



COMBINED SPECIFICATION MANUAL

VOLUME 1: STANDARD SPECIFICATIONS

VOLUME 2: BUILDING SEWER REGULATIONS

for all work within

THE GREATER PEORIA SANITARY AND SEWAGE DISPOSAL

DISTRICT in

Peoria County, Illinois

FEBRUARY 2023

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INDEX

<u>Title</u>	<u>Page No.</u>
SECTION 001; DESIGN CRITERIA FOR SANITARY SEWERS	001-1
SECTION 002; DEFINITIONS	002-1
SECTION 004; STANDARD PLAN CONDITIONS	004-1
SECTION 017; LAWS AND REGULATIONS	017-1
SECTION 021; GENERAL CONDITIONS	021-1
SECTION 027; SPECIFICATIONS - PIPE MATERIALS FOR SEWERS.....	027-1
SECTION 031; SPECIFICATIONS - BUILDING INLETS	031-1
SECTION 035; SPECIFICATIONS - PIPE INSTALLATION USING EXCAVATION METHODS.....	035-1
SECTION 039; SPECIFICATIONS - INSPECTION AND TESTING OF SEWERS	039-1
SECTION 043; SPECIFICATIONS - MANHOLES.....	043-1
SECTION 047; SPECIFICATIONS - BACKFILLING.....	047-1
SECTION 051; SPECIFICATIONS - SEWER CONSTRUCTION BY TUNNELING, JACKING AND PILOT TUBE BORING METHODS	051-1
SECTION 055; SPECIFICATIONS - RESTORATION	055-1
SECTION 059; SPECIFICATIONS - SEEDING AND SODDING.....	059-1
SECTION 063; SPECIFICATIONS - CURED-IN-PLACE PIPE	063-1
SECTION 067; SPECIFICATIONS - EROSION CONTROL PRODUCTS	067-1
SECTION 071; SPECIFICATIONS - HORIZONTAL DIRECTIONAL DRILLING AND TRENCHLESS PIPE REPLACEMENT	071-1
SECTION 073; SPECIFICATIONS - PIPELINE LOCATION MARKING SYSTEMS.....	073-1
SECTION 075; SPECIFICATIONS - MANHOLE REHABILITATION	075-1
SECTION 083; SPECIFICATIONS - LATERAL CONNECTION REPAIR USING CIPP.....	083-1
SECTION 093; SPECIFICATIONS - CLEANING AND INSPECTION OF SANITARY SEWERS	093-1
SECTION 095; SPECIFICATIONS - DETAIL DRAWINGS	095-1
SECTION 099; SPECIFICATIONS - TRAFFIC CONTROL.....	099-1

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SECTION 001
DESIGN CRITERIA FOR SANITARY SEWERS

The design of sanitary sewers shall comply with the requirements of the following: the Greater Peoria Sanitary District Combined Specification Manual, current edition; the current edition of the State of Illinois Rules and Regulations, Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter II: Environmental Protection Agency, Part 370: Illinois Recommended Standards for Sewage Works; and the Standard Specifications for Water and Sewer Main Construction in Illinois, current edition. The requirements of the Greater Peoria Sanitary District Combined Specification Manual shall hold over all other requirements of the listed specifications where a conflict or discrepancy between requirements is found to exist, except that no requirement of the specifications shall violate a public statute or law.

1.0 Plans, Specifications and Permits

Two sets of preliminary plans, supporting technical calculations/documents, and IEPA permit applications shall be submitted to the Engineer of the Sanitary District for inspection and revision as necessary. One set of documents shall be returned and noted for corrections or additions. Such modifications as noted shall be made as indicated for final submission. Four approved sets of plans and supplemental specifications, as necessary, shall be submitted to the Engineer of The Greater Peoria Sanitary District, together with copies of the IEPA permit applications signed by the Design Engineer and the Owner, as required by the Illinois Environmental Protection Agency. All plans, technical documents and permits shall be prepared, signed and sealed by a Professional Engineer licensed in the State of Illinois. The District, at its discretion, may allow the submittal of documents in electronic format. The District, at its discretion, may return any and all correspondence in electronic format.

All proposed sanitary sewer infrastructure projects shall include plan and profile technical drawings of the sanitary sewer infrastructure and appurtenances. Technical drawings shall be referenced to the Illinois State Plain – West coordinate system in units of US Survey feet for planimetric features and elevations shall be referenced to the North American Vertical Datum of 1988, current adjustment. Use of The Greater Peoria Sanitary District Combined Specification Manual shall be so stated in the permit application to the Illinois Environmental Protection Agency.

Two copies of the Sanitary District Permit to Construct Trunk Sewers signed by the Owner shall be furnished to the District for final approval of the project design. One copy signed by the Engineer of The Greater Peoria Sanitary District shall be acquired by the Owner or his Agent before any work begins on the project.

2.0 Capacities of Sewers

Sewers shall have a minimum design capacity when running full with $n=0.013$ for service as follows: 10,000 gal/acre/day for planned Population Equivalent less than 25 P.E./Acre; and 20,000 gal/acre/day for planned Population Equivalent between 25 and 50 P.E./Acre; and as existing trunk sewer capacity permits. Sewers having less capacity than above listed must be first approved by the Sanitary District.

Force Mains shall have, as much as possible, a constant back slope with no low spots in the line. Sections of pipe with zero percent slope are not permitted. High points in the line shall have approved air release valves. Force mains shall be designed with a minimum velocity of 2.0 ft./sec. and, in general, velocities shall not exceed 5.0 ft./sec.

3.0 Slopes of Sewers

The minimum slopes of sewers for pipe sizes are required as follows:

Pipe Size Inside Diameter (IN)	Slope in FT per 100 FT
6	1.0
8	0.5
10	0.3
12	0.25
14	0.2
15	0.19
16	0.18
18	0.15
21	0.12
24	0.1
27	0.085
30	0.075
33	0.065
36	0.06
42	0.045

Any divergence from these minimum slopes shall be allowed only with the express approval of The Greater Peoria Sanitary District Engineer. Slopes for pipe sizes not listed shall meet IEPA requirements and shall be approved by the GPSD in writing.

Sewers with a maximum velocity exceeding fifteen (15) feet per second shall be cradled in not less than four inches of concrete. Where slopes with a maximum velocity greater than fifteen (15) feet per second are longer than forty (40) feet suitable anchoring shall be provided to resist sliding and uplift. When approved by GPSD in writing, restrained joint pipe may be used without concrete cradle, however, an approved anchoring or other restraint system of the pipe must be provided.

4.0 Manholes

Manholes shall be installed at the end of each line, at changes in grade, size, or alignment and at distances as follows: if the size of the pipe is nominally from eight inches (8") to twenty-one inches (21"), the maximum distance between manholes shall be four-hundred feet (400'); if the size of the pipe is nominally greater than twenty-one inches (21"), the maximum distance between manholes shall be five-hundred feet (500'). Greater spacing between manholes may be permitted when approved by the District Engineer but only for special circumstances.

Lampholes are not permitted.

5.0 Pipe Protection

Where sewers are at shallow depths, subject to superimposed loads, where shown, called for on the drawings, and/or where otherwise directed, pipe shall be encased in reinforced concrete encasement in accordance with GPSD's standard details. At points of crossing creek beds at shallow depths of four feet (4') or less, pipe shall be installed in reinforced concrete encasement in accordance with GPSD's standard details

6.0 Staking for Sanitary Infrastructure

- A. Staking of sanitary infrastructure systems shall occur prior to the start of any work related to the construction of the systems. Stakes set for site control points and/or layout points are to be measured accurately and have a tack or nail in the top of the stake to set alignment, distance, or location and shall be identified by markings on the guard stakes set alongside the layout stakes.
- B. Generally, alignment of the sewer system is to be established by layout stakes set at the location of each centerline of manhole. Layout stakes shall be placed at the centerline of each manhole when a visual line of sight between manholes exists. When a visual line of sight between manholes does not exist or maintenance of the line of sight is impractical, additional layout stakes along the sewer alignment shall be provided at appropriate intervals to maintain a visual line of sight between layout stakes.
- C. Layout stakes shall be supplemented by offset stakes set at perpendicular distances of 25' from the layout stake or other such distance as to not be disturbed by the construction activities.
- D. The control point, layout and offset stakes are to be protected and identified by a lathe driven directly adjacent to the stake.
- E. Stakes to be set are to mark the location, alignment, elevation and grade for the sewers, appurtenances, structures, control points, and/or offsets.
- F. Lathe are to be driven approximately one foot into the ground and extend approximately three feet above the ground. Lathe shall be annotated with a unique identifier, stake purpose (i.e. control point, layout, offset, etc.), layout information (i.e. coordinates, elevation, and cut/fill), and survey company. Annotation shall be made by wide tip permanent marker or paint pen. Annotation information on the lathe shall match that of the cut sheet provided to GPSD.
- G. Where it is impossible to use stakes and lathe, the following methods shall be approved: in concrete, chisel crosses and paint; in bituminous surfaces, use mag nails and paint; in bituminous surfaces over concrete, use concrete nail and bottle cap and paint; other methods may be used upon approval of the Engineer of the Greater Peoria Sanitary District.
- H. All paint shall conform to an approved type that disintegrates in normal weather conditions.
- I. Grade and line shall be verified upon setting of the first pipe outside the manhole and then again 25 feet from the manhole, 75 feet from the manhole, and every 75 feet thereafter. Grade shall be verified with an automatic survey level with a minimum accuracy rating of 1/16" in 100 feet.

- J. Temporary benchmarks shall be provided along the proposed sewer alignment at intervals of approximately 800 feet.

7.0 Construction Inspection

Representatives of GPSD shall be present during all construction to ensure the completion of the work in compliance with the approved plans and specifications.

8.0 Special Conditions

Conditions not covered in these general specifications shall be addressed in following order of priority:

1. Any conditions not covered in these Combined Specification Manual shall be outlined to The Greater Peoria Sanitary District and approved by its Engineer (as defined by this Document).
2. Current edition of the State of Illinois Rules and Regulations, Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter II: Environmental Protection Agency, Part 370: Illinois Recommended Standards for Sewage Works.
3. Current edition of Standard Specification for Water and Sewer Main Construction in Illinois.
4. Current edition of Illinois Department of Transportation Standard Specifications for Road and Bridge Construction.

9.0 Location of Public Sewers

To the extent practical, new public sanitary sewers shall be located within public right-of-ways. In addition, every effort shall be made to locate manholes within paved areas for ease of access for the Sanitary District's maintenance vehicles. All proposed locations for sanitary sewers shall be reviewed and approved by the Sanitary District.

10.0 Easements

1. Easements shall be provided for all public sewers not located in public right-of-ways. Easements shall be a minimum of 20 feet wide for sewers 0 to 16 feet deep, a minimum of 40 feet wide for sewers greater than 16 feet to 24 feet deep, and a minimum of 50 feet wide for sewers greater than 24 feet deep. Easements shall use the Sanitary District standard form.
2. Easements to be recorded as part of a subdivision plat, or plat of a development, must be approved by the Sanitary District's Engineering Department prior to the recording of the plat. Platted easements shall meet the above noted width requirements. Platted easements shall also include the District's standard wording in the Owner's signature block.
3. No easement shall be recorded without review and approval by the Sanitary District's Engineering Department.

END OF SECTION

SECTION 002
DEFINITIONS

The following terms as used in these Specifications are respectively defined as follows:

- (1) "Greater Peoria Sanitary District": The Greater Peoria Sanitary and Sewage Disposal District;
- (2) "Sanitary District": The Greater Peoria Sanitary and Sewage Disposal District;
- (3) "District": The Greater Peoria Sanitary and Sewage Disposal District;
- (4) "GPSD": The Greater Peoria Sanitary and Sewage Disposal District;
- (5) "Contractor": The person, firm or corporation to whom the contract is awarded by the Owner and who is subject to the terms herein contained;
- (6) "Subcontractor": A person, firm or corporation, other than the contractor, supplying labor and/or materials for work at the site(s) of the Project;
- (7) "Owner": The Greater Peoria Sanitary and Sewage Disposal District or the City of Peoria, whichever is the contracting party;
- (8) "Engineer": The Director of Planning and Construction of The Greater Peoria Sanitary and Sewage Disposal District or his authorized representative;
- (9) "Resident Project Representative": The Resident Project Representative is the "Engineer's Agent", and will act as directed by and under the supervision of the Engineer and will confer with the Engineer regarding his actions;
- (10) "The Project": The work to be performed in carrying out the Project;
- (11) "Diameter of a Sewer": The inside diameter of the sewer;
- (12) "Elevation of a Sewer": The invert elevation of the sewer;
- (13) "Invert of a Sewer": The lowest point of the inside surface of a sewer;
- (14) "Depth of Sewer": The "Depth of Sewer" is the vertical distance from the original surface of the ground to the invert of the completed sewer. Where laid in compacted embankment or fill the vertical distance from the top of embankment or fill to the sewer invert shall be used;
- (14) "Depth of Manhole": The vertical distance between the top of the manhole cover to the invert of the channel through the manhole at the manhole center;
- (15) "Distance between Manholes": Horizontal distance measured from center to center between manholes;
- (16) "City": The City of Peoria, Peoria County, State of Illinois;

- (17) “City of Peoria”: The City of Peoria, Peoria County, State of Illinois;
- (18) “Completion Date”: The date at which all work shall be completed by the Contractor;
- (19) “Specifications”: The Project Specifications including any set(s) of Project Plan Sheets or Drawings;
- (20) “Flexible-Type Pipe”: Flexible-type pipe shall include pipe constructed of materials such as polyvinyl chloride (PVC) and polyethylene (PE, MDPE or HDPE) and not include pipe constructed of materials such as clay, concrete, ductile-iron, cast-iron or steel.
- (21) “Improved Surface”: An improved surface is one that has been modified from its natural state by construction, often using materials such as concrete, bituminous materials or pavers. Examples of improved surfaces include those occupied by buildings, driveways, roadways, sidewalks, patios, parking lots and floating, concrete, slabs. Surfaces that have been previously improved but have since been allowed to revert back to an unimproved state, as defined elsewhere in these Specifications, and are not considered improved.
- (22) “Unimproved Surfaces”: Unimproved surfaces are those that have either not been modified from their natural states or have been modified using earthen or vegetation materials. Lawns, gardens and fields are considered unimproved surfaces.
- (23) “Completion Date With Guaranteed Working Days”: When a completion date with guaranteed working days is specified, the Contractor shall complete all work on or before the specified completion date or within the number of guaranteed working days, whichever period is the longer.
- (24) “Working Days”: A working day shall be as defined in Article 108.04 of the IDOT “Standard Specifications for Road and Bridge Construction, latest edition, except that all reference to “Weekly Report of the Resident Engineer” shall not apply.

END OF SECTION

SECTION 004
SPECIFICATIONS – STANDARD PLAN CONDITIONS

The Contractor shall consider the following conditions to be part of the Project Plans and Specifications:

1. The City of Peoria has a street repair program schedule that includes milling, patching and overlay as well as heater scarification and sealcoating. Information regarding this matter can be obtained by contacting the City of Peoria Public Works Department. The Contractor shall not claim additional compensation for delays or disruptions of planned operations caused by conflicts with City of Peoria street repair operations. Additionally, the Contractor shall prioritize work conflicting with the City's planned street repair efforts and shall complete said work prior to the commencement of any street repair efforts.
2. Unless modified by the Project Specifications, all road work shall be constructed in accordance with the "Standard Specifications for Road and Bridge Construction", current edition, by the Illinois Department of Transportation and the "Supplemental Specifications and Recurring Special Provisions", current edition. All references to measurement and payment therein do not apply.
3. Prior to the receipt of proposals for the completion of the work, the Contractor shall verify all measurements and dimensions shown and shall report to the District any discrepancies which may affect the performance of the work in accordance with the Plans and Specifications.
4. Property parcel information and associated addresses shown within this set of drawings are provided as an informational courtesy. Field verification of existing site conditions shall be the responsibility of the Contractor.
5. The Contractor shall yield to the garbage collection routes of garbage and rubbish collection organizations. The Contractor shall not claim additional compensation due to delays or losses in productivity caused by conflicts with garbage or rubbish collector vehicles or routes.
6. Underground conditions at and near the site(s) of the work to be performed have not been investigated. The Contractor shall be responsible for determining underground conditions to the extent that he or she deems necessary for the successful performance of the work as shown on the Plans and called for in the Specifications. The Contractor shall assume all risks and shall claim no additional compensation for both unforeseen underground conditions and incorrect determinations of the impact of underground conditions on the completion of the work.
7. The diameters and slopes of the existing sewers shown within this set of drawings are provided as an informational courtesy. Field verification of both the sewer main diameters and slopes shall be the responsibility of the Contractor. The Contractor shall not claim either additional costs or delay for unanticipated sewer main dimensions.
8. The Contractor shall be responsible for locating manholes. Contractor costs associated with locating manholes shall be part of the contract amount.

9. The existing manhole depths shown within this set of drawings are provided as an informational courtesy. Field verification of the manhole depths shall be the responsibility of the Contractor.
The District does not have other manhole dimensions. The Contractor shall be responsible for obtaining other necessary manhole dimensions. The Contractor shall not claim additional compensation for unanticipated manhole dimensions.
10. Where permanent fencing is removed, the Contractor shall provide temporary fencing in place of that removed. The intention of temporary fencing is to minimize the inconvenience of the construction on property owners. Temporary fencing shall be constructed at locations to be determined by the affected property owners and the engineer; generally, the temporary fencing shall completely enclose a portion of the property less than that enclosed by the permanent fencing and shall be extended and accessible from structures without leaving the enclosures. The height, material and construction of temporary fencing shall match that of the existing fencing; however, temporary fencing provided shall not be less than four (4) feet in height, chain-link fencing constructed in accordance with ASTM F567-07. During construction, the Contractor shall minimize both the area removed from use by property owners as well as the duration of time that temporary fencing is necessary. Furthermore, the locations of needed temporary fencing as shown on the Plans may not represent all of the locations where temporary fencing will be required.
11. Prior to removal, the Contractor shall document the location and height of all existing fencing to be removed. Included in the documentation shall be the location of all existing posts and points of horizontal or vertical deflection. Measurements included in such documentation shall be relative to fixed references and sufficient in quantity and accuracy to allow reconstruction of removed fencing without dispute. Prior to construction, the Contractor shall take all precautions necessary to document the condition of the fencing to be deconstructed. Where necessary to allow sewer repairs and modifications, existing fencing shall be removed with care to minimize damage. After completion of construction activities, existing fencing shall be promptly reconstructed using the removed fencing, posts and accessories except where the condition of that removed is too poor to be reconstructed. Where the existing is too poor to be used in the reconstruction of removed fencing, the Contractor shall provide new replacement parts and equipment equal in all aspects to that removed except in condition. Fencing reconstruction shall be performed to the satisfaction of the owners and the engineer.
12. At all times throughout the performance of the Project, the Contractor shall provide property owners vehicular access to the driveways of their respective properties. Access restrictions shall be allowed only if approved by the engineer and the owners of the affected properties.
13. All work shall be constructed in accordance with the Greater Peoria Sanitary District's (GPSD) General Specifications for Sanitary Sewers and Appurtenances, latest edition, these Specifications and the Plans.
14. Without request for additional compensation, the Contractor shall make available supervisory personnel for meetings between GPSD personnel, Contractor representatives and persons affected by the Project.

15. Unless otherwise indicated, existing surface topography and drainage shall not be altered by construction. Contractor shall restore to original condition any drainage feature disturbed by construction and the costs thereof shall be made part of the contract amount.
16. Protection of water mains and water services (including horizontal and vertical separation of water mains and services from sewers) shall be in accordance with the provisions of Section 41-2.01 of the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition. Any costs incurred in compliance shall be considered part of the contract amount.
17. If existing power poles or utility poles will be impacted by the proposed construction, the Contractor shall coordinate with utility company to have poles protected during construction. The cost for utility pole protection shall be made part of the contract amount.
18. The Contractor is responsible for obtaining all water necessary for the performance of the work specified and all costs associated with water procurement.
19. Sewer laterals and sewer lateral connections shown on the Construction Documents, and/or referenced in provided repair descriptions on the Plans are not intended to show accurately either the number or location of all private lateral connections or those that will need to be reconnected to the sewer main. It shall be the exclusive responsibility of the Contractor to reestablish all disrupted sewer services in a timely manner in accordance with GPSD Specifications.
20. Any damage to streets due to the Contractor's operations shall be repaired to the satisfaction of, and at no expense to, the owner of the damaged pavement. No additional compensation shall be provided for such repairs.
21. The Contractor shall take reasonable precautions to protect public and private property. If, at any time, Contractor damages or destroys public or private property, the Contractor shall promptly, at its own expense, restore such property to a condition equal to that existing before such damage and to the satisfaction of the property owner and GPSD. In the event a claim or lawsuit is brought by any third party claiming damage to property, Contractor agrees to indemnify and defend GPSD from same.
22. During construction, the Contractor shall not cause sewage to be discharged from the collection system.
23. Erosion control measures shown on the Plans represent the minimal amount of measures that the Contractor must take to prevent erosion. If shown measures conflict with the directions of the governing authority with jurisdiction, the directions of the governing authority shall govern. If not conflicting, the total measures taken to prevent erosion shall be the cumulative of the measures shown and the directions of the governing authority. Decisions made by the governing authority do not exempt the Contractor from obtaining permits from other agencies and organizations that might have jurisdiction at the location(s) where the Contractor is to work. The Contractor shall obtain as the permittee all necessary permits not provided, and all costs associated with either obtaining or complying with such permits shall be made part of the contract amount.

24. The Contractor is responsible for dust and mud control. The Contractor shall protect all soil stock piles from erosion.
25. Land survey monuments (property corners, right of way markers, etc.) which are disturbed by the Contractor shall be reset by a licensed professional surveyor at the expense of the Contractor.
26. The aerial photography shown within this set of drawings is from 2015 and is provided as an informational courtesy. Field verification of existing site conditions shall be the responsibility of the Contractor.
27. The repair descriptions included on the Plans are for informational purposes only and are not intended to be a complete description of all work to be performed in the completion of necessary repairs.
28. The location, size, and type of materials of existing underground utilities indicated on the Plans are not represented as being accurate, sufficient or complete. Neither the owner nor the Engineer assumes any responsibility whatsoever in respect to the accuracy or sufficiency of the information, and there is no guarantee, either expressed or implied, that the conditions indicated are representative of those to be encountered in the construction. It shall be the Contractor's sole responsibility to determine the actual location of all such facilities, including service connections to underground utilities, prior to construction. The Contractor shall notify the utility company of his operational plans and shall obtain from the respective utility companies detailed information and, in the event, an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The engineer shall also be immediately notified. Any such mains and services disturbed by the Contractor's operations shall be restored to service at once
29. Residents or businesses shall be notified by the Contractor in advance if their service is to be disrupted or disconnected. If residents or businesses whose utilities have been or are going to be disrupted or disconnected are not able to be contacted during normal business hours, they shall be promptly notified by the Contractor of the disruptions or disconnection by alternative means acceptable to GPSD and the owner. Costs associated with the provisions of such notifications shall be considered part of the contract amount.
30. The Contractor shall be responsible for protecting utility property from construction operations. The Contractor shall be responsible for the adjustment or relocation of any conflicting utility that impedes the completion of the work. Utility adjustments or relocations shall be completed as allowed by the owner of the utility, by whom the utility owner specifies, and in accordance with the utility's specifications and directions. For either costs or delays caused by the process of utility relocations, the Contractor shall not claim additional compensation in either the forms of time or money
31. Traffic control shall be in accordance with the Project Specifications including any permits made a part thereof. The Contractor shall be responsible for obtaining any necessary permits not already obtained by GPSD. Road and traffic lane closures shall be allowed only upon the approval of GPSD and the governing road authority.
32. In accordance with Public Act 90-761, which amends the Environmental Protection Act concerning general construction or demolition debris, the Contractor shall not conduct any

generation, transportation or recycling of construction or demolition debris, clean or general or uncontaminated soil generated during construction, remodeling, repair, and demolition of utilities, structures and roads that is not commingled with any waste, without the maintenance of documentation identifying the hauler, generator, place of origin of the debris or soil, the weight or volume of the debris or soil, and the location, owner and operator of the facility where the debris or soil was transferred, disposed, recycled or treated. This documentation must be maintained by the Contractor for three (3) years.

33. The Contractor shall not be allowed to claim additional compensation for costs associated with the construction of temporary roadway surfaces and their removal and replacement with permanent surfaces. Construction of temporary roadway surfaces, including allowable materials and methods, shall be in accordance with the directions of the owner of the roadway in question.
34. Easements that have been acquired are either shown on the Plans or included in the Specifications. Any additional easements or agreements for access beyond what has been acquired shall be the responsibility of the Contractor.
35. Where the Contractor's equipment is operated on any portion of the pavement used by traffic on or adjacent to the section under construction, the Contractor shall clean the pavement of all dirt and debris every four hours, at the end of each day's operation, and at other times as directed. The Contractor shall also clean, as directed, all other areas of pavement that are impacted by construction activities and debris.
36. The Contractor shall reference the detail drawings provided within these Specifications.
37. When working within IDOT right-of-ways, the Contractor shall provide message boards as specified by IDOT, at locations specified by IDOT, displaying messages specified by IDOT and for the duration of the work to be performed including no less than two (2) days prior to the commencement of work. More detailed information about traffic control requirements can be obtained by contacting appropriate representatives of IDOT using the contact information included within the permits made part of the Specifications.
38. Unless otherwise allowed, the restoration of existing brick surfaces shall be in accordance with the detail titled "brick -special" as found on the detail titled "COP Pavement" included in the detail drawings made part of the Plans.
39. The Contractor shall not access roadways within twelve hours prior to the forecast of the start of winter precipitation. Access shall be again allowed after the winter precipitation event has ended and the winter precipitation has been removed by normal snowplow operations.
40. Roadway restorations performed after removal and replacement of manhole castings and lids shall conform to both the drawing titled "Manhole Casting and Lid Removal and Replacement Pavement Restoration" as found on Detail Drawing 095-17 included in Section 095 of these Specifications and Section 055 also found in these Specifications. "Hot-patch" PCC shall be installed throughout the full depth of the excavation and the limits of the saw-cut. Performing roadway restoration in this manner shall be allowed only when the manhole casting and lid as well as any underlying adjusting rings are being removed and replaced; if other components of a manhole, including flat-top sections and barrels are being removed and

replaced, then roadway restoration shall be performed as defined in Section 055 of these Specifications.

41. Prior to the commencement of work by the Contractor, unless specified otherwise by the Engineer, GPSD does not plan to repair or modify in any way the sewers in which CIPP will be constructed as part of the completion of this Project.
42. Inspection recordings provided as part of the Project Plans and Specifications are an informational courtesy only and not intended to be representative of existing site conditions. Field verification of existing site conditions shall be the responsibility of the Contractor.
43. As provided on the summary of quantities and items, quantities of CIPP to be installed are estimated and based upon distances measured using District mapping. Distances scaled from the Plans or taken from sewer inspections may be inconsistent with these quantities.
44. The Sanitary District has not inspected the conditions of private plumbing or private sewers to determine their adequacy for the prevention of either odor migration or sewer backups resulting from either preparations for or installations of CIPP to be installed as part of this Project. GPSD shall not be liable for damages caused by deficiencies in private sewers or private plumbing; the Contractor shall determine the adequacy of private sewers and private plumbing for the prevention of damages caused by the activities of the Contractor.
45. The Sanitary District has not verified the accuracy of the types of sanitary structures as represented on the Plans; specifically, the location of drop manholes has not been verified. Furthermore, the Sanitary District's definition of drop manholes may differ from that of Contractors. Determinations of the effects on cured-in-place pipe (CIPP) construction of differences of elevations between pipes connecting to manholes have not been made by the Sanitary District and shall be the exclusive responsibility of the Contractor responsible for CIPP construction.
46. At manholes bounding sewers in which CIPP will be constructed by the Contractor responsible for the completion of the Project, or an assigned Subcontractor, where the Contractor removes manhole castings and lids, the Contractor shall reinstall the removed castings and lids in accordance with the Specifications.
47. Conditions within the sewers designated to be inspected or cleaned and inspected as part of the completion of this Project have not been investigated by the Sanitary District. Unless specifically provided within either the Plans or these Specifications, the Sanitary District does not have any knowledge of or information about the quantity or characteristics of solids in the sewers. The Contractor shall be responsible for determining conditions within the sewers to the extent that he or she deems necessary for both the submittal of a proposal for the completion of the work and the successful performance of the work as shown on the Plans and called for in these Specifications. The Contractor shall assume all risks and shall claim no additional compensation for both unforeseen conditions within the sewers and incorrect determinations of the impact of conditions on the completion of the work.
48. At the Sanitary District's wastewater treatment plant at 2322 S. Darst St. in Peoria, IL, when disposing of solids collected as part of the completion of this Project, the Contractor shall not be assessed disposal fees.

49. The Contractor shall comply with the requirements of any Storm Water Pollution Prevention Plan (SWPPP) included within the Specifications. Any and all costs including, but not limited to, fines, fees and/or penalties imposed upon the Owner due to the Contractor's failure to comply with any provision of any applicable SWPPP will be passed on to the Contractor. This cost shall also include reasonable attorney's fees. If the Contractor fails to repair, maintain or implement erosion control and/or sediment control devices outlined in any applicable SWPPP or shown on the contract documents, the Owner reserves the right to perform the work and the Contractor shall pay all costs incurred, including reasonable attorney's fees. The Owner reserves the right to deduct the above said costs from progress payments due to the Contractor.

All erosion and sediment control measures shall remain in place and shall be maintained until the Notice of Termination (NOT) has been submitted by the GPSD to IEPA. Upon acceptance of the NOT by IEPA, the Contractor shall remove the erosion and sediment control measures to the satisfaction of the GPSD and Property Owner(s).

50. Where exploratory excavations are to be performed, the Contractor shall allow GPSD all the time necessary to adjust or modify the proposed improvements. If necessary, the Contractor shall not make claims for additional compensation for either delays or disruptions of Contractor activities resulting from design alterations or modifications.
51. Where required, exploratory excavations shall be performed and prioritized relative to other construction activities.
52. Where specified, exploratory excavations shall be performed for the purpose of obtaining the information required regardless of the number of attempts by the Contractor necessary to achieve the objective. The Contractor shall be compensated per exploratory excavation despite the number of, and extent of, excavations necessary. For instance, if exploratory excavations are necessary to identify all of the drains for a residence, the Contractors shall be compensated for one exploratory excavation independent of the number of drains for the residence, the number of attempts by the Contractor necessary to identify the location and depth of each drain, or the extent of the required excavations and restorations.
53. Existing culverts and field tiles shall be removed and replaced as necessary during the course of construction. Any culverts or field tiles damaged during construction shall be replaced both in accordance with the directions of the Engineer and using comparably-sized PVC, SDR 26, pipe bedded in CA-7 or CA-11 white rock crushed stone bedding. Crushed stone bedding shall extend from the bottom of the excavation to one (1) foot over the top of pipe. Existing storm sewers and field tiles encountered at conflicting depths with the proposed sewer shall be reconstructed.
54. In agricultural areas that are or might be cultivated, the Contractor shall remove and stockpile all existing topsoil within the limits of excavations made towards the completion of the Project. After backfilling, replace topsoil to match original ground surface.
55. The Contractor shall be solely responsible for the loading and unloading of equipment and materials as necessary to complete the work.
56. Filling of excavations shall be completed in accordance with these Project Specifications and either as shown on the Plans or in accordance with directions to be provided by the Engineer.

Throughout the Plans, the types of backfill operations required within provided limits has been shown. Backfilling operations shall be necessary within the limits of excavations made to complete the work; however, backfill shall not be required where excavations are not constructed.

57. Access to locations of work within City of Peoria rights-of-way requires the acquisition of a permit or permits from the City of Peoria. Unless included in these Specifications, as necessary to allow completion of the work specified within these Specifications and shown on the Plans, the Contractor shall be responsible for the acquisition of all permits necessary from the City of Peoria and the completion of all tasks thereto, including, but not limited to, the design and proposal of proposed traffic control measures and the completion and submittal of necessary application forms. The Contractor shall be responsible for any and all payments required as part of the application process. Information about the City's application process can be obtained from the City of Peoria Department of Public Works.

The Contractor shall recognize that the Sanitary District cannot estimate either the time or effort necessary to acquire the necessary permits from the City of Peoria. The Contractor shall not make claim for additional compensation in the forms of either contract time or contract amount for unanticipated delay or labor necessary to acquire the necessary, City of Peoria, permits.

58. The Contractor shall be responsible for obtaining any and all required building permits and associated building permit application fees.
59. The Contractor shall assure that, at all times, all work, equipment, materials, personnel and vehicles shall remain within the limits of District-owned property, temporary construction easements granted to the District specifically for the purpose of completing the work or permanent easements granted to the District. Where and as allowed by the governing authority with jurisdiction, for the purpose of completing the work, the Contractor may encroach onto public right-of-way. The Contractor shall not disturb, alter, or traverse across property outside of these limits.
60. Within the limits of District properties, including the District's facilities at 2322 S. Darst St. in Peoria, the District is not obligated to provide parking for Contractor vehicles or equipment. During all or a portion of the duration of the Project, if desired by the Contractor, the District might have space available for the short-term parking of some or all of the Contractor's vehicles or equipment. The availability of space within the limits of the District's WWTP, if any, and the duration of time that such space will be made available to the Contractor, will be determined upon request. If such a parking allowance is granted but later wholly or partially revoked by the District, the Contractor shall immediately cease the parking arrangement including the complete removal of all Contractor vehicles and equipment.
61. As represented within the profile views of the Plans, those utilities whose elevations at the represented crossings have been field verified are indicated as such using descriptions such as "Verified" or "Hydroexcavate". The provision of this information shall not relieve the Contractor from the responsibilities to both ascertain underground conditions to avoid property damage and verify the accuracy of the information provided.

Those utility crossings either represented within the plan views but not within the profile views or not described using descriptors such as "Verified" or "Hydroexcavate" have not been field verified or determined from field gathered information. Except where exploratory

excavation is required by the Engineer, it will be the responsibility of the Contractor to determine if additional vertical information is necessary and, if so, to gather the necessary information as part of the completion of the Contract.

62. Construction of concrete materials shall be in accordance with the latest version of the American Concrete Institutes (ACI) document ACI 306R, titled "Guide to Cold Weather Concreting", as reported by ACI Committee 306.
63. As an informational courtesy, in the Project Specifications, plats of subdivisions in proximity to the location(s) of work may or may not have been included. If included in the Project Specifications, the Sanitary District has not verified the accuracy or completeness of the information provided or it's representation of existing conditions.
64. If Contractor discovers (1) a subsurface or latent physical condition at the Project site that differs materially from the conditions indicated in the Contract Documents or (2) an unknown physical condition at the site of an unusual nature differing materially from the conditions ordinarily encountered or inherent in the work necessary to comply with the Contract Documents, the Contractor shall not disturb said condition. In the event Contractor discovers any condition meeting the definition of (1) or (2) above, the Contractor shall give notice of same to GPSD immediately, but in no event any later than twenty-four (24) hours, from when Contractor discovers same. Should Contractor fail to give GPSD said notice, the Contractor waives any and all rights it may have to make a claim for an adjustment to the Contract Sum.
65. Unless modified by the Project Specifications all cabling, including but not limited to, electric, communication, video, control, and/or data transfer cabling shall be installed in rigid conduit or raceways. Conduit to be constructed below finished grade shall be PVC coated hot-dip galvanized rigid steel conduit. Conduit to be constructed above finished grade shall be hot-dip galvanized rigid steel conduit. Conduit sizing shall be as specified in the plans or where not specified shall be in accordance with the National Electric Code. The National Electric Code version shall be that which is currently adopted by the Municipality of which the work is being performed within.
66. Shop drawings shall be submitted to GPSD for review prior to fabrication. All shop drawings shall be reviewed by the General Contractor before submittal. GPSD's review is to be for conformance with the design concept and general compliance with the relevant contract documents. GPSD does not relieve the contractor of the sole responsibility to review, check and coordinate the shop drawings prior to submission. The contractor remains solely responsible for the errors and omissions associated with the preparation of shop drawings as they pertain to member sizes, details, dimension, etc.

END OF SECTION

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SECTION 017
LAWS AND REGULATIONS

1.0 Laws and Regulations

Contractor shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither the Sanitary District, the City of Peoria nor the Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

If Contractor observes that the Specifications or Plans are at variance with any Laws or Regulations, Contractor shall give Engineer prompt written notice thereof, and any necessary changes will be authorized. If Contractor performs any work knowing or having reason to know that it is contrary to such Laws and Regulations, and without such notice to Engineer, Contractor shall bear all costs arising therefrom; however, it shall not be Contractor's primary responsibility to make certain that the Specifications and Plans are in accordance with such Laws and Regulations.

2.0 Safety and Health Regulations

The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL91-54) or as amended. Nothing in these Acts shall be construed to supersede or in any manner effect any workers' compensation law or to enlarge or diminish or affect in any manner the common law or statutory rights, duties, or liabilities of employers and employees under any law with respect to injuries, diseases, or death of employees arising out of, or in the course of employment.

The Contractor shall review the District's Contractor Safety Policy as included in the appendices of these Specifications and, prior to the commencement of construction, shall execute the Statement of Understanding included in the same.

3.0 Requirements for Greater Peoria Sanitary District Equal Employment Opportunity

In the event of the Contractor's noncompliance with any provision of this Equal Employment Opportunity Clause, the Illinois Fair Employment Practices Act or the Fair Employment Practices Commission's Rules and Regulations for Public Contracts, the Contractor may be declared non-responsible and therefore ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

During the performance of this Contract, the Contractor agrees as follows:

1. That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, age, ancestry or physical and/or mental disability; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization;
2. That, if it hires additional employees in order to perform this Contract, or any portion hereof, it will determine the availability (in accordance with the Commission's Rules and Regulations for Public Contracts) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized;
3. That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants

will be afforded equal opportunity without discrimination because of race, color, religion, sex, national origin, age, ancestry or physical and/or mental disability;

4. That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts. If any such labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the Contractor will promptly so notify the Illinois Fair Employment Practices Commission and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations thereunder;
5. That it will submit reports as required by the Illinois Fair Employment Practices Commission's Rules and Regulations for Public Contracts, furnish all relevant information as may from time to time be requested by the Commission or the contracting agency, and in all respects comply with the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts;
6. That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Illinois Fair Employment Practices Commission for purposes of investigation to ascertain compliance with the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts;
7. That it will include verbatim or by reference the provisions of paragraphs 1 through 7 of this clause in every performance subcontract as defined in Section 2.10(b) of the Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every such subcontractor; and that it will also so include the provisions of paragraphs 1, 5, 6 and 7 in every supply subcontract as defined in Section 2.10(a) of the Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every such subcontractor. In the same manner as with other provisions of this contract, the contractor will be liable for compliance with applicable provisions of this clause by all its subcontractors; and further it will promptly notify the contracting agency and the Illinois Fair Employment Practices Commission in the event any subcontractor fails or refuses to comply therewith. In addition, no Contractor will utilize any subcontractor declared by the Commission to be nonresponsible and therefore ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

With respect to the two types of subcontracts referred to under paragraph 7 of the Equal Employment Opportunity Clause above, following is an excerpt of Section 2 of the FEPC's Rules and Regulations for Public Contracts:

The term "Subcontract" means any agreement, arrangement or understanding, written or otherwise, between a Contractor and any person (in which the parties do not stand in the relationship of an employer and an employee):

- (a) for the furnishing of supplies or services or for the use of real or personal property, including lease arrangements, which in whole or in part, is utilized in the performance of any one or more contracts; or
- (b) under which any portion of the Contractor's obligation under any one or more contracts is performed, undertaken or assumed.

The Sanitary District's affirmative action requirements are detailed in District Ordinance No. 517 that is included as Appendix A in these specifications.

END OF SECTION

SECTION 021
GENERAL CONDITIONS

The Contractor shall complete all work in accordance with the Specifications including the conditions detailed in this Section.

The Contractor shall be responsible for his entire work until completed and accepted by the Sanitary District.

The Contractor is responsible to provide a complete and operational system as shown in the construction plans, called for in the Specifications or directed by the Engineer.

The Contractor shall furnish all power, light, water and other utilities required for any purposes in the work, except as otherwise noted within these Specifications.

The Owner reserves the right to award other contracts in connection with the work if the Owner deems it expedient to do so.

1.0 Specifications

The work shall be executed in strict conformity with the Specifications including any Plans made thereof, and the Contractor shall do no work without proper instructions. The District or the Owner will furnish the Contractor all copies of the Specifications reasonably necessary to carry out the work.

Specifications are on file at the office of The Greater Peoria Sanitary and Sewage Disposal District, 2322 S. Darst Street, Peoria, Illinois.

The contract documents are complimentary, and what is required by any one shall be as binding as if required by all. Any differences between Specifications and questions as to meaning of the Specifications shall be interpreted by the Engineer, whose decision shall be final and binding on all parties concerned. The Contractor will not be allowed to take advantage of any errors or omissions in the Specifications. The Engineer will provide full instructions when errors or omissions are discovered.

Should discrepancies occur in or between specifications, Contractor is deemed to have estimated on the more expensive method of completing work unless he shall have, prior to submission of proposal, obtained written decision of Engineer as to which method or materials will be required.

Where detailed information is lacking or errors occur, before proceeding with work, refer matter to Engineer for information or assume full responsibility for and make good any resulting defects or damage.

2.0 Materials, Workmanship and Inspection

The entire improvement and all the appurtenances shall be constructed in a good and workmanlike manner and under the direction of the Engineers of The Greater Peoria Sanitary and Sewage Disposal District or their agents.

The Engineer and his assistants shall have at all times free access to every part of the work and to all points where material to be used in the work is manufactured, procured or stored and shall be allowed to examine any material furnished for use in the work under this Project.

The Contractor shall take all necessary precautions so as to cause no unauthorized interruption in any essential part of sewage collection and treatment operations. Sewage collection and treatment operations must be maintained at the same level during construction as existed prior to construction. Shutdowns for construction

work shall be scheduled in advance, carefully planned, and shall be carried out in close cooperation with the Owner. The Owner shall retain the authority to require the cessation of construction activities and return to service of any component of the system should the need arise.

Generally, the inspection of any and all material furnished for use in work to be performed under this contract shall be made at the site of the work after delivery of the material; however, the Engineer may at his option perform, or have performed, inspection of material at points other than at the site of the work. In any case the Contractor shall pay to the Owner the extra cost of such inspection, including the necessary expenses of the inspector and the salary of the inspector for the extra time expended in performing any such inspection at said other points.

The Contractor shall give notice in writing to the Engineer sufficiently in advance of his intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the Engineer will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials or he will notify the Contractor that the inspection will be made at a point other than the point of manufacture, or he will notify the Contractor that inspection will be waived. The Contractor must comply with these provisions before shipping any material.

When inspection is waived or when the Engineer so requires, the Contractor shall furnish to him authoritative evidence in the form of Certificates of Conformance that the materials to be used in the work have been manufactured and tested in conformity with the Contract Documents. These certificates shall include copies of the results of physical tests and chemical analyses where necessary, that have been made directly on the product, or on similar products of the manufacturer.

All field inspection and testing of materials furnished under this Contract will be performed by the Contractor or his duly authorized inspection engineers and be considered as incidental to the contract. The Engineer shall direct when testing is required.

Tests to determine the quality and strength and acceptability of the various materials and pipe to be used in the construction of the work may be ordered by the Sanitary District. Tests will be in accordance with, and the acceptability of materials determined by the standard current specifications of The American Society of Testing Materials, or other standard specifications, referred to in these Specifications, as far as they apply. Other tests to determine acceptability under these Specifications may be ordered by the District, as may be necessary and such tests shall include all necessary expense attending the same to be paid for by the Contractor.

The entire improvement and all the appurtenances shall be constructed in a good and workmanlike manner and under the direction of the Sanitary District. Employees of the Contractor whose work is unsatisfactory to the Owner or Engineer, or are considered by the Engineer to be careless, incompetent, unskilled, or otherwise objectionable shall be dismissed from the work upon notice from the Engineer.

All materials and workmanship of whatsoever kind used in the work shall be subject to the inspection and approval of the Engineer and shall be subject to the constant inspection before acceptance. Any imperfect work that may be discovered before its final acceptance shall be corrected immediately, and any unsatisfactory materials used in the work or delivered at the site shall be rejected and removed on the requirement of the Engineer. The inspection of any work shall not relieve the Contractor of any of his obligations to perform proper and satisfactory work, as herein specified, and all work which during the progress and before its final acceptance, may become damaged for any cause, shall be removed and replaced by good and satisfactory work, without extra charge therefore.

If the Contractor does not correct condemned work and remove rejected materials within a reasonable time, fixed by written notice, the District may remove them and charge the expense to the Contractor.

Should it be considered necessary or advisable by the Engineer at any time before final acceptance of the entire work to make any examination of work already completed, by removing or tearing out same, the Contractor shall on request promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any material respect, due to fault of the Contractor, or his Subcontractors, he shall defray all the expense of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus fifteen (15) percent, shall be paid the Contractor by the Owner.

If any defects or omissions in said work are hidden or concealed so that a reasonably careful inspection at the time of acceptance of said work would not have disclosed them, and such defects or omissions appear or are disclosed within two (2) years after Final Payment of the work, then the Contractor agrees, on notice given him in writing by the Engineer that such defects or omissions exist, to immediately correct and make good the same, and in the event that he fails, refuses or neglects to do so, then the Sanitary District may correct and make good the same, and the Contractor hereby agrees to pay on demand the cost and expense of doing such work.

3.0 Subcontracting

The Contractor shall not subcontract any work to be performed or any materials to be furnished in the performance of this Project without the consent of the District. If the Contractor shall sublet any part of this Project, the Contractor shall be as fully responsible to the District for the acts and omissions of his Subcontractor and of the persons either directly or indirectly employed by his Subcontractor, as he is for the acts and omissions of persons directly employed by himself.

4.0 Permits and Compliance with Laws

The Contractor shall keep himself fully informed of all existing Sanitary District ordinances, local regulations and ordinances, and state and national laws in any manner affecting the work herein specified. The Contractor shall give all notices, pay all fees, and comply with all law, ordinances, rules and regulations bearing on the conduct of the work. The Contractor shall pay for all permits and licenses necessary for the prosecution of the work unless otherwise specifically provided. Before the Contractor commences work in any private drive, alley, street, roadway or highway, he shall first secure a permit from the municipality, person or persons having jurisdiction of these rights of way. If necessary permits have been acquired by the Owner, the Contractor shall complete the work in conformance with the conditions and requirements expressed therein.

5.0 Protection of Work

The Contractor shall continuously and at his own expense maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury arising in connection with the Project.

To secure the protection of the work, the adjacent streets, buildings or other improvements, the Contractor must furnish and put in place at his own expense, braces, sheeting, etc., as may be necessary for the safety of the work, the public, or adjacent property. The sheeting and bracing shall be removed as the work progresses in such a manner as to prevent the caving in of the sides of the excavation or damaging any adjacent improvements. While being drawn, all vacancies left shall be carefully filled with flowable backfill or fine sand that is rammed by special tools or puddled as directed. The Engineer may order sheeting and bracing left in place, when in his opinion it is necessary for the protection of the work, the public, or adjacent property.

6.0 Use of Job Site and Boundaries of Work

The Contractor shall confine his equipment, apparatus, the storage of materials and operations of his workmen to limits indicated by law, ordinances, permits or directions of the Owner and the District and shall not encumber other premises with his materials. No ground outside the limits of rights of way or easements acquired for the sewers or appurtenances thereto, or ground outside the limits of property upon which the Owner may by law have the right to construct said improvement, shall be entered or occupied by personnel, tools, materials, or equipment without the consent of the owner in control of such land. The Contractor shall be responsible for making arrangements with property owners to gain access to the various job sites.

7.0 Damages, Indemnity and Hold Harmless

Said Contractor covenants and agrees to pay all damages for injury to real or personal property, for any injury sustained by any person growing out of any act or deed of said Contractor, its employees or agents that is in the nature of a legal liability. The Contractor further agrees to indemnify and hold the Sanitary District, the City of Peoria and their agents harmless against all claims, demands, citations, losses, causes of action, damage, lawsuits, judgments, including attorney's fees and costs against said Sanitary District, City of Peoria and/or their agents for, or on account of the actions or omissions of the Contractor, its employees or agents, including but not limited to injuries to real or personal property, injuries received or sustained by any person or persons caused by said Contractor, its employees or agents in the execution of said work by or in consequence or for claims made for violations of the Occupational Safety and Health Act of 1970, as amended.

8.0 Notifications by Contractor

Sufficient notice (at least one week, and, if possible, longer) shall be given by the Contractor to all utilities, private corporations and governmental entities whose pipes, poles, tracks, wires or conduits or other structures may be affected by the work, in order that they may adjust, remove or rebuild them. The Contractor shall likewise notify the dispatcher of the local fire and police departments twenty-four (24) hours in advance of any temporary blocking of any street and convey the anticipated time and duration of said blocking.

9.0 Superintendence

The Contractor shall give his personal superintendence to the work or have at the site of the work at all times a competent foreman, superintendent, or other representative satisfactory to the District and having authority to act for the Contractor, and to receive and execute orders from the Engineer, who shall receive shipments and material to the Contractor, and who shall see that the work is executed in accordance with the specifications and the orders of the Engineer thereunder. The Engineer shall have the right to suspend the work under the conditions of the Notice to Suspend Work when in his opinion competent superintendence is not present to direct the work.

10.0 Workers

The Contractor shall employ competent superintendence, foremen and laborers, and shall discharge, at the request of the Engineer, any incompetent or unfaithful workers in his employ. None but workers expert in their respective branches of work shall be employed where special skill is required.

11.0 Resident Project Representative

Duties and responsibilities of the District's Resident Project Representatives will include the following:

- 1) Review the progress schedule, schedule of shop drawing submissions and schedule of values

- prepared by the Contractor and consult with the Engineer concerning their acceptability;
- 2) Arrange a schedule of progress meetings and other job conferences as required in consultation with the Engineer and notify those expected to attend in advance. Attend meetings, maintain and circulate copies of minutes thereof;
 - 3) Serve as Engineer's liaison with Contractor, working principally through Contractor's superintendent and assisting him in understanding the intent of the Specifications and Contract Documents. Assist Engineer in serving as District's liaison with Contractor when Contractor's operations affect the District's on-site operations. As requested by Engineer, assist in obtaining additional details or information at the job site for proper execution of the work;
 - 4) Receive and record date of receipt of shop drawings and samples, receive samples which are furnished at the site by Contractor and notify Engineer of their availability for examination. Advise the Engineer and Contractor of any work requiring a shop drawing or sample submission if the submission has not been approved by the Engineer;
 - 5) Conduct on-site observations of the work in progress to assist Engineer in determining if the work is proceeding in accordance with the Specifications and Contract Documents and that completed work will conform to the Specifications and Contract Documents;
 - 6) Report to Engineer whenever he/she believes that any work is unsatisfactory, faulty or defective or does not conform to the Specifications and Contract Documents, or does not meet the requirements of any inspection, test or approval required to be made or has been damaged prior to final payment. Advise the Engineer when he/she believes work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval;
 - 7) Verify that test, equipment and system start-ups are conducted as required in the Specifications and Contract Documents;
 - 8) Accompany, visitors, inspectors representing public or other agencies having jurisdiction over the Project, record the outcome of these inspections and report to the Engineer;
 - 9) Transmit to Contractor clarification and interpretation of the Specifications and Contract Documents;
 - 10) Consider and evaluate Contractor's suggestions for modifications of both the Plans and the Specifications and Contract Documents and report them with recommendation to the Engineer for his acceptance or rejection;
 - 11) Maintain at the job site orderly files for correspondence, report of job conferences, shop drawings and samples submissions, reproduction of original Specifications and Contract Documents including all addenda, change orders, field orders and additional drawings issued subsequent to the execution of the contract. Keep a diary or logbook recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list of visiting officials and representatives of manufactures, fabricators, suppliers and distributors, daily activities, decisions, observation in general and specific observation in more detail as in the case of observing test procedures. Send copies to Engineer. Record names, addresses and telephone number of all Contractors, subcontractors, and major suppliers of material and equipment;
 - 12) Furnish Engineer periodic reports as required of progress of the work and Contractor's compliance

with the approved progress schedule and schedule of Shop Drawing submissions. Consult with the Engineer in advance of scheduled major tests, inspection or start of important phases of the work. Report immediately to Engineer upon the occurrence of any accident;

- 13) Review application for payment with Contractor for compliance with the established procedure for their submission and forward the application for payment with recommendations to Engineer, noting particularly their relation to the schedule of values, work completed and materials and equipment delivered at the site but not incorporated in the work;
- 14) Before Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction. Conduct final inspection in company of Engineer and Contractor and prepare a final list of items to be completed or corrected. Verify that all items on final list have been completed and make recommendation to Engineer concerning acceptance;

The Resident Project Representative's authority shall be limited as follows except upon written instructions of the Engineer:

- 1) Shall not authorize any deviation from the Specifications and Contract Documents or approve any substitute materials or equipment;
- 2) Shall not exceed limitations on Engineer's authority as set forth in the Specifications and Contract Documents;
- 3) Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Specifications and Contract Documents;
- 4) Shall not advise or issue directions as to safety precautions and programs in connection with the work;
- 5) Shall not authorize District acceptance of the Project in whole or in part;
- 6) Shall not participate in specialized field or laboratory tests.

12.0 Lines and Grades

During construction, the Engineer or Owner shall furnish the Contractor with the necessary lines, grades and measurements needed unless a pay item for Construction Layout is provided. The Contractor shall check the lines and grades by such means as he may deem necessary and before using them shall call the Engineer's attention to any inaccuracies. Failure to notify the Engineer or his assistant of such inaccuracies shall make the Contractor solely responsible for the cost of repairing or replacing any or all work done in error.

The care of the stakes, markings and the lines and grades shall be the duty of the Contractor and LOST OR DISTURBED STAKES WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

When specifically called for in the Specifications, the Contractor shall be required to perform construction layout and staking for this Project. The Sanitary District or Owner will provide adequate reference points to the centerline of survey and bench marks as listed herein. Any additional control points set by the Sanitary District or Owner will be identified in the field to the Contractor and all field notes will be kept in the office of

the Engineer or his Representative.

The Contractor shall provide field forces, equipment and material to set all additional stakes for this Project which are needed to establish offset stakes, reference points, and any other horizontal or vertical controls, including supplementary bench marks, necessary to secure a correct layout of the work. Stakes for line and grade shall be set at sufficient station intervals to assure substantial conformance to plan line and grade. The Contractor will not be required to set additional stakes to locate a utility line which is not included as a pay item in the contract nor to determine property lines between private properties.

The Contractor shall be responsible for having the finished work conform to the lines, grades, elevations, and dimensions as directed. Any inspection or checking of the Contractor's layout by the Engineer or his Representative and the acceptance of all or any part if it shall not relieve the Contractor of his/her responsibility to secure the proper dimensions, grades and elevations of the several parts of the work. The Contractor shall exercise care in the protection of stakes and bench marks and shall have them reset at his/her expense when any are damaged, lost, displaced, or removed or otherwise obliterated.

Responsibility of the Sanitary District or Owner

- (a) The Sanitary District or Owner will reference the centerline of the Project. Referencing the centerline of survey will consist of establishing and referencing the control points of the centerline of surveys.
- (b) Bench marks will be established along the Project outside of construction lines.
- (c) Stakes set for (a) and (b) above will be identified in the field to the Contractor.
- (d) The Sanitary District or Owner will make random checks of the Contractor's staking to determine if the work is in substantial compliance with the Engineer's directions. Where the Contractor's work will tie into work that is being or will be done by others, checks will be made to determine if the work is in conformance with the proposed overall grade and horizontal alignment.
- (e) The Sanitary District or Owner will make all measurements from which the various pay items are to be measured.
- (f) Where the Contractor, in setting construction stakes, discovers discrepancies, the Sanitary District or Owner will check to determine their nature and make whatever revisions are necessary. Any additional restaking required by the Engineer will be the responsibility of the Contractor.
- (g) The Sanitary District or Owner will accept responsibility for the accuracy of the initial control points as provided herein.
- (h) It is not the responsibility of the Sanitary District or Owner, except as provided herein, to check the correctness of the Contractor's stakes; however, any errors that are apparent will be immediately called to the Contractor's attention and he/she shall be required to make the necessary correction before the stakes are used for construction purposes.

Responsibility of the Contractor

- (a) The Contractor shall establish from the given survey points and bench marks all the control points necessary to construct the individual Project elements. He/She shall provide the Engineer adequate control in close proximity to each individual element to allow adequate checking of construction operations. This includes, but is not limited to line and grade stakes, line and grade nails in form work, and/or filed or etched marks in substantially completed construction work. The maximum distance along the sewer route between permanent and/or temporary benchmarks shall be 800 feet.

It is the Contractor's responsibility to tie in centerline control points in order to preserve them during construction operations.

- (b) All work shall be in accordance with normally accepted self-checking surveying practices. Field notes shall be kept in standard survey field notebooks and those books shall become the property of the Sanitary District or Owner at the completion of the Project. All notes shall be neat, orderly, and in accepted form.

13.0 Structures and Utilities Encountered

The location of various underground and surface structures may or may not be provided. The location and dimensions of such structures where given do not purport to be absolutely correct. The Contractor shall determine in the field the exact location of all public and private existing utilities and other structures.

The Contractor shall notify J.U.L.I.E. at (800) 892-0123 prior to commencing any excavation.

The Contractor shall be entirely responsible for damage to existing utility and transportation infrastructures as well as existing features at the site(s), including, but not limited to, the following: water pipes and accessories such as control valves; existing drains, whether subsurface or above-ground; existing sewers and sewer structures such as manholes, inlets, etc.; utility poles carrying cables, wires, conduits, etc.; above-ground and subsurface utility wires, cables, conduits, etc., including those intended to serve telephone, telegraph, electrical and traffic control interests; railroad bridges, tracks and interests; streets, pavements, sidewalks, curbs, fences, culverts, field tile, buildings, trees or other structures of any kind met with during the prosecution of the work; and shall be liable for damages to public or private property resulting therefrom which amount may be deducted from any moneys due him for work done.

When it is necessary to build under, across or near any existing tracks, roads, fences or other structures, the Contractor shall make the necessary arrangements with the parties responsible for same, and shall bear all expenses for protecting the property and the structures from possible loss or injury. The Contractor shall provide temporary structures where necessary. Permanent restoration of structures shall be equal to the original. Such arrangements shall be subject to the approval of the Engineer.

The Contractor shall care for and maintain all field tile, sewers, drains, water and gas pipes, conduits, culverts, bridges, buildings and foundations encountered, together with the services therefrom, and shall maintain or otherwise provide for the service of water, gas, electricity and other utilities disturbed. Whenever such structures are interfered with, the Contractor shall, if necessary, provide temporary facilities to maintain such service. The Contractor shall promptly repair all damaged items and in case of such repairs are not made promptly or satisfactorily, the Sanitary District may have the repairs made and may deduct the cost thereof from any moneys due or to become due the Contractor.

No such sewers, drains, culverts, water pipe, gas pipe, poles or other structures shall be moved without the consent of the Engineer; and where such structures cross or extend within the work of the Contractor, these pipes or structures shall be securely hung, braced and supported in place until the work is completed.

The Contractor shall be responsible for and repair utilities damaged as a result of construction operations. The respective utility shall be notified immediately whenever any of their lines are damaged. Immediately restore pipes, conduits, service lines, wires, and other utilities to their full and permanent service condition in a manner approved by the Engineer and the affected utility company. No extra compensation shall be allowed for the repair of any utilities or structures damaged by Contractor construction operations. Residential sanitary sewer services shall be repaired in accordance with the Sanitary District specifications titled "General Specifications for Sanitary Sewers and Appurtenances", latest edition, and "Building Sewer Regulations", latest edition.

14.0 Pedestrians and Traffic

Excavated material, other materials, equipment and tools, shall be so piled and located that free access may be had at any time to all parts of the work; and so as to inconvenience public travel or adjoining tenants as little as possible. Walkways shall be kept clean and unobstructed. Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, water valves, gas valves, manholes, fire alarm or police call boxes in the vicinity.

The Contractor shall make provision so far as practicable in the opinion of the Engineer at all cross streets, private driveways, and along streets carrying traffic, for the free passage of vehicles and foot passengers by building temporary roads, bridges, or as otherwise directed by the Engineer. No special allowance shall be made for this temporary construction unless so specified in these Specifications.

Where such temporary construction is impracticable or unnecessary in the opinion of the Engineer, the Contractor shall make arrangements, satisfactory to the Engineer, for the diversion of traffic, and shall at his own expense provide all material and perform all work necessary for the construction and maintenance of roadways and bridges for such diversion of traffic.

The Contractor shall provide for protection of the public by installing and maintaining traffic control signs and barricades. The State of Illinois Standards, location of traffic control equipment, should be considered the minimum required for road closures and lane reductions. However, if on roadways which are not IDOT right-of-ways any permits obtained from the governing jurisdiction (City of Peoria, etc.), which dictate traffic control measures different from those required by IDOT Standards, shall govern traffic control measures at that particular work site. Traffic Control Standards are included in Section 099 of these Specifications.

Contractors shall notify the Sanitary District and all agencies having jurisdiction over the affected right-of-ways in question at least one (1) week in advance of any road closures.

Street intersections may be blocked only one-half at a time and at all times the Contractor shall maintain suitable roadways or walks to properly accommodate traffic. Gutters and water courses shall be kept clear for the passage of storm water, or other provisions shall be made to care for it. Proper provisions shall be made for the protection of traffic and the public. The Contractor shall provide and maintain proper barricades, sign boards, fences, signal lights and watchmen to properly protect the work, persons, animals, vehicles and property against injury. These statements of specific duties on the part of the Contractor shall not be considered as a limitation on the general duties imposed by the Project or specifications.

The Sanitary District reserves the right to remedy any neglect on the part of the Contractor as regards the protection of the work, property, or public after twenty-four (24) hours notice in writing, except in case of emergency when it shall have the right to remedy any neglect without notice, and in either case bill the cost of such remedy to the Contractor.

15.0 Bulkheads

The Contractor shall build, inside the sewers constructed under this Project, suitable wooden, brick, or pneumatic plug bulkheads to protect his work against the entrance of dirt or water and also to protect adjacent work built under other Projects.

These bulkheads shall be constructed at such points and in such manner as ordered and directed by the Engineer and, when so ordered, the Contractor shall remove them. Prior to the removal of such bulkheads, or prior to the joining up of adjacent work to the work built under this Project, the Contractor shall at his own expense remove all water which has collected behind such bulkheads and which may in any way affect their satisfactory removal or interfere with adjoining work.

16.0 Temporary Sewer Connections

When existing sewers or drains have to be taken up or removed, or where special connections are made, the Contractor shall provide and maintain temporary outlets and connections for all private or public drains, culverts, sewers or catch basins. He shall also take care of all sewage and drainage which will be received from these drains, culverts, sewers and catch basins; and for this purpose he shall provide and maintain, at his own expense, adequate pumping facilities and temporary outlets or diversions. He shall construct such troughs, pipes or other structures as may be necessary and shall be prepared at all times to dispose of the drainage and sewage received from these temporary connections until such time as the permanent connections are built and in service. Existing sewers and connections, and tile or other drains, are to be kept in service and maintained except where specified or ordered in writing to be abandoned by the Engineer.

17.0 Locations for Stub Sewers

The Contractor shall assume all responsibility for the location and connection to building inlets and risers for six (6) inch stub sewers. At the Contractor's request the Engineer may assist in the location of said inlets or risers but under no circumstances shall the Engineer be held liable for errors resulting in time lost or materials used locating said inlets. All time lost or materials used shall be at the expense of the Contractor.

In the event that a building inlet or riser cannot be found, the Engineer may order the Contractor to tap the line using an approved saddle to form the building inlet.

18.0 Correction of Work

Neither the final acceptance nor any provision in the Project document shall relieve the Contractor of the responsibility for negligence, faulty materials or faulty workmanship which shall appear within two (2) years after date of completion and acceptance. Upon written notice, he shall correct such defects at his own expense and shall pay for any damages that may occur as a result of the faulty work. This correction shall also apply to surface areas where restoration or original conditions are not complete or satisfactory during the two (2) year guarantee period.

Failure of the Contractor to correct faulty work within seven (7) days of receipt of written notice shall result in the work being corrected by others selected by the District and all costs so incurred shall be reimbursed to the Owner by the Contractor. If the Owner deems it expedient to accept work injured or not done in accordance with the contract, an equitable adjustment will be made with a proper deduction from the contract price for unsatisfactory work.

19.0 Sales Tax

The Greater Peoria Sanitary and Sewage Disposal District and the City of Peoria are exempt from paying State Sales Tax and Contractor shall be exempt from paying State Sales Tax on materials and services purchased for the Project.

20.0 Sanitation

The Contractor shall introduce and enforce among his employees such regulations in regard to cleanliness and the disposal of garbage and wastes, which will tend to prevent the inception and spread of contagious and infectious diseases, and shall take such means as the Engineer may direct to effectually prevent the creation of a nuisance to any part, streets or adjacent property affected by the work. Necessary sanitary conveniences for the use of the laborers on the work, properly secluded from public observation, shall be constructed and maintained by the Contractor in such manner and at such points as approved, and their use shall be strictly enforced.

21.0 Final Cleaning and Final Inspection

Upon completion of the work built under this Project, or a part thereof, the Contractor promptly and without delay, shall thoroughly and systematically clean and make any further needed repairs to the sewers or other structures. He shall at his own expense remove and properly dispose of all water, dirt, rubbish, bulkheads, or any other foreign substances.

The Contractor shall avoid introducing water in amounts determined to be excessive by the Engineer, or excessive or foreign solids, materials and substances into sewers. In the judgment of the Engineer, any such introductions into either storm or sanitary sewer systems shall be stopped and the costs of any such corrections shall be exclusively that of the Contractor.

When the Contractor has cleaned and inspected the whole, or any portion of the work, he shall notify the Engineer in writing that he is ready for an inspection of the whole, or a portion of the work, and the Engineer will thereupon inspect the work. If the work is not found satisfactory, the Engineer may require further cleaning or repairs and when these are completed, the Engineer will inspect the work.

During the final inspection the sewer shall be clean and free from water. In no case will the acceptance be final until the Contractor has complied with all the requirements set forth and the Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed, in accordance with the requirements of the Specifications.

Inspection of sewers after construction may be accepted by the use of closed circuit television, air testing, or such other procedures as may be selected at the option and direction of the District.

