City of University Park

PART A
General Construction Standards

PART B
Standard Details

Procedural Guidelines and Amendments to the
North Central Texas Council of Governments
Standard Specifications for Public Works Construction
(Current Edition)

March 2023

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INDEX

The Standards specified herein follow the outline and contents from the North Central Texas Council of Governments Standard Specifications for Public Works Administration. **Only the divisions which have been revised by the City of University Park are listed and enclosed herein.**

ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND THE CITY OF UNIVERSITY PARK GENERAL DESIGN STANDARDS. IN THE CASE OF A CONFLICT, THE CITY OF UNIVERSITY PARK GENERAL DESIGN STANDARDS SHALL GOVERN.

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The subjects listed below have been revised and/or supplemental information has been added. The provisions of this section shall govern in the event of any conflict between them and the General Conditions and/or the North Central Texas Council of Governments (NCTCOG) Public Works Construction Standards.

101.1 DEFINITIONS

Applicable Codes: References in the Contract Documents to local codes mean codes used, required, or adopted by the City of University Park. Other standard codes which apply to the Work are designated in the specifications.

Engineer: The "Engineer" as referred to in this Agreement is to be understood as referring to the City Engineer of the OWNER, or such other Engineer, Supervisor or Inspector as may be authorized by the said Owner to act in any particular instance.

Owner: The "Owner" is the City of University Park, Texas, acting through its Mayor and City Council and their duly authorized agents, including the City Engineer. All notices, letters, and other communication directed to the Owner shall be addressed and delivered to:

Katie Barron, PE
City Engineer
City of University Park 3800 University Boulevard
University Park, Texas 75205

Reference Standards: Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard, specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the Owner, Contractor, or Engineer, or any of their Consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to the Engineer, or any of Engineer's Consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the Work.

Resident Project Representative: The Engineer may furnish a Resident Project Representative and assistants to aid the Engineer in carrying out his/her, responsibilities, at the site.

101.2 ABBREVIATIONS AND ACRONYMS

AISI	American Iron and Steel Institute
IPS	Iron Pipe Size
MIL	Military Specification
NEC	National Electrical Code
NFPA	National Fire Protection Association

103.3.1 CONTRACTOR SURETY BONDS

Maintenance Bond Provisions and Fulfillment. Prior to 60 days of the expiration of the specified maintenance period provided for in the Contract, the Owner shall make a detailed inspection of the project and shall advise the Contractor and his surety of the items that require correction. The Owner shall make subsequent inspection 30 days later, and if the corrections have been properly performed, the Owner will issue a letter of release on the maintenance stipulations to the Contractor and his surety. If, for any reason, the Contractor has not made the required corrections before the expiration of the maintenance period, the maintenance stipulations, as

provided for in the Contract, shall remain in effect until the corrections have been properly performed and a letter of release issued.

104.2 CHANGE OR MODIFICATION OF CONTRACT

Change Orders. Pursuant to 6.01 of the General Conditions of Agreement, the City Council of University Park does hereby give the City Manager the authorization to execute change orders to this contract as per Resolution No. 91-1 dated March 5, 1991.

105.4.1 CONSTRUCTION STAKES.

All Work shall be done to the lines, grades, and elevations indicated on the drawings. Basic horizontal and vertical control points shall be established utilizing City of University Park's GPS monuments or approved temporary benchmarks. These monuments shall be used as datum for the Work. All additional survey, layout, and measurement Work shall be performed by Contractor as a part of the Work.

105.5 MEANS AND METHODS OF CONSTRUCTION

The Contractor must submit a construction sequence for approval to the Engineer for review and approval. The Contractor shall not close more than one alley section (a section being from a street or alley intersection to alley intersection or street) for construction at any time without prior approval. No work shall be performed prior to construction sequence approval. The Contractor shall coordinate his phasing such that the gas mains can be reconstructed.by the gas company.

Traffic Control Plan. A detailed, site-specific traffic control plan (TCP), which complies with the current edition of the Texas Manual on Uniform Traffic Control Devices (TMUTCD), must be submitted three (3) business days prior to any lane closure for approval.

107.20.3.3 TRENCH SAFETY PLAN.

The Contractor shall be required to submit a trench excavation plan to the Engineer for review. No trenching in excess of 5 feet below the existing grade shall be allowed until the excavation plan has been reviewed and approved by the Engineer. Any time delay caused by the review or approval for the trench excavation plan shall not be a cause for an extension of contract time. The Contractor accepts sole responsibility for compliance with all applicable safety requirements.

The review is only for general conformance with OSHA safety standards and review of the trench excavation plan does not relieve the Contractor of any or all construction means, methods, techniques, and procedures. Any property damage or bodily injury (including death) that arises from performance of contract work or from Engineer's failure to not make exceptions to the excavation plan shall remain the sole responsibility and liability of the Contractor. A bid item for trench safety and support shall be included.

Contractors have two ways to meet OSHA Standards for Trench Excavation:

- Utilization of Trench Box.
- Shoring, Sheeting and Bracing Methods.

Contractor electing to utilize a Trench Box must submit physical dimensions, materials, position in the trench, expected loads, and the strength of the box. No claims for delay shall be permitted.

107.24.5. EXISTING WATER METER READERS

All existing water meter readers shall be removed prior to construction by the City's Utility Department. The readers shall be reinstalled upon completion. Contractor is to notify the City Inspector prior to any water meter work.

The Contractor's attention is directed to the necessity of taking adequate measures to protect all existing structures, improvements and utilities which may be encountered. These may include, but are not limited to the items listed in 203.1 and herein.

108.8 DELAYS; EXTENSION OF TIME; LIQUIDATED DAMAGES

The Contractor shall commence work within ten (10) calendar days after receiving from the Owner a Notice to Proceed or work order.

109.2 PAYMENT FOR MATERIALS

Only materials installed per approved plans may be included in the request for payment.

109.2.1. MATERIALS ON-HAND

Materials not installed per approved plans may not be included in the request for payment.

109.5.1.1 MONTHLY ESTIMATE.

The monthly estimate may NOT include acceptable nonperishable materials delivered to and stored at the work site or a storage facility accessible to the OWNER. Only materials installed per approved plans may be included in the request for payment.

109.5.1.2 MOBILIZATION.

This Item shall govern for preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of office and other facilities at the project site, to the project site, or to the vicinity of the project site in order to enable the Contractor to begin work on the other contract items that will be performed by the Contractor. The amount bid for this item shall not exceed ten percent (10%) of the total of all other bid items of the proposal, and shall be measured by the lump sum, as the work progresses.

Partial payments of the lump sum bid for mobilization will be as follows. (The adjusted contract amount for construction items as used below is defined as the total contract amount less the lump sum bid for mobilization.)

- When one (1) percent of the adjusted contract amount is earned, 50 percent of the mobilization lump sum bid, will be paid.
- When five (5) percent of the adjusted contract amount is earned, 75 percent of the mobilization lump sum bid will be paid.
- When 10 percent of the adjusted contract amount is earned, 90 percent of the mobilization lump sum bid, will be paid.

Payment for the remainder of the lump sum bid for mobilization will be made upon completion of all work for this contract.

109.5.1.3. SCHEDULE OF VALUES.

After review of the tentative schedule at the preconstruction conference, and before submission of the first application for payment, the Contractor shall prepare and submit to the Engineer a schedule of values covering each lump sum item. The schedule of values shall be acceptable to the Engineer before any application for payment is prepared.

The sum of the items listed in the schedule of values shall equal the contract price. Such items as bond premium and temporary construction facilities may be listed separately in the schedule of values provided the amounts can be substantiated. Overhead and profit shall not be listed as separate items.

109.5.1.4 SCHEDULES AND DATA.

Each Application for Progress Payment shall be accompanied by the Contractor's updated schedule of operations, or progress report, with such shop drawings schedules, procurement schedules, and other data specified in the Contract Documents or reasonably required by the Engineer.

109.5.4 DOCUMENTATION FOR FINAL PAYMENT.

The Contractor's Application for Final Payment shall be accompanied by consent of the Surety to Final Payment.

TABLE OF CONTENTS FOR DIVISION 200

The Standards specified herein follow the outline and contents from the North Central Texas Council of Governments Standard Specifications for Public Works Administration. Only the divisions which have been revised and/or supplemental information has been added by the City of University Park are listed and enclosed herein.

201.2.3. WATER SERVICE INTERRUPTION.

Water service, except when actually connecting or disconnecting meters or when making a water line tie-in, shall not be interrupted for any reason. The Contractor shall be responsible for maintaining adequate water service for the duration of the replacement project. The Contractor shall give written notices to residences and businesses that will be affected by the work, 24 hours in advance of the replacement of any utilities that may cause interruption to service regardless of the length of interruption. The notice shall include the approximate time construction is to begin and the estimated length of the anticipated interruption.

201.3 MAINTENANCE OF STREETS AND RIGHTS OF WAY DURING CONSTRUCTION

Contractor shall at all times maintain streets and drives in a condition which will provide easy ingress and egress. No tracked equipment shall be allowed to be used on the streets of University Park. Vehicles with steel lugs and/or plates shall not be allowed to be operated on the streets of the City of University Park. Where such machinery must be used for construction, the Contractor shall use timbers, tires, or mounded earth over the paving surface to protect the pavement. Where such machinery must be loaded or unloaded from proper carrier vehicles, timbers, tires or mounded earth shall be used to protect paving and curbs. The Contractor shall be responsible for any damage from operation of a tracked vehicle on his/her project with the damage being repaired to the satisfaction of the Public Works Department before acceptance of the project.

203.6 DUST CONTROL

The Contractor shall take reasonable measures to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical dust suppressant. Dusty materials in piles or in transit shall be covered when practicable to prevent blowing. Sprinkling and/or sweeping for dirt, dust or other deleterious matter shall consist of the authorized application of water and/or sweeping on those portions of the projects as directed by the Engineer and as herein specified. Water for sprinkling and/or sweeping shall be at no cost to the Contractor.

203.6.4 MEASUREMENT AND PAYMENT

Sprinkling and/or sweeping shall be considered as incidental work and shall not be paid for as a separate item. The work necessary for sprinkling and/or sweeping shall be subsidiary to the various bid items. All materials, equipment, tools, superintendence and labor necessary to complete all the work in accordance with the drawings and specifications shall be considered in the price for the various bid items.

TABLE OF CONTENTS FOR DIVISION 300

The Standards specified herein follow the outline and contents from the North Central Texas Council of Governments Standard Specifications for Public Works Administration. Only the divisions which have been revised and/or supplemental information has been added by the City of University Park are listed and enclosed herein.

303.8.2 PAVEMENT THICKNESS TEST.

Upon completion of the work and before final acceptance and final payment shall be made, pavement thickness test shall be made by the City. The number of tests and location shall be at the discretion of the City, unless otherwise specified in the special provisions or on the plans. The cost for the initial pavement thickness test shall be the expense of the City. In the event a deficiency in the thickness of pavement is revealed during normal testing operations, subsequent tests necessary to isolate the deficiency shall be at the Contractor's expense. The cost for additional coring test shall be at the same rate charged by commercial laboratories.

Where the average thickness of pavement in the area found to be deficient in thickness by more than 0.20-in., but not more than 0.50-in., upon discretion of the City payment shall be made at an adjusted price as specified in Table 303.8.2.(a) Concrete Pavement Deficiency.

Table 303.8.2.(a) Concrete Pavement Deficiency

Deficiency in Thickness Determined By Cores	Proportional Part of Contract Price
Inches	**Allowed**
0.00 — 0.20	100 percent
0.21 — 0.30	80 percent
0.31 — 0.40	70 percent
0.41 — 0.50	60 percent

Where the alley invert is found to be deficient in depth by more than 0.20-in., but not more than 0.50-in., upon discretion of the City payment shall be made at an adjusted price as specified in Table 303.8.2.(b) Alley Invert Deficiency.

Table 303.8.2.(b) Alley Invert Deficiency

Deficiency in Invert Determined by Inspector	Proportional Part of Contract Price
Inches	**Allowed**
0.00 — 0.20	100 percent
0.21 — 0.30	80 percent
0.31 — 0.40	70 percent
0.41 — 0.50	60 percent

Any area of pavement found deficient in thickness, or any alley invert found to be deficient in depth, by more than 0.50-in. but not more than 0.75-in. or 1/10 of the plan thickness, whichever is greater, shall be evaluated by the City. If, in the judgment of the City, the area of such deficiency should not be removed and replaced, there shall be no payment for the area retained. If, in the judgment of the City, the area of such deficiency warrants removal, the area shall be removed and replaced, at the Contractor's entire expense, with concrete of the thickness shown on the plans. Any area of pavement found deficient in thickness by more than 0.75-in. or more than 1/10 of the plan thickness, whichever is greater, shall be removed and replaced, at the Contractor's entire expense, with concrete of the thickness shown on the plans.

No additional payment over the contract unit price shall be made for any pavement of a thickness exceeding that required by the plans.

TABLE OF CONTENTS FOR DIVISION 400

The Standards specified herein follow the outline and contents from the North Central Texas Council of Governments Standard Specifications for Public Works Administration. Only the divisions which have been revised and/or supplemental information has been added by the City of University Park are listed and enclosed herein.

402.4.4 REPLACING REINFORCED CONCRETE PAVEMENT.

The concrete replacement shall be reinforced with like-size bars as the existing pavement, #4 minimum, lapping 30 diameters on splices, and spaced on a maximum of 18 in. centers each way. The new concrete pavement shall be protected from vehicular traffic for a minimum of 7 days. All concrete shall meet or exceed the compressive strength of 3600 psi at 28 days, 6 sack mix, and 4" slump maximum. The concrete shall be Class C unless specified otherwise by the Engineer.

402.4.4.1 MEASUREMENT OF REINFORCED CONCRETE PAVEMENT.

The replacement of concrete pavement shall be paid at the contract unit price per square yard, complete in place. The contract unit price shall be total compensation for furnishing and placing all materials, including rolling and finishing, for disposal of all surplus material, and for all labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and specifications.

402.4.5.1. REPLACING CONCRETE PAVEMENT AND ASPHALT OVERLAY.

The concrete base shall be reinforced with #4 bars on 18 in. centers, lapping 30 diameters on splices. The concrete base shall be replaced to match the existing top of concrete and thickness of the concrete base, minimum of 6 in. The concrete shall be Class C, with a compressive strength of 3600 psi at 28 days, 6 sack mix, and 4" slump maximum.

All areas to receive asphalt shall be tack-coated with RC-2 prior to installation. The RC-2 application rate shall be 0.10 gallons per square yard. Rolling and compaction shall be performed with a minimum 2.5 ton roller (with smooth drum) and a pneumatic roller to test compaction. Any other areas which are damaged by the Contractor's operations shall be replaced at the Contractor's entire expense.

Hot Mix Asphaltic Concrete Pavement shall conform to Item 340, "Hot Mix Asphalt Pavement of Type "D" the TX DOT standard specifications.

402.4.5.1 MEASUREMENT OF CONCRETE PAVEMENT AND ASPHALT OVERLAY.

No payment shall be made for the replacement of asphaltic concrete pavement. The replacement of asphaltic concrete shall be subsidiary to the replacement of concrete base bid item. The contract unit price shall be total compensation for furnishing and placing all materials, including rolling and finishing, for disposal of all surplus material, and for all labor, tools, equipment and incidentals necessary to complete the work, all in accordance with the plans and specifications. Payment for remove and replace will be after replacement.

TABLE OF CONTENTS FOR DIVISION 500

The Standards specified herein follow the outline and contents from the North Central Texas Council of Governments Standard Specifications for Public Works Administration. Only the divisions which have been revised and/or supplemental information has been added by the City of University Park are listed and enclosed herein.

502.1 MANHOLES.

Manholes shall be placed at all points of change in alignment, grade or size of wastewater line, at the intersection of all pipes and the end of all wastewater and stormwater lines.

502.1.1. MANHOLE MATERIALS.

Manholes shall be monolithic, cast-in-place concrete, precast concrete or of equivalent construction. Brick manholes shall not be used, nor shall brick be used to adjust manhole covers to grade.

502.1.2. GRADE ADJUSTMENT RISERS.

A minimum of 2- 2" concrete grade adjustment rings with non-shrink grout shall be used for final adjustment of manhole covers.

502.1.4.1 MANHOLE TYPES AND REQUIREMENTS.

Manholes shall be of the type and size as indicated on the plans and as shown in NCTCOG details.

502.1.4.1.4 MANHOLE DROP.

Drop Manholes shall be constructed in accordance with City of University Park Standard Details S102 (4' Outside Drop) and S103 (5' and 6' Interior Drop Manholes). An interior drop pipe should be provided for a wastewater line entering a manhole more than 24 inches above the invert.

Manhole drops for interior connections shall use a drop bowl produced by Reliner-Duran, Inc. or approved equal. Installation shall be to manufactures specifications.

502.1.4.3 INVERT.

The bottom of the manhole shall be provided with a "U" shaped channel that is as much as possible a smooth continuation of the inlet and outlet pipes. Refer to City of University Park Standard Detail S100 for required manhole invert depths by pipe size.

In manholes with pipes of different sizes, the tops of the pipes shall be placed at the same elevation and flow channels in the invert sloped on an even slope from pipe to pipe. The bench provided above the channel shall be sloped at a minimum of 0.5 inches per foot.

502.1.4.6 COVERS.

If manholes are located within the 100-year flood plain, the manhole covers shall have gaskets and be bolted or have another means of preventing inflow. Where gasketed manhole covers are required for more than three manholes in sequence, an alternate means of venting shall be provided at less than 1,500 foot intervals. Vents should be designed to minimize inflow. Impervious material should be utilized for manhole construction in these areas in order to minimize infiltration.

All rings and covers under this section shall be limited to those on the City's Current Approved Materials List.

502.2.2. WASTEWATER ACCESS CHAMBERS

Wastewater Access Chambers may be used in lieu of a manhole when the pipe size and grade of the incoming and outgoing pipes does not change, or at the upstream end of the wastewater line, as approved by the ENGINEER. All access chambers furnished under this section shall be limited to those on the City's Current Approved Materials List, and be covered by a 24" manhole cover.

502.3 FIRE HYDRANTS.

Fire hydrants assemblies shall be installed as shown on the appurtenances sheets or as directed by the Engineer. Fire Hydrants furnished under this section shall be limited to those on the City's Current Approved Materials List, with the following specifications:

502.3.2. INSTALLATION.

Fire hydrants shall be installed as shown on City of University Park Standard Detail W300. Set fire hydrant on the lot line extended wherever possible. Where set between the curb and sidewalk, or between the sidewalk and property line, no portion of the hydrant or nozzle cap shall be within 6 inches of the sidewalk.

Immediately before installation of a hydrant, the following operations shall be performed:

a) the hydrant shall be thoroughly inspected;
b) the hydrant interior shall be thoroughly cleaned; and
c) the hydrant shall be opened and closed as many times as may be necessary to determine if all parts are in proper working order, with valves seating properly and the drain valve operating freely.

502.4.4 THRUST RESTRAINT MEASUREMENT AND PAYMENT.

Payment for concrete blocking shall be made only if a separate bid item is established in the contract. If a separate bid item is not established, this item shall be included in the price of the pipe bid item.

502.6 VALVES

At locations shown on the plans, there shall be furnished and installed valves of the type and size indicated. All valves furnished under this section shall be limited to those on the City's Current Approved Materials List.

502.6.1.7 VALVE STEMS AND NUTS.

Extension stems shall be provided for buried valves when the valve actuator is 4 feet or more below finished grade. Each extension stem for a buried valve shall extend to within 6 inches of the ground surface, shall be provided with spacers which will center the stem in the valve box, and shall be equipped with a wrench nut. Not more than one extension will be allowed. Extension stems shall be of solid steel and shall be not smaller in diameter than the stem of the valve actuator shaft. Extension stems shall be connected to the valve actuator by means of a Lovejoy "Type D" single universal joint with grease-filled protective boot. All stem connections shall be pinned.

502.6.3.1. AIR VALVES GENERAL.

An individual air release valve or combination air release and vacuum relief valve assembly shall be installed in the locations indicated on the drawings. The valve assembly shall be installed complete with appurtenant piping and valves as specified or indicated on the drawings. Air valves furnished under this section shall be limited to those on the City's Current Approved Materials List.

502.6.3.2 AIR VALVES DESCRIPTION.

Combination air release and vacuum relief valves shall be of the integral type with a valve assembly which functions as both an air and vacuum valve and an air release valve.

502.6.3.5 OPERATION PRESSURE AND TESTING.

The exhaust from the valve shall be piped to a suitable disposal point. A shutoff valve shall be provided in the piping to the air release valve or combination air release and vacuum relief valve assembly.

502.6.6 LINE VALVE INSTALLATION.

Valves and valve boxes shall be set plumb. Each valve box shall be placed directly over the valve it serves, with the top of the box brought flush with the finished grade. After being placed in proper position, earth shall be filled in around each valve box and thoroughly tamped on each side of the box.

502.6.8 MEASUREMENT AND PAYMENT.

Valves shall be measured for payment for furnishing and placing per each, grouped by size. The contract unit price shall be the total compensation for the furnishing of all labor, materials, tools, equipment and incidentals necessary to complete the work. Removal of any existing utility lines (shown on the drawings to be abandoned), due to proximity to a proposed valve, shall be subsidiary to the price of the new valve.

502.10. CONNECTIONS TO CONDUIT FOR SERVICE.

All existing water services conflicting with pavement preparation, utility construction, or other items required in the scope of this project, shall be relocated so as to alleviate the conflict.

When relocating an existing water service, no splices shall be permitted under areas to be paved. The details on installation and materials required are shown in Part B.

502.10.2.3. TAPPING SLEEVES.

Tapping sleeves and valves shall be furnished and installed where required by the drawings. Tapping sleeves furnished under this section shall be limited to those on the City's Current Approved Materials List. Tapping sleeves and crosses shall be designed for minimum working pressure of 200 pounds per square inch and shall be tested at 300 psi. Connecting flanges on tapping sleeves, crosses and valves shall be ASA Class 125. Tapping valves shall be designed for minimum working pressure of 200 pounds per square inch.

502.10.2.4 METER BOXES.

Meter boxes furnished under this section shall be limited to those on the City's Current Approved Materials List. Contractor shall relocate the meter box a minimum of 3 feet from the wastewater lateral, and 3 feet from the gas meter, per detail. Any adjustment to the house line shall be subsidiary to the installation of the water line.

502.10.3.2 METERS.

Each water meter shall be removed and reinstalled on the same customer service now being metered. After the temporary service main has been installed and sterilized in a section of the work, each meter shall be removed from its present location, provided with approved temporary mounting in a location where it will be clear of the work, and reconnected to restore service to the customer, through the meter, from the temporary line. The Contractor shall supply new meter boxes as specified herein.

502.10.4.1. WASTEWATER SERVICE CONNECTIONS.

Wastewater service, except when actually connecting laterals, shall not be interrupted for any reason. The Contractor shall be responsible for maintaining adequate wastewater service for the duration of the replacement project. The Contractor shall give written notices to residences and businesses that will be affected by the work, as well as a copy to the City Inspector, 24 hours in advance of the replacement of any utilities that may cause interruption to service regardless of the length of interruption. The notice shall include the approximate time construction is to begin and the estimated length of the anticipated interruption. The sewer service line shall be constructed as required and shown on the plans or when designated by the Engineer.

504.4.3. SEQUENCE.

The sequence of operations to be followed shall be prepared by the Contractor for approval by the Engineer. The Contractor shall field verify all existing utilities prior to any excavation activities.

504.6. FINAL BACKFILL

The Contractor shall be required to remove all excavated trench waste material and provide the necessary cleanup on a daily basis for the Contractor's work zone. No waste material may be stockpiled on the project.

Excavated areas outside of paved areas shall be backfilled with 1’ of Top Soil.

504.6.9 SELECT MATERIAL (SM)

SM backfill shall be sandy loam or loam free from excessive clay that has a PI of greater than 12 but less than 20. SM may be used in the trench backfill, provided (1) that all hard rock and stones having any dimensions greater than three inches (3") in diameter, frozen earth, debris, organic matter, and/or other unstable materials are to be removed; and (2) the material is approved for backfill by the Engineer. Backfill shall be placed in such a manner as not to disturb the alignment of the pipe.

504.6.10 CEMENT STABILIZED SAND (CSS).

Sand shall be free from organic or otherwise deleterious materials, and shall conform to the following requirements

Sieve Size	Percent Passing
2"	100
#200	0-20

The Plasticity Index (P.I.) shall not exceed six (6). CSS backfill shall consist of two (2) sacks of Type 1 cement and twenty-seven (27) cubic feet of cushion sand meeting the above requirements. The cement, aggregate and water shall be thoroughly mixed in an approved processing plant. The mixer shall be a stationary twin shaft pug mill. The plant shall be equipped with feeding and metering devices that will add aggregate, cement, and water into the mixer in the specified quantities. The moisture content of the mixture shall be maintained between one (1) percent below and two (2) percent above optimum or shall be maintained within the range established by the Engineer. The amounts of cement are expressed as a percentage of dry weight of aggregate.

CSS backfill may be mixed in a volumetric type mixer truck if the results are the same as above. CSS backfill shall be placed in a manner that will completely fill voids in the trench. CSS backfill shall be placed prior to the initial set.

Densities. The CSS backfill shall be placed in layers not more than 24 inches in depth (loose measurement) and shall be compacted as required under the Item Compaction. Mechanical compaction shall be required (i.e., compaction wheel, self-propelled grid roller, etc.).

In trenches outside of pavement, the top one foot (1') of backfill shall be topsoil selected and placed per NCTCOG Specifications.

504.6.11 RECYCLED CONCRETE MIX (RCM).

RCM shall conform to the following requirements:

Sieve Analysis

Test Method (Tex 110E)

Sieve Size	%Retained	% Retained Required
1/2	0.1	0-5
3/8	0.6	0-10
#4	12.8	10-40
#40	63.0	60-85

Atterberg Limits (TEX 104, 105, 106E)

Liquid Limit	=	28	Max =35
Plastic Limit	=	20	
Plasticity Index	=	8	Max =12

Wet Ball Mill (TEX 116-E)

WBV =34.7 Maximum Allowed =55

Backfill shall be placed in such a manner as not to disturb the alignment of the pipe. RCM backfill shall have water added via spray hose while being compacted. RCM backfill shall be placed in a manner that will completely fill voids in the trench.

Densities. The RCM backfill shall be placed in layers not more than 12 inches in depth (loose measurement) and shall be compacted as required under the Item Compaction. Mechanical compaction shall be required (i.e., compaction wheel, self-propelled grid roller, etc.).

In trenches outside of pavement, the top one foot (1') of backfill shall be topsoil selected and placed per NCTCOG Specifications.

504.7.1. MEASUREMENT OF BACKFILL MATERIAL

No extra allowance shall be made for backfill materials used around manholes, inlets, valve boxes, etc., but trench computations shall be carried through such structures. No allowance for waste shall be made.

504.7.2.2 FINAL TRENCH BACKFILL

Trenches underneath slabs and footing of structures shall be backfilled with flowable fill mixture unless otherwise shown on the plans.

505. OPEN CUT-GENERAL CONDUIT INSTALLATION

Protecting Public Water Supply. Water mains and wastewater lines shall be installed no closer to each other than nine feet between outside diameters. Where this cannot be achieved, the wastewater line shall be constructed in accordance with§ 317.13 of the Texas Administrative Code, Title 30 Environmental Quality (TAC) (relating to Appendix E-Separation Distances) and §290.44(e)(l) of TAC

(relating to the Water Sources). Separation distances between wastewater systems and water wells, springs, surface water sources and water storage facilities shall be in accordance with the requirements of §§290.41(c)(I), (d)(I), (e)(I)(C), (3)(A), and §290.43(b)(3) of TAC (relating to Water Storage), as appropriate. Where rules governing separation distance are in conflict, the strictest rule shall apply. No physical connection shall be made between a drinking water supply, public or private, and a wastewater line or any appurtenance. An air gap of a minimum of 18 inches or two pipe diameters, whichever is greater, shall be maintained between all potable water outlets and the maximum water surface elevation of sewer appurtenances. All appurtenances shall be designed and constructed so as to prevent any possibility of sewage entering the potable water system.

506.2 MATERIALS.

All pipes and appurtenances furnished under this section shall be limited to those on the City's Current Approved Materials List, and as specified on the plans.

506.3.1 LAYING WATER CONDUIT.

The interior of all pipe and fittings shall be thoroughly cleaned of all foreign matter prior to installation and shall be kept clean until the work has been accepted.

506.6.2.1 TEMPORARY SUPPLY MAINS, SERVICE LINES.

A temporary main of 4" Yelomine PVC Pipe Class 250 shall be installed on each side of the alley as required. The temporary mains shall be fed from existing water mains as shown on the plans or as approved by the Engineer. All fittings shall be lock or thread. **Glued or mechanical joint fittings shall not be permitted**. Valves shall be furnished and installed by the Contractor on each temporary main at locations designated by the City, so that each temporary main can be shut off independently. The maximum distance between valves shall be 600'. One inch (1") blow-off coppers shall be installed at the end of each temporary water main. Cold mix asphalt shall be used to mount over the 4" temporary main at all driveways and crossing points, and at the locations where the 4" main crosses the street. The cold mix asphalt shall be removed after removal of the temporary main and the street cleaned.

Tapping sleeves, crosses and valves shall be of standard manufacture and mechanical joint type to fit AWWA pipe specifications in Classes A, B, C and D. Tapping sleeves and crosses shall be designed for minimum working pressure of 200 pounds per square inch. Connecting flanges on tapping sleeves, crosses and valves shall be ASA Class 125. Tapping valves shall be designed for minimum working pressure of 200 pounds per square inch. All taps and fittings shall be lock or thread. Glued fittings shall not be permitted.

