLE FILL. (UAC R317-3)*

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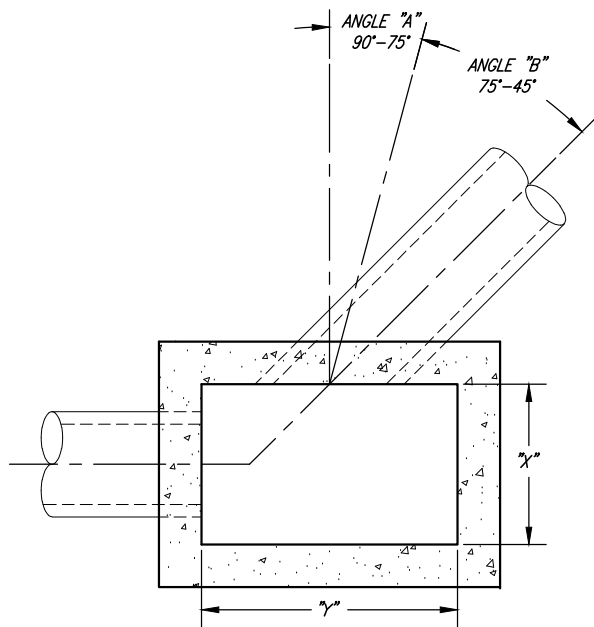


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SANITARY SEWER - TYPICAL MANHOLES & DETAILS

CS-08

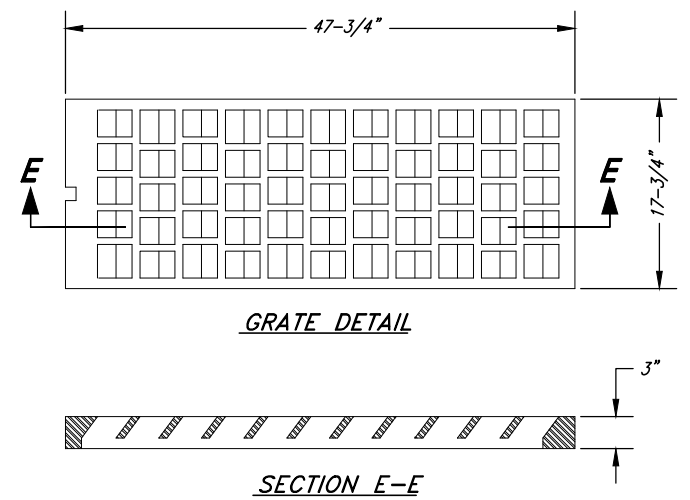
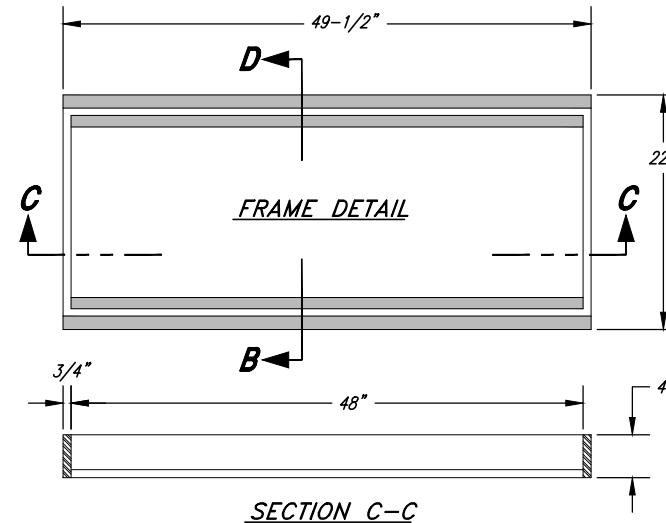
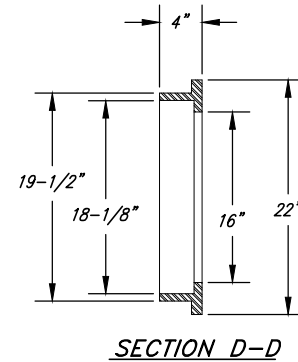
21 SHEETS



| PIPE SIZE (IN.) | INLET BOX | | | "Z" MIN. |
|-----------------|-----------|---------------|---------------|----------|
| | "X" | "Y" (ANGLE A) | "Y" (ANGLE B) | |
| 15 | 2'-6" | 4'-0" | 4'-0" | 2'-0" |
| 18 | 2'-6" | 4'-0" | 4'-0" | 2'-6" |
| 21 | 4'-0" | 4'-0" | 4'-0" | 3'-0" |
| 24 | 4'-0" | 4'-0" | 5'-0" | 3'-0" |
| 30 | 4'-0" | 4'-0" | 6'-0" | 3'-6" |
| 36 | 5'-0" | 5'-0" | 6'-0" | 4'-0" |
| 42 | 6'-0" | 6'-0" | 7'-0" | 5'-0" |
| 48 | 6'-0" | 6'-0" | 8'-0" | 5'-6" |

GENERAL NOTE:

STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS.



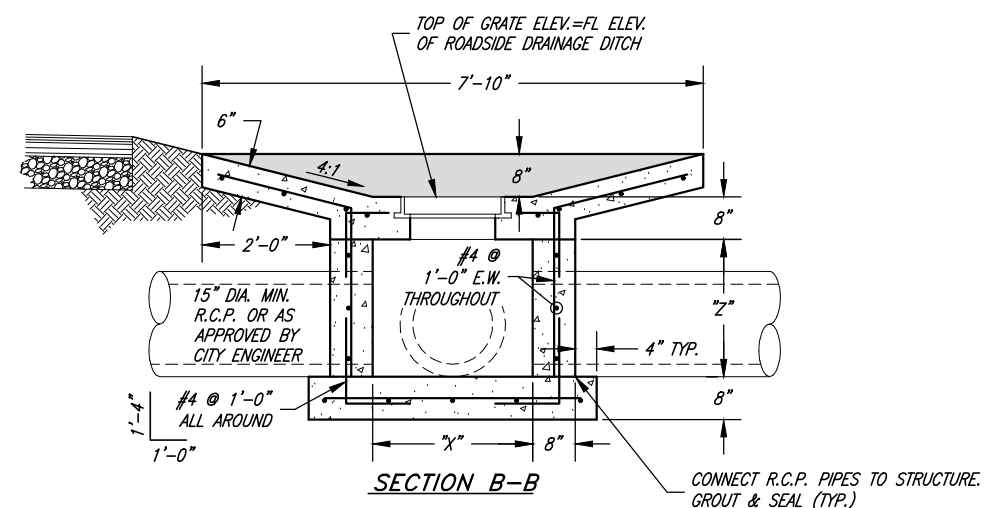
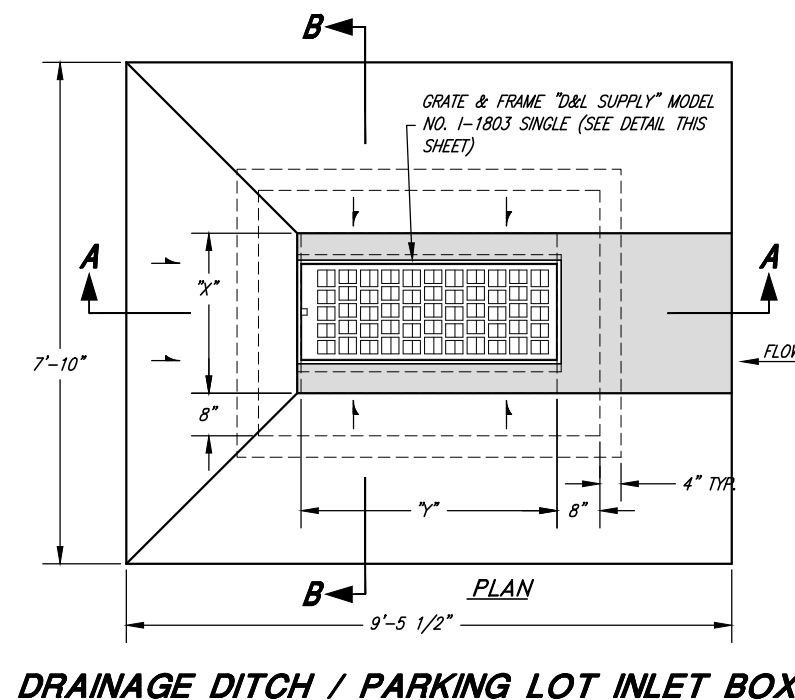
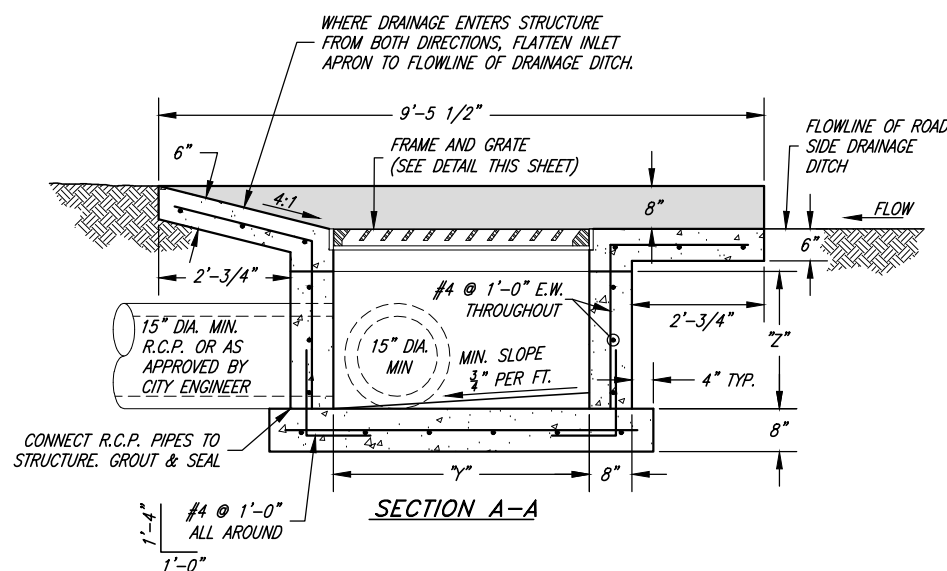
FRAME & GRATE DETAILS

FRAME AND GRATE NOTES:

- A1. GRATE AND FRAME SHALL BE AS MANUFACTURED BY "D&L SUPPLY" I-1803
- B1. BICYCLE SAFE GRATE REQUIRED.
- C1. "OR EQUAL" GRATES AND FRAMES WILL BE CONSIDERED AS APPROVED BY THE CITY ENGINEER.

DRAINAGE BOX NOTES:

1. ALL BOX SIZES REFLECT DIMENSIONS FOR THE MINIMUM 15"Ø PIPE SIZE. BOX DIMENSIONS MUST INCREASE PROPORTIONALLY TO ACCOMMODATE LARGER PIPE SIZES. (SEE TABLE THIS SHEET)
2. CAST-IN-PLACE CONCRETE STRUCTURES CAN BE REPLACED WITH PRECAST CONCRETE STRUCTURES WITH HL-93 DECK LOADING AND COMPARABLE SIZE.
3. ALL BOXES SHALL BE FORMED ON THE INSIDE AND OUTSIDE OF THE BOX AND INSPECTED BY THE CITY PRIOR TO THE PLACING OF CONCRETE.