22.0 Cleaning Up

The Contractor shall at all times keep the site of the work free from accumulations of waste material or rubbish caused by his employees or work and at the completion of the work he shall remove all his rubbish from and about the work and all his tools, equipment, scaffolding and surplus materials and shall leave his work clean and ready for use. Marred surfaces shall be patched or repaired and touched up to match adjoining surfaces. All damaged grass areas shall be restored and reseeded. In case of dispute, the District may remove the rubbish and surplus materials and tools and charge the cost to the Contractor. The Contractor shall instruct haulers of concrete to clean the truck mixers at a location specified by the Engineer or his Representative.

Where the Contractor's equipment is operated on any portion of the pavement used by traffic on or adjacent to

the section under construction, the contractor shall clean the pavement of all dirt and debris every four hours, at the end of each day's operation, and at other times as directed. The Contractor shall also clean, as directed, all other areas of pavement that are impacted by construction activities and debris.

In accordance with Public Act 90-761, which amends the Environmental Protection Act concerning general construction or demolition debris, the Contractor shall not conduct any generation, transportation, or recycling of construction or demolition debris, clean or general or uncontaminated soil generated during construction, remodeling, repair, and demolition of utilities, structures, and roads that is not commingled with any waste, without the maintenance of documentation identifying the hauler, generator, place of origin of the debris or soil, the weight or volume of the debris or soil, and the location, owner, and operator of the facility where the debris or soil was transferred, disposed, recycled, or treated. This documentation must be maintained by the Contractor for three (3) years. All costs shall be the responsibility of the Contractor.

23.0 Rights of the Sanitary District

The Owner reserves the right to withhold a sufficient amount of any payment otherwise due to the Contractor to cover claims as follows:

- (a) Payments that may be earned or due for just claims for labor or materials furnished in and about the performance of the work under this contract;
- (b) Defective work not remedied or contract items not wholly completed;
- (c) Failure of the Contractor to make proper payments to his Subcontractor or Suppliers.

The Sanitary District shall disburse and shall have the right to act as agent for the Contractor in disbursing such funds as have been withheld pursuant to this paragraph to the party or parties who are entitled to payment therefrom. The Sanitary District will render to the Contractor a proper accounting of all such funds disbursed on behalf of the Contractor.

The Contractor shall furnish the Engineer reasonable facilities for obtaining information regarding the progress and execution of the work and the character of the materials, including all information necessary to determine the cost of the work, such as the number of personnel employed, their pay, the time during which they have worked on the various phases of construction, the cost of repairs to machinery, or other information required by the Engineer. The Contractor shall, on request, furnish the Engineer with copies of expense bills for transportation charges on all machinery, material and supplies shipped to or from the work under this contract.

24.0 Termination for Breach

In the event that any of the provisions of this Contract are violated by the Contractor or by any of his Subcontractors, the Owner may serve written notice upon the Contractor and the Surety of their intention to terminate such contract, such notice to contain the reasons for such intention to terminate the Contract, and unless within ten (10) days after the serving of such notice upon the Contractor such violation shall cease and satisfactory arrangements for correction be made, the contract shall, upon expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor, and the Surety shall have the right to take over and perform the contract, provided, however, that if the Surety does not commence performance thereof within thirty (30) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion by contract for the account and at the expense of the Contractor, and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned the District thereby, and in such event the District may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore.

25.0 Definition of Notice

Where in any of the contract documents there is any provision in respect to the giving of any notice, such notice shall be deemed to have been given when in accordance with the following: as to the Sanitary District, when written notice shall be delivered to the Engineer of the Sanitary District, or shall have been placed in the United States mail addressed to the Executive Director of the District at the Office of the District, 2322 S. Darst St., Peoria, Illinois; as to the Contractor, when a written notice shall be delivered to the chief representative of the Contractor at the site of the work or by mailing such written notice in the United States mail addressed to the Contractor at the place stated in the papers prepared by him to accompany his proposal as the address of his permanent place of business; as to the Surety on the performance bond, when a written notice is placed in the United States mail addressed to the Surety at the home office of such Surety or to its agent or agents who executed such performance bond in behalf of such Surety.

26.0 Extra, Additional or Omitted Work

The Owner, upon proper action by its governing body, through a written notice signed by its Engineer, may authorize additions to or deductions from the work to be performed in accordance with the following:

- (a) By unit prices contained in the Contractor's original bid and incorporated in the construction contract;
- (b) By a supplemental schedule of prices contained in the Contractor's original bid and incorporated in the construction contract;
- (c) By an acceptable lump sum proposal from the Contractor.

If the value of such additions or deductions does not exceed twenty-five percent (25%) of the value of the original scope of work, the Contractor shall make no claim for adjustment or invalidation of the unit prices made part of the contract and shall accept the valuation of additions or deductions based on unit prices made part of the contract.

27.0 Liens

If at any time during the progress of said work the said Contractor shall fail or neglect to pay for any labor performed, material furnished, or tools, machinery, appliances, fuel provisions, or supplies of any sort or kind used or consumed in, upon or on account of said work for thirty (30) days after payment for same shall have become due, then the said Owner shall have the right to pay for such labor, or for materials, tools, machinery, appliances, fuel, provisions, or supplies, and the amount so paid shall be retained out of the money due or to become due to said Contractor. The Owner may refuse to make payment hereinafter mentioned to the extent of such indebtedness until satisfactory evidence, sealed and in writing, has been furnished that said indebtedness has been discharged.

The Owner is hereby authorized and empowered by said Contractor to ascertain by the Engineer the amount due or owing from said Contractor to any laborer or laborers, or to any person or persons, or corporation, for labor, equipment, materials, tools, machinery, appliances, fuel, provisions, or supplies of any sort or kind consumed upon, in or on account of the work covered by this contract in such manner and upon such proofs as the said Engineer may deem sufficient.

The Owner is authorized to require from the Contractor evidence satisfactory to the Engineer, of payments made by the Contractor to entities, including persons or corporations, amounts due or owing from said

Contractor in or on account of the work covered by this contract. Prior to each payment to the Contractor, the Contractor shall submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment. Partial waivers shall be in writing, sealed and include an original signature of an authorized agent of the entity granting the waiver (grantee); waivers shall include the amounts paid to date as well as the amounts due from the Contractor to the grantee for work or materials associated with the Project. When all amounts due to an entity for work or materials associated with the Project have been fully paid, submit final a final waiver(s). The owner reserves the right to designate which entities must submit waivers. Waivers forms must be acceptable to the Engineer and executed in a manner acceptable to the Engineer.

The Contractor shall submit a General Contractor waiver for the full amount of the current payment.

28.0 Liquidated Damages

It is understood and agreed that time is of the essence of this contract, and that a failure on the part of said Contractor to complete the work herein specified within the time specified will result in loss and damages to the Owner, and that on account of the peculiar nature of such loss or damage, it is difficult, if not impossible, to accurately ascertain and definitely determine the amount thereof.

It is therefore covenanted and agreed that in case the said Contractor shall fail or neglect to complete the work herein specified on or before the date hereinbefore fixed for completion, the said Contractor shall and will pay to the Owner such actual costs as can be verified by the District or the sum of not less than that given below:

Original Contract Amount From More Than	To and Including	Charge per Calendar Day
\$0	\$100,000	\$675
\$100,000	\$500,000	\$1,050
\$500,000	\$1,000,000	\$1,425
\$1,000,000	\$3,000,000	\$1,725
\$3,000,000	\$6,000,000	\$2,000
\$6,000,000	\$12,000,000	\$3,450
\$12,000,000	and over	\$9,525

Damage shall be assessed for each and every calendar day the Contractor shall exceed the "Time of Completion" as specified in this Contract.

Said sum of actual Owner cost, but not less than the sums given in the chart above is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages which said District will suffer by reason of such defaults, and not by way of a penalty. In case the said Contractor does not complete the work covered by this contract on or before the time specified herein for the completion of the said work, the Engineer shall decide the number of days the said Contractor is in default, and the decision of said Engineer shall be final and binding upon both parties hereto. It is further agreed that if the Owner shall accept any work or make any payments shall not in any respect constitute a waiver or modification of any of the provisions hereof, and particularly the provisions in regard to TIME AND LIQUIDATED DAMAGES for delays.

29.0 Notice to Suspend Work

The Contractor shall delay or suspend the progress of the work, or any part thereof, whenever he shall be so required by written order of the Engineer, and for such periods of time as the Engineer may order, provided that in the event of such delay or delays or of such suspension or suspensions, time shall be extended for a period equivalent to the time lost by reason of such suspension or suspensions, but such order of the Engineer shall not otherwise modify or invalidate in any way any of the provisions of this contract, and said Contractor shall not be entitled to any damages or compensation, except as stated in the following paragraph, from the Owner on account of such delay or delays, suspension or suspensions.

30.0 Unavoidable Delays

Should the Contractor be obstructed or delayed in the commencement, prosecution or completion of the work by any act or delay of the Owner, or by riot, insurrection, war, pestilence, acts of public authorities, fire, lightning, earthquakes, cyclones, floods, or through any default or delay of other parties under contract with the District, or by strikes, or other causes, which causes of delay mentioned in this article, in the opinion of the Engineer are entirely beyond the control of the Contractor, then the time herein fixed for the completion of the work so delayed shall be extended for a period equivalent to the time lost by reason of any of the causes aforesaid, but no such allowance shall be made unless the Engineer is notified by the Contractor, verbally at the commencement of the delay and in writing before the fifth of each succeeding month of all delay occurring in the preceding month.

It is further expressly agreed that said Contractor shall not be entitled to any damage or compensations from the Owner on account of any delays resulting from any of the causes above specified in this article except compensation for wages for extra time for any necessary watchmen and for extra premiums on his bond, actually paid by said Contractor on account of said additional time so required to complete all work hereunder, due only to delays caused by the Owner or by other parties under contract with the District. The Engineer shall decide the number of days that said Contractor has been so delayed and his decision shall be final and binding upon both parties hereto.

31.0 Assignment of Contract

No assignment by the Contractor of any principal construction contract or any part thereof, or of the funds to be received thereunder by the Contractor, will be recognized by the Owner unless such assignment has had the approval of the Owner, and the Surety has been given due notice of such assignment in writing in accordance with the terms of its bond.

No assignment will receive approval unless the instrument of assignment contains a clause to the effect that it is agreed that the funds to be paid to the assignee under the assignment are subject to a prior lien for services rendered or materials supplied for the performance of the work called for in said contract in favor of all persons, firms, or corporations rendering such services or supplying such materials.

32.0 General Requirements Relating to Rights of Way

All work in rights-of-way shall be in accordance with the regulation of the Department or Agency having jurisdiction in the area or as directed by the Engineer. The Contractor shall secure such permits and approval as may be necessary and conform to conditions therein.

32.1 Special Requirements Relating to Sewers Constructed in Township Highways

The Contractor shall advise all Township Highway Commissioners having jurisdiction in the areas where

the work is to be performed and shall secure such permits or approval as may be required.

Restoration of Township Highways shall be approved by the Highway Commissioner before receiving final payment for the work from the District.

32.2 Special Requirements Relating to Sewers Constructed in County Highways

Before the Contractor commences work on the construction of the sewers in the County right of way, he shall secure a permit from the County Highway Department based on the following conditions and restrictions:

1. The Contractor and the Engineer from the County Highway Department shall inspect the condition of the streets before commencement of any construction work so that there will be no disagreement as to the existing condition of the right of way.
2. The Contractor shall furnish all material, do all work, pay all costs and shall, as soon as a section of sewer is completed in any part of the County rights of way, restore said streets to a condition similar or equal to that existing before the commencement of the work. Replacement shall be made as required in the conditions and restrictions issued by the County Superintendent of Highways.
3. The Contractor shall not unreasonably interfere with or obstruct traffic. All traffic and warning devices shall comply with the State of Illinois Manual of Uniform Traffic Control Devices for Streets and Highways. The Contractor shall furnish, at his expense, the necessary flagmen, barricades, flares, signs or any other necessary precautions as required by the County Engineer.
4. The Contractor shall remove all excess dirt and leave shoulders, ditches and backslopes in a presentable condition. All areas where existing sod has been disturbed during prosecution of the above work shall be reseeded and fertilized in accordance with the specifications of the County Highway Department.
5. In case it is necessary to remove any guard posts during construction, the Contractor shall replace posts to the alignment and grade established by Peoria County Highway Department. If necessary to remove any highway signs, mailboxes, etc., the Contractor shall reset them immediately in their original position after preliminary backfilling is done. The above mentioned items are to be adjusted to their former elevation and position after the final backfilling and leveling and prior to final inspection and acceptance has been made.
6. The Contractor shall not trim, cut or in any way disturb any trees or shrubbery along said highway without the approval of the County Superintendent of Highways or his duly authorized representative.
7. In certain sections of the right of way, the Contractor shall remove all excavated materials from the excavations and backfill the trench with granular material or flowable backfill, all work to be in accordance with said permit.
8. The Contractor shall assume all risk and liability for accidents and damages that may accrue to persons or property on account of the work and shall reimburse the County for any repairs the County deems necessary to the existing highway on account of said work in

case of emergency or neglect by said Contractor.

9. Wherever rock or shale is encountered in the ditch excavation at the flowline or above, the Contractor shall backfill that area of rock or shale excavation with State Highway Specification porous granular backfill to a depth of one foot above the top of the shale or rock in the ditch. The balance of the excavation may be backfilled with material removed from the excavation if the material used will compact in a satisfactory manner or as approved by the Superintendent of Highways of Peoria County.

32.3 Special Requirements Relating to Sewers Constructed in Illinois State Highways

Where required, the Sanitary District will secure a permit(s) from the Illinois Department of Transportation (IDOT). The Contractor shall perform all work in accordance with the conditions of the permit(s).

No earth will be allowed to be stored or cast upon the pavement, and proper precautions shall be taken at all times to safeguard traffic by the use of lights, barricades, and warning signs along open trenches. All traffic control shall be in accordance with IDOT permits obtained to allow the performance of said work.

Flaggers shall be employed at all times to safeguard traffic when construction equipment is working close to or upon the pavement. At no time will the pavement be completely closed to traffic.

If any trenching is performed between the edge of the pavement and the centerline of the ditch, it will be necessary that the excavated earth be hauled away and the trench shall be backfilled in accordance with IDOT standards.

The Contractor shall notify the IDOT District Engineer after completion of restoration within the right of way and acceptance of the work for final payment by the District. Final payment shall be contingent upon the approval of the IDOT District Engineer. Notification of IDOT personnel shall be as specified in any issued IDOT permits.

32.4 Special Requirements Relating to Sewers Constructed in Railroad Property

The installation, repair, or modification of sewer pipe, including the digging and filling of any trench, and the time and manner of doing all of the work upon the Railroad Company's right of way, shall be as indicated by its Chief Engineer, or his authorized representative.

All of the work shall be done in a good and workmanlike manner and submitted for approval to the Railroad Company's Chief Engineer, or his authorized representative. No work shall be started prior to receipt of such notice and approval from the Railroad Company.

Ample notice in writing, or by other means acceptable to the Railroad Company's Chief Engineer, to the Railroad Company shall be made by the Contractor of the time when work will commence so that, if so desired, the Railroad Company may have its representative present for the purpose of inspecting or directing the work in a manner satisfactory to the Railroad.

32.5 Special Requirements Relating to Sewers Constructed in Airport Property

All work performed within the premises of the Airport property shall be in full accord with the rules for safety of the Airport, the Illinois Department of Aeronautics, and the Federal Aviation Agency.

No work shall be undertaken by the Contractor at any time without first obtaining the Airport's written

approval as to time and place in a manner not to endanger users of said public airport; that day and night marking of all equipment, excavation or disturbance of the earth shall be as specified in Section 60, entitled "Legal Relations and Responsibilities to Public" of the Federal Aviation Agency publication, STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, latest edition, as amended; that the earth shall be replaced promptly and so no settlement can occur that could in any way endanger aircraft or airport users and no structure of any kind, on the surface or otherwise shall be permitted that could endanger the premises use as an airport.

33.0 Future Streets

Future streets constructed over sewer trenches must rest on compacted or flowable backfill with proper pavement sub-grade as indicated in the City Standard Specifications for Subdivision Development. Before any pavement is laid on any streets in the City, the sanitary sewer services shall be stubbed beyond the paved surface on all lots having frontage on said streets.

34.0 Temporary Structures

All false work, scaffolding, ladders, hoistways, braces, shields, trestles, roadways, sheeting, forms, barricades, drains, flumes and the like, any of which may be needed in the construction of any part of the work must be furnished, set, maintained and removed by the Contractor, and he shall be solely responsible for the safety and efficiency of such works and for any damage that may result from their failure or from their improper construction, maintenance or operation.

In accepting the Contract, the Contractor assumes full responsibility for the sufficiency and safety of all temporary structures and work and for any damage which may result from their failure or their improper construction, maintenance or operation and will indemnify and save harmless the Sanitary District and the City, and its employees, from all claims, suits or actions and damages or costs of every description arising by reason of failure to comply with the above provisions.

35.0 Storage

The Contractor shall protect materials and equipment stored at the site against damage from the weather. When directed by the Engineer, the Contractor shall store materials on platforms or well drained paved surfaces and provide weatherproof covers when directed. Materials shall be stored in a manner to facilitate prompt inspection.

36.0 Shop Drawings

Within fifteen (15) days of execution of the Contract, the Contractor shall submit to the Engineer for review a complete list of all material, equipment and manufacturers proposed to be used in the Project. Based on approved list, the Contractor shall prepare and submit to the Engineer for review six (6) copies of detailed shop drawings and descriptive literature of proposed equipment and materials. The Contractor shall promptly submit shop drawings as to cause no delay in the progress of the work. The Contractor shall check and approve shop drawings and verify all field measurements before submission to the Engineer.

All items of material and equipment must be approved by the Engineer prior to their use towards the completion of the Project.

37.0 Reference Standards

Except as otherwise noted, any references to known standard specifications shall be to the latest edition of such

specifications as adopted and published to date of invitation to submit proposals.

Reference to technical society, organization or body is made in the specifications in accordance with the following abbreviations:

AASHTOAmerican Association of State Highway and Transportation Officials;
ACI..... American Concrete Institute;
ASTMAmerican Society for Testing Materials;
AWWA American Water Works Association;
IDOT Illinois Department of Transportation Specifications for Road and Bridge Construction.

38.0 Interference Drawings

Where space is limited for installation of equipment and appurtenances, piping, conduits, ducts, panel boxes, valves, etc., the Contractor shall coordinate such work, and if necessary he shall prepare composite drawings of such conditions showing accurately exact locations of such items with respect to building construction. The Contractor shall submit drawings to Engineer for approval prior to installation.

39.0 Manufacturer's Directions

Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned, conditioned as per manufacturer's printed directions unless specified to the contrary. The Contractor shall obtain and submit such directions to the Engineer prior to time of installation for use in supervising work.

Furnish at least three (3) copies of manufacturer's operating and maintenance instructions for equipment and systems which in the opinion of Engineer require such instructions. The Contractor shall obtain a receipt(s) for the same. When so specified or instructed, mount operating instructions in approved frame with glass cover; locate where directed.

40.0 Project Record Documents

The Contractor shall maintain at the job site one copy of all Specifications, addenda, approved shop drawings, change orders, and other contract modifications. Each of these Project record documents shall be clearly marked "Project Record Copy", shall be maintained in good condition, shall be available at all times for inspection by the Engineer and shall not be used for construction purposes. Project-record drawings shall be marked up to show significant changes made during construction progress. Project-record drawings shall be kept current and no work shall be concealed until required information has been recorded. Record-documents shall be submitted, in satisfactory condition, to the Engineer at the completion of the Project.

41.0 Patents, Trade Secrets, Copyrights

The Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the work or in the incorporation in the work of any invention, design, process, product or device which is the subject of patent rights, trade secrets protection rights, or copyrights held by others. The Contractor shall indemnify and hold harmless the Sanitary District and the City, the Engineer and anyone directly or indirectly employed by the Sanitary District and the City from and against all claims, damages, losses and expenses (including attorney's fees and court and arbitration costs) arising out of any infringement of patent rights, trade secrets protection rights, or copyrights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, product or device not specified in the contract documents, and shall defend all such claims in connection with any alleged infringement of such rights.

42.0 Contractor Safety

Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Project. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to: all persons on the Project site or who may be affected by the Project; all the Project work and materials and equipment to be incorporated therein, whether in storage on or off the Project site; and other property at the Project site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and underground facilities not designated for removal, relocation, or replacement in the course of construction. Contractor shall designate a qualified and experienced safety representative at the Project site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

The duty of the Owner, Engineer or Owner's consultant to observe Contractor's performance does not include any review of the adequacy of Contractor's safety measures in, on, or near the Project site or sites. Owner, Engineer and Owner's consultant have not been retained or compensated to provide design and construction review services relating to Contractor's safety precautions required for Contractor to perform the work. Neither the Owner, nor any official or employee of the Owner, nor the Engineer, or any authorized assistant or agent of any of them, shall be responsible for safety precautions and programs in connection with the Project or any liability arising therefrom.

All structures to be provided by the Contractor, (except those structures for which details are shown on the Plans), that require structural design shall be designed and constructed under the observation of a structural engineer, registered in the State of Illinois, acting for and retained by the Contractor. Drawings and calculations for such structures shall be prepared and sealed by the structural engineer and submitted to the Owner for record. A clear outline of the proposed construction procedure shall be shown on the drawings. A statement in writing by the structural engineer attesting that said engineer has visited the Project site or sites, that the design does satisfy the conditions as actually encountered and that the actual construction conforms to the drawings and calculations, as submitted, must be submitted to the Owner before the work related to such structures will be considered complete. All temporary structures, including sheeting and bracing for excavations, that affect the safety of the public, workmen, inspectors, or Owner's or Engineer's personnel shall be regarded as structures that require structural design.

Contractor shall comply with all applicable Federal, State and Local Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of underground facilities and other utility owners when prosecution of the Project may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property whether located on or off site caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the work on the Project, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Owner's consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). Contractor's duties and responsibilities for safety and for protection of the Project's work shall continue until such time as the Project is completed and Engineer has issued a notice to the Contractor that the work is acceptable. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Project site in accordance with Laws

or Regulations.

In emergencies affecting the safety or protection of persons or the Project or property at the Project site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Project or variations from the Contract Documents have been caused thereby or are required as a result thereof.

The Contractor shall review the District's safety policy prior to beginning any work and shall sign a statement of understanding before being allowed to begin work at the treatment plant or on the collection system. The Contractor shall read the policy included in the appendices, initial each section and sign and date the form.

43.0 Inspections of Constructed, Repaired or Modified Sewers

For quality assurance purposes, GPSD will perform one complete inspection of each sewer after completion of all sewer and manhole construction, modification or repair. If defects are found, the Contractor will be notified of said defects for their repair. GPSD will perform a complete inspection of affected sewers after completion of repairs. If, after the initial repair of defects, additional repairs are necessary, subsequent inspections shall be performed in accordance with GPSD Specifications and at the expense of the Contractor. Inspection recordings performed at the expense of the Contractor shall become the property of GPSD and provided to the District promptly.

44.0 Job Site Posters

The Contractor shall construct and provide a job site poster at each and every site that the Contractor performs work towards the completion of the Project. Job site posters and the documents thereon shall be publicly visible and accessible at all times while work is being performed at each and every site represented in these Plans. Job site posters shall be fully enclosed and secured to protect documents within from weather and large enough to allow display of each required document without overlap. Throughout the duration of the Project, the Contractor shall maintain enclosures, job site posters and documents within including restocking when needed.

Job site posters shall include all documents required to be posted as determined by governing authorities including any federal agencies that have contributed funding towards the completion of the Project. Where federal funding is not utilized, documents included shall be those required by the Illinois Department of Transportation.

END OF SECTION

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SECTION 027
SPECIFICATIONS - PIPE MATERIALS FOR SEWERS AND PROCESS PIPING

Pipe material used to construct, repair or modify sewers shall conform to the specifications within this Section. All sewer materials, where available, shall be dimensioned in accordance with industry standard ductile iron pipe size outside diameters.

1.0 Allowable Pipe Material Groups

Allowable Pipe Material Groups by Pipe Diameter and Depth of Pipe

Pipe Diameter (Inch)	Depth of Bury to Top of Pipe											
	< 4.0'	4.0'	6.0'	8.0'	10.0'	12.0'	14.0'	16.0'	18.0'	20.0'	>20.0'	
6	*	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	*
8-12	*	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	*
14-24	*	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	*
27-33	*	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	A, B, D, X	*
36-56	*	C,X	C,X	C,X	C,X	C,X	C,X	C,X	C,X	C,X	C,X	*
>56	*	*	*	*	*	*	*	*	*	*	*	*

*Special Design – See Section 2.0 Special Designs

Group A – General Use Small Diameter Sewer Materials

The following materials are permitted for construction, repair or modification of sewers within the GPSD collection system and for building service sewers. These materials comprise most typical sewer installations and are GPSD’s preferred materials for typical sewer infrastructure work. The use of the following materials shall be in accordance with the allowable size and depth table.

- PVC Pipe: ASTM D3034, SDR 26 with ASTM D3212 Flexible Elastomeric Seals
- PVC Pipe: ASTM F679, PS115 with ASTM D3212 Flexible Elastomeric Seals

Group B – General Use Water Main Quality Pipe and Non-Restrained Force Main Sewer Materials

The following materials are permitted for construction, repair or modification of sewers within the GPSD collection system and for building service sewers. These materials comprise most typical sewer installations and are GPSD’s preferred materials for typical sewer infrastructure work when a water main quality pipe is either required to meet IEPA water/sewer separation requirements, where a heavy duty plastic pipe is desired, or for force main applications where restrained joint pipe is not required by the Engineer. The use of the following materials shall be in accordance with the allowable size and depth table.

- PVC Pipe: AWWA C900, DR 18, PC 235 with ASTM D3139 Integral Bell Joints and ASTM F477 Gaskets
- PVCO Pipe: AWWA C909, PC 235 with ASTM D3139 Integral Bell Joints and ASTM F477 Gaskets
- PVC Pipe: AWWA C905, DR 18 with ASTM D3139 Integral Bell Joints and ASTM F477 Gaskets
- HDPE Pipe: AWWA C906, DR 11, ASTM F714, ASTM D3350 Cell Class 445574C/E, PPI (TR-4) PE 4710 with Butt-Fused Thermo-Fusion Welded Joints

Group C – General Use Large Diameter Sewer Materials

The following materials are permitted for construction, repair or modification of sewers within the GPSD collection system for large diameter sewers. These materials comprise GPSD's preferred materials for large diameter sewer infrastructure work. The use of the following materials shall be in accordance with the allowable size and depth table.

- PVC Pipe: ASTM F679, PS115 with ASTM D3212 Flexible Elastomeric Seals
- PVC Pipe: AWWA C900, DR 25, PC 165 with ASTM D3139 Integral Bell Joints and ASTM F477 Gaskets
- HDPE Pipe: AWWA C906, DR 11, ASTM F714, ASTM D3350 Cell Class 445574C/E, PPI (TR-4) PE 4710 with Butt-Fused Thermo-Fusion Welded Joints
- PRCP Pipe: ASTM C361 RCP Low Head Pressure Pipe with O-Ring Gasketed Joints

Group D – Sewer Materials for Special Circumstances

The following materials are permitted for construction, repair or modification of sewers within the GPSD collection system and for building service sewers for each defined category shown. These materials are GPSD's preferred materials for the specified special conditions. The use of the following materials, except Casing Pipes, shall be in accordance with the allowable size and depth table.

Restrained Joint Force Main Sewers:

- HDPE Pipe: AWWA C906, DR 11, ASTM F714, ASTM D3350 Cell Class 445574C/E, PPI (TR-4) PE 4710 with Butt-Fused Thermo-Fusion Welded Joints
- PVC Pipe: AWWA C900, DR 18, PC 235, with ASTM D3139 Integral Bell Restrained Joint and ASTM F477 Gaskets (Certa-Lok)

Sewers Installed by Horizontal Directional Drilling

- HDPE Pipe: AWWA C906, DR 11, ASTM F714, ASTM D3350 Cell Class 445574C/E, PPI (TR-4) PE 4710 with Butt-Fused Thermo-Fusion Welded Joints
- PVC Pipe: AWWA C900, DR 18, PC 235, with ASTM D3139 Integral Bell Restrained Joint Pipe and ASTM F477 Gaskets (Certa-Lok)

Casing Pipes for Jack and Bore and Pilot Tube Bore:

- API 5L, Grade X42, DSAW/SAW Welded Pipe
- ASTM A252, Grade 3, Welded Steel Pipe
- Wall thickness shall be as called for in the plans, but not less than the minimum thickness of 0.500 Inch unless an increased thickness is required by a permitting Authority Having Jurisdiction (e.g. Municipality, Railroad, IDOT, etc.)

Group E – Steel Pipe for Non Direct Bury Applications

The following materials are permitted for construction, repair or modification of piping systems for locations where the pipe will remain exposed or enclosed in a structure. These materials comprise most typical piping applications for interior process piping at GPSD's treatment and pumpage facilities for straight pipe runs and special fabricated fittings when steel pipe is called for in the plans or where directed by GPSD. Pipe shall be furnished with plain end, grooved end for use with Victaulic style connections, or flanged end as specified.

When pipe end is not specified, it shall be furnished with flanged ends. Flanges shall be slip type, weld-on flanges meeting AWWA C207, Class E attached to the pipe barrel with two continuous fillet welds. Flange material shall meet ASTM A181, Class 60. Drill pattern shall comply with ANSI B16.5 Class #150 pattern. Wall thickness shall be as called for in the plans, but not less than the minimum thickness shown below. Where the pipe and fitting mating angle on the plans requires the use of a moveable flanged end, then a Victaulic style flanged pipes and/or fitting shall be provided.

Pipes with a nominal diameter less than or equal to 24”:

- API 5L, Grade B, Seamless Steel Pipe
- ASTM A106, Grade B, Seamless Steel Pipe
- ASTM A53, Grade B, Type S, Seamless Steel Pipe

Pipes with a nominal diameter greater than 24”:

- API 5L, Grade B, DSAW/SAW Welded Pipe
- AWWA C200, Spiral Welded Pipe

Minimum Pipe Wall Thickness Requirements:

- 6” Nominal Diameter and Less: Schedule 40
- Greater than 6” through 18” Nominal Diameter: Schedule 30
- Greater than 18” through 30” Nominal Diameter: 0.375 Inch
- Greater than 30” Nominal Diameter: 0.500 Inch
- Where Grooved Ends are Called for the Minimum Thickness Shall be Increased by 0.25 Inch

Group X – Restricted Use Sewer Materials

The following materials are permitted for use only with express written permission from GPSD. These materials are not typically utilized for the construction, repair or modification of sewers within the GPSD collection system and for building service sewers unless specific project requirements would preclude the use of other non-restricted materials.

- Vitrified Clay Pipe: ASTM C700, Extra Strength with ASTM C425 Compression Joints
- Ductile Iron Pipe: AWWA C151, PC 350 with AWWA C111 Push on, Restrained or Mechanical Joints
- Ductile Iron Pipe: AWWA C115, PC 250 with Flanged Joints, ANSI B16.5 #150 Drill Pattern
- PCCP: AWWA C301 Prestressed Concrete Cylinder Pipe with Confined O-Ring and Mortar Joints

2.0 Special Designs

Special Designs are required at all locations where the nominal pipe diameter exceeds 56 inches, the depth of bury to top of pipe is less 4.0 feet, the depth of bury to top of pipe exceeds 20.0 feet or the design internal pressure exceeds 125 psi. Special Designs shall be prepared and sealed by IL Licensed Structural Engineer. Allowable materials for Special Designs shall be the same as those allowed elsewhere, except that wall thickness/dimension ratio may be increased as required to meet loading conditions. Submittal shall include calculated point loads and load combinations, calculated and allowable stresses, and calculated and allowable hoop stress for all live and dead load combinations (including traffic loads of not less than HS-20). Calculations shall be based on the specific pipe material, pipe configuration, and designed bedding and backfill conditions. Where internal design pressure exceeds 125 psi, reactions at all bends shall also be calculated and reaction blocking requirements shall be specified.

3.0 Ductile Iron Fittings

Ductile Iron Fittings: Ductile iron fittings with mechanical joints and sized up to twenty-four inches (24") shall be rated for 350 psi working pressure and meet the provisions of the current versions of standards ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11. Ductile iron fittings with mechanical joints and sized thirty inches (30") through forty-eight inches (48") shall be rated for 250 psi working pressure. Flanged ductile-iron fittings shall also be rated for 250 psi. Fittings shall be coated in accordance with this section. Where flanged joints are called for and the pipe to fitting mating angle on the plans requires the use of a moveable flanged end, then a Victaulic style flanged pipes and/or fitting shall be provided.

4.0 Fasteners and Hardware

Fasteners and hardware, including but not limited to, all bolts, nuts, and washers used on fittings, retainers, connections, pipe supports, etc. shall be constructed using the material specified in the plans. When a specific fastener material is not specified in the plans the use of the following materials is permitted:

- High strength carbon steel with a factory applied, GPSD approved, fluoropolymer coating
- Type 304 stainless steel
- Type 316 stainless steel

When the plans specify the use of stainless steel fasteners and/or hardware without a specified type, then **only type 316 stainless steel is permitted.**

Permitted fluoropolymer coatings are Cor-Blue as manufactured by Birmingham Fastener or FluoroKote #1 as provided by Metal Coatings Corp.

5.0 Coatings

All non-stainless steel metallic pipe and fittings shall be coated as specified. This includes, but is not limited to, carbon steel pipe, carbon steel fittings, ductile iron pipe, ductile iron fittings and gray iron fittings. Coatings shall not be required for casing pipes unless a permitting Authority Having Jurisdiction (e.g. Municipality, Railroad, IDOT, etc.) requires a coated casing. All non-direct bury piping (including all treatment process piping), regardless of material type, shall be color top coated in addition to any other required coatings. All coating systems shall be delivered to the site in new condition in sealed containers. Materials that have exceed their shelf life or expiration date shall not be used. Application of coatings shall be in strict conformance with the manufacturer's written installation instructions including, but not limited to, requirements related to surface preparation, material application and curing.

Direct Bury Pipe Applications: The pipe interior shall be coated with Scotchkote 206N Fusion-Bonded Epoxy Coating (Fluid Bed Grade) as manufactured by the 3M Corporation. The pipe exterior shall be coated with a metallic zinc coating. Zinc metallic coating for ductile iron pipe shall be installed per ISO 8179 with a minimum zinc mass in the applied coating of 200 g/m² of pipe surface.

Direct Bury Fitting Applications: The fittings interior, exterior and mating surfaces shall be coated with Scotchkote 206N Fusion-Bonded Epoxy Coating (Fluid Bed Grade) as manufactured by the 3M Corporation.

Non Direct Bury Pipe Applications: The pipe interior shall be coated with Scotchkote 206N Fusion-Bonded Epoxy Coating (Fluid Bed Grade) as manufactured by the 3M Corporation, Protecto 401

Ceramic Epoxy Coating as manufactured by Induron Protective Coatings, or Carboguard 691, as manufactured by Carboline. The pipe exterior shall be coated using a minimum of two applications of Uroflex Urethane-Modified Epoxy coating as manufactured by Epoxytec.

Non Direct Bury Fitting Applications: The fittings interior, exterior and flange surfaces shall be coated with Scotchkote 206N Fusion-Bonded Epoxy Coating (Fluid Bed Grade) as manufactured by the 3M Corporation

Color Topcoat for Non-Direct Bury and Process Applications: A color topcoat for all piping and fittings in non-direct bury and process applications shall be required. Colors shall be in accordance with District requirements and process color coding chart below. Topcoat material shall be as specified in the plans. When a topcoat material is not specified in the plans, the topcoat material shall be an industrial two-part epoxy coating compatible with a urethane modified epoxy basecoat. Where non-metallic pipe is to be color top coated, the coating system shall use plastic safe pigments and be certified by the manufacturer to be compatible with the specific pipe material. Where the piping or fittings to be coated are outside or otherwise exposed to the elements, the coating system shall be rated for the outdoor conditions and UV stabilized.

PROCESS	COLOR
RAW SLUDGE LINE	GRAY
SLUDGE RECIRCULATION SUCTION LINE	BROWN WITH YELLOW BANDS
SLUDGE DRAW OFF LINE	BROWN WITH ORANGE BANDS
SLUDGE RECIRCULATION DISCHARGE LINE	BROWN
DIGESTED SLUDGE LINE	BLACK
SLUDGE GAS LINE	RED
NATURAL GAS LINE	RED
NON-POTABLE WATER LINE	PURPLE
POTABLE WATER LINE	BLUE
FIRE MAIN	RED
CHLORINE LINE	YELLOW
SULFUR DIOXIDE	YELLOW WITH RED BANDS
WASTEWATER LINE	GRAY
COMPRESSED AIR LINE	DARK GREEN
PROCESS AIR LINE	LIGHT GREEN
WATER LINES FOR HEATING	BLUE WITH A 6-INCH RED BANDS SPACED 30 INCHES INTERVALS
FUEL OIL/DIESEL	RED
PLUMBING DRAINS AND VENTS	BLACK
FERRIC CHLORIDE	ORANGE
POLYMER	UNPAINTED PVC

Coating Repairs: Damage to coatings shall be repaired to form a continuous coating protection layer. Repairs to coatings shall be in accordance with the coating manufacturer's written instructions and

approved materials.

6.0 Flange Joint Gaskets

Gaskets shall be Toruseal flange gaskets as manufactured by American Pipe Company or approved equivalent. Gasket material shall be as specified in the plans. When a gasket material is not specified in the plans, the use of styrene butadiene copolymer (SBR) or acrylonitrile butadiene (NBR / Nitrile) is permitted.

7.0 General Construction Requirements

Pipe shall be homogenous throughout and free from cracks, holes, foreign inclusions or other injurious defects. Pipe shall be uniform as practicable in: color, opacity, density and any other physical property. Routine inspection, sampling and testing shall be performed during pipe and fitting production to assure a product quality in accordance with applicable standards. Certificates of compliance with the specified materials standards for pipes, fittings and pipe appurtenances shall be submitted by the manufacturer for approval prior to installation.

Pipe will be legibly marked in with its required certification or standard. Pipe not bearing the required certification or standard may be rejected.

Upon delivery to the site(s) of work, both the outside and inside surfaces of all pipe shall be inspected for damage such as, but not limited to, cuts, scrapes, gouges, tears, cracks, punctures. If any damages are found, the Engineer shall be the sole judge of the damages and the acceptability of the pipe. If rejected, the Contractor shall be responsible for removing the defective pipe from the site(s) of work and replacing it with new.

Prior to and during construction, pipe shall not be dragged, pushed or rolled over the ground surface. Pipe shall be moved using other means in accordance with the recommendations of the manufacturer of the pipe and the Engineer.

Pipe installation and bedding shall be in accordance with Section 035 of these Specifications when gravity sewers are constructed using the trench excavation methods. Construction of pipe using pulling methods shall be in accordance with Section 071 of these Specifications. Pipe shall be provided in the maximum laying lengths available to minimize the number of joints.

Force main sewers shall be constructed from restrained joint pipe unless otherwise specified otherwise in the plans. All fittings for force main sewer pipe shall be ductile iron pipe in accordance with these Specifications unless noted otherwise in the plans.

For direct buried applications, all joints between non-restrained and restrained joint pipe, ductile iron fittings, or pressure pipe connections of dissimilar materials shall be by mechanical joint. Mechanical joints shall be constructed on plain-end pipe using either Series 2000PV mechanical joint restraint for PVC pipe as manufactured by EBAA Iron, Inc., or PVC Stargrip, Series 4000, mechanical joint wedge action restraint as manufactured by Star Pipe Products. In no case shall a mechanical joint adapter be used that is not specifically designed for the pipe material for which it is to be attached. When joint adapters are utilized with HDPE pipe, the pipe shall be fitted with a correctly sized stainless steel pipe stiffener. Pipe stiffeners shall be 230 /231 Stainless Steel HDPE Stiffeners as manufactured by JCM Industries or approved equivalent.

For non-direct buried applications (i.e. above grade piping or piping contained in an enclosed vault or building), all joints between non-restrained and restrained joint pipe, ductile iron fittings, or pressure pipe connections of dissimilar materials shall be shall be by flanged joint unless the design pressure exceeds 125 psi. At locations

where the design pressure exceeds 125 psi mechanical joints shall be used. Flanged joints shall be constructed by weld on slip joint flanges for steel pipe, integral cast flanges, or thread on flanges for ductile iron pipe, or flange adapter for all non-metallic pipe types. Where a retrofit connection to existing steel or ductile iron pipe is required, the connection to the existing pipe shall be by flange adapter. Flange adapters shall be Super Flange Series 7200 Adapters as manufactured by Star Pipe Products. When joint adapters are utilized with HDPE pipe, the pipe shall be fitted with a correctly sized stainless steel pipe stiffener. Pipe stiffeners shall be 230 /231 Stainless Steel HDPE Stiffeners as manufactured by JCM Industries or approved equivalent

Unless directed otherwise by the Engineer, joint locations shall be planned and located to minimize the total number of joints. Joints for pipe installed by jacking and tunneling or HDD shall be of the restrained type.

8.0 Special Construction Requirements for HDPE Pipe

Testing of installed HDPE pipe shall be in accordance with these Specifications and ASTM F714. Testing of HDPE pipe shall be performed by an independent, third-party testing firm with experience in performing such testing as acceptable to the Engineer. To confirm conformance with the specifications, the Engineer may require that pipe be tested. If required by the Engineer, the Contractor shall propose a laboratory and submit to the Engineer information about the laboratory including their qualifications. The Engineer may require that two (2) samples are tested for every delivery of HDPE pipe, if construction will use methods that rely on pulling forces, or for every four-hundred (400) feet of constructed HDPE pipe if constructed using traditional excavation methods. The Contractor and the approved laboratory shall be responsible for the construction of testing samples, transportation samples to the site(s) of testing, performance of the tests as well as the provision of testing results to the Engineer in an approved format. Test results shall be the exclusive property of the Engineer.

Connections to HDPE pipe shall be made using sewer tapping methods in accordance with Section 031 of these Specifications.

Connections of constructed HDPE pipe to new manholes shall be made using press seal boots unless otherwise specified by the Engineer. If joining to an existing manhole, joints between the pipe and the existing opening shall be constructed using hydraulic cement or a material approved by the pipe manufacturer and shall extend throughout the circumference of the pipe in such a manner as to form a smooth, uniform, watertight joint.

For all joints between HDPE pipe and manholes, a fixed diameter HDPE pipe stiffener, dimensioned specifically for the constructed HDPE pipe shall be inserted into the pipe at the manhole joint prior to the finalization of the joint. Pipe stiffeners shall be manufactured using Type 316 stainless steel, in accordance with ASTM 240, and installed into the pipe in accordance with the recommendations of the manufacturers of both the pipe and the stiffeners. Pipe stiffeners shall fit tightly into the pipe without the ability to be moved linearly along the alignment of the pipe or rotated in a circular manner. All stiffeners shall have a lip that prevents such movement. If the HDPE pipe is constructed using pulling methods, additional requirements for the construction of joints between manholes and the pipe can be found within other sections of these Specifications and the project Plans.

9.0 Special Construction Requirements for Thermally Fused Pipe

Joints between thermally fused pipes shall be complete throughout the pipe circumference, the thickness of the pipe walls and the length of pipe heated for fusion purposes. Absolutely no leaks shall be allowed through fused joints.

Heat fusion of pipes shall be in accordance with the recommendations of the manufacturers of both the heat

fusion equipment and the pipe. The Contractor shall provide to the Engineer, in a satisfactory format, recommendations and instructions for the construction of joints between pipes using heat fusion techniques. If accepted as an alternative by the pipe manufacturer, the Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene Pipe, TR-33/2005, or the most-recent version, as published by the Plastic Pipe Institute (PPI), may govern the construction of joints between HDPE pipes. Prior to the joining of any HDPE pipe as part of the project, evidence of acceptance of the PPI standard by the pipe manufacturer shall be presented to the Engineer in the form of an original correspondence from the pipe manufacture to the Engineer demonstrating such acceptance.

For all thermally fused joints excessive joint materials (beads) near pipe joints on both the external and internal surfaces of the pipe shall be removed using methods approved by the Engineer and the pipe manufacture. The purpose of removing beads is to reestablish smooth internal pipe walls to improve flow internally. Internal bead removal shall be performed using equipment specifically designed for the purpose and in accordance with the recommendations of the manufacturers of the pipe and the internal bead removal system. Internal bead removal shall be performed using equipment such as the internal bead trimmer as manufactured by R & L Manufacturing. Proposed bead removal systems shall be acceptable to the manufacturer of the pipe. Prior to bead removal, the Contractor shall submit evidence acceptable to the Engineer of the acceptance by the pipe manufacturer of the proposed bead removal systems. Additionally, the Contractor shall provide the Engineer satisfactory evidence of acceptance by the manufacturer(s) of the bead removal system(s) of the training and experience of the Contractor and participating personnel in the operation of bead removal equipment.

The maximum length of assembled but uninstalled pipe shall not exceed the recommendations of both the manufacturer of both the thermal fused pipe and the equipment used for construction via horizontal directional drilling and trenchless pipe replacement systems, where applicable.

When thermal fusing of pipe, data loggers shall be used to record length of heating, fusing and cooling time, as well as temperature and pressure of each joint to ensure and record quality control.

END OF SECTION

SECTION 031
SPECIFICATIONS - BUILDING INLETS

1.0 Building Inlets

Building inlets shall be located as directed by GPSD. Generally, this shall be on the sewer adjacent to each lot or parcel of land that is to be directly benefited by the improvement. Inlets shall be constructed using pipe tees placed in the constructed sewer. The branch-inlets of tees shall be six (6) inches in diameter and sloped with an axis at approximately forty-five (45) degrees with the horizontal toward the property to be served, or as directed by GPSD.

The bell of the branched-tee or the end bell of the riser or stub sewer shall be fitted with a polyvinyl chloride (PVC) glue on cap.

When the branch tees are located in the sewer line with both tees pointing the same direction there shall be a minimum of one (1) pipe length between tees. Two sewer stubs shall not be installed in a common trench for the purpose of servicing adjoining lots unless approved by GPSD.

2.0 Construction of Polyvinyl Chloride (PVC) Tees

PVC tees shall be installed for new construction or where directed by GPSD. PVC tees shall be fabricated with gasketed joints and have wall thickness in conformance with the dimension ratio of the adjoining host pipe. Each tee shall have a gasketed bell capable of accepting PVC SDR 26 pipe without use of other fittings such as couplers, adapters or reducers. PVC tees shall be constructed in accordance with these Specifications and the recommendations of the tee manufacturer. Harco SDR-26 molded sewer tees by the Harrington Corporation are also acceptable.

3.0 Construction of Sewer Service Connections Using Saddles

Sewer service connections to existing pipe shall be made using saddles unless directed otherwise by GPSD. Construction of sewer service connections using saddles shall be performed in accordance with these Specifications and the recommendations of the manufacturers of both the receiving pipe and the saddles. Cores made into pipes to receive saddles shall be positioned above the springline of the receiving pipe. After the construction of an opening within DIP, all exposed surfaces shall be sealed with a coating approved by GPSD and the pipe manufacturer.

All connections of saddles to receiving pipes shall be fully encased around the whole of the saddle and receiving pipe in no less than twelve-inches (12") of controlled low-strength material (CLSM); however, if a saddle specified includes an upstream bell intended to receive sewer service pipe, the bell of the saddle shall not be encased such that the connection of the saddle to the sewer service pipe can be constructed and deconstructed. If the saddle specified utilizes a flexible-type coupling to connect the saddle to sewer service pipe, the connection made using the flexible type coupling shall be fully encased as specified above. Flexible-type couplings shall be 5000 Series, Strong Back (RC) shielded flexible-type couplings as manufactured by Fernco. CLSM used to construct encasements around saddles and receiving pipes shall meet IDOT specifications.

Saddle-type connections shall be in accordance with the following table based on the lateral material and receiving sewer diameter.

6" Diameter Lateral Sewer Type	Receiving Sewer Diameter	Manufacturer	Saddle Type
PVC, SDR 26	8-14"	Ford Meter Box	FSS-1440
	15-25"	Ford Meter Box	FSS-2580
	26-50"	Ford Meter Box	FSS-5080

Sewer services with nominal diameter greater than six-inches (6") shall not be connected using saddles.

4.0 Cleanouts

Cleanouts shall be installed on all lateral lines:

- within five feet of all building foundations when in direct line with the building drain and sewer,
- at all changes in horizontal direction of the horizontal alignment, and
- at a minimum of every 100 feet along the lateral between the building and the receiving sewer.

Cleanouts shall be capped with a Dura Coated Cast Iron Zurn Z1402 Heavy-duty Non-adjustable Floor Cleanout.

5.0 Service Risers

Service risers shall be constructed in accordance with these Specifications, including the Detail Drawings. Lateral sewers in rights-of-way shall remain at a minimum depth of eight (8) feet from the main to the edge of right-of-way to minimize conflicts with other utilities. If the depth of sewer main is less than eight feet, the lateral shall extend at one percent slope from the sewer main to the edge of right-of-way before the service riser is installed. The end of the riser shall be sealed with a glued PVC cap.

Type A service risers shall be constructed on a building inlet with the six (6)-inch tee laid at a variable angle to a maximum of forty-five (45) degrees as approved by GPSD. Angles greater than forty-five (45) degrees shall be constructed as a Type B service riser. Tees and service riser pipes shall be bedded in approved bedding material.

Type B service risers shall be constructed on a building inlet with the six (6)-inch tee laid at a forty-five (45) degree angle and a forty-five (45) degree bend placed to receive the vertical riser pipe. Twenty-four (24) hours after encasement of the tee and lower bend, the riser may be extended and shall be covered with six (6) inches of controlled, low-strength material (CLSM) encasement up to the bottom of the bell of the forty-five (45) degree bend at the top of the riser. Type B risers shall only be used when approved by GPSD.

6.0 Sewer Services Extended and Capped

Where shown on the Plans or directed by GPSD, a six (6)-inch diameter sewer service shall be constructed and capped. The sewer service extension shall be constructed using PVC, SDR 26, pipe and be connected to the mainline inlet in accordance with these Specifications. Sewer service extensions shall extend toward the lots or parcels to be served as shown on the Plans and have a slope of 1.0%. The end of the sewer service extension shall be capped using a PVC glue-on cap. If ductile iron pipe is specified, a properly-sized ductile iron mechanical cap shall be used. At the location of each sewer service extension cap, a two-inch (2") by four-inch

(4"), lumber, marker shall be buried such that it vertically extends at least two-feet (2') above the crown of the sewer service extension at the cap.

In the construction of the stub sewers not more than one-half the width of the street shall be opened at one time in order to maintain traffic at all times.

7.0 Plugs

Plugs shall be constructed such that the existing pipe to be plugged is cut and cleaned so that an approved flexible type coupling can be installed over the plain end. A section of equal diameter pipe, including the same SDR for PVC pipe and the same class thickness, or an equivalent pressure class thickness for DI pipe shall then be installed at the other end of the coupling. The pipe shall be plugged by installing a cap over the open end of the pipe.

8.0 Demolition

Upon demolition of a structure on a property served by sanitary sewer the existing lateral shall be cut and plugged at a location near the existing right-of-way. Contractors shall contact GPSD for inspection of said work prior to backfilling.

END OF SECTION

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SECTION 035
SPECIFICATIONS - PIPE INSTALLATION USING EXCAVATION METHODS

Unless provided within either these Specifications or on the project plan sheets, information about underground conditions within and near the area of work has not been obtained by GPSD. The Contractor shall determine the underground conditions near the proposed sewer construction or repair locations and mitigate the effect of such conditions upon the proposed work. The Contractor shall assume all risks and accept all costs attributable to unknown and unforeseen underground conditions. Underground conditions such as the presence of underground obstructions or poor soil conditions that unfavorable to the means of sewer construction or reconstruction shall not be a basis for claims for additional compensation.

This Section shall govern all aspects of pipe installation performed using excavation methods. All aspects of pipe installation using excavation methods, including, but not limited to, joint construction, bedding, pipe material, concrete thrust block design and construction, backfilling, trench construction, maximum loading imposed on pipe in the trench, and material testing shall also conform to the Manufacturer's Specification for the particular type of pipe specified; however, when in conflict, these Specifications shall govern.

When constructing pipe using excavation methods, connections between pipes of dissimilar materials or of unequal outside diameters shall be made using Fernco-brand flexible-type couplings. The flexible type coupling shall fit over plain ends of both pipes and then be tightened to make a water tight seal. Couplings for pipes under twelve-inches in diameter shall be 5000 Series, Strong Back (RC) shielded flexible-type couplings as manufactured by Fernco.

1.0 Staking

Refer to Lines and Grades in Section 001 of these Specifications for staking requirements. Staking requirements shall apply to both gravity sanitary sewers and force main sewers

2.0 Excavation

The Contractor shall make all excavations to the width and depth necessary for proper construction of the sewers and other structures in accordance with the Plans and Specifications. Excavation shall include the following:

- The clearing of the site of the work;
- The excavating, loosening, classifying, loading, removing, transporting and disposing of all materials necessary to be removed for purposes of construction;
- Trenching and all trench shoring including sheeting and bracing;
- All draining and pumping of water;
- Disposal of all excavated materials; and
- All incidental work.

The bottom of the trench shall be smooth and cleared of stones or protruding hard objects. All materials such as trees, brush, debris, etc. removed in site clearing shall be disposed of by the Contractor.

Trench widths shall be sufficiently wide to permit tamping around the pipe. The following specifications for trench dimensions shall apply to all conditions except where pipe construction is within strata of rock as defined in the subsection below titled "Rock Excavation".

Trench widths measured at the top elevation of the pipe and extending to the elevation of initial backfill shall be a minimum of 16" plus the outside diameter of the pipe and a maximum of 36" plus the outside diameter of the

pipe. Pipes shall be laid in the center of the trench. Whenever the trench widths measured at the top of the pipe exceed these limitations, the Contractor shall at his own expense remove any disturbed earth and shall refill the excavated trench from wall to wall with approved granular bedding, concrete cradle, concrete encasement or a combination thereof as directed by GPSD.

3.0 Bedding

Bedding dimensions shall be as shown in the drawing for pipe bedding in Section 095 of these Specifications and shall apply to all conditions except where pipe construction is within strata of rock as defined in the subsection below titled "Rock Excavation". Bedding shall be constructed and maintained to evenly support loading throughout pipe construction to avoid non-uniform loading at any point.

If the ground conditions are not suitable for bedding as outlined, the Contractor must excavate and dispose of the unsuitable material and add approved granular bedding material to support the pipe, as determined by GPSD. The above work shall be made part of the contract amount.

3.1 Approved Bedding Material

Granular pipe cradle and envelope shall be constructed with granular materials from approved local deposits graded to Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition. Acceptable gradations for the granular pipe cradle and envelope are CA-7 and CA-11. The material shall be crushed gravel or crushed stone as per IDOT's Coarse Aggregate Standards with a minimum of 75% fractured material, from IDOT-approved sources. When constructing PVC pipe using excavation methods at depths between sixteen (16) feet to twenty (20) feet or ductile iron pipe using excavation methods at depths greater than twenty (20) feet, granular materials used for bedding purposes shall be CA-7 or CA-11 white rock crushed stone.

3.2 Concrete Encasement

Where shown or called for on the plans, the pipe shall be encased in concrete in accordance with the drawing for concrete encasement in Section 095 of these Specifications. GPSD shall determine whether encasement shall be reinforced or non-reinforced.

4.0 Placement of Fill or Embankment

Where a sewer is located in a fill section, the Contractor shall remove any and all weeds, tree roots, large rocks, frozen material or other material unsuitable for compaction of the fill area. The existing ground area of the fill section shall be plowed or disked before fill is placed to aid in bonding the fill section to the existing ground.

The fill material shall be free of large rocks, frozen ground, material that will decay, or any other substance that might cause future settlement of the fill area. As far as it is practical, each layer of fill material shall extend the entire length and width of the fill area. Each layer shall be disked to break up oversize lumps and to mix different layers of the fill to provide a uniform moisture content. The fill material shall be placed in layers not to exceed eight (8) inches in depth. Each layer shall be rolled with equipment suitable to achieve the density specified. Should the fill material contain insufficient moisture to provide satisfactory compaction, the Contractor shall apply water as needed at his own expense. The fill material shall be placed and compacted to meet the following requirements: the moisture content of the fill material when placed shall be within five (5) percent of the optimum moisture content as determined ASTM D-698 (Standard Proctor Test); compaction shall meet the requirements of ninety-five (95) percent of the ASTM D-698.

All fill and compaction shall be completed to an elevation of not less than three (3) feet above the top of the pipe before installing the sewer. After the sewer has been installed and back filled, the Contractor shall dress the fill or embankment as specified on the plans.

5.0 Constructing Non-Pressurized Pipe

Pipe shall be constructed in conformity with the alignment and elevations as directed by GPSD and in the presence of an inspector authorized by GPSD. All pipe shall be constructed using a pipe laser and with the bell located at the upstream end. Pipe shall be installed beginning at the downstream end and proceeding upstream unless written authorization is obtained from GPSD.

There are a number of lasers used in construction; hence, the method used to set up the laser prior to laying the sewer shall be approved. However, an above-ground spinning laser is unacceptable as the only laser used to check the grade of the sewer. Beginning at the first manhole, the laser will be leveled and set on line and grade. As the sewer construction reaches the next manhole, the laser will be moved to that new manhole, leveled, and line and grade reset for the next reach of sewer with the percent of grade given on the Plans. The laser will be checked for level, line and grade each morning and noon or at such other times as the construction is resumed after any delay in the work or at such times as in the opinion of GPSD the line and grade is in question as to its accuracy and conformance with the Plans. Upstream or downstream of each manhole, using a method independent of the laser and approved by GPSD, the elevation of pipe will be checked at the end of the first pipe laid, twenty-five (25) feet from the manhole and at seventy-five (75) -foot intervals thereafter.

The Contractor shall have a ventilation system on site, ready and available for use by the construction crew. The system shall be of adequate size to ventilate to prevent laser drift.

Before adjoining pipes connected, the interior of the pipe already constructed, including the bell thereof, shall be thoroughly cleared of all solids. A watertight plug shall be placed in the last pipe placed and not removed except to connect another pipe which in turn must be plugged. Pipes shall not be constructed where water has not been removed from the trench. Foreign materials inside constructed pipes shall be removed by the Contractor to the satisfaction of GPSD.

6.0 Constructing Pressurized Pipe

Pressurized pipe shall be laid at plan grade and alignment. For pressure pipe construction, thrust blocks and locking glands shall be constructed where the pipe changes directions, changes size, terminates or is expected to develop thrust at valves. Slopes for force mains shall be uniform in order to maximize pumping efficiency. Minimum cover over the crown of all force main pipe shall be not less than four (4) feet. Tracer wire shall be installed in accordance with Section 073 of these Specifications.

Combination air release and air inlet valves suitable for operating under a specified working pressure shall be furnished at specified locations. The valves shall be designed to exhaust large quantities of air when the line is being filled; to exhaust small air accumulations when the line is in service; and to allow large quantities of air to re-enter the pipe in case of loss of pressure in the line. The valves shall be installed as per manufacturer's instructions. A GPSD-approved valve shall be installed at the base of the air release valve. The valve shall be a knife gate or stainless-steel ball valve.

7.0 Water Removal

The Contractor shall at all times during construction provide and maintain ample means and devices with which to promptly remove and properly dispose of all water entering excavations or other parts of the work and shall keep said excavations dry until the structures to be built therein are complete. No water or unauthorized sewage shall be drained into work built or under construction.

8.0 Rock Excavation

Where rock is encountered, the Contractor shall excavate the sewer trench to a depth of six (6) inches below the bottom of the pipe and to a width of sixteen (16) inches plus the outside diameter of the pipe. All loose material shall be removed from the trench. A minimum of six (6) inches of approved bedding shall be tamped in place under the pipe with an additional six (6) inches of bedding tamped and cradled around the pipe. Additional bedding material shall also be added to a height of twelve (12) inches over the top of the pipe.

Rock shall be defined as that material occurring in a natural state which requires blasting, barring, or wedging for removal from its original bed and having an unconfined compressive strength in excess of 1,800 pounds per square inch. It also includes boulders larger than 46 cubic feet in volume.

9.0 Explosives

Explosives may be used where such blasting will not injure existing utilities, structures or improvements. All explosives shall be selected and used in accordance with applicable laws, rules, regulations and ordinances. The Contractor shall be responsible and liable for damages resulting from the use of explosives. Local news media shall be notified twenty-four (24) hours before blasting is scheduled to start.

The explosive charges used shall not make the excavation unduly large or irregular nor shall it shatter the rock upon which masonry structures are to be placed. All aspects of explosive usage including coverage of explosives and setbacks shall be in accordance with industry standards practices, those of the manufacturer of the product in use, and all applicable laws, rules, regulations and ordinances.

Before use or storage of explosives is permitted, the Contractor must secure at his own expense such permits or bonds as may be required from the governing agency having jurisdiction and shall comply with all ordinances and regulations of such authority.

10.0 Connection to Existing Sewer

When a Contractor is directed to connect an outlet sewer to an existing sewer, he shall immediately provide a temporary bulkhead at the closest downstream manhole. Connections to existing sewers shall be performed using methods detailed in these Specifications. Appropriate management of flows shall be maintained by the Contractor.

11.0 Erosion Control

Where an area is disturbed due to excavation, erosion and sediment control measures shall be taken to prevent soil erosion and sediment runoff from the site. Erosion and sediment control measures shall be placed at locations shown on the Plans. All erosion and sediment control measures shall be placed on the downstream side of disturbed areas such that no sediment escapes from the site. These control measures shall be constructed and fully functional prior to initiating construction activities and shall remain in place until the ground is stabilized with permanent ground cover. GPSD shall judge when the ground has been stabilized and where

erosion prevention and sediment control devices shall be necessary. All control measures shall be properly maintained by the Contractor to ensure effective operation. When stockpiling earthen materials, control measures shall be placed downstream to prevent erosion and sediment runoff of the stockpiled material. The Contractor shall be responsible for removing and disposing of materials used in erosion control.

The Contractor shall comply with all applicable requirements of erosion control permits from local agencies with jurisdiction, the Illinois Environmental Protection Agency, and the United States Army Corps of Engineers.

END OF SECTION

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SECTION 039
SPECIFICATIONS - INSPECTION AND TESTING OF SEWERS

Constructed sewers shall be tested in conformance with the following specifications.

1.0 Gravity Sewers

Following sewer construction but prior to acceptance, all sewers, appurtenances and work shall be tested and inspected according to the following table. The Contractor shall notify GPSD when the work is ready for inspection and testing. The Contractor shall furnish all labor, equipment and materials as required to complete the testing. All testing shall be witnessed by GPSD. The method or combination of methods to be used shall be approved by GPSD. Air testing shall be the basic standard of acceptance testing; however, GPSD may require that sections of sewers and manholes be tested using infiltration or exfiltration methods.

Metric	Method	Reference	Applicability/Exceptions	Responsible Party
Infiltration/ Exfiltration (Use one or combination of methods)	Pressure Testing Using Compressed Air	ASTM F1417	Plastic Non-pressure Sewer	Contractor
	Low Pressure Air Joint Testing	ASTM F3058	Gravity Sewers \geq 30" Dia.	Contractor
	Exfiltration of Water	Standard Specifications for Water and Sewer Construction in Illinois		Contractor
	Infiltration of Water	Standard Specifications for Water and Sewer Construction in Illinois		Contractor
Deflection	Mandrel/Rigid Ball	ASTM D3034	For flexible pipe	Contractor
Line/Grade & Cleanliness	CCTV Camera	GPSD Specification 093		Contractor

1.1 Testing Procedures and Requirements

Before the commencement of testing, the sewer shall be cleaned and all wyes, tees, and stubs shall be sealed with Cherne Gripper Mechanical Plugs or approved equal. Testing procedures shall conform to the following:

- (1) Procedure for Pressure Testing using Compressed Air: Prior to testing, the section of sewer to be tested shall have been trench backfilled. Pneumatic plugs with a sealing length equal to or greater than the diameter of the pipe to be tested shall be placed in both ends of the pipe to be tested and inflated in accordance with manufacturer pressure rating and guidelines. The sealed sewer pipe shall then be pressurized to four (4) psig above the average back pressure of ground water over the sewer pipe, but not to less than 3.5 psig. (Note: Air test pressures shall be increased 0.43 psi for every foot of depth of groundwater over the sewer line at the upstream end. If the ground water level is 2 feet or more above

the top of the pipe or if the air pressure required for the test is greater than 9 psi-gauge, the air testing practice should not be used.) The air pressure shall then be allowed to stabilize for at least two (2) minutes. After the stabilization period the line shall be pressurized to 3.5 psig and the time measured in minutes and seconds until the pressure drops to 2.5 psig. Air leakage shall not be less than the time per inch of pipe diameter per length of sewer pipe as specified below:

MINIMUM AIR TEST TIME FOR VARIOUS PIPE SIZES
(Per Standard Specifications for Water & Sewer Main Construction in Illinois
and ASTM 1417; current as of December 2022)

Pipe Diameter (in.)	Specification Time for Pressure drop from 3.5 to 2.5 psig (min:sec)						
	100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft
6	5:40	5:40	5:40	5:40	5:40	5:40	5:42
8	7:34	7:34	7:34	7:34	7:36	8:52	10:08
10	9:26	9:26	9:26	9:53	11:52	13:51	15:49
12	11:20	11:20	11:24	14:15	17:05	19:56	22:47
15	14:10	14:10	17:48	22:15	26:42	31:09	35:36
18	17:00	19:13	25:38	32:03	38:27	44:52	51:16
21	19:50	26:10	34:54	43:37	52:21	61:00	69:48
24	22:47	34:11	45:34	56:58	68:22	76:46	91:10
27	28:51	43:16	57:41	72:07	86:32	100:57	115:22
30	35:37	53:25	71:13	89:02	106:50	124:38	142:26
33	43:05	64:38	86:10	107:43	129:16	150:43	172:21
36	51:17	76:55	102:34	128:12	153:50	179:29	205:07
42	69:48	104:42	139:37	174:30	209:24	244:19	279:13
48	91:10	136:45	182:21	227:55	273:31	319:06	364:42
54	115:24	173:05	230:47	288:29	346:11	403:53	461:34
60	142:28	213:41	284:55	356:09	427:23	498:37	569:50

Note: Consult with pipe manufacturer for maximum test pressure for pipe >30 in. diameter.

- (2) Low Pressure Air Joint Testing: For gravity sewers 27 inches diameter and larger, using low-pressure air in accordance with ASTM F3058 is permitted.
- a) Position joint test apparatus over the joint to be tested. Make sure the end element sealing tubes straddle both sides of the joint and the hoses are attached.
 - b) Inflate end element sealing tubes with air in accordance with equipment manufacturer's instructions. Introduce low pressure air slowly until the void pressure reaches the starting pressure of 3.5 psig greater than the average back pressure of any groundwater above the pipe, but not greater than 6 psig.
 - c) After the starting air pressure is reached, throttle the air supply to maintain that internal pressure for at least 10 seconds to allow the air pressure and temperature to stabilize before starting the test.
 - d) After the system has been allowed to stabilize, disconnect the air supply and allow pressure to drop. If pressure holds, or drops less than 1 psig in 5 seconds, the joint is

acceptable.