506.6.2.2 TEMPORARY SERVICES:

The Contractor shall furnish and place a temporary water service from the temporary main to the meter for each customer service line, consisting of a service clamp, corporation cock, and sufficient length of pipe to reach the meter. Temporary connections shall be made to existing service lines, using fittings as required. Temporary service lines shall match the size of existing service but no larger than 2 inches. It shall be the Contractor's complete responsibility to assure that all temporary supply mains and service lines are adequately sterilized before putting into service. **Temporary services must be installed and in service prior to excavation of pavement.**

When new main, services and curb stops have been installed, and testing and sterilization procedures completed, the Contractor shall connect the service from each house or business to meters as specified.

It shall be the Contractor's entire responsibility to maintain water service to customers at all times except during short periods when permanent and temporary lines are being connected and/or disconnected, and for final test. Each customer shall be given at least 24-hours' notice before service is interrupted, delineating the clock time when it can be expected to be stopped and resumed. During cold weather, it shall be the Contractor's responsibility to protect temporary mains and services from freezing by wrapping, covering, or maintaining flow in each pipe.

506.6.2.3 MEASUREMENT AND PAYMENT.

Temporary supply mains shall be measured and paid for at the contract price per linear foot, in accordance with size, type and class of pipe, complete in place, as provided in the proposal and contract. Connections to temporary water mains shall be measured as units per each, in accordance with size of connection, complete in place, as provided in the proposal and contract. Reducers, tees, valves, incidentals, and piping shall be included in the contract unit price for connections, and shall not be measured separately.

The contract price for temporary supply mains, services, and connections shall be the total compensation for the furnishing of all labor, materials, tools, equipment and incidentals necessary to complete the Work. No separate measurement shall be made of any subsidiary items, such as bedding, fittings, accessories, excavation, trenching, backfilling, or any other items required for the completed installation of temporary water mains, services, and connections.

506.6.2.4 REMOVAL OF EXISTING WATER MAINS AND APPURTENANCES.

Removal of existing water mains, fittings, valves, services and appurtenances shall be incidental to installation of replacement water conduits and appurtenances, and the costs of removal shall be included in the unit price named for those pay items in the Contract.

Pipes and Conduits to be Abandoned. For water mains to be abandoned, construct bulkheads of Class B 2000 psi concrete, minimum one pipe diameter thick at cut ends.

506.7.3.1 PURGING USING POLY-PIG METHOD.

Contractor shall purge all new water lines using the 'poly-pig' method, as directed by the City Engineer or representative. After passage of the 'poly-pig,' contractor shall flush the main thoroughly prior to gathering samples for water testing, a minimum of 2.5 times the volume or until clear.

506.7.3.2 FLUSHING OF WATER MAINS.

Before temporary water mains and all newly constructed water mains shall be permitted to be placed into service, they shall be flushed by the Contractor. All water mains shall be flushed prior to pressure testing. A representative from the City's Water Department shall be present during the flushing of the new line.

507.2 MATERIALS.

All pipes and appurtenances furnished under this section shall be limited to those on the City's Current Approved Materials List, and as specified on the plans. All pipe for wastewater laterals shall have push-on gasket joints. No glued joints shall be used on wastewater lines or services to the property line. The transition from pressure rated pipe to non or low pressure pipe shall occur at the property line.

507.3 LAYING WASTEWATER CONDUIT.

Wastewater Overflow and Bypass Events. The Contractor shall promptly notify the City of University Park of any wastewater overflow or wastewater bypasses within the project limits. During such time, the Contractor shall, at his own expense, furnish all labor, materials, tools and equipment required and shall take such action to correct the problem and mitigate any adverse effects of the overflow or bypass. The Contractor shall assist the City in making any formal written reports to regulatory agencies for the event.

507.5 TESTS AND INSPECTIONS.

An infiltration/exfiltration or low-pressure air test, deflection test, and a television inspection shall be required. The City's inspector must be present during the testing and/or television inspection, unless otherwise authorized by the City. Copies of all test results shall be given to the Engineer or his designated representative. All testing and television inspections shall be subsidiary to various bid items. Testing and television inspection shall conform to the following requirements:

507.5.2 TELEVISION INSPECTION. MEASUREMENT AND PAYMENT.

TV Inspection by the Contractor shall be measured and paid for at the contract unit price per linear foot.

507.5.2.3 CRITERIA FOR ACCEPTANCE OF TV-INSPECTED PIPE.

Acceptance criteria also includes: water depth exceeding allowable standing water.

TABLE OF CONTENTS FOR DIVISION 800

The Standards specified herein follow the outline and contents from the North Central Texas Council of Governments Standard Specifications for Public Works Administration. Only the divisions which have been revised and/or supplemental information has been added by the City of University Park are listed and enclosed herein.

805.3 MATERIALS.

805.3.2. LUMINAIRES.

Luminaires shall be LED and shall be Duralight JXM-ST180-3-40K-12-2-GR-SCLB or an approved equal. The luminaire housing shall be painted the color Benjamin Moore #07164 (dark bronze) the same as the traffic signal structures. The contractor shall be responsible for furnishing and installing the luminaries.

805.3.4.1 PLASTIC CONDUIT.

PVC shall be schedule 40 gray. PVC elbows may be used as approved by Owner.

805.4 CONDUIT CONSTRUCTION METHODS

All electrical conduit shall be placed at a minimum depth of 18-inches from the top of surface, whether sidewalk, parkway, or pavement.

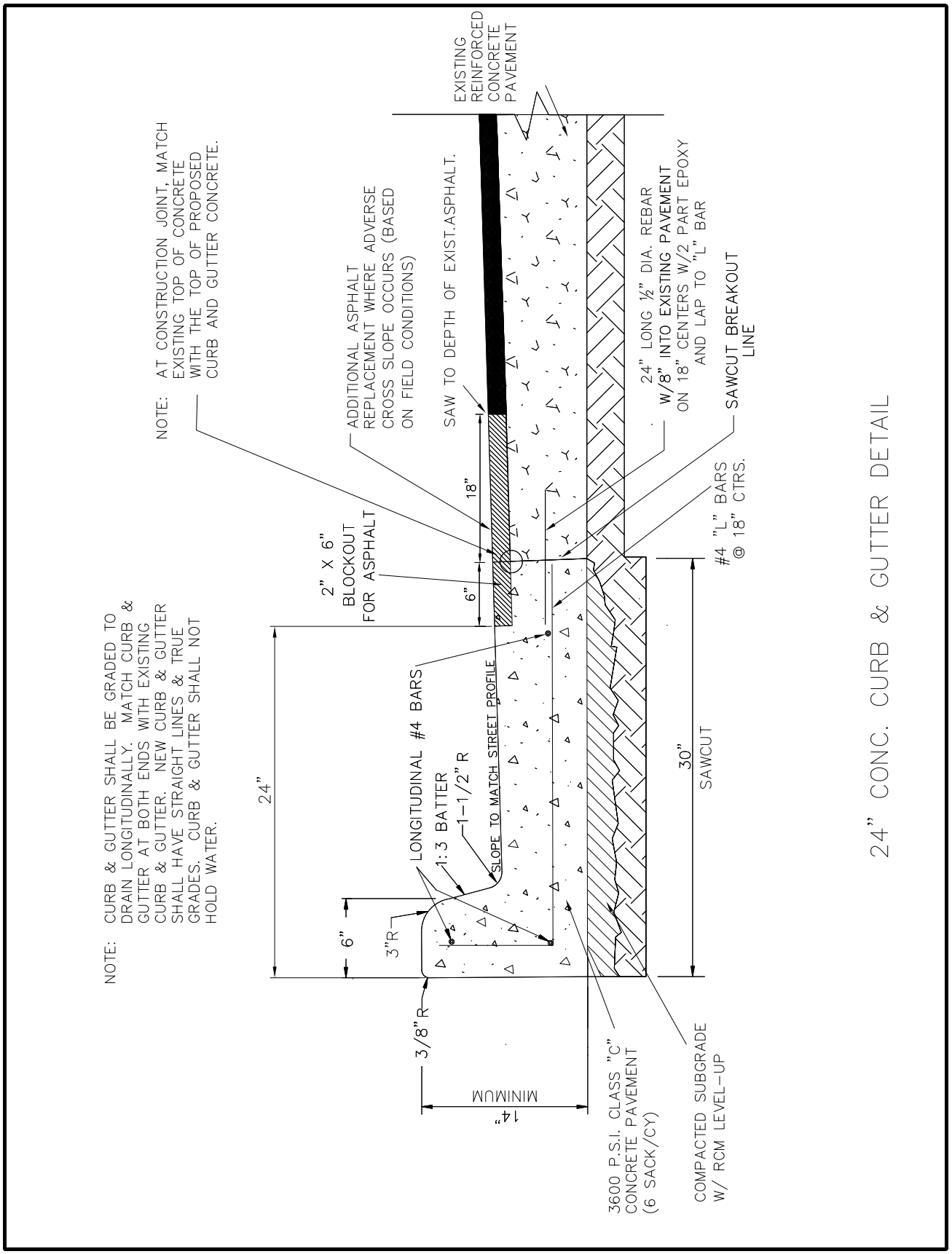
City of University Park

PART B
Standard Details

Procedural Guidelines and Amendments to the
North Central Texas Council of Governments
Standard Specifications for Public Works Construction
(Current Edition)

March 2023

STANDARD DETAIL INDEX



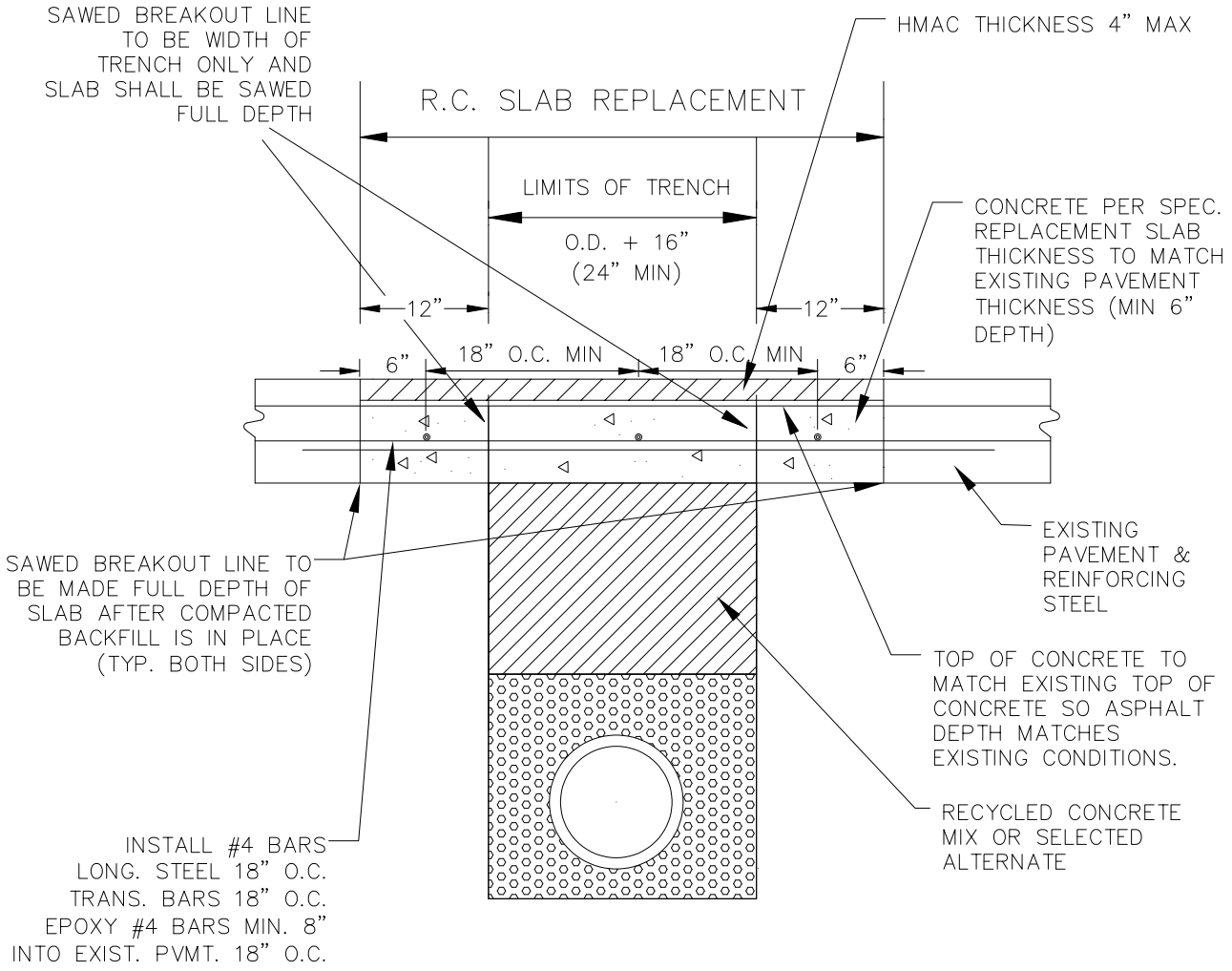
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

CONCRETE CURBS ON ASPHALT STREETS

P100

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



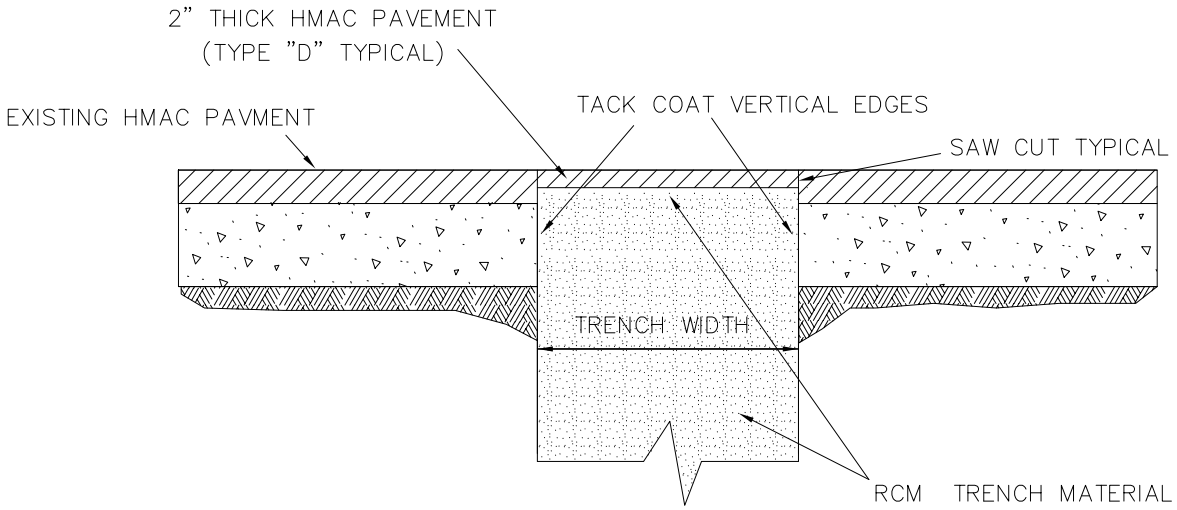
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

TYP. CONC. SLAB/ASPHALT REPLACEMENT FOR UTILITY CUTS

P200

SCALE: N.T.S.
DATE: 03/10/2022
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



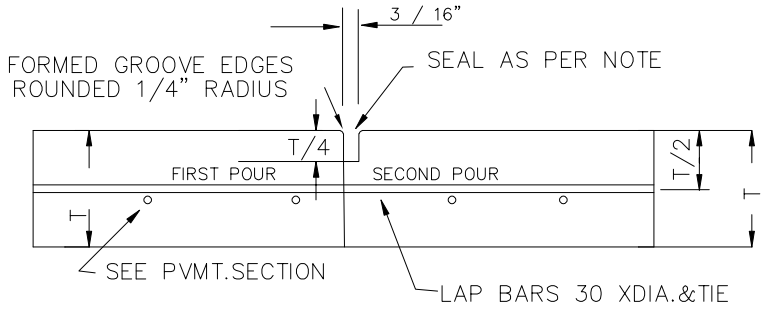
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

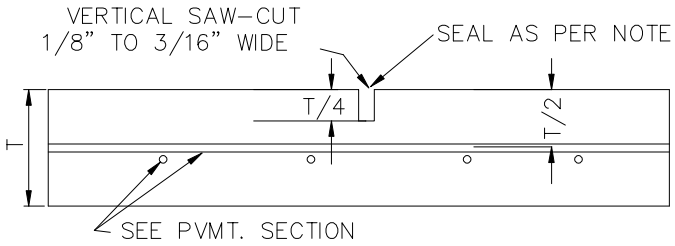
HMAC TEMPORARY PAVEMENT

P300

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING

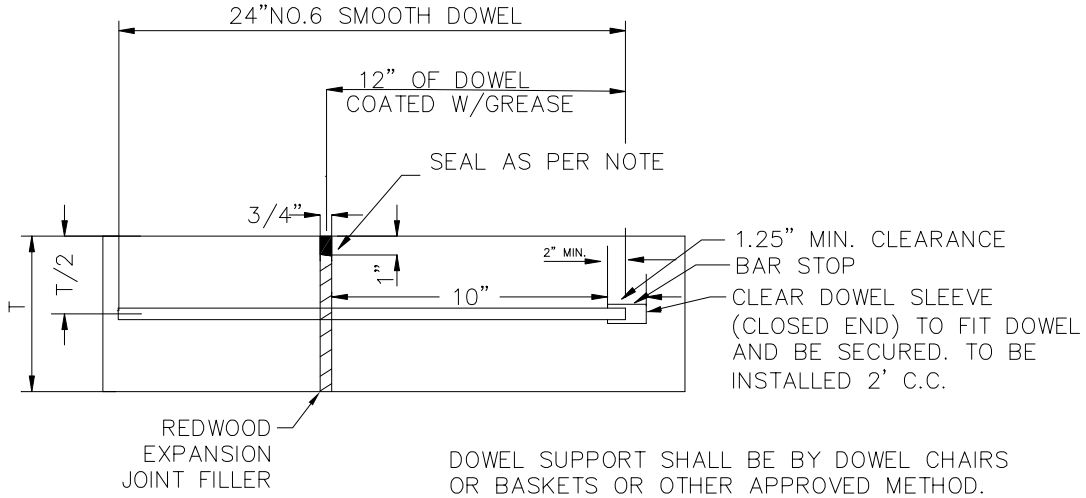


CONSTRUCTION JOINT



SAWED DUMMY JOINT

IDENTICAL FOR STREETS AND ALLEYS EXCEPT
ALLEY LONGITUDINAL REINFORCEMENT BARS



EXPANSION JOINT DETAIL

NOTE:

SEAL JOINTS WITH HOT POUR POLYMER AS PER C.O.G. SPEC. 303.2.14.1.1
COLD APPLIED SEALANT MUST BE APPROVED BY CITY ENGINEER.

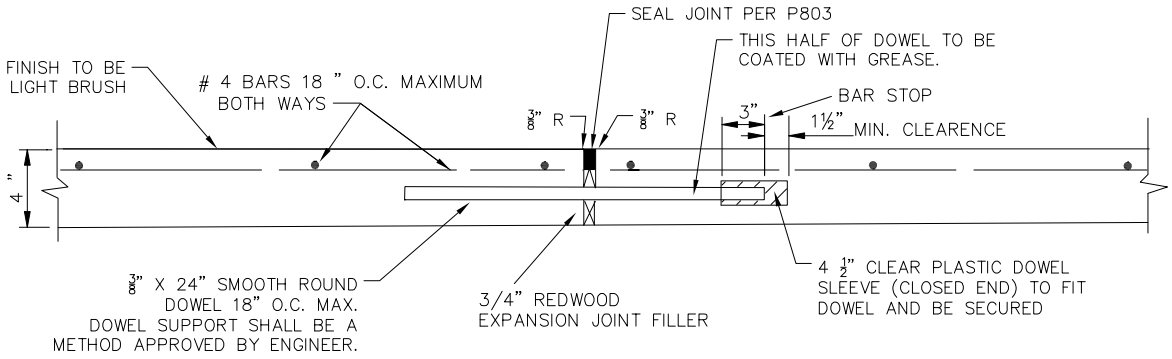
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

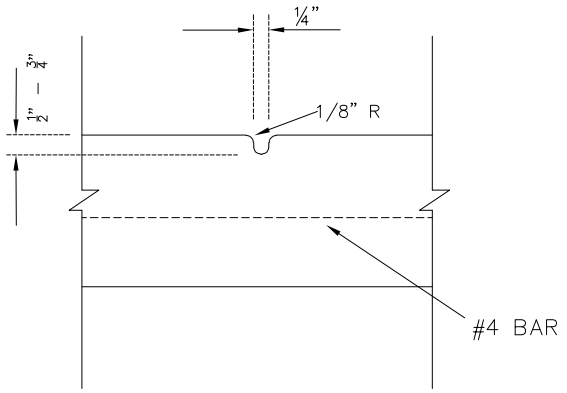
MISCELLANEOUS PAVING JOINTS

P401

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



EXPANSION JOINT DETAIL



TOOLED JOINT DETAIL

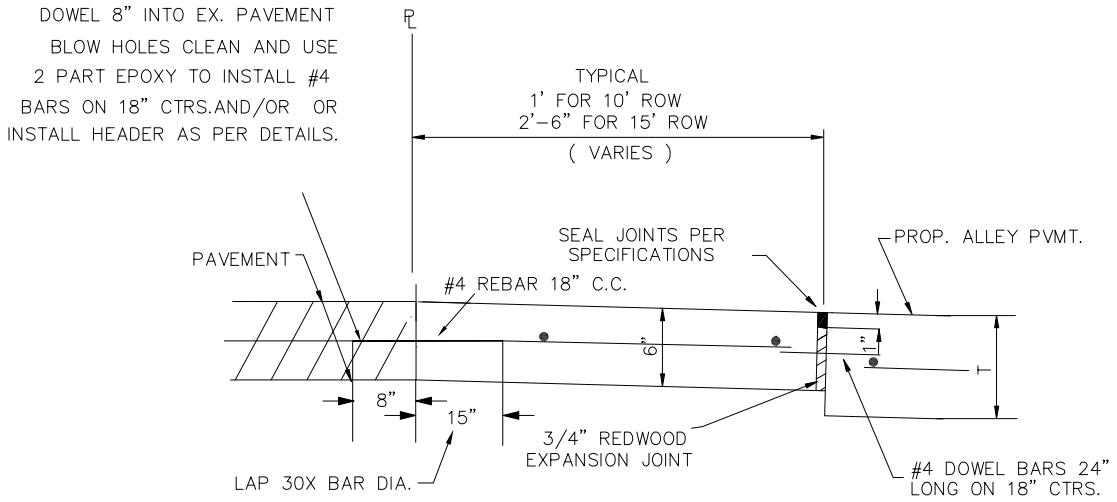
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

MISCELLANEOUS SIDEWALK JOINTS

P402

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



WHERE DOWELING IS UNACCEPTABLE SEE P404

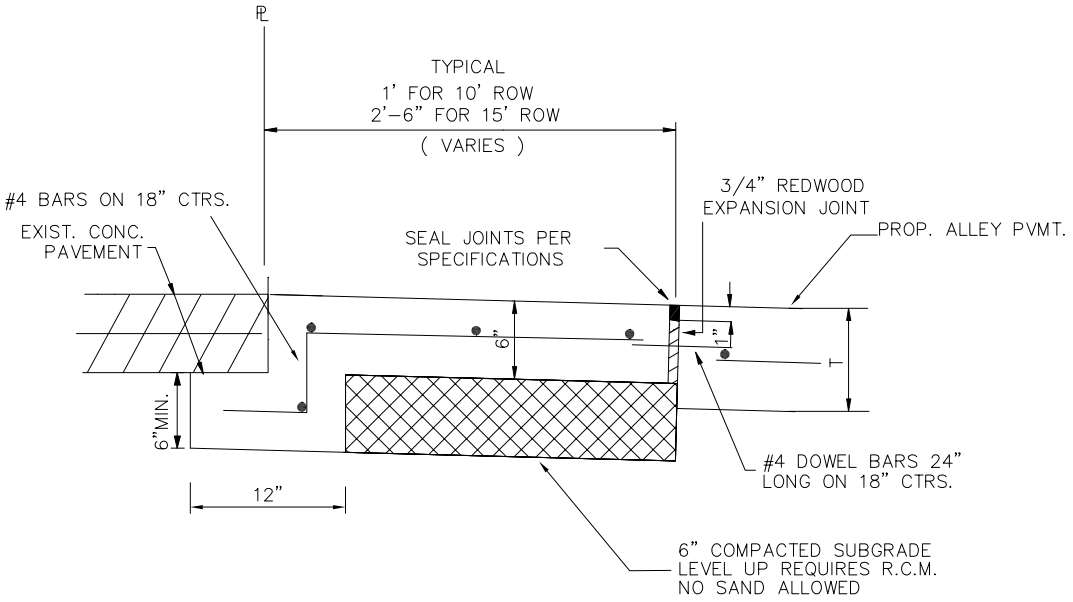
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

DRIVEWAY EXPANSION JOINTS

P403

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



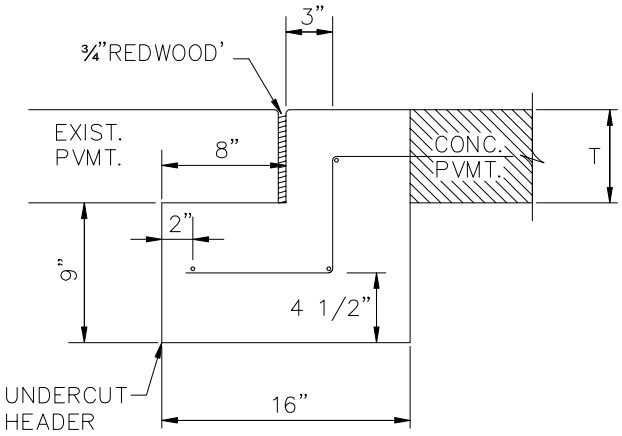
UNIVERSITY PARK

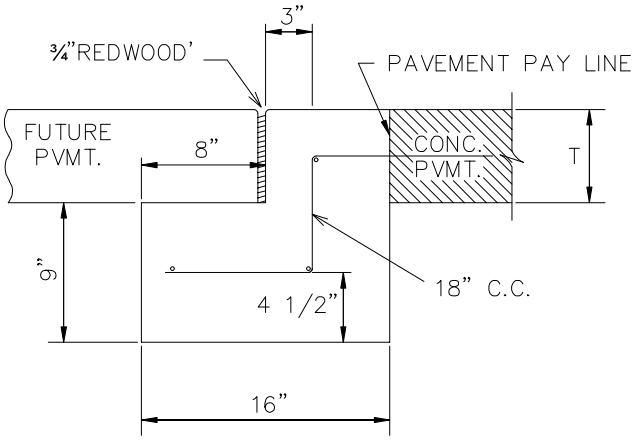
GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

DRIVEWAY HEADER

P404

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING





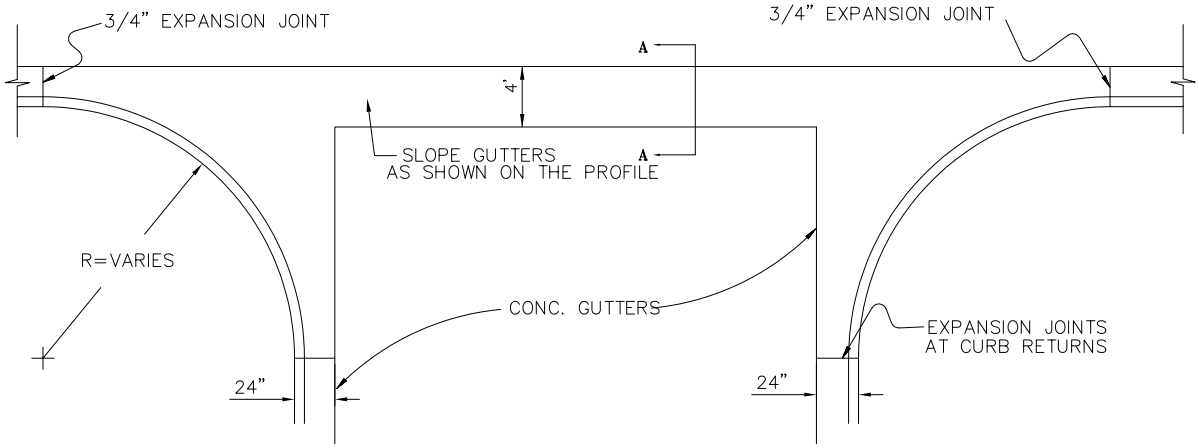
ALL BARS TO BE #4
#4 PAVEMENT BARS TO BE BENT DOWN INTO HEADER.
HEADER AND PAVEMENT TO BE MONOLITHIC.