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STORM DRAIN - DRAINAGE INLET BOX AND GRATE AND FRAME DETAILS

SHEET:
CS-10
OF 21 SHEETS
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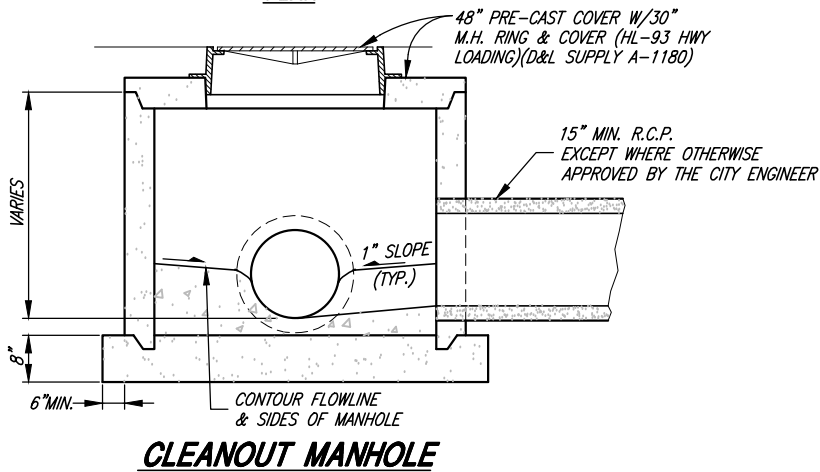
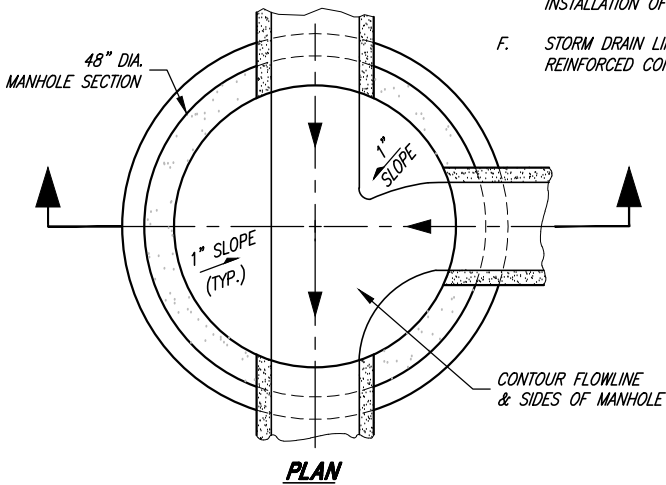
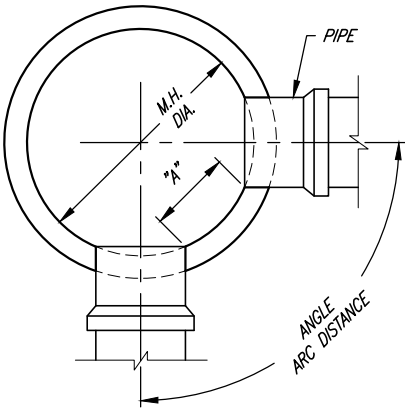
| PIPE SIZES | | | | | | | | | | | |
|------------|-------------------|---|---------|---------|---------|---------|---------|---------|---------|-----|-----|
| M.H. SIZE | IN-LINE M.H. 180" | JUNCTION MANHOLE (ANGLE / ARC DISTANCE) | | | | | | | | | |
| | | 90° | 85° | 80° | 75° | 70° | 65° | 60° | 55° | 50° | 45° |
| 4" M.H. | 15"-24" | 15"-18" | 15"-18" | 15" | 15" | --- | --- | --- | --- | --- | --- |
| 5" M.H. | 27"-30" | 21"-24" | 21"-24" | 18"-21" | 18"-21" | 15"-18" | 15"-18" | 15" | --- | --- | --- |
| 6" M.H. | 36"-48" | 27"-30" | 27"-30" | 24"-27" | 24" | 21"-24" | 21" | 18" | 15"-18" | 15" | --- |
| 7" M.H. | 54" | 36" | 36" | 30" | 27"-30" | 27" | 24" | 21"-24" | 21" | 18" | 15" |
| 8" M.H. | 60" | 42" | 42" | 36" | 36" | 30" | 27"-30" | 27" | 24" | 21" | 18" |

MANHOLE SIZING NOTES:

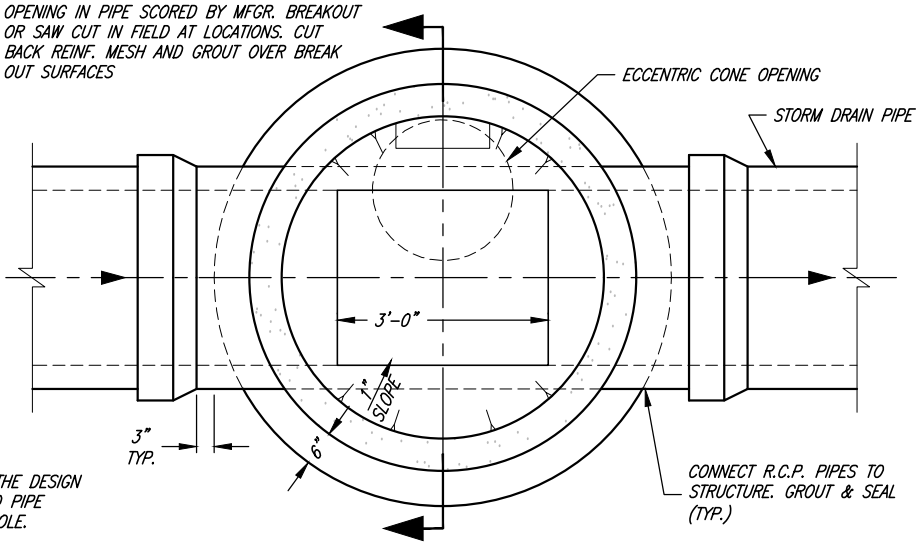
- SUGGESTED "A" DISTANCE IS 6" OR GREATER FOR 48", 60" AND 72" DIAMETER MANHOLES
- SUGGESTED "A" DISTANCE IS 8" OR GREATER FOR 84" AND 96" DIAMETER MANHOLES

GENERAL NOTES:

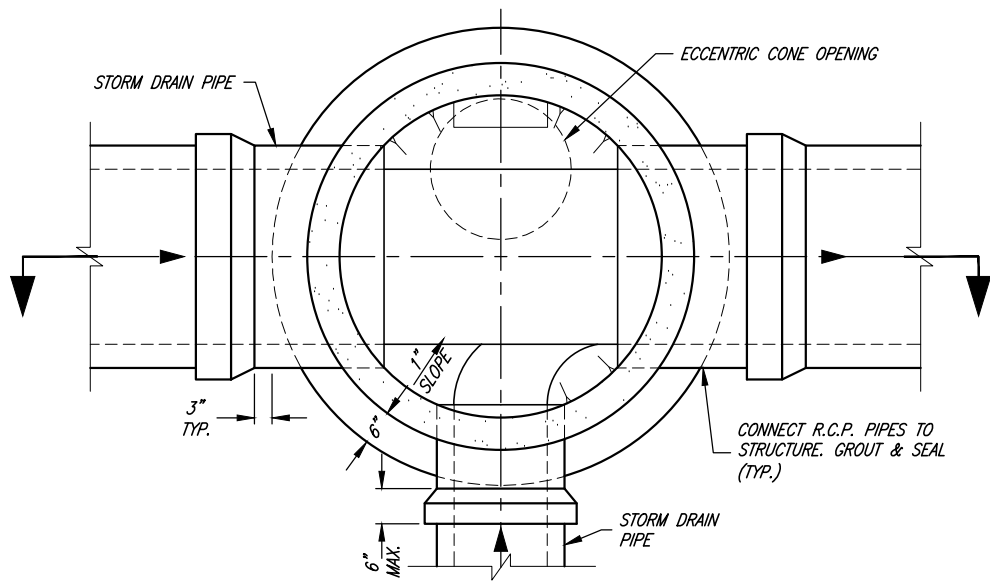
- STORM DRAIN MANHOLE DIAMETER TO BE DETERMINED BY THE DESIGN ENGINEER AFTER EVALUATION OF THE NUMBER, SIZE, AND PIPE ENTRY ANGLE OF THE PIPES THAT CONNECT TO THE MANHOLE.
- NO MORE THAN 12" OF GRADE RINGS TO BE ALLOWED ON ANY MANHOLE
- PLYWOOD COVERS SHALL BE USED AT MANHOLE FLOOR TO COVER FLOWLINE DURING CONSTRUCTION AND MAINTENANCE ACTIVITIES.
- ALL INTERIOR JOINTS SHALL BE SMOOTH AND EVENLY GROUTED WITH NON-SHRINK GROUT MIX.
- MANHOLE STEPS UNIFORMLY SPACED (1'-0" MAX) ON ALL MANHOLES. POLYPROPYLENE COVERED STEEL STEPS, MODEL PSI-PF AS MANUFACTURED BY "M.A. INDUSTRIES" OR APPROVED EQUAL - INSTALLATION OF STEPS SHALL BE WATERPROOF.
- STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS.



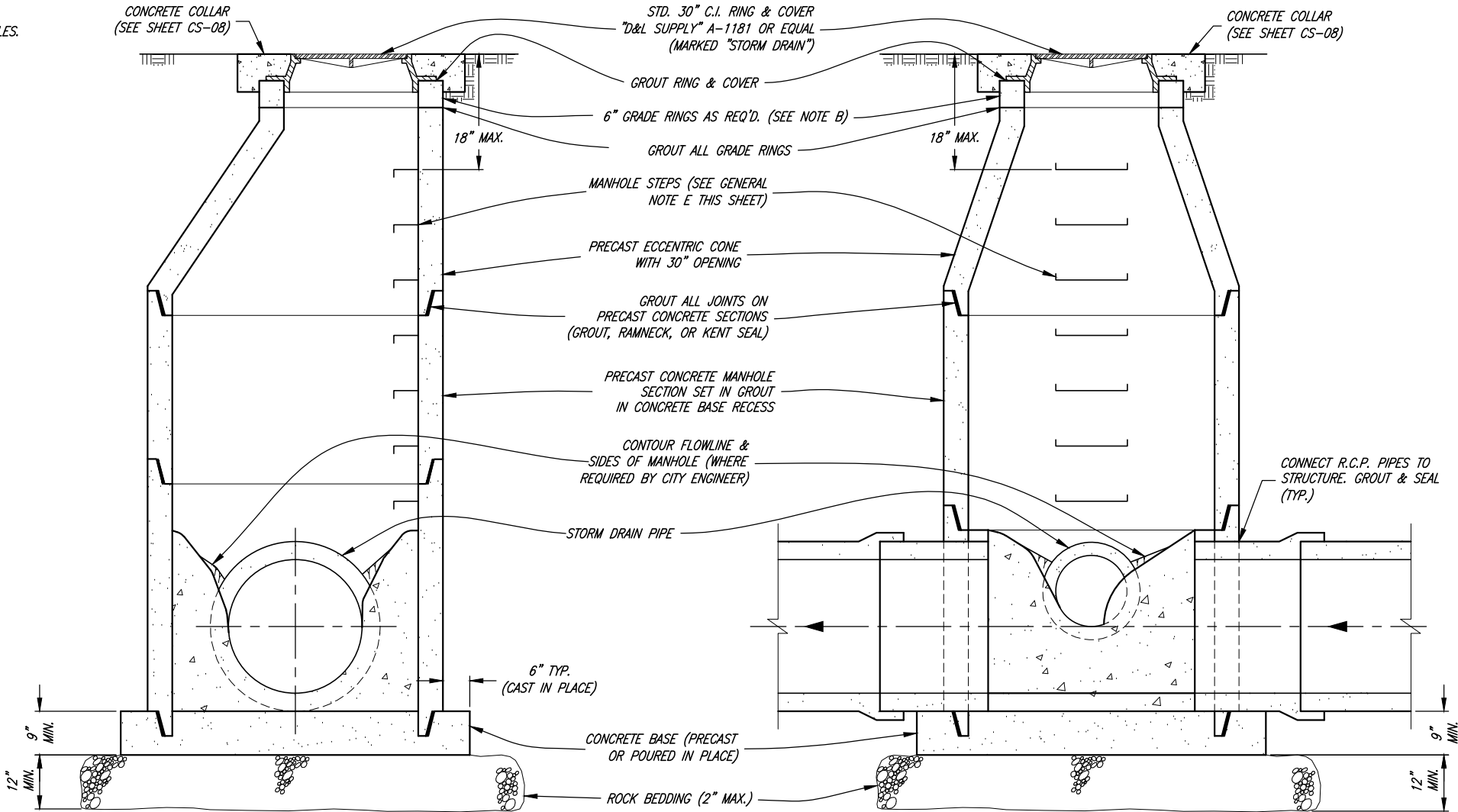
OPENING IN PIPE SCORED BY MFG. BREAKOUT OR SAW CUT IN FIELD AT LOCATIONS. CUT BACK REINF. MESH AND GROUT OVER BREAK OUT SURFACES