- e) If the joint being tested fails, it shall be retested, or repaired if necessary, and retested until joint passes.
- (3) Exfiltration of Water Procedure: Prior to testing, the section of sewer to be tested shall have been trench backfilled and cleaned. The section of sewer to be tested shall be sealed by inserting inflatable rubber bags into the pipes, or by other means approved by GPSD, and then water shall be introduced into a manhole until the section is completely filled. The Contractor shall fill the pipe to the test level prior to the time of exfiltration testing to permit normal absorption into the pipe walls. Throughout the test period of at least one (1) hour, the water level in the upper manhole shall be maintained at least twenty-four (24) inches above the crown of the upper end of the pipe or at least twenty-four (24) inches above the ground water table, whichever is higher. The length of pipe tested shall be limited so that the pressure on the centerline of the lower end of the section tested shall not exceed six (6) feet of water column. The exfiltration leakage shall not exceed 240 gallons per inch of pipe diameter per mile per day of sewer pipe, including manholes in the test section;
- (4) Infiltration of Water Procedure: Prior to testing, the section of sewer to be tested shall have been trench backfilled and cleaned. Infiltration testing shall be conducted by inducing infiltration conditions by jetting the sewer trench for a sufficient length of time to ensure that the water level in the trench is a minimum of twenty-four (24) inches over the crown of the sewer pipe. The test must be performed before existing sewers are connected and before sewage flow is allowed into the sewers. Infiltration leakage shall not exceed 200 gallons per inch of pipe diameter per mile per day of sewer pipe, including manholes in the test section;
- (5) Deflection Testing Procedure: All gravity sewers constructed of flexible piping materials shall be tested for deflection. The deflection tests shall not be performed prior to thirty (30) days after installation and backfilling of the sewer trench. Deflection testing shall be performed by pulling a mandrel or rigid ball through the pipeline. The diameter of the device shall be ninety-five (95) percent of the un-deflected inside diameter of the pipe. Deflection testing shall be performed without mechanical pulling devices. Whenever possible, the testing shall initiate at the downstream manhole and proceed upstream. The maximum allowable deflection shall be five (5) percent.

Where the deflection is found to be in excess of five (5) percent, the Contractor shall excavate to the point of excess deflection, remove the excessive deflection from the installed pipe and carefully re-compact bedding and backfill materials around the repaired pipe. The line shall then again be re-tested for excessive deflection. After subsequent testing, should the pipe continue to exhibit unacceptable deflection, the line shall be replaced by the Contractor at no additional cost to GPSD.

2.0 Force Main Sewers

After the Contractor constructs and cleans force main pipe, GPSD shall inspect all sewer piping and appurtenances and work procedures prior to the final acceptance of the project. Force main piping shall be visually inspected for line and consistent grades.

Force main pipe shall be tested in accordance with the current Standard Specifications for Water and Sewer Main Construction in Illinois, most recent edition, for pressure test and leakage test of water mains. The portion of the line being pressure tested shall be complete with all necessary thrust blocks and temporary end blocking in

place prior to testing.

Regarding the frequency of pressure testing, when force main pipe is constructed using excavation methods, pressure testing shall be performed at intervals of constructed pipe no greater than four-hundred feet (400'); when force main pipe is constructed using horizontal directional drilling (HDD) methods, pressure testing shall be performed after the construction of pipe and prior to any connections of fittings, couplings, structures, pipe, etc.

3.0 Repairing Leaks

When infiltration or exfiltration occurs in excess of the specified amounts, defective pipe or joints shall be located and repaired at the expense of the Contractor. If defective portions cannot be located, the Contractor, at his own expense, shall remove and reconstruct as much of the original work as necessary to obtain a sewer within the allowable infiltration limits. All methods for repairing defects shall be approved by GPSD.

END OF SECTION

SECTION 043
SPECIFICATIONS - MANHOLES

Manholes shall be constructed on sewers at changes in size, slope or direction and at other necessary points as shown on the plans or as directed by GPSD.

1.0 Pre-Cast Manholes

Pre-cast manhole sections shall meet the requirements of the latest version of ASTM C478 except where otherwise directed by this Section. Any wall sections or joints of questionable quality shall be replaced. Construction of manhole barrel reducing sections shall not be allowed. The minimum compressive strength of concrete manhole products shall be 5,000 psi in seven (7) days unless specified otherwise on project plans. Concrete compressive strength tests using cores taken from manhole products shall not be allowed; rather, concrete compressive strength tests shall be performed using compression test cylinders a set of which shall be constructed no less than daily per concrete mix. Furthermore, in contrast to that allowable within the text of ASTM C478, in no case shall any cylinder tested fall below one-hundred percent (100%) of the specified strength of the concrete. All test results shall be the property of GPSD and provided by the Contractor immediately after the completion of testing. If compression test results are less than allowable, GPSD shall determine necessary measures to be taken including potential rejection of constructed precast, manhole components.

Manhole bottoms shall be pre-cast with cast-in fillets (Moorbase), except where saddle-type manholes are specified by GPSD.

2.0 Joints

Manhole joints shall use the following configurations by manhole diameter:

Nominal Diameter	Inside Diameter	Wall Thickness	Joint Height	Joint Type
4'	48"	5"	2.75"	One-step Forsheda Joint
5'	60"	6"	4.75"	Single Offset Joint
6'	72"	7"	6.00"	3M Pipe Joint

Joints between concrete manhole components shall be constructed using butyl rubber. Butyl rubber sealants shall be the CS-202 Butyl Rubber Sealant as manufactured by ConSeal Concrete Sealants, Inc. The ends of each butyl rubber sealant shall overlap to ensure closure. For all wet wells or where the groundwater elevation is above the manhole invert the exterior side of the manhole joints shall be sealed with CS-212 Polyolefin Backed Exterior Joint Wrap as manufactured by ConSeal Concrete Sealants, Inc.

3.0 Manhole Connectors

Manhole connectors to seal the connection between pipes and the manholes shall be constructed using the following connector systems.

- Approved boot connectors shall include the following:
 - G3 Boot System as manufactured by A-Lok Products, Inc.
 - PSX Direct Drive system as manufactured by the Press-Seal Gasket Corporation

- PSX Positive Seal system as manufactured by the Press-Seal Gasket Corporation.
- Approved compression connectors shall include the following:
 - Econoseal system as manufactured by the Press-Seal Gasket Corporation
 - A-Lok Premium system as manufactured by A-Lok Products, Inc.
 - X-Cel system as manufactured by A-Lok Products, Inc.

4.0 Top Barrel & Adjusting Rings

The height of the barrel shall be suitable to fit the various depths of the manholes as shown on the plans and as directed in the field by GPSD. The top of manhole castings and lids shall be flush and consistent with the existing surface surrounding the manhole or with a proposed elevation as directed by GPSD. A twelve-inch (12") or sixteen-inch (16") barrel section shall be required immediately beneath a flat-top lid.

The maximum height of adjusting rings to be allowed for use under the manhole frame shall be eight (8) inches. Rubber adjusting rings shall be used for adjustments where the raise is less than or equal to three (3) inches; for all adjustments, at least two (2) inches of rubber adjusting rings shall be used immediately below the manhole frame. Manhole casting adjusting rings may be used for minor height adjustments not exceeding eight (8) inches; however, concrete adjusting rings of thickness two (2) inches or less shall not be allowed. If the surface surrounding the manhole is uneven, tapered rubber adjusting rings as provided by the manufacturer may be used. Adjusting rings shall be concentric to the manhole access opening with a deviation no greater than one eighth of an inch (1/8").

Rubber adjusting rings shall be either Infra-Riser Multi-Purpose Rubber Composite Adjustment Risers as manufactured by East Jordan Iron Works, Inc. or rubber adjusting rings as manufactured by American Highway Products, Ltd.

5.0 Frames

Manholes shall carry a cast iron frame and cover, equal to Neenah Foundry R-1530, Type B or East Jordan Iron Works, Inc., 1920 Frame and Lid with modifications as shown on the Sanitary District's Detail Drawing for castings, included in Section 095 of the Specifications. A waterproof frame and cover equal to Neenah Number R-1915-H2, Neenah Number R-1916-C or East Jordan Iron Works, Inc., 1058 Frame and Lid shall be used where shown on the Plans. Where waterproof frames and covers are constructed, bolts used to secure covers to frames shall be completely coated with anti-seize compound. Anti-Seize compound shall be a pure nickel-based anti-seize compound rated for hostile environments and meet MIL-PRF-907F requirements. Anti-Seize compound shall be acid resistant and have a strong resistance to water wash off. Compound may not contain copper, lead, chlorides or other halogens, phosphorus, or silicones. Approved materials are Nikal Jet-Lube as manufactured by Whitmore Manufacturing, LLC, Loctite LB 771 Nickel Anti-Seize as manufactured by the Henkel Corporation, or CRC Nickel Anti-Seize as manufactured by CRC Industries.

All castings shall be of uniform quality, free from blowholes, porosity, hard spots, shrinkage, distortion or other defects. They shall be smooth and well-cleaned by shot blasting and shall be coated with asphalt paint. Castings shall be sealed to the top of the manhole with butyl rubber sealant.

6.0 Steps & Ramps

Steps in the manhole shall be equal to M.A. Industries, Inc. molded step PS-1-PF and shall be placed as specified on the applicable Detail Drawing as provided in Section 095 of these Specifications. Manhole steps shall be centered over the outlet pipe on eight (8) inch to and including twelve (12) inch diameter

sewers. Steps shall be installed at ninety (90) degrees to the outlet pipe on sewers larger than twelve (12) inches.

Manhole Safety Ramps as manufactured by American Highway Products, Ltd. May be used as directed.

7.0 Coring

Coring into an existing manhole shall be performed only when and as directed by GPSD personnel. The size of core holes shall be minimal relative to the size of hole necessary for the introduction of the specified pipe size into the joint type specified. Coring into a manhole shall be performed with great care to minimize the number of anchor holes necessary to execute the core. Joints between cored holes and specified piping shall be made using a press seal boot. Coring shall not be performed within four inches of a joint.

8.0 Anchoring Systems

Concrete anchoring systems shall be either Trubolt Wedge Anchors, Type 316 stainless steel, part of the Red Head Concrete Anchoring Systems manufactured by Illinois Tool Works (ITW), Inc or Type 316 Stainless Steel threaded rod bedded by an adhesive anchoring system in boreholes. Where utilized boreholes shall be freshly drilled and cleaned with compressed air prior to installation of the adhesive anchoring system. If precast or previously drilled boreholes are to be utilized they shall also be cleaned with a non-residue degreasing agent and allowed to completely dry prior to installation of the adhesive anchoring system. Boreholes shall have a diameter of not less than 1.25 times nor more than 1.5 times the diameter of the threaded rod. Boreholes shall have a minimum embedment depth of not less than three inches or five times the diameter of the threaded rod, whichever is greater.

The type of anchor used as well as the thread length and anchor diameter shall be as specified on the project plans. Where indicated on the project plans, concrete anchoring shall be coupled with an adhesive anchoring system. Adhesive anchoring systems shall be EPCON, two-part epoxy, Adhesive Anchoring Systems as manufactured by ITW, Inc.

Capsule anchors shall be of the size and length required as outlined on the Plans and Specifications and shown on the Shop Drawings unless otherwise stated. Anchors shall be Molly Parabolt type M24-1, Ramset Chemset CTR10. Installation shall be per manufacturer's recommendations.

9.0 Manhole, Standard

Standard precast, concrete, and flat top manholes shall be permitted for pipe diameters up to forty-two (42) inches and for depths up to twenty (20) feet. A structural engineer, licensed in Illinois, shall certify the proper design of flat top manholes for pipe diameters greater than forty-two (42) inches or depths greater than twenty (20) feet using the standard GPSD manhole as the basis of design.

10.0 Manhole, Drop

Where a sewer discharges into a manhole, the bottom of which is two (2) feet or more below the invert of the sewer, the connection shall be made through a drop manhole connection.

Manholes shall be a minimum of 60-inches nominal inside diameter and sized to provide a minimum of 48 inches clearance between the pipe and the opposite side of the manhole.

Manhole internal drop connections shall be the Reliner Inside Drop System manufactured by Duran, Inc. Products and installation shall be in accordance with the specifications of the manufacturer and project plans and Specifications except as follows: all brackets, braces and clamps shall be made of stainless steel; all anchors shall be made of Type 316 stainless steel; all anchors shall be secured into bored holes using a fast curing adhesive anchoring system equivalent to ITW Red Head C6 Fast Curing Epoxy for all conditions.

Internal drop connections shall be constructed using the manufacturer's "B" Bowl with an 8" outlet unless otherwise noted. The drop pipe shall be anchored as directed by the manufacturer except that a clamping bracket shall be placed near the top of the drop pipe (just below the flexible external pipe coupler) and another near the bottom of the drop pipe (near the PVC pipe elbow). The turn-out at the base end of the drop pipe shall be either a 45 degree or 90 degree PVC pipe elbow whose invert shall be as directed on the applicable plan sheet.

11.0 Manhole, Drop, Special

Special (external) drop manholes shall be constructed only where allowed by GPSD.

External drop connections shall be constructed by completely encasing in concrete a drop connection "stack" constructed using a PVC, C900, tee, PVC, C900, pipe, Fernco Flexible Couplings, PVC, SDR 35, pipe and PVC, SDR 35, fittings. Joining of the PVC, C900, tee with the vertical portion of the stack shall be made by coupling a piece of PVC, C900, pipe to the vertical portion of the stack, constructed using PVC, SDR 35, pipe, using an appropriately-sized Fernco Flexible Coupling. The nominal diameter of the tee, pipe and fittings used to construct the stack shall be at least two-thirds (2/3) as large as the diameter of the sewer tributary to and upstream of the drop manhole; however, the nominal diameter of the stack shall at no time be less than eight (8) inches.

The stack shall be completely encased in a minimum of six (6) inches of IDOT, Class "SI", concrete as measured from all directions from the outside surface of all components of the stack; however, the upstream, bell, of the PVC, C900, tee shall remain accessible for joining with an appropriately-sized, PVC, C900, pipe. The concrete encasement is to extend to the limits of the excavation and undisturbed earth and shall be anchored to the manhole wall sections.

The first pipe upstream of the drop manhole shall be constructed using Certa-Lok, PVC, C900, pipe with a laying length of twenty-feet (20') and DR as specified by GPSD. The joint between the first pipe upstream of the drop manhole and the next pipe upstream of it shall be constructed using an appropriately-sized, 5000 Series, Strong Back (RC), coupling as manufactured by Fernco. Filling of excavations below and around the first pipe upstream of drop manholes shall be completed in accordance with Subsection 2.0, titled "Backfilling for Structures", of Section 047 of these Specifications except that use of earth removed from the excavation shall not be allowed.

12.0 Manhole, Splash Drop

Where a sewer discharges into a manhole, the bottom of which is less than two (2) feet below the invert of the sewer, the connection shall be made through a splash drop connection. Splash-drop manholes shall be in accordance with the Detail Drawings supplied in these specifications.

13.0 Manhole, Custom, Special

Where specified, manholes shall be constructed based upon actual conditions revealed after field investigation. As much as possible, special-type manholes shall be constructed using precast concrete manhole parts such as wall sections, flat tops, moor bases, etc.; however, as directed by GPSD, portions of the manholes shall be cast-in-place. Cast-in-place portions shall conform as much as possible to the specifications for standard or drop manholes detailed in these Specifications. Castings and lids shall conform to these Specifications.

Portland cement concrete used shall be in accordance with Class PV concrete as detailed in Section 1020 of the Illinois Department of Transportation (IDOT) Standard Specifications. Formwork shall be as directed by GPSD. Cast-in-place benches shall have troughs formed within that are smooth and transfer the flow through the manhole without disruption. All cast-in-place concrete shall be smoothly finished, cured and protected. There shall be no materials or concrete debris left in the manhole after construction nor shall any concrete debris or materials be introduced into the existing sewer system.

The crown of existing sewer pipes shall be removed to the spring line of the pipe or to the top of the newly cast bench.

14.0 Manhole, Saddle

Saddle-type manholes shall be constructed only where allowed by GPSD.

Saddle-type manholes shall be constructed using precast concrete manhole components in accordance with these Specifications except that a saddle-type manhole shall be precast to conform to the dimensions and operation of the existing sewer over which it is to be constructed. Field modifications may be allowed by GPSD. Likewise, the existing sewer shall be field modified so that the constructed manhole is fully operational.

A saddle-type manhole shall be constructed to straddle an existing sewer by modifying an appropriately sized precast concrete manhole barrel section. The dimensions of the chosen precast concrete manhole barrel section shall be chosen based upon field conditions including the size of the existing sewer and consideration for the structural integrity of the constructed manhole. The opening cut into the barrel shall be large enough to allow placement over the existing sewer; however, excessive cutting beyond that necessary to place the modified barrel section over the sewer shall not be allowed.

The manhole-base section shall be properly constructed in accordance with these Specifications and the directions of GPSD. Manhole-base sections shall be adequately supported upon concrete blocks and sewer bedding materials. After properly supporting the manhole base, ready-mix, Portland cement Class SI concrete as detailed in the Illinois Department of Transportation (IDOT) Standard Specifications shall be poured around the manhole-base section. No further construction upon or around the constructed base section shall be allowed until the concrete has reached 2,000 psi based on compressive strength tests. The use of early age or high early accelerators is allowed.

Joints between the newly placed and modified manhole barrel section that will serve as the manhole bottom and the existing sewer shall be made using ready-mix concrete in accordance with these Specifications. The joint shall be watertight and constructed to the satisfaction of GPSD.

Manhole benches within saddle-type manholes shall be constructed in accordance with the directions for manhole bench and trough reconstruction provided in Section 075 of these Specifications.

The crown of existing sewer pipes shall be removed to the top of the newly cast bench. The pipe shall be cut true and even with the top of the constructed manhole bench without excessive pipe removed below or remaining above the top of the bench.

15.0 Manhole Testing

Constructed manholes shall be tested. Testing shall conform to ASTM C1244 Standard Test Method for Concrete Sewer Manholes by the negative air pressure (vacuum) test and ASTM C1227 Standard Test Method for Concrete Septic Tanks. All test results shall be the property of GPSD and provided by the Contractor immediately after testing is concluded.

END OF SECTION

SECTION 047
SPECIFICATIONS - BACKFILLING

Backfilling of the trench shall proceed to the surface using the materials as specified based upon the type of surface improvements (e.g. paved surface or non-developed). Non-developed (grassed, landscaped or agricultural areas) areas may be backfilled utilizing excavated trench material provided it meets the specifications. The materials shall be left mounded to provide for settlement. All surplus excavation materials shall be removed and properly and legally disposed of by the Contractor at their expense. Where required in the specifications or directed by GPSD, backfilling shall be performed using materials detailed including fine or coarse aggregate materials, structural backfill materials and flowable backfill materials (CLSM).

Excavations shall be filled completely or to other elevations specified by GPSD. Fill materials shall be placed in a manner to encourage immediate compaction and eliminate future settlement. No large stones or debris shall be placed in the trench at any point. The trench may be backfilled by machine or by hand, but the work shall be done in such a way as to prevent dropping of materials directly on top of the pipe or through any great vertical distance onto the material covering the pipe. In no case will backfilling material be allowed to fall directly onto sewer pipe or other underground utilities or structures. The placing of the backfill shall be performed in a manner such that no undue loads are placed on any structure or utility.

Backfilling shall be completed promptly as pipe laying advances. The time elapsed before backfilling begins shall be subject to the approval of GPSD. In general, the distance between the end of the last pipe placed to the general work of backfilling shall not be less than twenty-five (25) feet in order to provide ample room for work such as the laying of the pipe, the construction of concrete cradles, the building of service risers, etc.

All work shall be performed in accordance with Illinois Public Act 90-0761.

1.0 Backfilling – Compaction Methods

For all materials, except flowable backfill, one of the following methods of compaction shall be used:

1.1 Mechanical Compaction

The Contractor shall choose the method of mechanical compaction considering any potential damage those compaction procedures may cause to the installed pipe and manholes.

Earthen materials shall be placed in layers of twelve (12) inch thickness or less, loose measure, and each layer firmly compacted. Materials classified as silts or clays shall be compacted with sheep's foot compactor designed for use in a trench.

Material classified as Coarse Aggregate Graduation or Fine Aggregate Graduation (as per IDOT Standard Specifications for Road and Bridge Construction, current edition) shall be placed in twelve (12) inch lifts and compacted with a vibrating plate or smooth drum-vibrating roller.

The Contractor shall provide compaction reports to GPSD.

1.2 Trench Jetting and Water Soaking

Jetting may only be used when other methods have been exhausted and must be pre-approved by GPSD.

Material excavated from the trench may be placed as backfill as detailed above. Water shall be introduced starting at the point of lowest elevation of the trench and work up along the trench. Jetting and water

soaking shall not begin until the trench has been backfilled to within six (6) inches of the finished surface.

Jetting holes shall be centered over the trench backfill and at longitudinal intervals of not more than six (6) feet. Additional holes shall be provided if deemed necessary by GPSD to secure adequate settlement. All holes shall be jetted to a point one (1) foot above the top of the pipe.

The water shall be injected at a pressure and rate just sufficient to sink the holes at a moderate rate. After a hole has been jetted to the required depth, the water shall continue to be injected until it begins to overflow the surface.

Surface depressions resulting from backfill subsidence caused by trench jetting and water soaking shall be filled with earthen materials and re-compacted by tamping or rolling to the satisfaction of GPSD.

2.0 Backfilling for Structures

Backfilling for structures, also referred to in plans and these Specifications as structural backfill, shall be completed using either earth removed from excavation or approved course or fine aggregate materials. The fill material shall be placed and compacted to ninety-five (95) percent as determined by ASTM D-698 (Standard Proctor Test). The moisture content of the fill material when placed shall be within ten (10) percent of the optimum moisture content as determined by ASTM D-698 (Standard Proctor Test). Backfilling shall not be allowed until concrete associated with structures in proximity to excavations to be filled has reached design strength and been inspected and approved by GPSD.

3.0 Backfilling, Coarse Aggregate and Fine Aggregate Materials

The Contractor shall furnish, transport and fill excavations with either fine aggregates or coarse aggregates, beginning one (1) foot above the top of the pipe. Where such backfilling is required, the earth material excavated from the trench shall be disposed of by the Contractor.

Excavated sand may be used as backfill. Pebbles and stones in the sand shall be comparatively few, and not larger than 0.75" diameter, to prevent interference with the working of the sand into the narrow spaces between the bedding and the earth.

Aggregate backfill materials shall be graded to the requirements of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition. Aggregate backfill materials shall be either CA-6 or FA-6 materials. The material shall be crushed gravel or crushed stone as per IDOT's Aggregate Standards with a minimum of 75% fractured material. The use of slag will not be permitted.

4.0 Backfilling under Roadways

Backfill placed under or within five feet (5') of paved surfaces or anticipated roadways shall be either controlled low-strength material (CLSM, commonly referred to as flowable fill) or granular type backfill as specified in Section 3.0. The Contractor shall place compacted granular backfill or CLSM from an elevation of one (1) foot above the pipe up to an elevation specified by the local roadway authority, as illustrated in Section 095 of these Specifications. CLSM mix design, design criteria, mixing, proportioning, materials, equipment, sampling and testing are to be in accordance with the Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction.

Pavement restoration shall be in accordance with local regulations.

5.0 Waterway Backfill

Waterway backfill shall be constructed using IDOT Gradation RR1 coarse aggregate materials. Waterway backfill materials are to be placed in lifts not to exceed twelve (12) inches in vertical depth. Compaction testing of waterway backfill materials will not be required.

6.0 Testing of Backfill

Unless specified otherwise by the Engineer or within applicable project plans, and not including waterway backfill as defined above, compaction of backfill shall be completed such that the density is not less than eighty-five (85) percent of the maximum dry density as determined by ASTM D-698 (Standard Proctor Test) when the moisture content of the material when placed is within two (2) percent of the optimum moisture content. Often, within plans and these Specifications, compaction to this standard is referred to as agricultural backfill. As specified within applicable project plans, agricultural backfill shall be completed using earthen materials, coarse aggregate materials or fine aggregate materials. Within applicable project plans, any note or notes that specify requirements for the compaction of backfill other than that specified above shall supersede the requirement of this Section.

Unless specified as not required, all backfill shall be tested in lifts not to exceed twelve (12) inches in vertical depth. The backfill shall be tested after placement of each lift at a minimum of twice for every two-hundred (200) lineal feet as measured along the centerline of the newly placed pipe, or as required by the Engineer. The appropriate testing method from the following list shall be used:

- ASTM D6938: In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods
- ASTM D2937: Density of Soil in Place by the Drive-Cylinder Method
- ASTM D1556: Density and Unit Weight of Soil in Place by the Sand-Cone Method

Test results shall be provided to GPSD in a written report specifying the test method utilized, test result, reference soil density-moisture curve, test date, test time, test location and name of tester.

7.0 Abandonment of Sewers with Flowable Backfill

Sanitary sewers designated to be abandoned shall be abandoned by filling the sewer as full as possible with modified flowable backfill (CLSM specified above, with the addition of a superplasticizer). If so indicated, all bookend manholes are to be abandoned by filling with modified flowable backfill. During backfilling the downstream end shall be vented. After insertion of modified flowable backfill is completed, the ends of the abandoned pipe and manhole(s) shall be sealed using brick and mortar or another approved method.

Not only shall the mainline sewer be filled with modified flowable backfill but all other voids either upstream of the mainline sewer or outside of the sewer pipe shall also be filled. Upstream connections shall include, but not be limited to, wye connections, tee connections, taps and laterals. Voids outside of the mainline pipe caused by broken and missing pipe and the subsequent erosion of supporting pipe materials shall also be filled as much as possible.

The Contractor shall continue filling the line to be abandoned to the satisfaction of GPSD. Designated bookend manholes shall be abandoned by plugging all connections other than the connection to the pipe to be abandoned then filling the manhole full of flowable backfill material. The Contractor shall remove the existing casting and lid, and then restore the surface to a condition consistent with its surroundings.

END OF SECTION

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SECTION 051
SPECIFICATIONS - SEWER CONSTRUCTION BY TUNNELING, JACKING AND
PILOT TUBE BORING METHODS

Unless provided within either these Specifications or on the Project plan sheets, information about underground conditions within and near the area of work has not been obtained by GPSD. The Contractor shall determine the underground conditions near the proposed sewer construction or repair locations and determine the effect of such conditions upon the proposed work. The Contractor shall assume all risks and accept all costs attributable to unknown and unforeseen underground conditions. Underground conditions such as the presence of underground obstructions or poor soil conditions that are unfavorable to the means of sewer construction or reconstruction shall not be a basis for claims for additional compensation.

1.0 Sewer Construction by Tunneling

Where shown, specified or directed, the sewer shall be constructed in tunnels and the following specifications shall govern construction. If the tunnel location is beneath roads, railroads or other structures, construction including all operations and materials shall conform to the regulations and requirements of the Railroad, Highway Department or other agency having jurisdiction. Approval by said agency and by GPSD shall be obtained before any work is started.

The Contractor shall furnish, place, and maintain all sheeting, bracing and lining required to support the sides, floor and heading of the excavation in tunnel shafts. Tunnel lining shall be steel liner plates of sufficient strength to hold all loads reasonably expected at the project location and designed, signed and sealed by a structural engineer licensed in the State of Illinois. The shafts shall be of suitable size and shape and shall be properly equipped to carry on the work. The floor of the tunnel supporting the pipe shall be poured concrete and the ends of the tunnel shall be sealed with brick masonry.

2.0 Sewer Construction by Jacking and Pilot Tube Boring Methods

Where shown or directed, using either jacking or pilot tube boring methods, sewers and casings shall be constructed to line and at the depths and grades specified. Jacked construction is the process whereby either sewer pipe or casings sections are jacked in from a drive shaft into the hole formed by either an auger boring machine or tunnel boring machine. Pilot tube boring methods utilize small diameter pilot tubes that are installed and steered through the ground by utilizing a slanted face at the cutting head containing a target with light emitting diodes (LEDs) and a camera mounted theodolite that is located in the shaft to achieve accuracy in line and grade. The hole is enlarged to the same outside diameter of the final product pipe after the installation of the pilot tubes.

Sewer construction by jacking or pilot tube boring methods, including all operations and materials used, shall conform to the regulations of or permits issued by any Department or agency having jurisdiction over the installation.

2.1 Casing Pipe and Sewer Carrier Pipe Materials and Joining Systems

All pipe shall conform to Section 027 of these Specifications. Carrier pipe shall be provided with restrained joints.

Deliveries of casing pipe shall include manifests that indicate the pipe manufacturer, the date and location of its manufacture as well as the pipe specifications.

Sections of steel pipe shall be welded uniformly throughout the circumference of each joint. Welds shall be free of leaks and defects.

For all welders who will assist towards the completion of the Project, the Contractor shall furnish a certificate issued by an approved testing laboratory that demonstrates the welders' abilities to make groove and fillet welds in all positions. The Contractor shall provide GPSD with documentation showing that all participating welders have practiced welding continuously since certification. A proposed welder shall not participate in welding operations necessary towards the completion of the Project until a certification demonstrating compliance with these Specifications is submitted to and accepted by GPSD.

2.2 Casing and Sewer Pipe Dimensions

Casing pipe sizing shall be dependent upon both the size of the sewer carrier sewer pipe to be installed within as well as the carrier sewer pipe joining system to be used. The minimum casing pipe diameters are as shown below:

Sewer Pipe Nominal Diameter (inches)	Casing Pipe Diameter (inches) with Belled or Coupled Carrier Pipe Joints
49 to 54	72
37 to 48	64
25 to 36	50
25 to 36	50
14 to 24	36
4 to 12	24

If the carrier pipe joining system includes either belled or coupled joints, in no instance shall the casing pipe diameter be less than twenty-four (24) inches in nominal diameter. The carrier pipe shall be installed at the diameter indicated on the project Plans. The Contractor may elect to install a larger diameter casing pipe based on site conditions and Contractor means and methods.

To minimize soil collapse over the casing, the bore-hole shall be sized with minimal overcut relative to the casing pipe size and the correct pressures shall be maintained within the annulus.

2.3 Casing Pipe Installation

Casing pipes shall be constructed using either jacking or pilot tube boring methods. Forces experienced by the casing pipe during construction shall not exceed the maximum loading recommended by the casing pipe manufacturer and shall be distributed uniformly around the circumference of the casing. The movement of casing pipes along the pipe alignment shall be consistent and uniform throughout the installation process. Casing pipe alignment shall be straight and consistent with that planned. The minimum slope for casing pipe shall be one (1) percent.

During casing pipe installation using jacking methods, the Contractor shall use a Dutch level (or equivalent) and a steering head to control and monitor the casing pipe location.

After installation of the casing pipe and prior to the installation of the carrier sewer pipe, the Contractor shall inspect the casing pipe using a pipe laser and CCTV to verify the installed pipe meets the requirements of the Construction Documents. CCTV inspection shall be performed in the presence of GPSD and video recorded and submitted to GPSD for review and acc

The ends of casing pipe installed for future use shall be sealed by welding a ¼” steel plate with 2” x 2” x ¼” angles for reinforcement to the ends. Welds shall be uniform and free of leaks and defects. End plates shall be coated externally and internally with a coal tar epoxy coating.

2.4 Carrier Sewer Pipe Installation and Casing Spacers

The carrier sewer pipe shall be installed at depths and grade specified on the Project plan sheets or as specified by GPSD. The carrier sewer pipe must be installed freely within the casing pipe without binding or resistance that requires excess force to overcome. The carrier pipe shall be installed without vertical or horizontal deflection.

Casing spacers shall be attached to the carrier sewer pipe so that the completed sewer will be at the required line and grade, centered within the casing pipe, and restrained against flotation. Spacers shall be selected from the following list:

- Model S stainless steel casing isolators by Pipeline Seal and Insulator (PSI), Inc., ,
- Model BWM SS Stainless Steel Casing Spacers by the BWM Company, or
- CCS-JR Stainless Steel centered & restrained joints manufactured by Cascade Waterworks Manufacturing

Widths and sizes for spacers and isolators shall be based upon both the manufacturer’s recommendations and the specific application. Spacers and isolators shall be placed in accordance with the following guidelines:

1. Spacers or isolators shall be evenly spaced and placed at minimum intervals of 12-inches around the circumference of the pipe, with a minimum of four individual spacers or isolators at each location
2. Spacers shall be located no more than one (1) foot from both ends of the casing pipe.
3. Spacers or isolators shall be placed on both sides of a joint between two sections of carrier pipe. Said spacers or isolators shall be placed no more than one (1) foot from the joint.
4. Spacing shall meet manufacturer requirements but in no case shall be more than ten (10) feet along the length of the pipe. apart.

After the carrier sewer pipe has been installed and centered within the casing, unless specified otherwise by GPSD, the ends of the casing pipe shall be brick and mortared. Following installation but prior to placing into service, the Contractor shall inspect the carrier pipe using CCTV and submit the video to GPSD for review & acceptance.

2.5 Vent Pipe Construction

Where specified by GPSD or required by a permitting authority, casing pipes shall be vented above ground. Vent pipes shall be constructed at both ends of a casing, one at the upstream end and another at the downstream end of the casing pipe. Vents shall not be positioned such that they are directly over or under any spacer or end seal; care shall be taken to assure that vent pipes are not blocked during carrier pipe construction.

Vent pipe construction shall be in accordance with these Specifications and any directions provided within a permit or agreement granted by a permitting authority; however, when in conflict, directions provided by the permitting authority shall govern. Vents shall be designed and constructed to prevent intrusion of water and debris; the top of vents shall be fitted with down-turned and screened elbows. Vent pipes shall be constructed using stainless steel pipe and fittings and sized such that their inside diameters are not less than the greater of either ten percent (10%) of the nominal size of the carrier pipe or two (2) inches. Vent pipes shall extend at least four (4) feet above the local ground surface.

3.0 Internal Inspection of Casing Pipes and Carrier Sewer Pipes

The Contractor shall allow GPSD time to review the inspection of both the casing pipe prior to insertion of the carrier sewer pipe and the carrier sewer pipe prior to the introduction of sewer flows. Inspections will be made of the full lengths of casing and carrier sewer pipes including the full circumference of joints and welds.

The Contractor shall not claim additional compensation for delay caused by GPSD's review.. The Contractor shall not proceed with carrier sewer pipe installation until GPSD has accepted the casing pipe installation. Likewise, the Contractor shall not proceed with introduction of sewer flows into the carrier sewer pipe until GPSD has accepted its installation.

END OF SECTION

SECTION 055
SPECIFICATIONS - RESTORATION

Restoration of all property damaged or disturbed by the work shall be completed as soon as possible. If restoration work has not been completed in accordance with permit conditions but no longer than ten (10) days after receipt of written notice to complete restoration, the District may have the work completed by others and the Contractor shall be responsible for the costs of such restoration.

If immediate permanent surface restoration is not possible, a temporary dust free driving surface shall be provided. Temporary surfaces shall be maintained by the Contractor until such a time as a permanent surface is installed.

Removal and restoration of disturbed areas shall be completed as specified by the property owner and governing authority. Where not specified by the property owner and governing authority, removal and restoration shall be in accordance with these Specifications. The Contractor shall also be responsible for securing such permits, bonds, or licenses as may be required. Where accommodation is given to a property owner in lieu of restoration, a written release for both the Contractor and the District must be secured from the property owner and presented to the District.

1.0 Roadway Restoration

Restoration of roadways within rights-of-way owned by the City of Peoria shall be completed in accordance with the City of Peoria specifications titled "General Utility Removal & Restoration Guidelines". Restoration of roadways within jurisdictions other than the City of Peoria shall be completed in accordance with these Specifications or local regulations, whichever is more stringent. In the absence of specific detail drawings, default to the City of Peoria standards.

Removal of the full-width of lanes shall be required when:

- Specified on a permit issued by the agency with jurisdiction over the right-of-way in question,
- Required within specifications released by the same, or
- As directed by GPSD.

Full lane width is not required for:

- Concrete base roadways not within an Illinois Department of Transportation (IDOT) right-of-way, or
- For removal and replacement of a manhole casting and lid only.

The removal of the full-width of lanes shall mean the removal of all pavement materials within an area encompassing the limits of a given excavation and bounded by the nearest longitudinal joints on either side of the excavation.

If full-width pavement removal is not required by any of the conditions above, the following specifications will determine the limits of pavement removal unless specified otherwise by a governing authority:

- The limits of pavement removal shall be at least one (1) foot beyond the limits of excavations.
- If a proposed saw-cut is within five (5) feet of an existing pavement joint the cut shall be made at the pavement joint.
- Any damage to the existing roadway beyond the limits of the repair caused by Contractor activity shall be repaired by the Contractor at its expense.
- The cutting of pavement shall extend through the full depth of the existing pavement base.
- Saw-cuts shall be straight and true and yield an area of pavement removal with square corners.
- After completion of pavement restoration, locations where the pavement is cut beyond the limits of squared corners shall be repaired by the Contractor.

Roadway restorations performed after removal and replacement of manhole castings and lids shall conform to both requirements contained within this Section and the related drawings in Section 095 of these Specifications.

- Where manhole casting and lid removal and replacement is not within PCC pavement, pavement restoration within the limits of cuts made to facilitate the replacement of the manhole casting and lid shall be completed by constructing PCC throughout the full depth of the excavation.
- Where manhole casting and lid removal and replacement is within PCC pavement, pavement restoration within the limits of cuts made to facilitate the replacement of the manhole casting and lid shall be completed in accordance with IDOT Standard 420111-03.

Performing roadway restoration in this manner shall be allowed only when the manhole casting and lid as well as any underlying adjusting rings are being removed and replaced; if other components of a manhole, including flat-top sections and barrels are being removed and replaced, then roadway restoration shall be performed as defined above.

1.1 Roadway Base Course

After backfill has been constructed in accordance with these Specifications, the Contractor shall provide approved base course materials, installation, equipment, testing, etc., in accordance these Specifications.

When a gravel base course is required, the IDOT Specifications for aggregate base course, Type A or B, shall govern, except for the subsections regarding methods of payment and the basis of payment. The material used shall be IDOT gradation CA-6, crushed stone, and from a local source approved by IDOT.

When a Portland cement concrete rigid base course is required, the IDOT Specifications for Portland concrete cement (PCC) base course shall govern, except for those subsections regarding method of payment and basis of payment. Generally, the class of concrete used for the construction of roadway base courses shall be Class PP in accordance with Article 1020.04 of the IDOT Specifications; however, Class PV may be used as directed by GPSD.

When a bituminous (flexible) base course material is required, the IDOT specifications for bituminous base course shall govern, except for those subsections regarding method of payment and basis of payment.

1.2 Roadway Permanent Surface Restoration

Except where otherwise directed by GPSD or the local agency having jurisdiction, roadways, including benching and filling for same, shall be restored to the original grades and surface. Roadway permanent surface restoration shall conform to the following:

1.2.1 Aggregate Surface Courses

Unimproved roadways or driveways having aggregate surface courses shall be restored with a like surface placed over the entire roadway or driveway. The IDOT Specifications for placement of an Aggregate Surface Course shall govern except as noted in these Specifications. Type A or B surface course, in accordance with Section 402 of the IDOT Specifications shall apply. The material shall be crushed stone, taken from a local source approved by GPSD. The surface shall be reshaped to grade and compacted in place to the satisfaction of GPSD.

1.2.2 Bituminous Material and Sealcoat Aggregate (“Sealcoating”)

Construction of sealcoat roadways shall be performed in accordance with Class A-3 of Section 403 of the IDOT Specifications. Seal coat aggregate and cover coat aggregate shall be trap rock. Seal aggregate materials shall be 3/8”, Class A-1 materials and conform to gradation CA-16 as per current IDOT Standard Specifications for Road and Bridge Construction. Cover coat aggregate materials shall be Class A-2 materials and conform to gradation CA-14 also per current IDOT Standard Specifications for Road and Bridge Construction. Bituminous materials used for both cover coat and seal coat during hot weather applications as defined within Section 403 of the IDOT Specifications shall be PG46-28.

1.2.3 Bituminous Binder and Surface Courses, Class I

Improved bituminous roadways or driveways shall be restored in accordance with Section 406 of the IDOT Specifications and the specifications below. Subsections regarding methods of measurement and basis of payment shall not be applicable. All equipment is subject to the approval of GPSD. Reclaimed asphalt pavement materials shall not be permitted for use.

The prime on brick, concrete, or bituminous base shall be SS-1, applied at a rate in accordance with the IDOT Specifications. Prime on aggregate bases shall be MC-30, also applied at a rate in accordance with the IDOT Specifications. The mixture used for cracks, joints and flangeways shall be per IDOT Specifications. The leveling binder, binder course, and surface course shall be Class I, Type 1. GPSD may specify a mixture design or elect to have the Contractor recommend a mix design based on specific applications.

Bituminous surface courses shall be three (3) inches thick except as otherwise required by an owner with jurisdiction over the location to be restored. Unless required by GPSD, a test strip shall not be performed.

1.2.4 Concrete Roadway Surfaces

Improved roadways with a concrete surface shall be restored in accordance with IDOT specifications for Class B pavement patching, Section 442 and Section 420 except as noted below.

The subsections of the IDOT Specifications that pertain to methods of measurement and basis of payment shall not be applicable. For the purpose of these specifications, a Class B patch shall not necessarily mean a pavement patch along the full width of a lane, but can refer to a patch cut narrower than full lane width depending on field conditions.

Within Type III and Type IV, Class B, patches, as defined in Section 442 of the IDOT Specifications, reinforcement with pavement fabric shall be constructed where specified on the Plans or by the governing jurisdiction. If required, reinforcement shall be constructed in accordance with the IDOT Specifications. If not specified on the Plans or by the governing jurisdiction, reinforcement with pavement fabric shall not be constructed within Type III or Type IV, Class B, patches.

1.2.4.1 Pavement Joints

Joints between new pavement and other surface features such as existing pavement, shoulders, curbs and gutters shall be constructed in accordance with Sections 442 and 420 of the IDOT Specifications. Where the Contractor removes a transverse contraction joint, a new one shall be constructed per IDOT Specifications at that location upon reconstruction.

Constructed joints shall be sealed in accordance with Section 420 of the IDOT Specifications.

Dowel bars shall be anchored into tie holes by use of a two-part epoxy specifically formulated for such applications. The epoxy anchor and its application shall be per the IDOT Specifications and the manufacturer's recommendations.

If existing longitudinal keyed joints are damaged during the performance of work the Contractor shall replace damaged, keyed joints.

Unless specified otherwise by a governing authority, when restoration is completed by the construction of concrete surfaces, joints shall be sawed into the surface of the concrete in accordance with IDOT Specifications. The depths of sawed joints shall be equal to one-third (1/3) of the thickness of the receiving concrete slab.

1.2.4.2 Concrete Replacement Surface

Forms shall be in accordance with Section 1103 of the IDOT Specifications. The design, engineering and construction of forms shall be the responsibility of the Contractor. He shall design the forms to adequately support and safely carry the load of the concrete without deflection. The Contractor shall be responsible for any injury or damage arising from inadequate forms or from premature removal of formwork.

Depth of replacement concrete slabs shall match that of the existing roadway but shall not be less than six (6) inches, the depth of that existing prior to removal or that required by the governing authority, whichever is greater. The Contractor shall use an appropriate class of Portland cement concrete relative to use as specified in Section 1020 of the IDOT Specifications. For example, pavement patching completed using a concrete replacement surface shall be constructed using a Class PP concrete selected and mixed in accordance with the IDOT Specifications.

1.3 Opening Roadway to Traffic

Pavement patching shall proceed in accordance with the IDOT specifications for opening roadways to traffic. The guidelines detailed in Section 701.05 (e) shall apply, except that both multi-lane construction zones and complete roadway closures shall be allowed only with the approval of GPSD. If traffic control guidelines that allow for either multi-lane construction or roadway closures are included in a permit issued by an agency with jurisdiction over a right-of-way in question, then these guidelines shall govern construction included under the scope of the permit.

Construction live loads shall not be placed on concrete until the conditions of Article 701.05 (e)(2) of the IDOT Specifications have been met. The special mixture referred to in this section of the IDOT Specifications shall only be allowed upon the direction of GPSD.

2.0 Restoration of Sidewalks, Ramps, Curbs, Gutters, Driveway Approaches and Medians

Sidewalks, ramps, curbs, gutters, driveway approaches and medians shall be removed and replaced as directed by local authorities and shall include the provision, maintenance and deconstruction of all necessary measures to control both vehicular and pedestrian traffic around the sites of work.

Regardless of existing status prior to removal, removal and replacement of sidewalks, ramps, curbs, gutters, driveway approaches and medians shall be in accordance with the latest version of guidelines for Public Rights-of-Way (PROWAG) as required by the U.S. Architectural and Transportation Barriers Compliance Board.

Sidewalks, ramps, curbs, gutters, driveway approaches and medians construction within City of Peoria right-of-ways shall be in accordance with the City's specifications including the latest version of the document titled "Guidelines for Sidewalk and Drive Approach Construction".

Sidewalk, ramp, curb, gutter, driveway approach and median restoration within IDOT right-of-way shall be as specified in Section 606 of the IDOT Specifications, except those subsections regarding methods of measurement and basis of payment. Sidewalk restoration within IDOT right-of-way shall be as specified in Section 424 of the IDOT Specifications, except those subsections regarding methods of measurement and basis of payment.

If replacement curb is constructed to adjoin to existing curb of different dimensions, the Contractor shall transition from the new curb to the existing as directed by GPSD. Joining replacement curb or replacement curb and gutter to existing or newly constructed flexible or rigid pavement materials shall be as specified within the IDOT Specifications including Standard 606001-04.

Damaged sidewalks shall be temporarily restored as directed by GPSD and in accordance with the Americans with Disabilities Act (ADA) Standards. Judgment of where and when all temporary surfaces shall be provided and determination of the frequency of the temporary surface maintenance shall rest with GPSD. The Contractor shall pay all costs for such temporary surface work and the cost shall be included in the contract price.

Unless otherwise specified, concrete driveway approaches shall be constructed with a thickness of no less than six (6) inches if adjoining to a residential property and no less than eight (8) inches if adjoining to a non-residential property.

Control joints within the limits of sidewalk areas of driveway approaches shall be spaced equal to the width of the replacement sidewalk.

3.0 Restoration of Driveways

The IDOT Specifications for pavement patching, Class B, shall apply when restoring driveways. Driveways shall be removed and replaced to the nearest available existing joint beyond the trench limits. Driveways shall be replaced with a driveway of the same thickness as the existing driveway; however, the thickness of the constructed driveway shall be no less than six (6) inches. Driveways shall be constructed using Class PV, PCC in accordance with the applicable IDOT Specifications. Dowel bars and tie holds shall be installed in accordance with these Specifications. Concrete materials, placement, curing and finishing shall be as required in these Specifications.

Within the limits of replacement driveways not including the area of sidewalk within driveway approaches, control joints shall be spaced at intervals not exceeding ten (10) feet with a minimum depth of cut equal to one quarter of the slab thickness. A centerline control joint is required for driveways greater than twelve (12) feet in width. Where new construction abuts existing structures (i.e. garage floors, brick veneer walls, fence posts, etc.) an isolation joint extending the full depth of the concrete slab shall be required.

4.0 Restoration in Non-Roadway Areas

Where sewers, manholes or structures are constructed, repaired or modified in areas outside of roadways or driving surfaces disturbed areas shall be restored by reestablishment of the surface to grades existing prior to disturbance and stabilization of restored areas including establishment of vegetative cover throughout the whole of the disturbed areas. Necessary erosion control measures and seeding shall be in accordance with these Specifications; however, within the City of Peoria, vegetative restoration shall be in accordance with the City's Stream Buffer Requirements as expressed within Part III, Article V, of the City of Peoria Ordinance 15739. All excess excavated materials and debris shall be promptly removed from the site.

To minimize settlement after the work is completed, where lawn, agricultural or unimproved areas are to be restored, the backfilled material shall be thoroughly compacted in accordance with these Specifications. Regarding lawn areas, backfilling shall be brought to an elevation six (6) inches from the top of the ground and the balance of the trench shall then be filled up with select topsoil. Adjacent lawns scarred or injured in any way shall also be cultivated and pulverized and dressed smoothly with select topsoil.

Within the mandatory warranty period on the work performed by the Contractor as detailed in these specifications, the Contractor shall be responsible for all subsequent landscaping associated with repair of the work performed. This shall include, but not be limited to, reseeded and the correction of settled backfill. The Contractor shall not request additional compensation for such work.

5.0 Agricultural Surface Restoration

Disturbance of existing agricultural areas shall be minimized. Before extensive disturbance of an agricultural area, existing topsoil shall be removed and isolated from other materials and placed in stockpiles that are protected from weather and erosion. No other materials shall be allowed to be mixed or stockpiled with topsoil materials.

Restoration shall be performed using the stockpiled reserves of topsoil and any additional topsoil materials necessary to compensate for losses. Topsoil materials shall be placed such that compaction is minimized. The depth and quality of the placed layer of topsoil shall be equal to the existing depth of topsoil at the area of disturbance.

6.0 Restoration of Alleys

Restoration of alleys shall be as follows except for those circumstances where the alley surface is either concrete or unimproved. For directions regarding the restoration of concrete alleys, reference the above section titled "Concrete Roadway Surfaces". For directions regarding the restoration of unimproved alleys reference the above section titled "Restoration in Non-Roadway Areas".

When restoring a bituminous alley, the restoration method shall be dependant upon the length of the pavement to be removed and replaced as measured along the centerline of the sewer. If the length of the saw-cut pavement is less than 50', 8-inches of CA-6 granular materials from approved local deposits shall be installed as base material on top of materials installed as backfill in accordance with these Specifications. Materials and gradations shall be in accordance with the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition, the Section for Coarse Aggregate Standards. Granular materials shall be crushed gravel or a crushed stone with a minimum of 75% fractured material, from IDOT-approved sources. Surface materials shall be no less than three (3) inches of premium class "I", cold-patch material in accordance with IDOT Serial No. M120-05 and installed in accordance with these Specifications. However, unless specified by GPSD, restoration of alleys after removal and replacement of manhole castings and lids shall be completed in accordance with the specifications above and not this subsection governing the

restoration of alleys.

If the length of the saw-cut pavement is greater than or equal to 50', 10-inches of recycled aggregate materials (RAM) shall be installed on top of materials installed as backfill in accordance with these Specifications. Also, if the saw-cut pavement is greater than or equal to 50', alley removal and replacement shall extend the full-width of the alley throughout the entire length of the saw-cut.

END OF SECTION

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SECTION 059
SPECIFICATIONS - SEEDING AND SODDING

1.0 Preparing for Sod and Seed Application

Preparation for sod and seed application shall be performed in accordance with the following specifications.

1.1 Soil Preparation

Sod and seed application shall be performed using a layer of worked topsoil of no less than six (6) inches in depth. Seedbed preparation shall not start until all stones, debris, roots, etc. larger than one (1) inch in diameter or length have been removed. As approved by GPSD, the area shall be worked until the topsoil material is aerated and loose.

1.2 Fertilizing

Sod and seed application cannot be started until a commercial grade synthetic, slow-release fertilizer has been applied at the rate of one (1) pound of nitrogen per 1,000 square feet of area to be seeded. The fertilizer shall be delivered to the site in suitable containers that are fully labeled. The nutrient mixture of the fertilizer shall be 11% total nitrogen, 15% total phosphorus and 11% water-soluble potash.

Dry fertilizers shall not be applied during hot, dry weather. Generally, the fertilizer shall be applied during either the early morning hours or later in the afternoon, avoiding the daytime hours corresponding to peak sun intensity and temperature. Dry fertilizers shall not be applied until the area to be fertilized is completely watered. After fertilizer application, the area shall again be sufficiently watered to the point of runoff.

2.0 Seed Application

Seed application shall be performed in accordance with the following specifications. Seed mixtures shall be delivered to the site of the work in unopened bags with the seed analysis label clearly visible. Bags of seed mix shall not have a test date listed on the label older than one (1) year prior to the date of seed application.

2.1 Lawn Seeding

In either grassy areas or where specified by GPSD, the Contractor shall restore disturbances using one or more of the following grass mixes, chosen in accordance with the wishes of the owner of the property in question, the desire to match the existing cover, and to provide the most durable and dense growth. Acceptable lawn seed mixes include the following:

Seed Mix	Manufacturer
Kelly's Athletic Grass Mix	Kelly Seed
Kelly's Landscape Grass Mix	Kelly Seed
Kelly's Shade Place Grass Mix	Kelly Seed
Kelly's Elite Turf Mix	Kelly Seed
Sod Builder Shady Mix	Lifetyme Seed Co.
Pre-Me-Um Mix	Lifetyme Seed Co.
Ebony Green Pro	Lifetyme Seed Co.

2.2 Waterway Seeding

Except where required otherwise by either GPSD or the City of Peoria's Stream Buffer Requirements as expressed within Part III, Article V, of the City of Peoria Ordinance 15739, in waterways, the Contractor shall restore disturbed surfaces using one of the following mixes:

Seed Mix	Manufacturer
Kelly's Waterway Mix	Kelly Seed
Waterway Mix	Lifetyme Seed Co.

2.3 Roadside Seeding

Where specified by GPSD, the Contractor shall restore disturbed areas using one of the following mixes:

Seed Mix	Manufacturer
Roadside Mixture	Kelly Seed
Groz-Fast Mix	Lifetyme Seed Co.

2.4 Application

No seed shall be sown in windy conditions or, in the opinion of GPSD, when soil is either too wet or in improper condition for seeding. Seeding shall be performed within twenty-four (24) hours after soil preparation unless weather conditions prohibit seeding.

Grass seed shall be sown by using a broadcast spreader, a drop spreader or, if the area is small enough, a handheld spreader, and at the rate of eight (8) pounds per 1,000 square feet. Seed application shall be evenly distributed throughout the area sown to provide for a uniformly textured lawn. The seeding equipment shall be so operated so as to ensure a complete coverage of the entire area to be seeded. The seed shall be worked into the soil to a depth to ensure good contact between the seed and soil, but not too deep to prohibit growth.

2.5 Mulching

After the completion of seeding, mulching materials shall be applied using materials consistent with and in a manner detailed in the latest version of the IDOT Standard Specifications for Road and Bridge Construction.

The Contractor shall keep the seeded and mulched areas moist for a period of four (4) weeks from the date of sowing. The applied layer of mulching material shall also be maintained for four (4) weeks after seeding is applied. Watering shall be performed using a fine water spray.

2.6 Reseeding

Washouts or areas that fail to yield a minimum 75% uniform growth over the entire seeded area after 60 days within the growing season shall be regraded, pulverized, reseeded and mulched, in accordance with these specifications until good grass coverage is obtained.

3.0 Sod Application

3.1 Sod Materials

Sod types shall be chosen to best match the existing lawn conditions and withstand the predominant climate conditions. Sod shall be nursery or field grown, certified, and well rooted. Sod shall be cool to the touch, free of unwanted insects, disease, weeds or objectionable plants. The age of the sod shall be such that no tall grasses are matted into the rolled sod. The soil adhered to the sod shall be such that it will not break, crumble or tear during sod application. Sod shall not be matted such that penetration into the soil by water or fertilizers is inhibited. Roots shall be at least ½ inch long and the total thickness of the sod shall be between one (1) and three (3) inches. The color of the sod shall be vibrant green.

Delivered sod shall be moist, but not saturated, and kept moist until applied. Sod shall not have dried out or been cut more than forty-eight (48) hours before application. If application is delayed after delivery, the sod shall be stored in a shady place, unrolled and kept moist until application.

3.2 Application

Sod shall be placed within twenty-four (24) hours of soil preparation and fertilizing. Sod shall be placed on the prepared surface with the edges in close contact and the alternate courses staggered. The edges of the sod rolls shall be staggered upon application such that a continuous seam is not developed between two adjoining rolls. On slopes, the sod shall be placed with the longer dimension parallel to the ground contour. Sod shall be staked on all slopes of two (2) to one (1) or greater with four (4) stakes per square yard.

Within eight (8) hours after application, the applied sod shall be watered with a fine spray such that the soil is kept moist. The soil shall be kept moist for a period of four (4) weeks after sod application with watering performed in the early morning or late afternoon. After application, any cracks or gaps between sod mats shall be filled in with quality topsoil. Within twelve (12) hours of application, the entire area of applied sod shall be leveled using a water-filled roller.

END OF SECTION

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SECTION 063
SPECIFICATIONS – PIPE REHABILITATION

Pipe rehabilitation (also noted as CIPP) shall be completed within sewers by either inverting and curing thermo-setting, resin-impregnated tubes (ASTM F1216) or pulling-in place and curing, using ultraviolet light, resin-impregnated, glass-reinforced plastic (GRP) fabric tubes (ASTM F2019). When there is a conflict between these Specifications and any third-party specification referenced herein, these Specifications shall govern. Construction of cured-in-place pipe (CIPP) using ambient-cured resins shall not be allowed.

Recordings of prior internal, sewer inspections are provided as an informational courtesy only and are not intended to provide a complete or an accurate description of the conditions of the sewers prior to access for the purpose of constructing CIPP. Determination of the condition of the sewers to receive CIPP shall be the responsibility of the Contractor.

1.0 Public Notification

All residences and businesses that may be affected by work performed in the construction of CIPP shall be notified in writing at least forty-eight (48) hours before commencement of work at a site. When requested the Contractor shall promptly notify the Sanitary District of each distribution of notification including the location of the notified residents and businesses.

The District will provide an electronic table of properties that are within defined buffers of sewers to receive CIPP; table attributes will include information about the properties and owners thereof. It is to be understood by the Contractor that such a list is not intended to be a complete listing of those persons required to receive notification. Complete public notification is to be the exclusive responsibility of the Contractor.

The proposed format of all correspondence from the Contractor, to the public, shall be reviewed, and approved, by GPSD before delivery. Notifications to residences and businesses shall include the following:

- an explanation of the work to be performed;
- when the work is anticipated to begin;
- the general location of where the work is to be performed;
- the name and office telephone number of the Contractor representative who is responsible for the administration of the Project;
- the name and twenty-four (24) hour telephone number of the Contractor's supervisor at the work site(s)
- the nature of the inconvenience(s) anticipated to be experienced by the resident/business owner;
- the anticipated duration of the work;
- that the work is being performed on behalf of the Greater Peoria Sanitary District;
- a Sanitary District contact and telephone number as provided by the District; and
- an advisement shall be included stating that the business/resident should make sure that the traps in the affected buildings are functioning properly.

2.0 Sewer Preparation

Sewer preparation for CIPP construction, including, but not limited to, sewer cleaning, shall be performed in accordance with the applicable ASTM Specification referenced above except those portions superseded by these Specifications, including Section 093. The Contractor shall inspect and capture all resulting images of sewers to receive a CIPP immediately before and immediately after the performance of any and all sewer preparation activities. All recorded images shall be provided to GPSD.

3.0 Sewer Inspection

Sewer inspections shall be performed in accordance with Section 093 of these Specifications. As a function of the construction of CIPP within sewers, the purpose of sewer inspections is to:

- Inspect and record the conditions of the sewers in which CIPP is to be constructed,
- Establish the locations of sewer services,
- Establish the presence of unused sewer laterals
- Verify parameters such as the quantities of CIPP to be constructed,
- Verify the quality of the installation of uncured resin-impregnated, glass-reinforced plastic (GRP) fabric tubes prior to initiation of curing.
- Inspect cured CIPP,
- Assist with the reinstatement of sewer service, and
- Inspect sewers after the completion of construction.

The Contractor shall record and submit to GPSD images of any sewer lateral inspections, including accurate documentation of time, date, location of all inspection cameras, and the position of the lateral inspection device relative to mainline sewer inspection device.

CIPP shall be designed based upon accurate measurements of the host sewers. The conformity of constructed CIPP to their host pipes shall not be compromised by inaccurate or imprecise measurements.

- Measurements of sewer diameters obtained remotely using an inspection camera to view a measuring rod shall not be allowed in the design of CIPP;
- The inside diameter of sewers shall be measured at both bookend manholes and around the entire circumference of each pipe to determine the dimension and shape.
- Measured lengths of sewers shall be verified using multiple measurements and measuring methods;
- Measured lengths shall be sufficiently accurate to produce constructed CIPP lengths that span the entire length of the receiving sewer from and to each joint between the pipe and the bookend manholes.
- If the District questions the accuracy of dimensions obtained by the Contractor, the Contractor shall repeat the measurements as often as necessary to obtain satisfactory information without claim for additional compensation or delay. If GPSD determines that any method of measurement used by the Contractor yields inaccurate or generally questionable information, the Contractor shall seek and utilize another method during subsequent measurements.

4.0 Sewer Flow Control

If determined to be necessary by the Contractor, sewer flow control shall be instituted in conformance with Section 093 of these Specifications.

5.0 Cured-in-Place Pipe Construction

5.1 Submittals

Prior to the commencement of any CIPP construction, the Contractor shall be required to provide information to GPSD about all components of CIPP to be constructed and installed as part of the Project, including the following. Repair numbers from the plans should be referenced in the documentation to specify which parameters apply to each specific location.

Manufacturer construction guidelines, curing instructions, and technical information about each tube, resin and initiator, including charts or tables showing limits of all parameters monitored during the curing process relative to time and the size of the CIPP being constructed, including:

- The rate of travel of ultraviolet assemblies through the curing CIPP,
- The cumulative wattage of light sources initiating the curing processes,
- The air pressure within curing CIPP,
- The exothermic curing temperatures, and
- Which measured parameters shall be recorded relative to time and distance from the start of the curing process.

Following installation recorded values of all required curing parameters shall be provided to GPSD.

For all materials being used in the performance of the work, each of the Contractor's crews shall have with them at all times material safety data sheets (MSDS) for all materials in which such information is required. MSDS sheets shall be available for inspection on-site at all times and copies shall be provided by the Contractor to GPSD.

For each CIPP to be constructed, the Contractor shall submit to GPSD design calculations that include proposals of the dimensions including the minimal thickness and diameter. Each design submittal shall reference the applicable repair number from the Project Plans. Design submittals shall be complete and demonstrate conformance with these Specifications including all design calculations, assumptions and values of parameters. For each CIPP to be constructed, the thickness of the constructed CIPP shall not be less than the design thickness resulting from the design calculations. Once submitted by the Contractor, GPSD will review these submittals for general conformance with the project requirements. The Contractor shall address questions or comments and resubmit designs for further review. The Contractor shall be fully responsible for selecting and installing a liner in conformance with the contract documents.

Defects in constructed CIPP shall not be allowed. Examples of defects shall include, but not be limited to, lumps, finning, wrinkling, cracking, blistering, dry spots, incomplete resin cure, and thinning of constructed CIPP. GPSD shall determine the severity of defects and determine any corrective actions that will need to be taken by the Contractor.

5.1 Materials

The materials used in the construction of CIPP shall conform to these Specifications and either ASTM F1216 or ASTM F2019. Materials including resins, pigments, dyes or colorants shall be chosen such that coloring of the installed CIPP will not interfere with visual inspection of the pipe.

5.1.1 Materials Used to Construct CIPP within Gravity Sewers

Materials used to construct CIPP within gravity sewers shall conform to the following:

5.1.1.1 Resins

For CIPP constructed by inverting and curing thermo-setting, resin-impregnated, flexible tubes, resins to be used in the construction of CIPP shall be either isophthalic polyester or vinyl ester based and intended for use in heat-curing systems. For CIPP constructed by pulling-in place and curing, using ultraviolet light, resin-impregnated, glass-reinforced plastic (GRP) fabric tubes, resins to be used in the construction of CIPP shall be either polyester or vinyl ester based and intended for use in ultraviolet-curing systems. Polyester resins shall be filled with inert

materials by the resin manufacturer. Initiator systems to be used shall be compatible with the intended resins.

Unless specified otherwise by GPSD, for CIPP constructed by inverting and curing thermo-setting, resin-impregnated, flexible, tubes, resins shall be selected from the following list:

Manufacturer	Resin
AOC	Vipel L704-FAP Isophthalic Based Resin
	Vipel L721-LTA Series Polyester Resin
	Vipel L758-LTI Polyester Resin
Interplastic Corporation	COR72-AT-470HT
	COR72-AT-477
	COR78-AT-330
	COR78-AT-559
	COR78-AT-579
Ashland	AROPOL LB 1043 series resins

Where specified by GPSD, the following resins may only be used for CIPP constructed by inverting and curing thermo-setting, resin-impregnated, flexible tubes, in large-diameter sewers:

Manufacturer	Resin
AOC	Vipel L704-FCW Filled ISO Based Resin

The following resins shall be used for CIPP constructed by inverting and curing thermo-setting, resin-impregnated, flexible tubes, and where it is determined by GPSD that additional corrosion-resistance is necessary:

Manufacturer	Resin
AOC	Vipel L010-PPA Series Vinyl Ester Resin
Interplastic Corporation	CORVE8190 vinyl-ester resin
	CORVE8738 vinyl-ester resin
Ashland	HETRON Q 6405 series vinyl-ester resins

Unless specified otherwise by GPSD, for CIPP constructed by pulling-in place and curing, using ultraviolet light, resin-impregnated, glass-reinforced plastic (GRP) fabric tubes, resins shall be selected from the following list:

Manufacturer	Resin
AOC	Vipel L040-LCVG UV Curable, Ultra Low VOC Resin
	Vipel L552-LCA-05 Polyester Resin

5.1.1.2 Tubes

Depending on the allowable method of CIPP construction chosen by the Contractor, tubes into which resin is impregnated shall be constructed in accordance with either ASTM F1216 or ASTM F2019. Methods used to impregnate tubes with resins shall be in accordance with the recommendations of both the tube and resin manufacturers.

The dimensions of constructed tubes shall be chosen by the Contractor to maximize conformity between receiving, host pipes and constructed, cured, CIPP. Thicknesses of constructed and cured CIPP shall not be less than the corresponding, approved, design thicknesses. Annular spacing between constructed CIPP and host pipes shall be minimized. Constructed CIPP shall be continuous and span the entire length of the receiving sewers from manhole to manhole.

5.2 Design of CIPP

Design of CIPP shall meet the minimum design requirements of ASTM F1216 and all referenced documents therein except as modified by these Specifications. For design considerations, unless specified otherwise within the Project Plans or in these Specifications, by default, it will be assumed that all gravity sewer pipes to be rehabilitated by construction of a CIPP exhibit a fully deteriorated gravity pipe condition in accordance with definitions provided in ASTM F1216; however, if specified within the Project Plans or these Specifications, the condition of certain pipes in which CIPP is to be constructed might be specified as partially deteriorated as understood in ASTM F1216. Design of CIPP within pressure sewer pipes shall always assume that the host pipe is fully deteriorated.