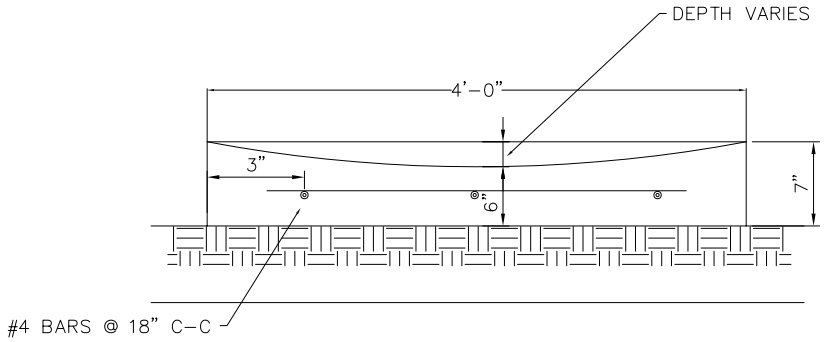
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS
STREET HEADER

P405

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING





SECTION A – A

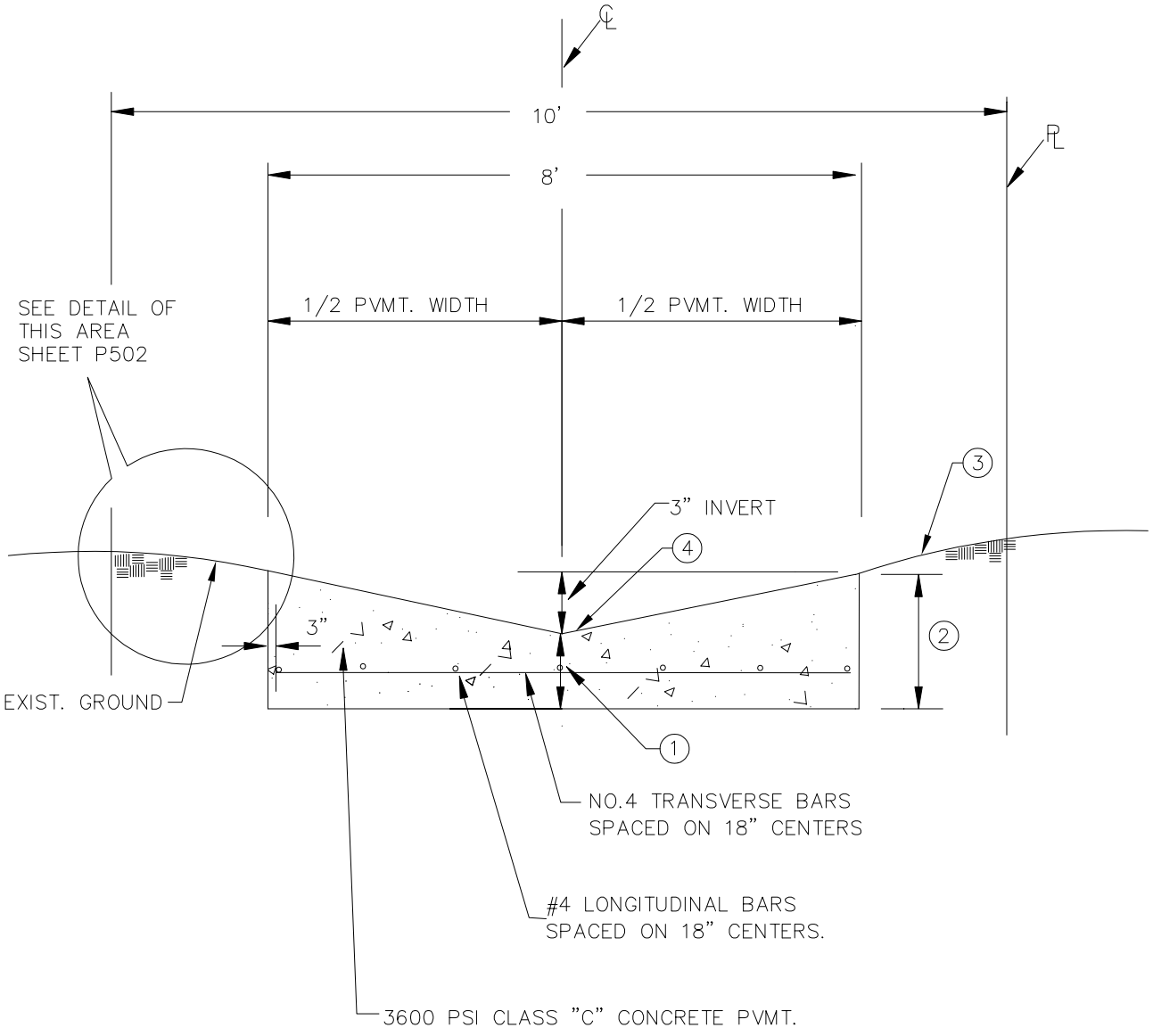
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

CONCRETE VALLEY GUTTER

P406

SCALE: N.T.S.
DATE: 03/10/2022
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



NOTES:

1. 5" RESIDENTIAL ALLEY, 6" COMMERCIAL ALLEY.
2. 8" RESIDENTIAL ALLEY, 9" COMMERCIAL ALLEY.
3. ALL ALLEY SIDE SLOPES ARE TO BE FILLED AND/OR GRADED TO CONFORM TO DETAIL P502.
4. ALLEY INVERTS LESS THAN 3" WILL RECEIVE DEFICIENCY PENALTY AS OUTLINED IN THE STANDARD SPECIFICATIONS.

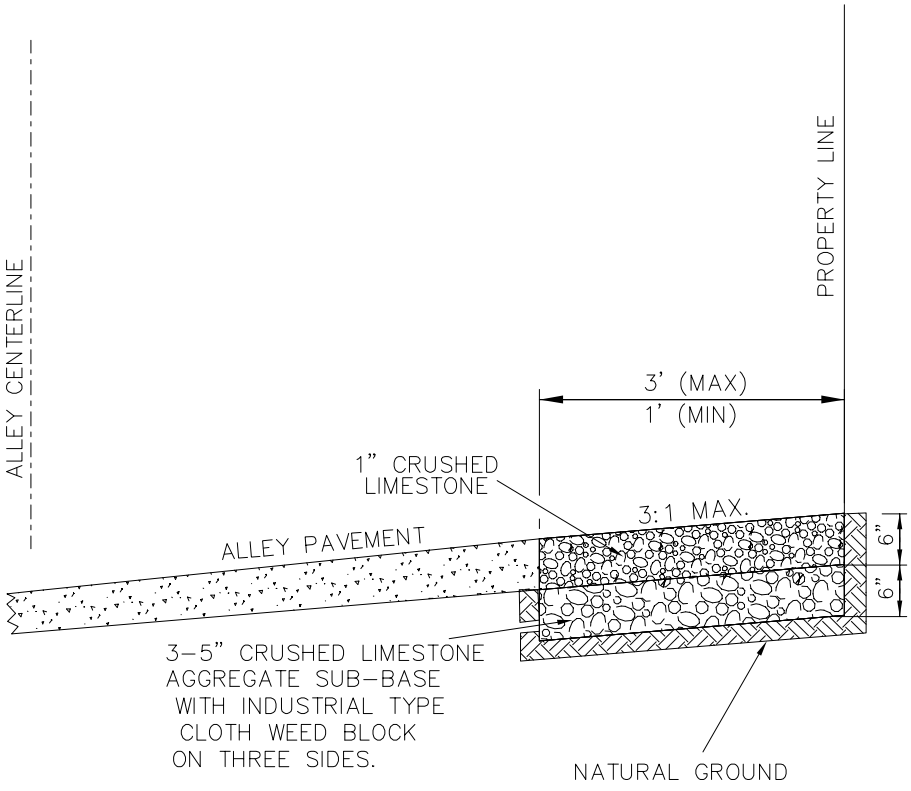
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

TYPICAL ALLEY PAVING

P501

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



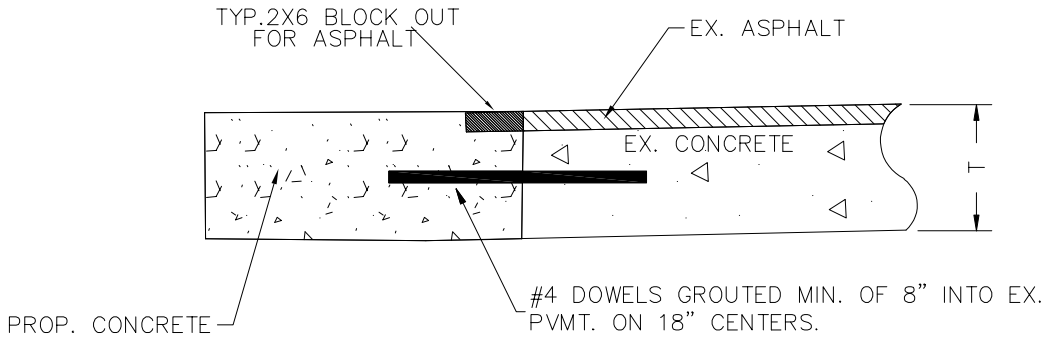
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

ALLEY ROW DETAIL

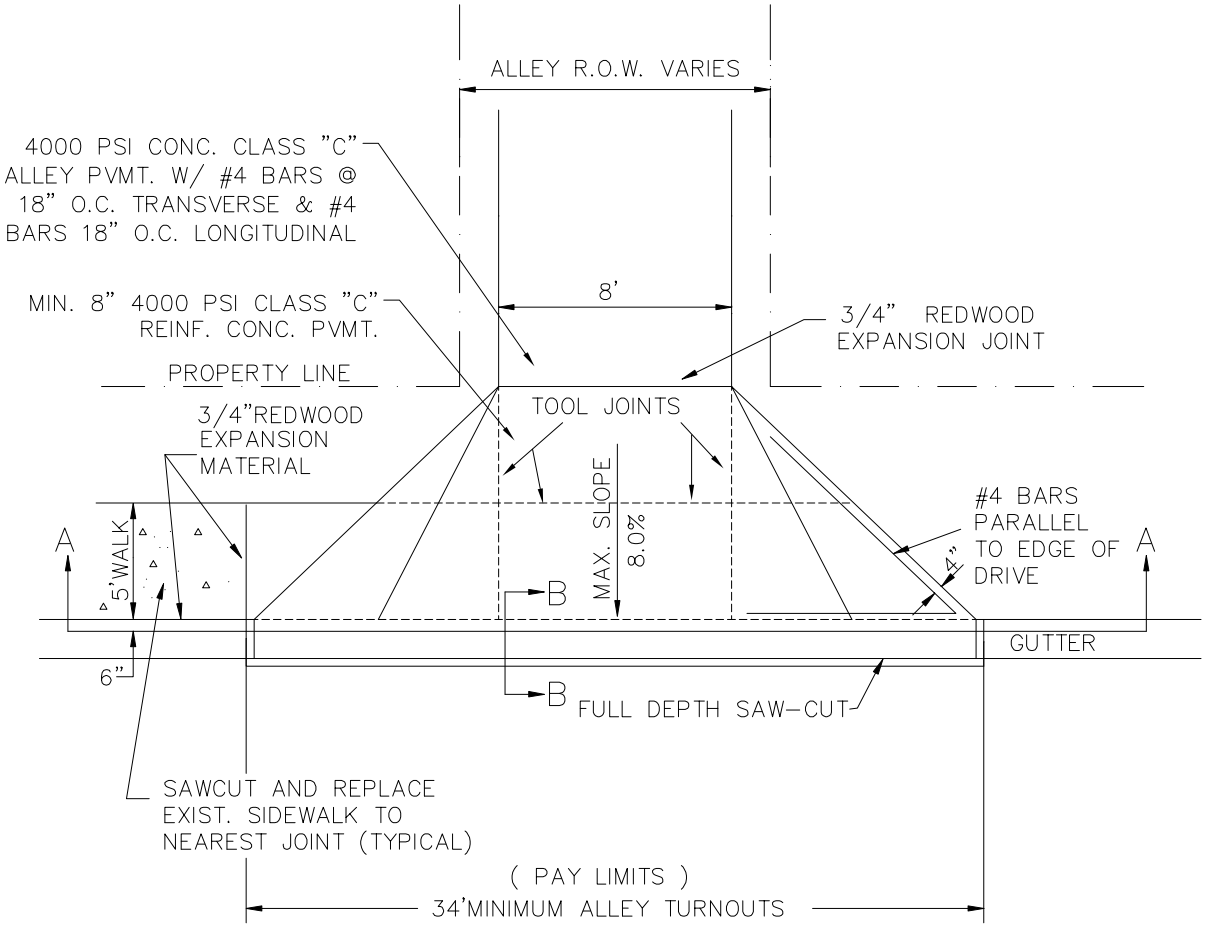
P502

SCALE: N.T.S.
DATE: 03/10/2022
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



SECTION "B–B"

SECTION "A–A"



PLAN VIEW

UNIVERSITY PARK

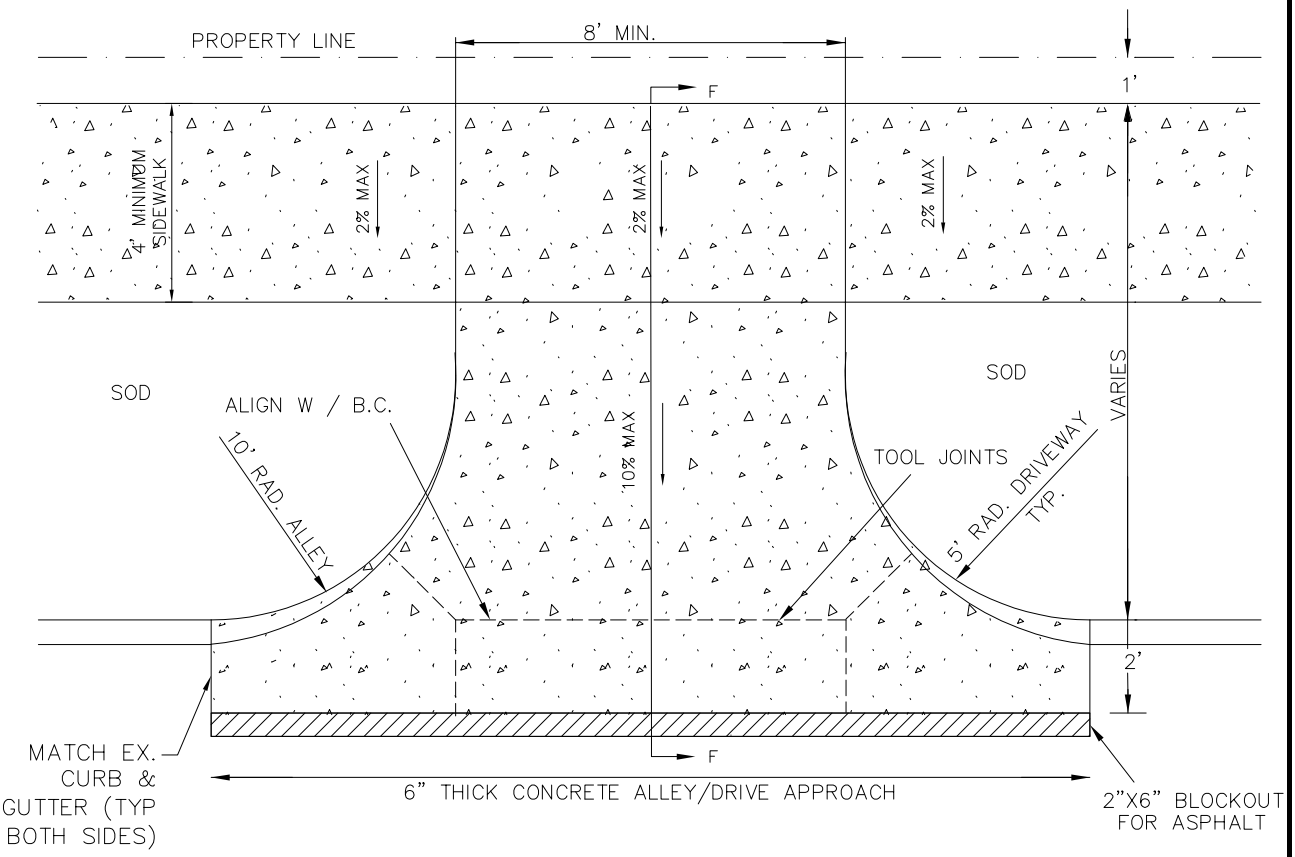
GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

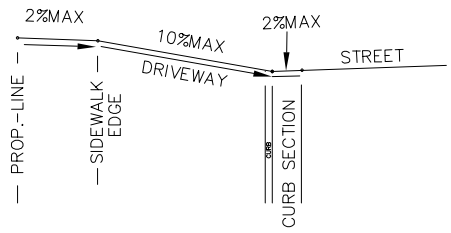
TYPICAL ALLEY APPROACH WITH SIDEWALK BEHIND CURB

P503

SCALE: N.T.S.
DATE: 03/10/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING

NOTE:
ALL DRIVES SHALL HAVE
#4 BARS 18" O.C.





SECTION F–F

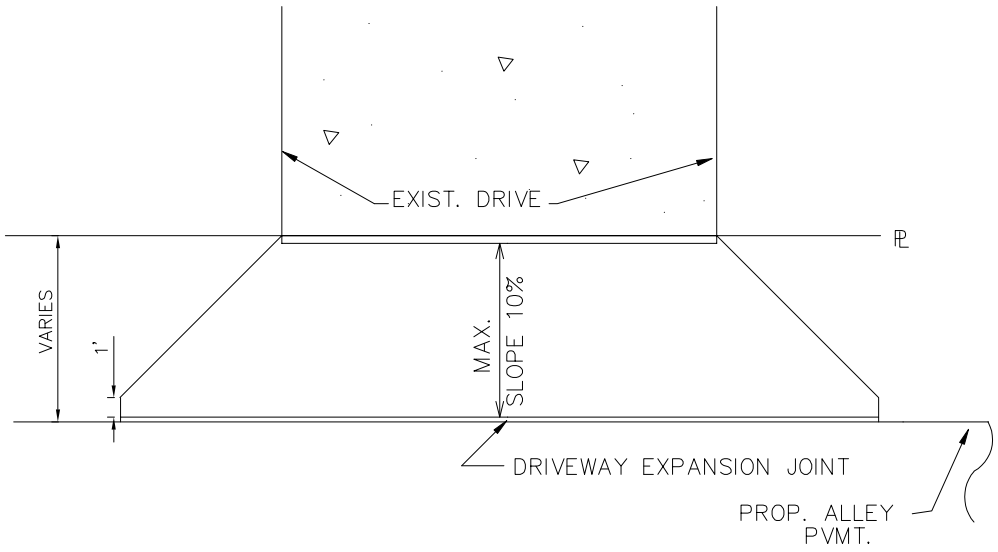
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

TYPICAL ALLEY / DRIVEWAY APPROACH W/ PARKWAY

P504

SCALE: N.T.S.
DATE: 03/10/2022
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



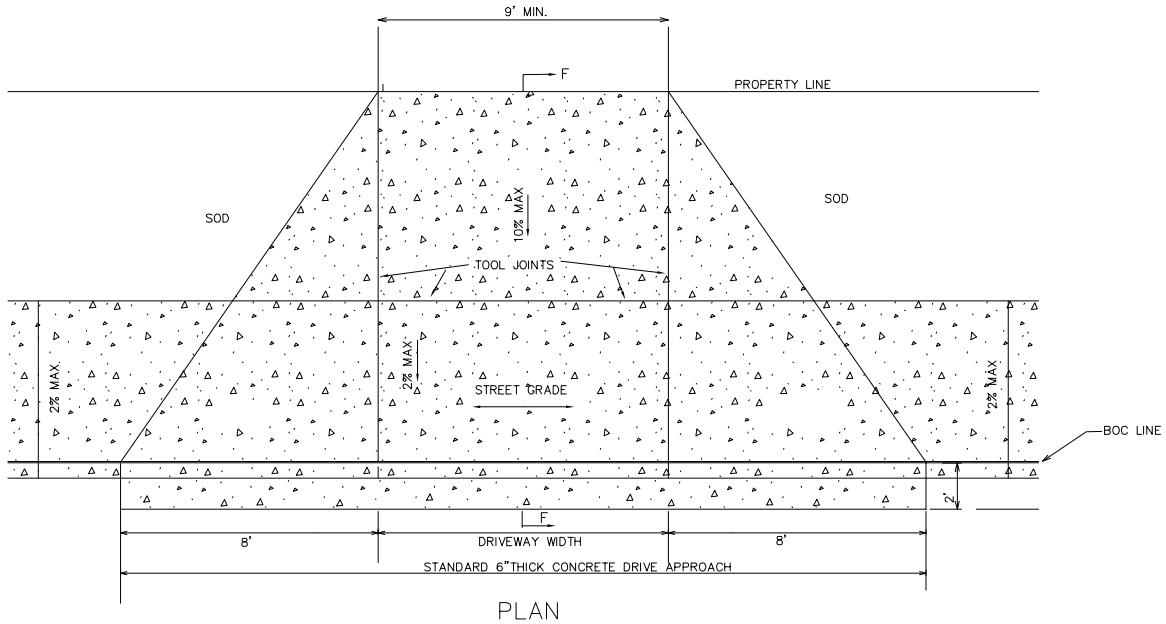
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

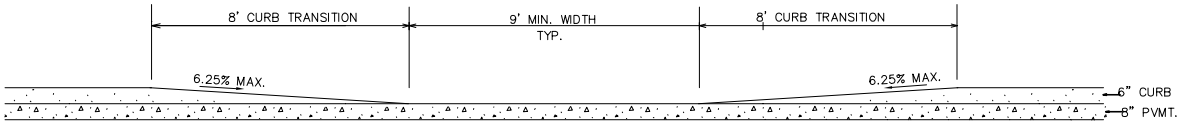
TYPICAL DRIVE APPROACH IN ALLEY

P601

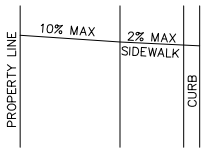
SCALE: N.T.S.
DATE: 03/10/2022
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



PLAN



PROFILE



SECTION F–F

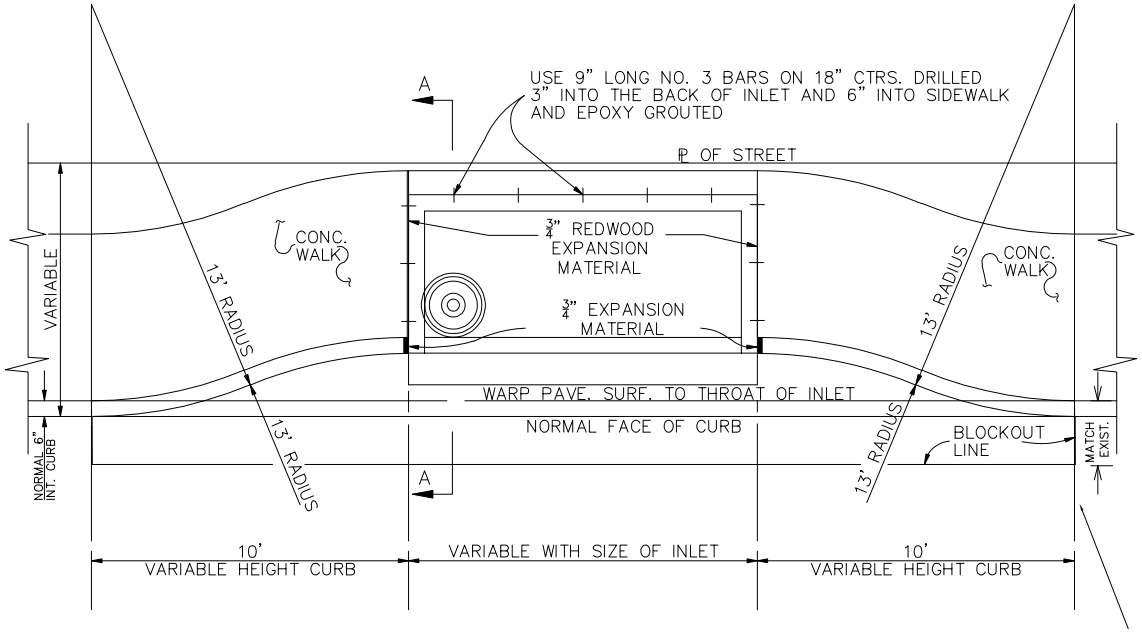
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

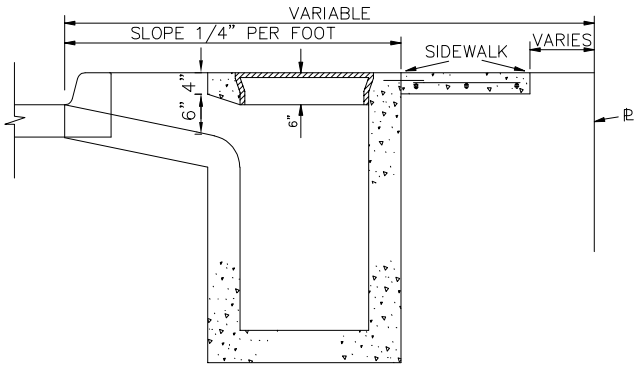
DRIVEWAY W/ SIDEWALK BEHIND CURB

P602

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



PROVIDE STREET SAWED DUMMY JOINT OR CONSTRUCTION JOINT IN LINE WITH BLOCKOUT EDGES FOR CONC. INTEGRAL PAVEMENT.



SECTION A–A

*NOTE:
FOR PAVING INFORMATION ONLY.
SEE DRAINAGE DETAILS FOR SPECIFIC INLET DIMENSIONS/CONFIGURATION.

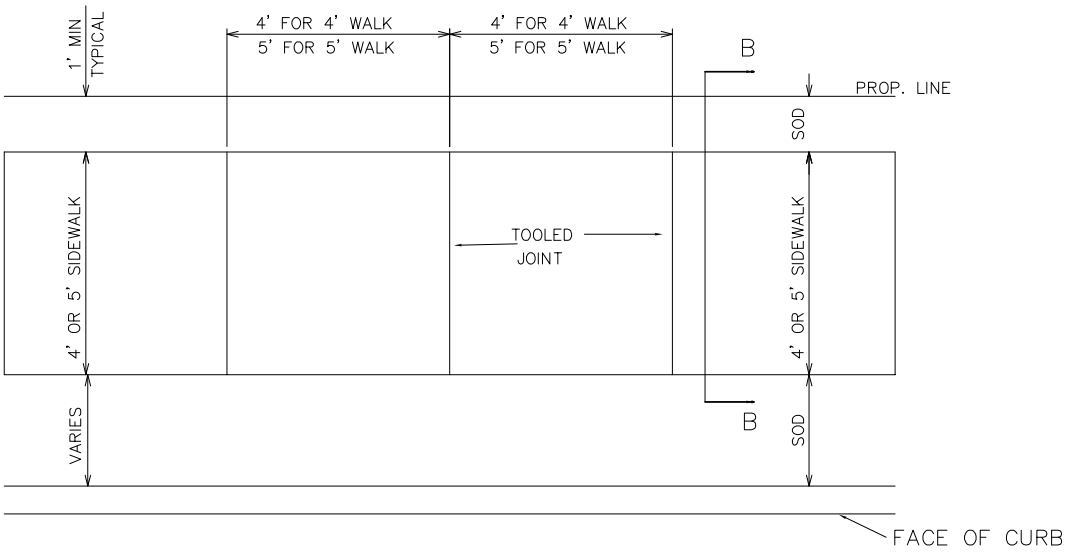
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

STANDARD RECESSED STORM DRAINAGE INLETS & CURBS

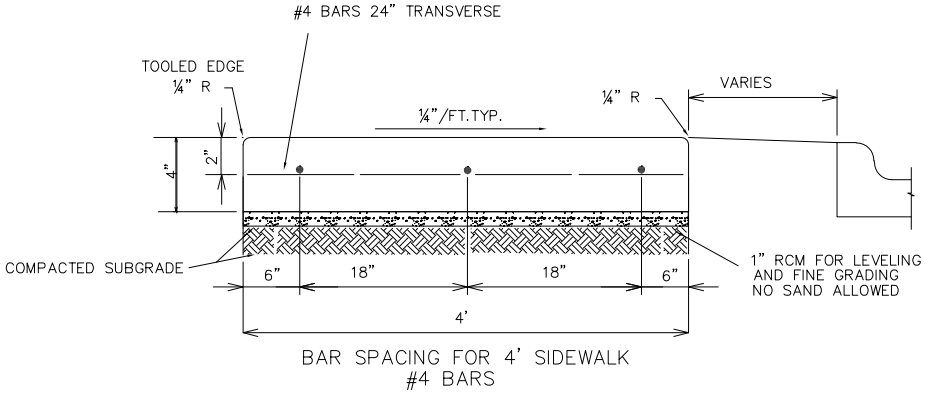
P701

SCALE: N.T.S.
DATE: 03/10/2022
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



NOTE:
3/4" REDWOOD EXPANSION JOINT
EVERY 40' AND DIRECTIONAL CHANGE
CLASS "A" CONCRETE 5 SACK (3000 PSI @28 DAYS)