TYPICAL LINE MANHOLE



TYPICAL JUNCTION MANHOLE



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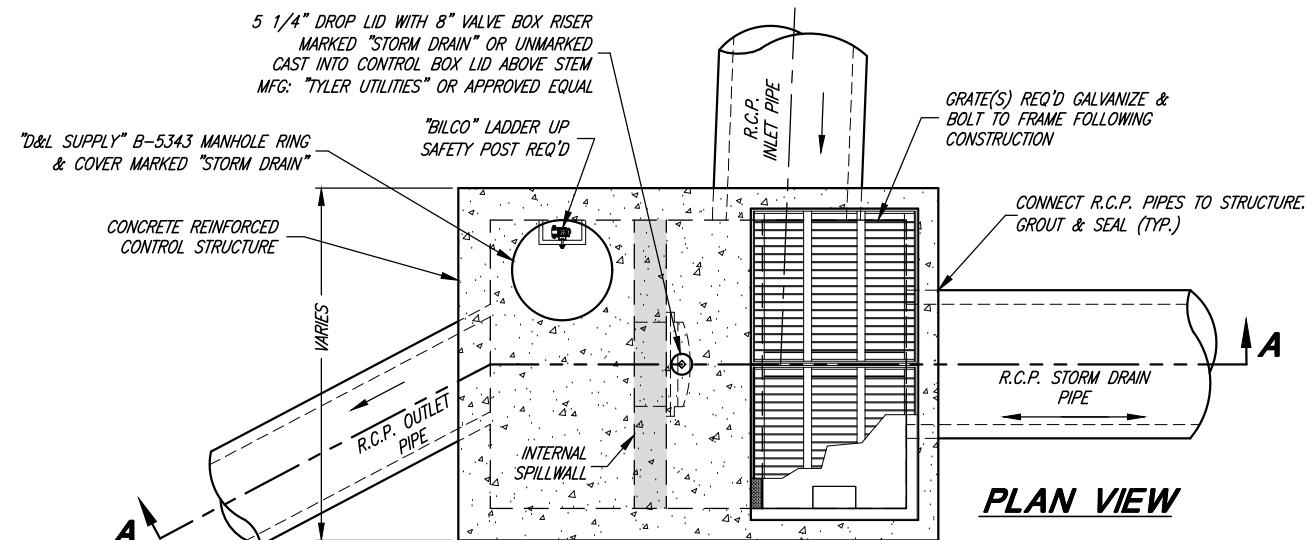


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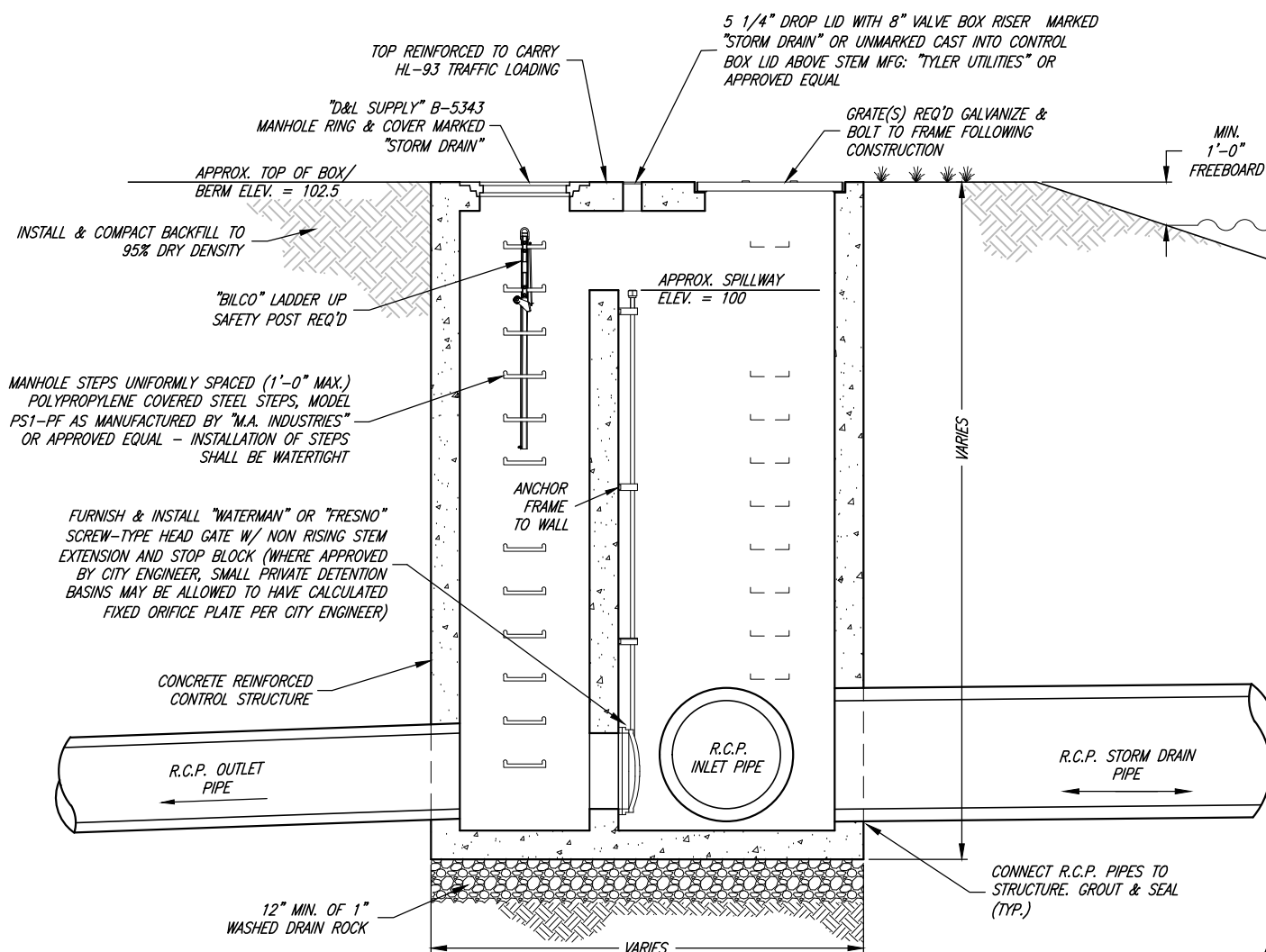
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PUBLIC WORKS STANDARDS

STORM DRAIN - TYPICAL MANHOLE AND CLEANOUT DETAILS

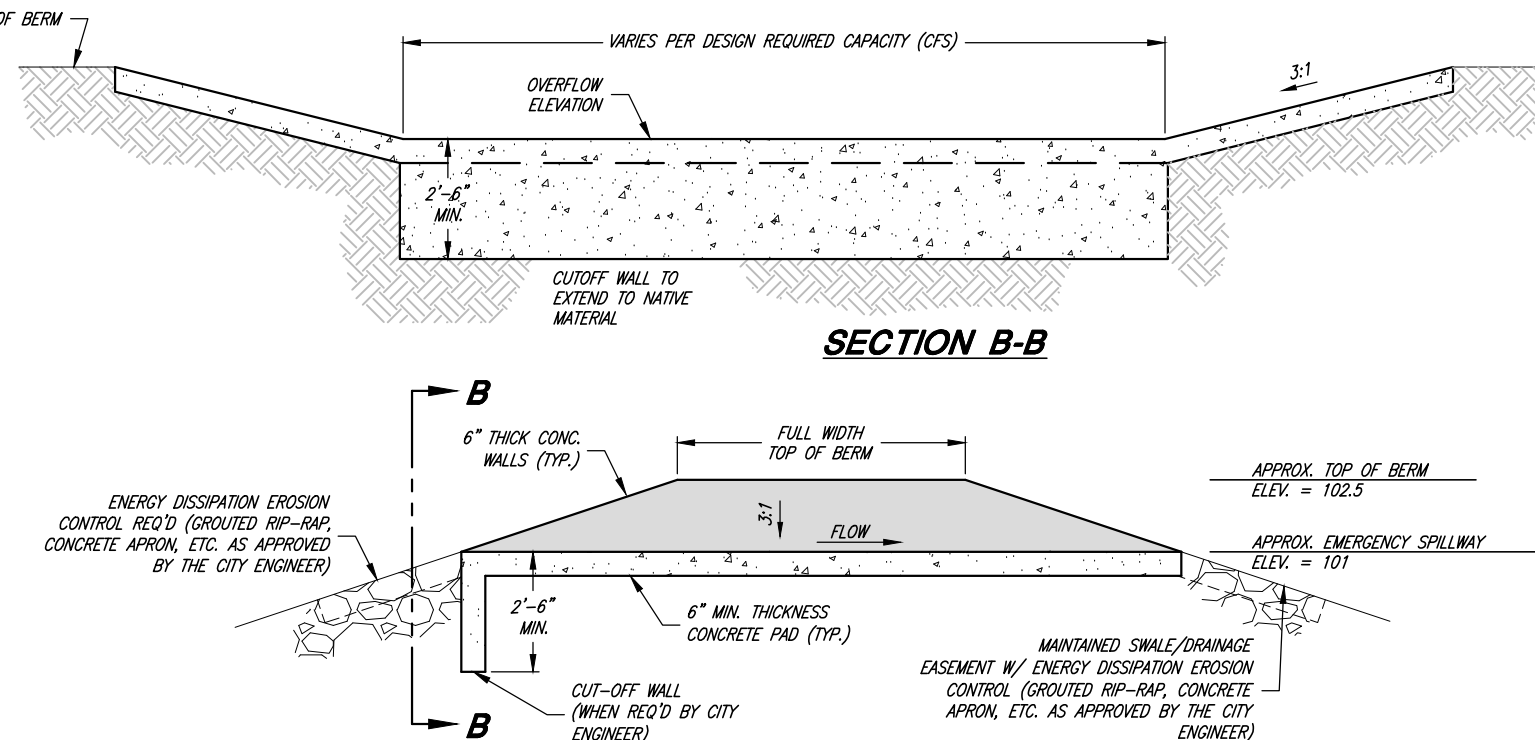
SHEET:
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 OF 21 SHEETS
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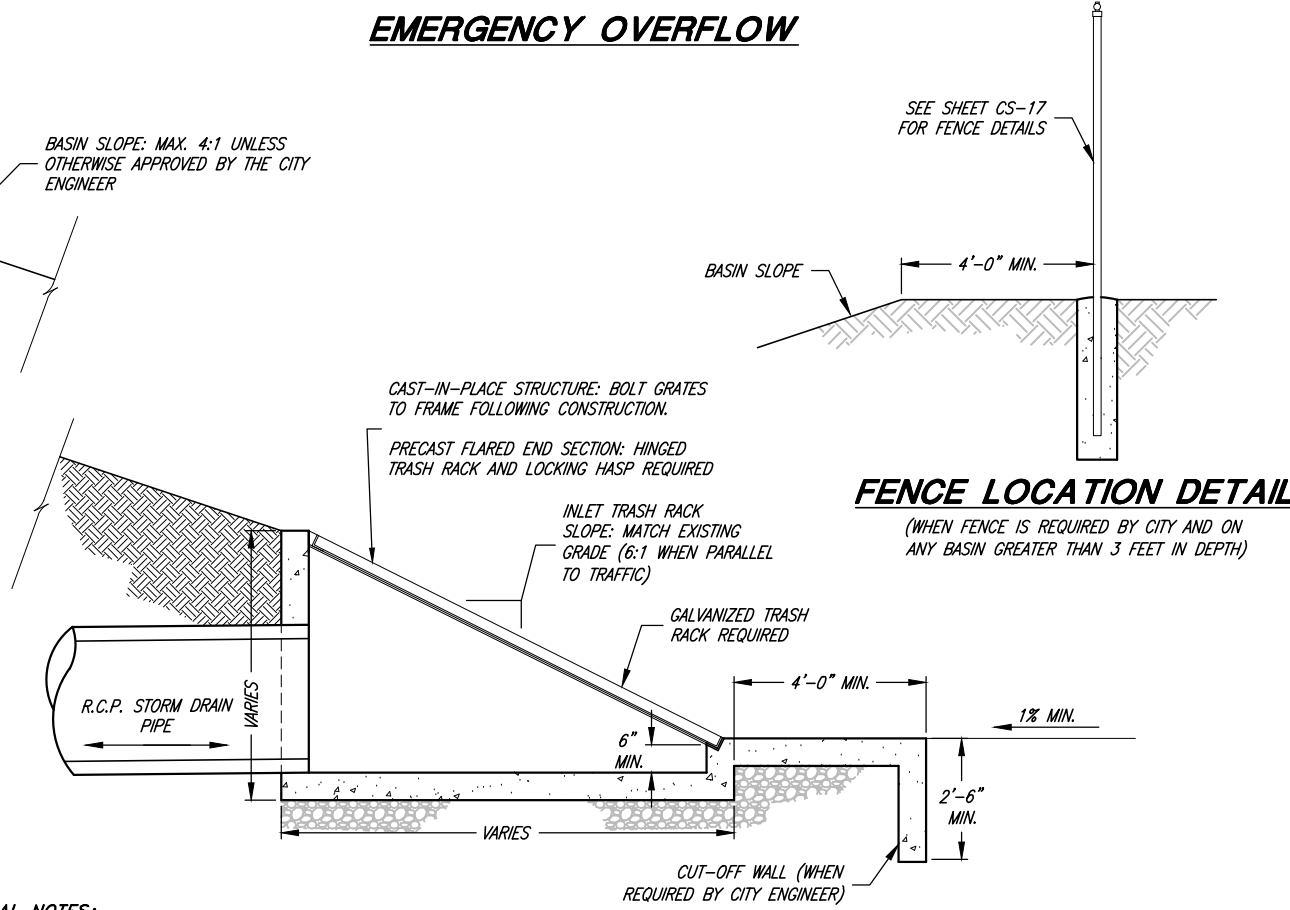
DETENTION INLET/OUTLET CONTROL STRUCTURE
(PRECAST OR CAST-IN-PLACE)