The following assumptions shall govern the design the thickness of all CIPP:

- Height of water above the pipe (H_w) equal to the height of soil above the top of the pipe (H) (i.e., a minimum water buoyancy factor of 0.67);
- Height of soil above the top of the pipe (H) shall be the greater of the measurements of the depths of the bookend structures which shall be from the top of the manhole casting at its center to the bottom of the manhole also at its center;
- Soil density of 125 pcf;
- Percent ovality of the host pipe of two (2) percent;
- Factor of safety of two (2);
- Modules of soil reaction of 700 psi;
- Minimum long-term modules of elasticity of 200,000 psi for CIPP constructed by inverting and curing thermo-setting, resin-impregnated, flexible tubes;
- Minimum long-term modules of elasticity of 600,000 psi for CIPP constructed by pulling-in place and curing, using ultraviolet light, resin-impregnated, glass-reinforced plastic (GRP) fabric tubes;
- Utilize a value of the mean inside diameter of the original pipe equal to that used to determine the dimensions of the liner as specified above.

5.2.1 Design of CIPP for Construction within Gravity Sewers

Regarding the design of CIPP within gravity sewers, when the condition of a receiving pipe is defined as fully deteriorated, Equation X1.3 of ASTM F1216 shall govern the determination of the thickness of CIPP to be installed. When the condition of the receiving pipe is defined as partially deteriorated, Equation X1.1 of ASTM 1216 shall govern the determination of the thickness of CIPP to be installed.

5.2.2 Design of CIPP for Construction within Pressure Sewers

CIPP shall not be used for repair of pressure sewers.

5.3 Construction and Handling of Uncured CIPP

Each piece of uncured CIPP shall be clearly marked with its designated repair number prior to delivery to the site. Uncured CIPP shall be transported to the sites of work using means and methods approved by the manufacturers of all components and in accordance with either ASTM F1216 or ASTM F2019, whichever is applicable. Installation of CIPP shall begin within a period of time after impregnation that is acceptable to the component manufacturers; if the initiation of the curing process has begun prior to installation, the uncured CIPP shall be rejected and not allowed to be used as part of the completion of the Project.

5.4 Installation and Curing of CIPP

Installation and curing of CIPP shall proceed only after completion of the following:

- Construction of planned repairs and modifications to be made to the sewer that is to receive a CIPP;
- Notification of all affected residences and businesses;
- Construction of necessary traffic control measures;
- Cleaning and inspection of the sewer that is to receive a CIPP;
- Implementation of necessary and adequate flow controls; and
- Construction of end seal sleeves as specified below.

The Contractor shall proceed with the insertion of an uncured CIPP into a sewer only after the sewer has been inspected for cleanliness and cleaned immediately before the commencement of CIPP insertion.

Where receiving sewers are six- to 36- inches, prior to the introduction of uncured CIPP the Contractor shall construct appropriately sized Insignia end seal sleeves for mainline CIPP as manufactured by LMK Technologies at both ends of the proposed liner in accordance with directions provided by the manufacturer.

For sewers greater than 36" watertight joints between constructed CIPP and adjoining manholes shall be provided by the application of non-shrink grout material over the entire circumference of the joints between the installed CIPP and connecting manholes. A watertight seal shall be provided by filling any space between the host pipe and the installed CIPP and by completely covering the ends of the CIPP at the bookend manholes. The Contractor shall take care to contain the non-shrink grout material such that it does not remain on the internal surface of the installed CIPP or adjoining sewers.

Depending on the allowable method of CIPP construction chosen by the Contractor, installation of uncured CIPP shall be performed using either an inversion process or by pulling-in place the uncured CIPP. Installation shall be in accordance with these Specifications, the instructions of both the resin and tube manufacturers and, depending on the allowable methods of CIPP construction chosen, either ASTM F1216 or ASTM F2019. When in conflict, instructions provided by the resin and tube manufacturers shall govern.

For CIPP constructed by pulling-in place and curing, using ultraviolet light, resin-impregnated, glass-reinforced plastic (GRP) fabric tubes, after inflation of the uncured CIPP, but prior to the commencement of the curing process, the Contractor shall internally inspect the entirety of the uncured CIPP to discover defects that might produce a product not in accordance with these Specifications. For CIPP constructed by inverting and curing thermo-setting, resin-impregnated, flexible tubes, the cure time recommended by the resin manufacturer shall be considered started when the manufacturer's minimum curing temperature is reached throughout the entire installed CIPP.

For CIPP constructed by inverting and curing thermo-setting, resin-impregnated, flexible tubes, prior to the commencement of the curing process, or when directed by GPSD, the Contractor shall install sensors,

including probes, provided by GPSD, into the CIPP being installed. Sensors provided by GPSD are to be installed where directed by GPSD. Sensors provided by GPSD and installed by the Contractor are intended to be in addition to that instrumentation provided by the Contractor and used to determine conditions within and near the CIPP being installed. Sensors provided by GPSD are not intended to be substitutions for nor replace the sensors and instrumentation needed by the Contractor to install CIPP.

After CIPP construction but prior to construction of joints between CIPP and adjoining manholes, CIPP shall be trimmed within manholes that connect to sewers in receipt of CIPP. Relative to the surface of a given bookend manhole, constructed CIPP shall be trimmed parallel to one-inch from the surface of the manhole throughout the entire circumference of the constructed CIPP. Regarding manholes at intermediate locations that neither serve as the installation or ultimate terminus locations during CIPP construction, cured CIPP shall be trimmed parallel to within one-inch of manhole surfaces not throughout the entire circumference of the constructed CIPP but only from the crown of the CIPP to the bench of the subject manhole. Trimmed CIPP within manholes shall not impede the drainage of water off benches and into troughs. Within the subject manhole, if a bench does not exist, the CIPP is to be trimmed to the spring-line of the CIPP. CIPP shall be trimmed and cut without creation of jagged or sharp edges of trimmed CIPP shall be removed by brushing or sanding.

Immediately after CIPP construction, including complete sewer service reinstatements, CIPP shall be cleaned and inspected to the satisfaction of GPSD prior to ending bypass pumping. CIPP construction shall not be complete until such cleaning and inspection has been completed.

5.5 Re-establishing Sanitary Services

Unless directed by GPSD, connections to the host-pipe that are plugged are not to be reinstated and those without are to be reinstated. For the purpose of this Specification, a plugged connection is one that has a plug, cap, or pancake purposely constructed and made part of the connection. GPSD may direct in writing the Contractor not to reinstate an unplugged sewer service connection; prior to acceptance by GPSD of an installed CIPP, the Contractor shall provide a form indicating recognition by both GPSD and the Contractor that the Contractor has been directed by GPSD not to reinstate specific, unplugged connections.

Unless otherwise directed by GPSD in writing, the decision as to the location of services is that of the Contractor, exclusively.

The reestablishment of sewer services shall be completed within twenty-four (24) hours after service discontinuation. Service reestablishment by excavation methods shall not be allowed unless approved by GPSD. Sewer service reestablishments shall be performed by removing ninety-five (95) percent to one-hundred (100) percent of the installed CIPP within the limits of the sewer service openings provided by the host sewer. Removal of installed CIPP beyond the limits of the sewer service openings shall not be allowed.

During the reestablishment of sewer services, the Contractor shall take care not to damage the host sewer including tees, sewer lateral piping or mainline sewer piping. All or part of host sewers to receive CIPP might be constructed of PVC-based materials. Cutting methods and equipment shall be chosen to minimize contact between cutting tools and the host sewer. Cutting, drilling or penetrating host sewers will not be allowed. During the performance of a sewer service reestablishment, the Contractor shall immediately stop all cutting, drilling or brushing operations if it is suspected that their operations are causing damage to the host sewer. All service cutouts shall be captured and removed prior to their entry into the downstream sewer.

Openings in the installed CIPP shall be made smooth and generally conform to the shape and dimensions of the original opening within the host sewer. Jagged cut edges shall not be allowed. Cut edges shall be

made smooth and conformant with the shape and dimensions of the original openings by the Contractor's brushing of cut edges.

5.6 Inspection and Testing of Constructed CIPP

Except as modified within this Specification, inspection and testing of constructed CIPP shall be as required in either ASTM F1216 or ASTM F2019, whichever specification is applicable to the CIPP construction process chosen. The Contractor shall be responsible for the collection of samples performed in consultation with the party responsible for testing. All aspects of testing, including sample collection, sample transport, testing performance and the reporting of results shall be in accordance with the applicable standards.

Gravity pipe leakage testing shall not be required. Determination of the wall thicknesses of all constructed CIPP shall be performed; however, the minimum wall thickness of all constructed CIPP shall be equal to or greater than that designed and submitted to GPSD.

For CIPP constructed by pulling-in place and curing, using ultraviolet light, resin-impregnated, glass-reinforced plastic (GRP) fabric tubes, after completion of CIPP construction, the Contractor shall submit to GPSD information collected during the process of CIPP construction, including rates of travel of the ultraviolet assembly, internal pressures within the uncured and curing CIPP, number of lamps in operation and wall temperatures realized during CIPP construction. Such information shall be collected and recorded throughout the entirety of the process of CIPP construction, from the inflation of the uncured CIPP to the end of curing.

For CIPP constructed by inverting and curing thermo-setting, resin-impregnated tubes, after completion of CIPP construction, the Contractor shall submit to GPSD information collected during the process of CIPP construction, including pressures and temperatures relative to time at manufacturer-required inspection points. Such information shall be collected and recorded throughout the entirety of the process of CIPP construction, from the inflation of the uncured CIPP to the end of curing.

All testing is to be performed by a third-party laboratory approved by GPSD; furthermore, the laboratory shall be accredited by the American Association for Laboratory Accreditation (A2LA) to perform the applicable tests referenced within the latest version of either ASTM F1216 or ASTM F2019, whichever is applicable. Evidence of the qualifications and experience of the testing party shall be submitted by the Contractor to GPSD before work commences. Results of tests performed are to be the property of GPSD, exclusively. The results of testing shall be made available to GPSD as soon as possible so that GPSD may determine the acceptability of the work. Results shall be submitted in a format acceptable to GPSD.

Unless otherwise specified by GPSD within the Project Plans, testing results, acquired in accordance with this Specification, shall be provided for each CIPP construction. At least one sample shall be taken from each CIPP construction unless the testing-party requires more samples to perform the specified testing.

For CIPP constructed within gravity sewer pipes by inverting and curing thermo-setting, resin-impregnated, flexible tubes, the flexural modulus of installed CIPP as determined using sampling and testing methods required in ASTM F1216 shall meet or exceed 350,000 psi and not the minimum value specified in that ASTM Specification. For CIPP constructed within gravity sewer pipes by pulling-in place and curing, using ultraviolet light, resin-impregnated, glass-reinforced plastic (GRP) fabric tubes, the flexural modulus of installed CIPP as determined using sampling and testing methods required in ASTM F1216 shall meet or exceed 750,000 psi and not the minimum value specified in that ASTM Specification.

If GPSD finds the results to be unsatisfactory, GPSD shall choose the method(s) that will be used to correct any unaccepted work. The costs of correction shall be solely that of the Contractor.

6.0 Manhole Access

The Contractor shall be responsible for making accessible all manholes into which access is necessary for the construction of CIPP as specified. Making manholes accessible in advance of CIPP installation shall be performed in accordance with these Specifications except that portion of Section 093 relating to documentation and lamphole and flush tank locating.

Work performed in preparation of CIPP construction, including making manholes accessible, shall not be performed too far in advance of CIPP construction. The Contractor shall be paid only once per manhole for making a manhole accessible.

END OF SECTION

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SECTION 067
SPECIFICATIONS – EROSION CONTROL PRODUCTS

Other than the construction of landscaping measures such as seeding, erosion control products provided shall be in accordance with this Section, the recommendations of the manufacturers of erosion control products specified below and the Specifications of the Illinois Department of Transportation (IDOT) except those sections of the IDOT Specifications relating to methods of measurements and basis of payment. If conflicting, these Specifications shall take precedence. Where conflicting, the recommendations of the manufacturers of erosion control products shall take precedence over those of IDOT.

Erosion control measures shall be as directed by the Engineer and approved by the District. The erosion control products specified below shall be utilized as part of approved erosion control measures.

1.0 Gabions

Gabions shall be either Midwest Welded Wire Gabions or Midwest PVC Coated Welded Wire Gabions as provided by Midwest Construction Products or an equal approved by the Engineer prior to the receipt of proposals. Gabions materials and construction shall be in accordance with the latest version of the IDOT Specifications.

2.0 Welded Wire Mattresses

Welded wire mattresses shall be either Midwest Galvanized Welded Wire Mattresses or Midwest PVC Coated Welded Wire Mattresses as provided by Midwest Construction Products or an equal approved by the Engineer prior to the receipt of proposals. Welded wire mattresses materials and construction shall be in accordance with the latest version of the IDOT Specifications.

3.0 Riprap

For erosion control measures where riprap materials are to be utilized, the size of riprap materials to be used shall be as approved by the Engineer. Riprap materials shall have a quality designation A or B. Unless specified otherwise, at locations where sewers cross waterways, streams, and/or creeks, riprap and filter fabric shall be installed from ten (10) feet upstream of the crossing to twenty (20) feet downstream of the crossing along both banks from top of bank to top of bank.

4.0 Turf Reinforcement Matting Erosion Control

Where specified by the Engineer, the Contractor shall provide, construct and maintain turf reinforcement matting (TRM) erosion control. Constructed TRM shall be in accordance with the Natural Resource Conservation Service (NRCS), Illinois Urban Manual (IUM) Standard Code 831, dated February, 2011. Information about Standard Code 831 can be accessed by using the following link <http://www.aiswcd.org/wp-content/uploads/2013/06/831-ECB-Turf-Reinforcement-Mat.pdf>. Construction and maintenance of TRM shall also be in accordance with the directions of the TRM manufacturer; however, when in conflict with NRCS Standard Code 831, the directions of the manufacturer shall govern.

5.0 Silt Fence

Silt fencing shall be required when construction activities disturb land such that sediment might escape from the site(s) of construction. Sediment from land disturbed by work towards the completion of the Project shall not be allowed to escape from the site(s) of construction. Towards this end, the Constructor shall be responsible for the design, construction, maintenance, operation and deconstruction of silt fencing. If the

design, construction and operation of measures to prevent sediment escape are proven to be inadequate relative to site conditions, immediately after observation of failure, the Contractor shall design and construct alternate measures to prevent sediment escape. Constructed silt fencing shall remain until disturbed land is stabilized after construction and no sediment escapes from the site(s).

Silt fencing shall be placed in accordance with directions provided by governing agencies. If directions are not provided through a mechanism such as a permit, silt fence shall be placed in accordance with the recommendations provided in the latest version of the United States Environmental Protection Agency (USEPA) document EPA 833-F-11-008 titled "Stormwater Best Management Practice: Silt Fences".

Construction of silt fencing shall be in accordance with the most recent versions of both Code 920 of the Illinois Urban Manual (IUM), including IUM Standard Drawing IUM-620, and the drawings referenced as File No. IL-ENG-49 and IL-ENG-50 as provided by the USDA NRCS.

Silt fencing shall be inspected routinely and after runoff events to determine whether maintenance is necessary. When the level of a deposit of sediment reaches one-half the height of the capturing silt fence, the Contractor shall either, if site conditions permit, construct another, new silt fence above or below the existing silt fence to restore sediment capture capacity or, alternatively, within the limits of the deposits, replace the existing fence including the removal and disposal of the entrapped deposits.

6.0 Stabilized Construction Entrance

Stabilized construction entrances shall be constructed in accordance with the Natural Resource Conservation Service (NRCS), Illinois Urban Manual (IUM) Standard Code 930, dated August, 1994. Information about Standard Code 930 can be accessed by using the following link: <http://www.aiswcd.org/wp-content/uploads/2013/06/urbst9301.pdf>. NRCS Standard Drawing IL-630 shall also govern the construction of stabilized construction entrances; however, if in conflict with NRCS Standard Code 930, Standard Code 930 shall govern.

7.0 Ditch Checks

Ditch checks shall be constructed both where specified by the Engineer and where necessary to stabilize disturbed areas. As specified by the Engineer, constructed ditch checks shall be either gabion ditch checks or select manufactured types as referenced within the NRCS, IUM, Standard Code 814, dated December, 2011. Information about Standard Code 814 can be accessed by using the following link: <http://www.aiswcd.org/wp-content/uploads/2013/06/814-Ditch-Check.pdf>. Gabion ditch checks shall be constructed in accordance with Page 095-23 of these Specifications.

Allowable manufactured types include urethane foam geotextile, rolled erosion control products or plastic permeable. Manufactured ditch checks shall be constructed, maintained and deconstructed in accordance with both recommendations of the manufacturer(s) and the following standard drawings from the IUM: IUM-514PC for plastic permeable checks; IUM-514RC for rolled erosion control products; and IUM-514UF for urethane foam geotextiles. If and when conflicting, the recommendations of the manufacturer(s) shall govern. Manufactured ditch checks shall be deconstructed only after disturbed areas are stabilized to the satisfaction of the Engineer.

8.0 Inlet Protection – Paved Area

Inlet protections in improved roadways (paved areas) shall be constructed both where specified by the Engineer and where necessary to prevent construction-disturbed solids from entering roadway inlets. Inlet protections shall be constructed using either a drop-in type protection or a curb-type protection as defined within NRCS,

IUM, Standard Code 861, dated May, 2011; unless the type of inlet protection is specified by the Engineer, the decision about which type to use shall be the Contractors. Information about Standard Code 861 can be accessed by using the following link: <http://www.aiswcd.org/wp-content/uploads/2013/06/861-Inlet-Protection-Paved-Areas.pdf>. Both types of inlet protections shall be constructed and maintained in accordance with both Standard Code 861 and the recommendations of the manufacturer of the utilized inlet protection; however, when conflicting, the directions of the manufacturer shall govern.

9.0 Erosion Control Blanket

Where specified by the Engineer, the Contractor shall provide, construct and maintain erosion control blankets (ECB). Constructed ECB shall be in accordance with the Natural Resource Conservation Service (NRCS), Illinois Urban Manual (IUM) Standard Code 830, dated June, 2009. Information about Standard Code 830 can be accessed by using the following link <http://www.aiswcd.org/wp-content/uploads/2013/06/830-Erosion-Control-Blanket.pdf>. Construction and maintenance of ECB shall also be in accordance with the directions of the ECB manufacturer; however, when in conflict with NRCS Standard Code 830, the directions of the manufacturer shall govern.

10.0 Stone Inlet Protection for Culverts

Where specified by the Engineer, the Contractor shall construct and maintain stone inlet protections for culverts. Stone inlet protections for culverts shall be constructed in accordance with the Natural Resource Conservation Service (NRCS), Illinois Urban Manual (IUM) Standard Code 808, dated September, 2016. Information about Standard Code 808 can be accessed by using the following link <http://www.aiswcd.org/wp-content/uploads/2016/10/808-Culvert-Inlet-Protection.pdf>. Construction and maintenance of stone inlet protection for culverts shall also be in accordance with the directions of NRCS Standard Drawing IL-508ST; however, when in conflict with NRCS Standard Code 808, Standard Code 808 shall govern.

11.0 Cofferdams

Where specified by the Engineer, the Contractor shall construct, maintain and deconstruct temporary cofferdams. As specified by the Engineer, allowable cofferdams types shall include A-Frame, A-Frame partial, rock, rock partial, bladder or bladder partial. Constructed cofferdams shall be in accordance with the Natural Resource Conservation Service (NRCS), Illinois Urban Manual (IUM) Standard Code 803.

Constructed A-Frame cofferdams shall be in accordance with the Natural Resource Conservation Service (NRCS), Illinois Urban Manual (IUM) Standard Drawings IUM-503AF and IUM-503AP, both dated July, 2012. Standard Drawings IUM-503AF and IUM-503AP can be accessed through the following links: <http://www.aiswcd.org/wp-content/uploads/2013/06/IUM-503AF1.pdf> and <http://www.aiswcd.org/wp-content/uploads/2013/06/IUM-503AP1.pdf>.

Constructed rock cofferdams shall be in accordance with the Natural Resource Conservation Service (NRCS), Illinois Urban Manual (IUM) Standard Drawings IUM-503RF and IUM-503RP, both dated July, 2012. Standard Drawings IUM-503RF and IUM-503RP can be accessed through the following links: <http://www.aiswcd.org/wp-content/uploads/2013/06/IUM-503RF1.pdf> and <http://www.aiswcd.org/wp-content/uploads/2013/06/IUM-503RP1.pdf>.

Constructed bladder cofferdams shall be in accordance with the Natural Resource Conservation Service (NRCS), Illinois Urban Manual (IUM) Standard Drawings IUM-503BF and IUM-503BP, both dated July, 2012. Standard Drawings IUM-503BF and IUM-503BP can be accessed through the following links: <http://www.aiswcd.org/wp-content/uploads/2013/06/IUM-503BF1.pdf> and <http://www.aiswcd.org/wp-content/uploads/2013/06/IUM-503BP1.pdf>.

12.0 Articulated Concrete Block Systems

Where specified by the Engineer, the Contractor shall construct articulated concrete block systems in accordance with both directions provided by the Engineer and recommendations provided by the systems manufacturer. As manufactured by International Erosion Control Systems, Inc. (IECS), articulated concrete block systems shall be Cable Concrete or an equal approved by the Engineer prior to the receipt of proposals. Allowable cable Concrete systems shall be specified by the Engineer.

13.0 Interlocking Concrete Block

Where specified by the Engineer, the Contractor shall construct interlocking concrete blocks in accordance with the Plans and these Specifications. Interlocking concrete blocks shall be those manufactured by LaHood Construction, Inc., Leman Precast or an equal approved by the Engineer prior to the receipt of proposals.

Blocks shall be solid concrete featuring the following: an integral lifting hook capable of safely lifting the block; an interlocking keyway to provide mechanical interlock of stacked blocks; and three-inch (3”) weep holes that are cast into the blocks. Fasteners or supplemental hardware called for in the plans to affix adjacent blocks shall be constructed of galvanized steel.

Blocks shall be cast from freshly mixed concrete meeting the IDOT specifications for Class SI Portland Cement Concrete in accordance with the current edition of the IDOT Standard Specifications for Road and Bridge Construction. Curing of blocks shall be by an IDOT accepted method for Class SI Concrete. Any fasteners or supplemental hardware called for in the plans to affix adjacent blocks shall be considered incidental to the construction and placement of the block and no additional compensation will be provided.

END OF SECTION

SECTION 071
SPECIFICATIONS - HORIZONTAL DIRECTIONAL DRILLING AND TRENCHLESS PIPE
REPLACEMENT

Throughout these Specifications, the term horizontal directional drilling (HDD) refers to a method of constructing sewer at a specified depth, length and grade by boring a small, pilot drill path with a continuous string of steel drill rod, pulling back a cutter called a back reamer through the pilot drill path to enlarge the hole in advance of the simultaneous pulling of a specified pipe into place or a substantially similar technique. The term trenchless pipe replacement shall mean static pipe bursting or pipe reaming as defined in this section. Construction of sewers using HDD or trenchless pipe replacement methods shall conform to these Specifications.

The Contractor shall be responsible for determining underground conditions at and near the site(s) of the work to be performed and determining the impact of the work on existing conditions at and in proximity to the planned locations of work. Underground conditions at the site(s) of the work have not been investigated beyond any representation of existing conditions made part of the Construction Documents. The Contractor shall be responsible for determining the probability of damage to assets such as structures, utilities, etc., at and near the location(s) of work. The Contractor shall be responsible for any damage caused by or as a result of their operations.

Pits, including launching and bursting pits, located along the alignment of the pipe to be constructed shall be minimized in quantity and located to maximize the footage of pipe constructed in a single pull. Where possible, the Contractor shall use as pit locations the locations of necessary excavations such as sewer service reinstatements and manhole constructions. The duration that pits are open shall be kept to a minimum. The Contractor shall prepare a pit location schematic illustrating the planned pit locations and schedule for pit excavation, dewatering, backfilling and restoration for review and approval by the Engineer. If the Engineer does not approve of the plan offered by the Contractor, the Contractor shall redesign the plan accordingly and resubmit a revision to the Engineer for review prior to commencement of the work.

Pit locations shall consider locations of existing underground utilities to minimize service interruptions to customers. If service cannot be maintained, the Contractor shall provide temporary provision for the maintenance of all utility services to customers. The Contractor shall coordinate all utility disconnections, temporary measures for providing utility services and reconnections with the appropriate utility provider.

The Contractor shall be responsible for procuring a clean water supply at the Contractor's expense for the purpose of completing the work.

1.0 Experience Requirements

The Contractor must demonstrate to the Engineer and provide reference documentation that the Contractor has direct and relevant experience in the construction of piping systems using HDD methods. This information shall be submitted prior to consideration for award of an applicable contract and shall demonstrate the Contractor has completed the construction of at least four thousand (4,000) feet of reconstruction of gravity-sanitary sewers using the trenchless pipe replacement method specified on the Plans.

2.0 Submittals

Prior to construction, the Contractor shall submit detail drawings and written descriptions of the proposed construction. The Contractor shall provide to the Engineer information about the proposed work including, but not limited to, excavation locations, dimensions, methods to protect public and private property, methods of dewatering, utilities that may be affected and traffic control measures. The design of all aspects of the work not specified in these Specifications or in the Plans shall be the responsibility of the Contractor.

For all materials being used in the performance of the work, each of the Contractor's crews shall have with them at all times material safety data sheets (MSDS) for all materials in which such information is required. MSDS sheets shall be available for inspection at all times and copies shall be made available by the Contractor to the Engineer and to each fire department with jurisdiction at the locations of the work upon request.

The Contractor shall provide written documentation that the staff to be used are properly trained on the equipment proposed to be used. Only those operators certified by the manufacturers of the equipment as sufficiently trained shall be allowed to operate the equipment.

Prior to the start of construction, the Contractor shall submit the following information for review and approval:

HDD Pipe Installation:

- HDD System to be Supplied and Utilized
- The Piping Material and Joint Type
- The Pipe Joining System and Equipment
- The Specific Crew and Any Subcontractors to be Performing the Work
- Certifications and Training Certificates for HDD and Pipe Joining Equipment Operators
- Verification from the HDD Equipment Manufacturer that the Certifications Held by the Operators Meet Their Minimum Requirements

Trenchless Pipe Replacement:

- Trenchless System and Equipment to be Supplied and Utilized
- The Piping Material and Joint Type
- The Pipe Joining System and Equipment
- The Specific Crew and Any Subcontractors to be Performing the Work
- Certifications and Training Certificates for HDD Equipment Operators
- Verification from the supplied Equipment Manufacturer that the Certifications Held by the Operators Meet Their Minimum Requirements

Contractors shall submit documentation and information showing conformance with the experience and training requirements including a list of field supervisory personnel and their experience towards the completion of similar projects using HDD methods.

Information must include the following:

- Project Owners including Contact Information
- Dates of Work Performed
- Location of Work Performed

- Duration of Operation
- Project Specific Information including Length of Project, Piping Material, Depth, Pipe Diameter, if Rock was Encountered, etc.
- Specific Equipment Used

Prior to the commencement of construction, the Contractor shall submit to the Engineer recommended maximum pulling forces as provided by the pipe manufacturer. Manufacturer recommendations shall be provided on manufacturer letterhead, executed by an appropriate authority of the manufacturer and reference the maximum allowable pulling force for each pipe to be constructed.

3.0 Horizontal Directional Drilling

The drilling equipment must be capable of placing the specified pipe at the specified location, depth and grade without deviations from the project Plans or these Specifications. Limitations on pulling forces allowed is dependent on the specified replacement pipe and may be specified in the project Plans. If not specified on the project Plans or within these Specifications, the maximum allowable pulling force as recommended by the manufacturer of the pipe shall apply; except, that in no case shall the pulling force be allowed to develop tensile stress on the pipe in excess of 1,000 PSI without written permission from the Engineer.

The construction of sewers using HDD methods must be performed in accordance with the recommendations of the manufacturers of the HDD equipment, the pipe and, if applicable, the equipment used to join segments of the specified pipe.

Throughout the insertion process, the Contractor shall constantly measure and record axial tension force readings on the pipe material, the insertion velocity, the mud flow circulation and exit rates and the length of pipe installed. All information collected shall be the exclusive property of the Engineer.

The HDD equipment must have a guidance system that has the capability of measuring inclination and azimuth. The guidance system must have an independent means of ensuring the accuracy of the installation; the Contractor shall measure the repeatability of the inclination/azimuth before drilling commences. The Contractor shall demonstrate a viable method to eliminate accumulated error. The guidance system must have an inclination accuracy of 0.1% of grade, a range accuracy of 0.1 of a foot and an azimuth accuracy of 0.1% of grade. Where local conditions prevent the use of a traditional guidance system to meet these requirements, the Contractor shall furnish a "wireline" system.

The guidance system shall be capable of generating a profile showing the location and depth of the constructed pipe along its entire length. Measurements of the depth of the outside edge of the pipe at its crown as well as the horizontal location of the same shall be taken and recorded at intervals of no less than five (5) feet along the entire alignment of the pipe including the linear ends. Measurements of depth and horizontal location shall be accurate to 0.1 of a foot in all directions. All information shall be furnished to GPSD prior to application for payment.

In the event of difficulties encountered during boring operations that require the withdrawal of the HDD equipment from the pilot drill path, the Contractor shall be allowed to withdraw and abandon the boring and begin a second attempt. With the approval of the Engineer, the Contractor may excavate at the point of the difficulty to correct problems. The Engineer must be notified immediately if any obstruction is encountered that stops the forward progress of drilling operations.

The Contractor shall consider the potential overstressing of the pipe in bending and shall avoid bending the

pipe near its limitations as specified by the pipe manufacturer. The entry angle of the pilot drill path and the boring process will maintain a curvature that does not exceed the allowable bending radii of the product pipe per the pipe manufacturer.

The reaming head shall create a bore hole dimensioned sufficiently for the construction of the pipe; however, the dimensions of the bore hole shall be minimized to maximize support for the replacement pipe. The maximum allowable size of the bore hole shall not exceed 1.25 times the diameter of the carrier pipe. If a bored hole collapses the Contractor shall take measures to reestablish the bored hole including, if necessary, excavation at the location of the failure.

To reduce frictional drag and tensile forces on the proposed pipe and help keep the bore hole open, bentonite, polymer modified, or other non-hazardous lubrication muds shall be injected into the annular space behind the reaming head. Disposal of exposed drilling fluid and spoils shall be the responsibility of the Contractor and performed immediately upon completion of the bore.

The HDD system must supply sufficient cable in one continuous length so that the pipe can be constructed continuously and without interruption between approved bore pit locations.

Monitoring of the force applied directly to the replacement pipe shall be performed by the Contractor using load cells or strain gauges mounted closely behind the bursting head. Axial tension force readings, constant insertion velocities, mud flow circulation/exit rates and the footage length of pipe installed shall all be monitored and recorded during HDD operations.

If polyethylene (PE) pipe is used to construct the pipe, connections cannot be made to the pipe sooner than forty-eight (48) hours after release of all tension on the pipe. If the pipe manufacturer recommends a longer relaxation time, the Contractor shall comply. Connection of sewer services to the pipe shall be accomplished by sewer tapping in accordance with Subsection 3.0 of Section 031 of these Specifications.

Joints between constructed HDPE pipe and manholes shall not be completed until the expiration of the minimum relaxation period. Sufficient excess length of replacement pipe shall be allowed to protrude into adjoining manholes or pits in consideration of the relaxation of the pipe. Excess length shall be a minimum of 0.5% of the bore length or 6 inches, whichever is greater. Following the relaxation period of the HDPE pipe, the pipe shall be trimmed to the interior face of the manhole. Additional requirements for the construction of joints between HDPE pipe constructed using pulling methods and manholes can be found in Section 027 of these Specifications and the project Plans.

4.0 Static Pipe-Bursting

Static pipe bursting shall refer to a system of pipe replacement where the force for breaking of the existing pipe comes only from a winch used to pull an expansive bursting head forward through the pipe to be replaced followed by a specified replacement pipe. The head is pulled by a winch cable that is inserted through the existing pipe and attached to the front of a bursting head. The bursting head breaks the old pipe and constructs a bored hole that provides space for the replacement pipe.

Pipe bursting shall be performed in accordance with the recommendations of the manufacturers of the pipe bursting equipment, the pipe and, if applicable, the equipment used to join segments of the specified pipe.

5.0 Pipe Reaming

Pipe reaming shall refer to a system of pipe replacement where the force for breaking of the existing pipe comes only from horizontal directional drilling equipment used to pull an expansive bursting head forward through the pipe to be replaced followed by a specified replacement pipe. A drill path is constructed that includes the insertion of a pilot drill string through the existing pipe. After, a reaming tool is attached to the drill string and the replacement pipe is attached to the reaming tool both are pulled back through the pipe. The reamer grinds and pulverizes the existing pipe while expanding the diameter of the bore hole; the fragments and excess materials are then removed and are carried with the drilling fluid to manholes or reception pits and retrieved for disposal.

Pipe reaming must be performed in accordance with the recommendations of the manufacturers of the pipe reaming equipment, the replacement pipe and, if applicable, the equipment used to join segments of the specified pipe.

6.0 Quality Control and Assurance

At the Contractor's expense, sewers constructed using HDD methods shall be subjected to both air testing and deflection testing and meet the requirements of Section 039 of these Specifications. Air testing shall be performed prior to the connection of any sewer services.

Additionally, at the Contractor's expense, the entirety of replacement sewers shall be inspected using CCTV methods in accordance with Section 093 of these Specifications. Sewer inspections shall generate images of entire sewer and these images shall be captured in video format and provided to the Engineer immediately after completion of inspections. The Contractor shall be responsible for correcting any defect(s) discovered during testing and inspections.

END OF SECTION

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SECTION 073
SPECIFICATIONS – PIPELINE LOCATION MARKING SYSTEMS

Pipeline location marking systems shall be constructed by the Contractor to designate the location of underground pressurized sewer systems or where specified on project plans. Pipeline location marking systems include both interconnected systems of tracer boxes and tracer wires as well as surface pipeline markers.

1.0 Tracer Boxes and Tracer Wires

Tracer wire shall be constructed simultaneously with the pipe construction and in contact with the constructed pipe in accordance with the Project Plans, these Specifications and the recommendations of the tracer wire manufacturer.

Tracer boxes shall be constructed at locations shown on the Project Plans. Where specified, access to tracer wire shall also be provided within other structures such as vaults and manholes. Collectively, tracer boxes and other structures into which tracer wire is introduced for the purpose of providing access shall be referred to as protective structures.

When providing access to tracer wire through structures other than tracer boxes, tracer wire shall be constructed in constant contact with:

- the structure for the entire vertical length of the outer wall to the top of the flat-top component,
- the top of the flat-top component, and
- from the edge of the flat-top to the bottom of the sealant below the casting.

Wire shall be secured by means such as tape and its position maintained during backfilling operations.

Distances between protective structures shall not be greater than five hundred feet (500'). Tracer boxes shall be located near but not in direct contact with manholes at the termination locations of the constructed pipe(s). Where constructed near structures, tracer boxes shall not be in direct contact with the structures or castings.

Tracer boxes shall be SnakePit tracer wire access points as manufactured by Copperhead Industries, LLC, or an equal approved prior to the opening of proposals. Tracer boxes shall be furnished in the roadway rated configuration with single terminals and green lids.

At the location of a tracer box, tracer wires from both directions of the constructed pipe shall be bundled and brought through the concrete block foundations into the bottom of the vertical risers. The tracer wires shall remain coupled together throughout the vertical run through the riser.

Near the ground surface within protective structures the pair of tracer wires shall be connected using SnakeBite Corrosion Proof Wire Connectors, as manufactured by Copperhead Industries, LLC, or 3M Scotchcast Electrical Insulating Resin. Within the castings of structures other than tracer boxes, tracer wires shall be kept towards the outside of circumference of the casting and flat-top opening.

Within the vertical riser of tracer boxes, connected tracer wires shall be turned down to an elevation just below the bottom elevation of the specified casting. To avoid being out-of-reach, the wires shall not be recessed more than one-foot (1') below the rim of the casting.

Tracer wires shall be tagged inside of protective structures so that users can easily discern which wire is coupled with the constructed pipe both upstream and downstream. The tracer wire that is coupled with the constructed pipe upstream of the protective structure shall be tagged by wrapping red electrical tape around the wire at a location near the split-bolt connector. The downstream wire shall be tagged with black electrical tape. For the purpose of this specification within the context of pressurized systems it shall be understood that “upstream” means that pipe that is closest to the pumping station.

Except where lengths of pipes constructed using HDD methods exceed five hundred feet (500’), constructed tracer wire shall extend from protective structure to protective structure without a splice or joining of disconnected wires between. Tracer boxes or other protective structures shall be located at the ends of all constructed tracer wire such that no joints between tracer wires are necessary to provide continuity between tracer boxes or other protective structures. Splicing of tracer wire will only be allowed where lengths of pipes constructed using HDD methods exceed five hundred feet (500’) and only for the purpose of constructing intermediate tracer boxes. Where splicing is allowed, the constructed tracer wire shall be exposed and spliced to allow extensions to a tracer box constructed at or near the ground surface. Splicing of tracer wire shall be completed using appropriately-sized SnakeBite Corrosion Proof Wire Connectors, as manufactured by Copperhead Industries, LLC, or an equal approved prior to the receipt of proposals.

Regardless of pipe material, tracer wire shall be constructed with the pipe constructed using HDD methods. For tracer wire coupled with pipe constructed using HDD methods, the tracer wire shall be Copperhead SoloShot 845G-EHS-CCS HDPE 45 MIL as manufactured by Copperhead Industries, LLC, or an equal approved prior to the opening of proposals. For tracer wire coupled with pipe constructed using excavation methods, the tracer wire shall be Copperhead High Strength Tracer Wire 1030G-HS-CCS HDPE 30 MIL as manufactured by Copperhead Industries, LLC, or an equal approved prior to the opening of proposals. Insulation coloring shall be green for sewer.

Contractor shall provide a continuity test of the completed network to verify that a 3-watt tracer can trace the entire network from locator box to locator box without interruption. In the event of failure, contractor shall repair the system and retest until test passes.

2.0 Pipeline Location Markers

Systems of surface pipeline markers shall consist of marker posts constructed within unimproved surfaces, both above the locations of bends that change the horizontal trajectory of the pipeline and at intervals of no less than five hundred feet (500’). Where possible, pipeline location markers shall be constructed in proximity to the locations of tracer boxes.

Pipeline location markers shall be constructed using sixty-inch (60”) TriView Marker Posts with soil anchors, both as manufactured by Rhino Marking and Protection Systems. The color of the posts shall be standard green; the color of the caps shall be standard black. Installation of the posts and anchors shall be in accordance with the directions of the manufacturers.

Decals shall be placed on each side of each post to warn of the presence of a sewer pipeline. Decals shall be either model GD8-1316K or model GD-1316K, both as manufactured by Rhino Marking and Protection Systems, and installed in accordance with the directions of the manufacturer.

Where specified by GPSD, contractor shall install at-grade markers provided by GPSD.

END OF SECTION

SECTION 075
SPECIFICATIONS - MANHOLE REHABILITATION

1.0 General

The rehabilitation of manholes shall be performed where specified. Manhole rehabilitation involves the repair and modification of existing sewer system structures without structure removal and replacement. Manhole rehabilitation shall be performed in accordance with the specifications below.

The Contractor shall demonstrate to the Engineer experience in the application of the proposed manhole rehabilitation system. In lieu of experience the Contractor shall secure the support and expertise of the manhole rehabilitation system manufacturer to assure proper handling and installation of the product.

For the purpose of this section the term barrel section, wall section or manhole wall shall be defined to mean the vertical portion of the manhole or structure from the structure foundation that extends in a primarily vertical direction until that vertical portion intersects the manhole roof or lid. The vertical portion may be made from different types of materials including, but not limited to, concrete, brick, block, composite materials or any combination of said materials.

2.0 Sewer System Operation and Manhole Rehabilitation

The rehabilitation of manholes shall be performed without disrupting sewer service or operation. If necessary, the Contractor shall make provisions to isolate manholes to be rehabilitated from sewer flows. Any methods proposed to isolate manholes shall be submitted to GPSD for review prior to the start of work.

The Contractor shall consider the possibility and possible impact of wet weather flows upon both flow isolation measures and the rehabilitation process. Prior to the commencement of the work, the Contractor shall take all measures necessary to protect the manhole from potential damage from water intrusion, infiltration and surcharging. The Contractor shall be responsible for correcting any damage to the subject structure, any other infrastructure and/or public or private property that occurs during the work.

3.0 Manhole Cleaning

Prior to the manhole rehabilitation, manholes shall be cleaned thoroughly throughout the entire circumference and vertical length of the manholes. Cleaning shall commence upon completion of all specified demolition and removal tasks including, but not limited to, the removal of the existing bench and trough, the cutting of protruding piping, the removal of existing manhole steps, the removal of root intrusions and the removal and replacement of the existing manhole casting and lid (if specified by the Engineer).

Preparation of manholes for rehabilitation shall be in accordance with manufacturer recommendations made part of applicable manhole rehabilitation systems but at a minimum shall include remove all loose materials as well as all roots, broken mortar, dirt, waste materials, bricks, broken and shaved pieces of piping materials, etc.

The Contractor shall prevent solids and debris from entering the connecting piping of cleaned manholes by

the use of screens or other devices. The Contractor shall be responsible for removal of materials from the sewer system to the satisfaction of GPSD. The Contractor shall be responsible for the legal disposal of all materials removed from cleaned and rehabilitated manholes.

The Contractor shall be responsible for the supply of all water used in the cleaning of manholes and the reconstruction or rehabilitation of manhole components.

4.0 Manhole Bench and Trough Reconstruction

Reconstruction of manhole benches and troughs shall be performed where specified and in accordance with these Specifications.

4.1 Bench and Trough Removal

Prior to the commencement of bench and trough reconstruction, the existing bench and trough shall be removed to a depth sufficient to allow bench and trough reconstruction and support but not enough to compromise the support and integrity of the manhole. Materials unsuitable to serve as base material for bench and trough reconstruction shall be removed if removal does not jeopardize the integrity of the manhole structure.

Afterwards, the manhole shall be thoroughly and completely cleaned; all loose materials and debris shall be taken from the manhole and legally disposed of by the Contractor.

4.2 Manhole Bench and Trough Reconstruction

Bench and trough reconstruction shall be performed immediately after the removal of the existing bench and trough and before commencement of manhole rehabilitation. Water shall not be allowed to either collect in the bottom of the manhole or exit by seepage through the manhole bottom; at all times, the Contractor shall maintain a system to ensure that water is either removed from the manhole or allowed to flow into the exit piping of the manhole.

Trough reconstruction shall be by the method called for in the plans. When a specific method is not called for in the plans then the reconstruction shall be by any of the approved methods:

Method 1 – Use of PVC Pipe and Fittings to Construct Flow-Through Trough with Flexible Coupler Connection Seals

This reconstruction method consists of the following steps:

- Carefully chip out the manhole pipe connections in such a way that the connecting carrier pipes are not damaged
- Create sufficient clearance around the connecting pipes to permit the installation of a flexible coupler to the existing connecting sewer pipes
- Construct a flow through trough using approved piping materials - sizing and configuration of replacement piping shall be governed by the size of the sewers connecting to the respective manhole as well as the angles of sewer pipes connecting to the manhole at the trough

- Pipe and fittings used to reconstruct troughs shall be as contained in Group A Pipe Materials in Section 027
- Depending upon the configuration of the sewers connecting to the manhole at the trough, tees and wyes may be used to reconstruct a trough that will convey all sewage coming into a manhole out through the exit piping
- Connect the constructed flow through trough piping to the existing connecting sewer piping utilizing flexible rubber couplers (i.e. Fernco Coupler)
- Shim and support the flow through trough piping to maintain consistent slope between connecting pipes and resist floatation of the piping during bench and trough construction
- Place and consolidate concrete from the base of the manhole to the springline of the flow through trough piping to reconstruct the base, bench and trough. Concrete shall be IDOT Class PP-1 concrete with the addition of 4 lb/cu. yd. of macro fibers. Approved macro fibers are Strux 90/40 Synthetic Macro Fibers as manufactured by GCP Applied Technologies Inc.
- During finishing of the benches, the concrete shall be finished smooth and sloped in accordance with GPSD's bench detailing for new manholes
- After 24 hours of cure time has elapsed on the concrete trough and benches, the flow through trough piping shall be modified by having the top of the piping from the springline up to and including the crown removed by careful trimming

Method 2 – Use of PVC Pipe and Fittings to Construct Flow-Through Trough with Hydraulic Cement Connection Seals

This reconstruction method consists of the following steps:

- Carefully chip out around the manhole pipe connections in such a way that the connecting carrier pipes are not damaged – chip only as required to reconstruct the watertight seal at the manhole with hydraulic cement packing (approximately 1"-2" around the pipe and 2" deep along the pipe outside circumference)
- Construct a flow through trough using approved piping material - sizing and configuration of replacement piping shall be governed by the size of the sewers connecting to the respective manhole as well as the angles of sewer pipes connecting to the manhole at the trough
- Pipe and fittings used to reconstruct troughs shall be as contained in Group A Pipe Materials in Section 027
- Depending upon the configuration of the sewers connecting to the manhole at the trough, tees and wyes may be used to reconstruct a trough that will convey all sewage coming into a manhole out through the exit piping
- Exercise care in trimming the pipe(s) to length such that a tight fit with minimal clearance exists between the existing connecting pipes and the constructed flow through trough piping
- The manhole pipe connections shall be sealed to the manhole by packing hydraulic cement in the void created during the chipping and additional hydraulic cement shall be packed around the trough piping to form a continuous fillet of at least 1.5 inches in width around the trough pipe at the connection points – this work shall be performed at the same time such that the connection and the fillet are monolithic
- Shim and support the flow through trough piping to maintain consistent slope between connecting pipes and resist floatation of the piping during bench and trough construction

- Place and consolidate concrete from the base of the manhole to the springline of the flow through trough piping to reconstruct the base, bench and trough. Concrete shall be IDOT Class PP-1 concrete with the addition of 4 lb/yd of macro fibers. Approved macro fibers are Strux 90/40 Synthetic Macro Fibers as manufactured by GCP Applied Technologies Inc.
- During finishing of the benches, the concrete shall be finished smooth and sloped in accordance with GPSD's bench detailing for new manholes
- After 24 hours of cure time has elapsed on the concrete trough and benches, the flow through trough piping shall be modified by having the top of the piping from the springline up to and including the crown removed by careful trimming

Method 3 – Hand Form and Trowel Flow-Through Trough with Hydraulic Cement Connection Seals

This reconstruction method consists of the following steps:

- Carefully chip out around the manhole pipe connections in such a way that the connecting carrier pipes are not damaged – chip only as required to reconstruct the watertight seal at the manhole with hydraulic cement packing (approximately 1"-2" around the pipe and 2" deep along the pipe outside circumference)
- The manhole pipe connections shall be sealed to the manhole by packing hydraulic cement in the void created during the chipping
- Reconstruct the bench and trough by placement and consolidation of concrete from the base of the manhole to the bench to reconstruct the base, bench and trough
- Form and trowel a smooth half pipe trough and bench - sizing and configuration of replacement half pipe trough shall be governed by the size of the sewers connecting to the respective manhole as well as the angles of sewer pipes connecting to the manhole at the trough
- During finishing of the benches, the concrete shall be finished smooth and sloped in accordance with GPSD's bench detailing for new manholes
- Concrete shall be IDOT Class PP-1 concrete with the addition of 4 lb/yd of macro fibers. Approved macro fibers are Strux 90/40 Synthetic Macro Fibers as manufactured by GCP Applied Technologies Inc

Additional Requirements for All Methods:

- The slope of the reconstructed trough shall be consistent and continuous throughout the entire reconstructed trough. The slope shall be governed by the differential between the lowest manhole outlet pipe invert and the invert of the lowest manhole influent pipe that introduces flow into the manhole. If the manhole has two outlets, the trough shall be reconstructed relative to the lowest outlet pipe invert. If there are multiple influent pipes, those influent pipes that are more than four (4) inches above the lowest influent pipe shall not be connected to the replacement trough.
- Where specified by GPSD, the Contractor shall construct inside drop systems in accordance with GPSD specifications. If possible, internal drop systems shall be constructed such that their bottoms are allowed to rest on the manhole bench; however, reconstructed manhole benches must be completely constructed with all materials cured prior to the placement of internal drop systems.
- If there are no pipes other than that effluent pipe to which the replacement trough is joined, then

the Contractor shall construct a trough half pipe from the manhole outlet to the interior of the manhole at a minimum slope of one (1) percent. The length of the half pipe shall be equal to the interior width of the manhole or 4 feet, whichever is less. The trough pipe shall be blocked at the end opposite of its connection to the outlet piping to prevent materials from the bench reconstruction from slipping into the trough and to provide a solid end around which a bench can be reconstructed.

- The minimum concrete thickness below the trough shall be not less than 4” or the depth of the manhole wall or barrel section, whichever is greater. In the event the manhole wall or barrel section is shallower than 4” below the invert of the trough, the Contractor shall carefully excavate a sub-trough in the underlying soils to permit the placement of the minimum thickness of concrete.

4.3 Manhole Bench Reconstruction

Manhole benches shall be reconstructed only after the existing benches and troughs have been properly removed and the trough piping has been reconstructed. If the depth of the manhole walls relative to the existing bench is sufficient, the thickness of the concrete of reconstructed benches shall be no less than six (6) inches throughout the entire area of the reconstructed bench. Where the depth of manhole walls is not sufficient, the bench thickness may be reduced to four (4) inches but shall be reinforced with macro fibers or epoxy coated reinforcement as directed by GPSD. Benches shall be reconstructed such that there is a consistent surface grade of one percent (1.0%) minimum from the inside edges of the manhole walls to the edge of the trough piping.

Benches shall be reconstructed using the materials as called for in the plans. If a specific material is not called for in the plans then the following materials are permitted for use:

- IDOT Class PP-1 concrete with the addition of 4 lb/yd of macro fibers. Approved macro fibers are Strux 90/40 Synthetic Macro Fibers as manufactured by GCP Applied Technologies Inc
- Octocrete and Octocrete U systems as manufactured by IPA Systems
- Underlayment No. F-120 or Underlayment No. F-120FS both manufactured by Sauereisen
- Strong-Seal QSR as manufactured by The Strong Co., Inc.
- Quadex Hyperform as manufactured by Quadex Sewer Rehabilitation Products

Materials used in bench reconstruction shall be low slump and quick initial set time products. When the area of bench reconstruction is wet, a water-tolerant product designed specifically for underwater installations shall be used.

Materials used during bench reconstruction shall be hand-applied into all crevices and voids within the area of the bench reconstruction. When benches are reconstructed in brick or block manholes, the material shall be worked into the areas between the bricks or blocks.

The Contractor shall finish the reconstructed bench by brooming its surface to create a rough finish and increase slip resistance. Brooming shall yield a pattern of grooves from the interior of the manhole wall to the reconstructed channel to assist drainage and solids removal.

5.0 Manhole Barrel Repair and Rehabilitation

Manhole barrel repair shall be performed where specified. Where manhole rehabilitation is specified it shall only commence after manhole barrel repairs have been finished and preparations in accordance with both the recommendations of the rehabilitation system manufacturer and these Specifications have been completed.

If manhole bench and trough reconstruction or manhole casting and frame removal and replacement are also specified, the barrel rehabilitation shall be performed only after completion of these tasks. Manhole barrel repairs shall only commence after a reconstructed bench is cured sufficiently to both convey water out of the manhole without damaging the reconstructed bench and support construction loads without damage.

5.1 Preparation of Manhole Barrels

Where existing pipes intrude into manholes greater than six (6) inches, the pipes shall be trimmed so that their intrusion is not greater than six (6) inches but not less than two (2) inches. Pipe intrusion shall be measured from the inside edge of the manhole wall near the entrance of the intruding pipe to the greatest extent of the pipe into the manhole.

Cut edges of intruding pipes that have been trimmed shall be consistent across the circular face of the cut. Intruding pipe cuts shall be made parallel to the inside manhole surface.

The Contractor shall take care to utilize cutting or trimming methods that will not break or fracture intruding pipes. The cut edge of pipes shall not be jagged or fractured. Methods chosen by the Contractor shall not break or damage the portion of an intruding pipe that is to remain. If damage occurs, the Contractor shall repair or replace the damaged pipe section to the satisfaction of GPSD.

Work associated with preparation of manhole barrels shall be considered incidental to the work of manhole barrel repair or manhole rehabilitation.

5.2 Manhole Barrel Repair

Removal of Intruding Roots

Where roots intrude into a manhole, they shall be removed in accordance with the following:

- Connecting Pipes: Roots protruding from connecting pipes shall be removed 24" beyond the interior surface of the manhole
- Barrel Surface: Roots protruding through the manhole surface or joints shall be removed 1" beyond the outside barrel surface
- Chemical Removal: The use of chemical root removal products is prohibited

Filling Voids in Manholes

All voids and areas where manhole materials are missing shall be filled with materials and methods in accordance with these Specifications. This shall consist of the space between the outside of the barrel surface to the inside of the barrel surface. Additionally, where manhole rehabilitation is called for the materials shall be in accordance with the recommendations of the manufacturer of the manhole rehabilitation system.

Manhole barrel section voids shall be filled using one of the following:

- Octocrete and Octocrete U systems as manufactured by IPA Systems
- Underlayment No. F-120 or Underlayment No. F-120FS both manufactured by Sauereisen
- InstaPlug No. F-180 as manufactured by Sauereisen
- Strong-Plug as manufactured by The Strong Co., Inc.
- Mainstay ML-10 as manufactured by Madewell Products Corporation
- Permacast Plug as manufactured by ConShield Technologies, Inc.
- Quadex Quad-Plug as manufactured by Quadex Sewer Rehabilitation Products
- Strong-Seal QSR as manufactured by The Strong Co., Inc.
- Quadex Hyperform as manufactured by Quadex Sewer Rehabilitation Products
- Permacast Patch as manufactured by ConShield Technologies, Inc.

Where bricks are missing from brick manholes, replacement bricks may be used in combination with the barrel section void repair systems listed. Installation shall be in accordance with the recommendations of the manufacturer and these Specifications.

Where voids are observed beyond the manhole, they shall be filled using either a two-part expanding geotechnical foam, CLSM, or lean concrete to the outside face of the barrel section. After the voids are filled, any voids from the outside face of the barrel to the inside face of the barrel shall be repaired in accordance with these requirements for filling manhole barrel section voids.

Contractor shall exercise care in the installation of materials intended to fill voids. All voids shall be completely filled with the replacement material leaving no air pockets or unfilled void areas. Contractor shall trowel material into voids and consolidate material to assure elimination of air pockets.

After installation of the replacement materials, the Contractor shall smooth the surface of the applied material such that the surface is consistent with the shape of the interior manhole surface.

5.3 Manhole Rehabilitation

Manhole Rehabilitation shall be by one of the following approved methods as shown or called for in the plans. Where a method is not specified, the Contractor may select an appropriate method based on field conditions, subject to approval from GPSD, from the approved methods listed. Prior to the start of work all manholes shall be thoroughly cleaned and dried in accordance with manufacturer recommendations and these Specifications.

Method A: Manhole Rehabilitation Using Two-Part Foam Encapsulated Polyurea Based Polymer Liner

Manhole barrel rehabilitation shall be performed by a three step application process:

1. Application of a polyurea based aromatic polymer at a minimum thickness of 80 mil (+/- 2.0 mm) to serve as an adhesion coat to the manhole structure.
2. Application of a two-part structural polymer foam surfacer at a minimum thickness of 0.625" (+/- 16 mm). This shall be applied directly to the adhesion coat and within 0.5" of the application limits of the adhesion coat (to permit full encapsulation of the surfacer). Surfacer shall have a minimum cured compressive strength of 130 psi, a maximum service temperature rating of 180 degrees Fahrenheit, and a maximum water absorption rate of less than 0.03 lb./sq. ft.
3. Application of a polyurea based aromatic polymer at a minimum thickness of 120 mil (+/- 3.0 mm). This shall be applied directly to the surfacer coat to serve as a protection coat. Protection coat shall completely encapsulate the surfacer layer and overlap limits of adhesion coat by a minimum of 0.5".

Polyurea based aromatic polymer shall meet the following material requirements:

A 100% solids, no volatile organic compound (VOC), moisture tolerant, elastomeric polyurea coating designed to provide infiltration and corrosion protection. Material shall be capable of curing properly given the project site conditions and temperatures conforming to the following minimum physical requirements:

<u>Property</u>	<u>Value</u>
Hardness, D-2240	>D 45
Tensile strength, D-412	3300 psi
100% Modulus, D-412	1650 psi
200% Modulus, D-412	1950 psi
300% Modulus, D-412	2650 psi
Tear resistance/DIE-C, D-624	415 pli
Ultimate elongation, D-412	> 350 %
Taber Abrasion, mg loss CS17	15 mg loss
Flexibility, 1/8" mandrel	Pass
ASTM G210-13 SWAT	Pass

Systems known to meet these are requirements are OBIC Armor Multilayer Liner System as manufactured by OBIC, LLC.

Application of the manhole rehabilitation system shall only be performed after completion of the reconstruction of manhole benches and troughs (if specified), replacement of manhole casting and lids (if specified) and manhole barrel repair.

Preparation of manholes for the installation of the rehabilitation system shall meet all manufacturer

requirements and at a minimum include removal of loose material and debris, pressurized water blasting of the entire manhole to be rehabilitated or repaired with a minimum pressure of 3,500 psi, and sufficient drying of the prepared manhole surface.

Method B: Manhole Rehabilitation Using Cured-In-Place Fiberglass Reinforced Plastic Liner

Manhole barrel rehabilitation shall be performed by application of a fiberglass cloth and epoxy liner such as PerpetuWall as provided by Protective Liner Systems or an equal approved prior to the receipt of bids. Such liners shall be applied in accordance with these Specifications and the specifications and directions of the manufacturer and shall not be less than 180 mils thick through the entire circumference and vertical height of a given manhole. Application shall include the entire interior manhole wall from, but not including, the manhole bench and trough to the manhole casting. Neither the manhole bench and trough nor the casting and lid shall receive coating with a fiberglass cloth and epoxy liner.

Application of the manhole rehabilitation system shall only be performed after completion of the reconstruction of manhole benches and troughs (if specified), replacement of manhole casting and lids (if specified) and manhole barrel repair. Fiberglass cloth and epoxy liners shall only be applied to rehabilitated manholes after the cementitious manhole rehabilitation material is fully cured.

Preparation of manholes for the installation of a fiberglass cloth and epoxy liners shall be per the recommendations of the fiberglass cloth and epoxy liner manufacturer.

Method C: Manhole Rehabilitation Using Cementitious Materials

Where specified, manhole rehabilitation shall be performed using one of the following cementitious products:

- Drycon as manufactured by IPA Systems
- Substrate Resurfacer No. F-121 as manufactured by Sauereisen
- Reliner MSP Cement as distributed by Standard Cement Materials, Inc.
- MS-2A as manufactured by The Strong Co., Inc.
- Quadex QM-1s Restore or Quadex Aluminaliner both manufactured by Quadex Sewer Rehabilitation Products
- CEMTEC Calcium Aluminate Repair Mortar as manufactured by A.W. Cook Cement, Inc.
- Mainstay ML-72 Sprayable Microsilica Cement Mortar as manufactured by Madewell Products Corporation
- Permacast MS-10,000 as manufactured by ConShield Technologies, Inc.

A bonding agent shall be required for all installations unless specifically prohibited by the Manufacturer. Bonding agents shall be approved by the manufacturer and submitted for review by GPSD prior to the start of work.

For each container of material brought to the site(s) of work, the anticipated yield of the included quantity of material shall be stamped or printed on the container or an attached label by the manufacturer. If it is not, yield information shall be provided to the Engineer by the manufacturer in a

format acceptable to the Engineer prior to the commencement of manhole barrel and corbel rehabilitation.

Installation of this material shall be by either hand or sprayed application using equipment that is in accordance with the recommendations of the manufacturer.

- Max Layer Single Thickness for Hand Applied – 0.5”
- Max Layer Single Thickness for Spray Application – 1.0”

Layer thickness shall be continuously verified by the Contractor during application using probe depth checks. Pin holes created by depth checks shall be troweled over after verification of thickness.

Where feasible, the material shall be applied in at least two coats of different colors to allow determination of the thoroughness of the application. Each coat shall be not less than ½ inches thick at any given location on the rehabilitated surface. The surface of each layer of applied materials shall be consistent and without irregularities including bulges or depressions; additional materials shall be used where necessary to compensate for existing irregularities in manhole internal surfaces to produce consistent layers that meet or exceed the desired minimum thicknesses. The contrast of the colors of the material coats with one another and with the existing manhole surface shall be significant enough to make evident by visual inspection any locations of missing or thin materials. Visual inspections of the material and determination of the thoroughness of the application shall be made during the installation of the coating in question. All areas where the installation is determined to be inadequate shall be promptly filled and made compliant with the installation recommendations of the manufacturer.

Locations where there is insufficient materials including voids, crevices and holes shall not be filled with materials taken from other locations on the rehabilitated manhole barrel. Rather, materials shall be added from a supply of materials not part of that material previously applied to the manhole barrel.

Material shall be worked via hand into all crevices, voids and parts of the interior manhole surface. Care shall be taken to work material into voids between existing bricks vacated by mortar materials, into areas around the entire circumference of connecting pipes and up to the bottom of existing or replacement castings. Care shall also be taken not to allow materials to be deposited into connecting pipes.

Manhole rehabilitation materials shall be applied throughout the entire length of manholes from the bench to the bottom of the casting. Materials shall not be applied to the interior surface of the manhole castings. Where the manhole has been constructed monolithically on top of a brick sewer, manhole rehabilitation materials shall not be applied during wet-weather and shall be applied from the bottom of the casting down to the level of dry-weather flow.

If different manhole rehabilitation products are used for the barrel wall and the bench surface, the manhole rehabilitation products shall be constructed by overlapping both coats of the manhole rehabilitation product over the manhole bench product. Manufacturers confirmation of compatibility of products shall be provided prior to application.

The surface of the first coat of material shall be left rough to facilitate the bonding between the two coats.

For two coat systems, the second coat of material shall be applied promptly after the application of the first coat to facilitate bonding of the two coats; however, the application of the second coat shall not compromise the structural integrity of the first coat and henceforth shall not be applied until the first coat has sufficient time to assure structural stability based on manufacturer requirements. A cumulative thickness of not less than one-inch (1") of coating shall be consistently applied over the entire circumference and vertical distance defined in these specifications. The surface of the applied, final coat shall be made consistently smooth via troweling.

If multiple products are to be utilized and distributed by the same equipment, said equipment shall be thoroughly washed and made free of materials preceding mixing and application of another product.

Application of the manhole rehabilitation system shall only be performed after completion of the reconstruction of manhole benches and troughs (if specified), replacement of manhole casting and lids (if specified) and manhole barrel repair.

6.0 Manhole Corbel Removal and Replacement

When removing an existing manhole barrel reducing section or corbel, the entire vertical length of the corbel shall be removed. After corbel removal, the remaining manhole barrel shall be of a uniform and consistent diameter.

The replacement of the removed corbel shall be constructed utilizing the existing joint.

If the barrel section to remain does not have a joining system that is able to be utilized the replacement precast concrete barrel sections shall be constructed on top of the remaining barrel. The new circular sections shall be centered and leveled on top of the remaining barrel as well as possible. The remaining barrel section shall provide support for the proposed manhole sections and, where in contact, two rows of butyl-rubber rings shall be used to form the joint between the poured, concrete collar and the replacement barrel sections. If this is not possible a precast barrel section with an inside diameter larger than the outside diameter of the brick manhole shall be furnished and set on a concrete foundation in accordance with GPSD's standard details.

A poured-in-place concrete collar is to be constructed around the joint of the new and remaining barrel sections to both secure the position of the new barrel sections and to provide tapered surfaces. Where the position of the existing barrel deviates from the replacement sections, the concrete collar shall be tapered to promote conveyance of any water and solids down into the manhole bench and trough. Sharp angles and benches created at the location of the joint shall not be allowed. Tapered surfaces shall be made part of the concrete collar and sloped at a grade of no less than one-inch (1") vertical for each twelve-inches (12") horizontal away from the new wall section. The concrete collar is to be in constructed using material in accordance with these Specifications.

The concrete collar shall be sufficiently sized to encompass the horizontal cross-sections of both the existing and proposed barrel sections by six-inches (6") beyond the outer-circumference. Additionally, the concrete collar shall vertically extend at least twelve-inches (12") below and above the joint of the remaining and new barrel sections.

Replacement of the removed manhole barrel reducing section or corbel shall be in accordance with these Specifications and the directions of GPSD. Components necessary to reconstruct the manhole shall be chosen based on these Specifications and the existing conditions.

7.0 Manhole Frame and Cover Removal and Replacement

Manhole frames and covers shall be removed and replaced where specified by GPSD. Removal and replacement of manhole frames and covers shall be in accordance with Section 043 of these Specifications.

END SECTION

SECTION 083
SPECIFICATIONS – IN SITU LATERAL CONNECTION REPAIRS

In situ lateral connection repairs (LCR) shall refer to the structural repair of connections to sewers at locations of tees, wyes and tap connections using in situ materials and methods. Repairing connections to sewers using in situ lateral connection repairs does not include the use of excavation methods in whole or in part.

Approved LCRs shall have a brim-style hat that includes a flexible or semi-ridged flange that conforms to the inside wall of the downstream host pipe in a circumferential manner around the opening of the lateral connection. LCRs shall extend a minimum of twelve (12) inches into the lateral sewer, or two times the lateral diameter if the nominal diameter of the lateral is less than six (6) inches.

Systems approved for the completion of lateral connection repairs shall not require access upstream of the connections to be repaired. Access to a sewer service connection from any portion of either the sewer service lateral or an upstream, served, structure will not be provided.

1.0 Specifications

All aspects of LCR design and construction shall be in accordance with the latest editions of ASTM F2561, and all documents referenced therein, except where superseded by these Specifications. When there is a conflict between these Specifications and any documents referenced herein, these Specifications shall govern.

Discrepancies between ASTM F2561 and these Specifications include, but may not be limited to the following:

- Lateral pipes will not be accessible from lateral access points including either cleanouts or served structures;
- Cleaning and inspection of sewers will not be governed by NASSCO guidelines but rather by these Specifications;
- Neither O-rings nor flanged-shaped gaskets, otherwise referred to as connecting hats, shall be required for either the lateral or mainline portions of lateral connection repairs;
- Constructed lateral connection repairs do not have to provide an airtight/watertight, verifiable, non-leaking connections;
- No portion of the LCR has to be permanently marked with a lateral identification correlating to the address of the building that the lateral pipe services.