PLAN VIEW



BAR SPACING FOR 4' SIDEWALK
#4 BARS

SECTION B–B

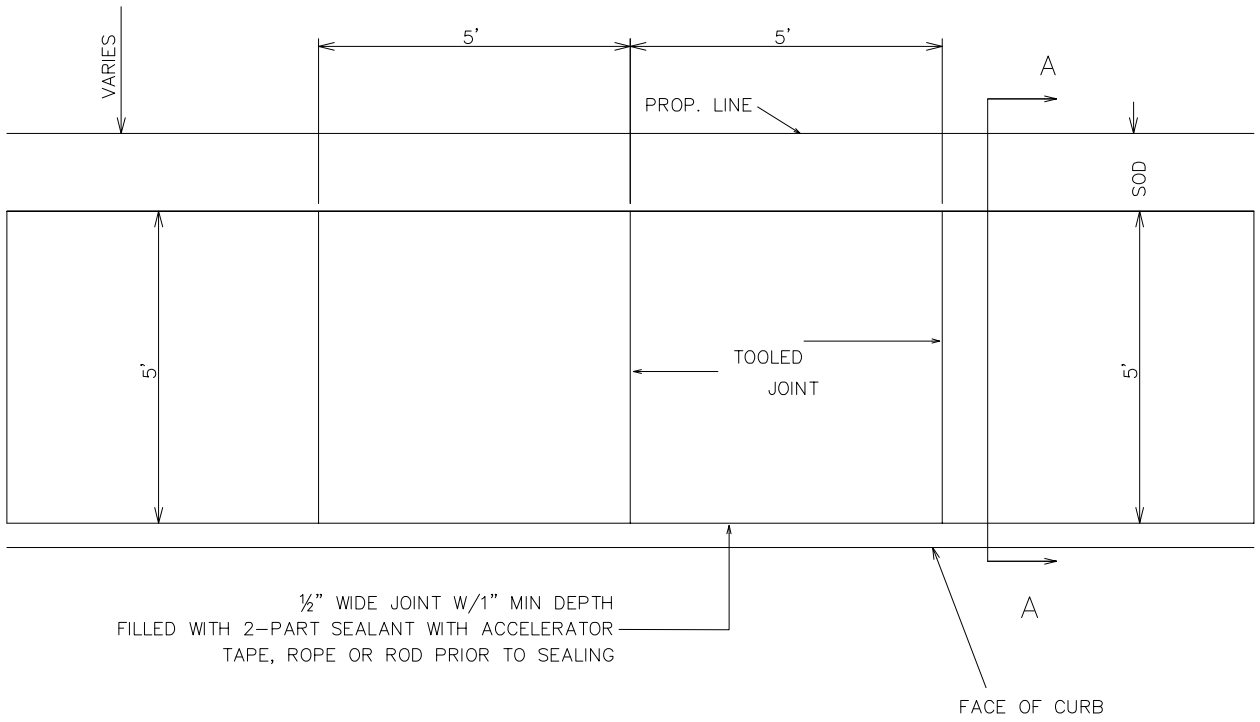
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

SIDEWALK W/ PARKWAY

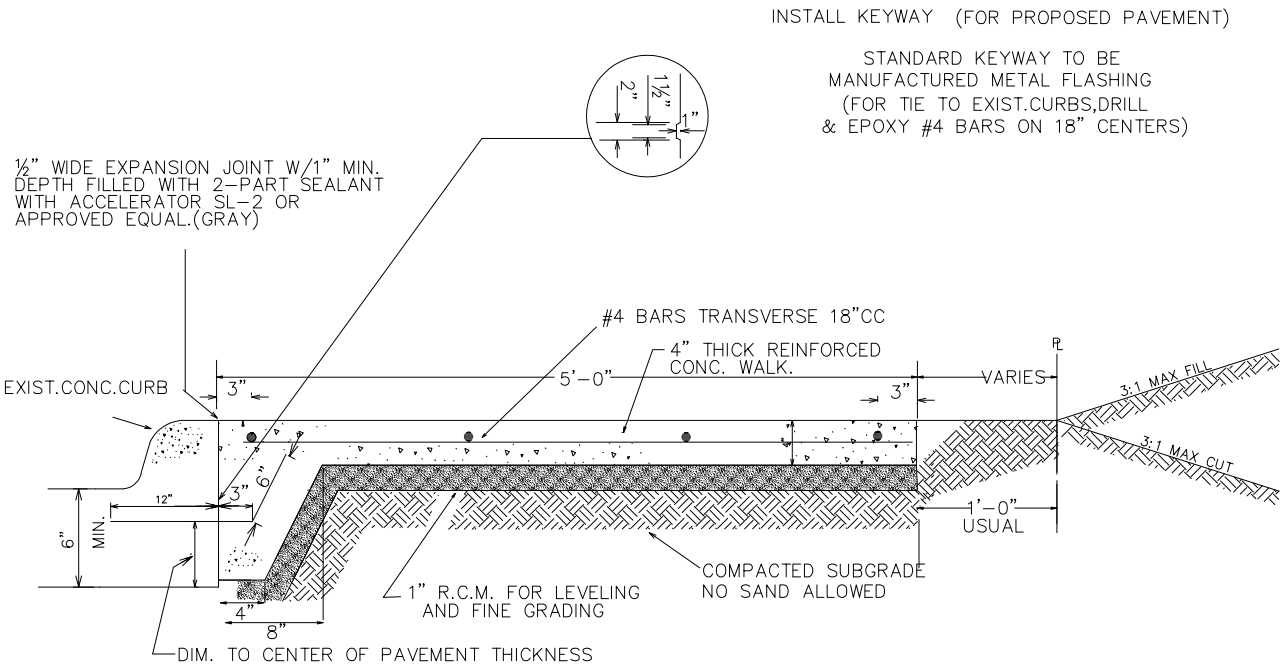
P801

SCALE: N.T.S.
DATE: 03/10/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



NOTE:
3/4" REDWOOD EXPANSION JOINT EVERY 40' ON 4' WALK,
50' ON 5' WALK AND AT DIRECTIONAL CHANGE.
CLASS "A" CONCRETE 5 SACK (3000 PSI @28 DAYS)

PLAN VIEW



SECTION A-A

UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

SIDEWALK ABUTTING CURB

P802

SCALE: N.T.S.
DATE: 03/10/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING

GENERAL NOTES FOR SIDEWALKS:

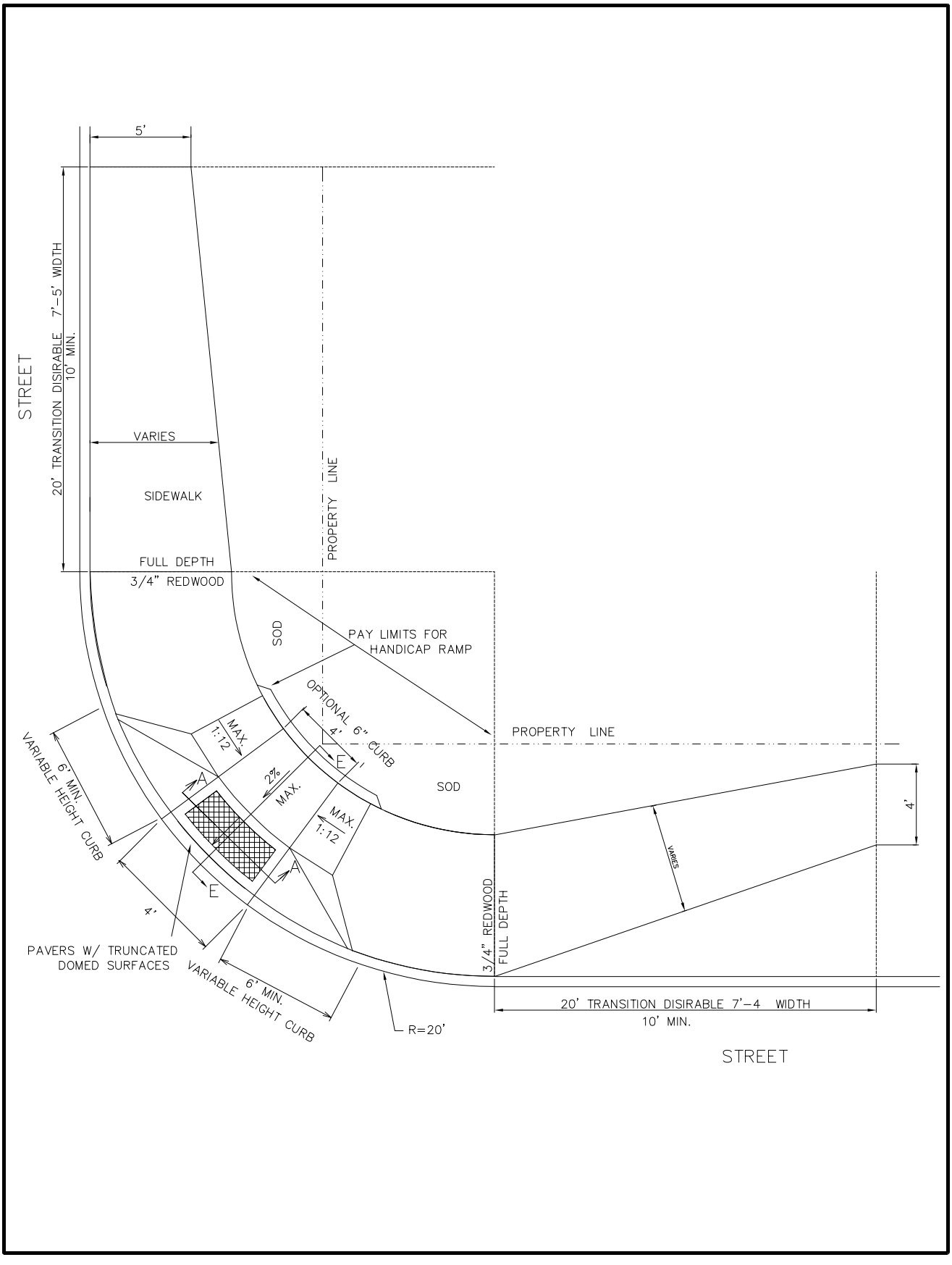
1. ALL HONEYCOMB IN BACK OF CURB TO BE TROWELED AND WIPED W/ NON–SHRINK GROUT BEFORE POURING SIDEWALK, WITHIN 24 HOURS OF FORM REMOVAL.
2. LUG MAY BE FORMED BY SHAPING SUBGRADE TO APPROXIMATE DIMENSIONS SHOWN.
3. PAYMENT FOR KEYWAY IS SUBSIDIARY TO CONCRETE SIDEWALK PAY ITEM.
4. PAYMENT FOR EXCAVATION, BORROW, AND COMPACTION IS SUBSIDIARY TO CONCRETE SIDEWALK PAY ITEM.
5. CONTRACTOR SHALL DO ALL NECESSARY FILLING, LEVELING, AND FINE GRADING REQUIRED TO BRING THE SUBGRADE TO THE EXACT GRADES.
6. BACKFILL FOR SIDEWALK SUBGRADE SHALL BE RECYCLED CONCRETE MIX. NO SAND ALLOWED.
7. SIDEWALK BACKFILL AND SUBGRADE SHALL BE COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES TO 90% OF ASTM D698 DENSITY WITH A MOISTURE WITHIN –2% TO –4% OF OPTIMUM MOISTURE.
8. $\frac{3}{4}$" EXPANSION JOINTS ARE REQUIRED EVERY 40", ALSO WHERE SIDEWALK ABUTS THE CURB. $\frac{3}{4}$" EXPANSION JOINTS SHALL BE INSTALLED WHERE THERE IS AN EXPANSION JOINT AT THE STREET.
9. CONCRETE SHALL BE CLASS A, 5–SACK (3000 PSI @ 28 DAYS) EXCEPT FOR BARRIER FREE RAMPS, WHICH SHALL BE CLASS C 4000 PSI @ 28 DAYS.
10. REINFORCEMENT SHALL BE #4 BARS ON 18" CENTERS ON CHAIRS (NO WELDED WIRE FABRIC WILL BE ACCEPTABLE AS A SUBSTITUTE FOR STEEL BARS).
11. FINISH OF THE TOP SURFACE SHALL BE "LIGHT BROOM FINISH" WITH TOOLED JOINTS.
12. SLOPE WALK $\frac{1}{4}$" PER FT., OR APPROVED BY CITY ENGINEER.
13. MIN. CONCRETE THICKNESS ON SIDEWALK SHALL BE 4", ACROSS DRIVEWAYS SHALL BE 6", AND ACROSS ALLEYS 8".
14. ALL JOINTS TO BE SEALED WITH SIKAFLEX–1C SL OR APPROVED EQUAL, AS PER DETAIL.
15. ALL MISCELLANEOUS DETAILS FOR SIDEWALKS AND BARRIER FREE RAMPS AGAINST PROPOSED OR EXISTING CURB SHALL APPLY.
16. WHERE BARRIER FREE RAMPS ARE TO BE CONSTRUCTED AT EXISTING STREET LOCATIONS, DELETE KEYWAY DETAILS AND DRILL/EXPOXY GROUT #4 DEFORMED BARS 8" INTO EXISTING ON 18" CENTERS.
17. BARRIER FREE RAMPS ARE TO BE CONSTRUCTED WITH 2 POURS.

UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS
GENERAL NOTES FOR SIDEWALK

P803

SCALE: N.T.S.
DATE: 03/10/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



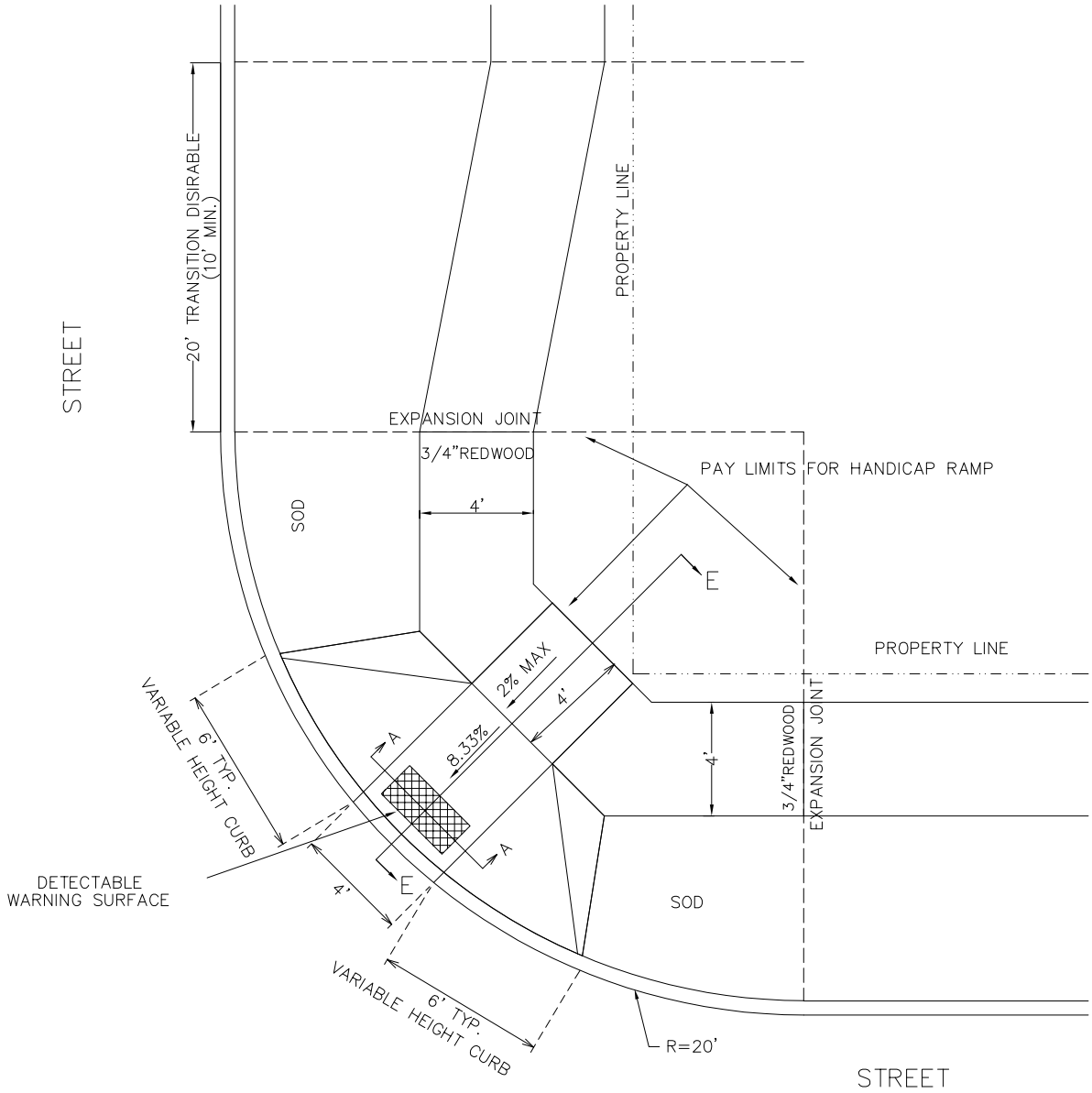
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

ADA RAMP W/ SDWALK W/ DIFFERING PARKWAY

P901

SCALE: N.T.S.
DATE: 08/25/2021
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



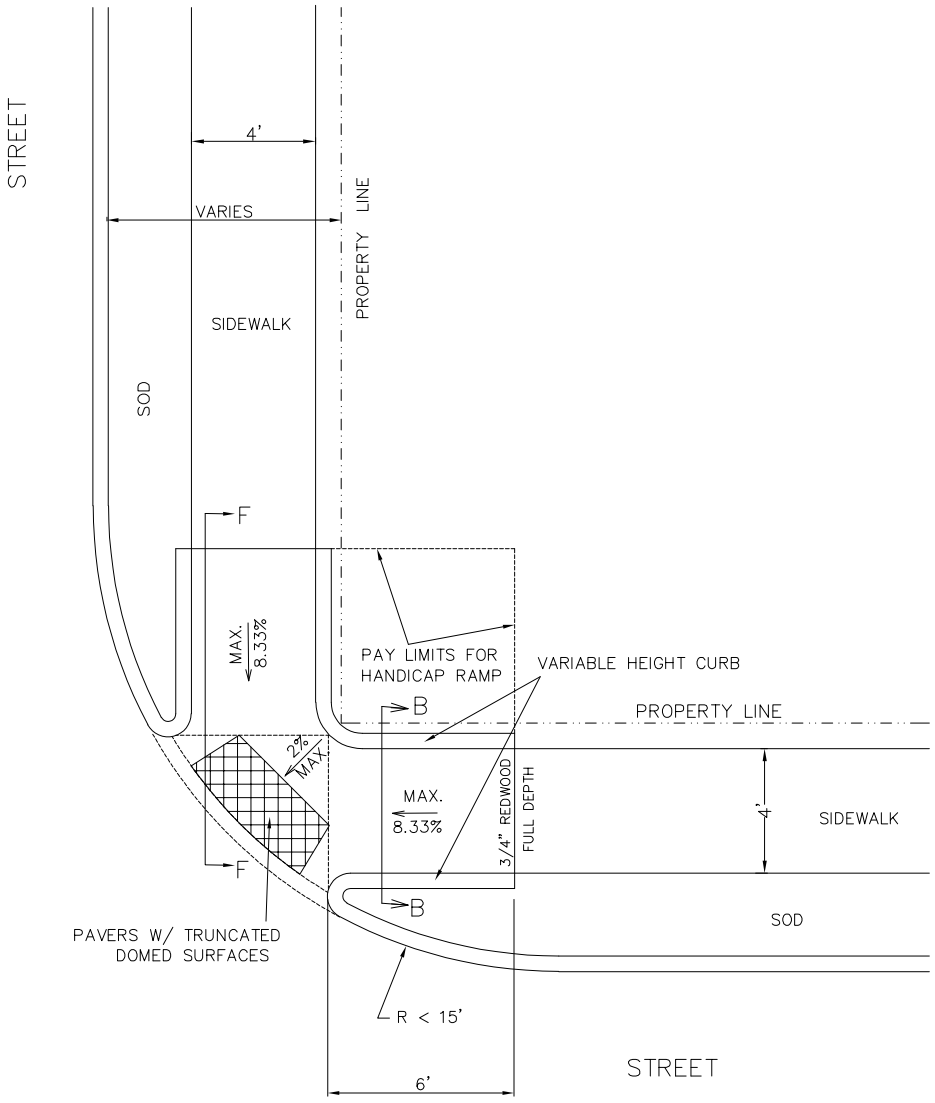
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

RAMP W/ PARALLEL SIDEWALK

P902

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



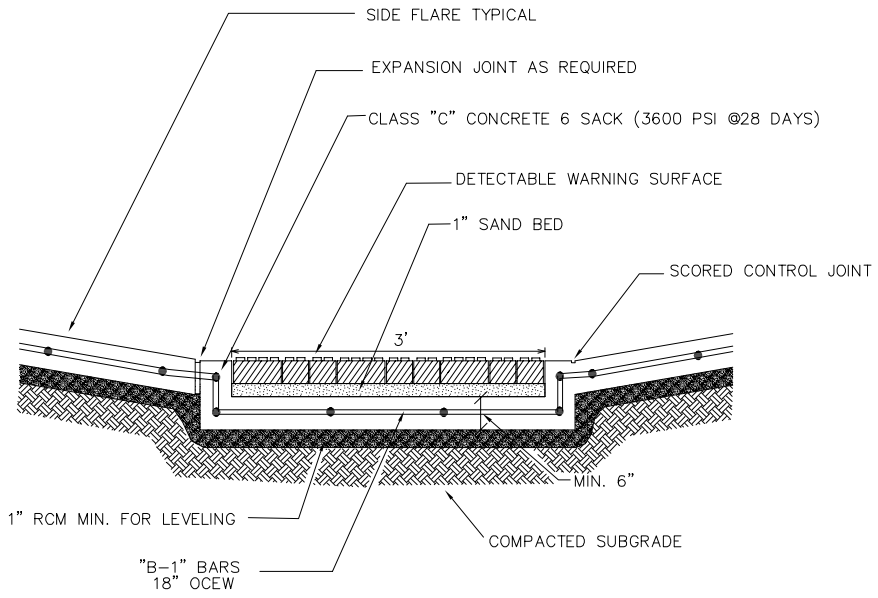
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

ADA RAMP W/ SMALL RADIUS IN LIMITED ROW

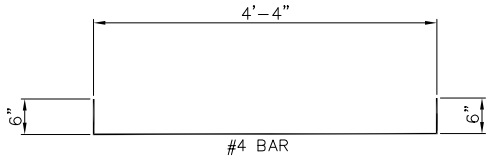
P903

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



SECTION A–A

DIAGONAL CURB RAMP



"B-1" BAR

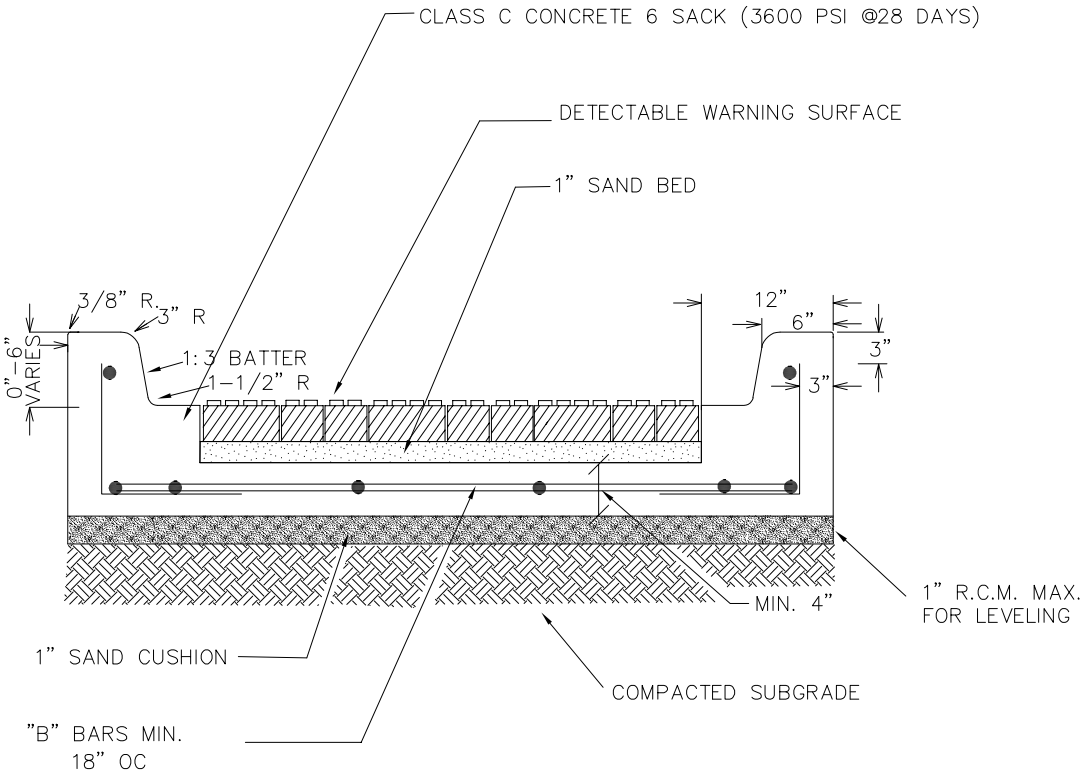
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

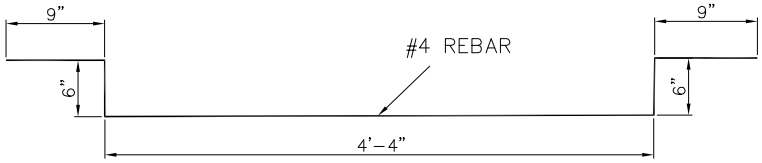
CURB RAMP SECTION A-A

P904

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



SECTION B–B



"B" BAR

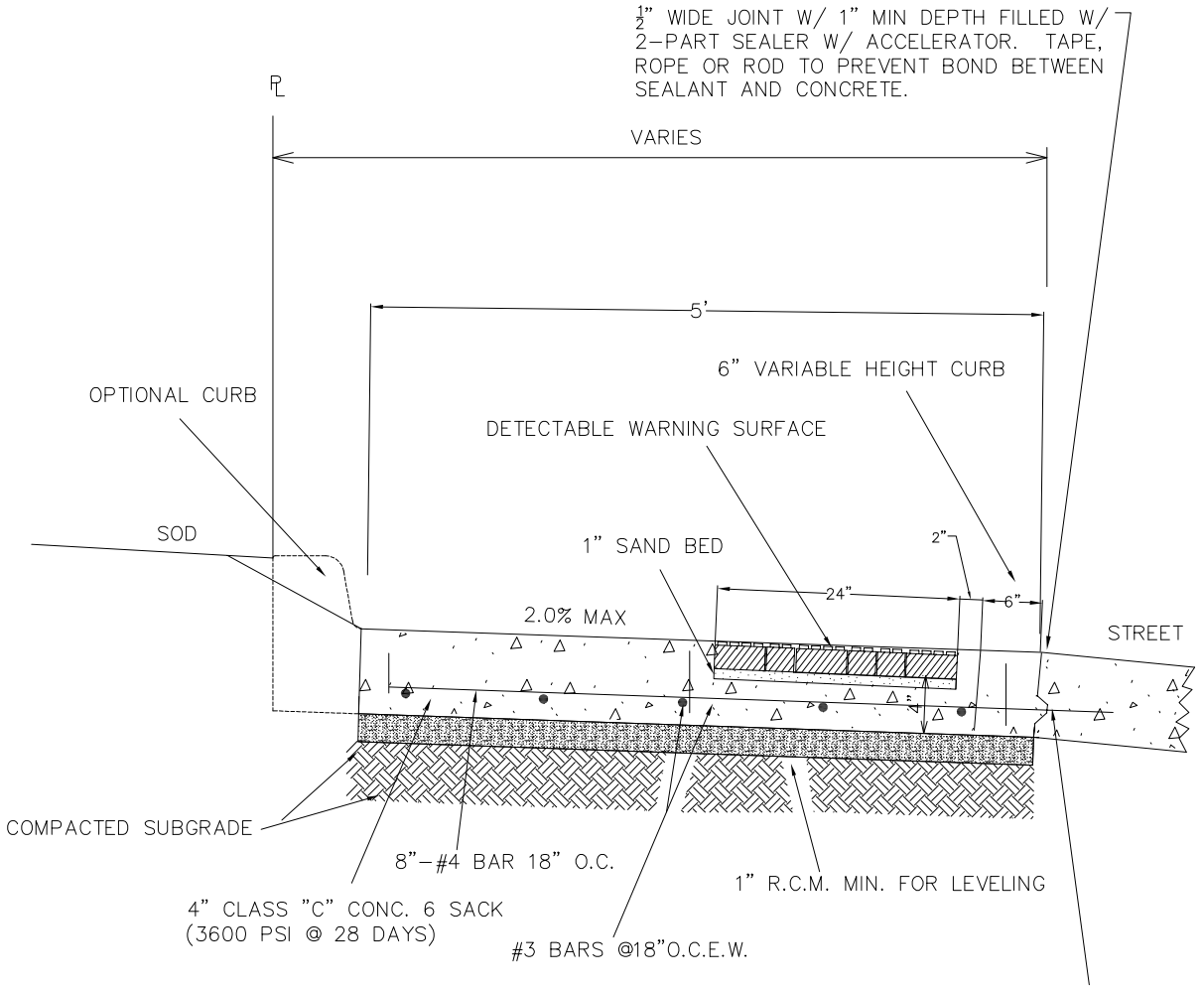
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

CURB RAMP SECTION B-B

P905

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



SECTION E-E

STANDARD KEYWAY TO BE MANUFACTURED METAL FLASHING

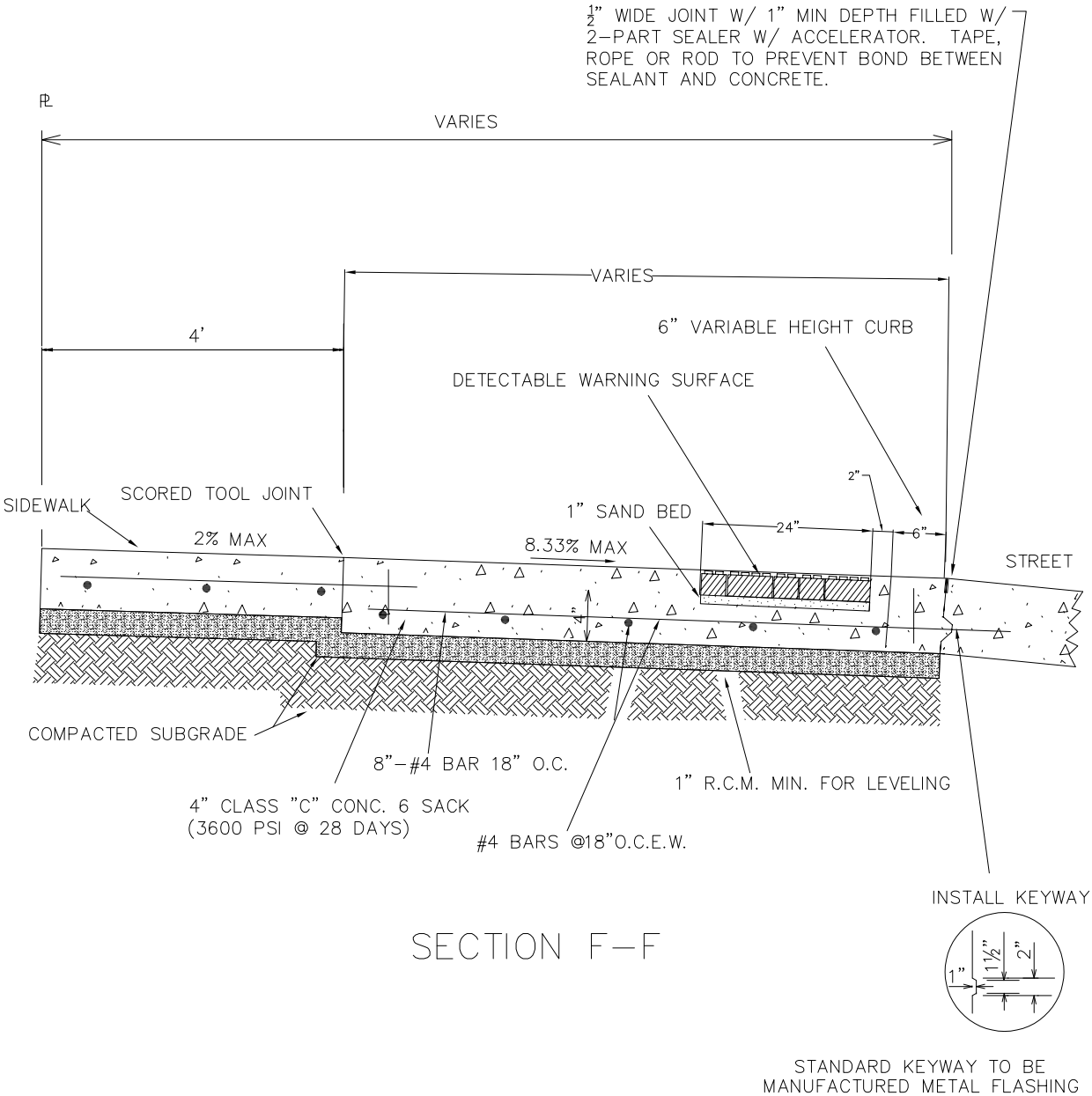
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

RAMP W/ SIDEWALK SECTION E-E

P906

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



SECTION F-F

STANDARD KEYWAY TO BE MANUFACTURED METAL FLASHING

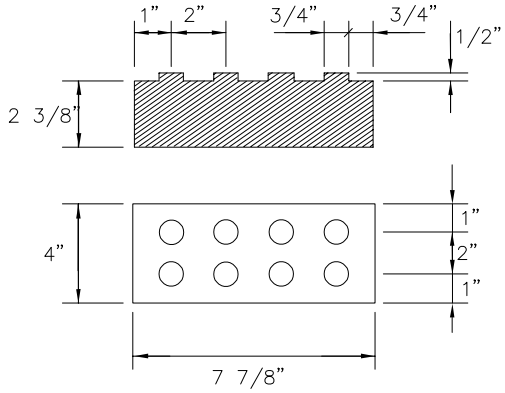
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

CURB RAMP SECTION F-F

P907

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



PAVER NOTES

Concrete paver units shall meet all requirements of ASTM C–936, C–33, and shall be laid in a two by two unit basket weave pattern, unless shown otherwise in the plans.