SECTION A-A



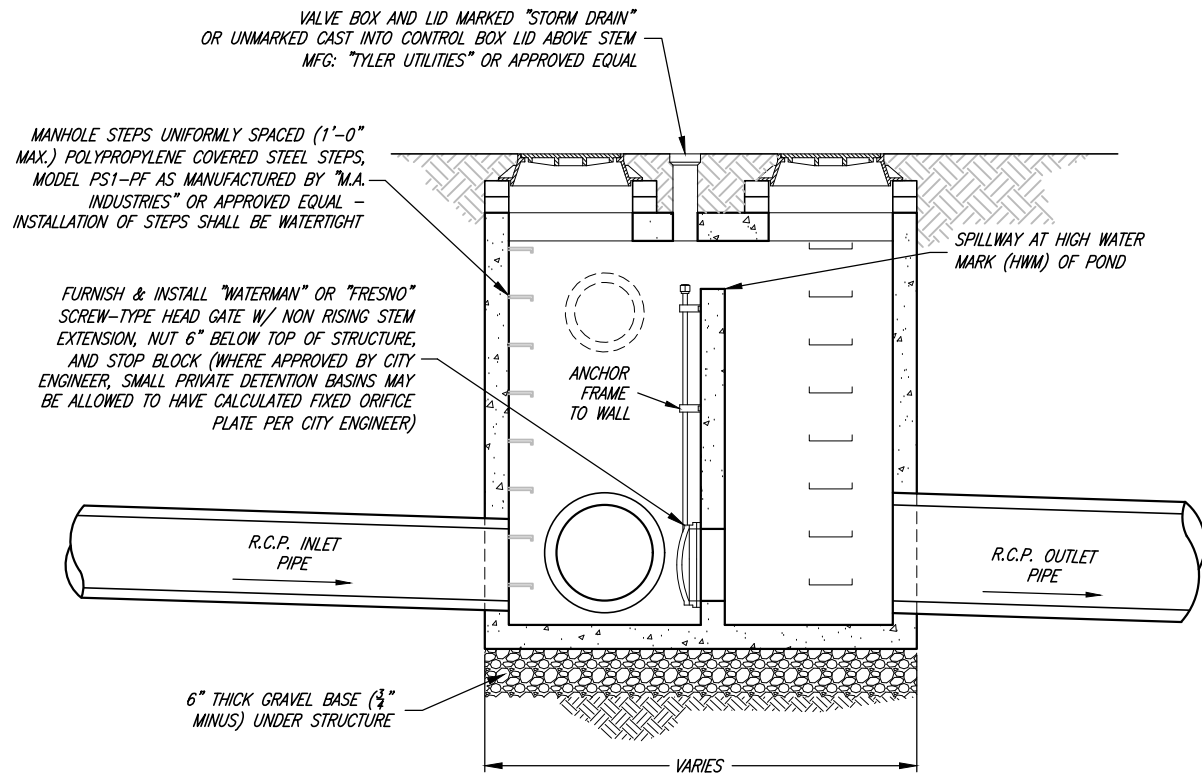
EMERGENCY OVERFLOW



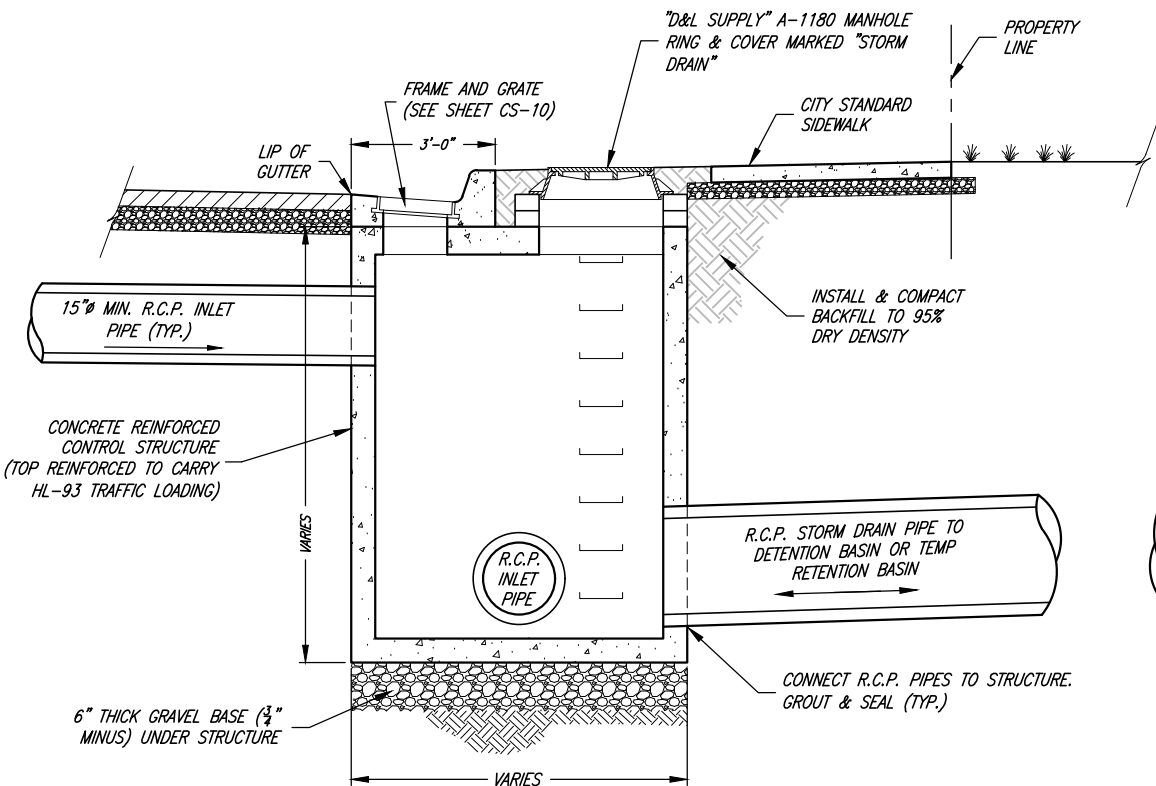
FENCE LOCATION DETAIL

GENERAL AND STRUCTURAL NOTES:
SEE SHEET CS-13
NOTE:
ALTERNATE BASIN AND STRUCTURE DESIGNS MAY
BE APPROVED PER CITY ENGINEER BASED UPON
CONDITIONS IN THE FIELD.

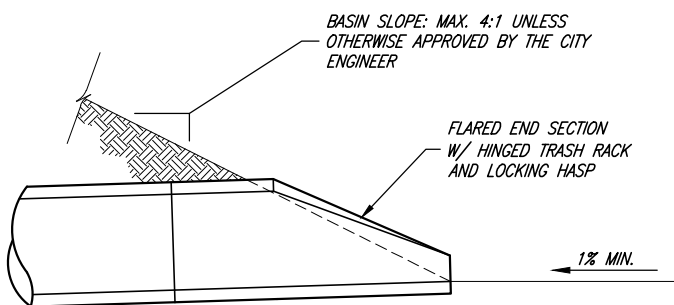
INCLINED GRATE STORM DRAIN INLET



SECTION B-B



SECTION A-A

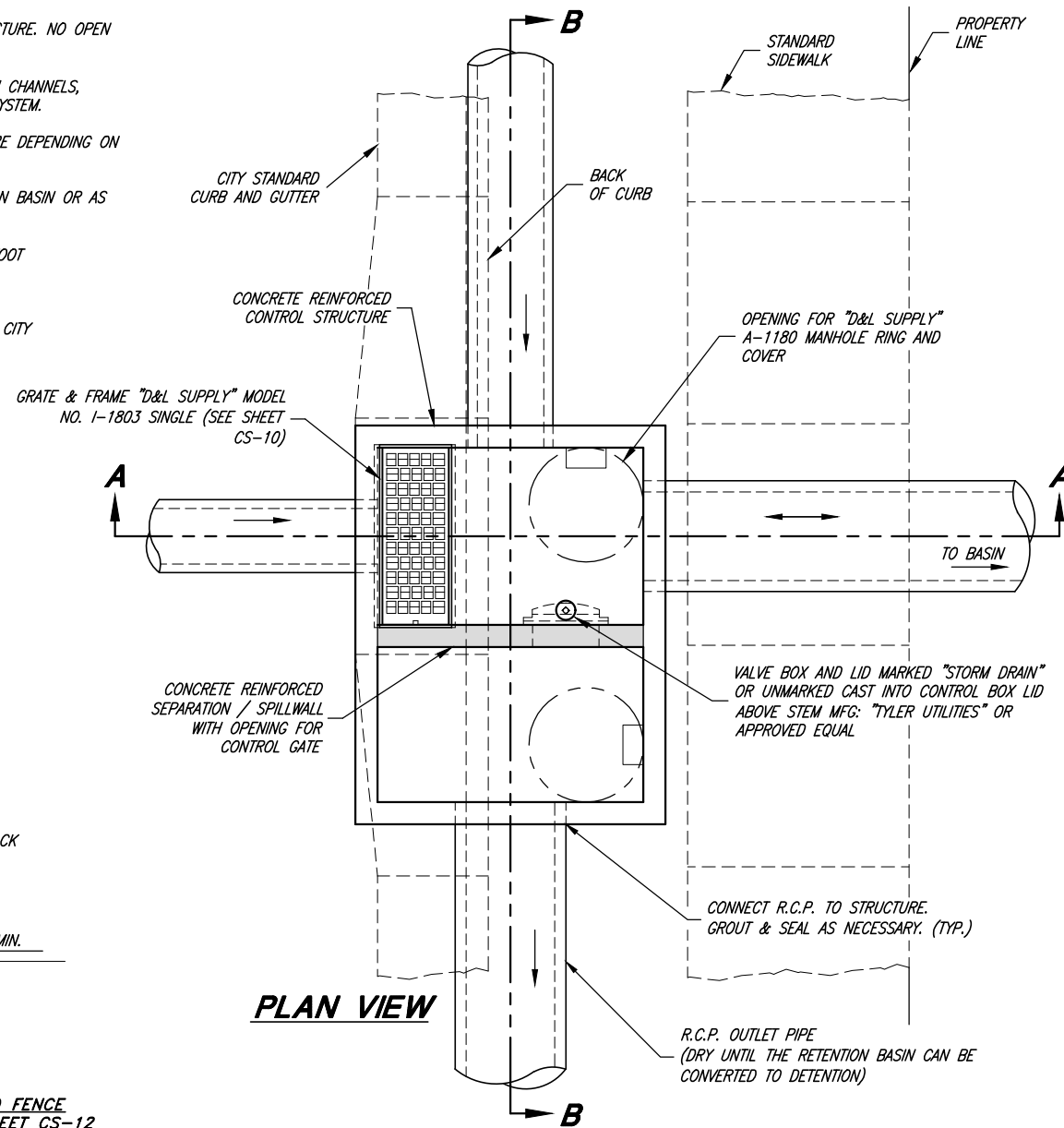


GENERAL NOTES:

1. LOCAL BASINS SHALL BE DESIGNED TO ACCOMMODATE A 25 YEAR STORM EVENT. REGIONAL BASINS SHALL BE DESIGNED TO ACCOMMODATE A 100 YEAR STORM EVENT.
2. A DAM SAFETY (UTAH DIVISION OF WATER RIGHTS) HAZARD PERMIT MAY BE REQUIRED.
3. STRUCTURE DESIGN AND FLOW CALCULATIONS MUST BE APPROVED BY CITY ENGINEER PRIOR TO CONSTRUCTION.
4. STORM DRAIN LINES SHALL BE 15 INCH MINIMUM DIAMETER REINFORCED CONCRETE PIPE (RCP), OF APPROPRIATE CLASS.
5. THE SURFACE AREA OF THE BASIN SHALL BE SODDED AND SHALL BE PROVIDED WITH AN AUTOMATED SPRINKLER SYSTEM APPROVED BY THE CITY ENGINEER. COBBLE WITH FABRIC MAY BE ALLOWED ON BASINS DEEPER THAN 3 FEET AS APPROVED BY THE CITY ENGINEER.
6. GRATES SHALL BE REMOVABLE FOR MAINTENANCE PURPOSES
7. GRATES SHALL BE HOT DIPPED GALVANIZED WITH BARS AT MAXIMUM 3 INCH SPACING.
8. LOW FLOWS MUST BE PIPED CONTINUOUSLY TO THE CONTROL STRUCTURE. NO OPEN FLOW IS PERMITTED THROUGH THE BASIN.
9. INCLINED GRATES ARE REQUIRED ON ALL PIPES/INLETS WHERE OPEN CHANNELS, DITCHES, OR PONDS DISCHARGE DIRECTLY INTO THE STORM DRAIN SYSTEM.
10. AN INTERNAL SPILLWAY MAY BE CONSTRUCTED INSIDE THE STRUCTURE DEPENDING ON SITE CONDITIONS AND ELEVATIONS.
11. BASIN STRUCTURES ARE DETERMINED BY THE SIZE OF THE DETENTION BASIN OR AS REQUIRED BY THE CITY ENGINEER. (SEE SHEET CS-12 OR CS-13)
 - a. SMALL DETENTION BASIN: LESS THAN OR EQUAL TO 1 ACRE FOOT
 - b. LARGE DETENTION BASIN: GREATER THAN 1 ACRE FOOT
12. ALTERNATE BASIN AND STRUCTURE DESIGNS MAY BE APPROVED PER CITY ENGINEER BASED UPON CONDITIONS IN THE FIELD.

STRUCTURAL NOTES:

- A. PRECAST CONCRETE STRUCTURE CAN BE REPLACED WITH CAST-IN-PLACE CONCRETE VAULT. SUBMIT ENGINEERED CONSTRUCTION PLANS WITH REBAR DETAILS TO CITY ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
- B. ADD REINFORCEMENT AROUND OPENINGS EQUAL TO REINFORCEMENT DISPLACED BY OPENING.
- C. THE PRECAST VAULT MANUFACTURER IS RESPONSIBLE FOR DESIGN RELATED TO TRAFFIC LOADING AND THRUST. VERIFICATION OF PROPER DESIGN MUST BE PROVIDED TO THE CITY BY THE DEVELOPER, CONTRACTOR, OR PROPERTY OWNER AS THE CASE MAY BE.
- D. REINFORCEMENT TO CONFORM WITH ASTM A 615 GRADE 60
- E. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI
- F. USE AN AIR-ENTRAINING AGENT ON ALL CONCRETE EXPOSED TO THE WEATHER.
- G. HL-93 LOADING



PLAN VIEW

INLET/OUTLET CONTROL STRUCTURE

(PRECAST OR CAST-IN-PLACE)



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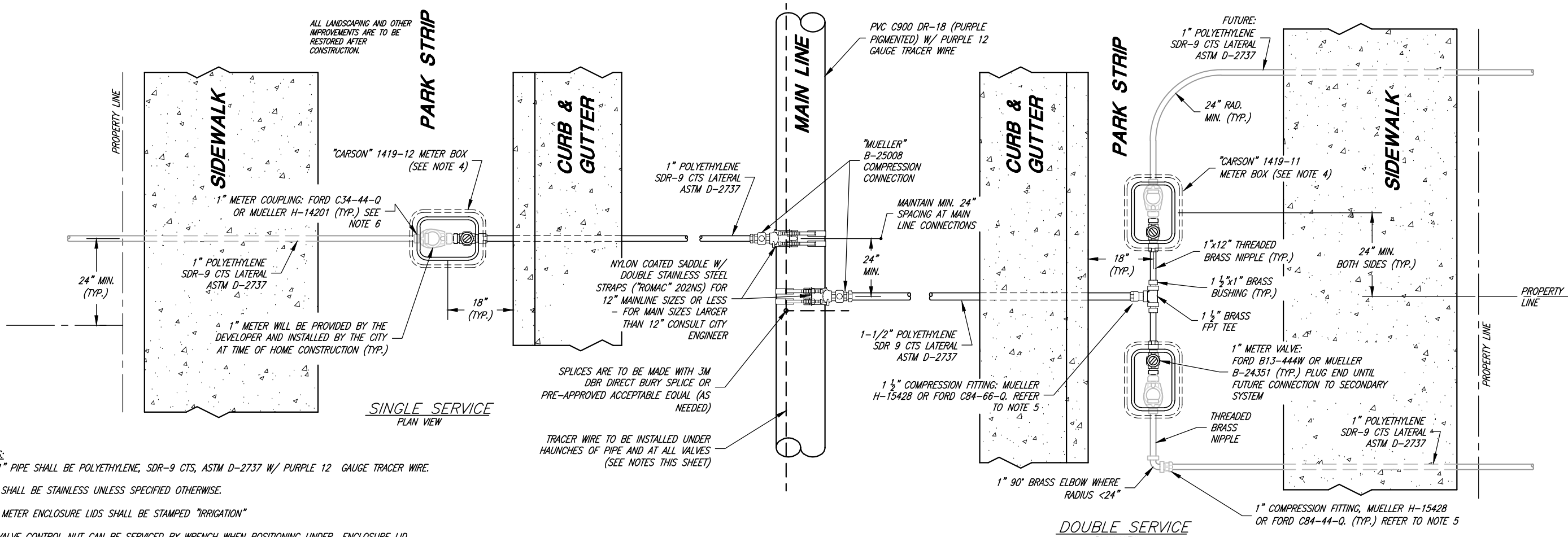


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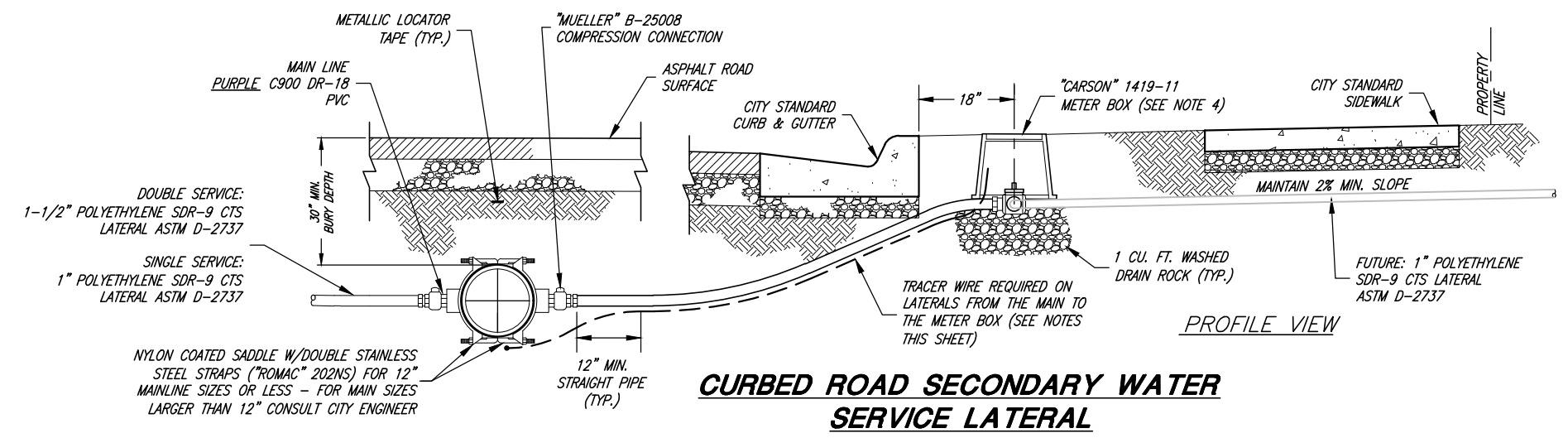
STORM DRAIN - SMALL DETENTION BASIN DETAILS

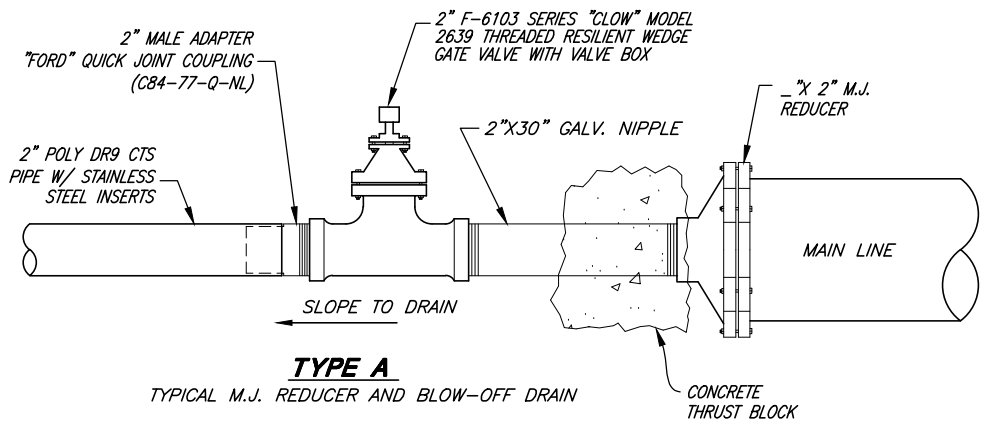
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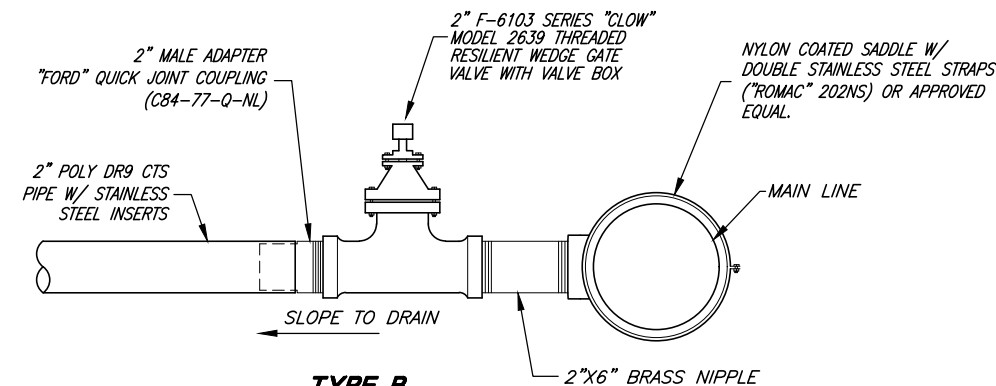
- GENERAL NOTES:**
1. 1 1/2" & 1" PIPE SHALL BE POLYETHYLENE, SDR-9 CTS, ASTM D-2737 W/ PURPLE 12 GAUGE TRACER WIRE.
 2. FITTINGS SHALL BE STAINLESS UNLESS SPECIFIED OTHERWISE.
 3. VALVE & METER ENCLOSURE LIDS SHALL BE STAMPED "IRRIGATION"
 4. INSURE VALVE CONTROL NUT CAN BE SERVICED BY WRENCH WHEN POSITIONING UNDER ENCLOSURE LID.
 5. ALL COMPRESSION-TYPE CONNECTIONS REQUIRE STAINLESS STEEL INSERT STIFFENERS.
 6. THE TUBING SHOULD BE INSERTED INTO THE FITTING SO THAT THE END OF THE TUBING IS WELL PAST THE RUBBER GASKET AND AT LEAST 1/8" FROM THE BOTTOM OF THE SOCKET.
 7. SERVICE LINES ARE TO BE TAPPED LEVEL
 8. ALL MAIN LINES ARE TO BE PURPLE C900 W/ PURPLE LOCATOR TAPE & PURPLE 12 GAUGE TRACER WIRE.