2.0 Scope of Work

The work required by the Project shall consist of furnishing all labor, tools, materials and equipment necessary to provide a complete and operational system, including:

- Submittal of material information, manufacturer recommendations, and installation;
- Notification of affected households or businesses;
- Implementation of traffic control systems;
- Provision of water;
- Implementation of flow control;
- Sewer cleaning;
- Sewer and lateral pre- and post-installation inspection/recording
- Submittal of all inspection recordings

The Contractor shall make all provisions for the supply of water needed for the Project. All costs associated with the supply of water including those resulting from the supply of labor and security by the water suppliers shall be the Contractor's responsibility and shall be made part of proposals.

3.0 Information

Recordings of prior sewer inspections may be provided as an informational courtesy only and are not intended to provide a complete or an accurate depiction of the condition of the sewers prior to the required construction of LCR. Determination of the condition of the sewers to receive LCR shall be the responsibility of the Contractor. Discrepancies between any sewer inspections provided and conditions discovered during sewer inspections required as part of this contract shall not be the basis for claims for additional compensation.

Underground conditions at and near the site(s) of the work to be performed have not been investigated. The Contractor shall be responsible for determining underground conditions to the extent that he or she deems necessary for the successful performance of the work as shown on the Plans and called for in the Specifications. The Contractor shall assume all risks and shall claim no additional compensation for unforeseen underground conditions and/or incorrect determinations of the impact of underground conditions on the completion of the work.

The Sanitary District has not inspected the conditions of private plumbing or private sewers to determine their adequacy for the prevention of either odor migration or sewer backups resulting from preparation for or installation of the project LCR. GPSD shall not be liable for damages caused by deficiencies in private sewers or private plumbing. The Contractor shall determine the adequacy of private sewers and private plumbing for the prevention of damages related to the work being performed.

Measurements provided in project Plans or Specifications shall be used for information purposes only and shall be field verified by the Contractor. GPSD has no knowledge of the dimensions of sewer service connections to receive constructed lateral connection repairs. Any dimensions provided are nominal and shall not be taken as explicit dimensions for the size of a proposed LCR. The Contractor shall be exclusively and solely responsible for determining the dimensions of lateral connection repairs to be constructed.

4.0 Public Notification

All residences and businesses that may be affected by work performed in the construction of an LCR shall be notified both by mail and by delivery of a notification. Mailed notifications are to be mailed via first-class mailing at least two (2) weeks before any work commences at a site. Work shall begin no later than three (3) weeks after public receipt of mailed notifications. A second notification shall be delivered at least forty-eight (48) hours before commencement of work at a site. The Contractor shall promptly notify GPSD of each distribution of notifications including the addresses of the notified residents and businesses

Every business and residence that may be affected by traffic disruptions, disruption of sanitary service, odor problems, etc., shall be notified of the following:

- An explanation of the work to be performed;
- The date work is anticipated to commence;
- The location work is to be performed in reference to local streets;
- Contractor representative contact information, including the name and telephone number of the Contractor's:
 - Work site supervisor (24-hour telephone number); and
 - Project administrator (including the location of the offices of the Contractor);
- The nature of the inconvenience(s) anticipated to be experienced by the resident/business owner;
- An advisement stating that the business/resident should make sure that the traps in the affected buildings are functioning properly and a brief explanation of how to do so;
- The anticipated duration of the repair;

- That the work is being performed on behalf of the Greater Peoria Sanitary District; and
- GPSD contacts and telephone numbers as provided by the District.

The proposed format of all correspondence from the Contractor to the public shall be reviewed and approved by GPSD before mailing or delivery. Complete public notification is to be the exclusive responsibility of the Contractor.

5.0 Sewer Line Preparation

Sewer line preparation for LCR construction shall be performed in accordance with Section 093 of these Specifications and ASTM F2561 except those portions superseded by these Specifications. Cleaning of the bookend manholes shall not be required. The Contractor shall select an approved method of preparation that will minimize the potential for damage to the host pipe, any connections, and private property.

The Contractor shall inspect and capture all resulting images of sewers to receive an LCR immediately before and immediately after the performance of any and all sewer preparation activities. Sewer inspection and image capture shall be in accordance with these Specifications. All recorded images shall be promptly provided to the Sanitary District.

Line obstructions including, but not limited to, solids, roots and protruding service connections shall be removed by the Contractor prior to the construction of LCR if said obstructions are in conflict with the LCR to be constructed or if they will impede the movement of the assembly constructed to transport the LCR. Loss of resin caused by contact with either the internal surface of the host pipe or line obstructions will not be allowed.

The Contractor shall take care not to cause damage to the host pipe during sewer line preparation. Any damage caused during the performance of the work shall be the responsibility of the Contractor and repaired exclusively at the Contractor's expense. Prior to the commencement of repairs, both the scope and repair methods shall be approved by GPSD.

6.0 Sewer Line Inspection

The purpose of sewer line inspection is to inspect and record the condition of the sewers in question, establish the locations of sewer services and verify parameters such as the diameter of receiving sewers. Sewer line inspections shall be performed in accordance Section 093 of these Specifications.

Sewer laterals may be inspected; however, costs thereof shall be included in the costs of LCR installation. The Contractor shall record all images of sewer lateral inspections and submit them to GPSD. Recorded images shall include accurate documentation of time, date and the location of all inspection cameras. Recorded images of lateral inspections shall also include documentation of the inspected sewer lateral including the position of the lateral inspection device relative to mainline sewer inspection device. All recordings shall become property of GPSD.

LCR repairs shall be designed based upon accurate measurements of the host sewers. The conformity of installed LCR to their host pipes shall not be compromised by inaccurate or imprecise measurements. If GPSD questions the accuracy of dimensions obtained by the Contractor, the Contractor shall repeat the measurements as often as necessary to obtain satisfactory information without claim for additional compensation or delay. If GPSD determines that any method of measurement used by the Contractor yields inaccurate or generally questionable information, the Contractor shall seek and utilize another method during subsequent measurements.

7.0 Sewer Flow Control

Sewer flow control shall be provided by the Contractor and shall conform to Section 093 of these Specifications.

8.0 Lateral Connection Repairs Using Cured-in-Place Pipe (LCR)

LCR construction shall be in accordance with the following subsections.

8.1 Submittals by the Contractor

Prior to the commencement of any LCR construction, the Contractor shall be required to provide information about all components of LCR to be constructed and installed as part of the Project including, but not limited to, liners, resins and initiator systems. Submittals shall include manufacturer installation guidelines and technical information about each liner, resin and initiator to be used as part of the Project. Further, documentation should include verification that the proposed LCR system is compatible with the material of the lateral and main line sewer to be receiving the LCR, including with any previous lining systems that have been installed.

Prior to the commencement of LCR installation, the Contractor shall also submit installation and curing instructions from applicable manufacturers. Such details must be authorized by a representative of the manufacturer with knowledge to provide such guidance.

For all materials being used in the performance of the work, each of the Contractor's crews shall have with them at all times material safety data sheets (MSDS) for all materials in which such information is required. MSDS sheets shall be available for inspection at all times and copies shall be provided by the Contractor to GPSD.

If manufactured at a location other than the site of LCR installation, at least one week prior to construction of the uncured LCR, the Contractor shall give notice in writing to GPSD of his intention to commence the manufacture or preparation of materials to be specifically used in the work performed as part of this Project including the impregnation of liners. The Contractor shall allow District personnel unscheduled and complete access to the locations of manufacture of materials including uncured LCR for the purpose of performing inspections to assure compliance with these Specifications. The Contractor shall notify GPSD as soon as possible but no less than two business days prior to any deviations from the Contractor-supplied schedule of construction.

8.2 Materials

The materials used both in the preparation and installation of LCR shall conform to the following specifications and ASTM F2561. Materials including resins, pigments, dyes or colorants shall be light colors to limit interference with visual inspection of the pipe.

8.3 Construction and Handling of Uncured LCR

If uncured lateral connection repairs are constructed at a location other than the site of the work, impregnated and uncured LCR shall be transported to the sites of work using means and methods approved by the manufacturers of all components. Installation of LCR shall begin within a period of time after impregnation that is acceptable to the component manufacturers; if the initiation of the curing process has begun prior to installation, the uncured LCR shall be rejected and not allowed to be used as part of the completion of the project.

8.4 Installation

Installation of LCR shall proceed only after all necessary preparation has been completed, including the notification of all affected residences and businesses in accordance with these Specifications, cleaning and inspections, necessary and adequate flow controls have been implemented and necessary traffic control measures have been placed and maintained in accordance with these Specifications. The Contractor shall proceed with the insertion of an LCR into a sewer only after the sewer has been inspected for cleanliness and cleaned immediately before the commencement of LCR insertion.

Installation of LCR shall be in accordance with these Specifications, the instructions of component manufacturers and the latest version of ASTM F2561. When in conflict, instructions provided by the component manufacturers shall govern.

Immediately after construction of an LCR, prior to ending any bypass pumping, in accordance with Section 093 of these Specifications, the Contractor shall inspect the whole of the sewer, from bookend manhole to bookend manhole, in which the LCR has been constructed. The Contractor shall take care to inspect as much of the constructed LCR as can be inspected from the mainline sewer; the Contractor will not be expected to inspect constructed lateral connection repairs from connecting laterals. Construction of an LCR shall not be considered complete until such inspection has been completed. After completion of the inspection the Contractor shall provide the inspection recording to GPSD.

The Contractor shall recognize that minimization of disruptions of sewer services is of paramount importance. For any given, disrupted, sewer service, service shall be restored no more than six (6) hours after the initiation of service disruption.

9.0 Manhole Access

The Contractor shall be responsible for making accessible all manholes into which access is necessary for the installation of LCR as specified. Making manholes accessible in advance of LCR installation shall be performed in accordance with subsection 4.0 of Section 093 of these Specifications.

Work performed in preparation of LCR installation, including making manholes accessible, shall not be performed too far in advance of LCR installation. The Contractor shall be paid only once per manhole for making a manhole accessible.

END OF SECTION

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SECTION 093
SPECIFICATIONS – CLEANING AND INSPECTION OF SEWERS

The purpose of inspecting sewers is to obtain information that will allow for the assessment of their conditions. Unless specified otherwise by GPSD, the purpose of cleaning sewers is to facilitate the inspection of sewers as specified.

Sewer cleaning and inspection shall include, but not be limited to:

- Locating manholes;
- Construction of access corridors for personnel and equipment, including the removal of obstructions and the stabilization of surfaces;
- Making manholes accessible;
- Control of flows where necessary to facilitate sewer cleaning and inspection operations;
- Provision of water necessary for sewer and manhole cleaning operations;
- Cleaning of sewers;
- Cleaning of manholes adjoining sewers to be cleaned;
- Disposal of materials collected as part of sewer cleaning operations;
- Inspection of sewers; and
- Production of information resulting from sewer inspection operations, including the creation, management and distribution of files and reports.

It shall be understood that all other tasks not explicitly listed above but required to complete sewer cleaning and inspection operations are included in the scope thereof.

1.0 Sewer Flow Control

The purpose of controlling flows within sewers to be inspected using CCTV methods is to allow the successful completion of sewer cleaning and inspection operations in accordance with these Specifications. Inspection of sewers using CCTV methods shall not proceed until ninety-percent (90%) of the internal circumference of a sewer is visible above the surface of the flow. Flow control may be completed by:

- inserting temporary sewer plugs into sewers upstream of those sewers to be inspected;
- using pumping equipment to bypass flows around sewers; or
- using hydraulically-powered sewer cleaning equipment to temporarily control flow to the extent required in these Specifications,

For the purpose of completing sewer inspection operations using CCTV methods, while flow is temporarily controlled, it will be permissible to couple sewer inspection operations with sewer cleaning operations.

When plugging a sewer, the plug assembly shall be designed such that all, or any, portion of the sewage, within the plugged sewer, can be released at varying rates. When a sewer is plugged, flow shall not be discharged from the sewer collection system except to a container specifically for the purpose and intended for transport. If necessary, in accordance with directions provided by GPSD, the Contractor may collect and transport flows impeded by constructed plugs to the Sanitary District's wastewater treatment plant (WWTP) located at 2322 S. Darst St. in Peoria. The Contractor shall be solely responsible for determining the capacity of equipment necessary to transport flows to the WWTP.

When diverting flows around sewers in which work is to be performed, the Contractor shall provide pumping equipment with sufficient capacity to bypass wet weather flows. The Contractor shall understand that GPSD does not have information regarding wet weather flows within specific sewers. The Contractor will be responsible for construction, operation, and deconstruction of pumping equipment, including any measures needed to protect public health and public safety. Engines shall be equipped to keep noise at a minimum.

When flow in a sewer is bypassed, flow shall not be discharged from the sewer collection system except for collection and transport, if necessary.

2.0 Sewer and Manhole Cleaning

Sewers and manholes shall be cleaned such that ninety-five percent (95%) of materials foreign to the collection system are removed. Materials to be removed from sewers and manholes to be cleaned shall include, but not be limited to, sludge, mud, sand, rocks, stones, gravel, pebbles, bricks, solidified fats, solidified oils, solidified grease, pieces of broken pipe, root intrusions, hardened debris and deposits. Protruding service connections shall be removed only when specified in the Construction Documents. The Contractor shall make arrangements for obtaining water for sewer cleaning.

If cleaning of an entire sewer from manhole to manhole cannot be successfully completed from the initial access point, cleaning of the sewer shall be attempted from the opposite access structure, if accessible. If such a reverse set-up might result in the involuntary discharge of flows from the sewer collection system, the contractor shall notify GPSD. If GPSD determines that efforts to clean the pipe are impractical, the segment may be removed from the contract at the discretion of GPSD.

2.1 Equipment

Sewers and manholes shall be cleaned both in accordance with these Specifications and using hydraulically-powered, mechanically-powered or robotically-controlled equipment.

2.1.1 Hydraulically-Powered Equipment

Hydraulically-powered, sewer cleaning equipment shall be capable of producing a range of scouring velocities sufficient to clean sewers as specified without causing involuntary discharge of flows from the sewer collection system or damage to the system. Contractor shall exercise care and reduce pressure to avoid damage to lines that have previously been lined or repaired by other methods. When using hydraulic cleaning equipment, care shall be taken when accessing a sewer from an upstream manhole where it is known that connections are present. In such situations, the scouring velocity of the cleaning water shall be reduced to avoid causing damage to property upstream of connections. When using hydraulic cleaning equipment from a downstream manhole, care shall be taken to avoid depositing solids in connections that might occur during the propelling of the cleaning head and hose upstream.

The Contractor shall furnish a high pressure wand system to allow for washing and scouring manhole troughs and inverts. The device shall also be capable of producing a range of water pressures both sufficient enough to completely clean designated manholes to the level specified yet gentle enough not to displace existing manhole components.

Removal of foreign materials from sewers may be accomplished by physically impacting the materials with a rotating saw. When using an impact device, care shall be taken by the Contractor to avoid damage to sewers. Hydraulically-driven chain cutters shall only be used with GPSD approval or as specified on the plans. To minimize the risk and severity of such damage the Contractor shall only use chain cutters in conjunction with inspection equipment so that the chain-cutting operations can be continuously monitored.

2.1.2 Mechanically-Powered Equipment

Sewer-cleaning equipment powered by mechanical devices such as winches shall be allowed (e.g. bucket machines or drag systems). When using cabled equipment such as winches, the Contractor shall exercise precautions to avoid damage to the sewer collection system.

2.1.3 Robotically-Controlled Cutters and Grinders

Remotely-controlled cutters and grinders shall be allowed.

2.2 Material Removal

All materials resulting from sewer cleaning operations shall be removed from the sewer being cleaned during or immediately following completion of sewer cleaning operations. Material shall not be allowed to pass beyond the limits of the cleaning operation in progress nor shall accumulations of materials in structures be permitted. Both upstream and downstream manholes are to be cleaned as a respective sewer is cleaned.

All materials resulting from the cleaning operations shall be removed from the site and disposed of by the Contractor. The Contractor shall not be allowed to accumulate and store materials overnight at the site(s) of work except in totally enclosed containers approved by GPSD. Normal domestic sewage collected by the Contractor as part of the completion of this Project can be disposed of by the Contractor at a designated location on the premises of the Sanitary District's WWTP at 2322 S. Darst St. in Peoria; if delivered to the District's WWTP, no disposal fee will be charged. If disposal of normal domestic sewage or other materials generated by the Contractor as part of the completion of this Project are disposed of at a location(s) other than the Sanitary District's WWTP, the Contractor shall be responsible for disposal fees.

2.3 Root Removal

Only that equipment described above shall be allowed for the removal of the roots from sewers; no chemical removal methods may be used. All sewers that require root removal will be both cleaned and inspected in their entirety after root removal is completed. While root removal operations are being executed, inspection recordings may be paused and continued after root removal is complete such that the inspection recording of the whole of sewers is contained within one electronic file.

2.4 Protruding Service Connections

Removal of protruding service connections shall be performed by the Contractor when such connections either do not permit the passing of the inspection camera or when shown or called for in project plans and specifications. Protruding service connections shall be removed using robotically controlled cutters and grinders to within one-half ($\frac{1}{2}$) inch of the interior surface of the host sewer. The removal of protruding service connections shall be completed without breaking protruding service connections, creating jagged-edges on remaining service connections or removing service connections beyond the limits specified above. Any sewer in which a protruding service connection is removed shall be subsequently cleaned and inspected in its entirety after the protruding service connection is removed.

2.5 Special Circumstances

If the Contractor informs GPSD of a discovered potential defect in a sewer that may prevent further sewer cleaning, the Contractor shall safely inspect as much of the sewer in question as possible then submit all recorded inspections to GPSD. Upon review GPSD will either instruct the Contractor to cease sewer cleaning, continue cleaning of the sewer in question using methods detailed in these Specifications, or to continue with other mutually agreed upon alternative cleaning and inspection methods.

If the Contractor declares all or any portion of a sewer to be inaccessible for cleaning, GPSD shall have the exclusive right to provide for alternative arrangements for obtaining sewer cleaning services for the portion of sewer in question. If cleaning of any portion of the declared inaccessible portion is obtained by services not provided by the Contractor, GPSD may at its sole discretion make the Contractor responsible for the costs of those services performed by a third-party for the completion of work required in the Contract.

3.0 Sewer Inspection

As specified by GPSD, sewer inspections are to be completed using closed-circuit television (CCTV) equipment. Sewer inspections shall include not only sewer inspection operations but also documentation of CCTV sewer inspections.

3.1 Sewer Inspections Completed Using CCTV

The purpose of inspecting sewers using CCTV is to obtain quality, recorded images of the entire interior condition of sewers, connecting sewers as viewable from the receiving sewers without use of camera launching devices, and adjoining manholes. Recorded images may be produced by either inspection equipment that provides pan, tilt and zoom capabilities or inspection equipment that produces inspection recordings that, when coupled with enabling software, allow off-site users the capability to pan, tilt and zoom the entire lengths and circumferences of inspected sewers and manholes.

Prior to the commencement of the Project, the Contractor shall provide GPSD with the domain of feature descriptions made part of the inspection software. GPSD shall review the domain and, if any, provide the Contractor with modifications that are to be made to the domain to be used as part of this Project. At minimum, domains shall include the following descriptions of features commonly witnessed in sanitary sewers: tee connection, plugged; wye connection, plugged; tap connection, plugged; tee connection; wye connection; tap connection; lamphole; manhole; flush tank; longitudinal crack, circumferential crack, infiltration; and broken pipe. Additionally, the descriptions shall reference the clock orientation of features relative to the direction of camera travel (e.g. tap connection, 3:00).

3.1.1 CCTV Sewer Inspection Equipment

The basic functions of systems made part of the camera and transport assembly, include, but are not limited to, the following: illumination of the interior of the sewers to be inspected; transport of inspection camera(s) throughout the full length of the sewers to be inspected; measurement of the relative location of the assembly; clear, focused inspection of the whole of the sewers to be inspected; and recording of images generated by the inspection of sewers.

3.1.1.1 Camera Lighting

Lighting for the camera(s) shall be integrated into the camera(s) and allow a clear picture of the entire circumference of sewers being inspected not only at the location of the camera(s) but also at least twenty feet (20') in front of and beyond. Additionally, the lighting shall be sufficient to allow for the production of images that clearly show at least ten feet (10') of the interior of sewer service connections upstream of the connection to the public sewer assuming the absence of inhibitive fittings.

3.1.1.2 Transport

Transport assemblies shall be capable of moving through sewers designated for inspection at rates that facilitate the acquisition of inspection recordings in accordance with these Specifications. Transporter selection shall be such that the position of the camera(s) and lighting systems is centered in the sewers being inspected. Transport devices shall not obstruct or interfere with inspections. Transport assemblies shall be able to negotiate bends and sweeps in sewers.

Inspection equipment may be driven, floated or winched through sewers to be inspected; personnel shall not be allowed to manually transport inspection equipment through sewers. When floating a camera assembly, the rate of travel must be controlled.

3.1.1.3 Location Measurements

Camera and transport assemblies shall be provided with accurate systems to determine the locations of the assemblies at all times during sewer inspection operations. An acceptable alternative for satisfying this requirement is the provision of distance measurements relative to inspection starting locations.

Distance measurements shall include a footage counter that shall be set up to track the distances that camera and transport assemblies have traveled within sewers being inspected. Counters shall range from 0.0 feet to 9999.9 feet. Units of measurement other than the standard foot will not be accepted. Recorded inspections of sewers are to begin at the center of entry manholes and the corresponding counters are to begin at 0.0 feet. Distances shall be represented in tenths of a foot. On the recorded images of the interior of the sewers, the distance of the transporter from the center of the entry manhole shall be visible at all times

The distances provided shall be accurate within, plus or minus, one (1) foot. Accuracy of the distance meter shall be checked by use of a walking meter, steel tape, or other suitable device. The counter shall correspond to the distance as measured at the surface from the center of the entry manhole to the center of the receiving sewer structure. The

inspection of a sewer shall not be accepted in which the footage counter is found to be inaccurate.

3.1.1.4 Inspection Camera

Inspection cameras shall be capable of producing steady, clear, solid state, color images of all aspects of the internal condition of sewers. Images shall not be geometrically distorted. If images produced do not meet these Specifications, the inspection recordings shall be rejected.

Inspection equipment that provides pan, tilt and zoom capabilities shall have cameras capable of meeting the following minimum: cameras shall have both optical and digital zoom ranges of at least 10x and 4x, respectively, with a digital zoom of at least 40x with optical zoom and a total effective zoom ratio shall be no less than 40:1; the image pick-up device shall be a ¼", solid state, color CCD capable of providing at least 379,392 elements (NTSC); the lens shall be 10x zoom with a focal length range from 4.2mm to 42mm and an aperture range from f1.8 to f2.9; images shall be comprised of at least 720 TV lines of horizontal resolution; and an electronic shutter range from ¼ s to 1/10,000s in 20 steps. The camera shall also include both an automatic white balance feature and an auto-centering feature, the latter shall be provided to allow auto-repositioning of the camera field of vision to the zero degree X-Y axis position.

Inspection equipment shall have full pan and rotation capabilities relative to both the horizontal and the vertical. This type of inspection equipment shall be fully operational from remote terminals and be capable of operating while transporters are in forward drive, reverse drive and neutral.

3.1.1.5 Software

The Contractor shall utilize software that is capable of providing both inspection recording files and reports in accordance with these Specifications. The sewer inspection and recording equipment shall be capable of producing files in MP4, MPG or MOV format that include images recorded throughout sewer inspections.

In Adobe PDF format, the Contractor shall provide GPSD with a report of each sewer inspection. Reports shall include the same information inputted into the log of the sewer inspection.

3.1.2 CCTV Sewer Inspection Procedure

Sewer inspections completed using CCTV equipment shall be done one sewer at a time, from structure to structure. The camera shall be moved through the sewer at a consistent, moderate speed that will allow for general viewing of the recording. The preferred direction of camera travel is from the upstream structure to the downstream; travel from downstream to upstream shall only be attempted if access to the upstream structure is impossible or previous attempts from the upstream structure have been unsuccessful. While traveling through the sewer, the camera shall at all times be oriented such that the flow is shown at the bottom of the image.

If the camera will not pass through the entire sewer, the Contractor shall set up their equipment so that the inspection can be performed from the opposite manhole. If the sewer has only one

adjoining manhole and a reverse setup is not possible, the inspection of the sewer shall be considered complete. If upon setup at the opposite manhole the camera fails to pass through the entire sewer, the inspection shall be considered complete and no additional inspection work will be required. Based upon the Contractor's footage counter, the Contractor shall report uninspected portions of sewers to GPSD and the reason(s) that inspection was halted. When performing an inspection from a reverse setup, the Contractor shall only be required to inspect that portion of the sewer that was not inspected on the previous setup.

The Contractor must continue inspections until the camera is completely within or below adjoining structures including manholes, lampholes, flush tanks, etc. The Contractor shall take care to both completely inspect the entire circumferences of all joints between structures and inspected sewers. Each manhole shall be inspected as much as possible.

When using inspection equipment that provides pan, tilt and zoom capabilities, the camera shall be stopped to inspect all connections including, but not limited to, tees, taps, wyes, risers, connecting sewers and lampholes. The camera shall pause to inspect upstream into connections and the entire circumference of joints between connections to sewers. Additionally, the camera shall be stopped and the camera head swiveled to better view any actual, or suspected, pipe damage.

Each feature encountered, including discovered defects and sewer service connections, shall be recorded by the Contractor in both the video header and on an output report. Logging shall include the distance from the entry manhole and the orientation of the feature within the sewer.

If any portion of the sewer is able to be inspected due to reasons other than the halting of the camera transport before complete inspection is performed, the inspection of the sewer in question shall be considered incomplete. If the Contractor declares all or any portion of a sewer to be inaccessible for inspection, for any reason, GPSD shall have the exclusive right to provide for alternative arrangements for obtaining sewer inspection services for the portion of sewer in question. If cleaning of any portion of the declared inaccessible portion is obtained by services not provided by the Contractor, GPSD may, at his sole discretion, make the Contractor responsible for the costs of those services performed by a third-party for the completion of work required in the Contract.

The camera shall be operative in both one hundred percent humidity conditions and able to withstand the concentration of pollutants typically found in domestic sewage. If the lens becomes dirty, the contractor shall remotely clean the lens or remove the camera and either clean the camera lens so that it produces a satisfactory picture or replace it with a unit sufficient to perform the task. If the image produced does not meet these Specifications, the inspection recording shall be rejected.

3.1.3 Documentation of CCTV Sewer Inspections

Proper and correct documentation of a CCTV inspection of a sewer is imperative. An inspection that is not properly and correctly documented in accordance with these Specifications shall invalidate the recording of the images produced from the inspection and subject it to rejection by GPSD. A rejection, for any reason, of any inspection will require that the Contractor repeat the cleaning and inspection of the sewer in question.

Header information shall be provided at the beginning of each inspection recording and shall include the following:

- Owner identification (identify the Greater Peoria Sanitary District as GPSD)
- GPSD Project number
- Contractor's name
- Starting time
- Ending time
- Date of sewer inspection
- GPSD entry manhole ID
- GPSD destination structure ID
- Direction of camera travel;
- GPSD sewer ID
- Pipe diameter or shape/dimensions if not round
- Pipe material

For each sewer to be inspected and each attempt to inspect the same, separate files shall be produced and provided to GPSD. Each file shall include the inspection recording, in whole or in part, of one and only one sewer, from the point of entry of the inspection equipment to the terminus of the sewer. Files that contain the whole or partial inspection recordings of multiple sewers shall be rejected. Files shall not be spliced, split, cut or a collection of joined files. Files shall be produced to meet the requirements of these Specifications yet minimize file sizes. File names shall in the following format:

- Stored in a folder named with the GPSD Main ID
- MainID_BeginningMHID-EndingMHID_ProjectNo_YYYY-MM-DD

For example:

L23D003308/L23D003308_MH L23D004277-MH L23D004278_2645_20200915.mpg
would designate televising of main L23D003308 from manhole L23D004277 to MH L23D004278 for project 2645 on September 15, 2022.

Files shall be provided to GPSD using a third-party, web-based, file transfer site such as Drop Box or an external storage device that shall have been purchased new by the Contractor specifically for this Project, unused prior to this Project and shall become the property of GPSD upon receipt from the Contractor.

Inspection recordings shall only be considered complete once files are transferred to GPSD, successfully accessed and reviewed for conformance with these Specifications. The Contractor shall retain copies of all files transferred to GPSD through contract completion.

4.0 Locating Manholes and Making Them Accessible

The Contractor shall locate and either chip-out or raise those manholes necessary to complete specified sewer cleanings and inspections. If the locating of the manholes requires damage to the surface, whether pavement or earthen areas, the Contractor shall repair said damage in accordance with these Specifications.

The purpose of raising and chipping out of manholes is to make structures accessible for sewer inspection and cleaning operations. A chip-out manhole shall be defined as one that is buried less than two inches in a pavement area; GPSD shall judge which manholes are to be chipped-out. A manhole that must be raised is defined as being buried greater than or equal to two inches. The Contractor shall make field depth

measurements to GPSD's satisfaction.

The Contractor shall be responsible for disposing of all excavated materials resulting from the raising and chipping-out of manholes. Manhole adjustments shall be in accordance with these Specifications.

5.0 Damage to Infrastructure as a Result of Contract Operations

Should damage to infrastructure occur as a result of cleaning and televising operations, repairs shall be made at the direction of GPSD at the Contractor's expense. In the event that a repair is not feasible, Contractor shall cause replacement to be made per GPSD specifications and directions.

END OF SECTION

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SECTION 095
SPECIFICATIONS – DETAIL DRAWINGS

Index of Detail Drawings

Flat Top Manhole	095-1
Splash Drop Manhole and Internal Drop Manhole	095-2
Special External Drop Manhole.....	095-3
Standard Manhole Castings	095-4
Waterproof Manhole Castings Typical	095-5
Manhole Steps and Casing Pipe and Carrier Pipe Construction	095-6
Typical Detail Sanitary Sewer Pipe Installation.....	095-7
Manhole Steps and Casing Pipe and Carrier Pipe Construction Details	095-8
Precast Concrete Anchor Wall.....	095-9
Service Riser – Type A and Service Riser – Type B	095-10
Sewer Saddles.....	095-11
Detail Drawing 095-12 Removed	095-12
Building Sewer Cleanout and Mobile Home Riser.....	095-13
Precast Sampling Access Structure.....	095-14
Typical Detail 1000 Gallon Grease Trap	095-15
Typical Detail 250 Gallon Grease Trap	095-16
Pavement Restoration Profiles	095-17
Detail Drawing 095-18 Removed	095-18
Sanitary Sewer Service & Potable Water Service Separation	095-19
Thrust Blocking and Joint Restraint (1 of 2).....	095-20
Thrust Blocking and Joint Restraint (2 of 2).....	095-21
Drivable Creek Crossing.....	095-22
Gabion Ditch Check	095-23
Modular Concrete Unit Retaining Wall.....	095-24
Sewer Service Reconstruction Using Horizontal Directional Drilling Methods and HDPE Pipe and Connecting to HDPE Pipe	095-25
Village of Bartonville Construction Standard.....	095-26
Village of Bartonville Construction Standard.....	095-27
Special-Type Manhole.....	095-28
Sewer Service Reconstruction Using Horizontal Directional Drilling Methods and HDPE Pipe and Connecting to PVC, SDR 26, Pipe	095-29
Sewer Service Reconstruction Using Horizontal Directional Drilling Methods, C900/RJ, DR 14, Pipe and Connecting to PVC, SDR 26, Pipe.....	095-30
Air Relief Valve.....	095-31
Combination Air Relief Valve and Isolation Valve Vault	095-32
Isolation Valve Vault; Knife Valve.....	095-33
Isolation Valve Vault; Plug Valve	095-34
IDOT Standard 442101-07, Class B Patches (Sheet 1 of 2)	095-35
IDOT Standard 442101-07, Class B Patches (Sheet 2 of 2).....	095-36
GENECO Type “C” Model “S” SEALTITE TEE Gravity Sewer Saddle (For Mains Larger than 30” O.D.)	095-37
Waterproof Manhole Castings Recessed.....	095-38

Index of Detail Drawings (Continued)

Typical Detail Force Main Drainage Access Structure, Isolated Pumping Station	095-39 (Sheet 1 of 2)
Typical Detail Force Main Drainage Access Structure, Isolated Pumping Station	095-39 (Sheet 2 of 2)
Typical Detail Force Main Drainage Access Structure, Gravity Interconnect Station	095-40 (Sheet 1 of 2)
Typical Detail Force Main Drainage Access Structure, Gravity Interconnect Station	095-40 (Sheet 2 of 2)
Typical Detail Force Main Drainage Access Structure, Gravity Interconnect Station. With Force Main Cleaning Structure	095-41 (Sheet 1 of 2)
Typical Detail Force Main Drainage Access Structure, Gravity Interconnect Station. With Force Main Cleaning Structure	095-41 (Sheet 2 of 2)
Typical Detail Exterior Force Main Control Structure.....	095-42 (Sheet 1 of 2)
Typical Detail Exterior Force Main Control Structure.....	095-42 (Sheet 2 of 2)
Combination Air Release and Vacuum Release Valve Vault	095-43
Typical Detail Reinforced Concrete Encasement.....	095-44
Typical Detail 6 Ft. Interlocking Concrete Blocks.....	095-45
Typical Detail 5 Ft. Interlocking Concrete Blocks.....	095-46
Typical Detail 4 Ft. Interlocking Concrete Blocks.....	095-47
Typical Detail Temporary Plank Grade Crossing	095-48
Typical Detail Field Tile Repair	095-49
Saddle-Type Manhole.....	095-50
Reinforced Pipe Coupling Collar.....	095-51
Brick Manhole Adjustment and Reconstruction	095-52

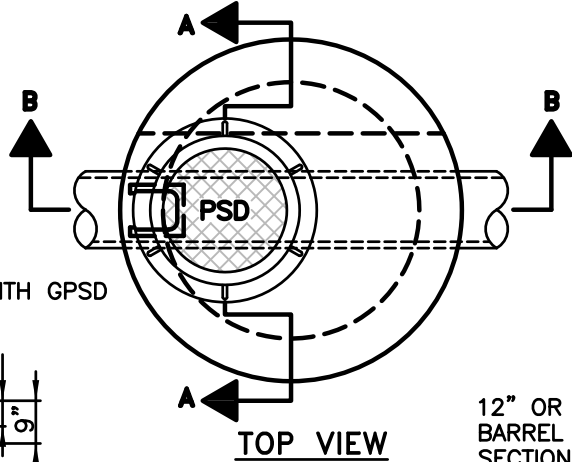
NOTE: FLAT TOP MANHOLES ARE DESIGNED TO ACCEPT PIPES UP TO 42" IN DIAMETER AT DEPTHS TO 20 FEET. FLAT TOP MANHOLES USED WITH PIPES GREATER THAN 42" IN DIAMETER AND/OR AT DEPTHS GREATER THAN 20 FEET SHALL BE DESIGNED BY A STRUCTURAL ENGINEER AND APPROVED BY THE DISTRICT.

PLASTIC STEPS WITH STEEL CORE SHALL BE POSITIONED OVER THE OUTLET PIPE IN MANHOLES WITH 8" OR 12" LINES. IN MANHOLES WITH LINES LARGER THAN 12" THE STEPS SHALL BE PLACED AT 90° TO THE OUTLET PIPE. STEPS SHALL BE PLACED 16" APART.

BOOT OR COMPRESSION CONNECTOR MEETING DISTRICT STANDARDS

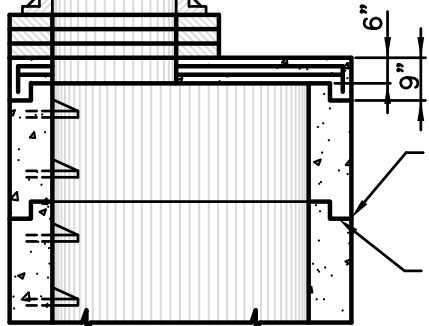
U BOLT: 3/4"Ø TIED TO REINFORCING BARS.

CASTINGS IN ACCORDANCE WITH GPSD SPECIFICATIONS



TOP VIEW

ADJUSTING RINGS AS NECESSARY AND IN ACCORDANCE WITH SECTION 043 OF THE SPECIFICATIONS



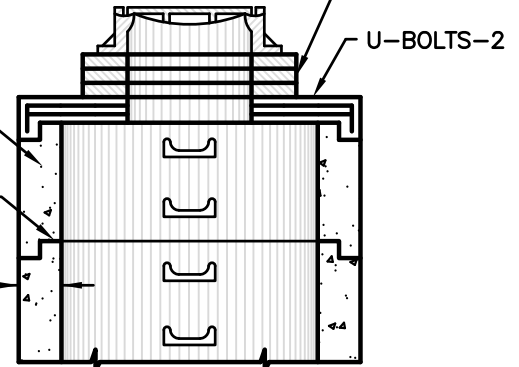
SEAL JOINTS PER SECTION 43-1 OF THE SPECIFICATIONS

BUTYL RUBBER JOINT SEALER OR GASKET

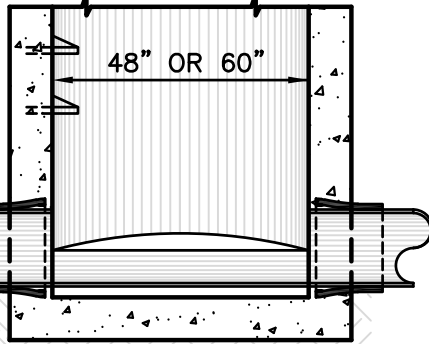
12" OR 16" BARREL SECTION

BUTYL RUBBER JOINT SEALER OR GASKET

1/12 OF O.D.

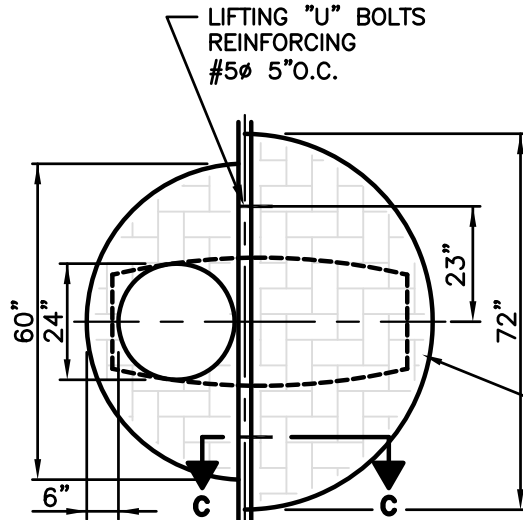


U-BOLTS-2



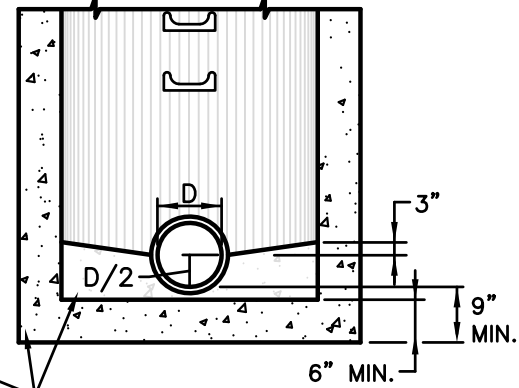
SECTION B-B

UNDISTURBED OR COMPACTED EARTH (TYP.)



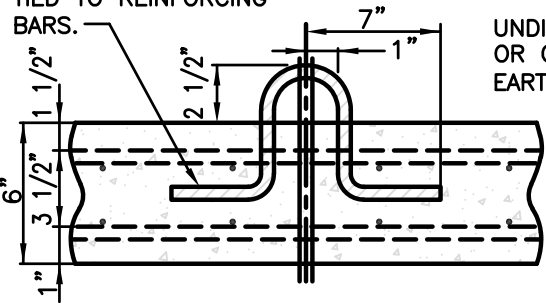
CONCRETE LID REINFORCEMENT

LIFTING "U" BOLTS REINFORCING #5Ø 5"O.C.



SECTION A-A

5,000 psi @ 28 days.



SECTION C-C

FLAT TOP MANHOLE

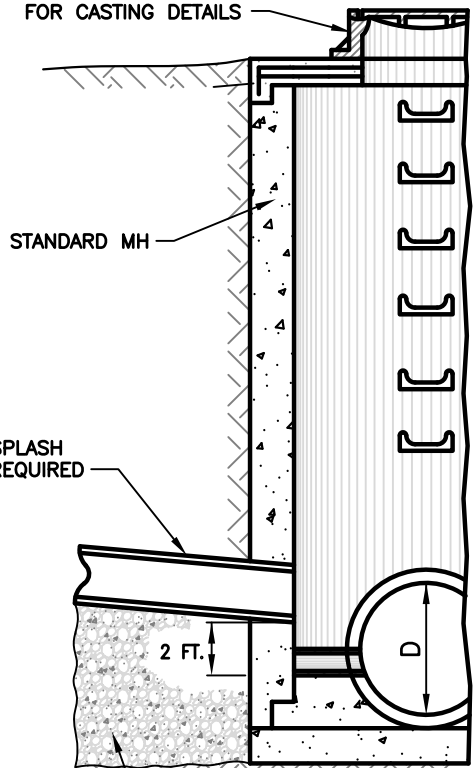
SURVEYED: .	DATE: AUG. 68	VERT. NTS
DESIGNED: .	REV: NOV 2017	HORIZ. NTS
DRAWN: ARA	REV: SEP 2020	PAGE 095-1
CHECKED: JLA	REV: FEB 2021	
APPROVED: JLA		



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SEE 095-04 & 095-05 FOR CASTING DETAILS



UNDISTURBED OR COMPACTED EARTH (TYP.)

COMPACTED BEDDING STONE OR CONTROLLED LOW-STRENGTH (CLSM) MATERIAL BASED UPON SURFACE CONDITIONS. DRIVING SURFACES REQUIRE CLSM AND LANDSCAPE SURFACES MAY BE EITHER BEDDING STONE OR CLSM.

SECTION

NOTE:
WHERE AN INLET LINE IS PARALLEL TO A LARGER OUTLET LINE, THE LARGER DIA. PIPE SHALL BE LAID THRU THE SPLASH DROP MANHOLE

SPLASH DROP MANHOLE

SEE 095-04 & 095-05 FOR CASTING DETAILS

HOOD, WHEN REQUIRED BY SPECIFICATIONS

DROP BOWL

SHIELDED FLEXIBLE PIPE COUPLER

STAINLESS STEEL PIPE SUPPORT BRACKET @ 4' SPACING (MIN. 2 PER DROP) SEE SPECIFICATIONS

DOWN PIPE

OUTLET

UNDISTURBED OR COMPACTED EARTH (TYP.)

CLASS "SI" CONC.

1/3 DIA. OF "D"

SECTION

STANDARD MH

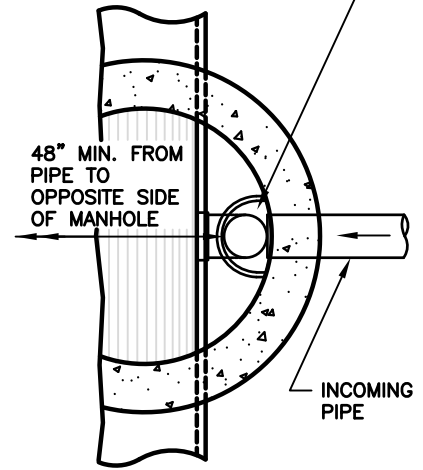
12" MIN.

INCOMING PIPE

GREATER THAN 2'

COMPACTED BEDDING STONE OR CONTROLLED LOW-STRENGTH (CLSM) MATERIAL BASED UPON SURFACE CONDITIONS. DRIVING SURFACES REQUIRE CLSM AND LANDSCAPE SURFACES MAY BE EITHER BEDDING STONE OR CLSM.

DROP BOWL



SECTIONAL PLAN

INTERNAL DROP MANHOLE

NOTES:

1. MANHOLE STRUCTURAL COMPONENTS SHALL BE IN ACCORDANCE WITH SECTION 043 OF THE SPECIFICATIONS AND THE FLAT TOP MANHOLE DETAIL.
2. AS A MINIMUM, THE DIAMETER OF THE DROP PIPE SHALL BE AT LEAST 2/3 AS LARGE AS THE DIAMETER OF THE SEWER TRIBUTARY TO THE DROP PIPE, BUT SHALL NOT BE SMALLER THAN EIGHT (8) INCHES IN DIAMETER.

3. MINIMUM MANHOLE DIAMETER SHALL BE 60" NOMINAL ID FOR NEW MANHOLES.

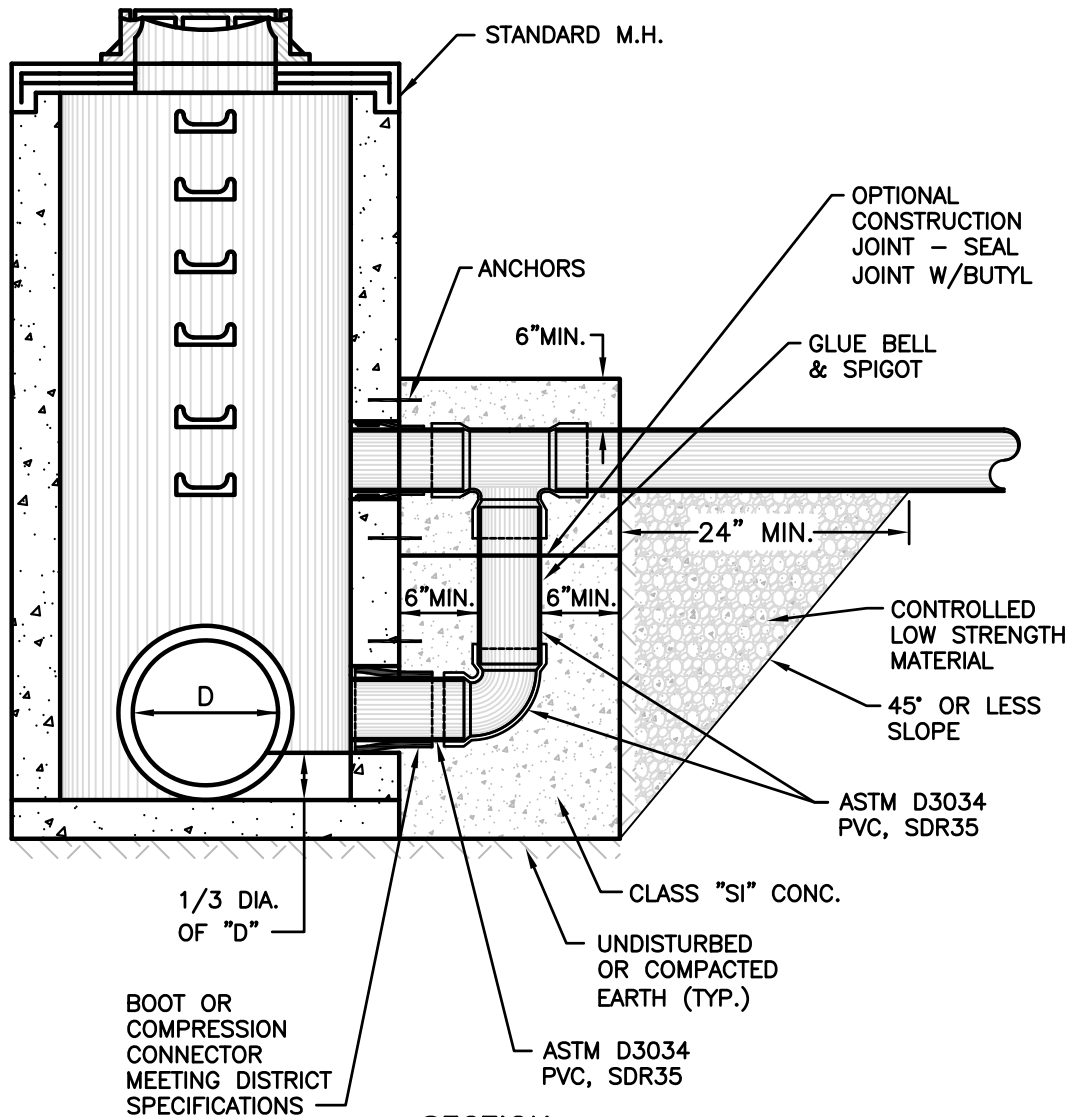
STANDARD DROP MANHOLE

SURVEYED: .	DATE: NOV. 90	VERT. NTS
DESIGNED: .	REV: SEP 2003	HORIZ. NTS
DRAWN: ARA	JAN 2012	
CHECKED: JLA	OCT 2020	PAGE 095-2
APPROVED: JLA	FEB 2021	



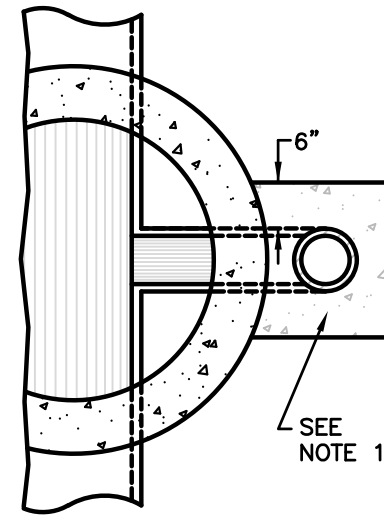
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SECTION

EXTERNAL DROP MANHOLE DETAIL



SECTIONAL PLAN

NOTES

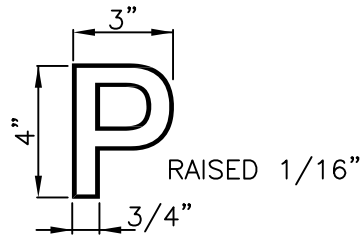
1. AS A MINIMUM, THE DIAMETER OF THE DROP PIPE SHALL BE AT LEAST 2/3 AS LARGE AS THE DIAMETER OF THE SEWER TRIBUTARY TO THE DROP PIPE, BUT SHALL NOT BE SMALLER THAN EIGHT (8) INCHES IN DIAMETER.
2. EXTERNAL DROP MANHOLE SHALL ONLY BE UTILIZED WITH WRITTEN APPROVAL OF THE DISTRICT.



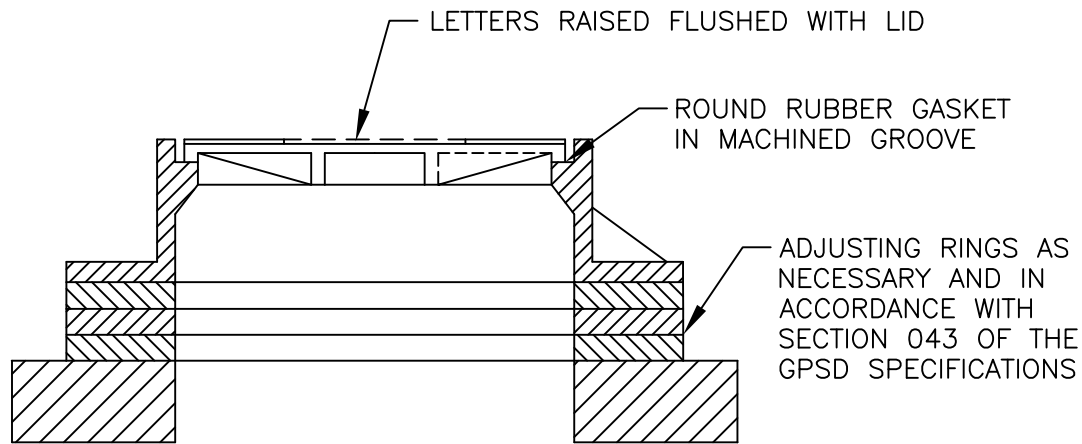
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SPECIAL DROP MANHOLE		
SURVEYED: .	DATE: AUG. 68	VERT. NTS
DESIGNED: .	REV: JAN 2012	HORIZ. NTS
DRAWN: ARA	SEP 2014	
CHECKED: JLA	OCT 2020	PAGE 095-3
APPROVED: JLA	FEB 2021	

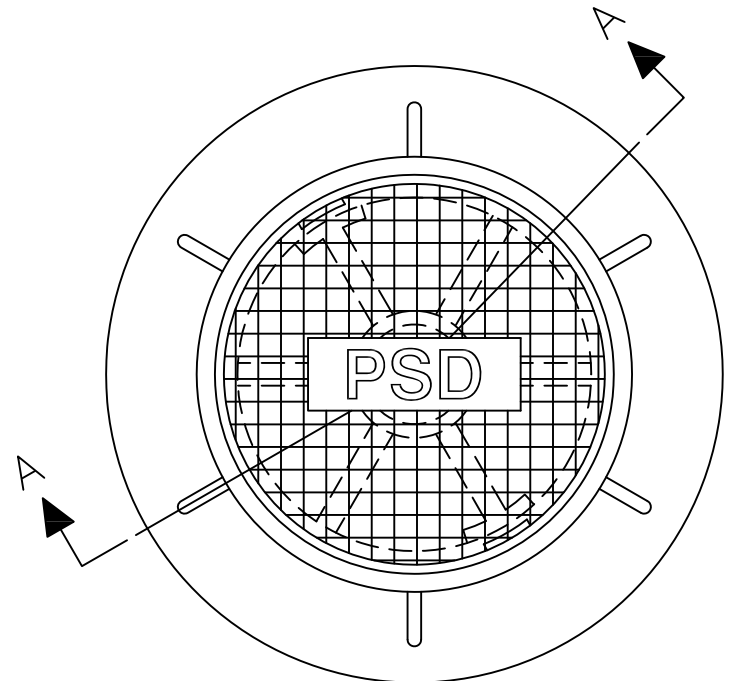
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LETTER DETAIL



SECTION A-A



PLAN

MANHOLE FRAME & COVER

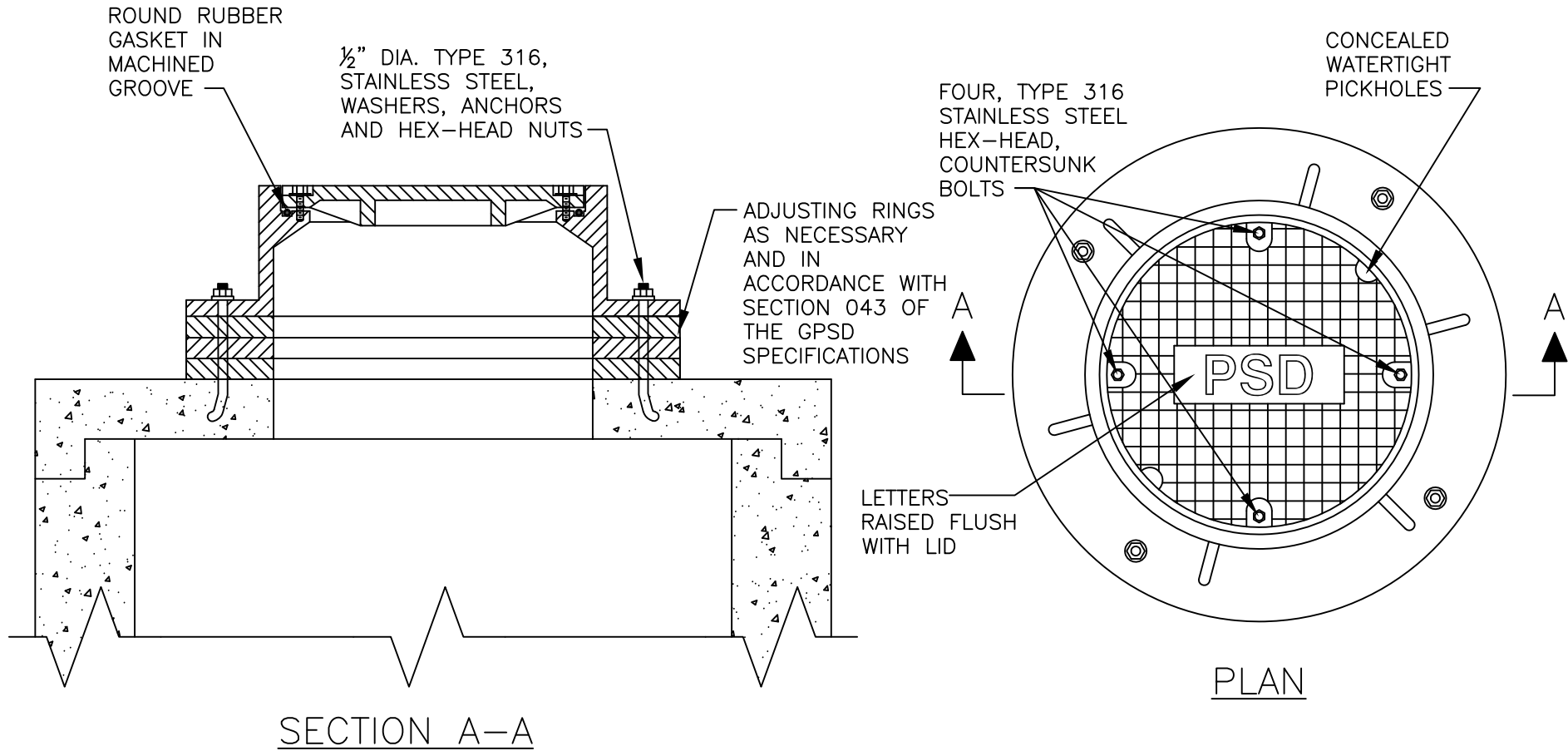
NEENAH R-1530 TYPE "B",
R1915-H2 OR R-1916-C, OR
EAST JORDAN NO. 1920, OR EQUAL

STANDARD MANHOLE CASTINGS		
SURVEYED: .	DATE: APR. 08	VERT. NTS
DESIGNED: .	REV: FEB. 11	HORIZ. NTS
DRAWN: ARA	REV: SEP. 12	
CHECKED: JES	REV: FEB. 14	PAGE 095-4
APPROVED: JES		

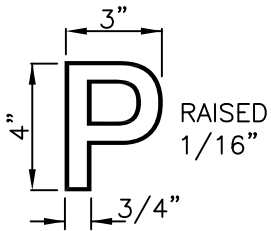


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WATERPROOF MANHOLE FRAME & COVER WITH BOLTED LID - NEENAH NO. R1916C, EAST JORDAN NO.1058, OR EQUAL.



LETTER DETAIL

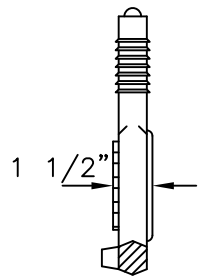


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WATERPROOF MANHOLE CASTINGS TYPICAL

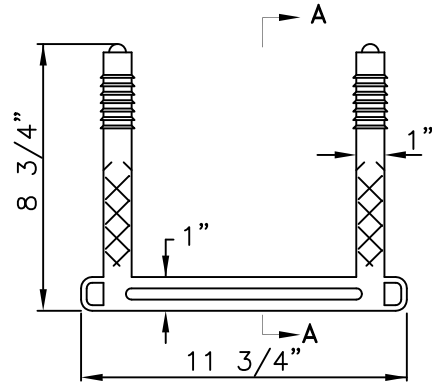
SURVEYED:	DATE: AUG. 68	VERT. NTS
DESIGNED:	REV: APR 08	HORIZ. NTS
DRAWN: ARA	REV: SEPT.12	
CHECKED: JES	REV: FEB. 14	PAGE 095-05
APPROVED: JES		

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SECTION A-A

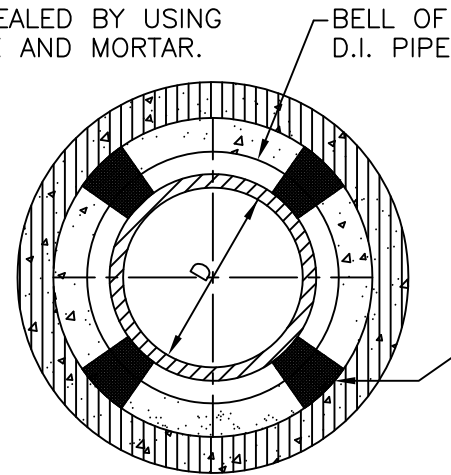
ASTM 2146-69
TYPE 2



PLAN

PLASTIC MANHOLE STEP

ENDS OF CASING TO
BE SEALED BY USING
BRICK AND MORTAR.



JACKING SECTION

BELLED PIPE & CASING DIM.

SEWER PIPE DIA.	CASING PIPE DIA.
49 to 54 IN.	72 IN.
37 to 48 IN.	64 IN.
25 to 36 IN.	50 IN.
4 to 24 IN.	36 IN.

FLANGED PIPE & CASING DIM.

SEWER PIPE DIA.	CASING PIPE DIA.
49 to 54 IN.	72 IN.
37 to 48 IN.	72 IN.
25 to 36 IN.	66 IN.
4 to 24 IN.	42 IN.

CASING SPACERS SHALL BE
PSI-BRAND MODEL S STAINLESS
STEEL CASING ISOLATORS, THE
BWM CO. MODEL BWM SS STAINLESS
STEEL CASING SPACERS, CCI PIPELINE
SYSTEMS STAINLESS STEEL BAND
CASING SPACERS, MODEL CSS, OR
AN APPROVED EQUAL, SPACED IN
ACCORDANCE WITH THE SPECIFICATIONS.

MANHOLE STEPS

VERT. NTS	DATE: AUG. 90	SURVEYED: .
HORIZ. NTS	REV: .	DESIGNED: .
PAGE 095-6		DRAWN: DMF
		CHECKED: .
		APPROVED: .



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**CASING PIPE AND CARRIER
PIPE CONSTRUCTION**

SURVEYED: .	DATE: AUG. 68	VERT. NTS
DESIGNED: .	REV: FEB 2010	HORIZ. NTS
DRAWN: JES	REV: JAN 2012	PAGE 095-6
CHECKED: JES		
APPROVED: JES		

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PAVEMENT REMOVAL AND REPLACEMENT IN ACCORDANCE WITH THE SPECIFICATIONS

PAVEMENT REMOVAL WIDTH

NOTES:

1. SEE GPSD GENERAL SPECIFICATIONS SECTION 001 FOR MINIMUM SLOPES FOR PIPES.
2. TRENCH BOX SHALL NOT EXTEND BELOW TOP OF PIPE UNLESS OTHERWISE SPECIFIED.

EXISTING SURFACE

1'-0"

1'-0"

FOR MAXIMUM TRENCH WIDTH AT TOP OF CONDUIT SEE GPSD SPECIFICATION SECTION 035

W

W+8"

SEE SPECIFICATIONS FOR BACKFILL REQUIREMENTS IN GPSD SPECIFICATION SECTION 047

OUTSIDE OF SHEETING OR BOX

4"

4"

INITIAL BACKFILL

12" MIN.

CONCRETE OR GRANULAR CRADLE WHERE REQUESTED BY THE ENGINEER, SEE G.P.S.D. SPEC. SECTION 035

6"

PIPE CRADLE, SEE GPSD SPECIFICATION SECTION 035



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TYPICAL DETAIL
 SANITARY SEWER PIPE INSTALLATION

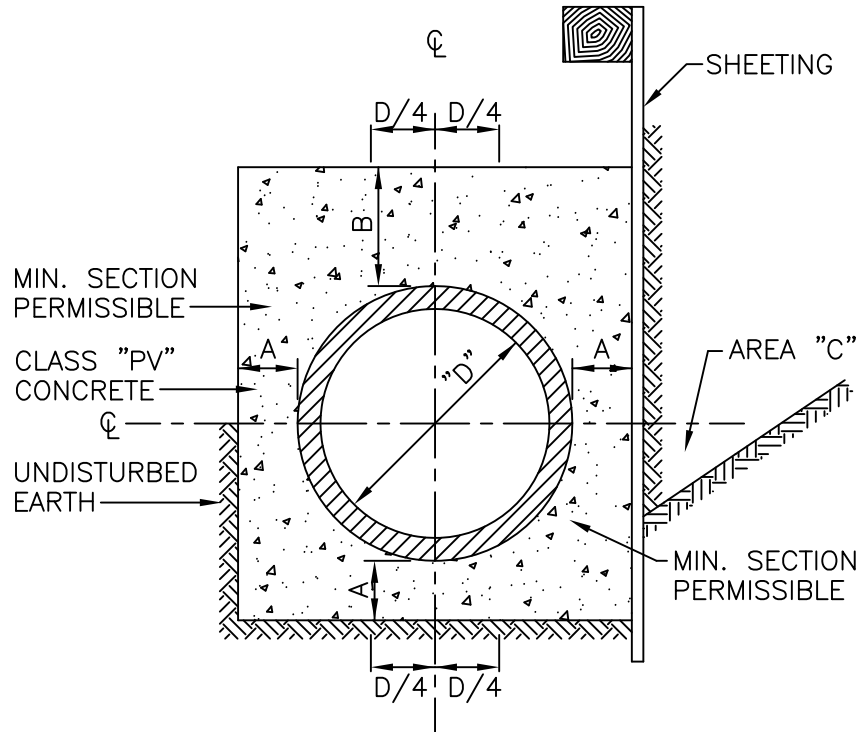
SURVEYED: .	DATE: FEB. 93	VERT. NTS
DESIGNED: .	REV: SEP 2003	HORIZ. NTS
DRAWN: ARA	REV: NOV 2011	PAGE 095-7
CHECKED: JES	REV: DEC 2014	
APPROVED: JES		

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MINIMUM DIMENSIONS		
SEWER DIA.	DIM A.	DIM B.
8	6	12
10	6	12
12	6	12
15	6	12
18	6	12
21	6	12
24	6	12
27 OR 30	6	12

NOTES:

- WHERE AREA DESIGNATED "C" HAS BEEN EXCAVATED IN AN UNSHEETED TRENCH IT ALSO SHALL BE FILLED WITH CONC. THOUGH IN NO CASE NEED IT BE FILLED INTO MORE THAN A 12" DISTANCE FROM THE OUTSIDE FACE OF THE PIPE MEASURED AT THE LEVEL OF THE CENTER OF THE PIPE.
- CONTRACTOR SHALL PROPERLY SECURE THE PIPE TO PREVENT FLOATING.



COMPLETE ENCASEMENT DETAIL

FOR ALL TYPES AND SIZES OF SEWERS WHEN ORDERED OR SPECIFIED

CONCRETE ENCASEMENT

SURVEYED: .	DATE: JUL. '10	VERT. NTS
DESIGNED: .	REV:	HORIZ. NTS
DRAWN: JES		PAGE 095-8
CHECKED: .		
APPROVED: .		