Concrete paver units shall have a truncated dome top surface for detectable warning to pedestrians.

Concrete paver units shall be saw cut only and any cut unit shall be not less than 25 percent of a full unit.

Pavers will have detectable warning that consists of raised truncated domes with a diameter of .09 in. a height of nominal 0.2 in. , and a center to center spacing of nominal 2.35 in. , and shall be red in color.

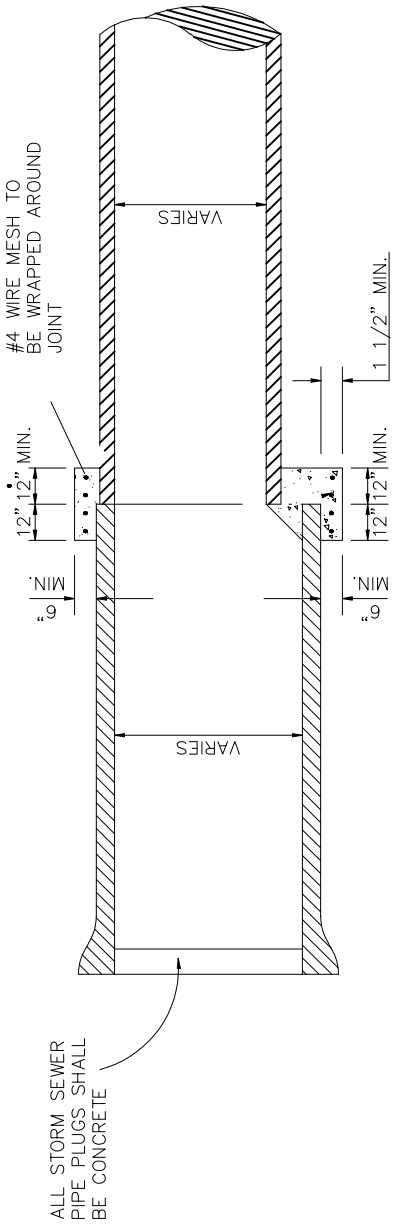
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
PAVING DETAILS

CONCRETE PAVERS WITH DETECTABLE WARNING SURFACE

P908

SCALE: N.T.S.
DATE: 08/25/2021
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



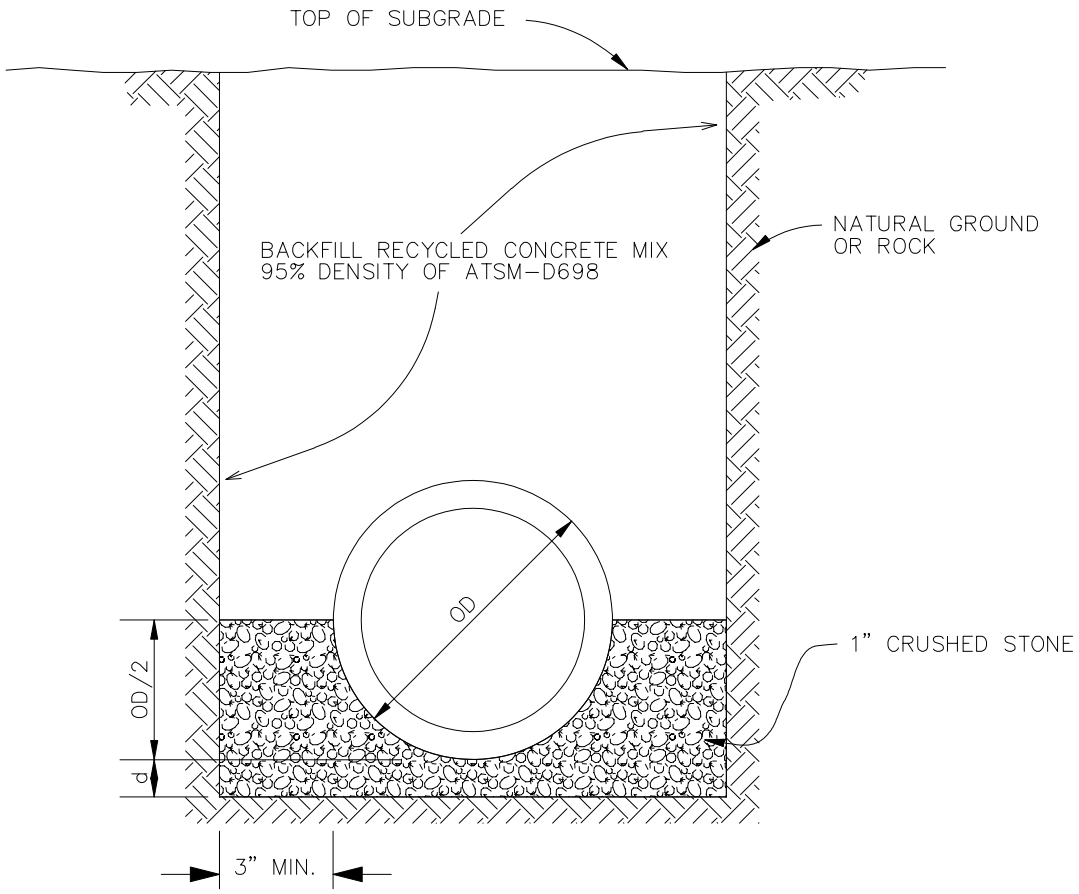
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

CONCRETE COLLAR FOR PIPE CONNECTIONS

D100

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



d=DEPTH OF BEDDING MATERIAL BELOW PIPE.
(6" MIN.)

TRENCH WIDTHS SHOWN ARE MINIMUM FOR PROPER PLACEMENT AND COMPACTION OF EMBEDMENT AND BACKFILL.

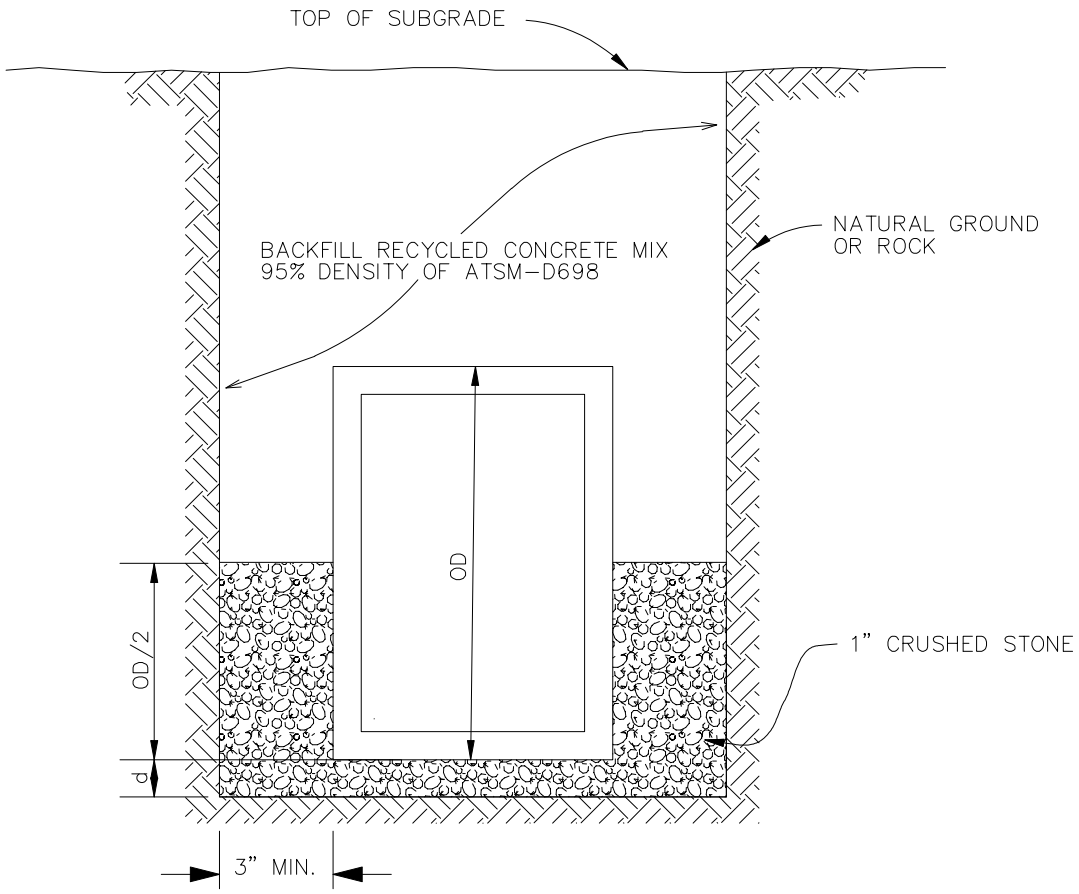
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

RCP STORM SEWER EMBEDMENT

D200

SCALE: N.T.S.
DATE: 10/21/2022
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



d=DEPTH OF BEDDING MATERIAL BELOW BOX.
(6" MIN.)

TRENCH WIDTHS SHOWN ARE MINIMUM FOR PROPER PLACEMENT AND COMPACTION OF EMBEDMENT AND BACKFILL.

UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

RCB STORM SEWER EMBEDMENT

D201

SCALE: N.T.S.
DATE: 10/21/2022
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING

NOTES:

1. REINFORCEMENT, STRUCTURAL STEEL, AND CASTINGS SHALL CONFORM TO THE SPECIFICATIONS.
2. TOP OF INLET SLOPE SHALL CONFORM TO ADJACENT PARKWAY NORMAL $\frac{1}{4}$" / FT. SLOPE.
3. CONCRETE FOR INLET CONSTRUCTION SHALL BE CLASS F, 6 $\frac{1}{2}$" SACK, 4,200 PSI HAND FINISH CONCRETE WHEN USED IN STREETS AND ALLEYS.
4. ALTERNATE PRECAST INLETS MAY BE APPROVED ON AN INDIVIDUAL BASIS. PRECAST INLETS SHALL BE OF EQUAL OR BETTER STRENGTH MATERIAL AND WORKMANSHIP, AND SHALL MEET THE STANDARD DESIGN CRITERIA OF THE CAST-IN-PLACE INLETS SHOWN IN THESE DETAILS.
5. THE INLET FRAME & COVER SHALL BE AT THE SAME END OF INLET AS PIPE LATERAL.
6. DIMENSIONS RELATING TO PLACEMENT OF REINFORCING BARS ARE FROM CENTER TO CENTER OF BARS UNLESS OTHERWISE NOTED. BAR SPLICES ARE PERMISSIBLE IF BARS ARE TIED AND OVERLAPPED 30x DIAMETER WITH 18" MIN.
7. STRUCTURAL EXCAVATION WILL NOT BE A SEPARATE PAY ITEM.
8. CHAMFER ALL EXPOSED EDGES AROUND INLET OPENINGS $\frac{3}{4}$".
9. PROVIDE STREET JOINTS AS SHOWN FOR INTEGRAL CONCRETE PAVEMENT.
10. INCLUDE IN UNIT BID PRICE FOR ALL INLETS COMPLETE IN PLACE, ALL ITEMS, INCLUDING EXCAVATION AND VARIABLE HEIGHT CURB.

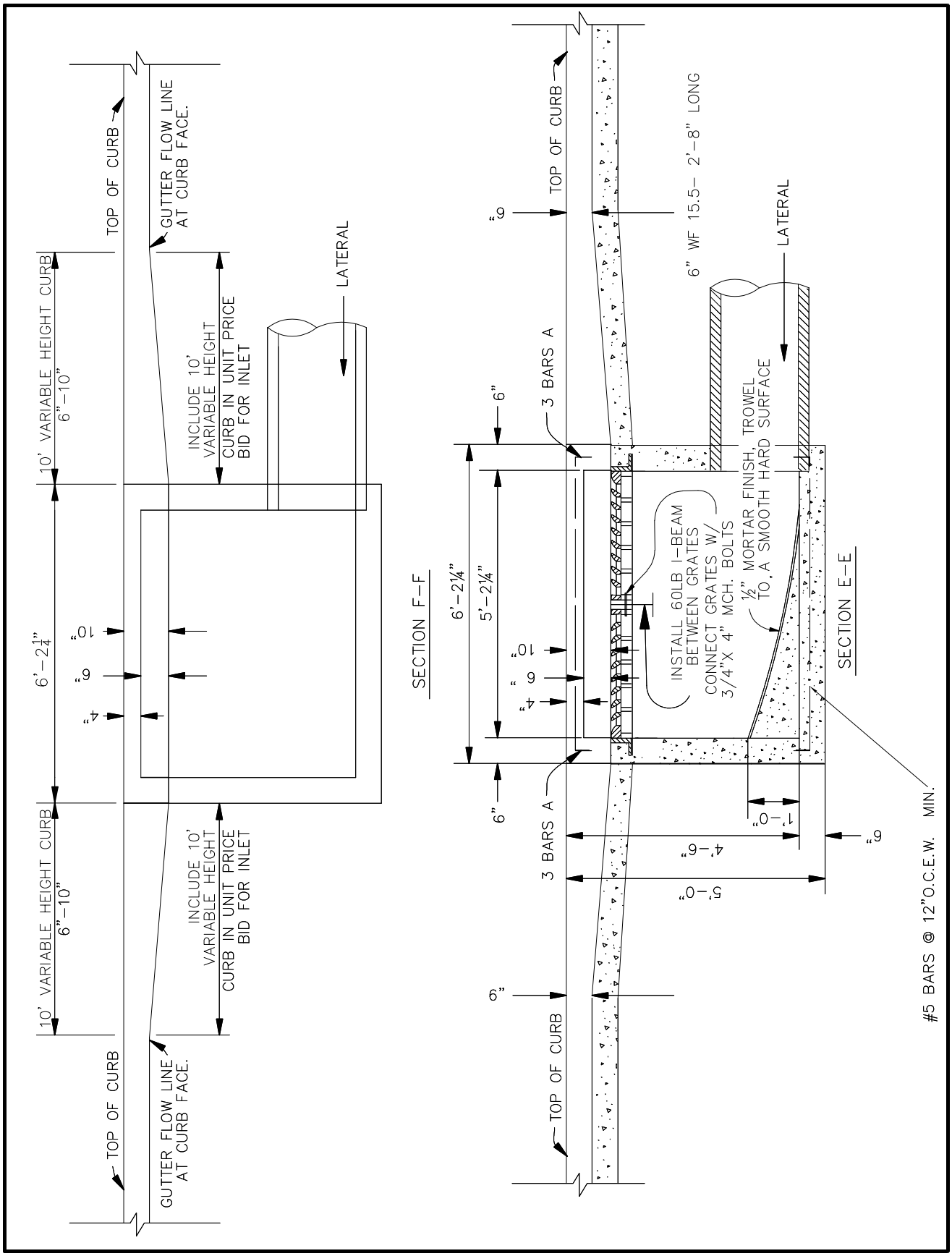
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

COMBINATION DOUBLE GRATE INLET PLAN VIEW

D301

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

COMBINATION DOUBLE GRATE INLET
SECTIONS E-E, F-F

D302

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING

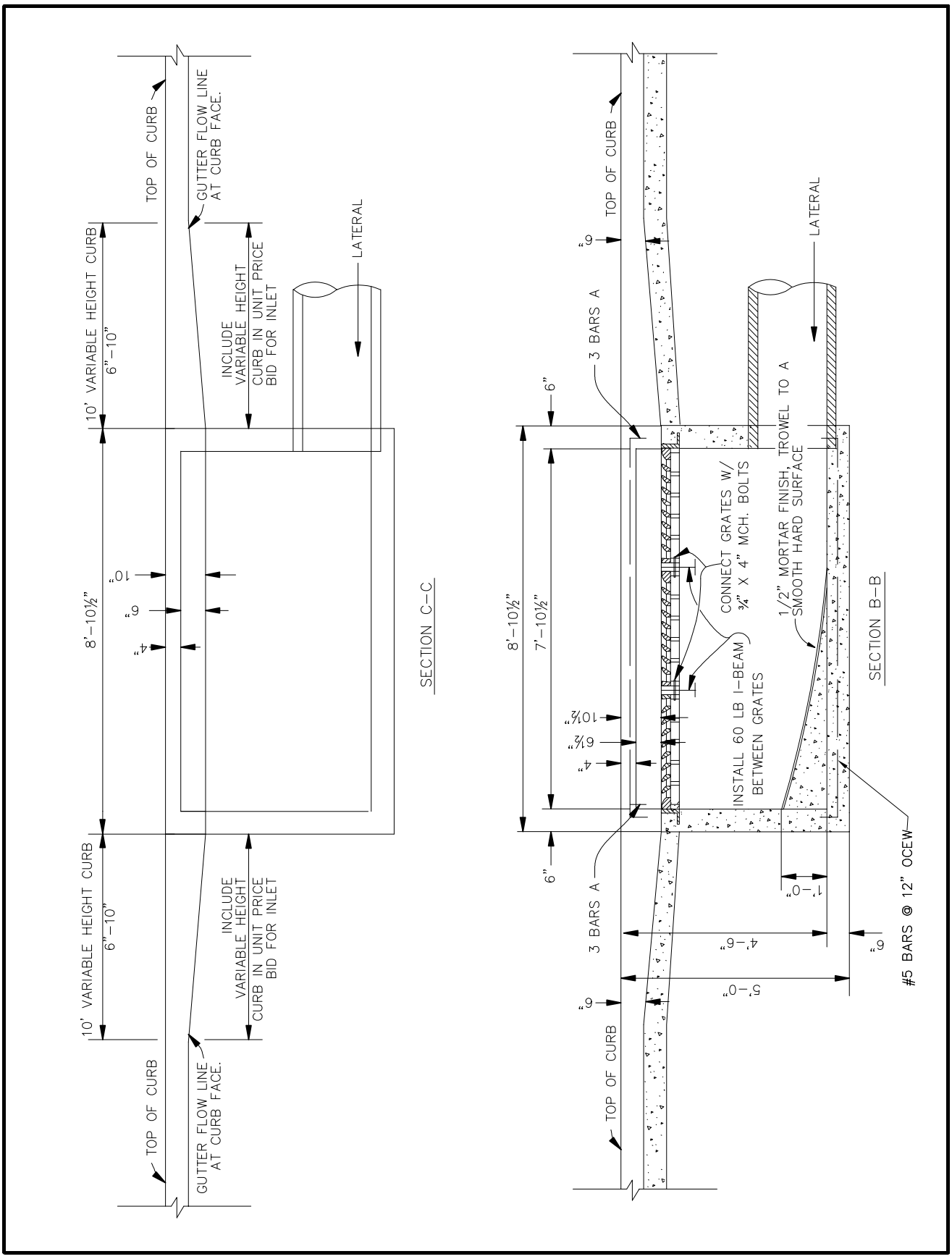
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

COMBINATION TRIPLE GRATE INLET
PLAN VIEW

D303

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



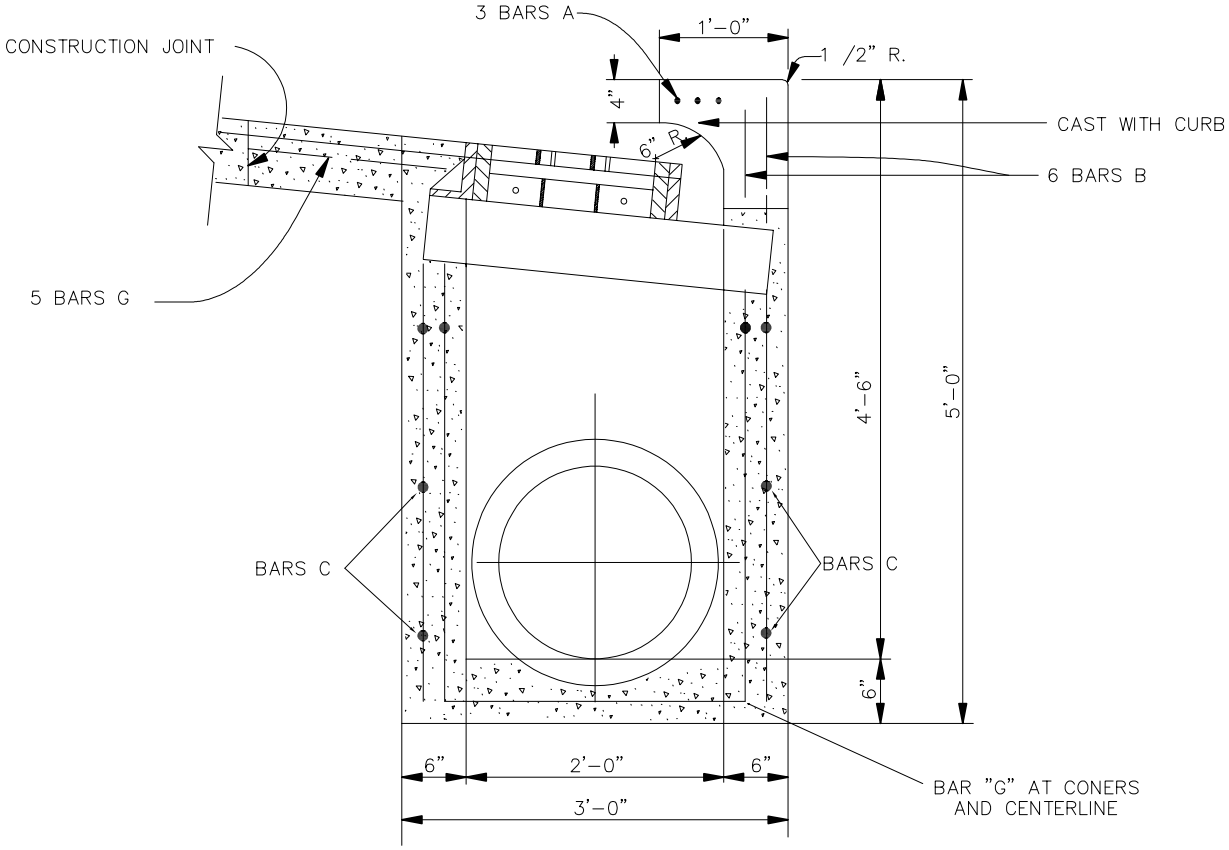
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

COMBINATION TRIPLE GRATE INLET
SECTIONS B-B & C-C

D304

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



SECTION A-A

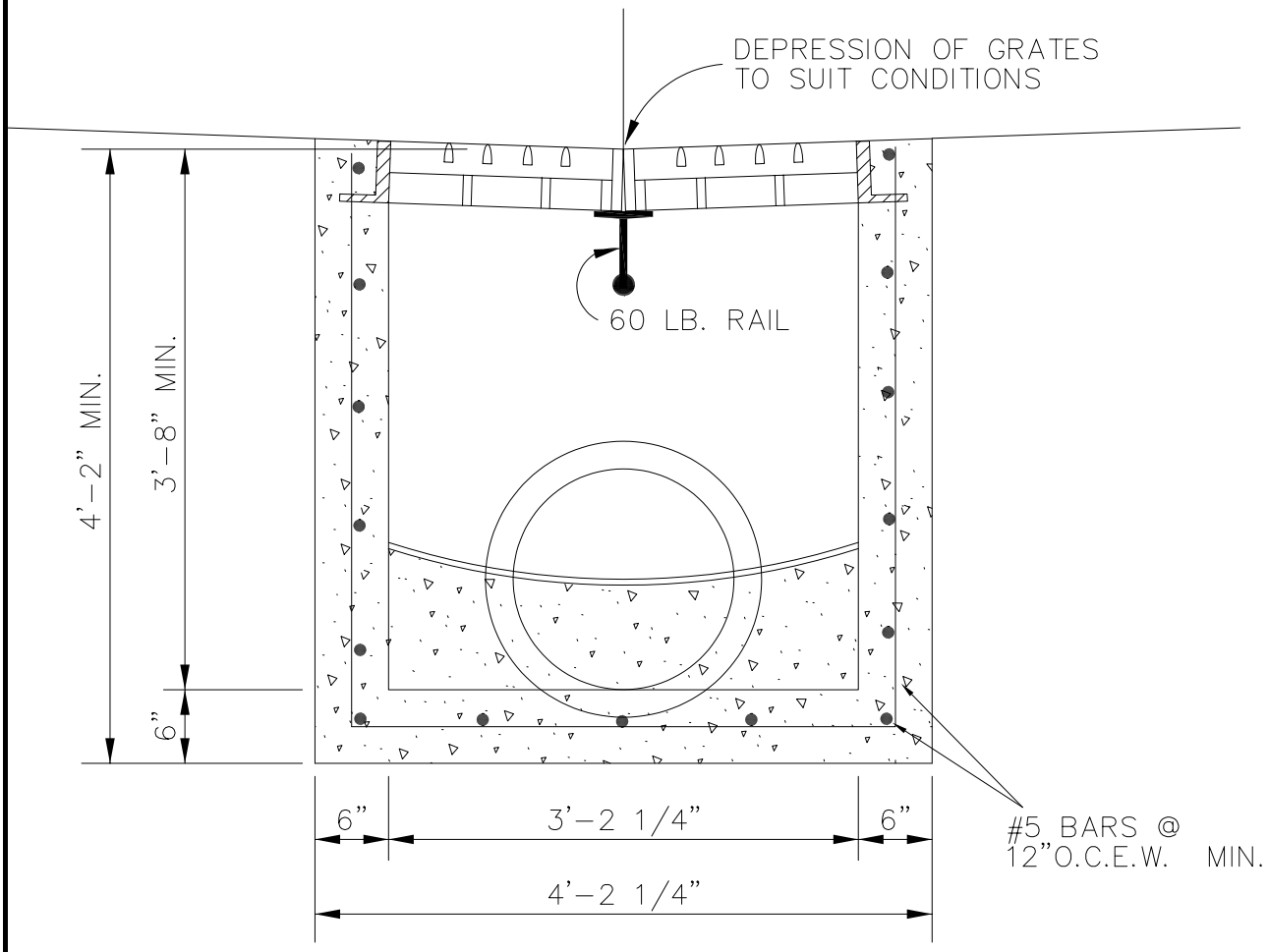
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