- TRACER WIRE NOTES:**
- A1. ALL SECONDARY WATER LINES SHALL HAVE A MINIMUM 12 GA. INSULATED TRACER WIRE INSTALLED UNDER THE HAUNCHES OF THE PIPE PRIOR TO BACKFILLING.
 - B1. TRACER WIRES SHALL TERMINATE AT ALL METERS, AT SERVICE SADDLES AND TAPPING SLEEVES, THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SADDLE AND THE PIPE. A GROUNDING ROD SHALL BE INSTALLED AT ALL TRACER SYSTEM TERMINAL POINTS.
 - C1. TRACER WIRE SHALL BE COPPER WIRE WITH PURPLE INSULATION RATED FOR DIRECT BURIAL. ALL WIRE CONNECTORS SHALL BE 3M DBR DIRECT BURY SPlice OR PRE-APPROVED ACCEPTABLE EQUAL AND SHALL BE WATERTIGHT TO PROVIDE ELECTRICAL CONTINUITY.
 - D1. ALL TRACER WIRE SHALL BE TESTED FOR CONTINUITY IN THE PRESENCE OF THE PUBLIC WORKS INSPECTOR PRIOR TO ASPHALT PLACEMENT. ANY TRACER WIRE FOUND NOT TO BE CONTINUOUS AFTER TESTING SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR PRIOR TO ASPHALT PLACEMENT.

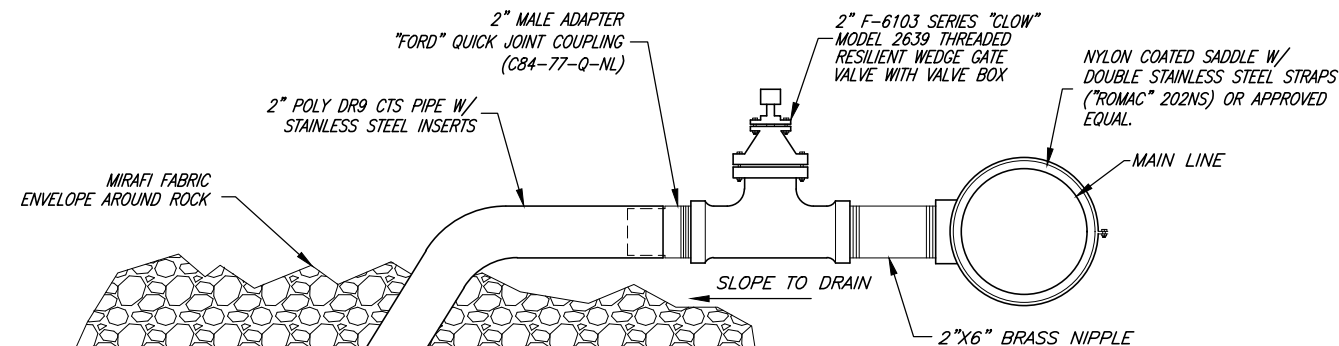




TYPE A
TYPICAL M.J. REDUCER AND BLOW-OFF DRAIN



TYPE B
TYPICAL DRAIN

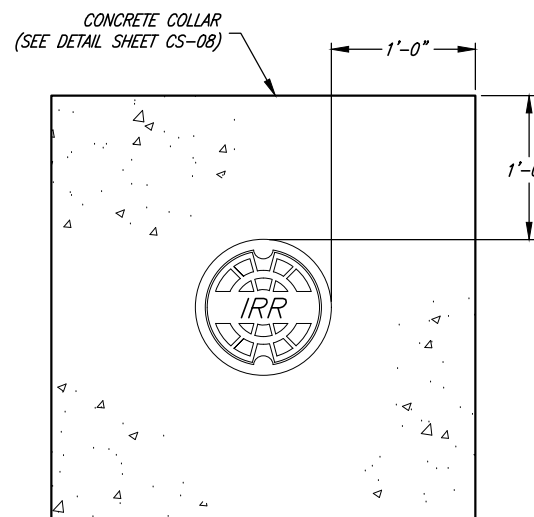


TYPE C
TYPICAL SUMP DRAIN

NOTE:
CONNECT SECONDARY WATER DRAIN TO STORM DRAIN WHERE APPLICABLE

FILL 6'X6'X6' HOLE WITH 1" ROCK

DRAIN VALVE DETAILS

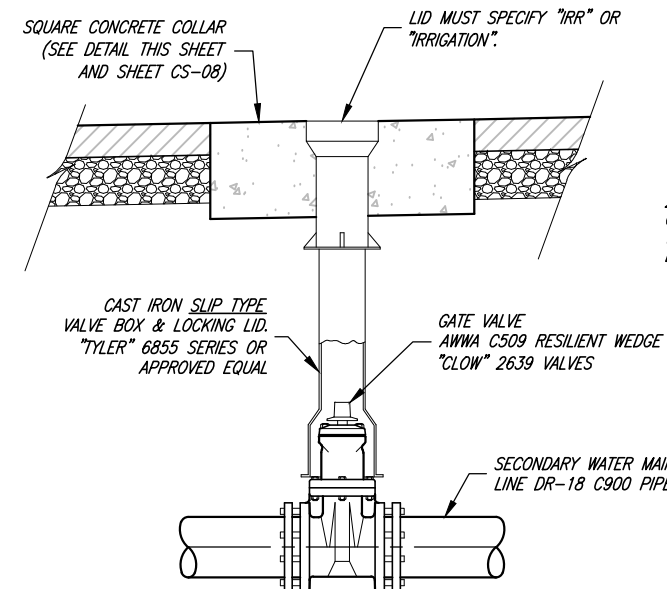


TYPICAL CONCRETE COLLAR

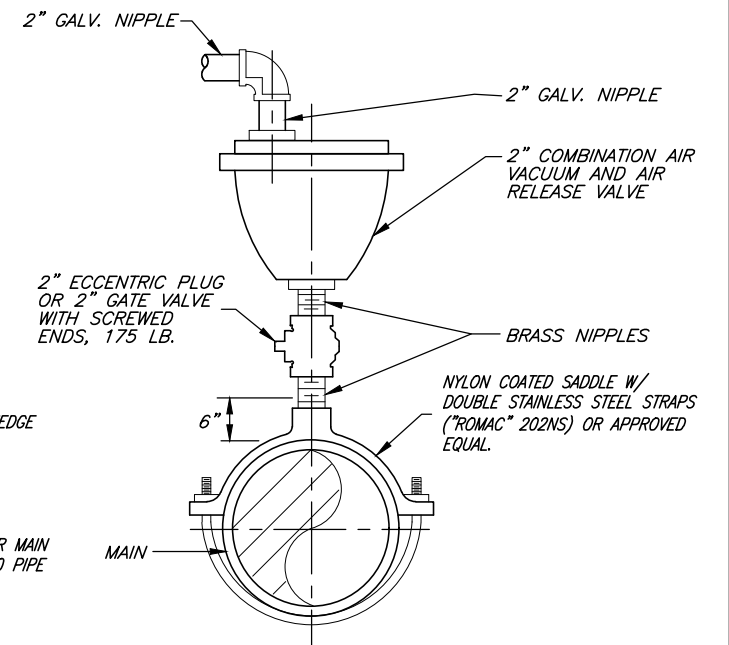
NOTE:
LID FOR SECONDARY WATER TO BE STAMPED "IRR" OR "IRRIGATION".

GENERAL NOTES:

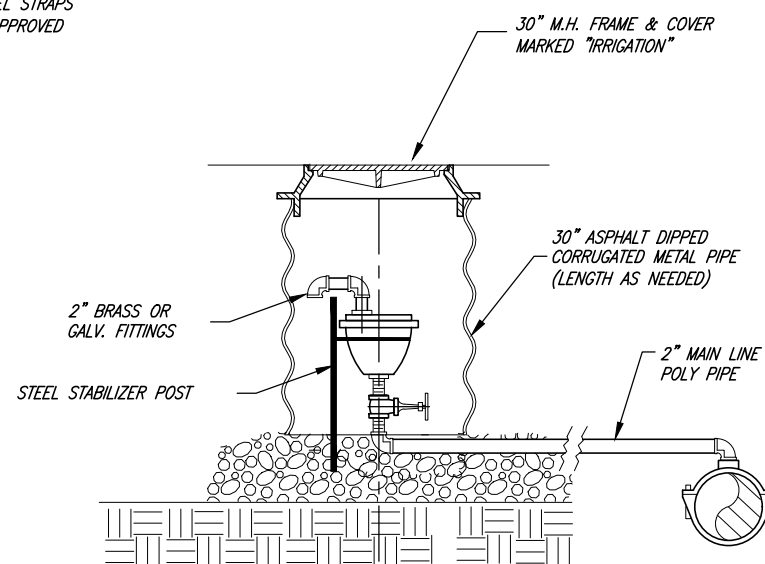
- "BLUE" BOLTS AND NUTS ARE REQUIRED BY THE CITY.