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SEWERS ON 20 PERCENT SLOPE OR GREATER SHALL BE ANCHORED SECURELY WITH CONCRETE ANCHORS OR EQUAL, SPACED AS FOLLOWS:

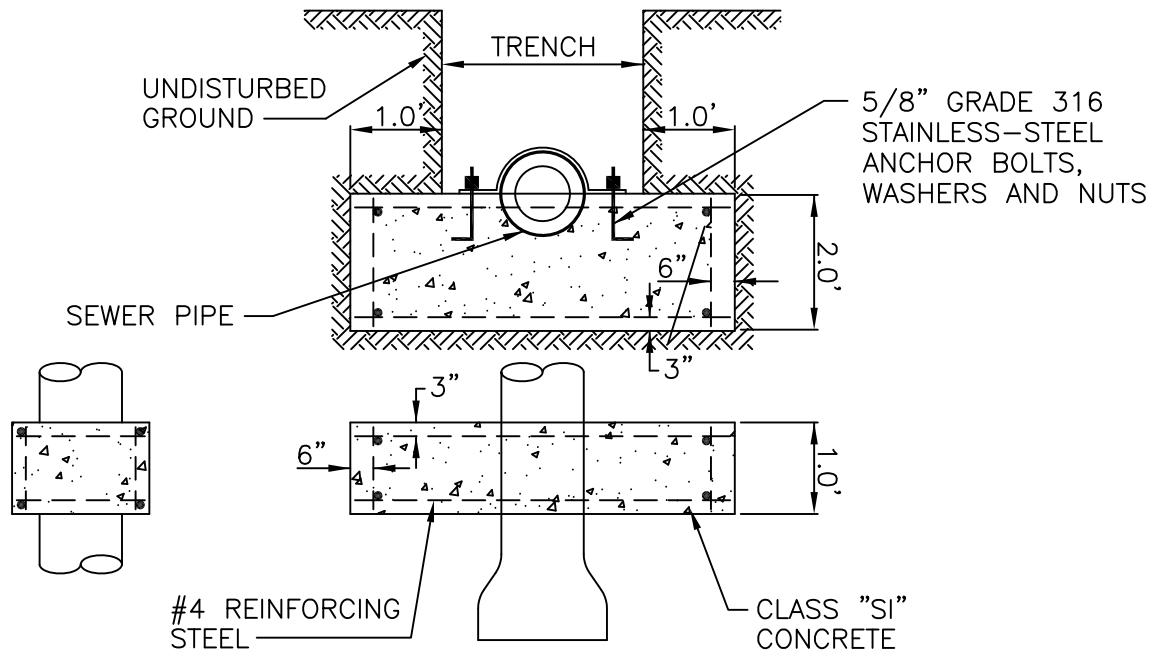
A) NOT OVER 36 FEET, CENTER TO CENTER ON GRADES 20 PERCENT AND UP TO 35 PERCENT.

B) NOT OVER 24 FEET CENTER TO CENTER ON GRADES 35 PERCENT AND UP TO 50 PERCENT.

C) NOT OVER 16 FEET CENTER TO CENTER ON GRADES 50 PERCENT AND OVER.

ALL CLAMPS AND ANCHOR BOLTS SHALL BE COATED WITH COAL TAR EPOXY PAINT.

CLAMPS SHALL BE SIGMA, CARBON STEEL, SOCKET CLAMPS APPROPRIATELY SIZED TO SECURE THE SEWER PIPE.



PRECAST CONCRETE ANCHOR WALL

SURVEYED: .	DATE: OCT. 69	VERT. NTS
DESIGNED: .	REV: SEP 2003	HORIZ. NTS
DRAWN: ARA	REV: FEB. 2011	PAGE 095-9
CHECKED: JES	REV: MAY 2014	
APPROVED: JES		

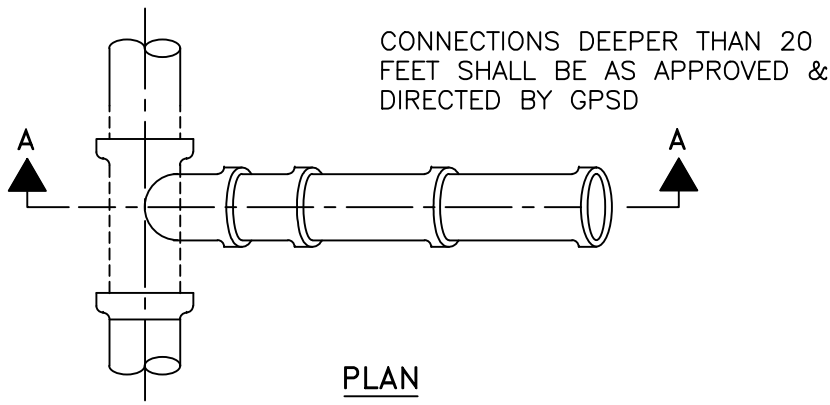


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DETAILS\095-9.DWG 1=1

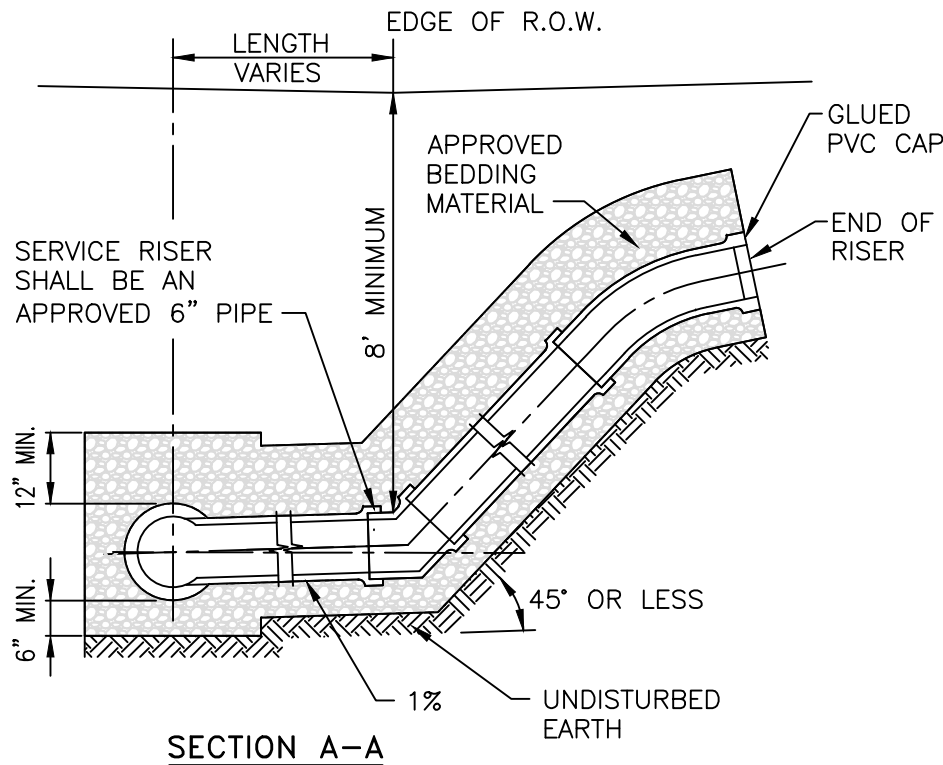
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\\GP4SERVER\Eng2\Manuals\GPSD - Regulations\Revision Redlines\2023\2023 Revised Details\095-10_Service Riser Type A and Type B_20200831.dwg



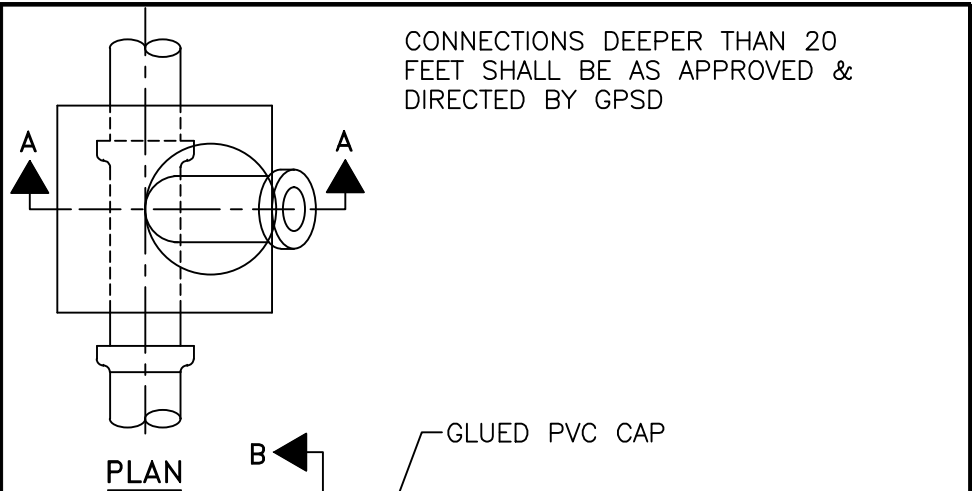
CONNECTIONS DEEPER THAN 20 FEET SHALL BE AS APPROVED & DIRECTED BY GPSD

PLAN



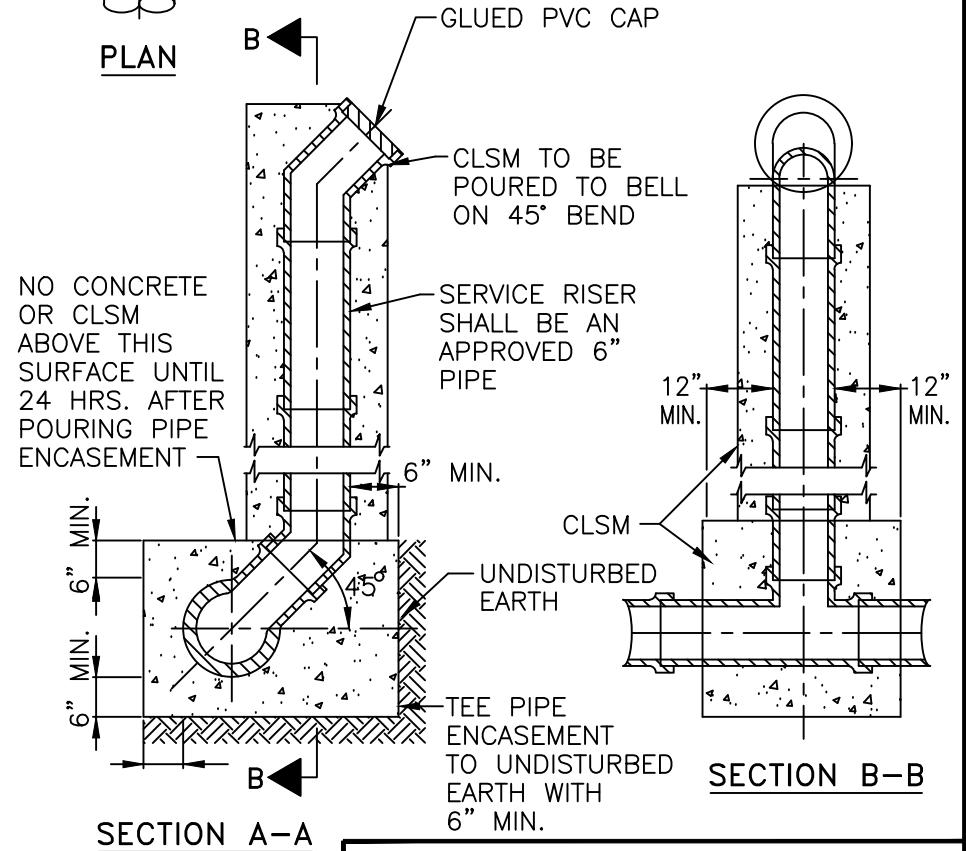
SECTION A-A

SERVICE RISER - TYPE A



CONNECTIONS DEEPER THAN 20 FEET SHALL BE AS APPROVED & DIRECTED BY GPSD

PLAN



SECTION A-A

SECTION B-B

SERVICE RISER - TYPE B

VERT. NTS	DATE: AUG. 68	SURVEYED: .
HORIZ. NTS	REV: FEB 2012	DESIGNED: .
PAGE 095-10	REV: AUG 2020	DRAWN: ARA
	REV: FEB 2023	CHECKED: JLA
		APPROVED: JLA



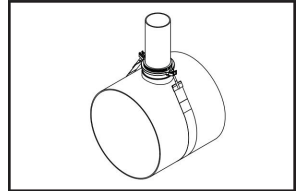
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 Phone 637-3511 Fax 637-6614

SURVEYED: .	DATE: AUG. 68	VERT. NTS
DESIGNED: .	REV: SEP 2003	HORIZ. NTS
DRAWN: CWB	FEB 2012	PAGE 095-10
CHECKED: JLA	AUG 2020	
APPROVED: JLA		

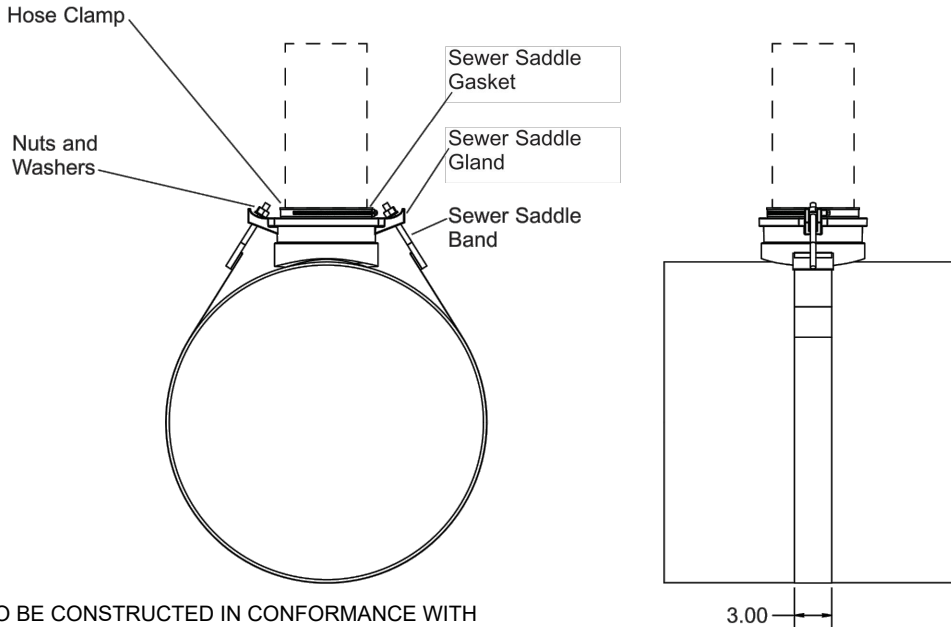
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SUBMITTAL INFORMATION

Sewer Saddles - (FSS-xxxx-x style)



FSS SEWER SADDLE FOR SEWER PIPE



- SADDLES TO BE CONSTRUCTED IN CONFORMANCE WITH SECTION 031 OF THE GPSD STANDARD SPECIFICATIONS.
- SADDLES SHALL BE ENCASED IN NO LESS THAN 12" CLSM.

RANGE	NOMINAL BRANCH SIZE	BRANCH PIPE RANGE	APPROX. WT. LBS.	CATALOG NUMBER	✓ SUBMITTED ITEM(S)
6.27" – 14.40"	4"	4.20" – 4.80"	10.3	FSS-1440-4	
14.40" – 25.80"			11.5	FSS-2580-4	
25.80" – 50.80"			13.1	FSS-5080-4	
8.00" – 14.40"	6"	6.27" – 6.66"	12.1	FSS-1440-6	
14.40" – 25.80"			13.2	FSS-2580-6	
25.80" – 50.80"			15.3	FSS-5080-6	

FEATURES

- Gland made of high strength ductile iron per ASTM A536 with black e-coat epoxy
- Wide bands and 1/2" UNC threaded bolts of 18-8 type 304 stainless steel per ASTM A240
- Gasket is Buna-N (NBR) rubber, ASTM D2000
- Hose clamp is stainless steel with zinc-plated screw
- Nuts and washers are type 304 stainless steel

The Ford Meter Box Company considers the information in this submittal form to be correct at the time of publication. Item and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.



The Ford Meter Box Company, Inc.

P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443

Phone: 260-563-3171 / Fax: 800-826-3487

Overseas Fax: 260-563-0167

www.fordmeterbox.com

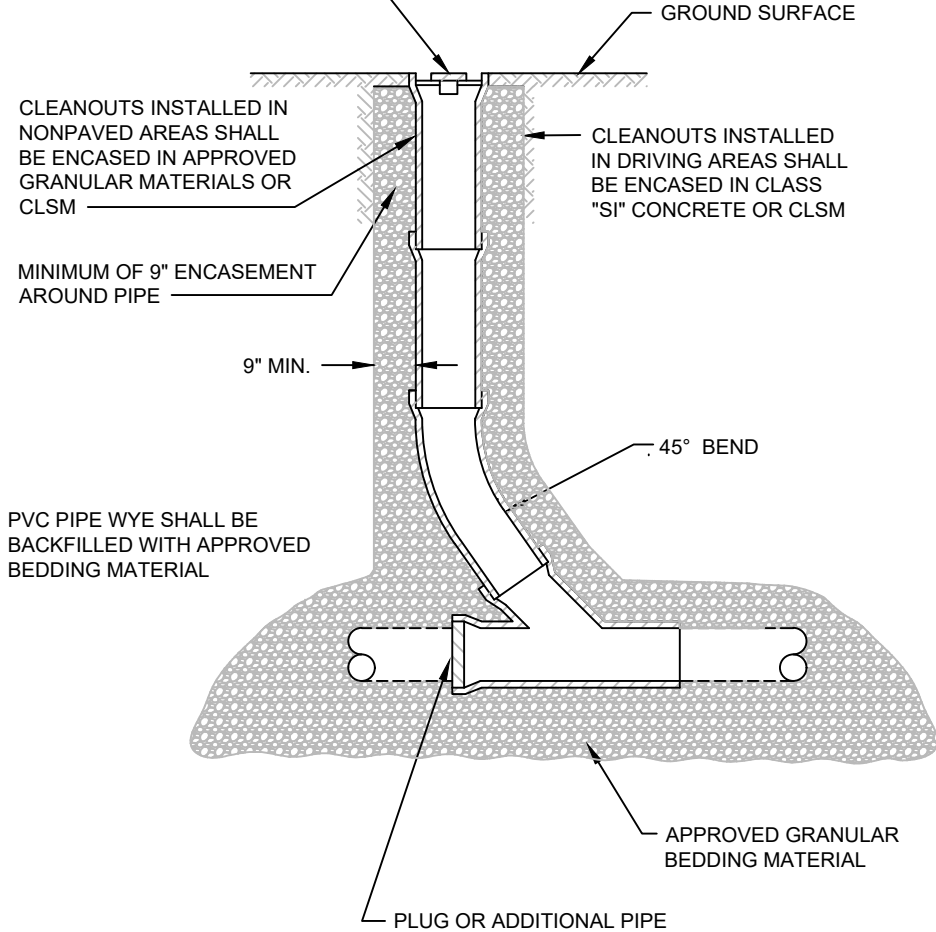
07/09/15

GPSD Detail Drawing 095-11

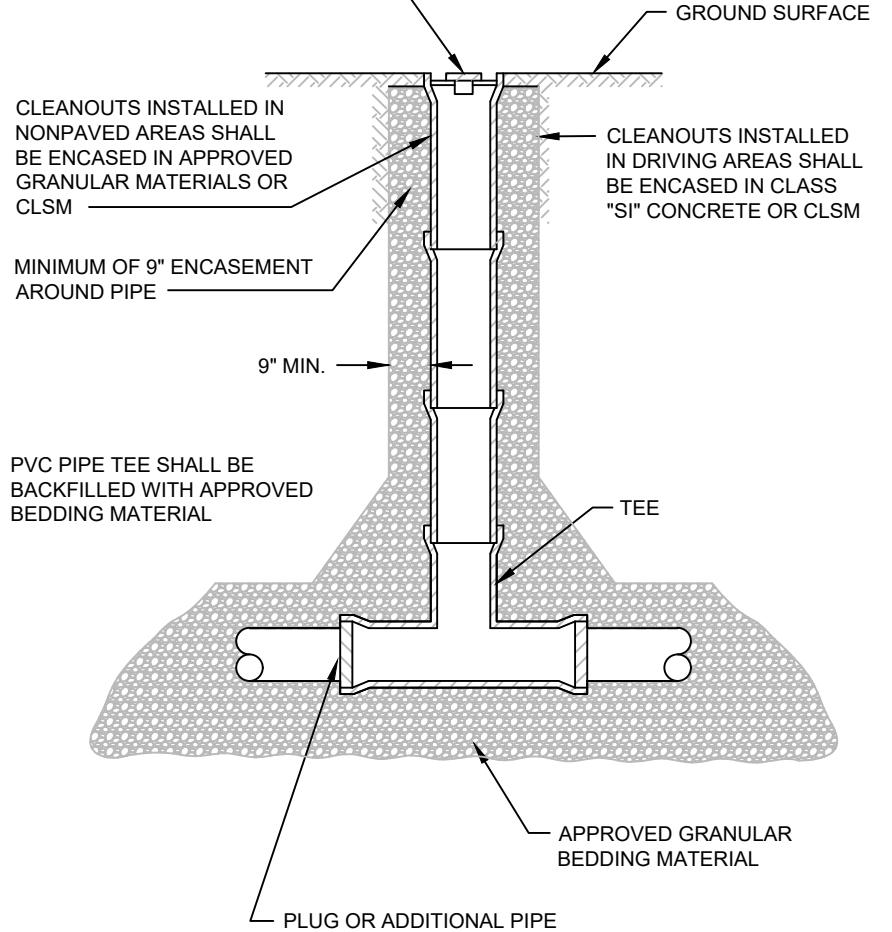
Detail Drawing 095-12 Removed

\\GP4SERVER\Eng2\Manuals\GPSD - Regulations\Revision Redlines\2023\2023 Revised Details\095-13_Building Sewer Cleanout 20220606.dwg

COMMERCIAL AND RESIDENTIAL SERVICE CLEANOUTS SHALL BE CAPPED USING A ZURN, Z1402, HEAVY-DUTY, NON - ADJUSTABLE FLOOR CLEANOUT CAP



COMMERCIAL AND RESIDENTIAL SERVICE CLEANOUTS SHALL BE CAPPED USING A ZURN, Z1402, HEAVY-DUTY, NON - ADJUSTABLE FLOOR CLEANOUT CAP



BUILDING SEWER CLEANOUT: WYE

VERT. NTS	DATE: 09/03	SURVEYED: .
HORIZ. NTS	REV: SEP 2003	DESIGNED: .
	REV: SEP 2012	DRAWN: JES
PAGE 095-13	REV: JUN 2022	CHECKED: .
		APPROVED: .



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BUILDING SEWER CLEANOUT: TEE

SURVEYED: .	DATE: 22/06	VERT. NTS
DESIGNED: .	REV: SEP 2003	HORIZ. NTS
DRAWN: JES	REV: SEP 2012	
CHECKED: .	REV: JUN 2022	PAGE 095-13
APPROVED: .		

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GROUND SURFACE

CAST IRON FRAME & COVER - NEENAH R1976 OR EQUAL WITH BOLTED DOWN LID & STAINLESS STEEL BOLTS.

CASTING SET IN BUTYL RUBBER

BELL OF PIPE SHALL BE REMOVED PRIOR TO SETTING FRAME IN PLACE.

PIPE JOINTS SHALL BE SEALED PER PIPE MANUFACTURER'S SPECIFICATION

BACKFILLING MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH SECTION 047 OF THE GPSD STANDARD SPECIFICATIONS. IN DRIVING AREAS NOT WITHIN PUBLIC RIGHT-OF-WAY, GRANULAR TRENCH BACKFILL MATERIALS SHALL BE USED. WHEN INSTALLING A PRECAST SAMPLING ACCESS STRUCTURE WITHIN PUBLIC RIGHT-OF-WAY, BACKFILL SHALL BE FLOWABLE-TYPE BACKFILL.

WELDED WIRE REINFORCING

LIFTING HOOKS

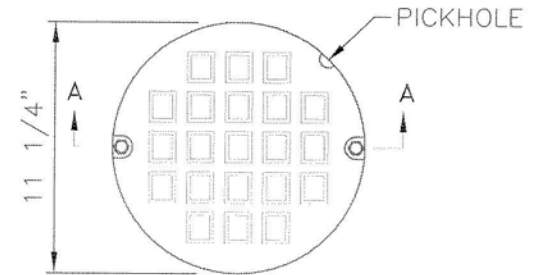
12" CLASS B REINFORCED CONCRETE SEWER PIPE. CONCRETE PIPE CUT TO FIT REQUIRED DEPTH. PIPE CUTS MAY BE MADE AT THE BASE SECTION OR AT THE FRAME.

NOTE: SAMPLING ACCESS STRUCTURE BASE SHALL BE PRECAST UNIT AS MANUFACTURED BY LEMAN PRECAST CONCRETE, INC.

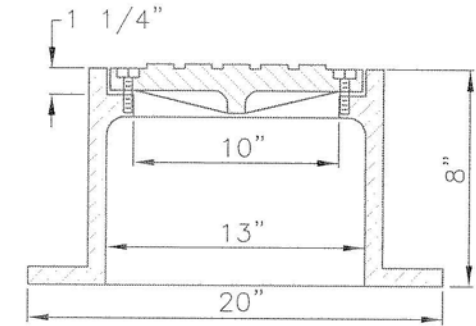
12" POSITIVE SEAL GASKET SYSTEM WITH POWER SLEEVE EXPANSION AND TAKE-UP CLAMP FOR 12" CLASS B REINFORCED CONCRETE SEWER PIPE.

6" POSITIVE SEAL GASKET SYSTEM WITH POWER SLEEVE EXPANSION AND TAKE-UP CLAMP FOR 6" SDR26, PVC SEWER PIPE.

FLEXIBLE PIPE CONNECTORS AND ADAPTORS SHALL BE USED FOR ALL TRANSITIONS TO OTHER PIPE MATERIALS.



COVER PLAN



SECTION A-A

PRECAST SAMPLING ACCESS STRUCTURE

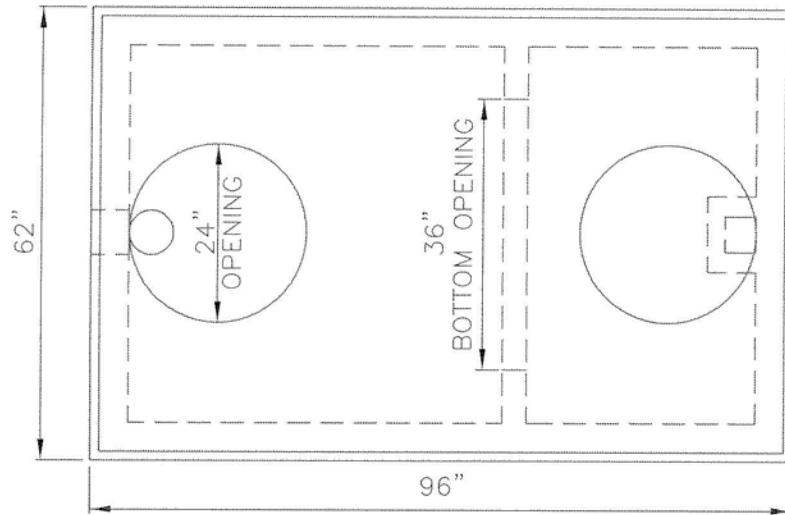


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SURVEYED: .	DATE: NOV. 90	VERT. NTS
DESIGNED: .	REV: SEP 2003	HORIZ. NTS
DRAWN: CWB		
CHECKED: .		
APPROVED: .		PAGE 095-14

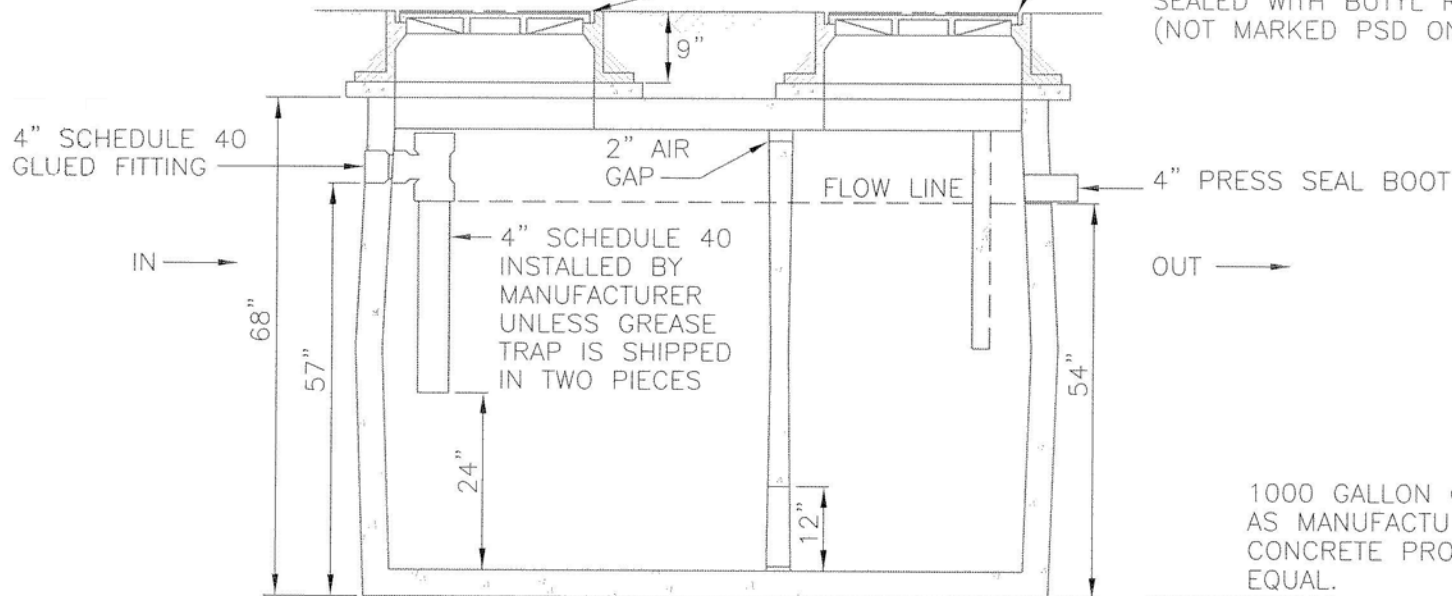
DETAILS\095-14.DWG 1=1

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TOP VIEW

NEENAH R1530 TYPE "B" FRAME AND LID, OR APPROVED EQUAL, ADJUSTED TO GRADE WITH PRECAST CONCRETE MANHOLE ADJUSTING RINGS SEALED WITH BUTYL RUBBER. (NOT MARKED PSD ON LID)



SIDE VIEW

1000 GALLON GREASE TRAP AS MANUFACTURED BY DARNELL CONCRETE PRODUCTS OR APPROVED EQUAL.

NOTE: IF UNIT IS TO BE INSTALLED IN A DRIVING SURFACE, NOTIFY THE MANUFACTURER AND HE WILL REINFORCE ACCORDINGLY.



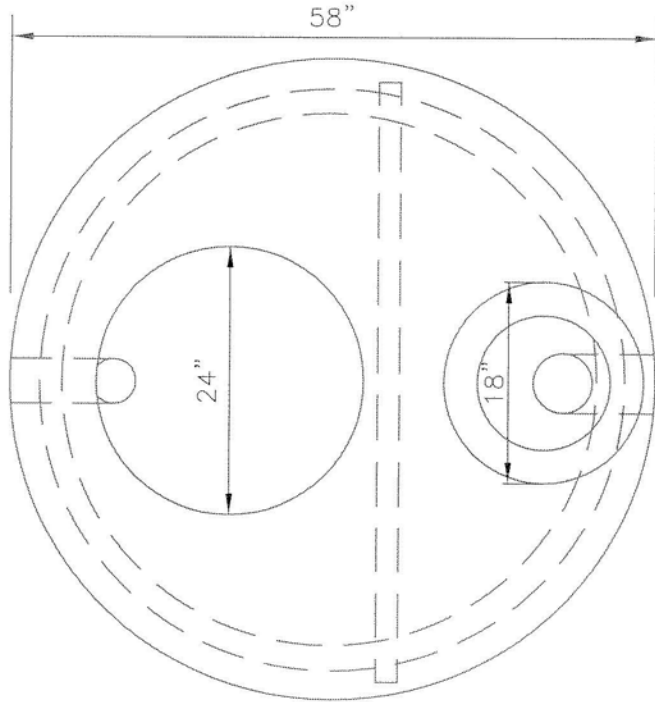
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2322 South Darst Street
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TYPICAL DETAIL
1000 GALLON GREASE TRAP

SURVEYED: .	DATE: MAY 94	VERT. NTS
DESIGNED: .	REV: SEP 2003	HORIZ. NTS
DRAWN: CWB		
CHECKED: .		
APPROVED: .		PAGE 095-15

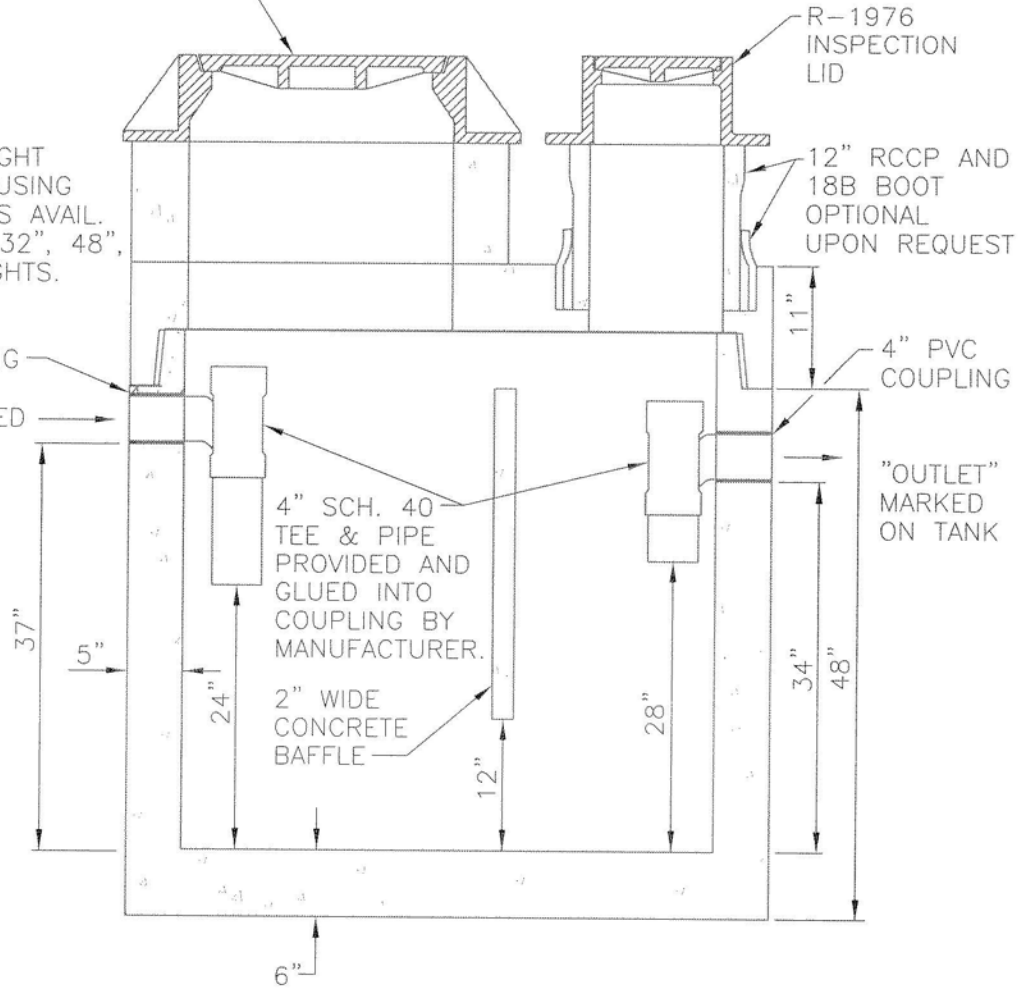
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NEENAH R-1500 / R-1100
 (8") FRAME AND LID, OR APPROVED
 EQUAL, ADJUSTED TO GRADE
 WITH PRECAST RISER
 RINGS SEALED WITH
 BUTYL RUBBER.
 (NOT MARKED PSD ON LID)



OPTIONAL HEIGHT
 ADJUSTMENT USING
 48" I.D. RINGS AVAIL.
 IN 12", 16", 32", 48",
 AND 64" HEIGHTS.

4" PVC
 COUPLING
 "INLET" MARKED
 ON TANK



TYPICAL DETAIL
 250 GALLON GREASE TRAP

SURVEYED: .	DATE: MAR. 99	VERT. NTS
DESIGNED: .	REV: SEP 2003	HORIZ. NTS
DRAWN: CWB		PAGE 095-16
CHECKED: .		
APPROVED: .		



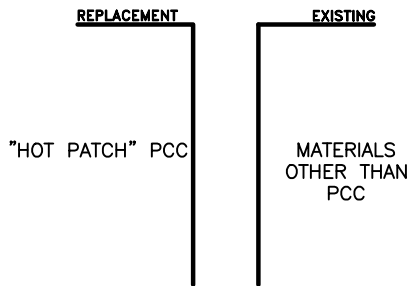
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 Phone 637-3511 Fax 637-6614

AS MANUFACTURED BY
 DARNELL CONCRETE PRODUCTS COMPANY

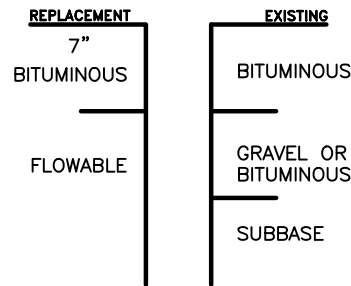
DETAILS\095-16.DWG 1=1

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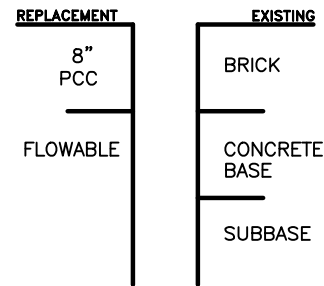
**MANHOLE CASTING AND LID REMOVAL
AND REPLACEMENT PAVEMENT RESTORATION;
NON-PCC PAVEMENT**



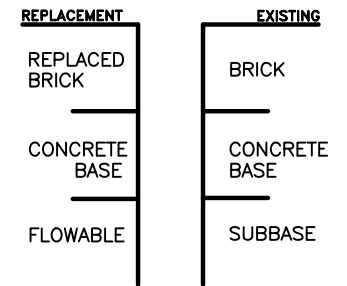
BITUMINOUS OVER FLEX BASE



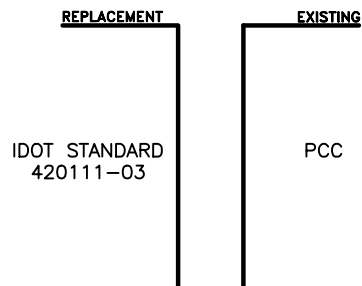
BRICK TO CONCRETE



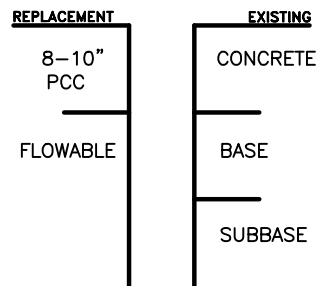
BRICK, SPECIAL



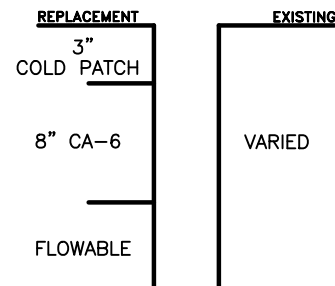
**MANHOLE CASTING AND LID REMOVAL
AND REPLACEMENT PAVEMENT RESTORATION;
PCC PAVEMENT**



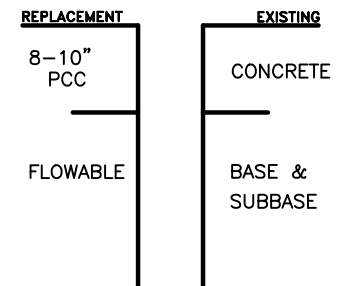
CONCRETE SURFACE



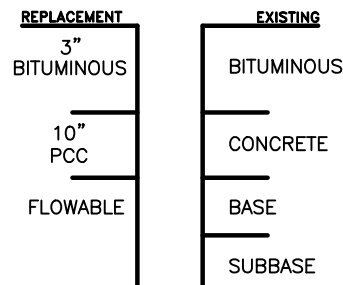
**BITUMINOUS ALLEY WITH
SAWCUT LESS THAN 50'**



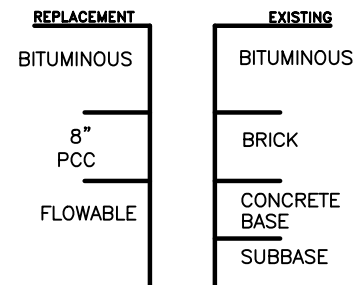
CONCRETE ALLEY



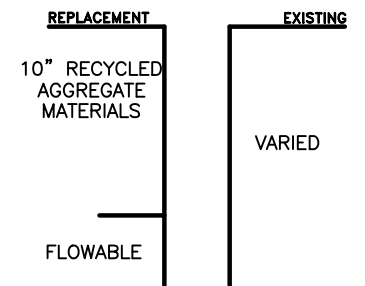
BITUMINOUS OVER RIGID BASE-1



BITUMINOUS OVER RIGID BASE-2



**BITUMINOUS ALLEY WITH SAWCUT
GREATER THAN OR EQUAL TO 50'**



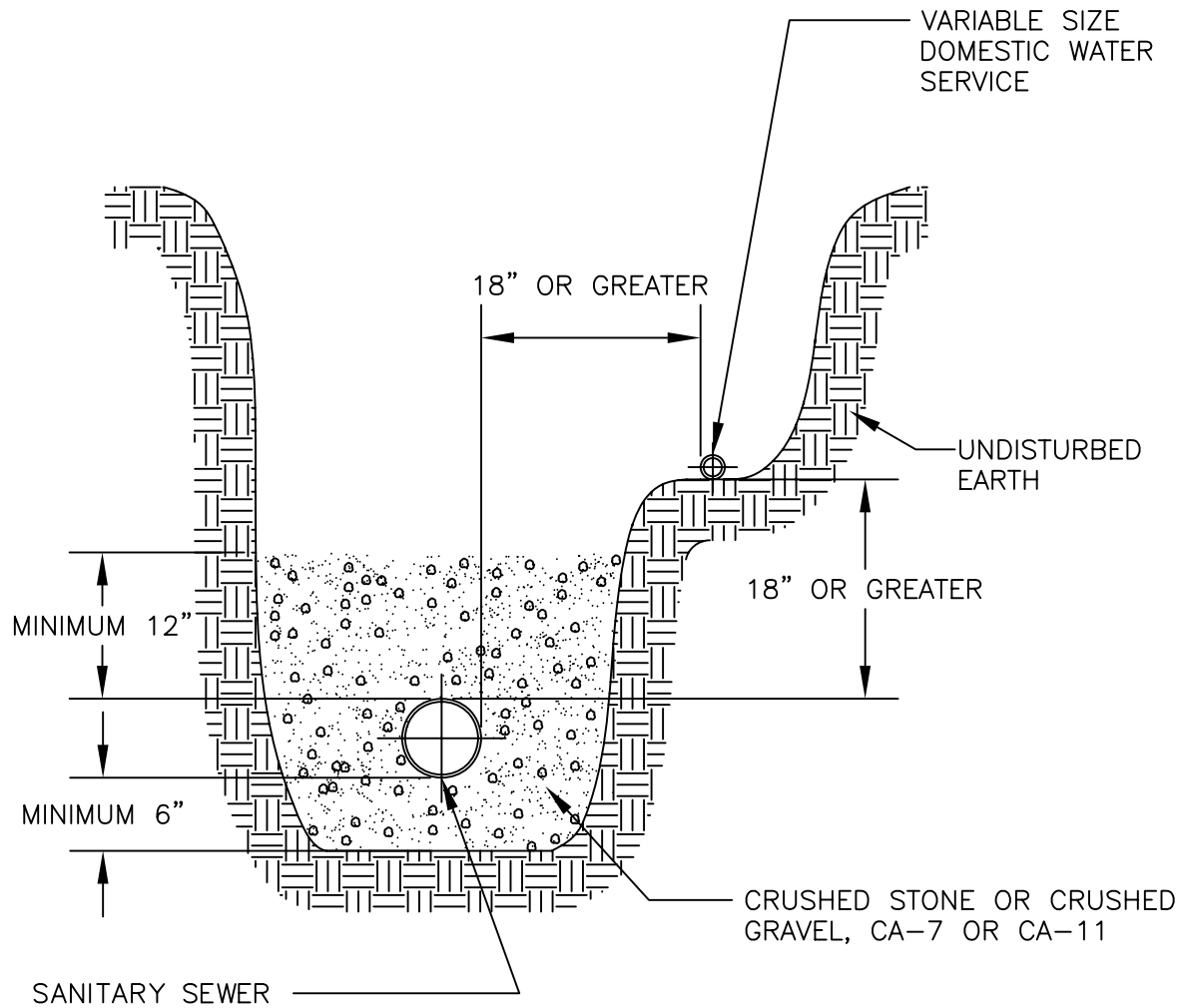
COP PAVEMENT



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SURVEYED: .	DATE: 09/2003	VERT. NTS
DRAWN: JES	REV 1:10/2007	HORIZ. NTS
CHECKED: JWB	REV 2:04/2010	
APPROVED: JES	REV 3:04/2013	PAGE 095-17
	REV 4:08/2017	

Detail Drawing 095-18 Removed



GENERAL NOTES

1. REQUIRED WHEN A 10' MINIMUM HORIZONTAL SEPARATION IS NOT POSSIBLE BETWEEN WATER AND SEWER SERVICES
2. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS", LATEST EDITION.

**SANITARY SEWER SERVICE & POTABLE
WATER SERVICE SEPARATION**



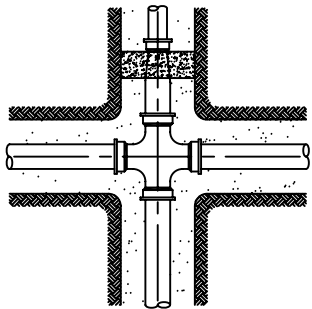
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SURVEYED: .
 DESIGNED: .
 DRAWN: CWB
 CHECKED: .
 APPROVED: .

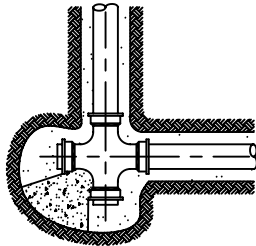
DATE: 7/2004
 REV: .

VERT. NTS
 HORIZ. NTS
 PAGE 095-19

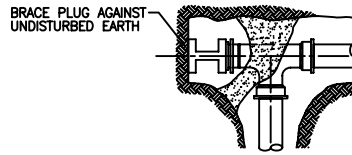
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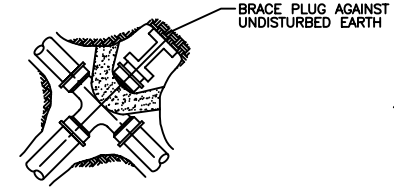
LINE SIZE CHANGE, REDUCER
NOT TO SCALE



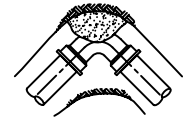
**DIRECTION CHANGE, CROSS
USED AS ELBOW**
NOT TO SCALE



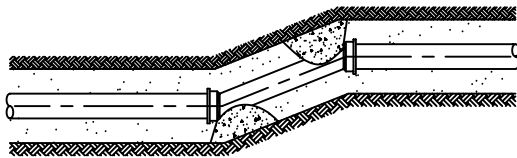
PLUGGED TEE
NOT TO SCALE



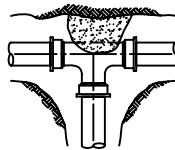
PLUGGED CROSS
NOT TO SCALE



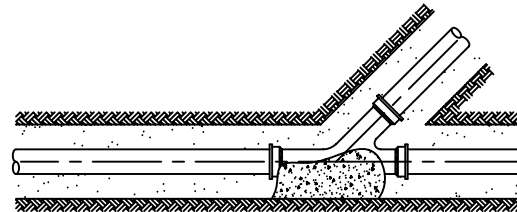
90° ELBOW
NOT TO SCALE



DIRECTION CHANGE
NOT TO SCALE



TEE
NOT TO SCALE

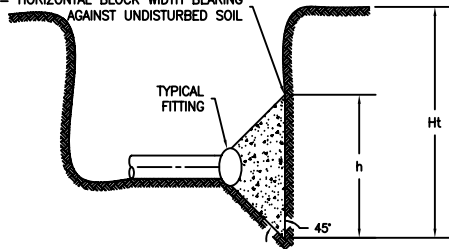


THRU LINE CONNECTION, WYE
NOT TO SCALE



**CAPPED OR PLUGGED
DEAD END LINE**
NOT TO SCALE

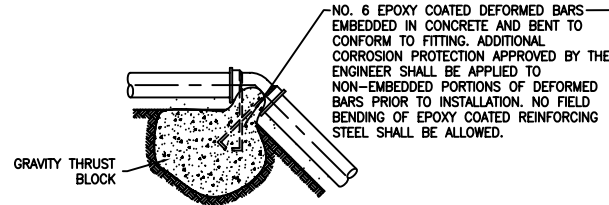
"b" = HORIZONTAL BLOCK WIDTH BEARING AGAINST UNDISTURBED SOIL



**TYPICAL BEARING THRUST
BLOCK SIDE VIEW**
NOT TO SCALE

BLOCK HEIGHT, "h", SHOULD BE EQUAL TO OR LESS THAN ONE-HALF THE TOTAL DEPTH TO THE BOTTOM OF THE BLOCK, "H", BUT NOT LESS THAN THE PIPE OUTSIDE DIAMETER.

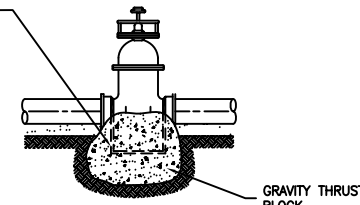
BLOCK HEIGHT, "h", SHOULD BE CHOSEN SUCH THAT THE CALCULATED BLOCK WIDTH, "b", VARIES BETWEEN ONE AND TWO TIMES THE HEIGHT.



**DIRECTION CHANGE, VERTICAL
BEND ANCHOR**
NOT TO SCALE

AT VERTICAL BENDS, ANCHOR TO RESIST OUTWARD THRUSTS.

NO. 6 EPOXY COATED DEFORMED BARS EMBEDDED IN CONCRETE AND BENT TO CONFORM TO FITTING. ADDITIONAL CORROSION PROTECTION APPROVED BY THE ENGINEER SHALL BE APPLIED TO NON-EMBEDDED PORTIONS OF DEFORMED BARS PRIOR TO INSTALLATION. NO FIELD BENDING OF EPOXY COATED REINFORCING STEEL SHALL BE ALLOWED.



VALVE ANCHOR
NOT TO SCALE

ANCHOR VALVES AS SHOWN ABOVE ONLY IF THRUSTS DUE TO HIGH PRESSURE ARE EXPECTED. SUCH ANCHORING, WHEN REQUIRED, WILL HAVE LOCATIONS SHOWN ON THE PROJECT DRAWINGS OR WILL BE FIELD ORDERED BY THE ENGINEER OR OWNER.

**THRUST BLOCKING AND
JOINT RESTRAINT
(1 OF 2)**

SURVEYED: .
DESIGNED: .
DRAWN: CWB
CHECKED: .
APPROVED: .

DATE: 1/2006

REV: .

VERT. NTS

HORIZ. NTS

PAGE 095-20



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**RESULTANT THRUST AT FITTINGS
AT 100 PSI WATER PRESSURE**

(*TOTAL POUNDS)

NOM. PIPE DIA.(IN.)	VALVES, TEES AND DEAD ENDS	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
3	1,232	1,742	943	481	241
4	1,810	2,559	1,385	706	355
6	3,739	5,288	2,862	1,459	733
8	6,433	9,097	4,923	2,510	1,261
10	9,677	13,685	7,406	3,776	1,897
12	13,685	19,353	10,474	5,340	2,683
14	18,385	26,001	14,072	7,174	3,604
16	23,779	33,628	18,199	9,278	4,661
18	29,865	42,235	22,858	11,653	5,855
20	36,644	51,822	28,046	14,298	7,183
24	52,279	73,934	40,013	20,398	10,249
30	80,425	113,738	61,554	31,380	15,766
36	115,209	162,931	88,177	44,952	22,585
42	155,528	219,950	119,036	60,684	30,489
48	202,683	286,637	155,127	79,083	39,733
54	260,214	367,999	199,160	101,531	51,011
60	298,121	421,606	228,172	116,321	58,442
64	338,707	479,004	259,235	132,157	66,398

NOTE: TO DETERMINE THRUST AT PRESSURES OTHER THAN 100 PSI, MULTIPLY THE THRUST OBTAINED IN THE TABLE BY THE RATIO OF THE PRESSURE TO 100.

FOR EXAMPLE, THE THRUST ON A 12-INCH, 90° BEND AT 125 PSI IS
 $19,353 \times \frac{125}{100} = 24,191$ POUNDS.

*THE ABOVE DATA IS ADOPTED FROM THE "INSTALLATION GUIDE FOR DUCTILE IRON PIPE" PUBLISHED BY DIPRA, 1994.

TYPICAL SOIL BEARING CAPACITIES **

SOIL TYPE TYPICAL BEARING STRENGTH
(lbs/ft²)

MUCK	0
SOFT CLAY	1,000
SILT	1,500
SANDY SILT	3,000
SAND	4,000
SANDY CLAY	6,000
HARD CLAY	9,000

* THE ABOVE DATA IS ADOPTED FROM THE "INSTALLATION GUIDE FOR DUCTILE IRON PIPE" PUBLISHED BY DIPRA, 1994.

** SEE NOTE NO. 5 THIS SHEET FOR THRUST BLOCK BEARING AREA CALCULATION REQUIREMENTS.

THRUST BLOCK SIZING FORMULAS

FOR BEARING THRUST BLOCKS:

$$\text{SOIL BEARING AREA (FT}^2\text{)} = \frac{\text{THRUST FORCE (LBS)}}{\text{BEARING CAPACITY (LBS/FT}^2\text{)}}$$

FOR GRAVITY THRUST BLOCKS:

$$\text{GRAVITY BLOCK SIZE (FT}^3\text{)} = \frac{\text{THRUST FORCE (LBS)}}{\text{DENSITY OF BLOCK MATERIAL (LBS/FT}^3\text{)}}$$

* THE ABOVE DATA IS ADOPTED FROM THE "INSTALLATION GUIDE FOR DUCTILE IRON PIPE" PUBLISHED BY DIPRA, 1994.

NOTES:

- ALL FITTINGS SHOWN IN PLAN VIEW EXCEPT FOR VERTICAL BEND, VALVE ANCHOR AND TYPICAL BLOCKING SIDE VIEW.
- ALL THRUST BLOCKS SHALL BE CONSTRUCTED OF CAST IN PLACE CONCRETE AND SHALL BEAR AGAINST UNDISTURBED EARTH. WHERE THIS IS NOT POSSIBLE, FILL MATERIAL BETWEEN THE BEARING SURFACE AND UNDISTURBED SOIL MUST BE COMPACTED TO AT LEAST 90% STANDARD PROCTOR DENSITY.
- ALL THRUST BLOCKS SHALL BE 3000 PSI MINIMUM CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS; MINIMUM Poured CONCRETE THRUST BLOCK CURING TIME SHALL BE 5 DAYS.
- COVER ALL FITTINGS WITH PLASTIC SHEETING (5 MIL MIN. THICKNESS) PRIOR TO POURING CONCRETE. CARE SHALL BE TAKEN TO ASSURE THAT THE JOINT, INCLUDING BOLTS, WILL BE ACCESSIBLE IN THE FUTURE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RETAINING AN INDEPENDENT GEOTECHNICAL ENGINEERING SUBCONSULTANT FOR DETERMINING ACTUAL BEARING VALUES FOR IN-SITU SOILS ENCOUNTERED ON THE PROJECT, AND FOR CALCULATING THE REQUIRED THRUST BLOCK AREA OR VOLUME FOR RESISTING THRUST FORCES FOR EACH SPECIFIC BLOCKING SITUATION. SHOP DRAWINGS (CALCULATION DATA AND SKETCHES) WILL BE REQUIRED FOR EACH THRUST BLOCK LOCATION ON THE SEWAGE FORCE MAIN AND INTERCONNECTION PIPING ONLY. SERVICE MAINS SHALL NOT BE CONSIDERED AS UNDER THIS REQUIREMENT.
- NON-CONCRETE BLOCKING WILL NOT BE ALLOWED.
- CONCRETE THRUST BLOCKS SHALL BE INSTALLED IN ADDITION TO ANY OTHER REQUIRED JOINT RESTRAINTS THAT MAY BE CALLED FOR IN PROJECT SPECIFICATIONS AND/OR DRAWINGS.

**THRUST BLOCKING AND
JOINT RESTRAINT
(2 OF 2)**



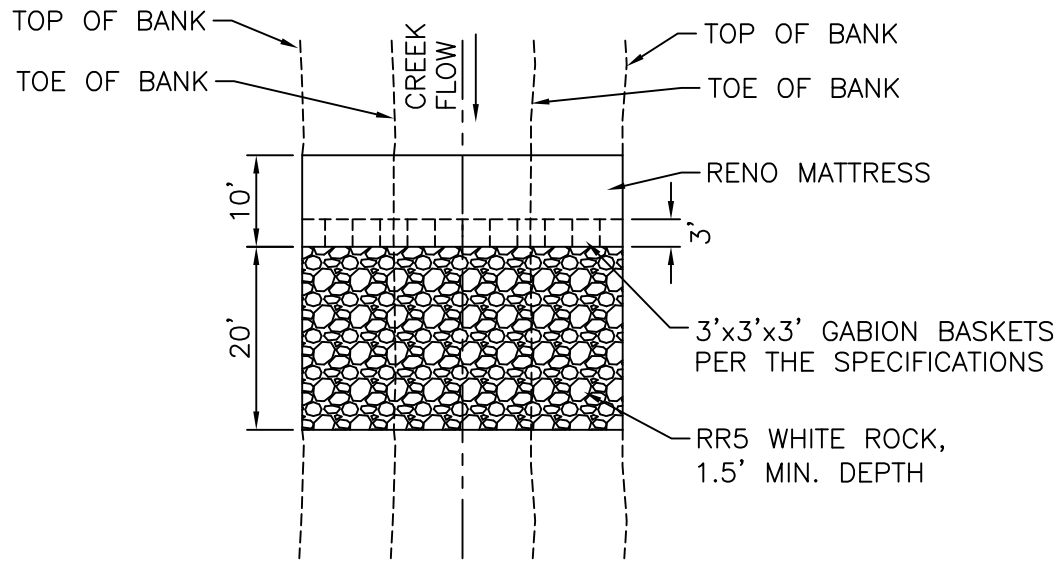
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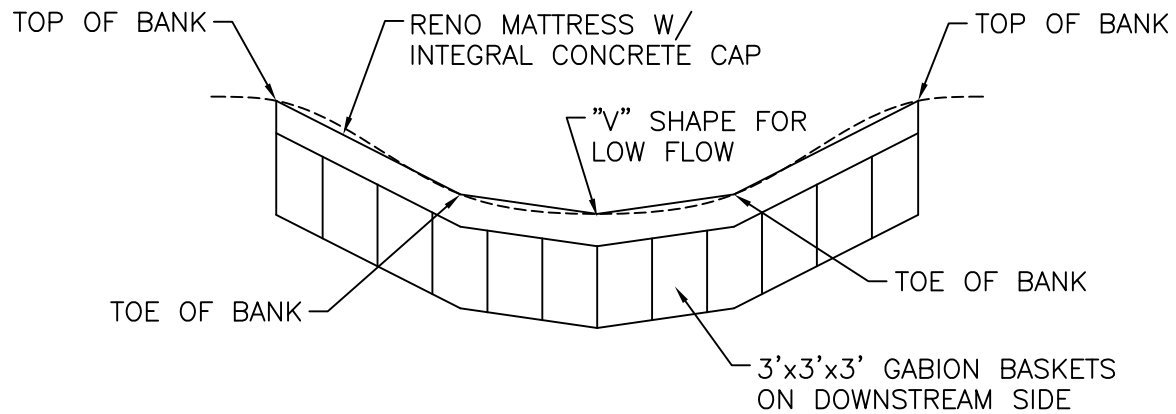
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PLAN



PROFILE

DRIVEABLE CREEK CROSSING



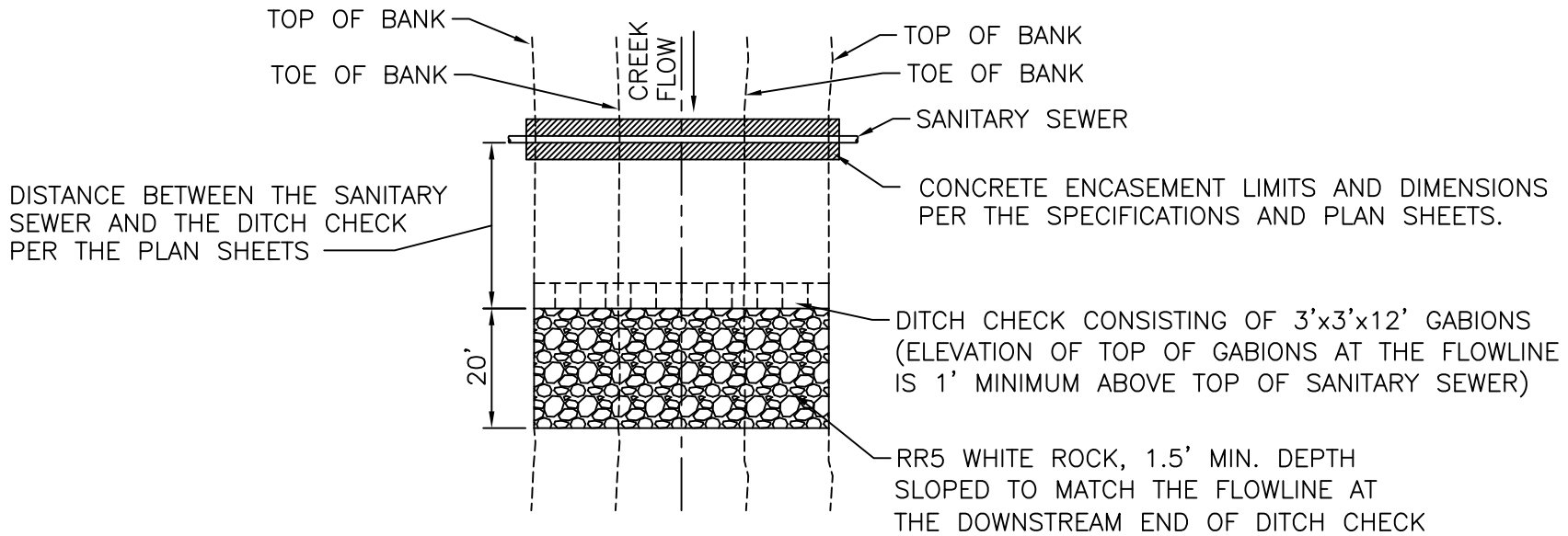
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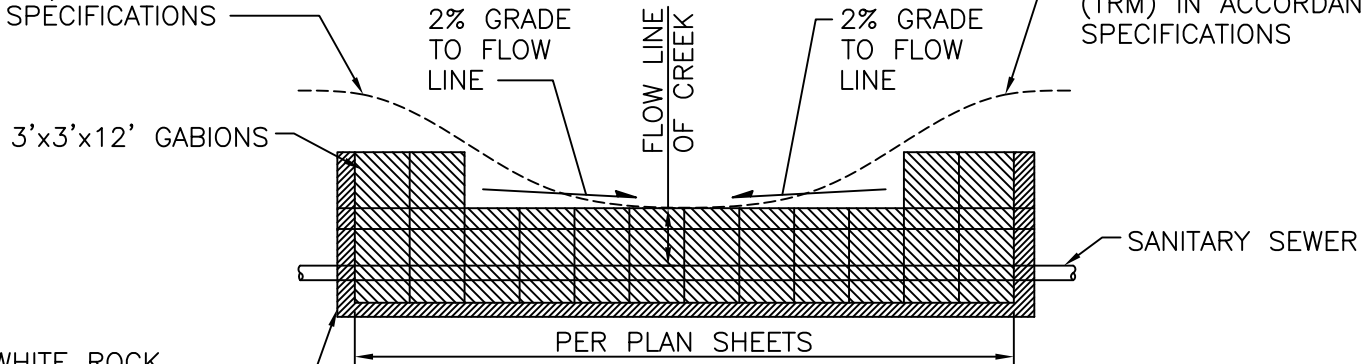
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PLAN

TOP OF BANK PROTECTED USING TURF REINFORCEMENT MATTING (TRM) IN ACCORDANCE WITH THE SPECIFICATIONS

TOP OF BANK PROTECTED USING TURF REINFORCEMENT MATTING (TRM) IN ACCORDANCE WITH THE SPECIFICATIONS



12" OF 1" WHITE ROCK PLACED ON FILTER FABRIC AND MECHANICALLY COMPACTED TO THE STANDARDS SET FORTH FOR "BACKFILLING FOR STRUCTURES" AS DETAILED IN THE SPECIFICATIONS.