COMBINATION DOUBLE/TRIPLE GRATE INLET SECTION A-A

D305

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



SECTION A-A

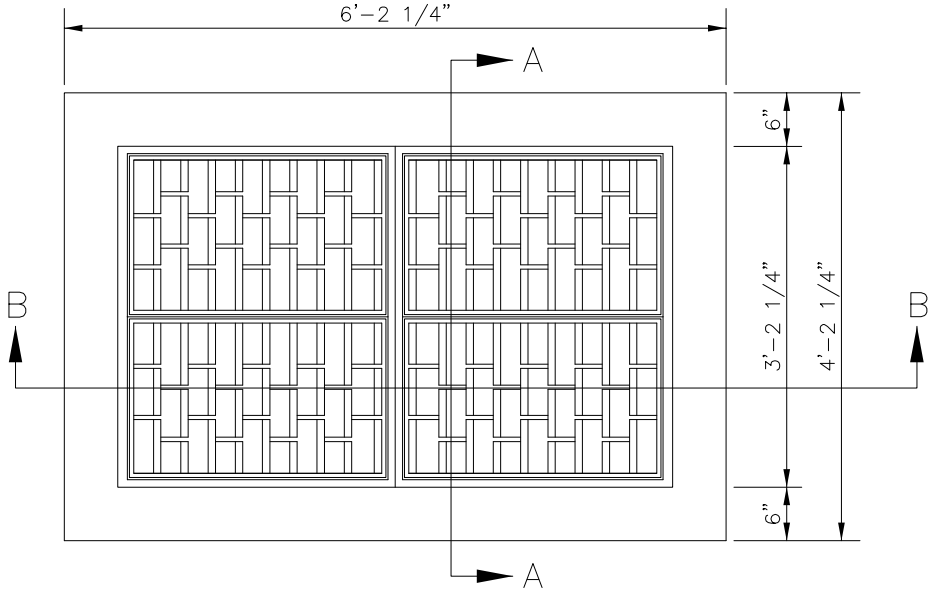
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

GRATE INLET
SECTION A-A

D401

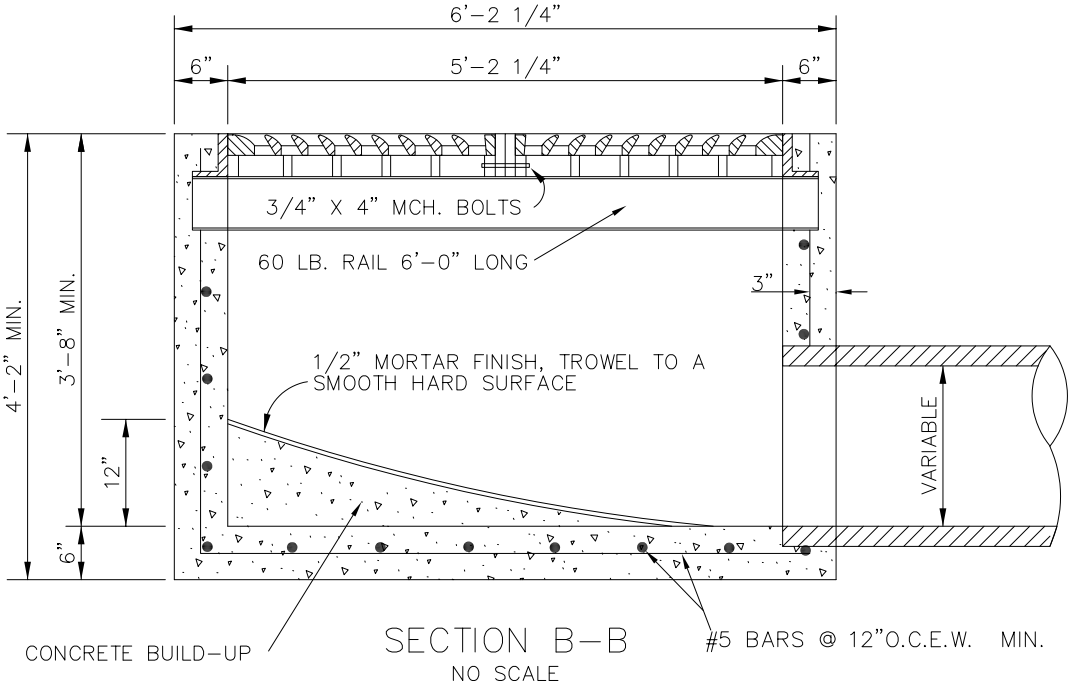
SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



PLAN VIEW

FOUR GRATE INLET

NO SCALE



SECTION B-B

NO SCALE

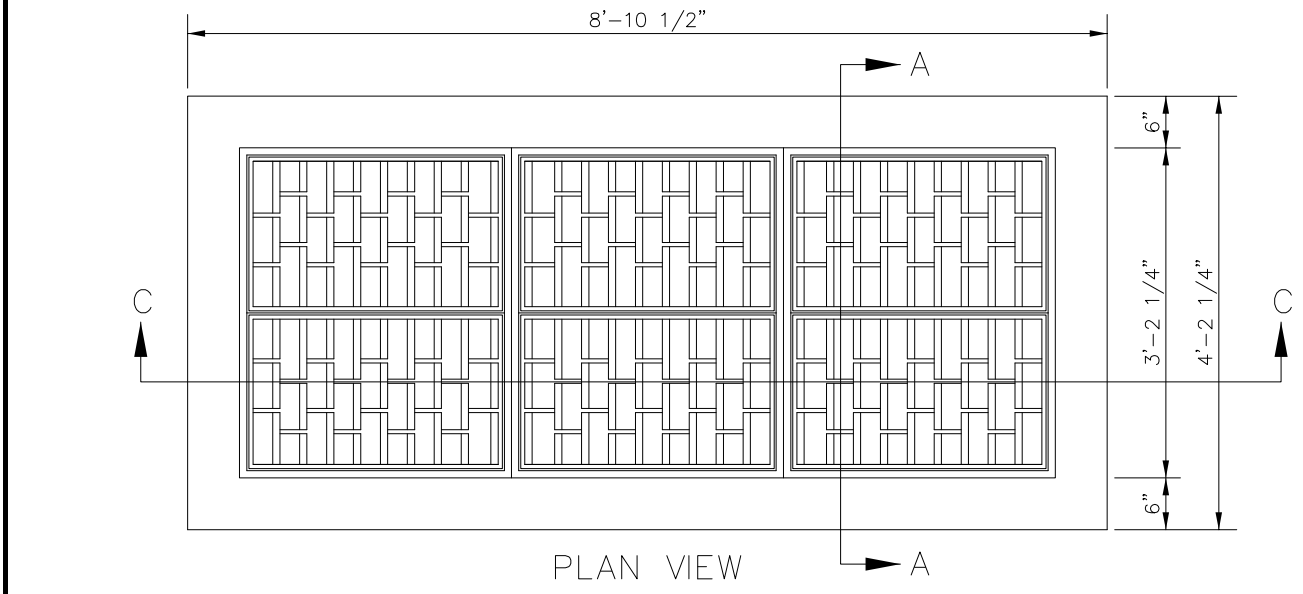
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

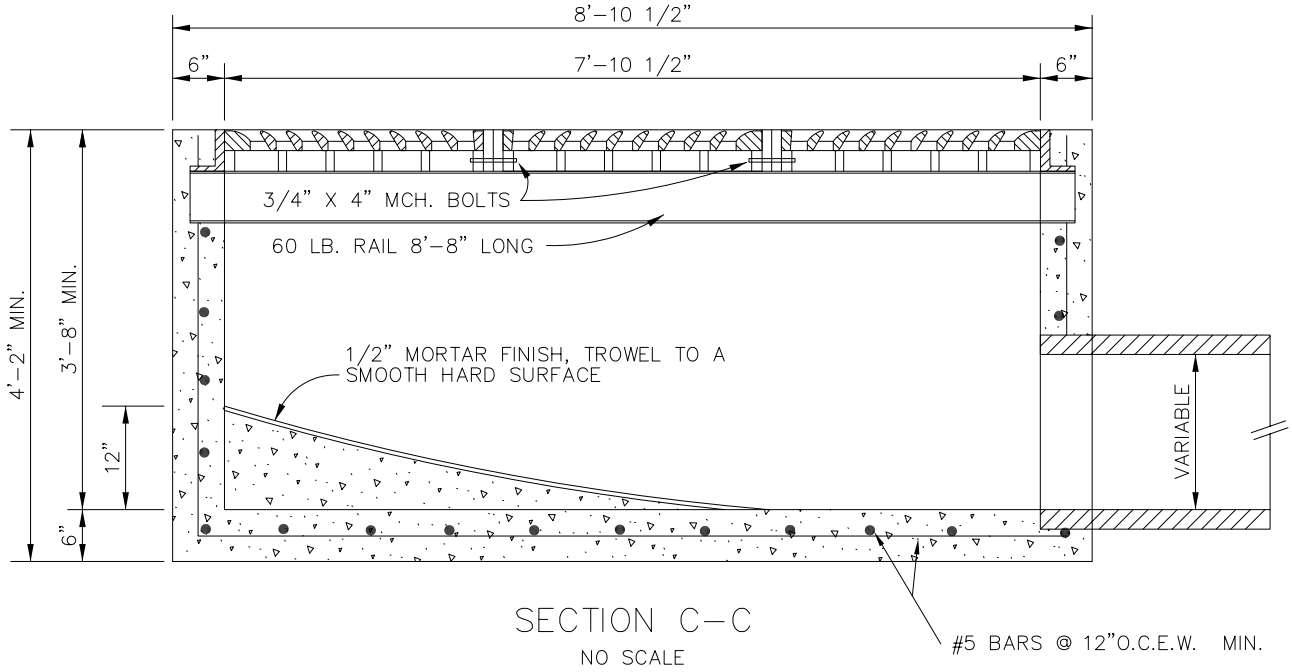
FOUR GRATE INLET
PLAN & SECTION B-B

D402

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



PLAN VIEW



SECTION C–C

NO SCALE

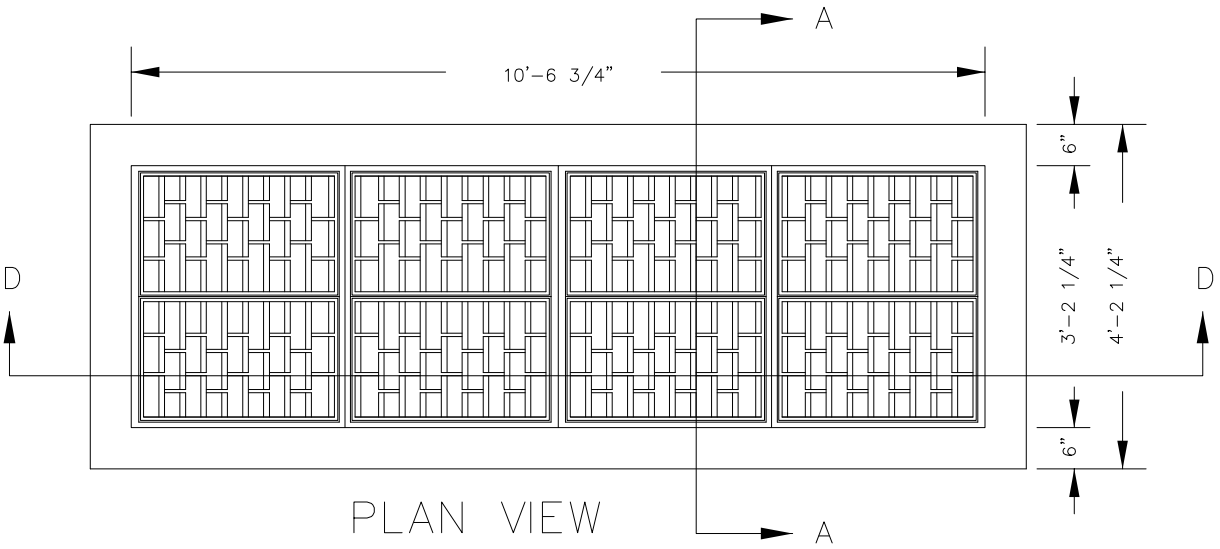
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

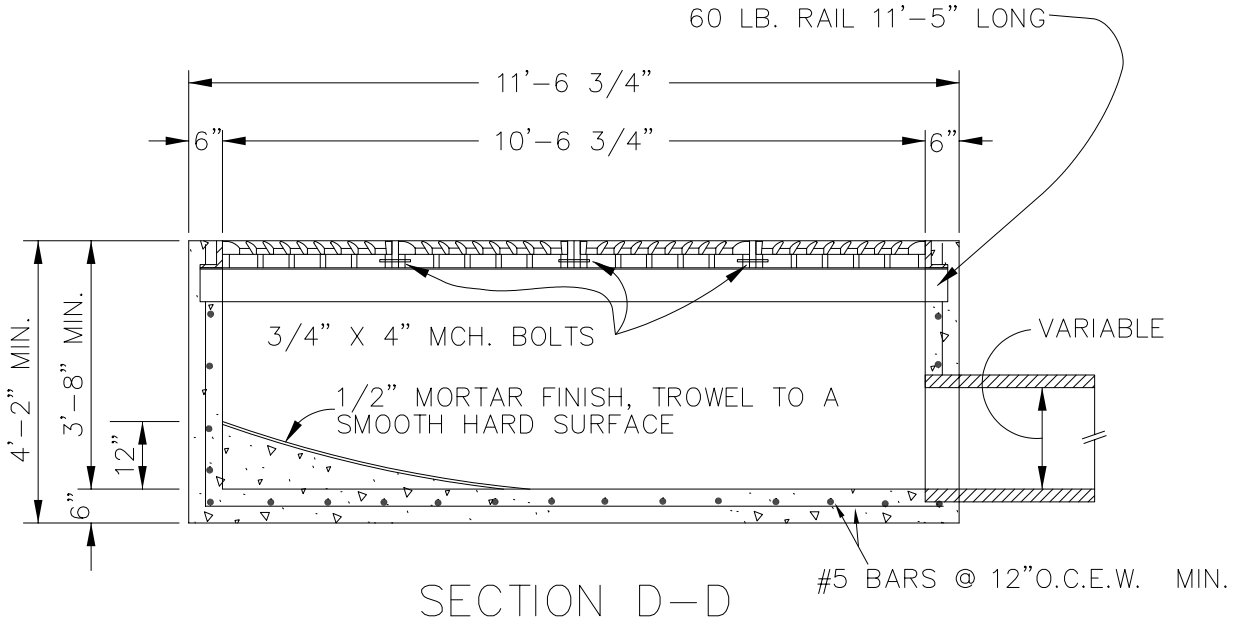
SIX GRATE INLET
PLAN & SECTION C-C

D403

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



PLAN VIEW



SECTION D-D

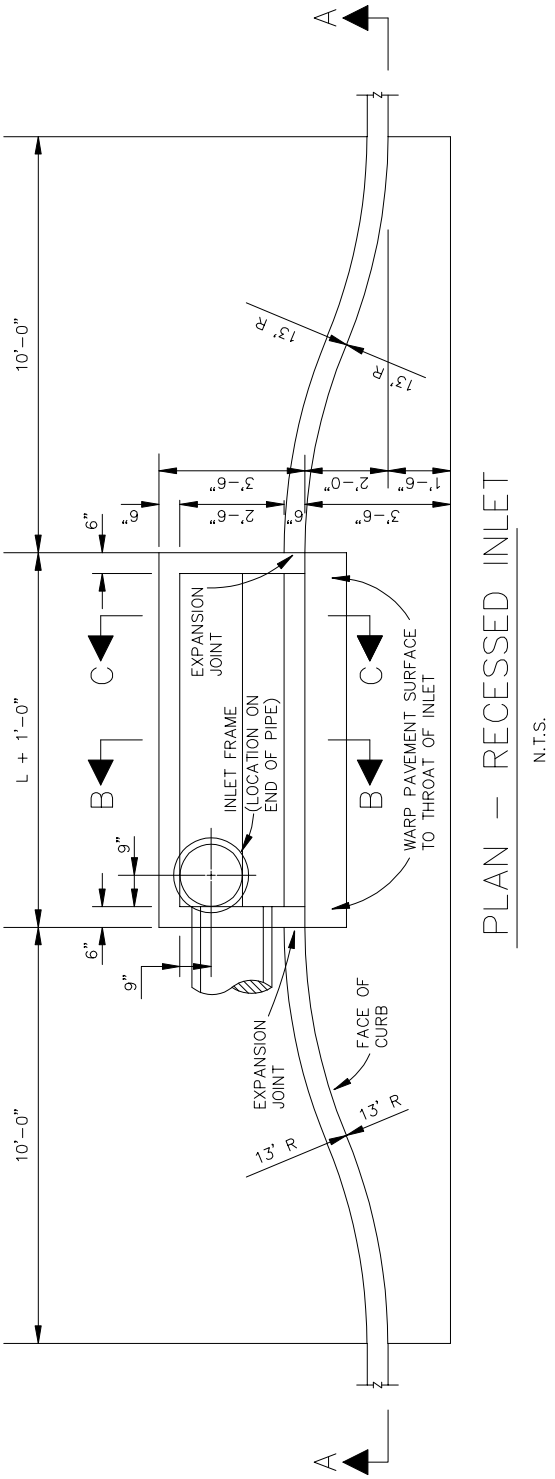
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

EIGHT GRATE INLET
PLAN & SECTION D-D

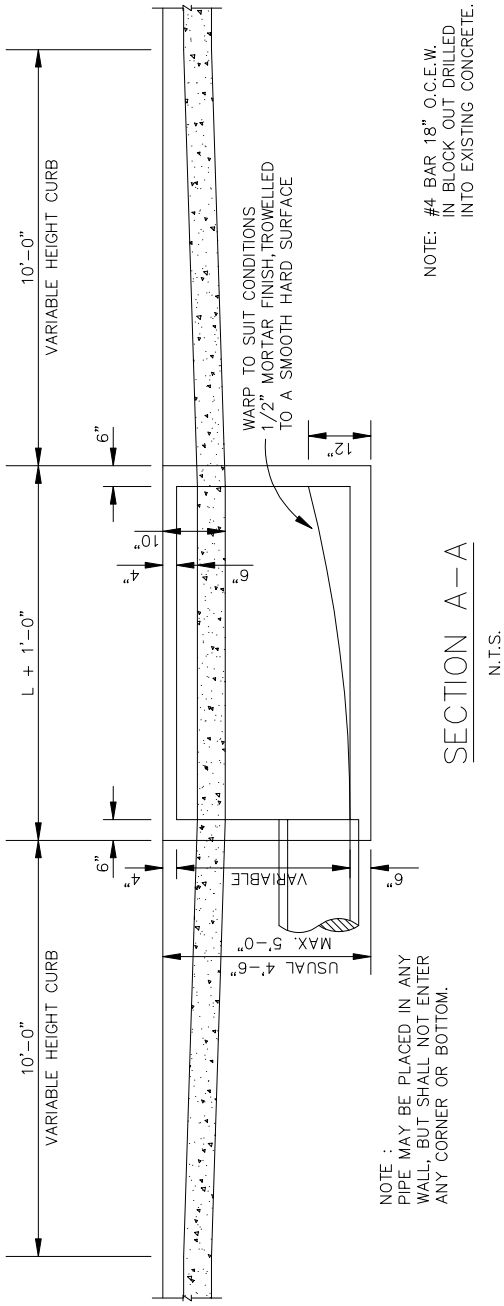
D404

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



PLAN – RECESSED INLET

N.T.S.



SECTION A–A

N.T.S.

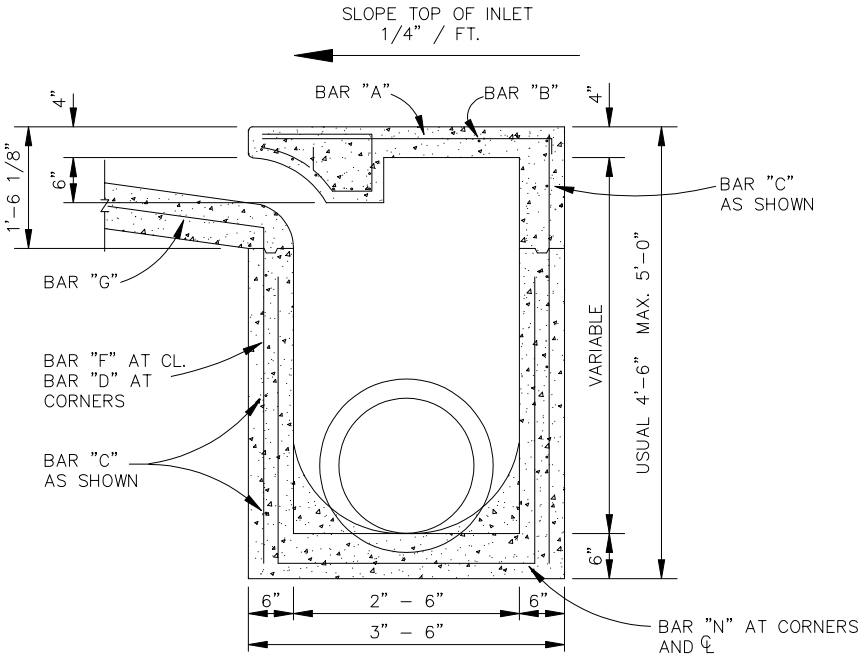
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

RECESSED CURB INLETS
4, 6, 8, AND 10 FOOT INLETS

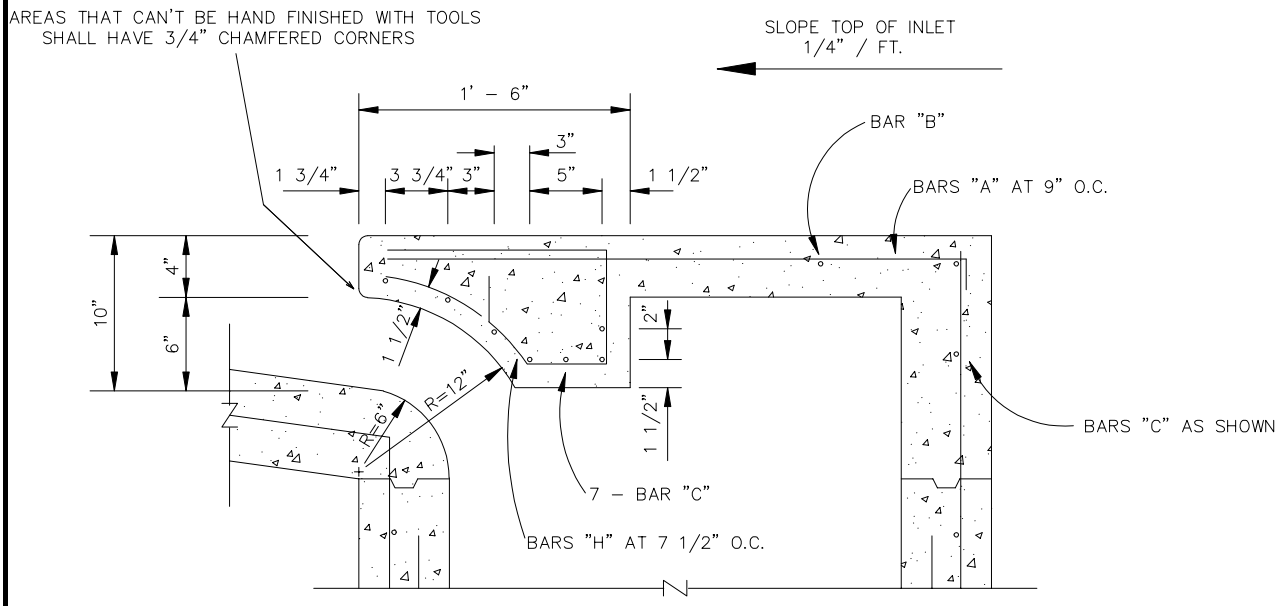
D501

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



SECTION B-B

N.T.S.



SECTION C-C

N.T.S.

UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

RECESSED CURB INLETS
4, 6, 8, AND 10 FOOT INLETS

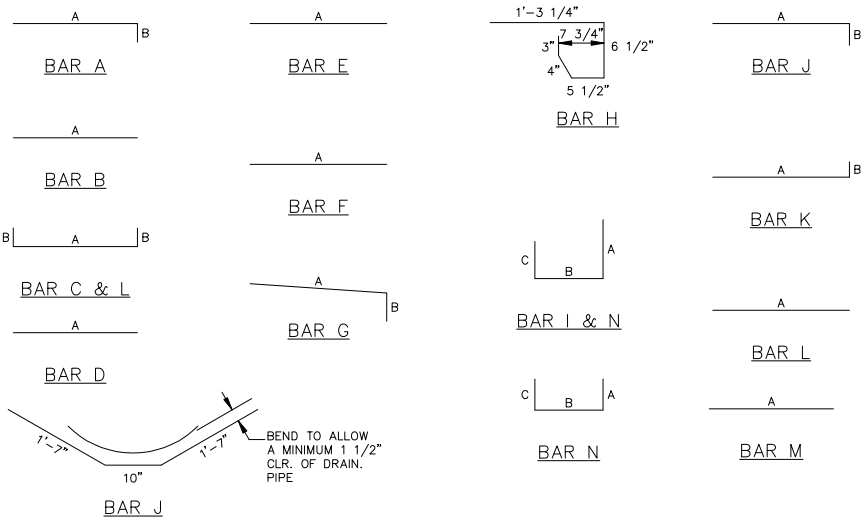
D502

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING

REINFORCING STEEL SCHEDULE

DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLET

INLET LENGTH	BAR TYPE	BAR DIA. (1/8")	NO. REQ'D.	BAR DIMENSIONS		
				A	B	C
4'	A	3	6	3'–2"	0'–3"	_
	B	3	1	2'–10"	_	_
	C	4	15	4'–8"	0'–6"	_
	D	4	5	4'–8"	_	_
	F	4	1	3'–2"	_	_
	G	3	5	2'–0"	1'–3"	_
	H	3	3	*	*	*
	N	3	3	3'–2"	3'–2"	3'–2"
6'	A	3	9	3'–2"	0'–3"	_
	B	3	1	4'–10"	_	_
	C	4	15	6'–8"	0'–6"	_
	D	4	5	4'–8"	_	_
	F	4	1	3'–2"	_	_
	G	3	5	2'–0"	1'–3"	_
	H	3	3	*	*	*
	N	3	3	3'–2"	3'–2"	3'–2"
8'	A	3	12	3'–2"	0'–3"	_
	B	3	1	6'–10"	_	_
	C	4	15	8'–8"	0'–6"	_
	D	4	5	4'–8"	_	_
	F	4	1	3'–2"	_	_
	G	3	5	2'–0"	1'–3"	_
	H	3	4	*	*	*
	N	3	3	3'–2"	3'–2"	3'–2"
10"	A	3	10	3'–2"	0'–3"	_
	B	3	2	8'–10"	_	_
	C	4	16	10'–8"	0'–6"	_
	D	4	4	4'–8"	_	_
	E	5	6	10'–8"	_	_
	G	3	5	2'–0"	1'–3"	_
	H	3	15	*	*	*
	I	4	8	4'–8"	3'–2"	3'–2"
	L	4	5	4'–3"	_	_



BAR DIAGRAMS

N.T.S.

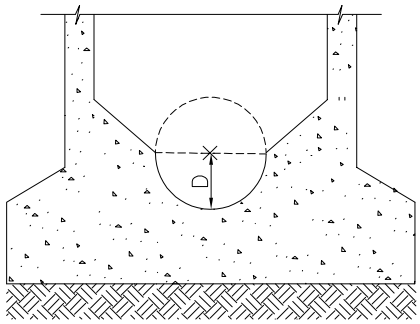
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
STORM SEWER DETAILS

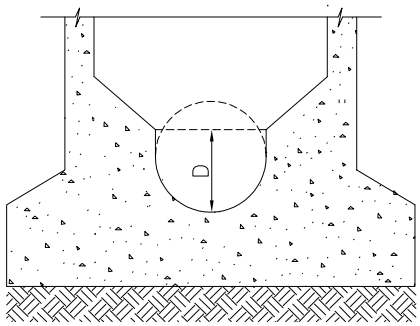
REINFORCING STEEL SCHEDULE & BAR DIAGRAM

D503

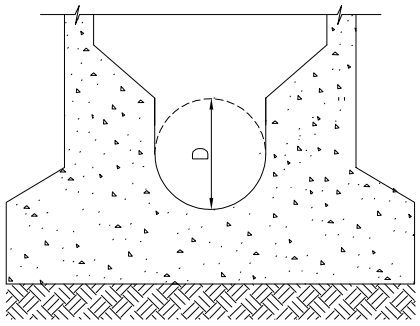
SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



PIPES W/DIAMETER OF LESS THAN 15"
D= DISTANCE OF ½ DIAMETER OF LARGEST PIPE.



PIPES W/DIAMETER OF 15"–24"
D= DISTANCE OF 3/4 DIAMETER OF LARGEST PIPE.



PIPES W/DIAMETER GREATER THAN 24"
D= DISTANCE OF FULL DIAMETER OF LARGEST PIPE.