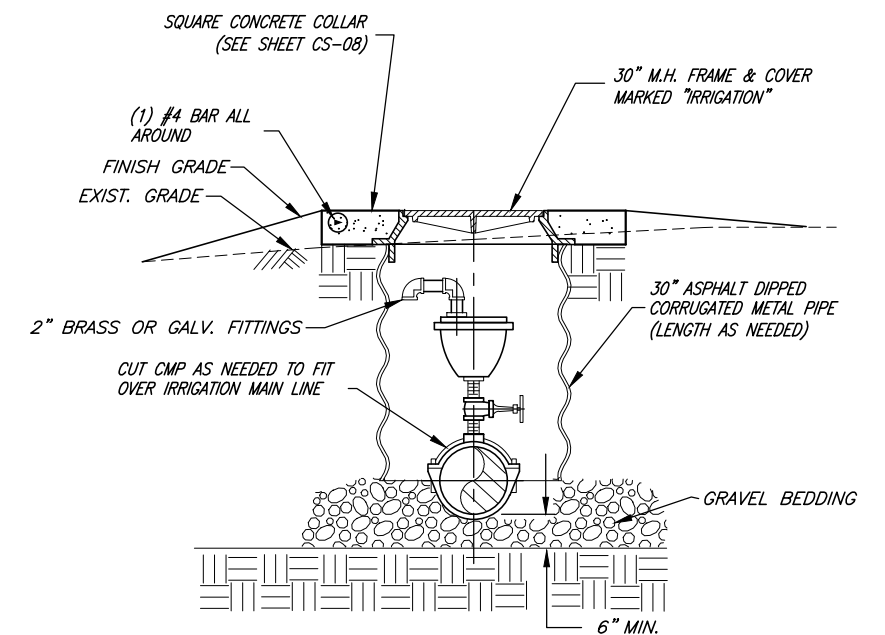
GATE VALVE DETAIL



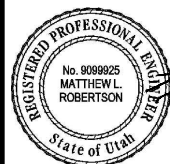
AIR-VACUUM AND AIR-RELEASE VALVE



AIR VACUUM & AIR RELEASE VALVE PARK STRIP OR SHOULDER INSTALLATION



AIR VACUUM & AIR RELEASE VALVE STREET INSTALLATION



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3/3/2021
DATE

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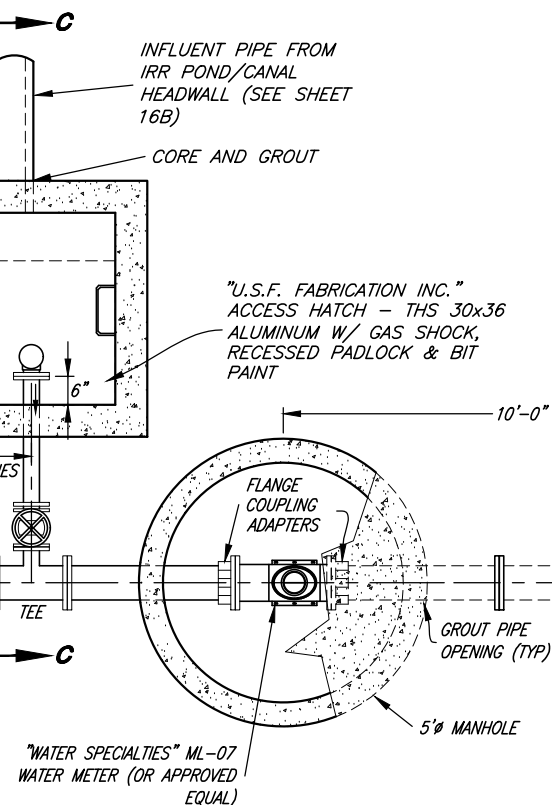
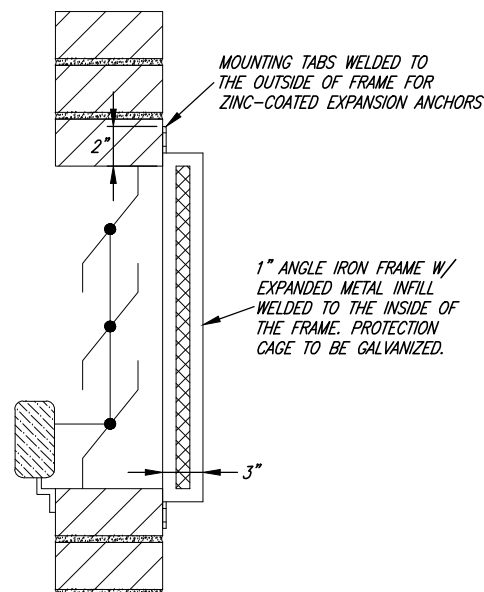
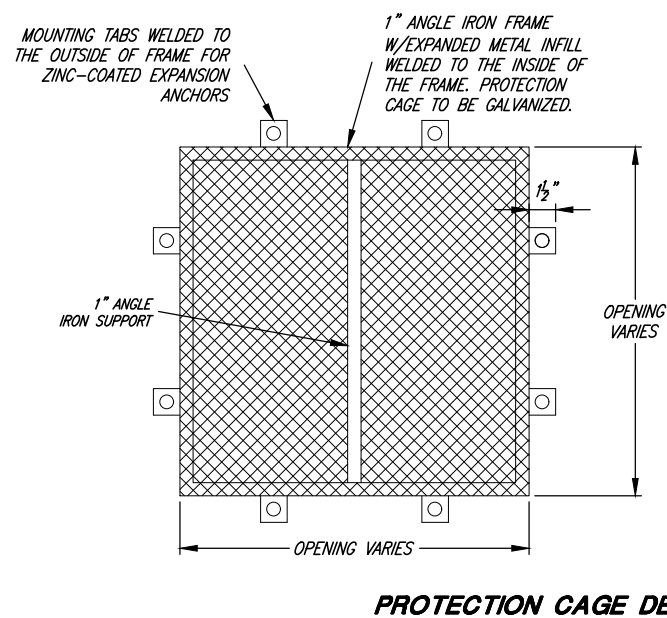
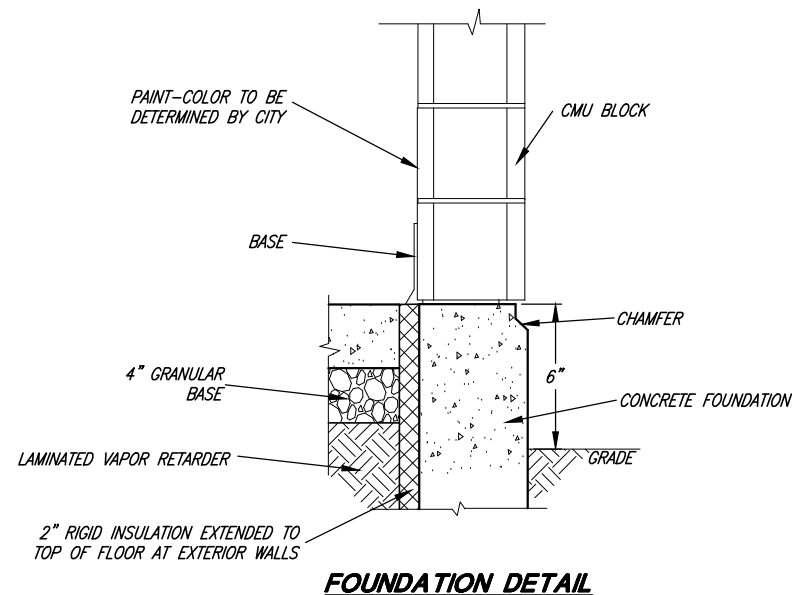


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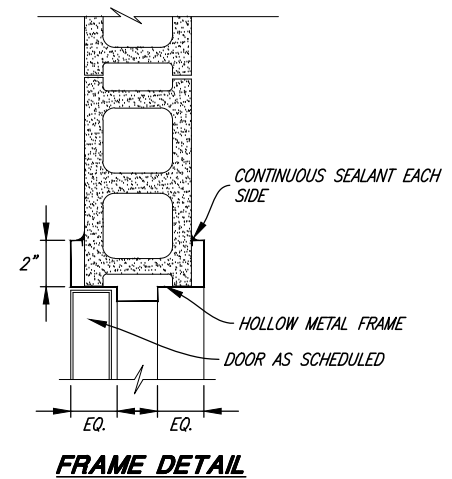
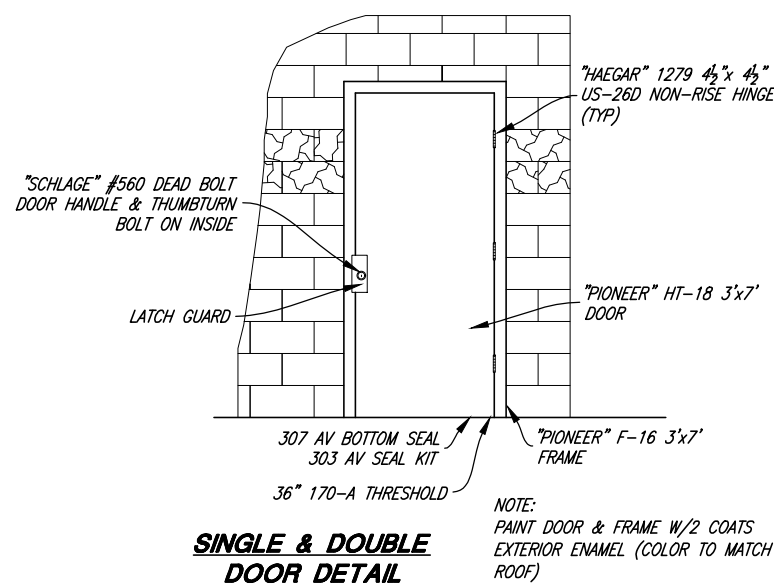
HARRISVILLE CITY CORPORATION
PUBLIC WORKS STANDARDS
SECONDARY WATER - AIR/VAC, DRAIN,
CONCRETE COLLAR, & GATE VALVE DETAILS

SHEET:
CS-15
OF 21 SHEETS
0

- NOTES:
1. ALL MANHOLE OR VAULT PIPE JUNCTIONS ARE TO HAVE RUBBER BOOT OR OTHER APPROVED WATERTIGHT SEAL.
 2. COORDINATE INSTALLATION OF POWER TRANSFORMER & POWER LINE W/UP&L SIZE & CONST. TRANSFORMER PAD PER UP&L SPECS. TRANSFORMER TO BE SIZED FOR PUMPS & FILTER REQUIREMENTS.
 3. ALL D.I.P. IN CONTACT W/EARTH IS TO BE POLYETHYLENE ENCASED.



SITE PLAN
SUBMIT SITE PLAN DESIGN TO CITY FOR WRITTEN APPROVAL PRIOR TO CONSTRUCTION



| | | | | |
|----------------------|----------|------|------|-------|
| PROJECT ENGINEER | DATE | REV. | DATE | APPR. |
| Matthew L. Robertson | 3/3/2021 | | | |

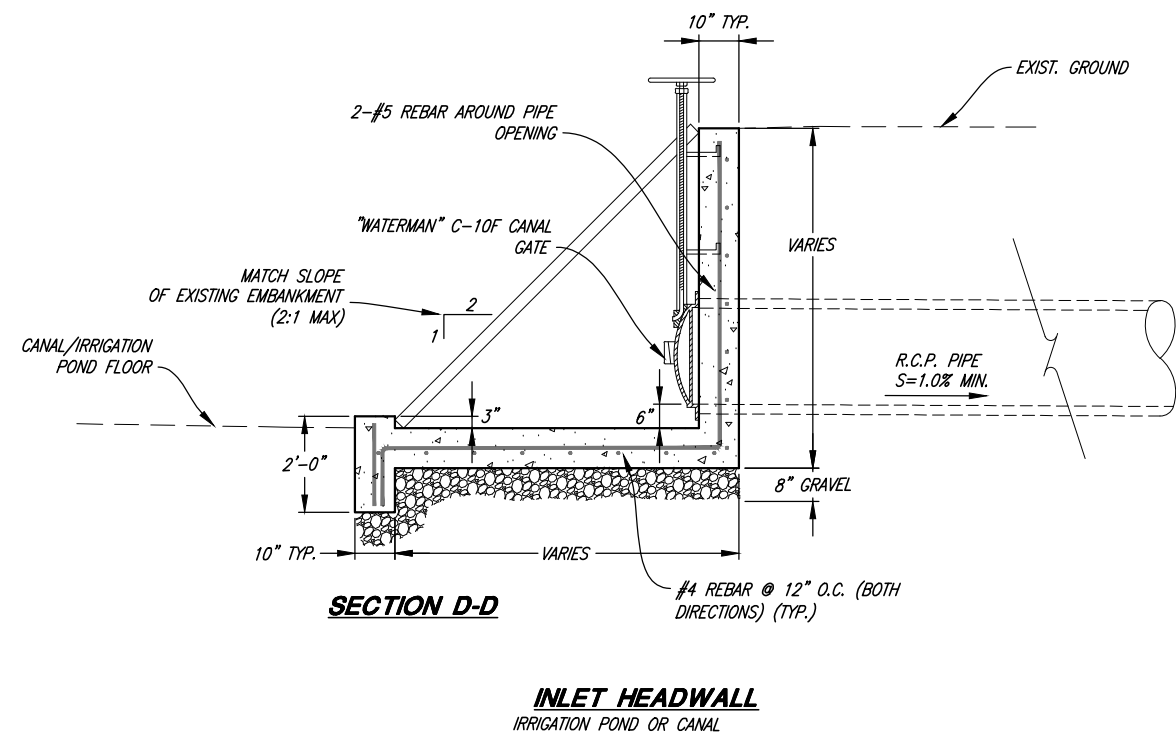
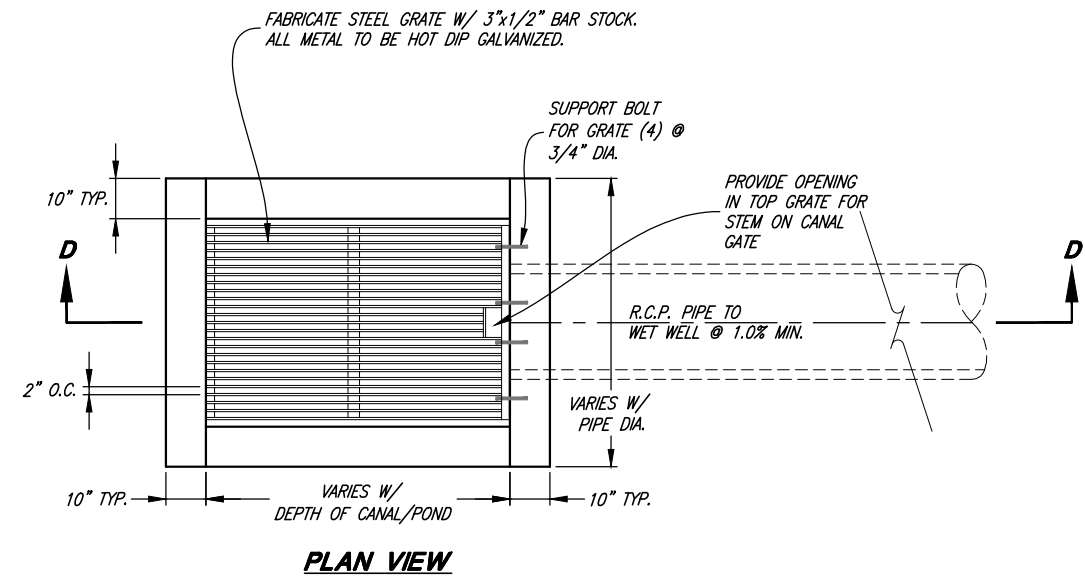
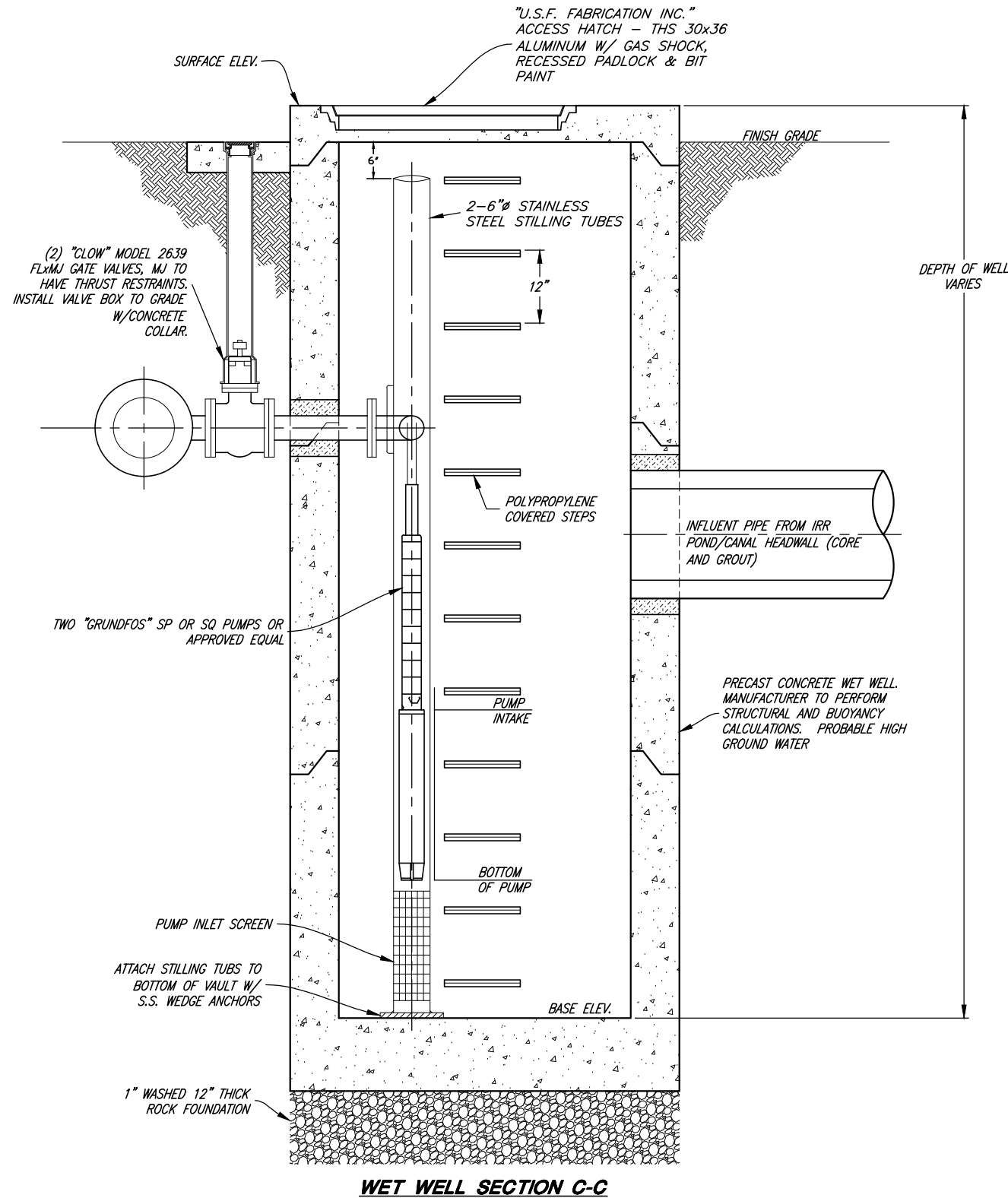
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| SCALE: | DESIGNED |
| N. T.S. | DRAWN |
| | CHECKED |