PROFILE

GABION DITCH CHECK



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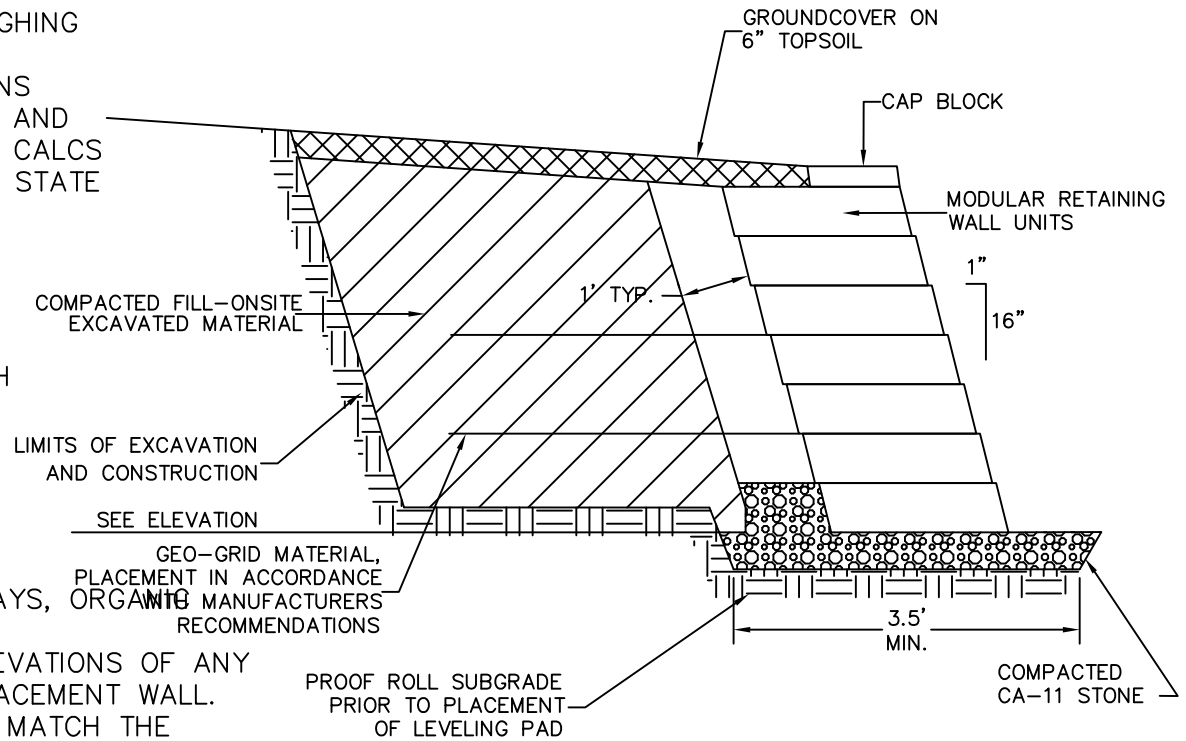
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GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE TO SUPPORT THE FACE OF THE EXCAVATION TO PREVENT SLOUGHING AND DAMAGE TO PROPERTY.
2. CONTRACTOR SHALL PREPARE DESIGN CALCULATIONS FOR THE RETAINING WALL SHOWING THE LOADINGS AND WALL DETAILS FOR EACH WALL SEGMENT. DESIGN CALCULATIONS SHALL BE PREPARED AND SEALED BY A LICENSED STATE OF ILLINOIS STRUCTURAL ENGINEER.
3. CONTRACTOR SHALL ASSUME AN ALLOWABLE SOIL BEARING PRESSURE OF 2500 PSF IN DESIGN OF RETAINING WALL.
4. THE MODULAR UNITS AND THE AREA WITHIN 1'-0" OF THE BACK OF THE WALL SHALL BE FILLED WITH COMPACTED CRUSHED ROCK, GRADATION CA-11, COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.
5. CONSTRUCTION OF A NEW WALL SHALL BE IN ACCORDANCE WITH RETAINING WALL SYSTEM MANUFACTURER.
6. DO NOT BACKFILL WALL WITH HEAVY SILTS OR CLAYS, ORGANIC MATERIAL OR TOPSOIL.
7. CONTRACTOR SHALL MATCH THE TOP OF WALL ELEVATIONS OF ANY EXISTING WALL DURING CONSTRUCTION OF A REPLACEMENT WALL. BASE OF WALL ELEVATIONS SHALL BE SLOPED TO MATCH THE EXISTING GRADE.
8. THE COLOR OF RETAINING WALL BLOCKS SHALL BE EITHER APPROXIMATELY THAT OF A WALL BEING REPLACED OR AS SPECIFIED BY THE OWNER.
9. THE LENGTH OF THE CONSTRUCTED RETAINING WALL SHALL BE AS SPECIFIED BY THE ENGINEER OR MATCH THAT OF AN EXISTING.
10. COMPACTED FILL (ON SITE EXCAVATED MATERIALS), EXCEPT TOPSOIL, SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.



TYPICAL SECTION

MODULAR CONC. UNIT RETAINING WALL



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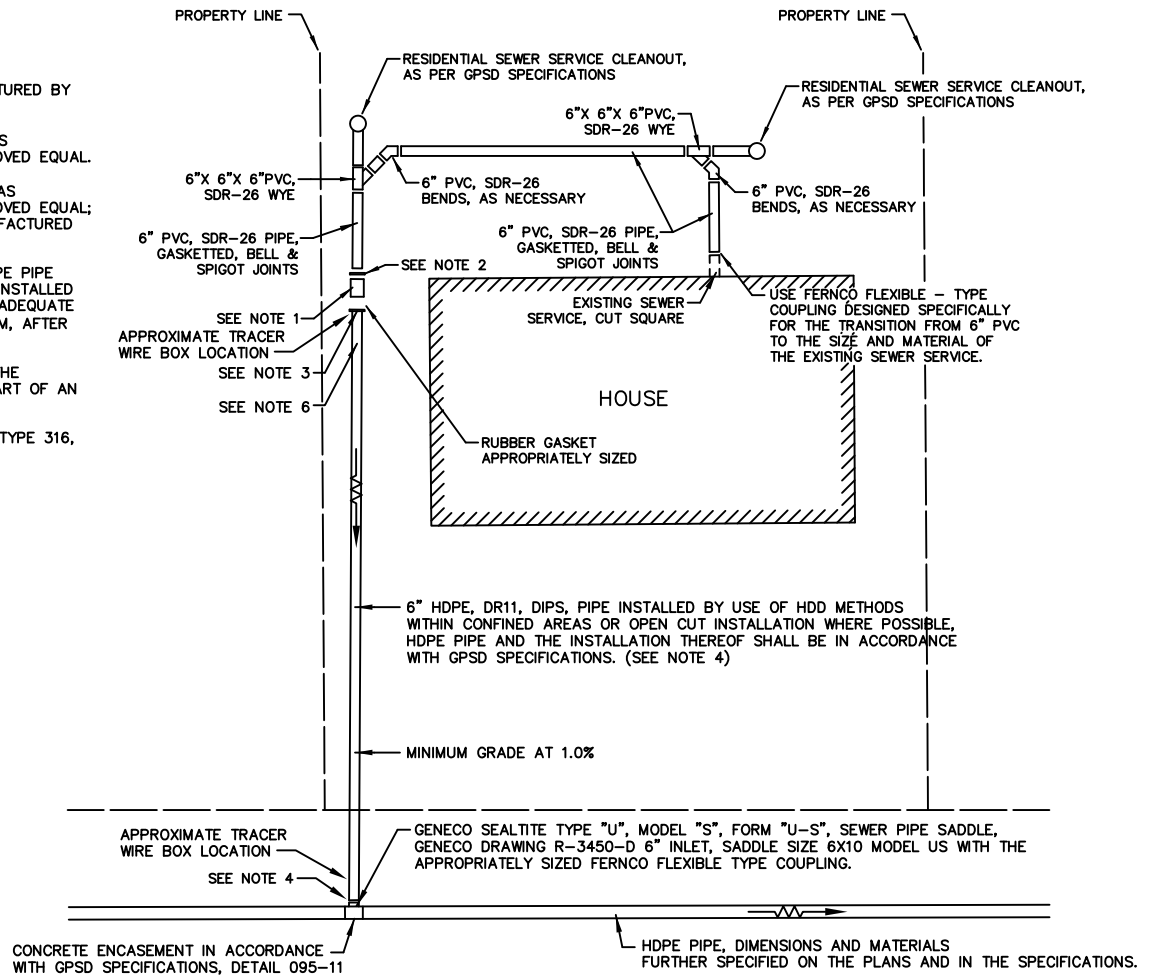
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GENERAL NOTES FOR DETAIL

- NOTE 1: 6" DIP SOLID SLEEVE WITH MECHANICAL JOINTS, SSB-DI, CL 350, AS MANUFACTURED BY TYLER PIPE CO., OR A PRE-BID OPENING APPROVED EQUAL.
- NOTE 2: 6" SERIES 1500-S, "CIRCLE-LOCK" UNI-FLANGE, SDR-26, FOR IPS PVC PIPE AS MANUFACTURED BY FORD METER BOX CO., INC. OR A PRE-BID OPENING, APPROVED EQUAL.
- NOTE 3: 6" SERIES 1500-C, "CIRCLE-LOCK" UNI-FLANGE FOR CI SIZE PVC PIPE, DR18, AS MANUFACTURED BY FORD METER BOX CO., INC., OR A PRE-BID OPENING APPROVED EQUAL; INSERT A HDPE STIFFNER INSERT, STYLE CPS, APPROPRIATELY SIZED, AS MANUFACTURED BY CASCADE WATERWORKS MFG.
- NOTE 4: ALL FITTINGS, FLANGES, SADDLES, SLEEVES, ETC. SHALL BE CONNECTED TO HDPE PIPE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING METHODS ONLY AFTER EACH INSTALLED SECTION OF HDPE PIPE HAS BEEN ALLOWED ADEQUATE TIME FOR RELAXATION. ADEQUATE TIME FOR RELAXATION IS TO BE DEFINED AS FORTY-EIGHT (48) HOURS, MINIMUM, AFTER THE CESSATION OF PIPE INSTALLATION.
- NOTE 5: EACH RESPECTIVE SEWER SERVICE RECONNECTION SHALL BE CONFINED WITHIN THE PROPERTY BOUNDARIES OF EACH INDIVIDUAL PROPERTY BEING SERVICED. NO PART OF AN INDIVIDUAL SEWER SERVICE SHALL ENCROACH UPON OTHER PROPERTIES.
- NOTE 6: PRIOR TO THE INSTALLATION OF THE UNI-FLANGE, INSTALL A FIXED DIAMETER, TYPE 316, STAINLESS-STEEL, HDPE PIPE STIFFENER DIMENSIONED SPECIFICALLY FOR THE CONSTRUCTED HDPE PIPE.



SEWER SERVICE RECONSTRUCTION USING HDD METHODS AND HDPE PIPE AND CONNECTING TO HDPE PIPE

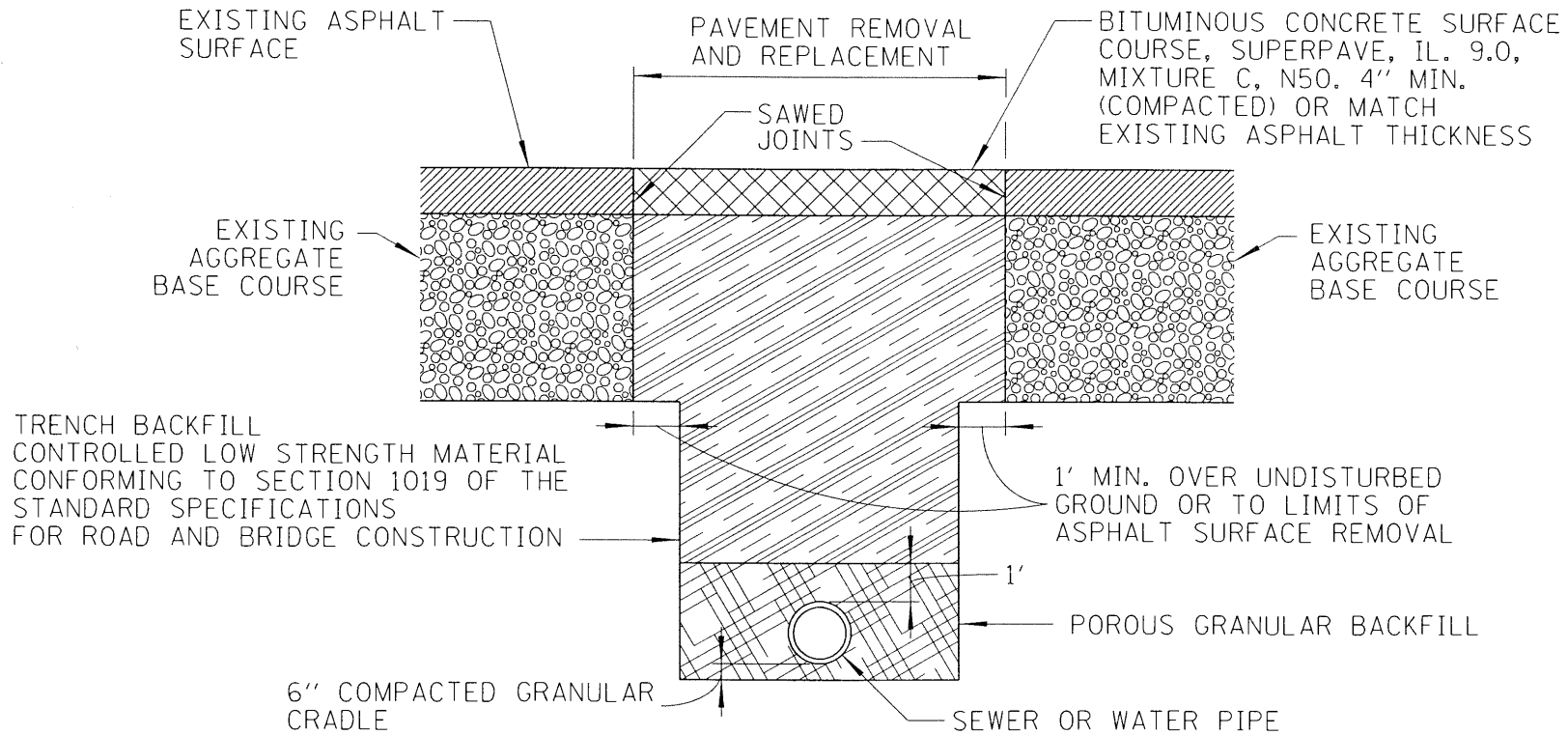
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TYPICAL STREET REPAIR FOR UNDERGROUND UTILITY INSTALLATION BITUMINOUS PAVEMENTS



GENERAL NOTE:

ALL EXCAVATION, REPLACEMENT AND CLEAN-UP WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" AND THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITIONS.

NOTES:

IF BITUMINOUS CONCRETE MATERIAL IS NOT AVAILABLE DUE TO SEASONAL CLOSING OF ASPHALT PLANTS, A TEMPORARY SURFACE CONSISTING OF A MINIMUM 4" OF BITUMINOUS COLD PATCH MIXTURE SHALL BE APPLIED UNTIL THE "HOT MIX" BITUMINOUS MATERIAL IS AVAILABLE.

Village of Bartonville

Construction Standard

Date

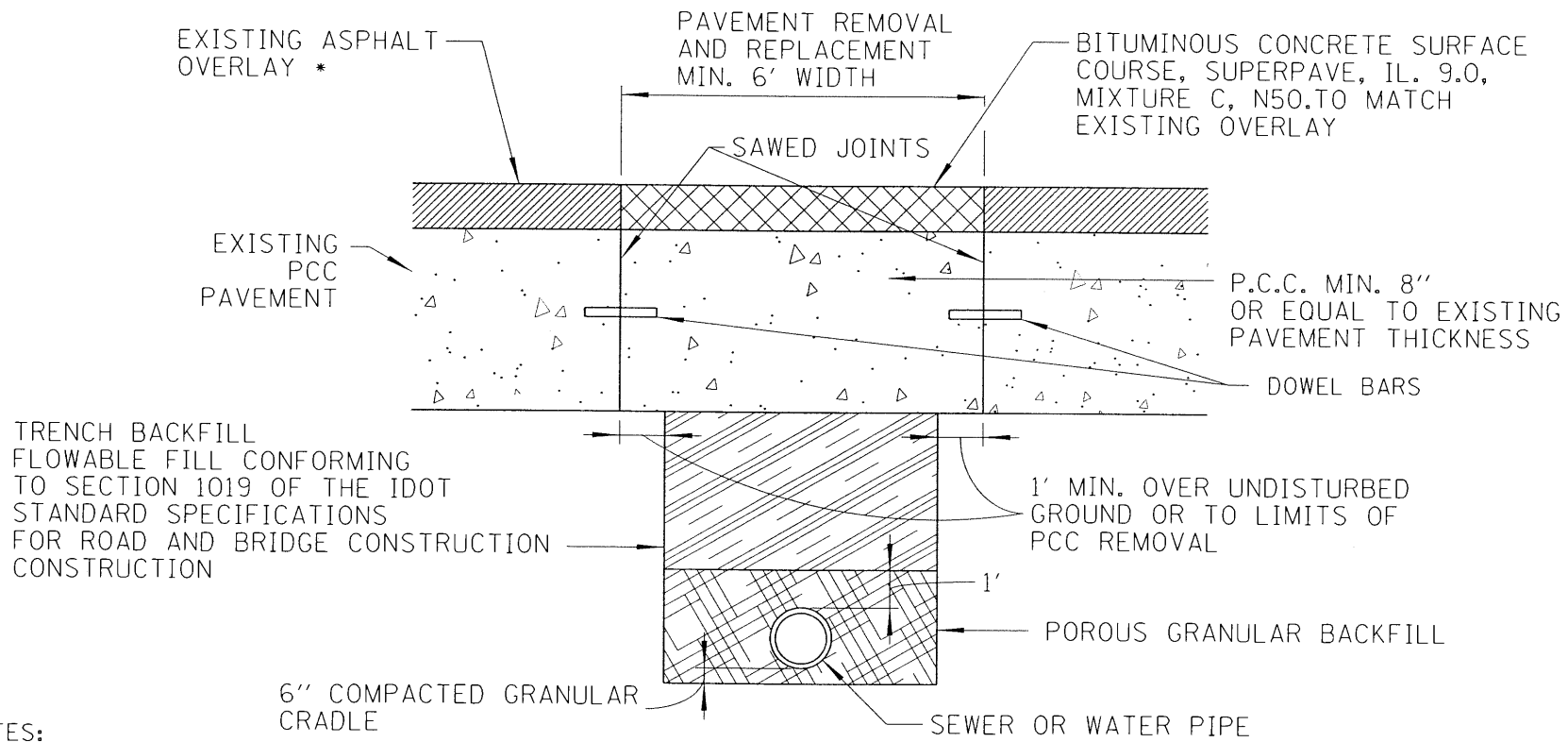
Standard No.

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TYPICAL STREET REPAIR FOR UNDERGROUND UTILITY INSTALLATION CONCRETE PAVEMENTS



NOTES:

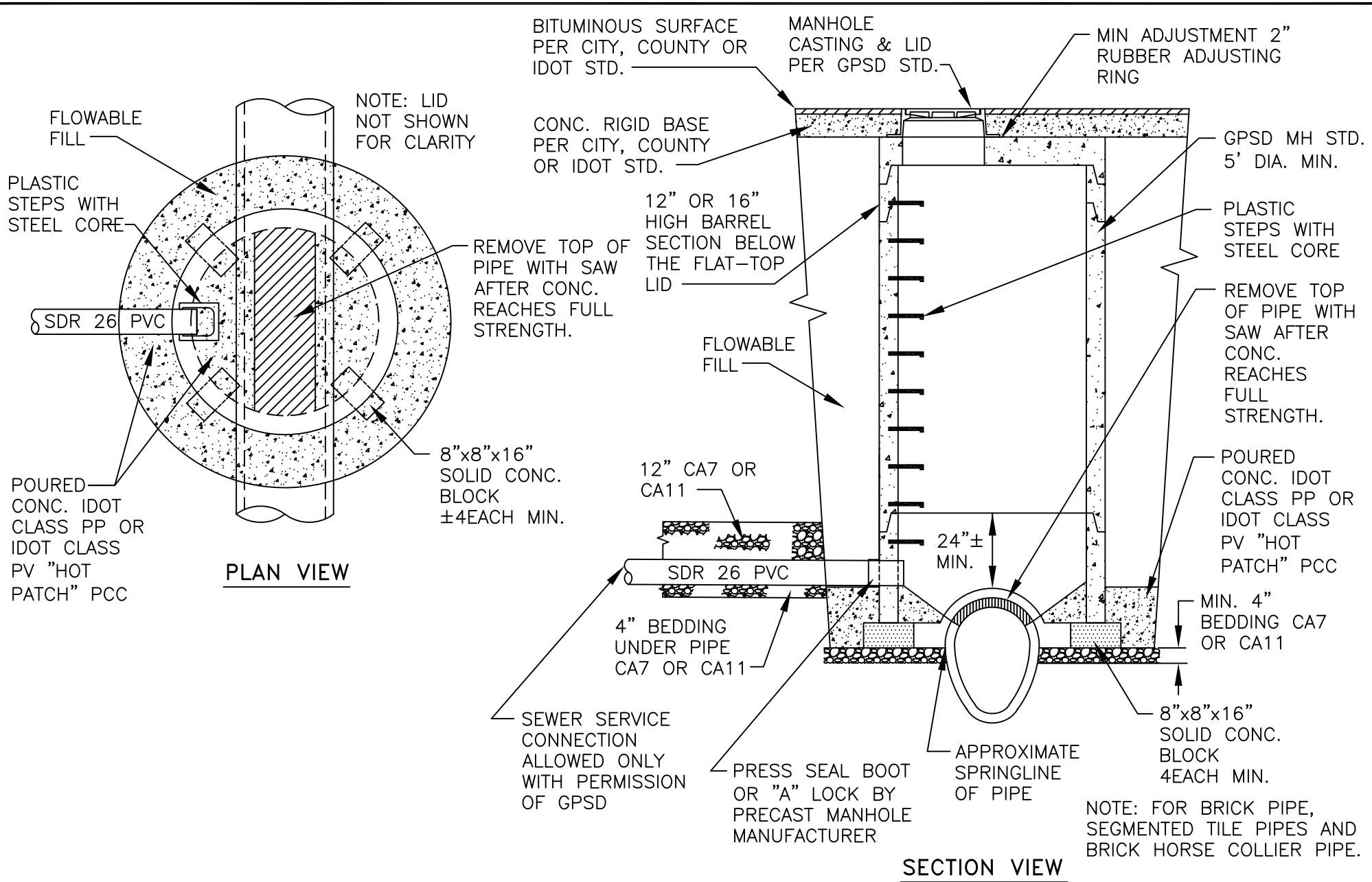
1. SEE IDOT STD. 442101-07 (TYPE B PATCHES) FOR DOWEL BAR SIZE AND SPACING AND OTHER DETAILS.
2. SEE SECTION 442 OF THE IDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION DETAILS.
3. MIN. PATCH WIDTH IS 6', MIN. PATCH LENGTH IS 6' IF PATCH IS OVER 6' IN LENGTH, PATCH SHOULD EXTEND TO THE FIRST LONGITUDINAL JOINT.
4. WHERE CONCRETE PAVEMENT HAS NOT BEEN OVERLAYED THE PCC PATCH WILL SERVE AS THE DRIVING SURFACE.
5. FOR BRICK PAVEMENTS, THE BRICK PORTION SHALL BE REPLACED WITH 8" PCC PAVEMENT.
6. IF BITUMINOUS CONCRETE MATERIAL IS NOT AVAILABLE DUE TO SEASON CLOSING OF ASPHALT PLANTS, A TEMPORARY SURFACE CONSISTING OF BITUMINOUS COLD PATCH MIXTURE SHALL BE APPLIED UNTIL THE "HOT MIX" BITUMINOUS MATERIAL IS AVAILABLE.

GENERAL NOTE:

ALL EXCAVATION, REPLACEMENT AND CLEAN-UP WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" AND THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITIONS.

Village of Bartonville	Construction Standard	Date	Standard No.
		Feb. 2008	R-9

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NOTE: FOR BRICK PIPE, SEGMENTED TILE PIPES AND BRICK HORSE COLLIER PIPE.

SECTION VIEW

SPECIAL-TYPE MANHOLE		
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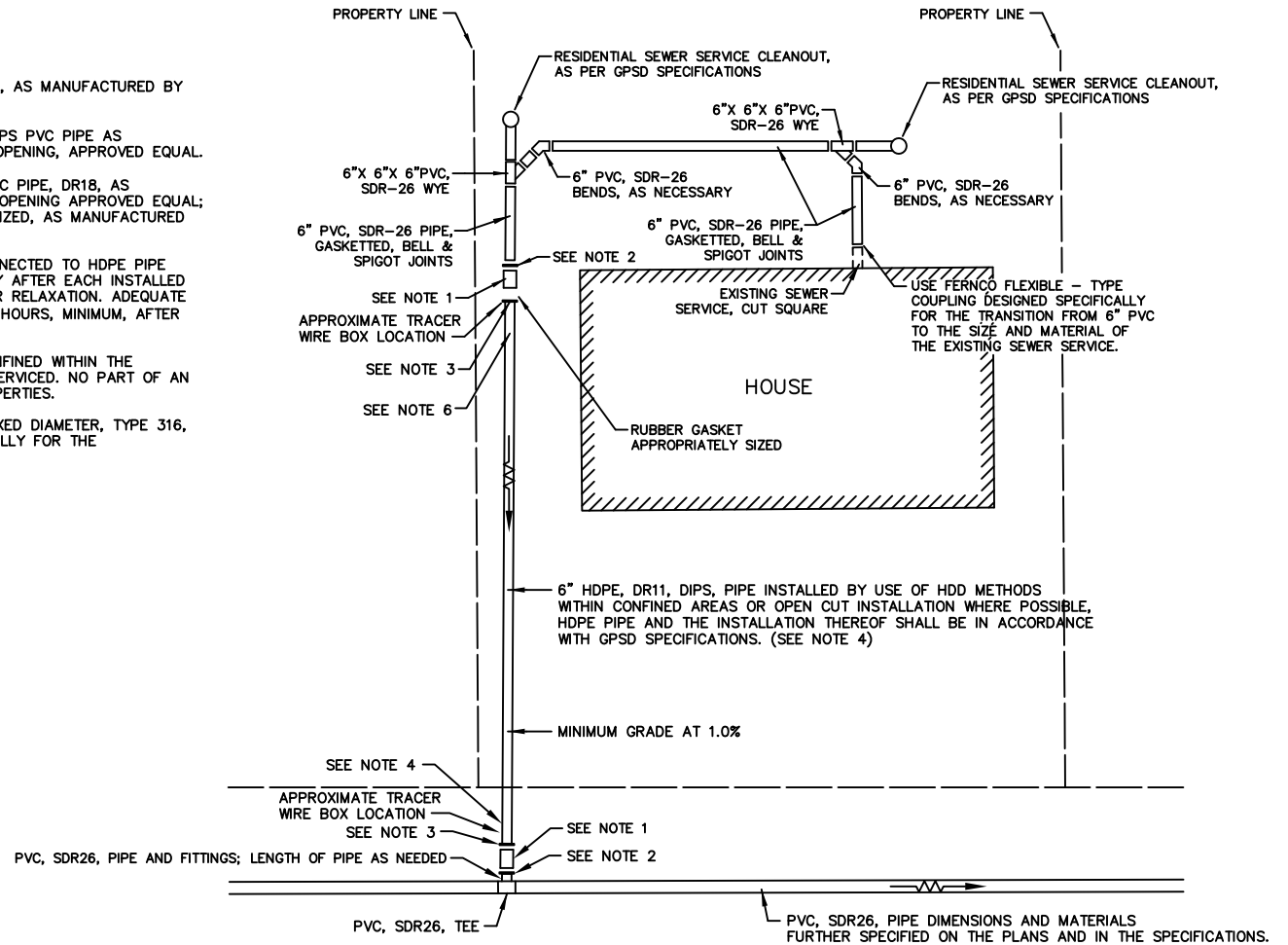
DETAIL 095-28 DWG. 1=1

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GENERAL NOTES FOR DETAIL

- NOTE 1: 6" DIP SOLID SLEEVE WITH MECHANICAL JOINTS, SSB-DI, CL 350, AS MANUFACTURED BY TYLER PIPE CO., OR A PRE-BID OPENING APPROVED EQUAL.
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- NOTE 3: 6" SERIES 1500-C, "CIRCLE-LOCK" UNI-FLANGE FOR CI SIZE PVC PIPE, DR18, AS MANUFACTURED BY FORD METER BOX CO., INC., OR A PRE-BID OPENING APPROVED EQUAL; INSERT A HDPE STIFFNER INSERT, STYLE CPS, APPROPRIATELY SIZED, AS MANUFACTURED BY CASCADE WATERWORKS MFG.
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- NOTE 6: PRIOR TO THE INSTALLATION OF THE UNI-FLANGE, INSTALL A FIXED DIAMETER, TYPE 316, STAINLESS-STEEL, HDPE PIPE STIFFENER DIMENSIONED SPECIFICALLY FOR THE CONSTRUCTED HDPE PIPE.



SEWER SERVICE RECONSTRUCTION USING HDD METHODS AND HDPE PIPE AND CONNECTING TO PVC, SDR26, PIPE

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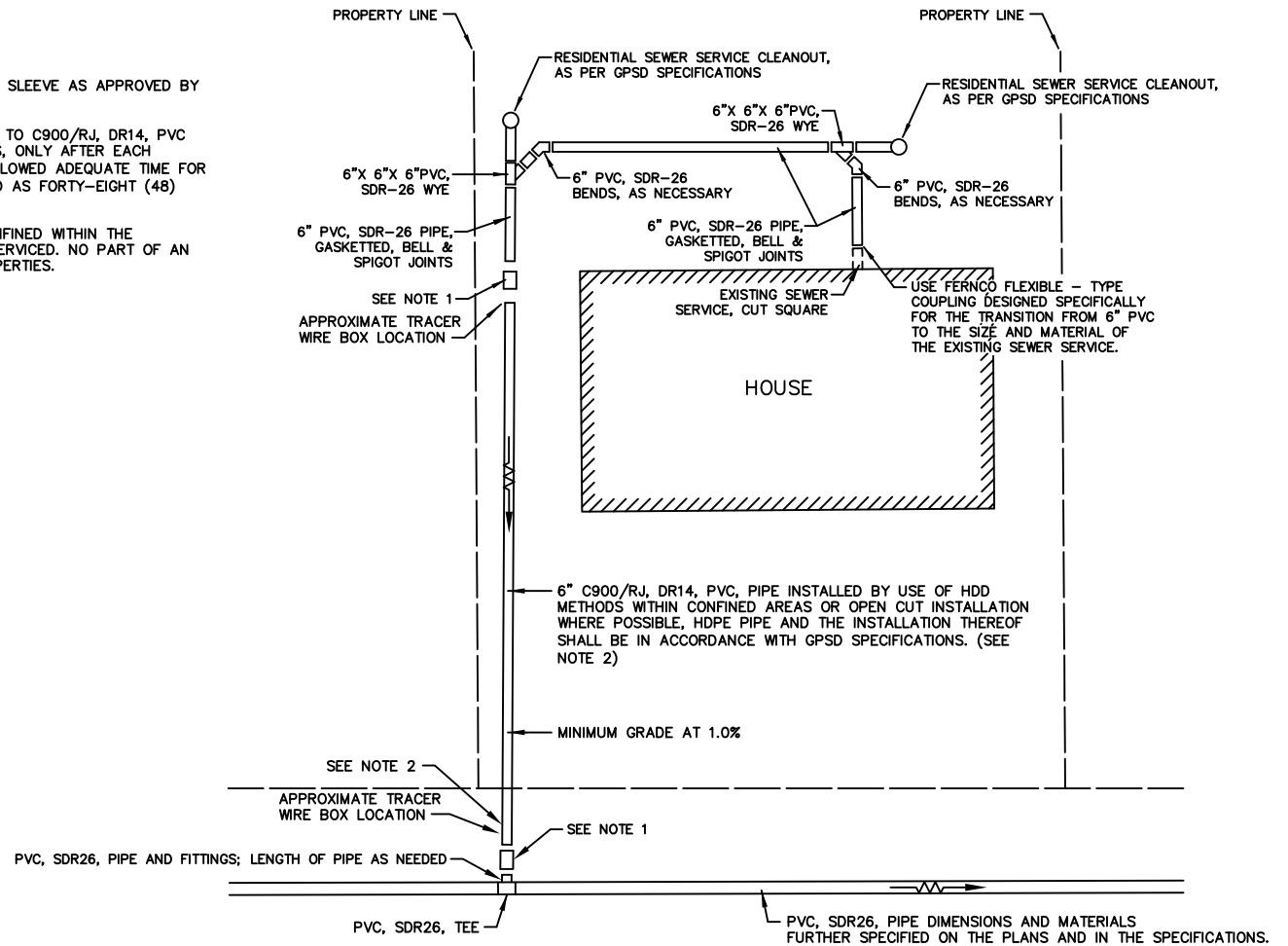
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GENERAL NOTES FOR DETAIL

- NOTE 1: APPROPRIATELY-SIZED AND GASKETED TRANSITION COUPLING OR SLEEVE AS APPROVED BY THE ENGINEER.
- NOTE 2: ALL FITTINGS, COUPLINGS, SLEEVES, ETC., SHALL BE CONNECTED TO C900/RJ, DR14, PVC PIPE, INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING METHODS, ONLY AFTER EACH INSTALLED SECTION OF C900/RJ, DR14, PVC, PIPE HAS BEEN ALLOWED ADEQUATE TIME FOR RELAXATION. ADEQUATE TIME FOR RELAXATION IS TO BE DEFINED AS FORTY-EIGHT (48) HOURS, MINIMUM, AFTER THE CESSATION OF PIPE INSTALLATION.
- NOTE 3: EACH RESPECTIVE SEWER SERVICE RECONNECTION SHALL BE CONFINED WITHIN THE PROPERTY BOUNDARIES OF EACH INDIVIDUAL PROPERTY BEING SERVICED. NO PART OF AN INDIVIDUAL SEWER SERVICE SHALL ENCROACH UPON OTHER PROPERTIES.



**SEWER SERVICE RECONSTRUCTION USING HDD METHODS,
C900/RJ, DR14, PIPE AND CONNECTING TO PVC, SDR26, PIPE**

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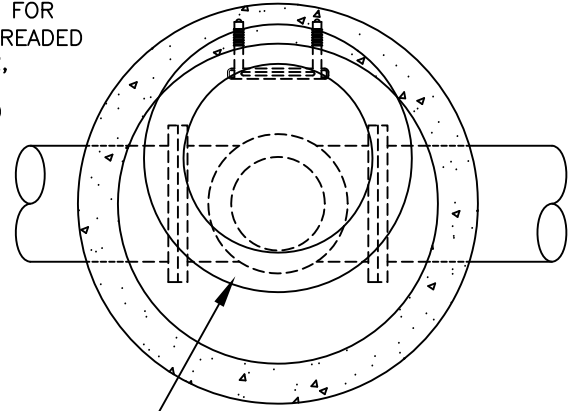
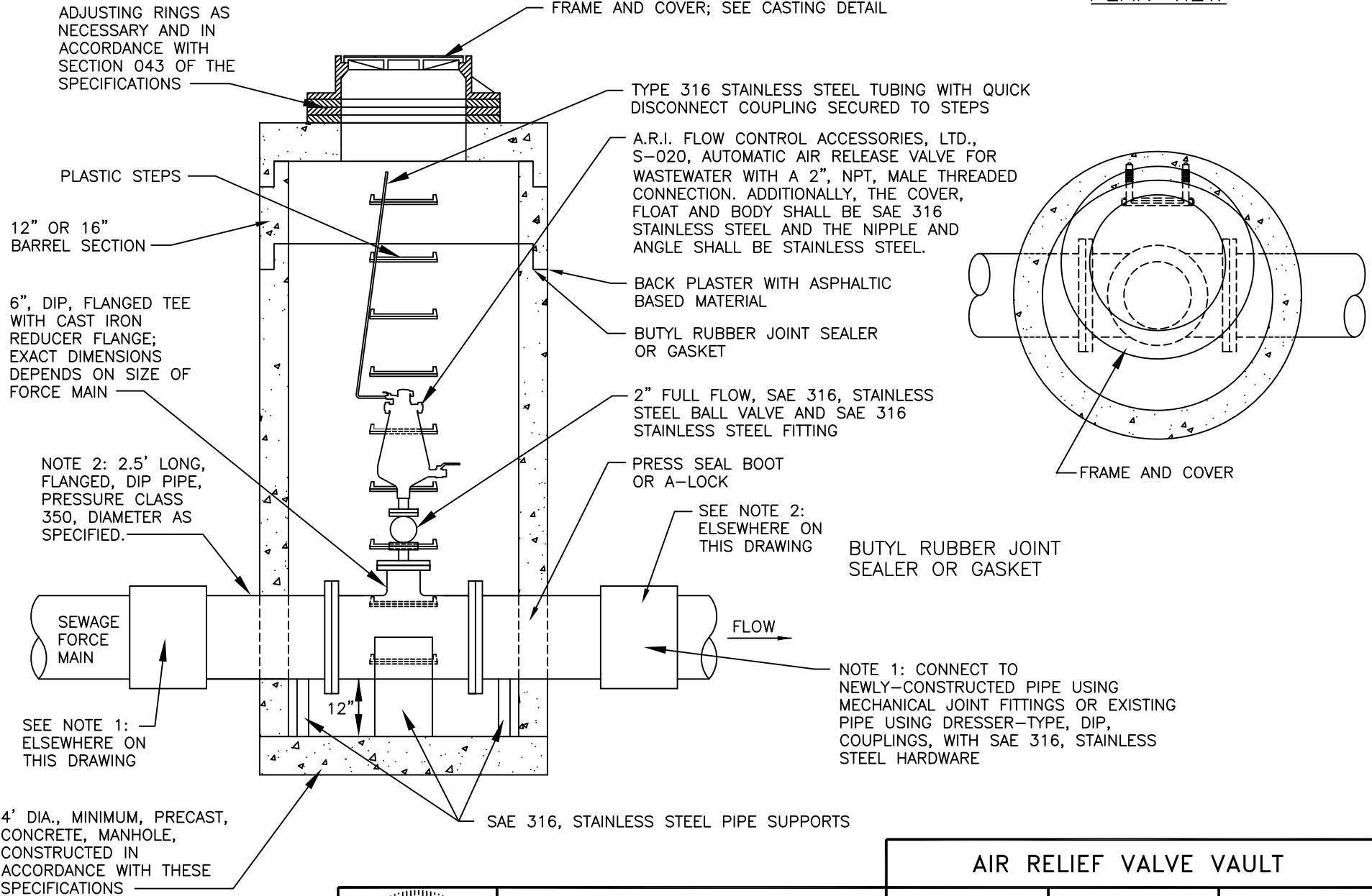


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PROFILE VIEW

PLAN VIEW



AIR RELIEF VALVE VAULT

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CORE VERTICALLY THROUGH FLAT-TOP AND CONSTRUCT, EITHER EJ 1565 OR NEENAH R-1974-A2 CASTING AND LID FOR ACCESS

PROFILE VIEW

FRAME & COVER; SEE CASTING DETAIL

ADJUSTING RINGS AS NECESSARY AND IN ACCORDANCE WITH SECTION 043 OF THE SPECIFICATIONS

TYPE 316 STAINLESS STEEL TUBING WITH QUICK DISCONNECT COUPLING SECURED TO STEPS

A.R.I. FLOW CONTROL ACCESSORIES, LTD., S-020, AUTOMATIC AIR RELEASE VALVE FOR WASTEWATER WITH A 2", NPT, MALE THREADED CONNECTION. ADDITIONALLY, THE COVER, FLOAT AND BODY SHALL BE SAE 316 STAINLESS STEEL AND THE NIPPLE AND ANGLE SHALL BE STAINLESS STEEL.

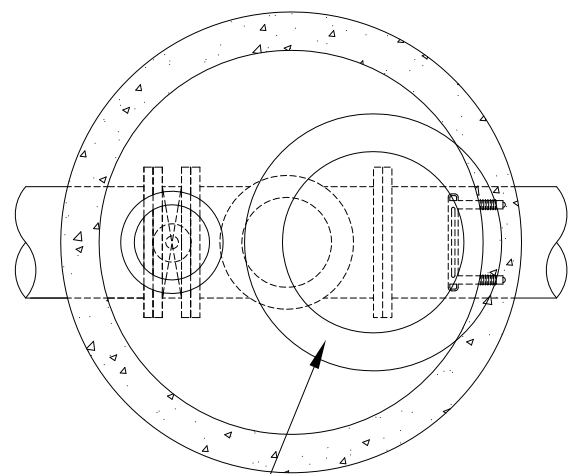
12" OR 16" BARREL SECTION

2" FULL FLOW, SAE 316, STAINLESS STEEL BALL VALVE AND SAE 316 STAINLESS STEEL FITTING

PRESS SEAL BOOT OR A-LOCK

SEE NOTE 2: ELSEWHERE ON THIS DRAWING

PLAN VIEW



FRAME & COVER

NOTE 3: THE CONTRACTOR SHALL PROVIDE AND CONSTRUCT A KNIFE GATE VALVE, FLUSH-PORT CLEANING SYSTEM AS PROVIDED AND RECOMMENDED BY THE KNIFE GATE VALVE MANUFACTURER

NOTE 1: CONNECT TO NEWLY-CONSTRUCTED PIPE USING MECHANICAL JOINT FITTINGS OR EXISTING PIPE USING DRESSER-TYPE, DIP, COUPLINGS, WITH SAE 316, STAINLESS STEEL HARDWARE

TOP OF STEM

CONSTRUCT VALVE STEM STABILIZER(S) AND BRING THE TOP OF THE STEM TO WITHIN 6" OF THE TOP SLAB, AT NO MORE THAN 5' INTERVALS

PLASTIC STEPS

6", DIP, FLANGED TEE WITH CAST IRON REDUCER FLANGE; EXACT DIMENSIONS DEPENDS ON SIZE OF FORCE MAIN

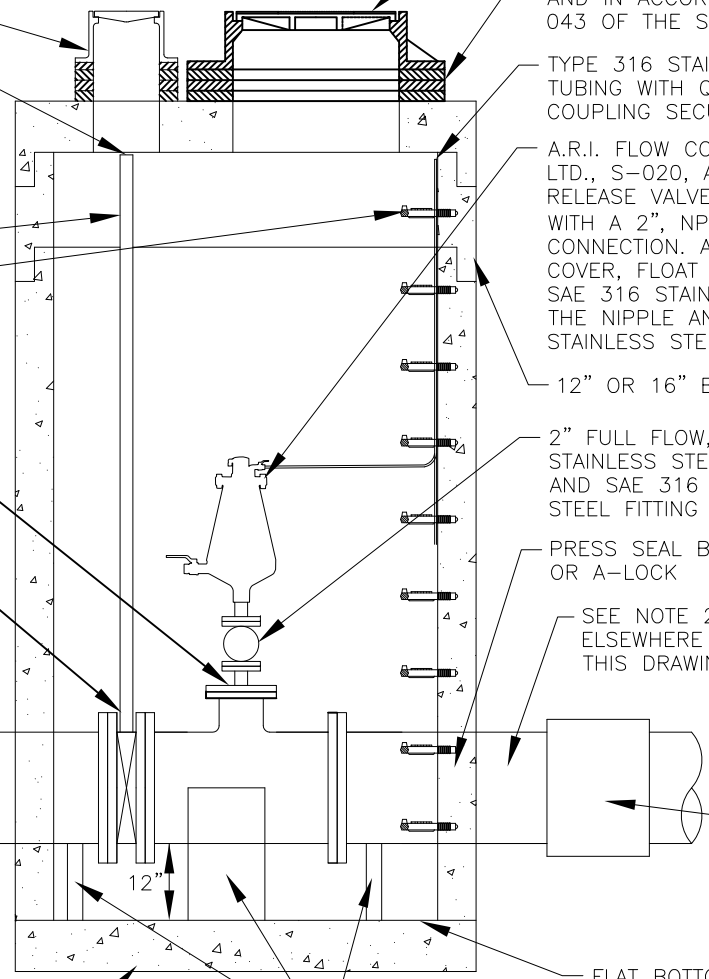
KNIFE GATE VALVE PER THE PLANS AND THESE SPECIFICATIONS

NOTE 2: 2.5' LONG, FLANGED, DIP PIPE, PRESSURE CLASS 350, DIAMETER AS SPECIFIED.



SEE NOTE 1: ELSEWHERE ON THIS DRAWING

5' DIA., MINIMUM, PRECAST, CONCRETE, MANHOLE, CONSTRUCTED IN ACCORDANCE WITH THESE SPECIFICATIONS



FLOW

FLAT BOTTOM MANHOLE

SAE 316, STAINLESS STEEL PIPE SUPPORTS

COMBINATION AIR RELIEF VALVE AND ISOLATION VALVE VAULT



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CORE VERTICALLY THROUGH
FLAT-TOP AND CONSTRUCT,
EITHER EJ 1565 OR NEENAH
R-1974-A2 CASTING AND LID
FOR ACCESS

PROFILE VIEW

FRAME & COVER; SEE
CASTING DETAIL

ADJUSTING RINGS AS
NECESSARY AND IN
ACCORDANCE WITH
SECTION 043 OF THE
SPECIFICATIONS

PLAN VIEW

TOP OF STEM

CONSTRUCT VALVE STEM
STABILIZER(S) AND BRING
THE TOP OF THE STEM TO
WITHIN 6" OF THE TOP
SLAB, AT NO MORE THAN
5' INTERVALS

PLASTIC STEPS

6", DIP, FLANGED TEE
WITH CAST IRON
REDUCER FLANGE
EXACT DIMENSIONS
DEPENDS ON SIZE OF
FORCE MAIN

KNIFE GATE VALVE PER
THE PLANS AND THESE
SPECIFICATIONS

NOTE 2: 2.5' LONG,
FLANGED, DIP PIPE,
PRESSURE CLASS 350,
DIAMETER AS
SPECIFIED.

SEE NOTE 1:
ELSEWHERE ON
THIS DRAWING

5' DIA. PRECAST, CONCRETE,
MANHOLE, CONSTRUCTED IN
ACCORDANCE WITH
THESE SPECIFICATIONS

12" OR 16" BARREL SECTION

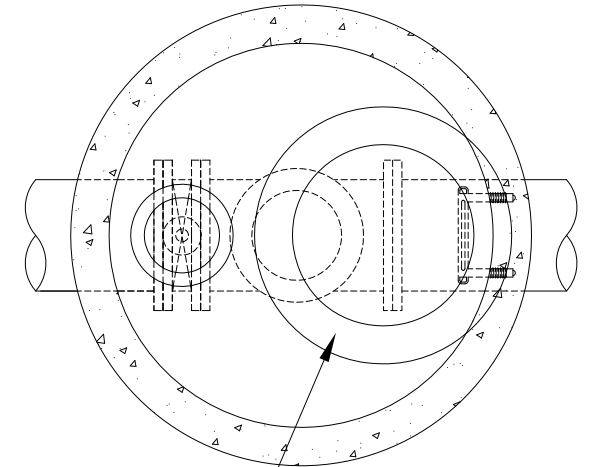
BACK PLASTER WITH
ASPHALTIC BASED MATERIAL

BUTYL RUBBER JOINT
SEALER OR GASKET

2" FULL FLOW, SAE 316,
STAINLESS STEEL BALL
VALVE AND SAE 316
STAINLESS STEEL FITTING

PRESS SEAL BOOT
OR A-LOCK

SEE NOTE 2:
ELSEWHERE ON
THIS DRAWING



FRAME & COVER

NOTE 3: THE CONTRACTOR SHALL PROVIDE
AND CONSTRUCT A KNIFE GATE VALVE,
FLUSH-PORT CLEANING SYSTEM AS
PROVIDED AND RECOMMENDED BY THE
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NOTE 1: CONNECT TO
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EXISTING PIPE USING DRESSER-TYPE,
DIP, COUPLINGS, WITH SAE 316,
STAINLESS STEEL HARDWARE

FLOW

FLAT BOTTOM
MANHOLE

SAE 316, STAINLESS STEEL
PIPE SUPPORTS

**ISOLATION VALVE VAULT; KNIFE
VALVE**



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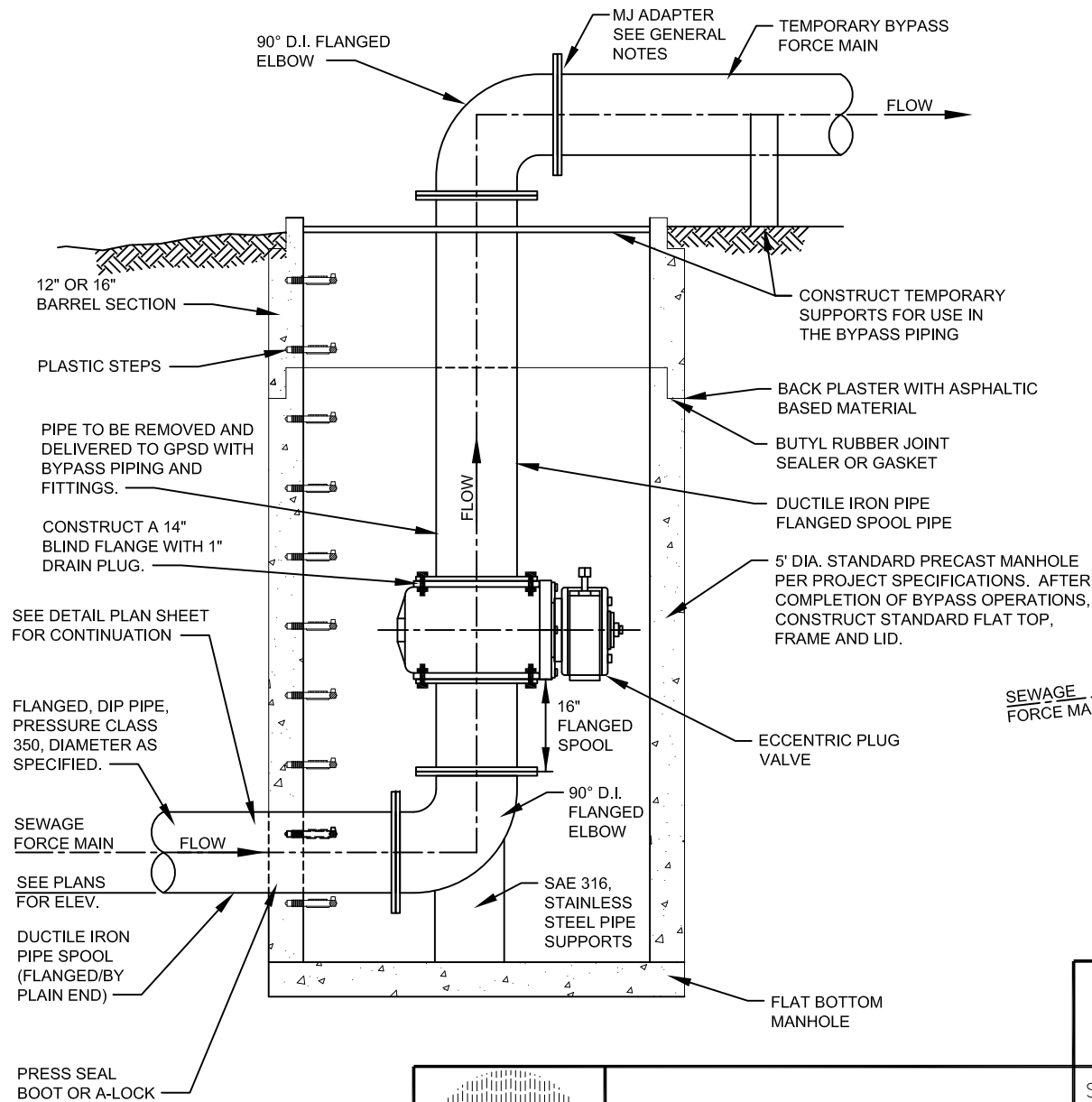
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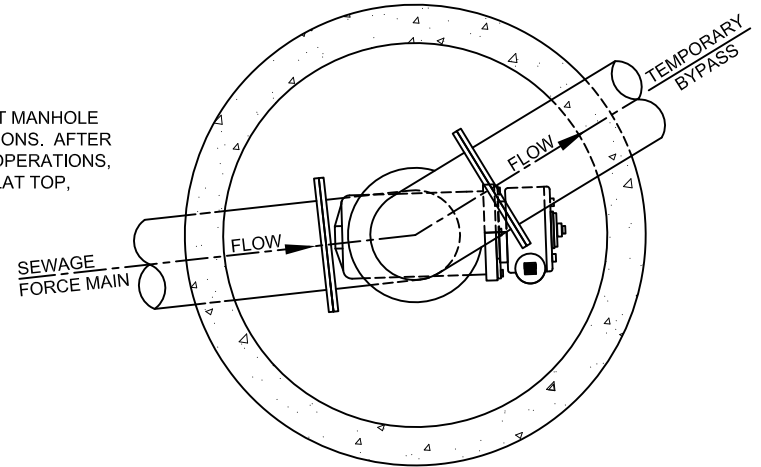
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PROFILE VIEW



PLAN VIEW



ISOLATION VALVE VAULT;
PLUG VALVE



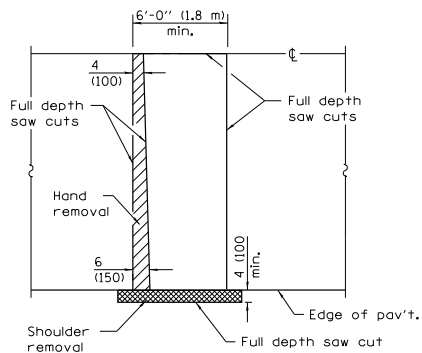
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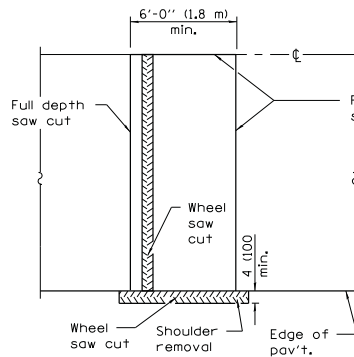
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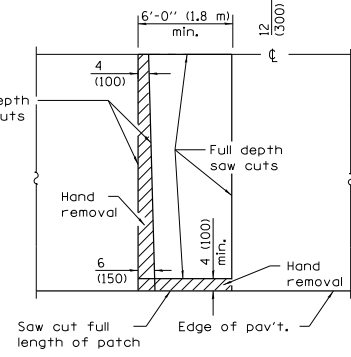
PAVEMENT SAWING DETAIL

(HMA SHOULDER)



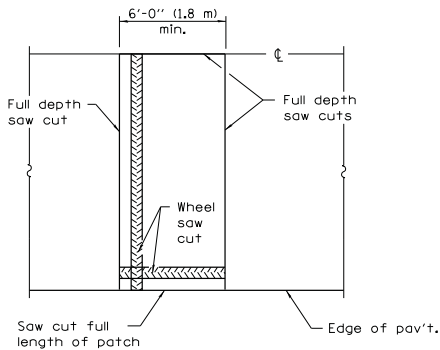
ALTERNATE SAWING DETAIL

(HMA SHOULDER)



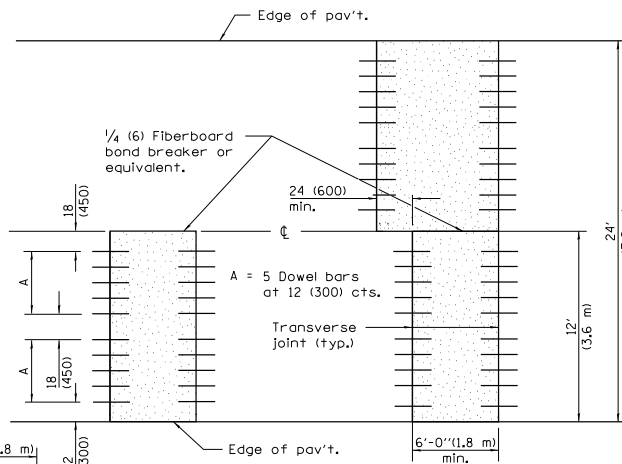
PAVEMENT SAWING DETAIL

(PCC SHOULDER)

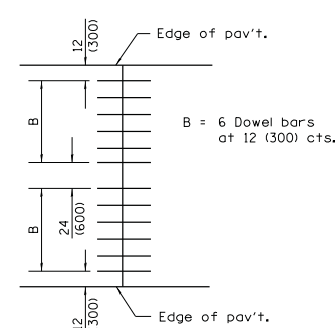


ALTERNATE SAWING DETAIL

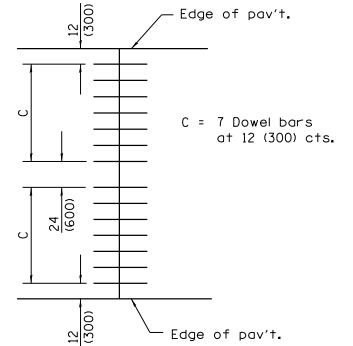
(PCC SHOULDER)



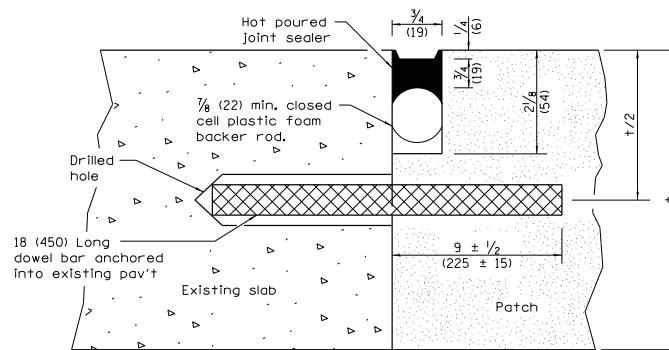
12' (3.6 m) WIDE LANES



14' (4.2 m) WIDE RAMP

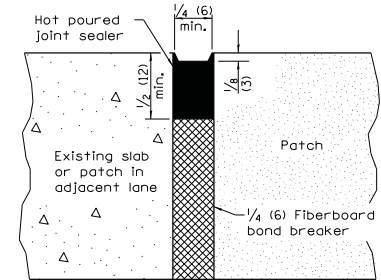


16' (4.8 m) WIDE RAMP



TRANSVERSE JOINT

DOWEL BAR TABLE		
PAVEMENT THICKNESS	DOWEL BAR DIAMETER	HOLE DIAMETER
8 (200) or greater	1 1/2 (38)	1 3/8 (41)
7 (180) thru 7,99 (199)	1 1/4 (32)	1 3/8 (35)
Less than 7 (180)	1 (25)	1 1/8 (29)



CENTERLINE JOINT

GENERAL NOTES

The transverse joints for Class B patches shall align with joints or cracks in the adjacent lane whenever possible.

See Standard 420701 for details of pavement fabric.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-08	Switched units to English (metric).
1-1-07	Revised General Notes.

CLASS B PATCHES

(Sheet 1 of 2)

STANDARD 442101-07

Illinois Department of Transportation

PASSED January 1, 2008

ENGINEER OF POLICY AND PROCEDURES

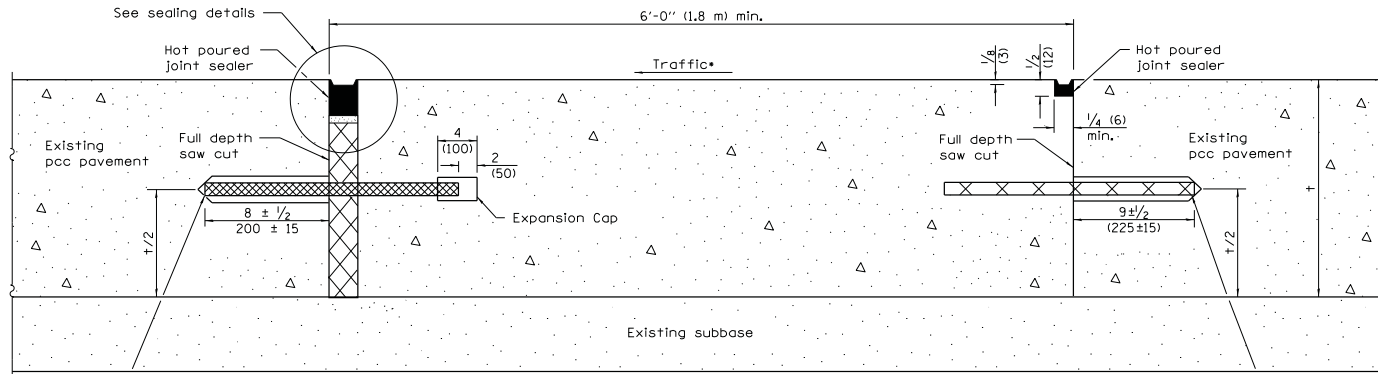
APPROVED January 1, 2008

ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-6-11

(PAGE INTENTIONALLY LEFT BLANK)

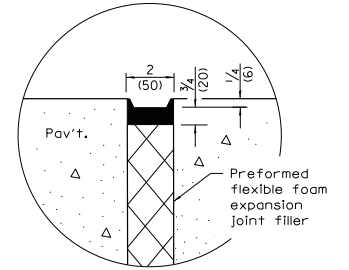
TRANSVERSE EXPANSION JOINTS



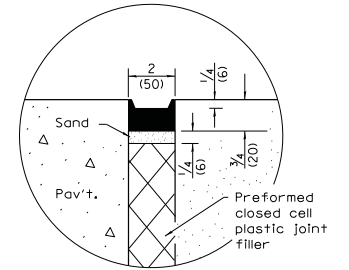
18 (450) Long dowel bars anchored into existing pavement at 12 (300) cts.

METHOD I
(Without Resurfacing)

No. 10x18 (No. 32x450) Tie bars anchored into existing pavement at 12 (300) cts.



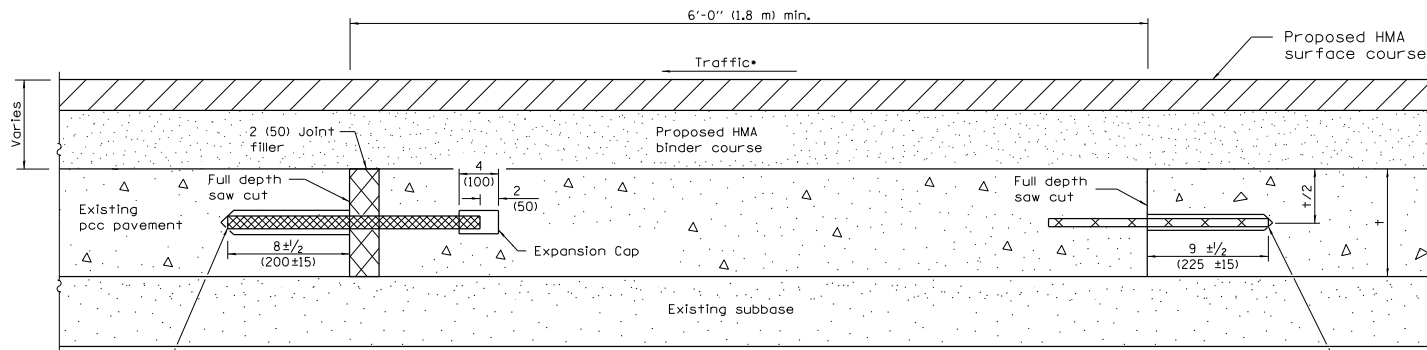
SEALING DETAIL



SEALING DETAIL

NOTE

- When re-establishing a transverse expansion joint on a two-lane, two-way road, reverse the orientation of the dowel bars with respect to traffic for one of the patches such that the joint will be continuous across both lanes.



18 (450) Long dowel bars anchored into existing pavement at 12 (300) cts.

METHOD II
(With Resurfacing)

No. 10x18 (No. 32x450) Tie bars anchored into existing pavement at 12 (300) cts.

CLASS B PATCHES

(Sheet 2 of 2)

STANDARD 442101-07

Illinois Department of Transportation	
PASSED January 1, 2008	ISSUED 1-1-97
ENGINEER OF POLICY AND PROCEDURES	
APPROVED January 1, 2008	
ENGINEER OF DESIGN AND ENVIRONMENT	

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INLET: SPIGOT - M.E. A-C

Saddle Castings are ASTM A-48 Class 30 Cast Iron
(Various Contours available to fit 30.00" - 72.00" O.D. Mains)

Castings are cemented permanently in place
with two-part urethane adhesive

Saddle Inlet is a Spigot of Machined End A-C Dimension

Saddle is dip-coated in Waterbased
Bituminous Coating

Strap is 24 ga. X 2.5" wide Type 304 Stainless Steel

Strap Pins are .75" dia. Type 303 Stainless Steel

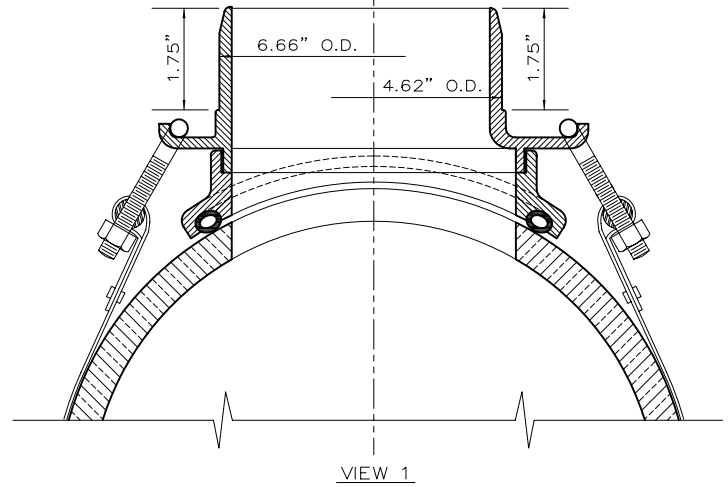
T-Bolts are .375" - 16 Type 304 Stainless Steel

Nuts and Washers are Type 18-8 Stainless Steel

O-Ring is ASTM C-361-77 Tubular Polyisoprene

4" & 6" inlets BOTH require a 6" dia. Tap in
the Sewer Main

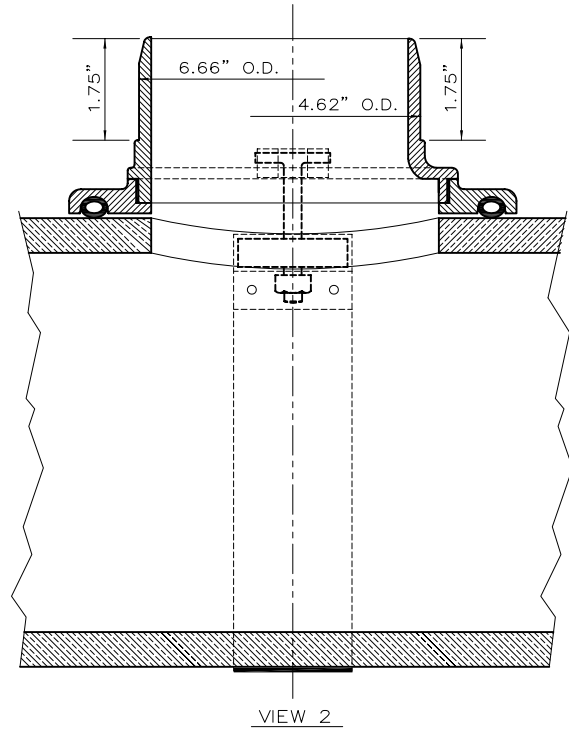
Note: This Dwg. supercedes Dwg. No. R-2970-D2



Saddles shall be constructed in accordance
with Section 031 of the GPSD Specifications

Saddles shall be concrete encased in accordance
with Section 031 of the Project Specifications

This Saddle can only be used when the sewer
service is constructed using ductile-iron pipe.