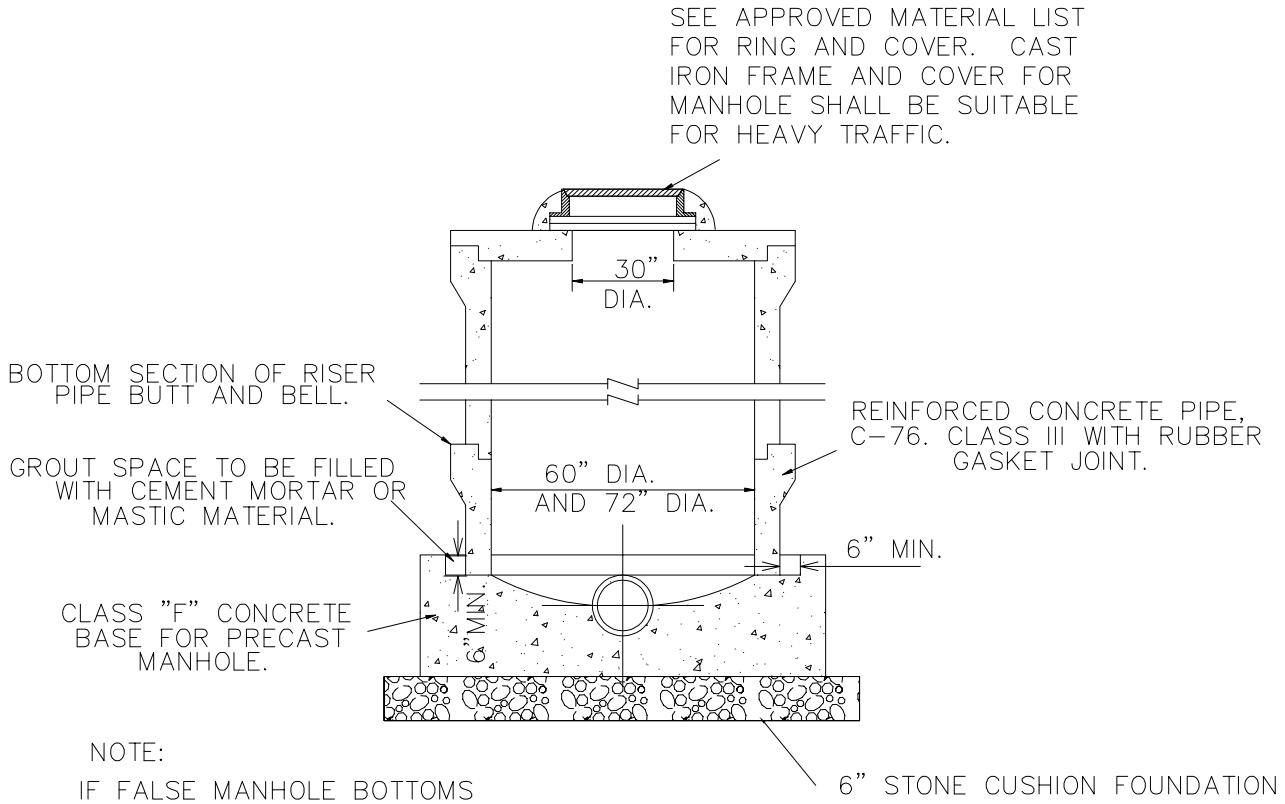
NOTE: BENCH SHALL HAVE ½" PER FT. MIN. SLOPE.

UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS
MANHOLE INVERT DEPTH

S100

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



PRECAST CONCRETE
FLAT TOP MANHOLE
NTS

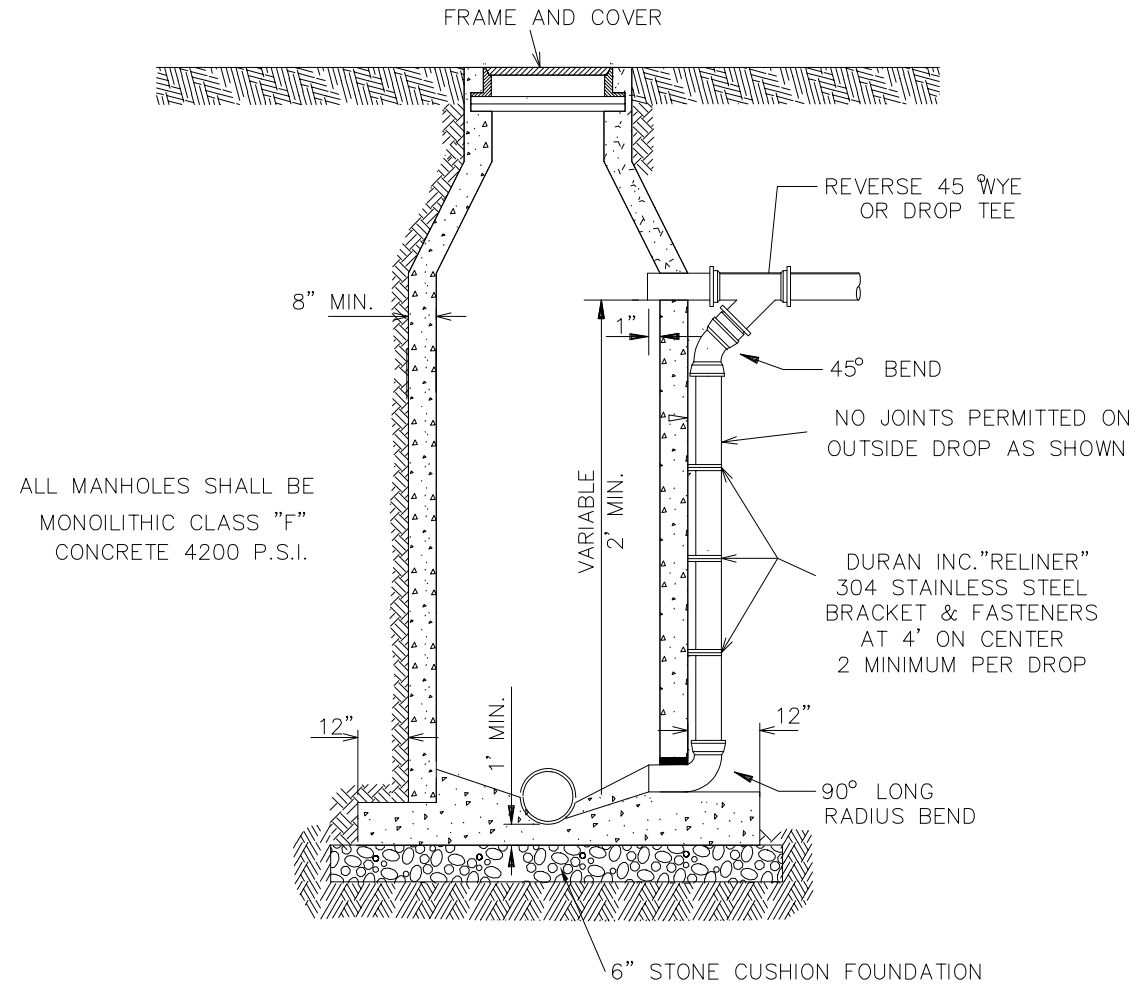
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS

PRECAST CONCRETE FLAT TOP MANHOLE

S101

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



CAST–IN–PLACE NOTES:

1. CONCRETE SHALL BE A MONOLITHIC POUR.

2. DROP MANHOLES SHALL BE INSTALLED WHEN THE INFLOW AND OUTFALL ELEVATIONS DIFFER BY 18" OR MORE.

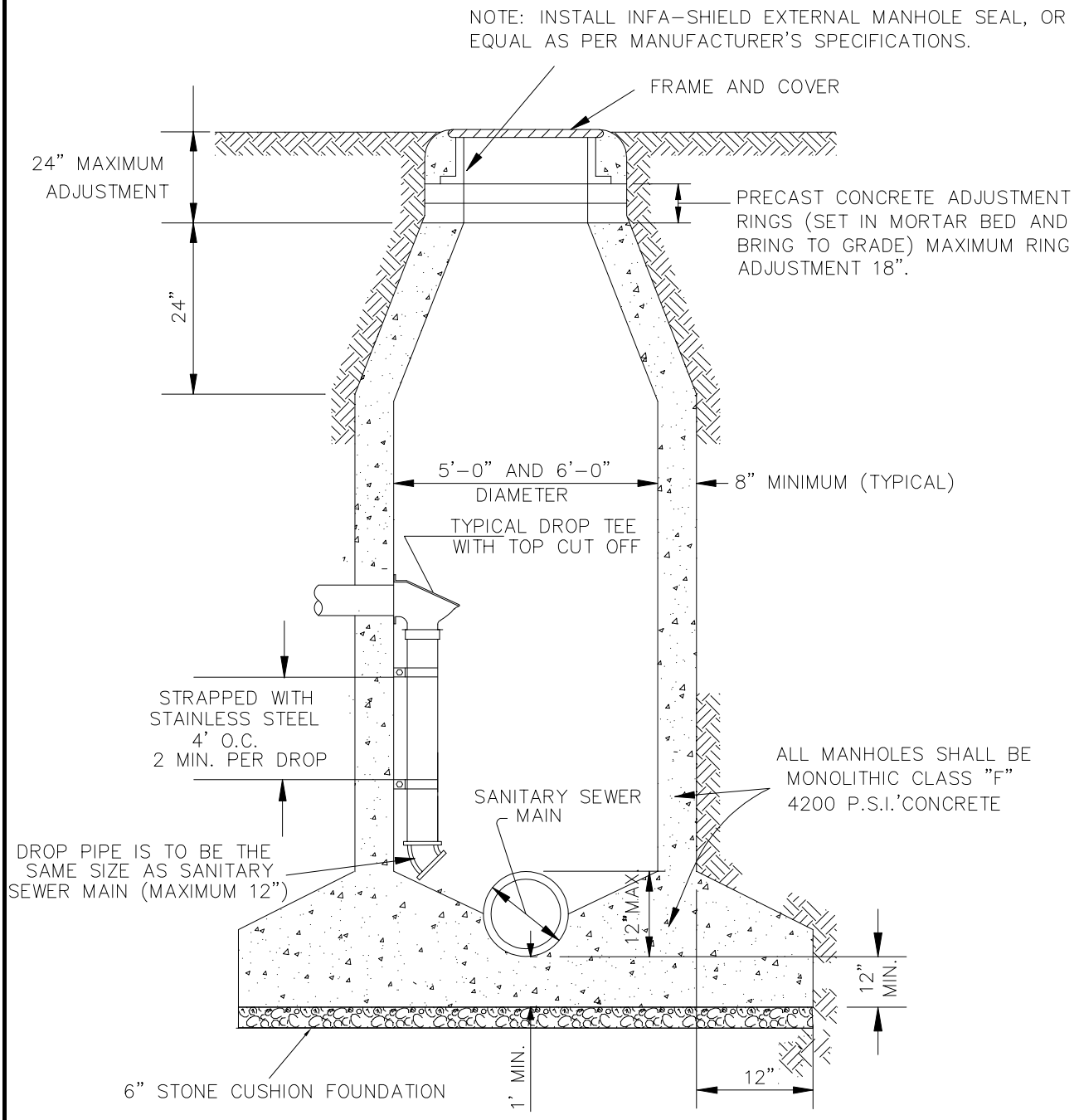
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS

4' OUTSIDE DROP MANHOLE

S102

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



CAST-IN-PLACE NOTES:

1. CONCRETE SHALL BE A MONOLITHIC POUR.
2. DROP MANHOLES SHALL BE INSTALLED WHEN THE INFLOW AND OUTFALL ELEVATIONS DIFFER BY 24" OR MORE.
3. SEE SHEET S104 DURAN INC."RELINER" DETAIL FOR PIPING AND FITTINGS INFORMATION.

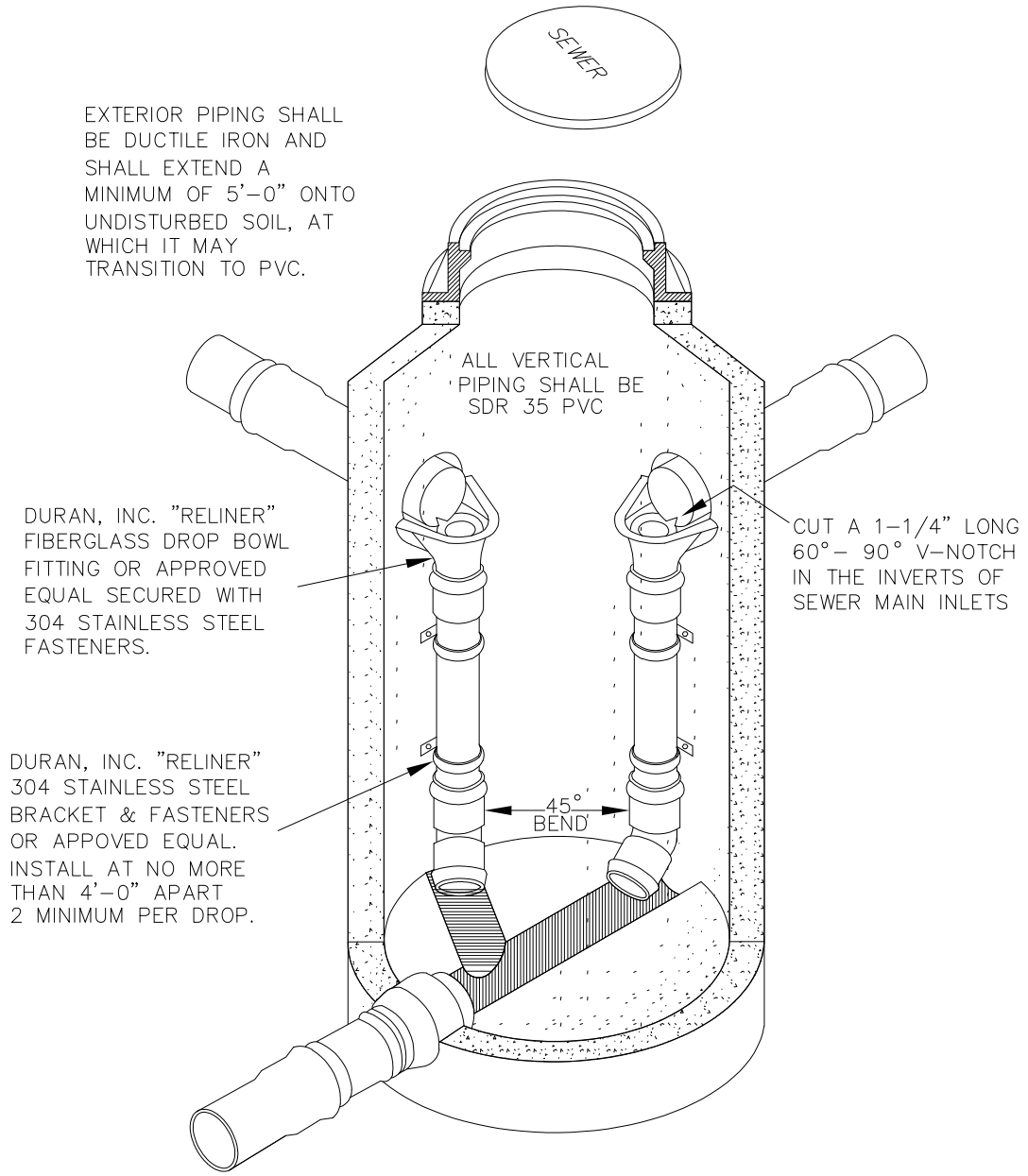
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS

5' & 6' INSIDE DROP MANHOLE

S103

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



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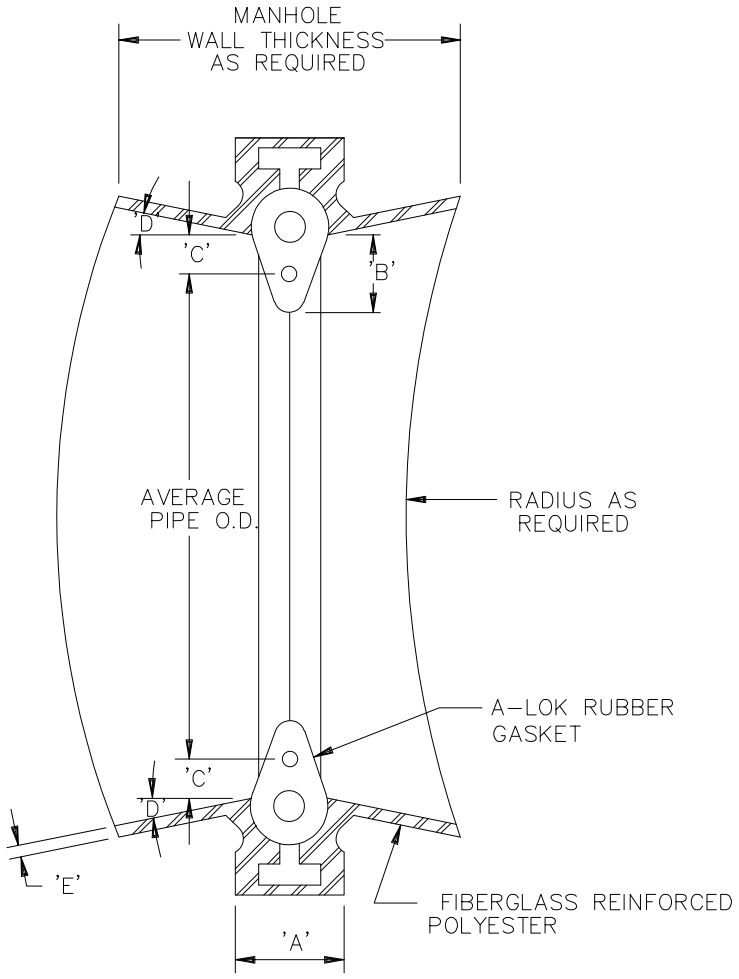
GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS

DROP BOWL CONNECTION FOR STANDARD MANHOLE

S104

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF PUBLIC WORKS/ENGINEERING



DIMENSION FOR MANHOLE PIPE CONNECTOR A.S.T.M. C-923

PIPE SIZE	'A'	'B'	'C'	'D'	'E'
4"-6"	1 1/2"	7/8"	3/8"	10°	0.10+/-
8"-16"	2 1/8"	1 3/8"	5/8"	10°	0.10+/-

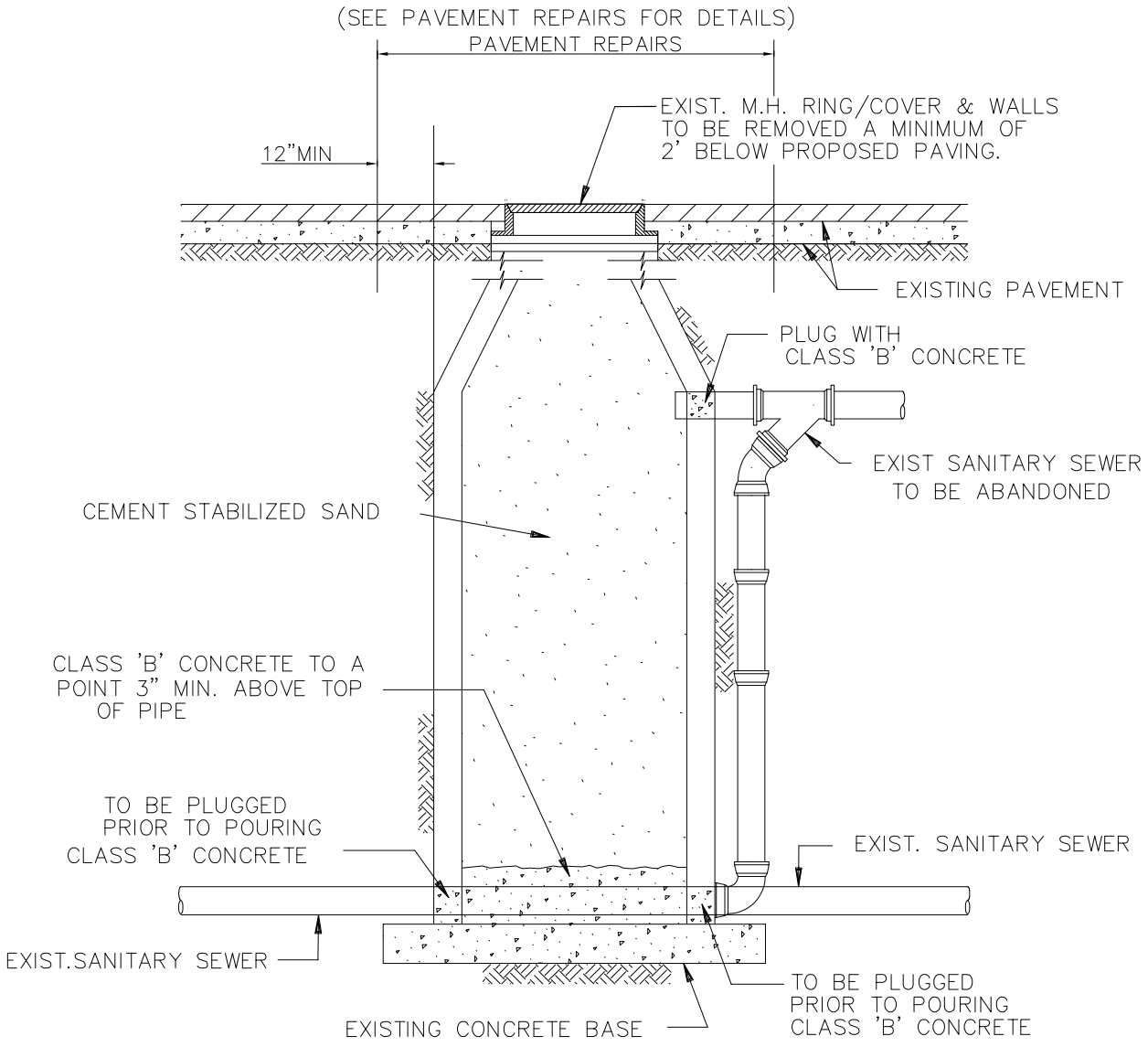
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS

A-LOCK MANHOLE PIPE CONNECTOR FOR ALL MANHOLE CONNECTIONS

S105

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



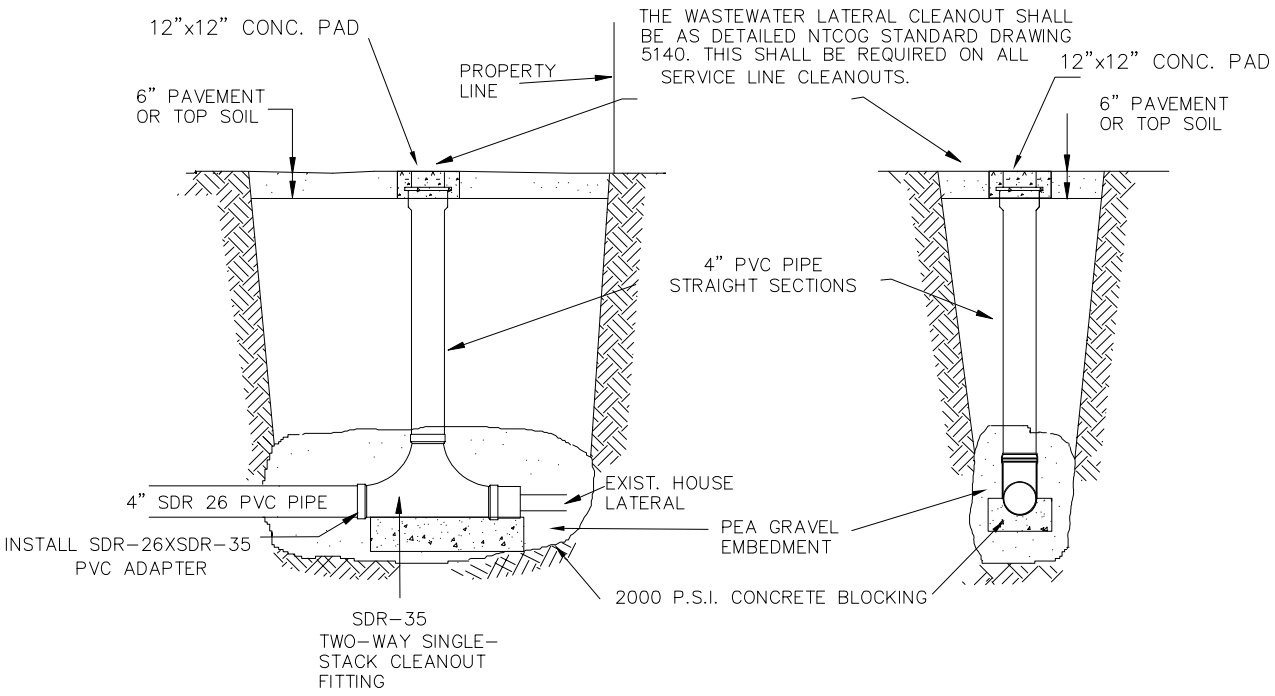
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS

ABANDONMENT OF EXISTING MANHOLE IN PAVEMENT

S106

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



CLEANOUTS TO BE LOCATED AS NEAR ALLEY RIGHT-OF-WAY AS PHYSICALLY POSSIBLE

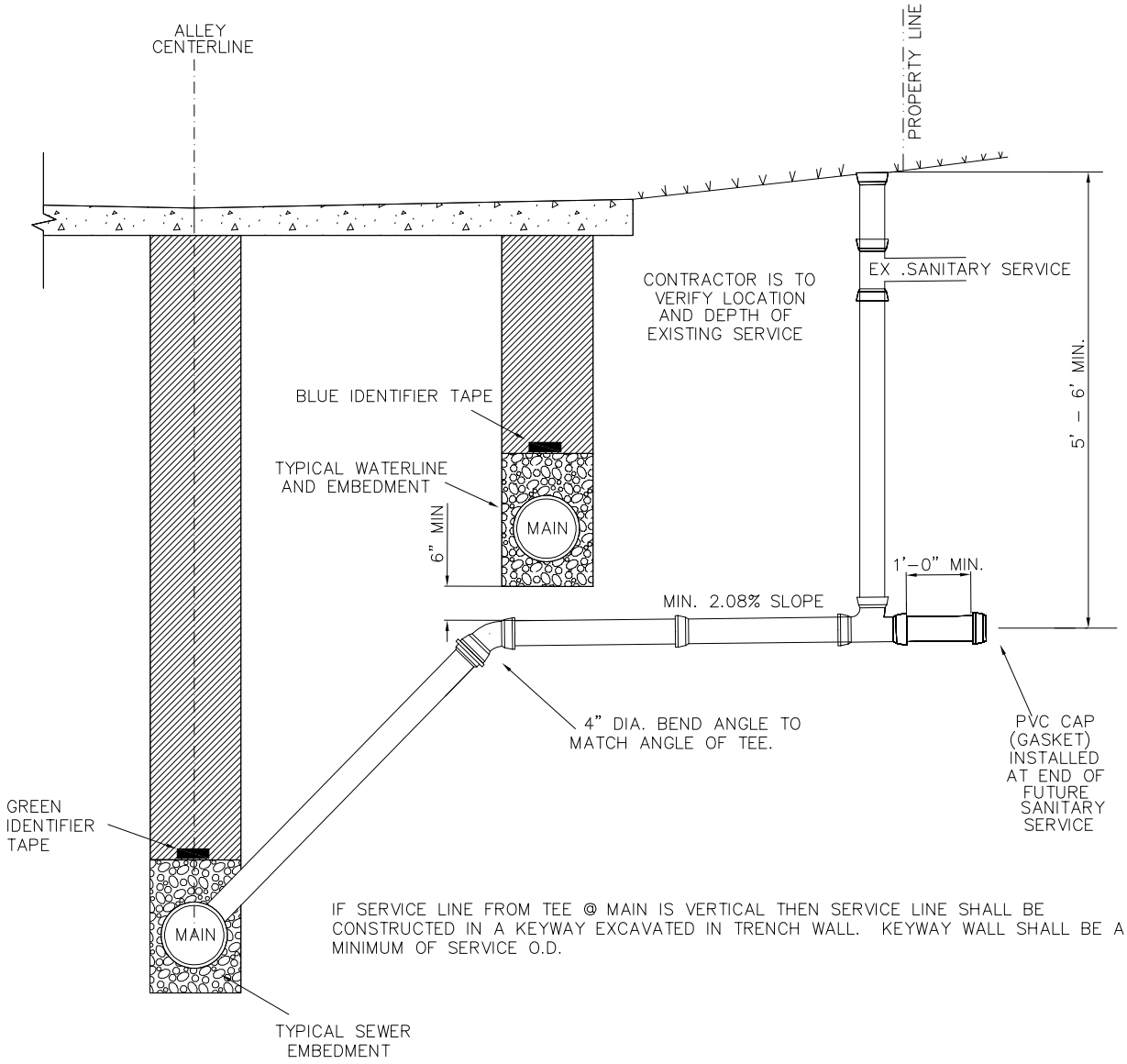
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS

TWO-WAY SINGLE STACK CLEAN OUT

S200

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF PUBLIC WORKS/ENGINEERING



NOTE:

FOR ADDITIONAL REQUIREMENTS
SEE OTHER GENERAL
CONSTRUCTION STANDARDS

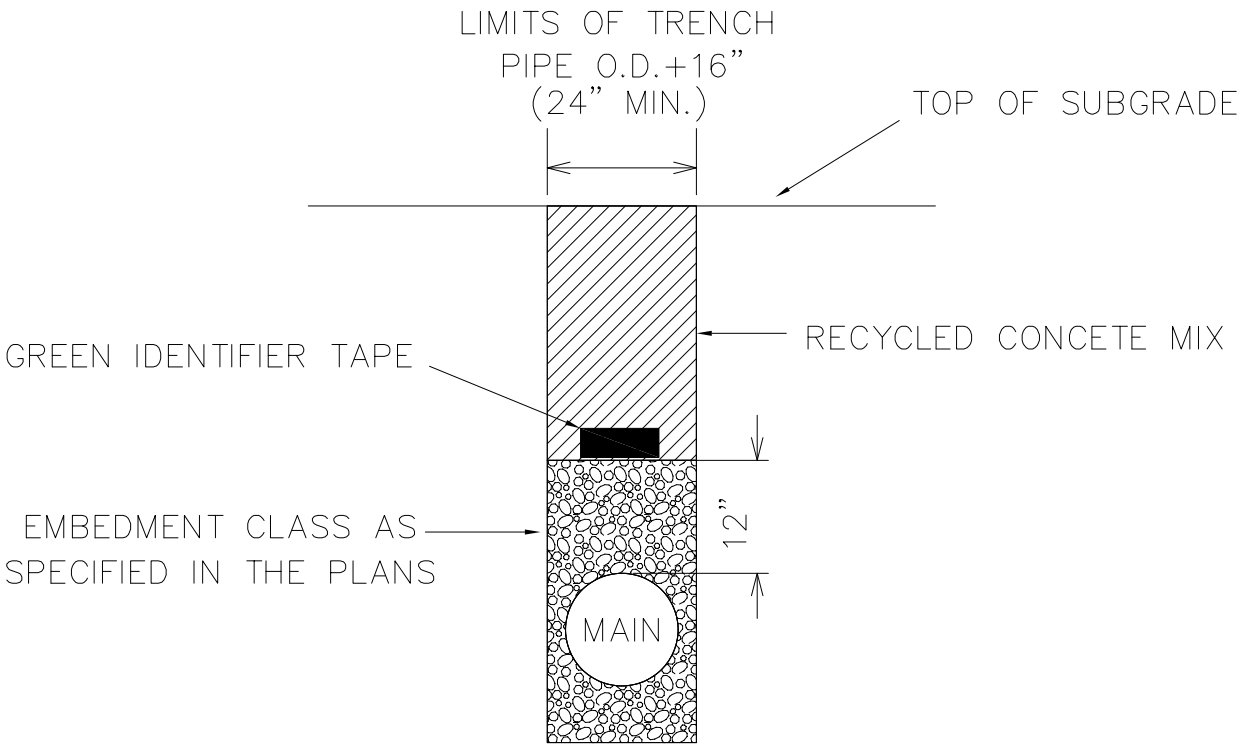
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS

SANITARY SEWER LATERAL

S300

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



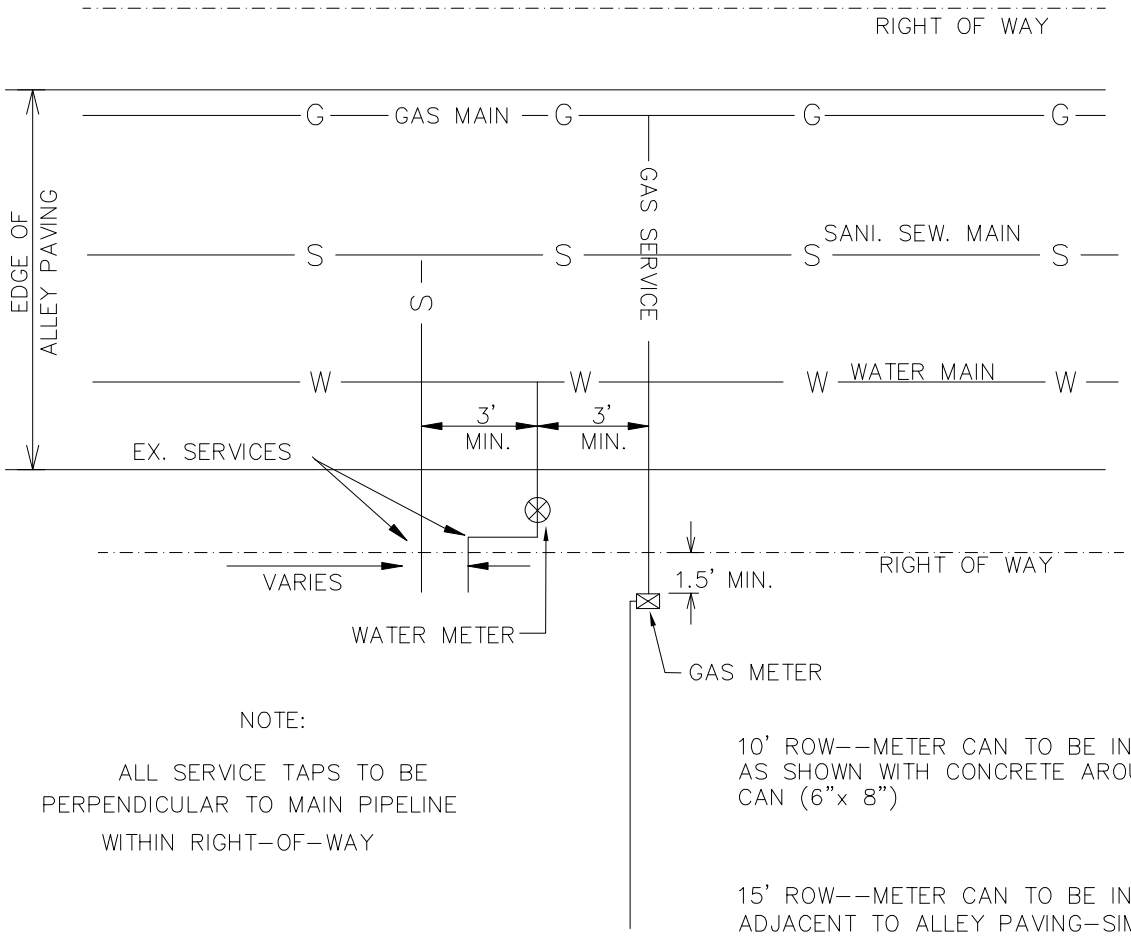
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
SANITARY SEWER DETAILS

TYPICAL SEWER EMBEDMENT

S400

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



NOTE:

ALL SERVICE TAPS TO BE PERPENDICULAR TO MAIN PIPELINE WITHIN RIGHT-OF-WAY

10' ROW--METER CAN TO BE INSTALLED AS SHOWN WITH CONCRETE AROUND METER CAN (6"x 8")

15' ROW--METER CAN TO BE INSTALLED ADJACENT TO ALLEY PAVING-SIMILAR TO DETAIL W400

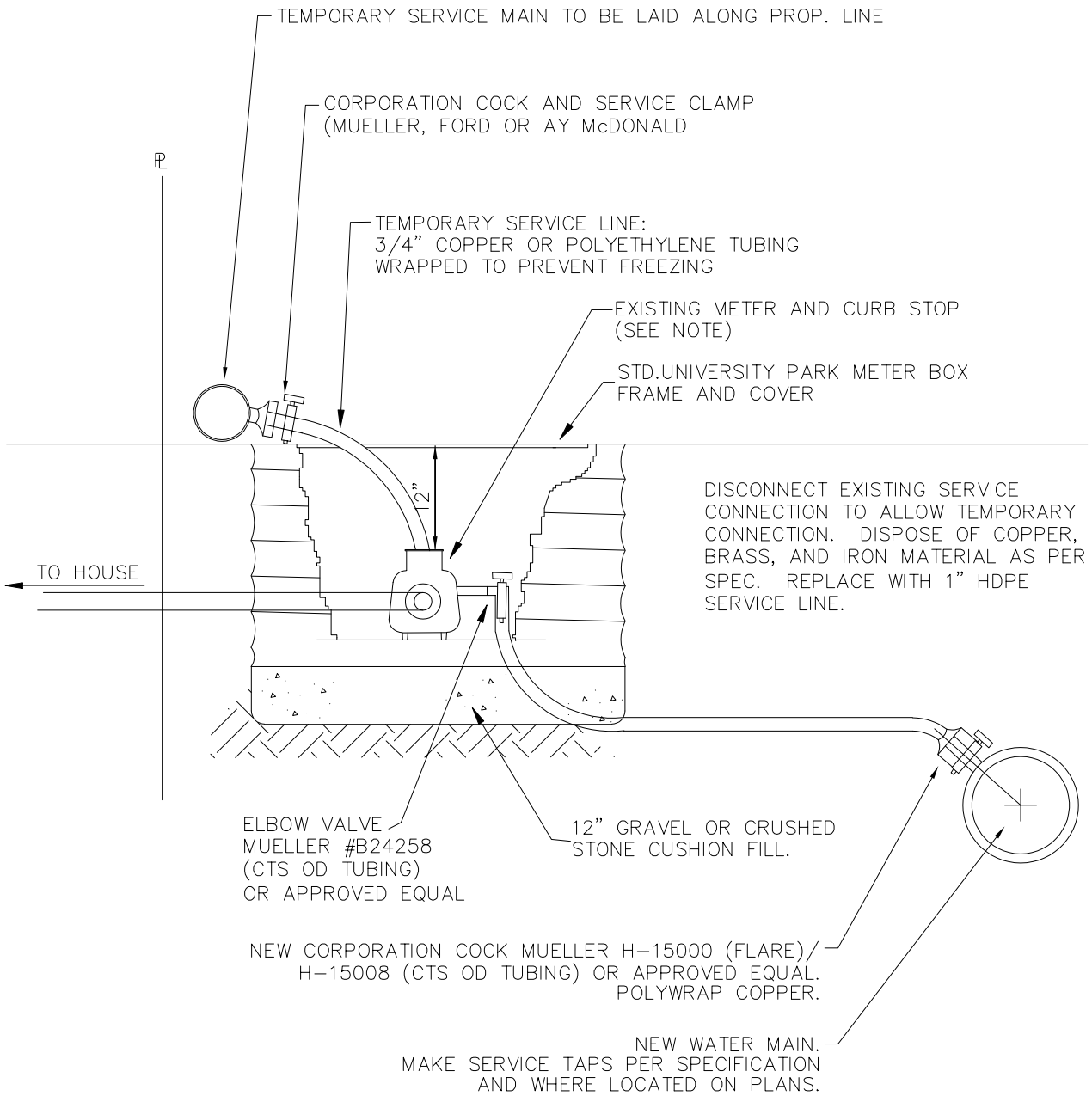
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
WATER DETAILS

WATER METER RELOCATION

W100

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



NOTES:

1. DURING INCLEMENT WEATHER, CONTRACTOR TO PROTECT SERVICE, CORP METERS AND TEMPORARY WATER MAIN WITH PIPE WRAP, HAY, AND ACTIVE RUNNING SERVICE FOR THE MAIN.
2. WATER METER WILL BE RELOCATED AS CLOSE TO THE PROPERTY LINE AS POSSIBLE. CONTRACTOR WILL FURNISH SUCH ADDED ANGLE CONNECTIONS AS REQUIRED FOR THIS CONNECTION.
3. DIELECTRIC COUPLING: EACH WATER METER, WHEN INSTALLED IN ITS PERMANENT LOCATION, SHALL BE ELECTRICALLY ISOLATED FROM THE CUSTOMERS SERVICE LINE BY INSERTION OF AN APPROVED DIELECTRIC NYLON BUSHING ON THE CUSTOMER'S SIDE OF THE METER.

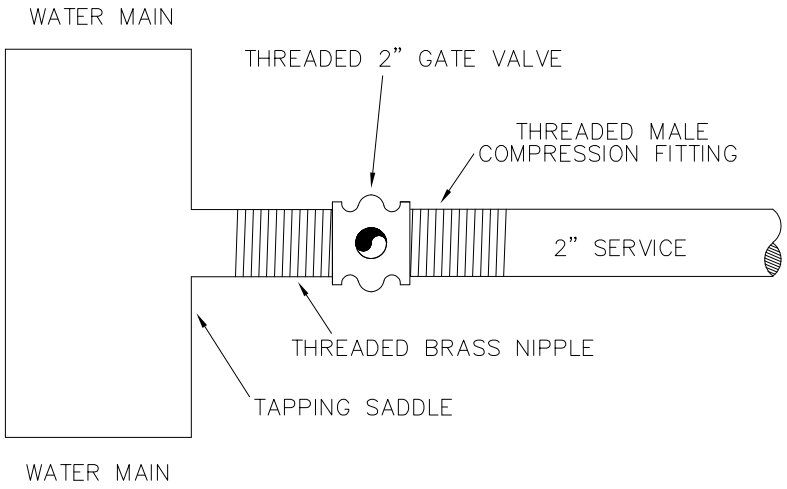
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
WATER DETAILS

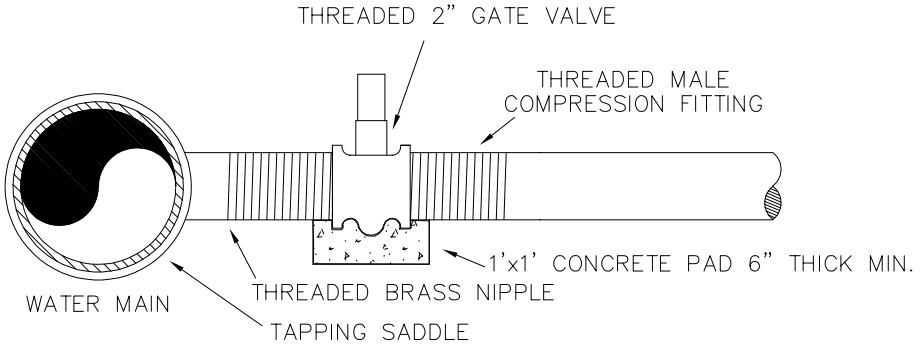
TYPICAL SERVICE CONNECTION W/ TEMP. WATER CONNECTION

W201

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



TOP VIEW



SIDE VIEW

***SERVICE W/ 2" GATE VALVE FOR CITY USE ONLY, UNLESS SPECIFIED IN CONTRACT DOCUMENTS AND/OR APPROVED BY CITY ENGINEER**

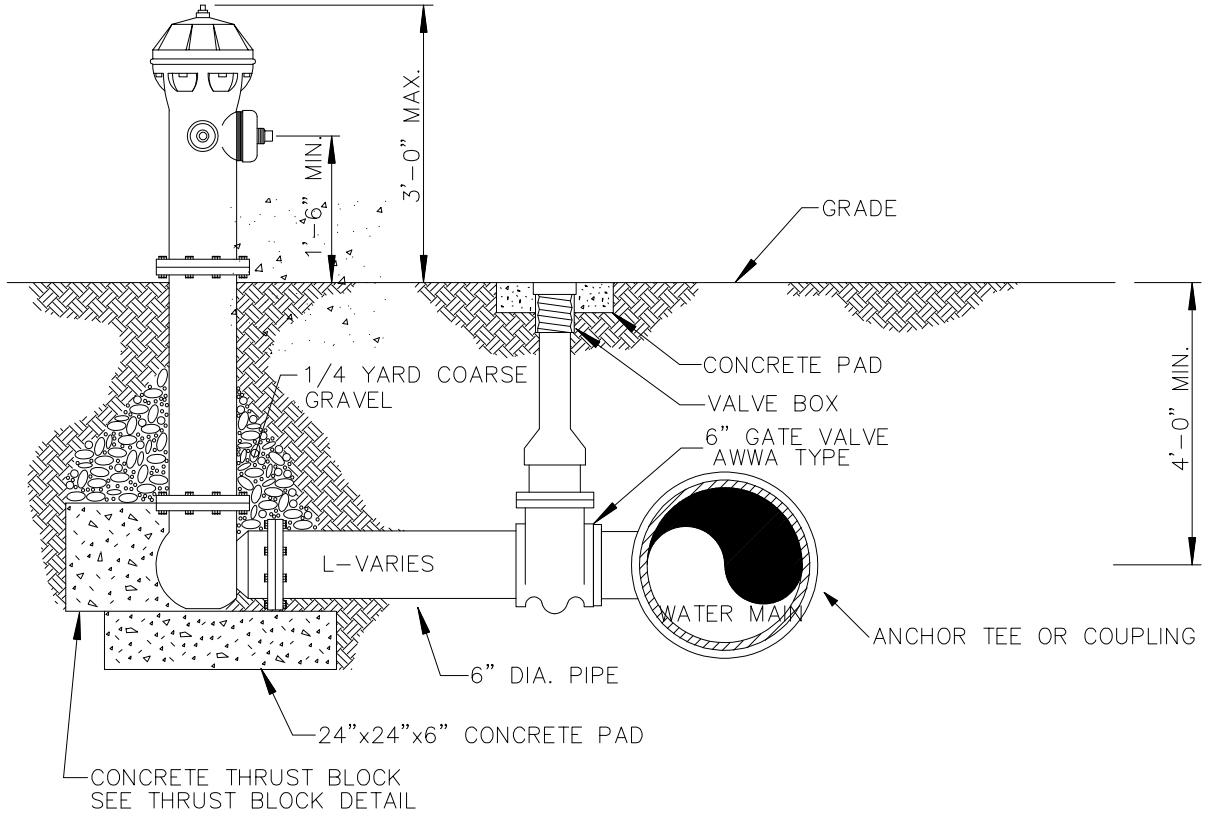
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
WATER DETAILS

2" WATER SERVICE W/ GATE VALVE

W202

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



FIRE HYDRANT NOTES:

1. C.L. OF FH. BARREL SHALL BE NOT LESS THAN 2' OR MORE THAN 7' FROM BACK OF CURB OR EDGE OF PAVEMENT.
2. DO NOT SET F.H. IN AN EXISTING OR PROPOSED SIDEWALK, UNLESS OTHERWISE NOTED.
3. ALL TEES SHALL BE ANCHOR TEES FROM THE MAIN TO F.H. VALVES.
4. SET F.H. ON THE LOT LINE EXTENDED WHEN POSSIBLE.
5. NEVER PLACE F.H. WHERE FIRE TRUCK COULD NOT PARK BESIDE IT.
6. NO MORE THAN ONE EXTENSION ALLOWED ON BARREL OF F.H. W/ MAX 18" EXTENSION. USE OFFSET OR 2 BENDS AS REQUIRED.
7. USE OFFSET OR 2 BENDS AS REQUIRED FOR EXTRA DEPTH WATER MAINS.

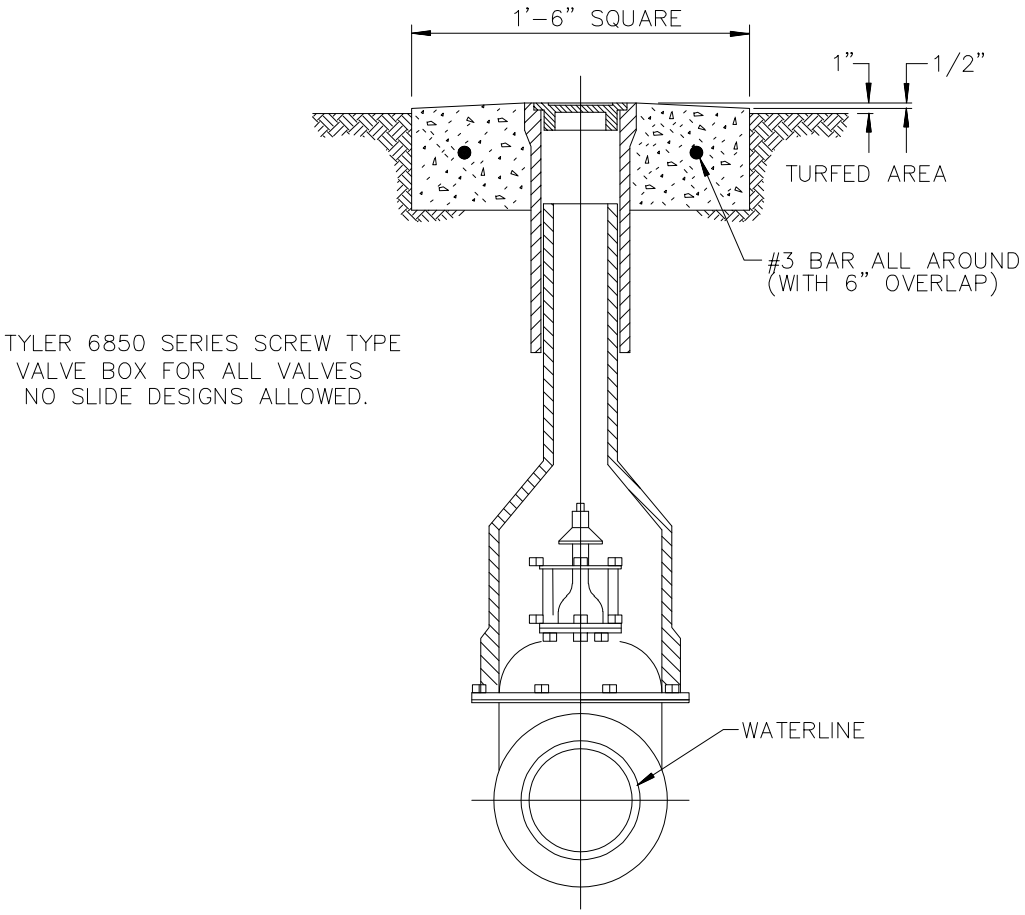
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
WATER DETAILS

TYPICAL FIRE HYDRANT ASSEMBLY

W300

SCALE: N.T.S.
DATE: 03/30/2023
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



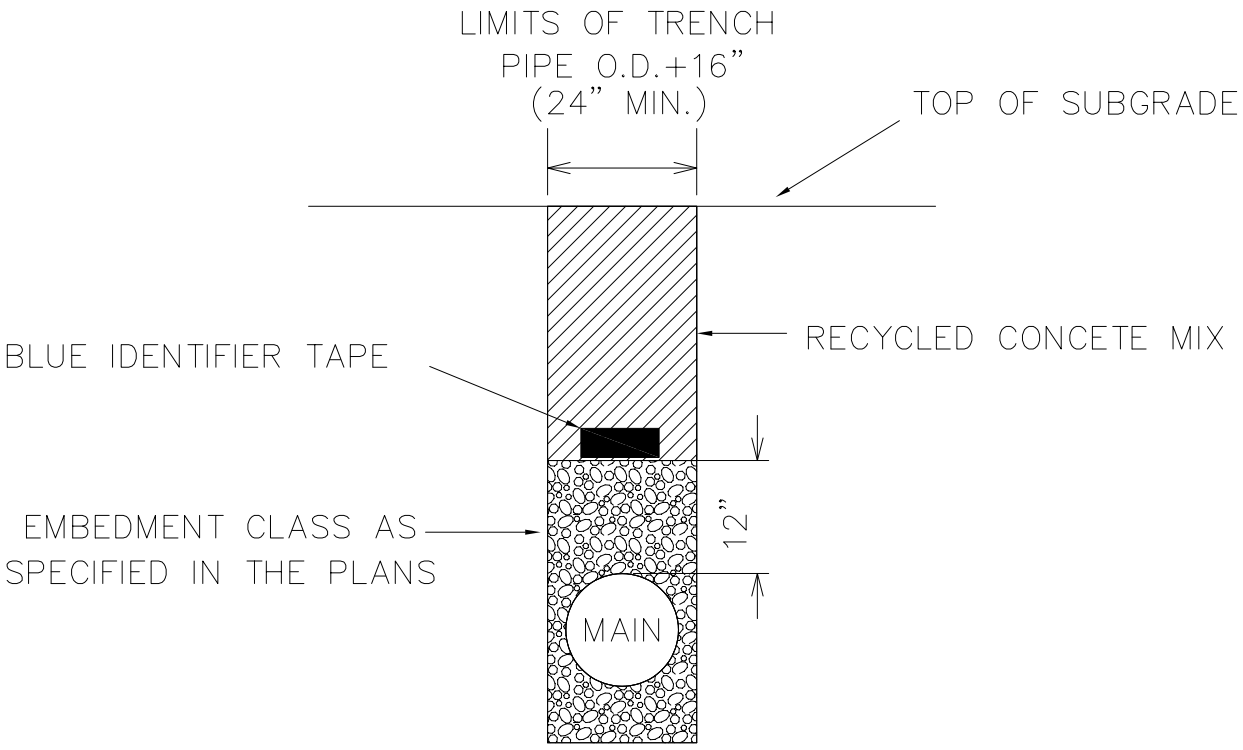
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
WATER DETAILS

GATE VALVE AND BOX

W400

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



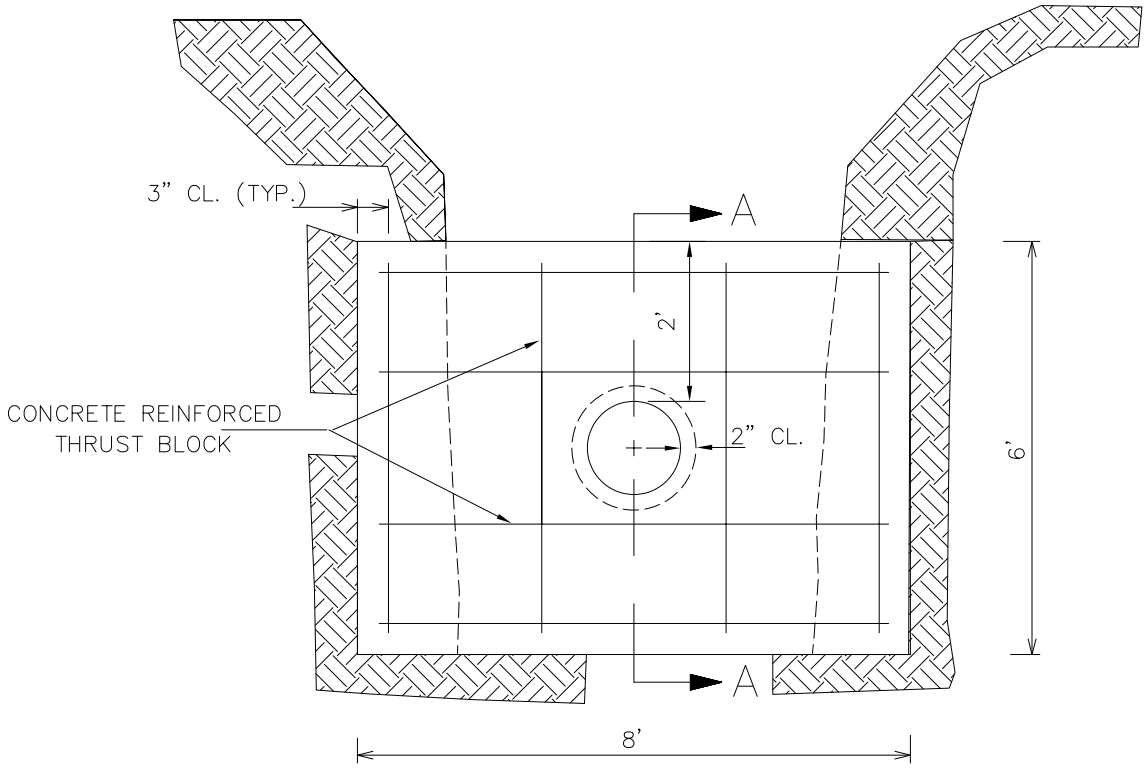
UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
WATER DETAILS

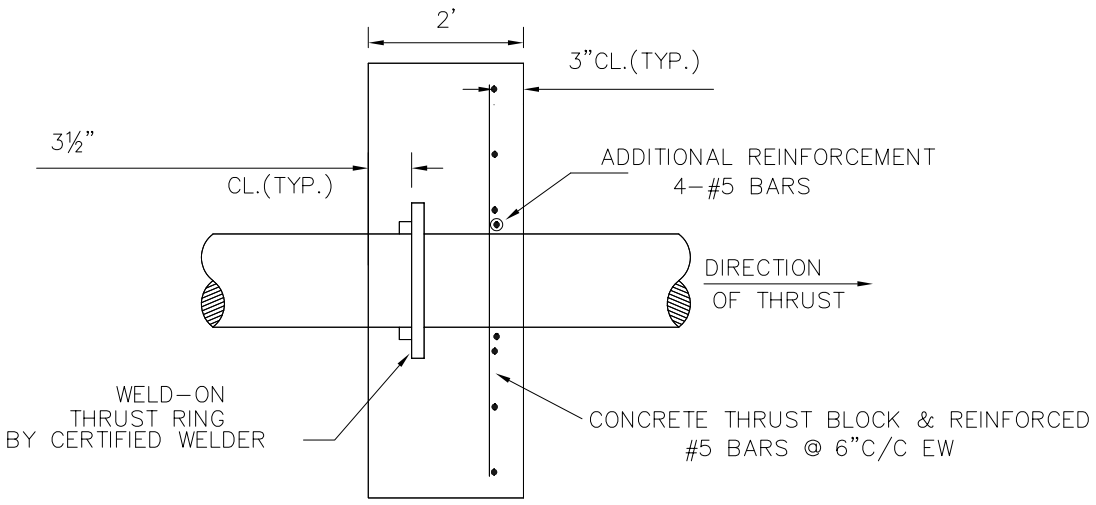
TYPICAL WATER EMBEDMENT

W501

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING



ELEVATION



SECTION A–A

UNIVERSITY PARK

GENERAL CONSTRUCTION STANDARD
WATER DETAILS

CONCRETE STRADDLE BLOCK

W502

SCALE: N.T.S.
DATE: 10/21/2020
DEPARTMENT OF
PUBLIC WORKS/ENGINEERING