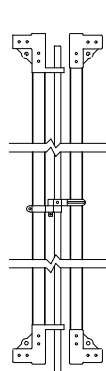


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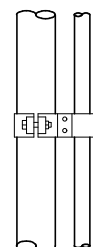
HARRISVILLE CITY CORPORATION
PUBLIC WORKS STANDARDS
SECONDARY WATER - PUMP CONTROL & FILTER STATION DETAILS

SHEET:
CS-16a
OF 21 SHEETS
0

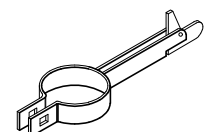




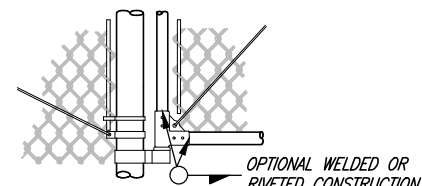
DROP ROD ASSEMBLY



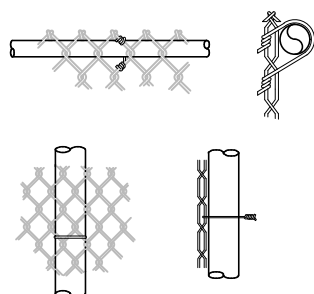
TOP GATE HINGE



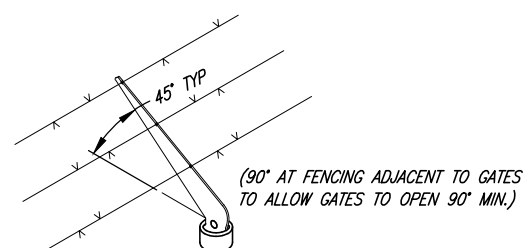
GATE KEEPER



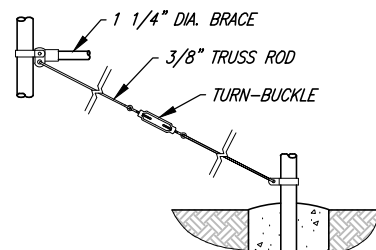
**BOTTOM GATE HINGE
AND GATE DETAIL**



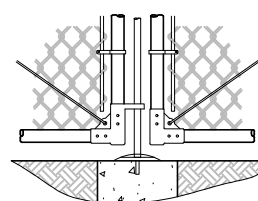
PIPE POST TIE



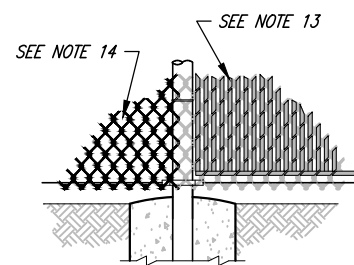
**COMBINATION CAP AND
BARBED WIRE SUPPORTING ARM**



BRACE & TRUSS CONNECTIONS



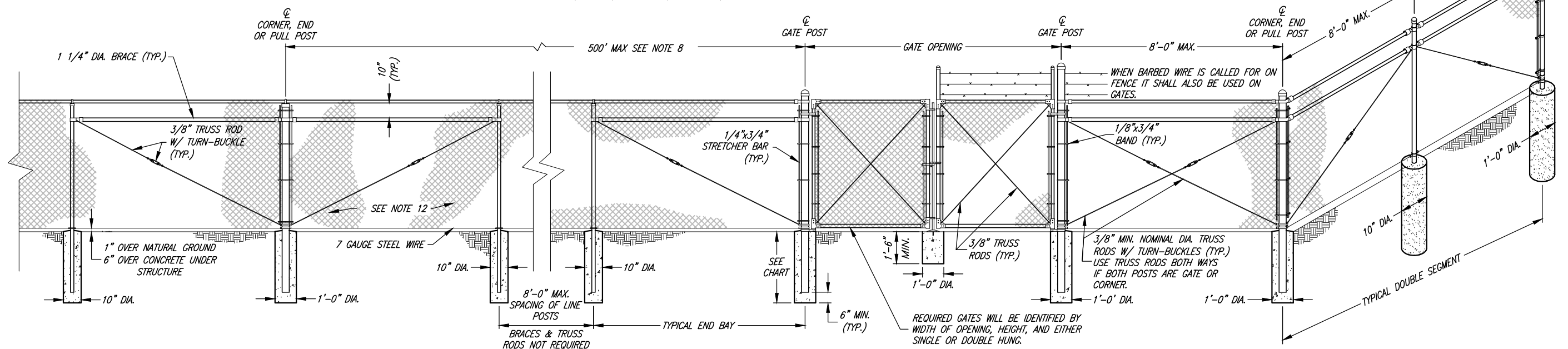
**CENTER GATE STOP
AND GATE DETAIL**



SLATS & VINYL COATING DETAIL

| HEIGHT | GATE OPENING | GATE POST | GATE FRAME |
|-----------------|--|-----------|------------|
| UNDER 6 FEET | SINGLE TO 6' OR DOUBLE TO 12' | 2" | 1" |
| | SINGLE OVER 6' TO 8' OR DOUBLE OVER 12' TO 16' | 2 1/2" | 1 1/2" |
| | SINGLE OVER 8' TO 12' OR DOUBLE 16' TO 24' | 4" | |
| 6 FEET AND OVER | SINGLE TO 6' OR DOUBLE TO 12' | 3 1/2" | 1 1/2" |
| | SINGLE OVER 6' TO 12' OR DOUBLE OVER 12' TO 24' | 4" | |
| | SINGLE OVER 12' TO 18' OR DOUBLE OVER 24' TO 36' | 6" | |
| | SINGLE OVER 18' OR DOUBLE OVER 36' | 8" | |


| HEIGHT OF FABRIC | DEPTH OF POSTS | LENGTH OF END, CORNER OR PULL POST | LENGTH OF LINE POST | SIZE OF POSTS | |
|------------------|----------------|------------------------------------|---------------------|---------------------------|-----------|
| | | | | END, CORNER, & PULL POSTS | LINE POST |
| | | | | NOM. SIZE | NOM. SIZE |
| 7' | 3' | 10' | 9'-8" | 2 1/2" | 2" |
| 6' | 3' | 9' | 8'-8" | 2 1/2" | 2" |
| 5' | 3' | 8' | 7'-8" | 2" | 1 1/2" |
| 4' | 3' | 6' | 5'-8" | 2" | 1 1/2" |
| 3' | 3' | 5' | 4'-8" | 2" | 1 1/2" |



GENERAL NOTES:

1. MATERIALS, CONSTRUCTION, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH PROJECT STANDARD SPECIFICATIONS.
2. THE TYPE OF TOP SUPPORT IS SPECIFIED IN THE BIDDING SCHEDULE, TYPES I AND II TUBULAR RAIL, TYPES III AND IV TENSION WIRE.
3. BARB WIRE SHALL BE USED ONLY WHEN DESIGNATED ON THE PLANS OR IN THE SPECIFICATIONS.
4. TWISTED AND BARBED SELVAGE TOP AND BOTTOM SHALL BE USED ON FENCES 5- FEET HIGH OR GREATER.
5. KNUCKLED SELVAGE ON TOP AND TWISTED AND BARBED ON BOTTOM SHALL BE USED ON FENCES LESS THAN 5- FEET.
6. ALL STEEL PIPE MEMBERS SHALL CONFORM TO ASTM A53 HOT DIPPED ZINC COATED HIGH TENSILE STEEL PIPE.
7. POSTS SHALL BE SCHEDULE 40 PIPE.
8. LINE POSTS SHALL BE LOCATED AT EQUAL SPACING FOR EACH SEGMENT WITH A MAXIMUM SPACING AS FOLLOWS:
 - a. TANGENT SECTIONS TO 500-FOOT RADIUS NOT MORE THAN 8- FEET.
 - b. UNDER 500-FOOT RADIUS TO 200-FOOT RADIUS NOT MORE THAN 8- FEET.
 - c. UNDER 200-FOOT RADIUS TO 100-FOOT RADIUS NOT MORE THAN 6- FEET.
 - d. UNDER 100-FOOT RADIUS NOT MORE THAN 5- FEET.
9. TRUSS RODS AND BRACES SHALL NOT BE REQUIRED FOR FABRIC HEIGHT LESS THAN 5- FEET.
10. TENSION WIRE SHALL BE 7 GAUGE ZINC- OR ALUMINUM- COATED COIL SPRING STEEL TENSION WIRE.
11. ALL POSTS SHALL BE SET IN 3000 PSI CONCRETE AND SHALL BE TOPPED WITH BALL TYPE OR OTHER APPROVED ORNAMENT.
12. ALL FABRIC SHALL BE 2" GALVANIZED 9 GAUGE MESH.
13. VERTICAL SEMI-PRIVACY VINYL SLATS WITH BOTTOM- LOCKING SLAT, WHEN REQUIRED BY THE CITY. COLOR AS APPROVED BY THE CITY.
14. BLACK VINYL COATED CHAINLINK FENCING WHEN REQUIRED BY THE CITY.
15. ALL FENCING SHALL CONFORM TO LOCATION AND HEIGHT LIMITATIONS AS STATED IN HARRISVILLE CITY FENCING ORDINANCE.





PROJECT ENGINEER
3/3/2021

DATE

[illegible]

SCALE:

N.T.S.

DESIGNED _____
DRAWN _____
CHECKED _____



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HARRISVILLE CITY CORPORATION
PUBLIC WORKS STANDARDS

GENERAL - CHAIN LINK FENCE DETAILS

SHEET:

CS-17

OF 21 SHEETS