Type "C" Model "S"

**SEALTITE TEE® Gravity Sewer Saddle
(For Mains Larger Than 30" O.D.)**



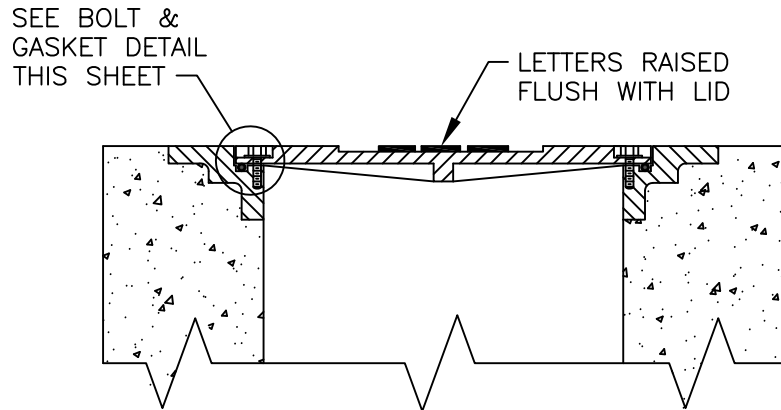
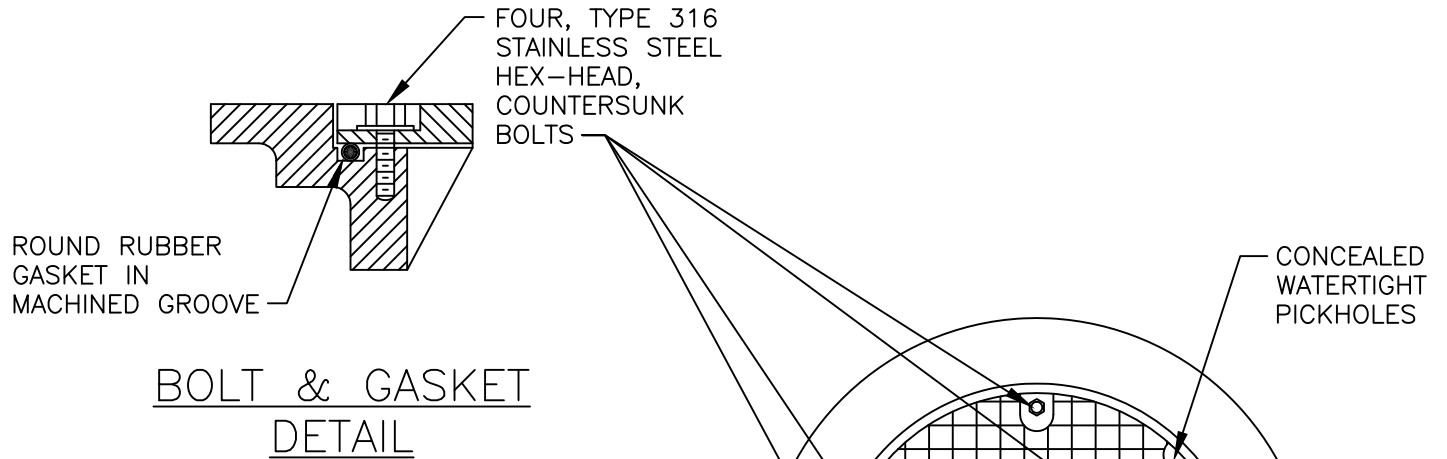
THE GENERAL ENGINEERING COMPANY

P.O. Box 609, Frederick, MD 21705-0609
(301)663-9282 • (800)345-6454 • FAX: (301) 695-5612

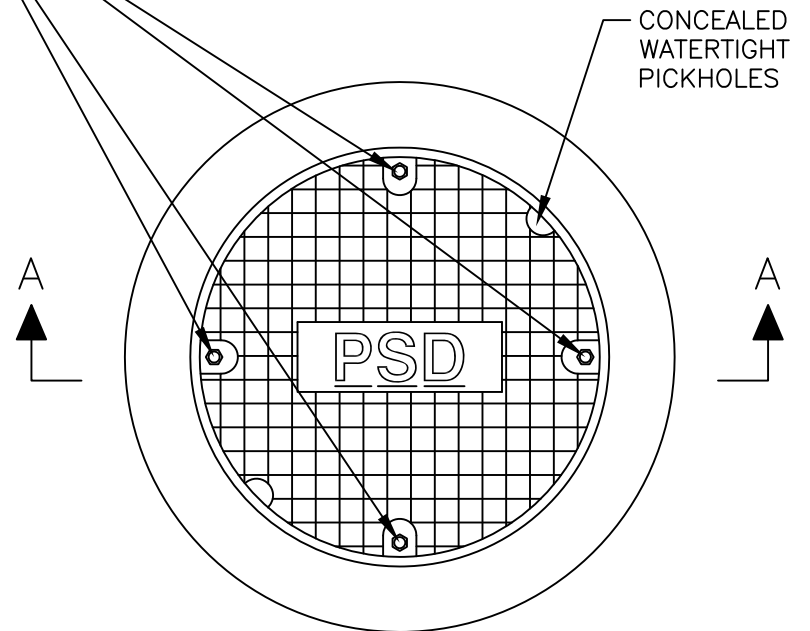
DWG.NO.

C-S

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SECTION A-A



PLAN

WATERPROOF MANHOLE
FRAME & COVER WITH
BOLTED LID - NEENAH NO.
R-1915-H2 OR EQUAL.

WATERPROOF MANHOLE CASTINGS RECESSED



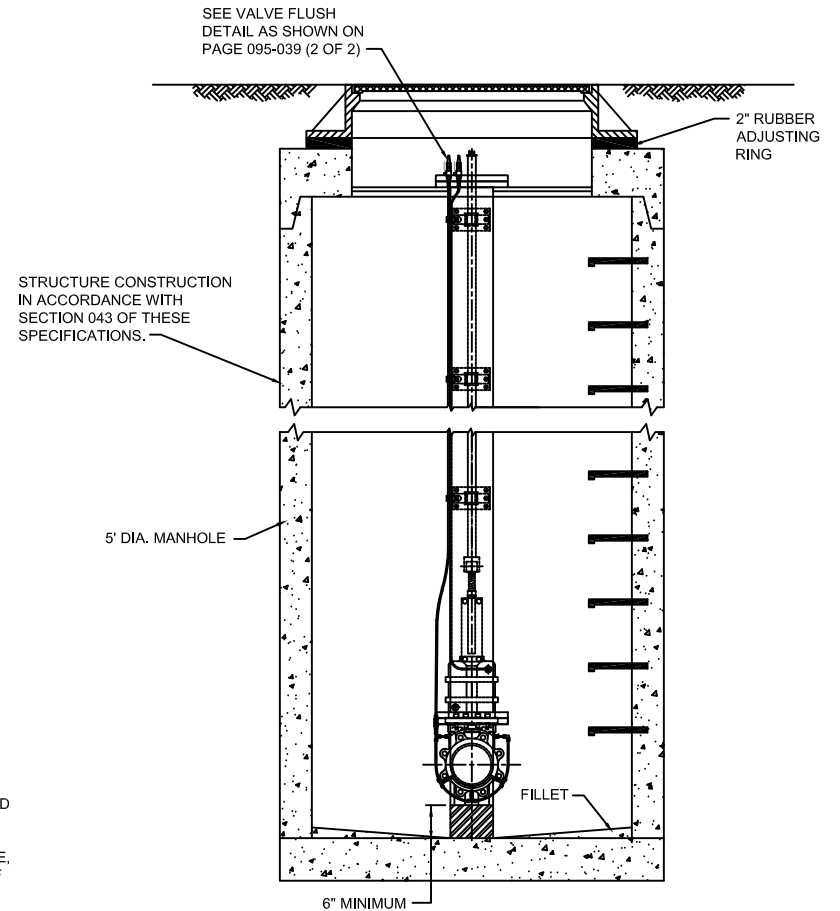
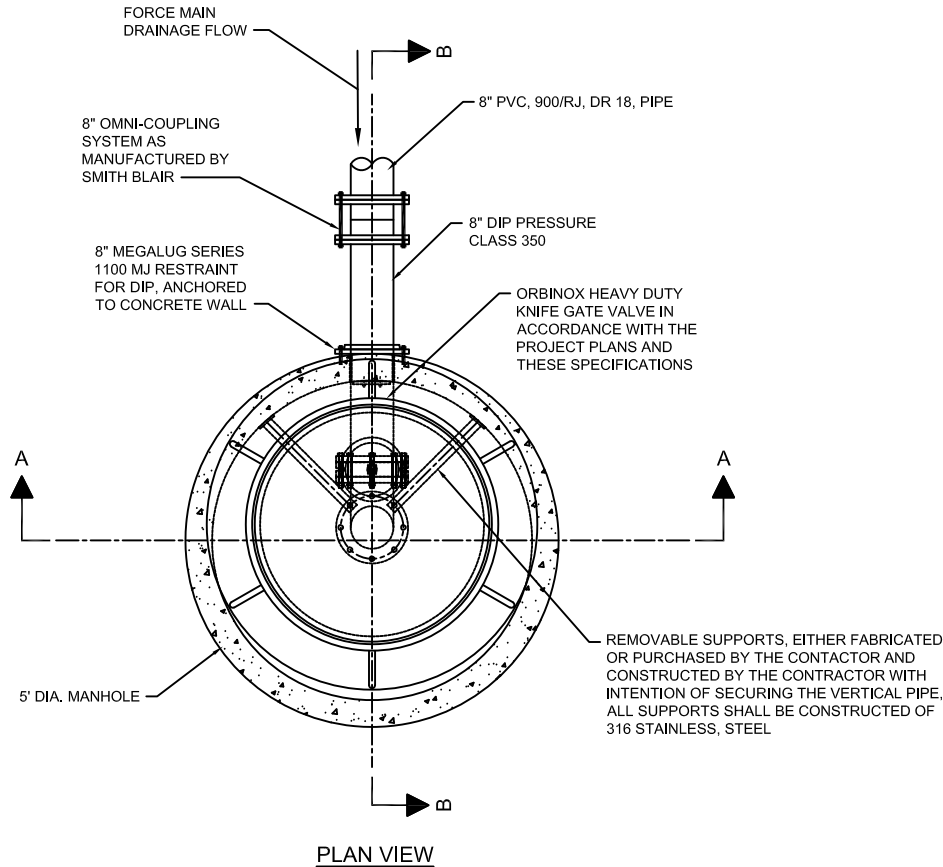
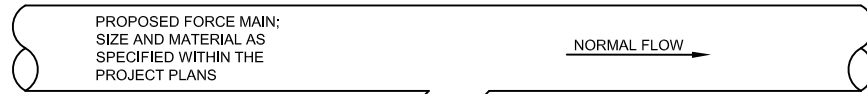
GREATER PEORIA SANITARY DIST.
2322 South Darst Street
Peoria, Illinois 61607-2093
Phone 637-3511 Fax 637-6614

SURVEYED:
DESIGNED:
DRAWN: ARA
CHECKED: JES
APPROVED: JES

DATE: AUG. 68
REV: APR 08
REV: SEPT. 12
REV: FEB. 14

VERT. NTS
HORIZ. NTS
PAGE 095-38

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SECTION A-A
(NOT TO SCALE)

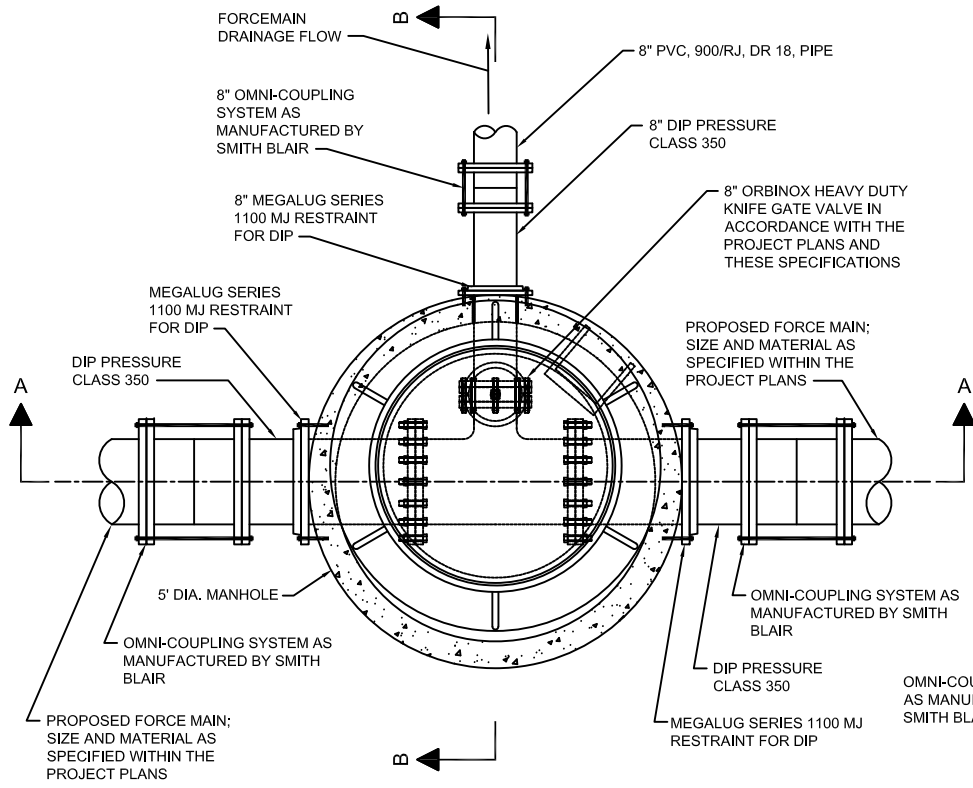
NOTES:

- 1) HARDWARE, INCLUDING BOLTS, NUTS AND WASHERS, SHALL BE CONSTRUCTED OF TYPE 316 STAINLESS STEEL.
- 2) ALL FITTINGS, COUPLINGS AND PIPE APPURTENANCES SHALL BE SIZED APPROPRIATELY, SELECTED FOR THE PIPE AND IN ACCORDANCE WITH THE PROJECT PLANS AND THESE SPECIFICATIONS.
- 3) SECTION B-B PROVIDED ON PAGE 095-39 (2 OF 2).

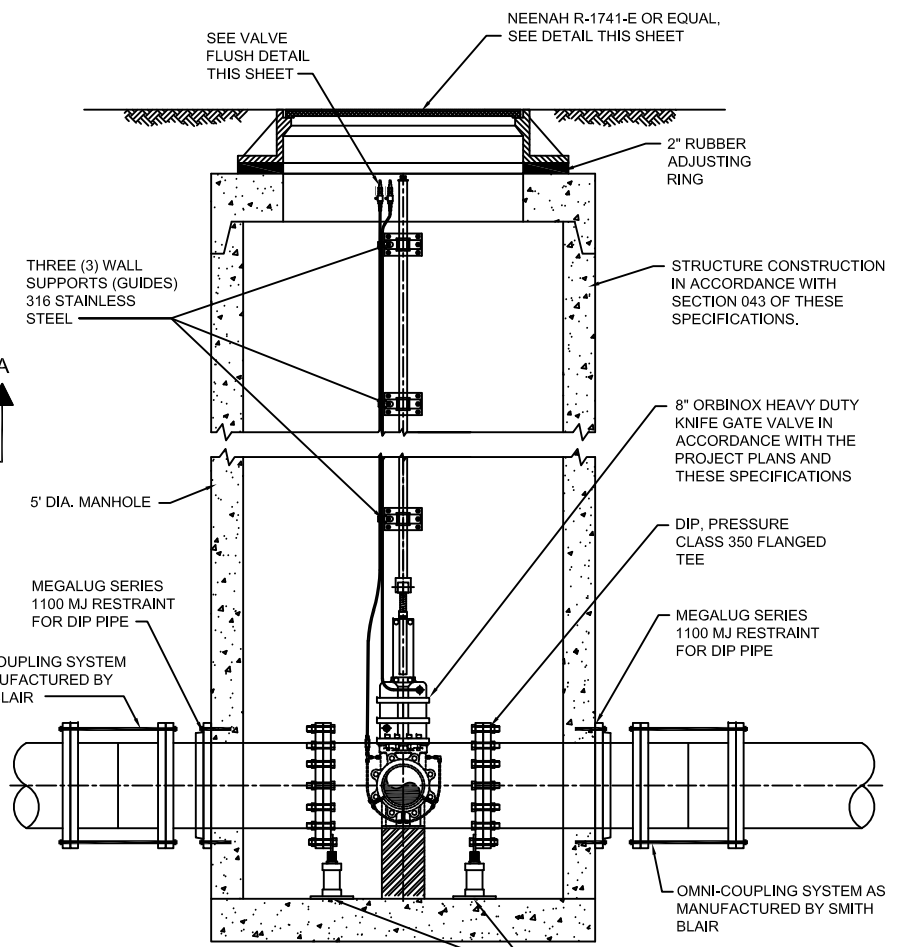


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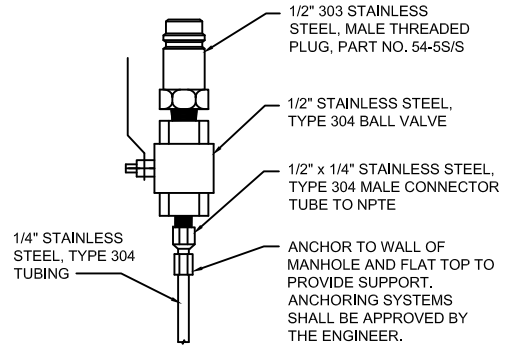
TYPICAL DETAIL FORCE MAIN DRAINAGE ACCESS STRUCTURE, ISOLATED PUMPING STATION			
SURVEYED:	DATE: SEPT. 2016	VERT. NTS	
DESIGNED: ALH	REV: .	HORIZ. NTS	
DRAWN: ARA		PAGE 095-39 (1 OF 2)	
CHECKED: JES			
APPROVED: JES			



**PROPOSED BACKFLOW PREVENTER
MANHOLE PLAN VIEW**



**SECTION A-A
(NOT TO SCALE)**



**VALVE FLUSH DETAIL
NOT TO SCALE**

NOTES:

- 1) **HARDWARE, INCLUDING BOLTS, NUTS AND WASHERS, SHALL BE CONSTRUCTED OF TYPE 316 STAINLESS STEEL.**
- 2) **ALL FITTINGS, COUPLINGS AND PIPE APPURTENANCES SHALL BE SIZED APPROPRIATELY, SELECTED FOR THE PIPE AND IN ACCORDANCE WITH THE PROJECT PLANS AND THESE SPECIFICATIONS.**
- 3) **SECTION B-B PROVIDED ON PAGE 095-40 (2 OF 2).**

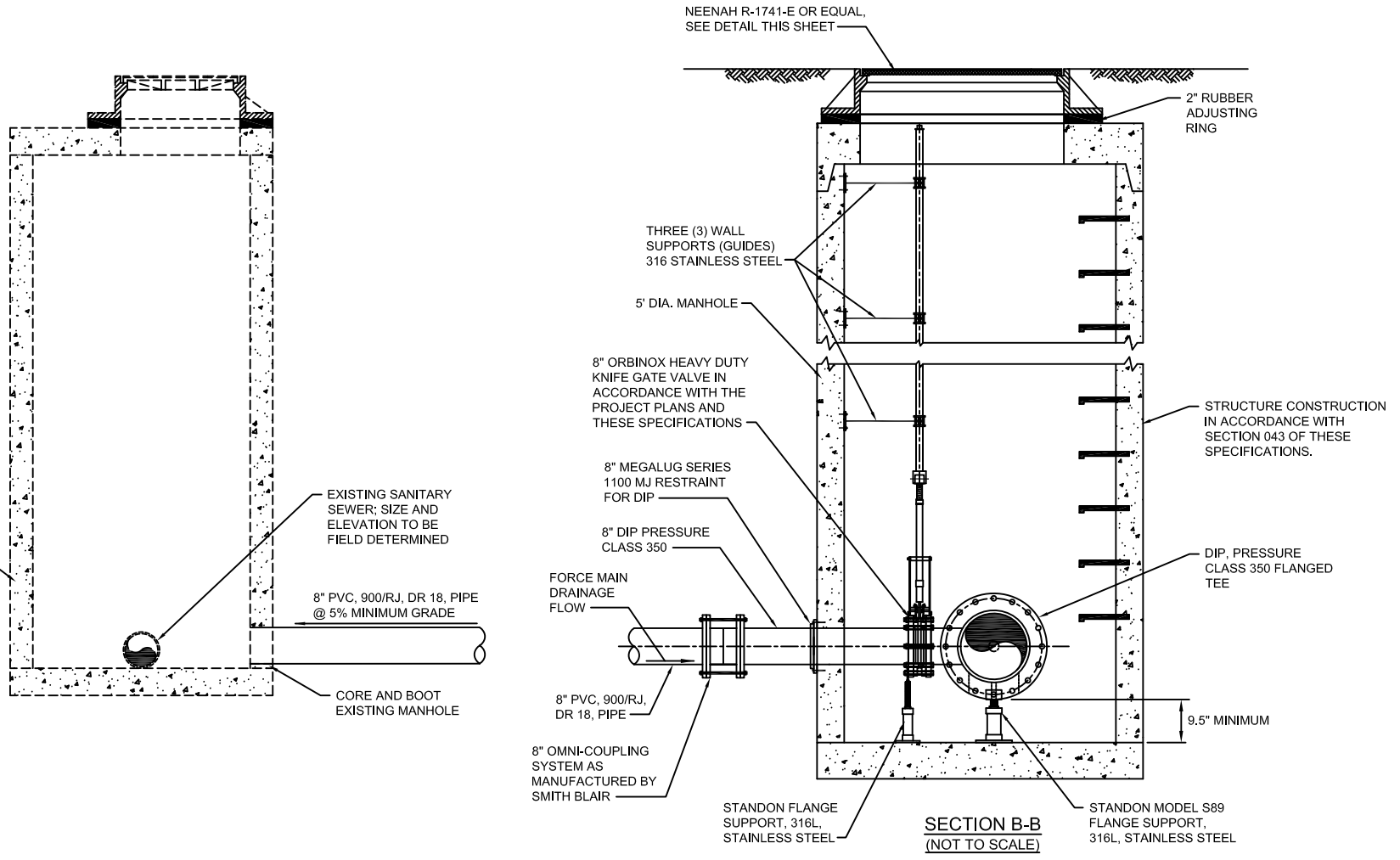
**TYPICAL DETAIL
FORCE MAIN DRAINAGE ACCESS STRUCTURE,
GRAVITY INTERCONNECT STATION**



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DRAWN: ARA		PAGE 095-40 (1 OF 2)
CHECKED: JES		
APPROVED: JES		

DETAILS095-40 (1).DWG 1=1



**TYPICAL DETAIL
FORCE MAIN DRAINAGE ACCESS STRUCTURE,
GRAVITY INTERCONNECT STATION**



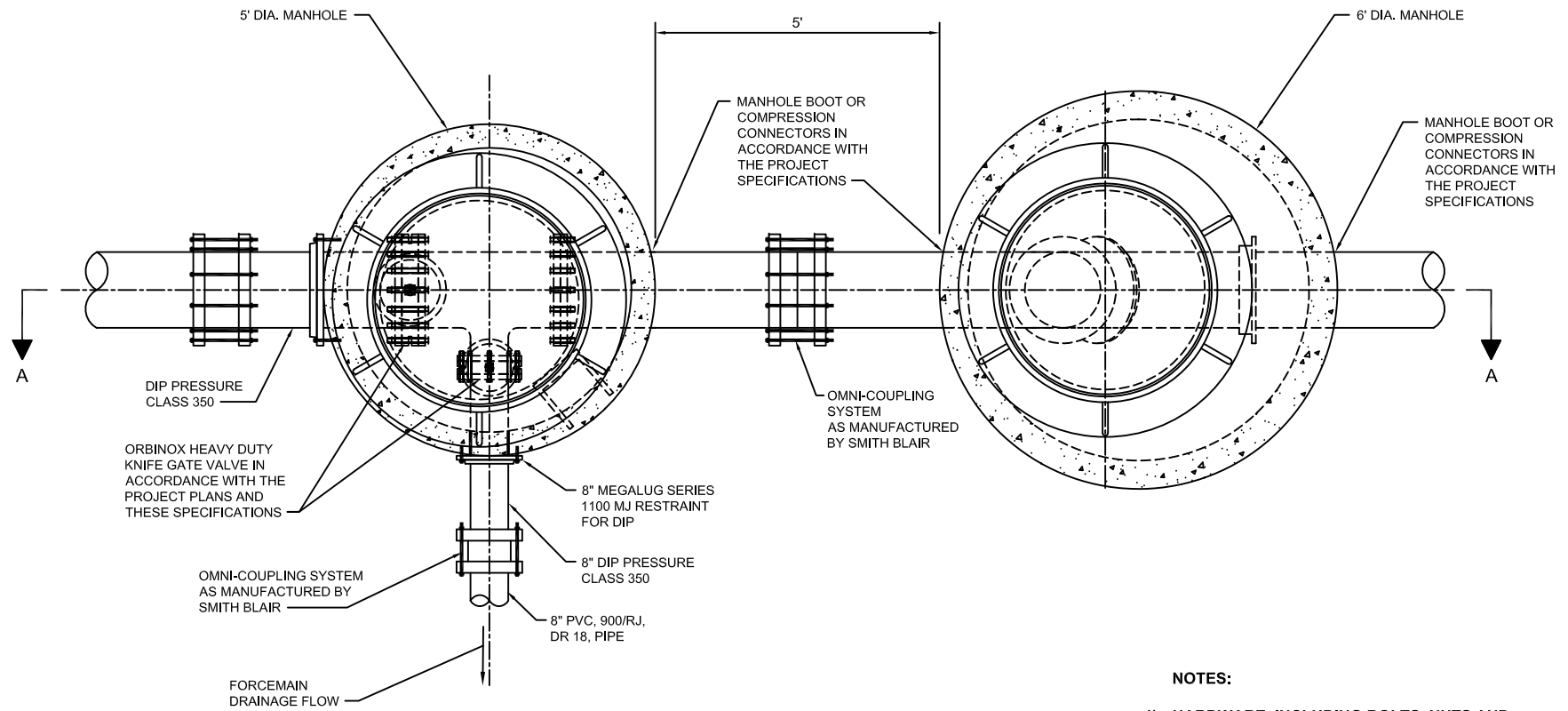
GREATER PEORIA SANITARY DIST.
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DATE: SEPT. 2016
 REV: .

VERT. NTS
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 PAGE 095-40 (2 OF 2)

DETAILS095-40 (2).DWG 1=1

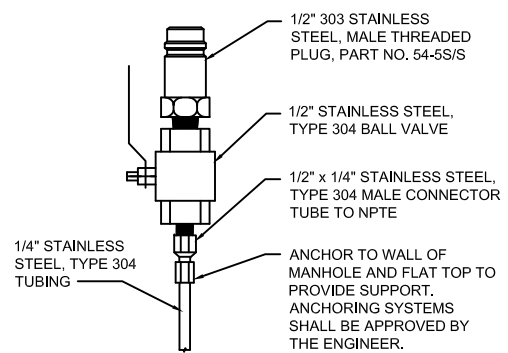


PLAN VIEW
(NOT TO SCALE)

NOTES:

- 1) HARDWARE, INCLUDING BOLTS, NUTS AND WASHERS, SHALL BE CONSTRUCTED OF TYPE 316 STAINLESS STEEL.
- 2) ALL FITTINGS, COUPLINGS AND PIPE APPURTENANCES SHALL BE SIZED APPROPRIATELY, SELECTED FOR THE PIPE AND IN ACCORDANCE WITH THE PROJECT PLANS AND THESE SPECIFICATIONS.
- 3) SECTION B-B PROVIDED ON PAGE 095-41 (2 OF 2).

TYPICAL DETAIL
FORCE MAIN DRAINAGE ACCESS STRUCTURE,
GRAVITY INTERCONNECT STATION,
WITH FORCE MAIN CLEANING STRUCTURE

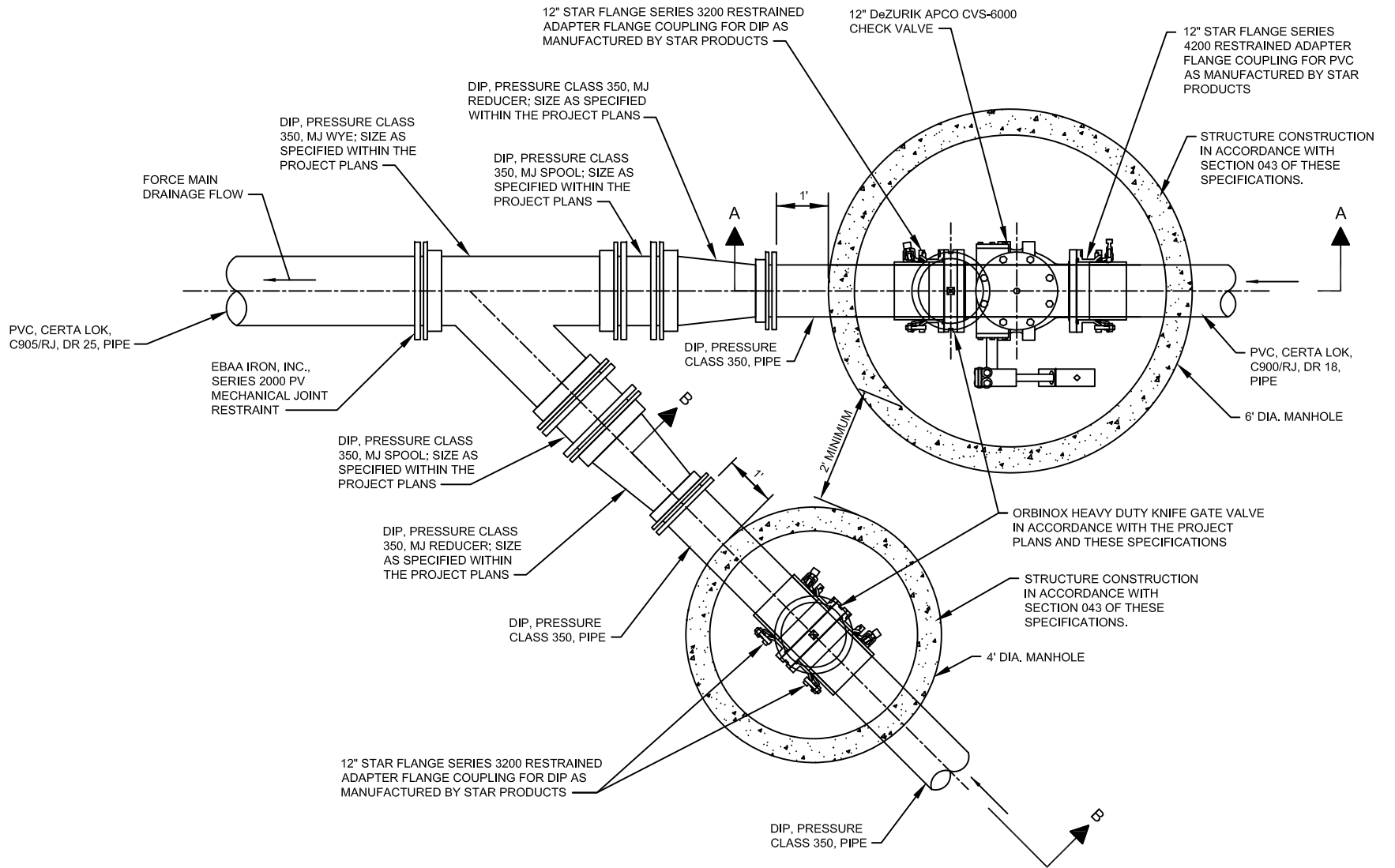


VALVE FLUSH DETAIL
NOT TO SCALE



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DESIGNED:	ALH	REV:	HORIZ.	NTS
DRAWN:	ARA			
CHECKED:	JES	PAGE 095-41 (1 OF 2)		
APPROVED:	JES			



PROPOSED STRUCTURE PLAN VIEW
(NOT TO SCALE)

**TYPICAL DETAIL
EXTERIOR FORCE MAIN
CONTROL STRUCTURE**

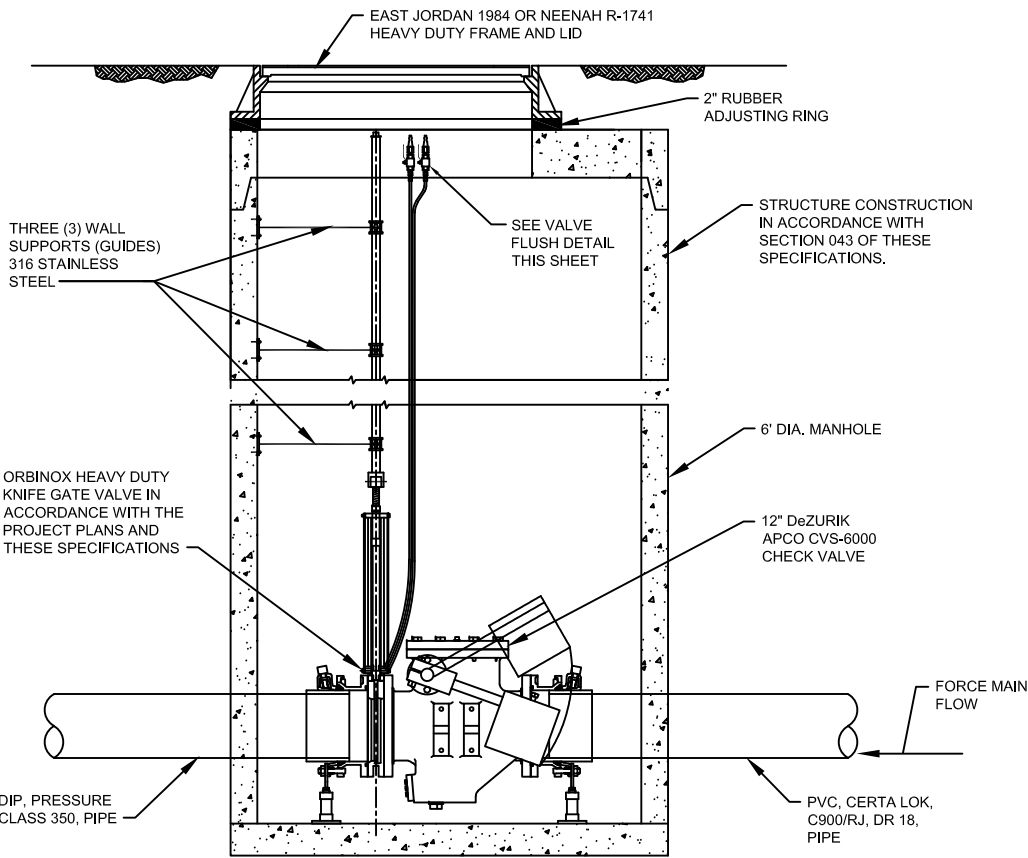


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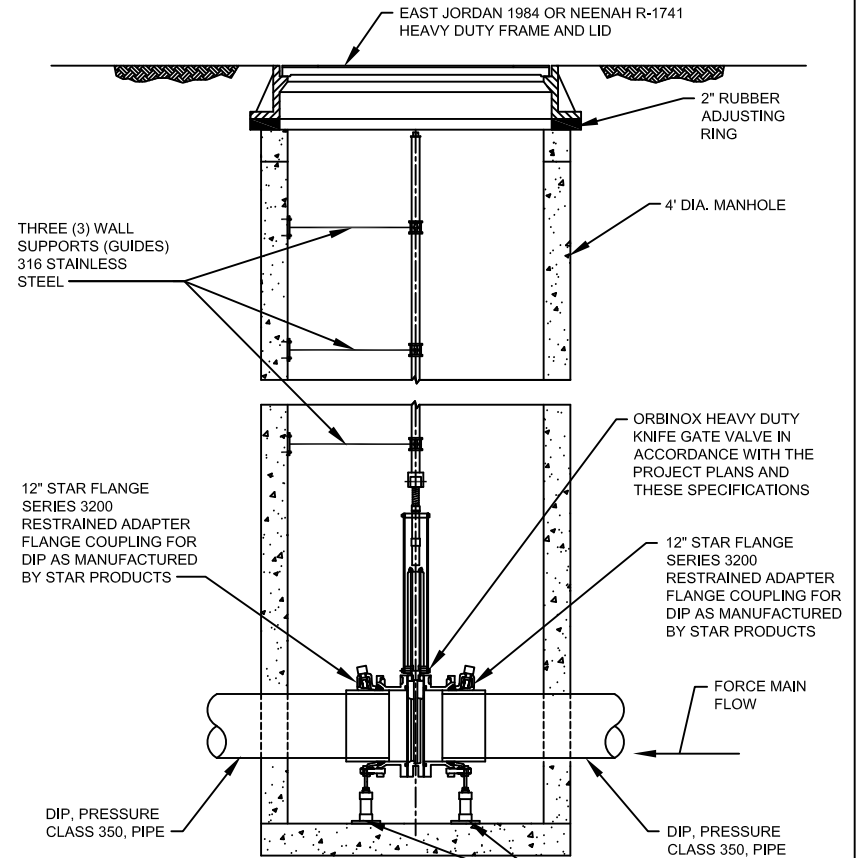
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DATE: DEC. 2016
REV: .

VERT. NTS
HORIZ. NTS
PAGE 095-42 (1 OF 2)

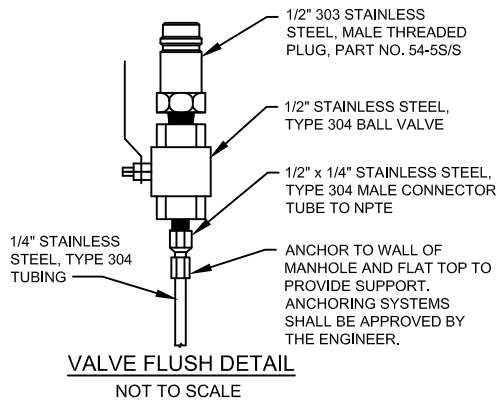


SECTION A-A
(NOT TO SCALE)



SECTION B-B
(NOT TO SCALE)

PROPOSED STRUCTURE
PROFILE VIEW
(NOT TO SCALE)



VALVE FLUSH DETAIL
NOT TO SCALE



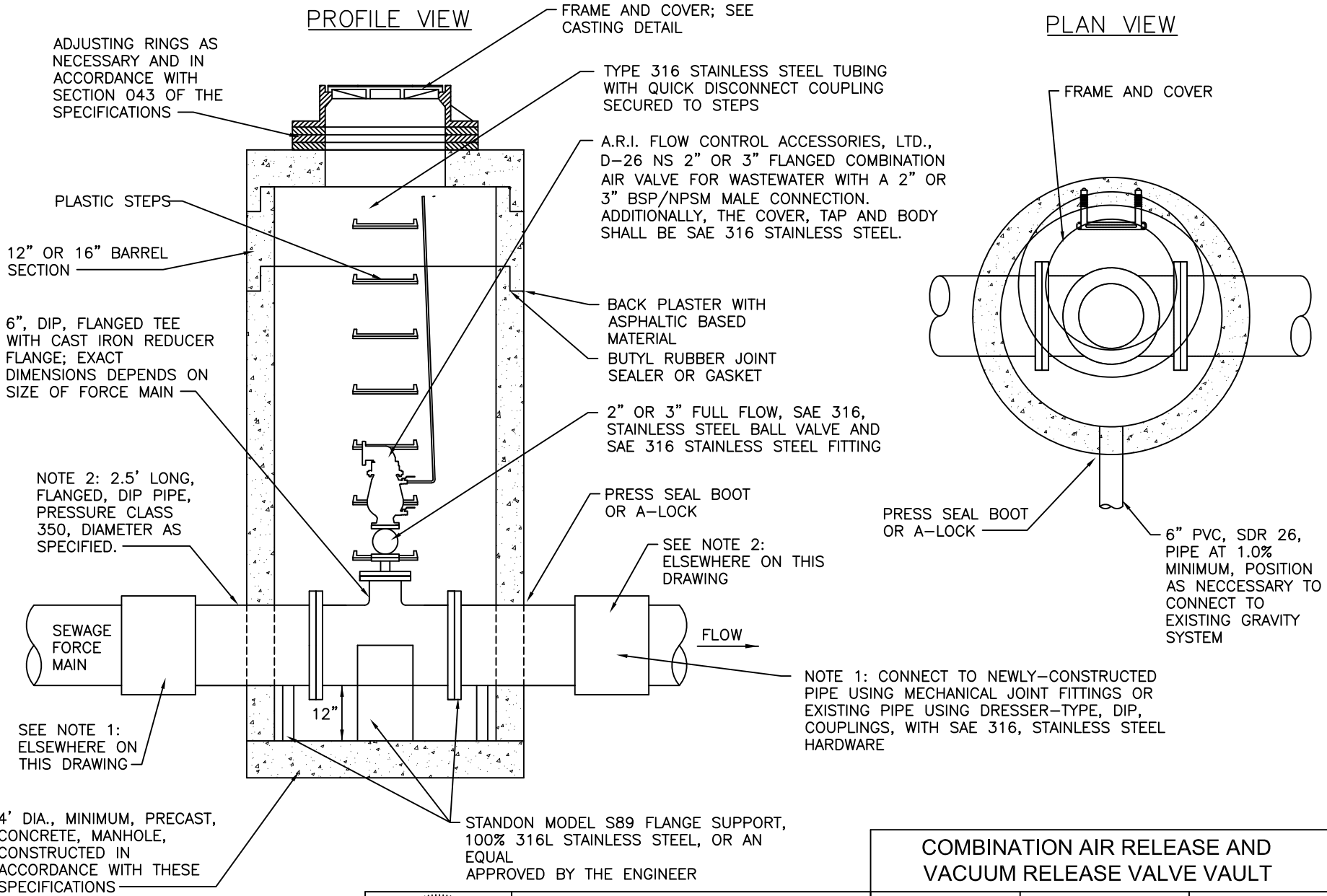
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TYPICAL DETAIL
EXTERIOR FORCE MAIN
CONTROL STRUCTURE

SURVEYED:	DATE: DEC. 2016	VERT. NTS
DESIGNED: ALH	REV: .	HORIZ. NTS
DRAWN: ARA		PAGE 095-42 (2 OF 2)
CHECKED: JES		
APPROVED: JES		

PROFILE VIEW

PLAN VIEW



ADJUSTING RINGS AS NECESSARY AND IN ACCORDANCE WITH SECTION 04.3 OF THE SPECIFICATIONS

FRAME AND COVER; SEE CASTING DETAIL

TYPE 316 STAINLESS STEEL TUBING WITH QUICK DISCONNECT COUPLING SECURED TO STEPS

PLASTIC STEPS

A.R.I. FLOW CONTROL ACCESSORIES, LTD., D-26 NS 2" OR 3" FLANGED COMBINATION AIR VALVE FOR WASTEWATER WITH A 2" OR 3" BSP/NPSM MALE CONNECTION. ADDITIONALLY, THE COVER, TAP AND BODY SHALL BE SAE 316 STAINLESS STEEL.

12" OR 16" BARREL SECTION

BACK PLASTER WITH ASPHALTIC BASED MATERIAL

6", DIP, FLANGED TEE WITH CAST IRON REDUCER FLANGE; EXACT DIMENSIONS DEPENDS ON SIZE OF FORCE MAIN

BUTYL RUBBER JOINT SEALER OR GASKET

2" OR 3" FULL FLOW, SAE 316, STAINLESS STEEL BALL VALVE AND SAE 316 STAINLESS STEEL FITTING

NOTE 2: 2.5' LONG, FLANGED, DIP PIPE, PRESSURE CLASS 350, DIAMETER AS SPECIFIED.

PRESS SEAL BOOT OR A-LOCK

SEE NOTE 2: ELSEWHERE ON THIS DRAWING

PRESS SEAL BOOT OR A-LOCK

6" PVC, SDR 26, PIPE AT 1.0% MINIMUM, POSITION AS NECESSARY TO CONNECT TO EXISTING GRAVITY SYSTEM

SEWAGE FORCE MAIN

FLOW

NOTE 1: CONNECT TO NEWLY-CONSTRUCTED PIPE USING MECHANICAL JOINT FITTINGS OR EXISTING PIPE USING DRESSER-TYPE, DIP, COUPLINGS, WITH SAE 316, STAINLESS STEEL HARDWARE

SEE NOTE 1: ELSEWHERE ON THIS DRAWING

12"

4' DIA., MINIMUM, PRECAST, CONCRETE, MANHOLE, CONSTRUCTED IN ACCORDANCE WITH THESE SPECIFICATIONS

STANDON MODEL S89 FLANGE SUPPORT, 100% 316L STAINLESS STEEL, OR AN EQUAL APPROVED BY THE ENGINEER

COMBINATION AIR RELEASE AND VACUUM RELEASE VALVE VAULT

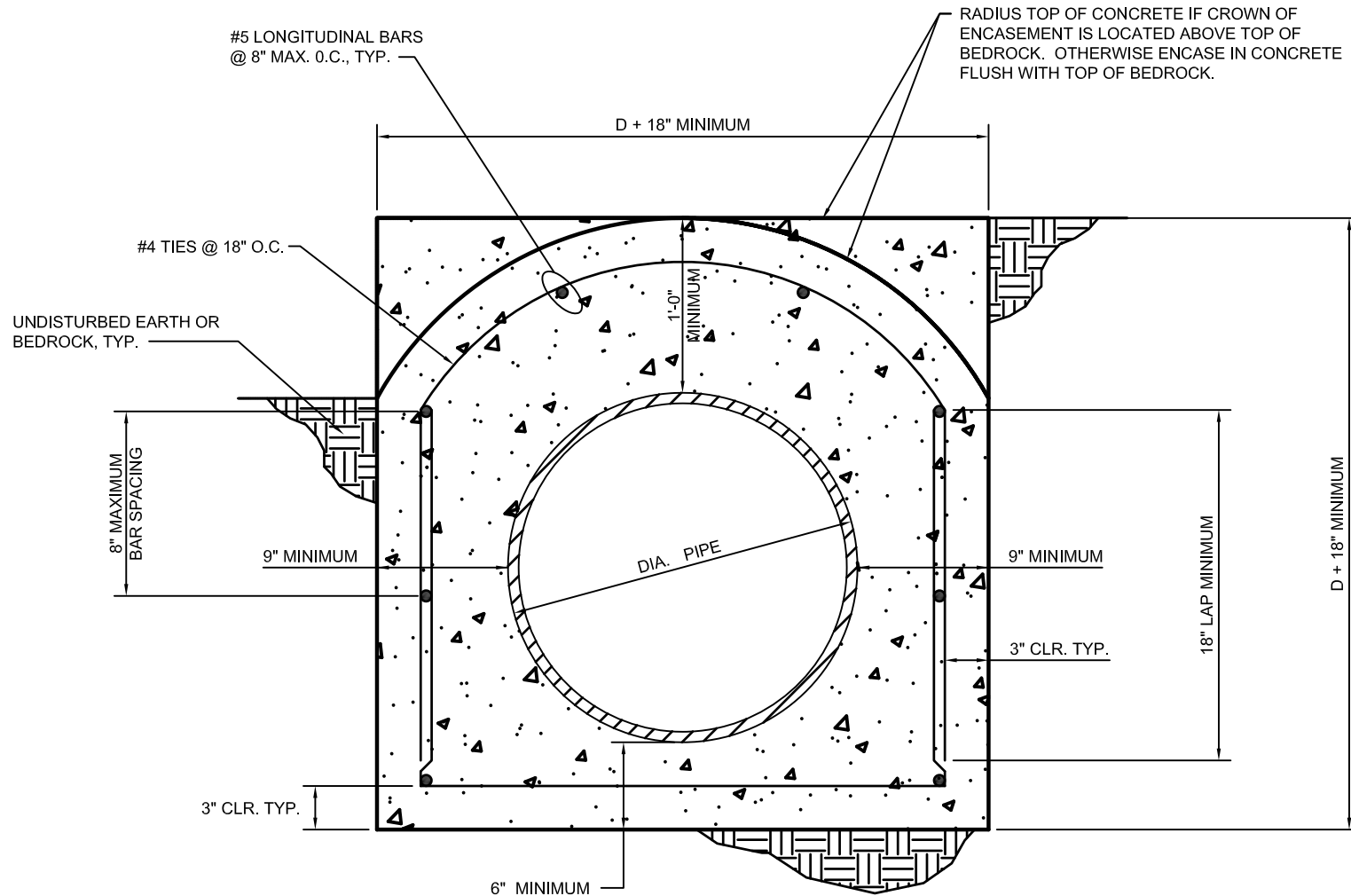


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DRAWN: ARA		PAGE 095-43
CHECKED: JES		
APPROVED: JES		

DETAILS\1612 COMBINATION AIR RELEASE AND VACUUM RELEASE VALVE VAULT (095-43).DWG 1=1

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REINFORCED CONCRETE ENCASEMENT DETAIL
NOT TO SCALE

TYPICAL DETAIL
REINFORCED CONCRETE ENCASEMENT

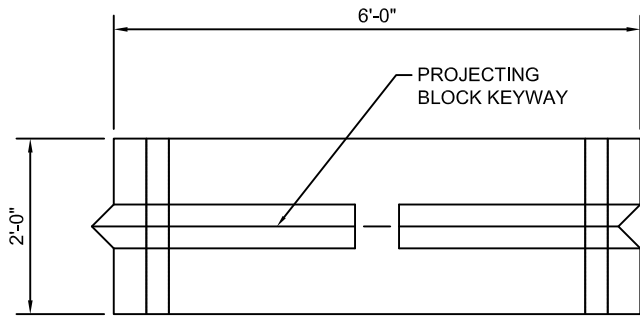


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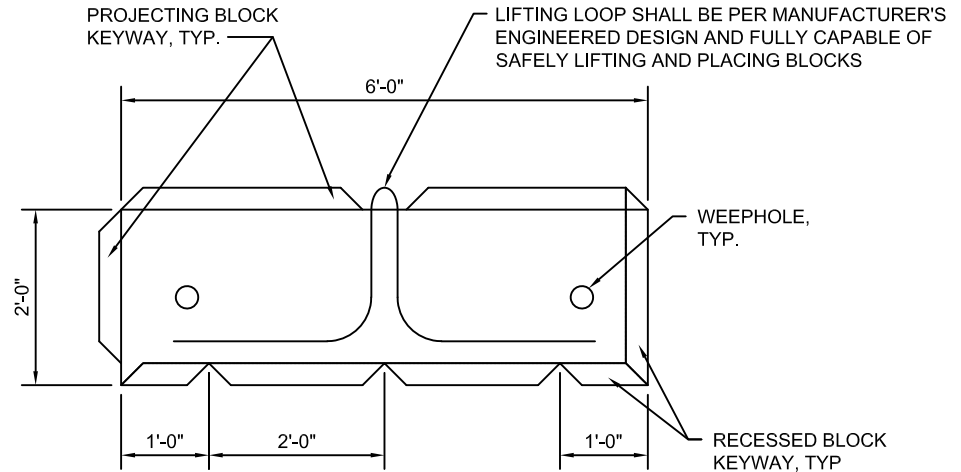
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DRAWN:		PAGE 095-44
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APPROVED: JES		

DETAILS095-44 (1).DWG 1=1

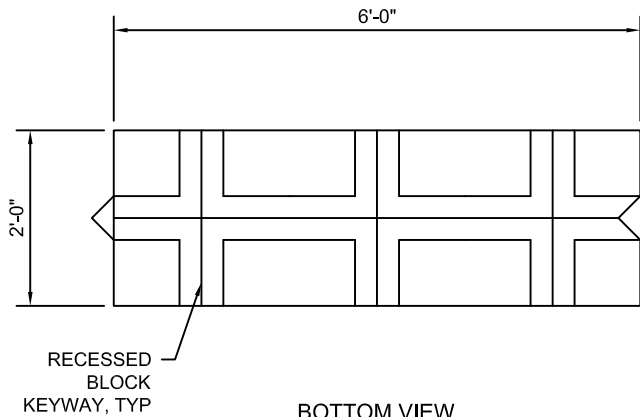
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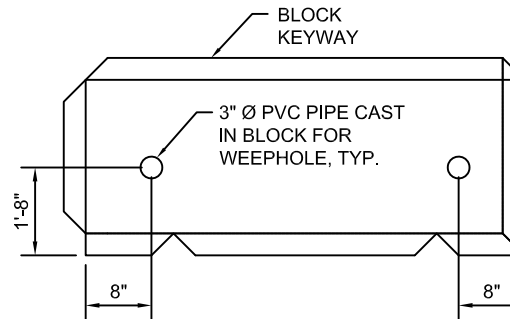
TOP VIEW
NOT TO SCALE



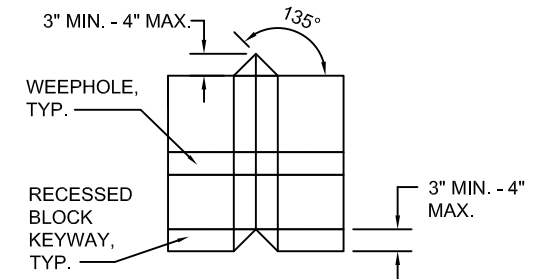
ELEVATION VIEW
NOT TO SCALE



BOTTOM VIEW
NOT TO SCALE



BLOCK WEEPHOLE DETAIL
NOT TO SCALE



BLOCK WEEPHOLE ELEVATION VIEW
NOT TO SCALE

NOTES:

- CONCRETE SHALL FOLLOW IDOT SPECIFICATION SECTION 503 FOR CLASS SI CONCRETE.

TYPICAL DETAIL
6 FT. INTERLOCKING CONCRETE BLOCKS



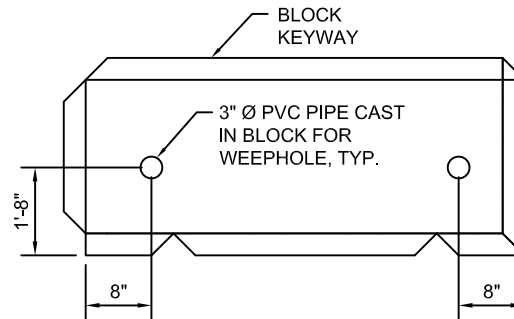
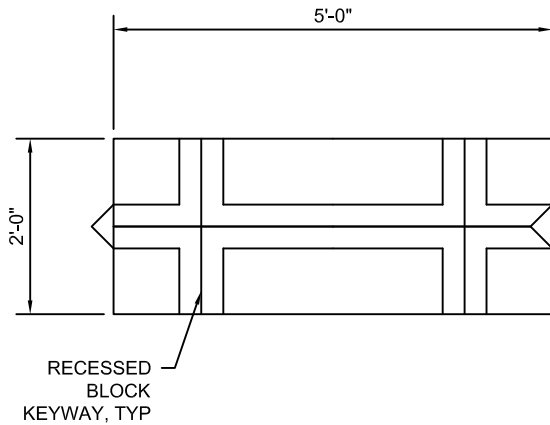
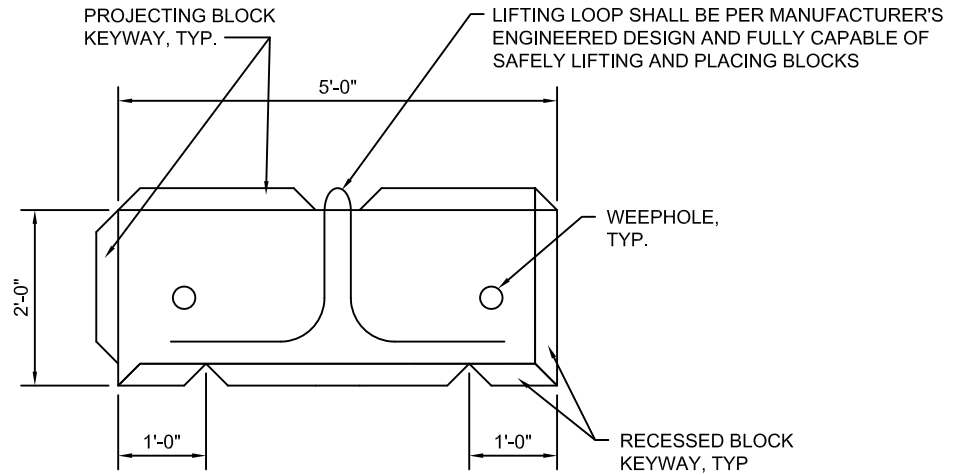
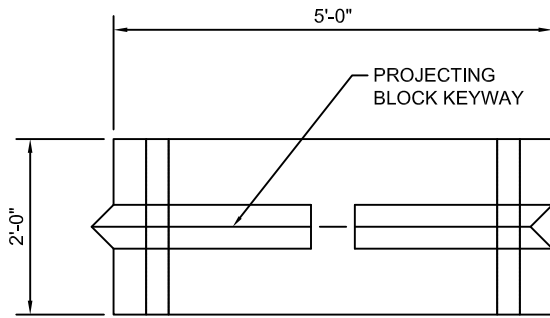
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2322 South Darst Street
Peoria, Illinois 61607-2093
Phone 637-3511 Fax 637-6614

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APPROVED: JES

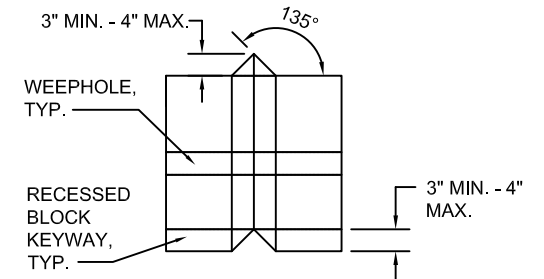
DATE: SEPT. 2017
REV: .

VERT. NTS
HORIZ. NTS
PAGE 095-45

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BLOCK WEEPHOLE DETAIL
NOT TO SCALE



BLOCK WEEPHOLE ELEVATION VIEW
NOT TO SCALE

NOTES:

- CONCRETE SHALL FOLLOW IDOT SPECIFICATION SECTION 503 FOR CLASS SI CONCRETE.

TYPICAL DETAIL
5 FT. INTERLOCKING CONCRETE BLOCKS



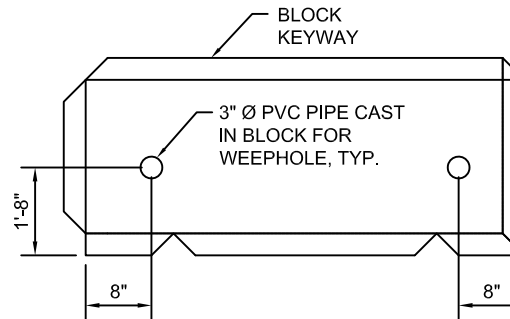
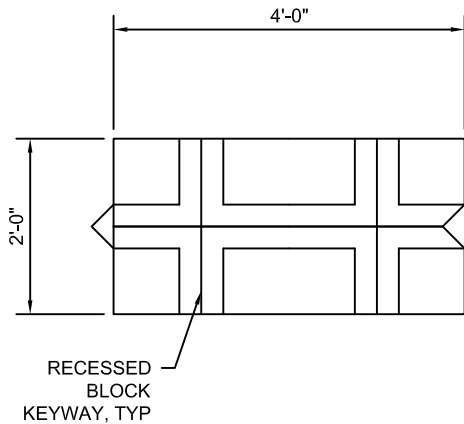
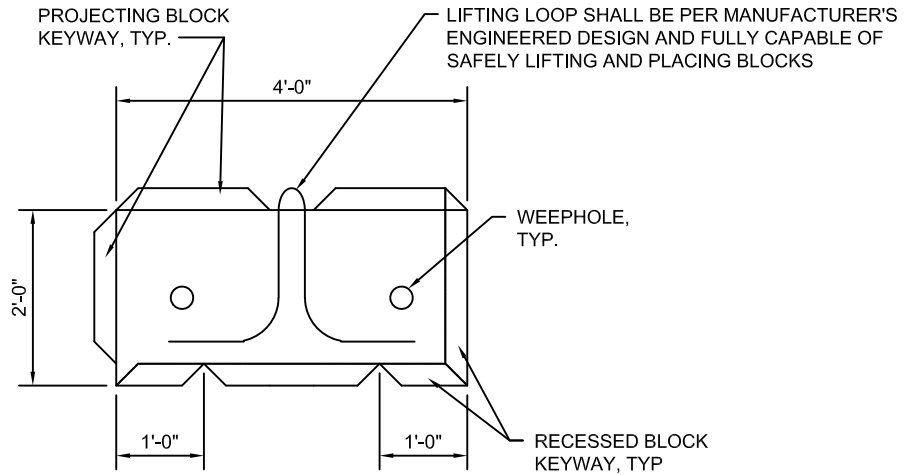
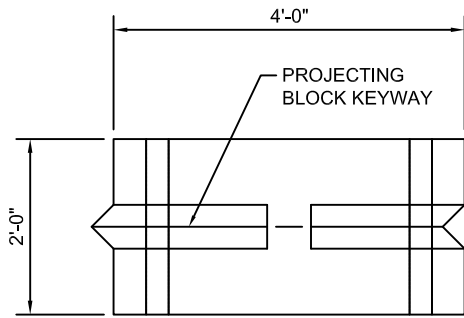
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SURVEYED: .
DESIGNED:
DRAWN:
CHECKED: JES
APPROVED: JES

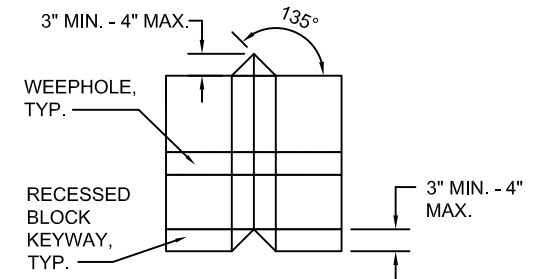
DATE: SEPT. 2017
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PAGE 095-46

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BLOCK WEEPHOLE DETAIL
NOT TO SCALE



BLOCK WEEPHOLE ELEVATION VIEW
NOT TO SCALE

NOTES:

- CONCRETE SHALL FOLLOW IDOT SPECIFICATION SECTION 503 FOR CLASS SI CONCRETE.

TYPICAL DETAIL
4 FT. INTERLOCKING CONCRETE BLOCKS



GREATER PEORIA SANITARY DIST.
2322 South Darst Street
Peoria, Illinois 61607-2093
Phone 637-3511 Fax 637-6614

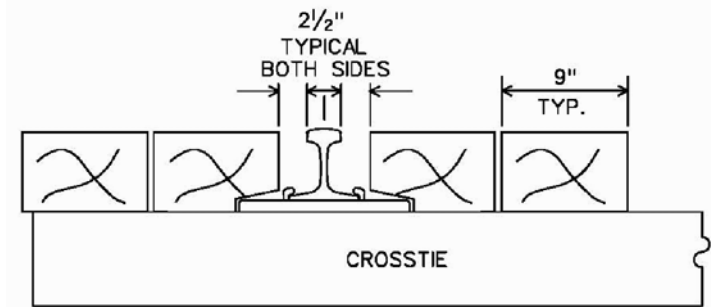
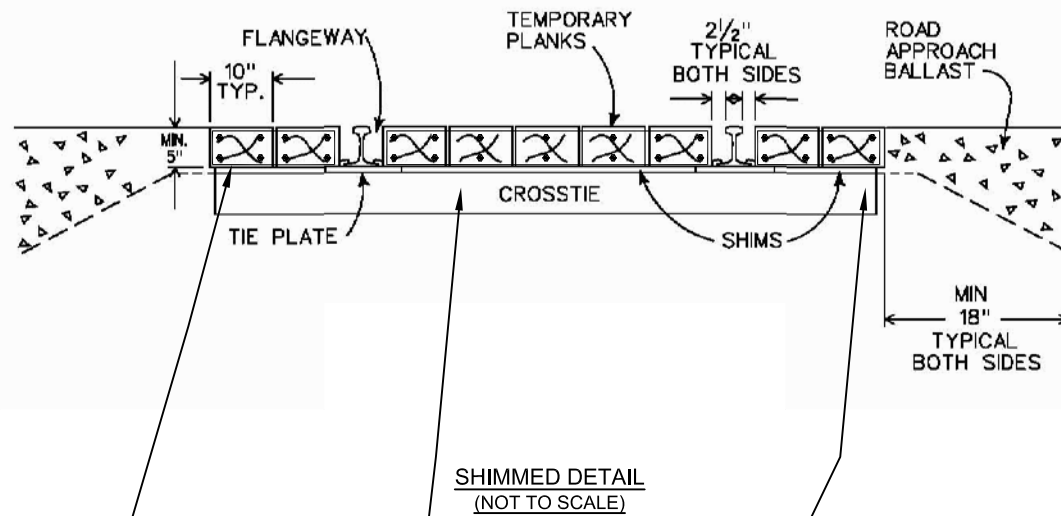
SURVEYED: .
DESIGNED:
DRAWN:
CHECKED: JES
APPROVED: JES

DATE: SEPT. 2017
REV: .

VERT. NTS
HORIZ. NTS
PAGE 095-47

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TIMBER PLANKS SHALL BE CONTINUOUS AND WITHOUT JOINTS FROM RIM BOARD TO RIM BOARD. PER 10' PLANK, INSTALL A MINIMUM OF FOUR WASHER HEAD TIMBER DRIVE SPIKES. PER 8' PLANK, INSTALL A MINIMUM OF THREE WASHER HEAD TIMBER DRIVE SPIKES. STAGGER WASHER HEAD TIMBER DRIVE SPIKES LONGITUDINALLY ALONG PLANKS. INSTALL OUTSIDE WASHER HEAD DRIVE SPIKES 6" FROM ENDS OF PLANKS. DRILL $\frac{1}{2}$ " DIAMETER HOLE FOR $\frac{5}{8}$ " DIAMETER WASHER HEAD TIMBER DRIVE SPIKES. COUNTER BORE 2-1/2" DIAMETER AND 1-7/8" DEEP.



NON-SHIMMED DETAIL
(NOT TO SCALE)

TOP OF PLANK ELEVATION SHALL EQUAL TOP OF RAIL ELEVATION, PLUS OR MINUS 1/4". TEMPORARY PLANK GRADE CROSSING MAY BE CONSTRUCTED WITH EITHER SHIMMED OR NON-SHIMMED DETAIL.

TO BOTH SIDES OF THE TEMPORARY PLANK CROSSING, AND ON BOTH SIDES OF AND BETWEEN THE RAILS, CONSTRUCT RIM BOARDS TO SECURE THE TEMPORARY PLANKS. RIM BOARDS SHALL BE 2" BY 6", NOMINALLY, AND ATTACHED WITH $\frac{5}{8}$ " BY 6" LAG BOLTS WITH WASHERS.

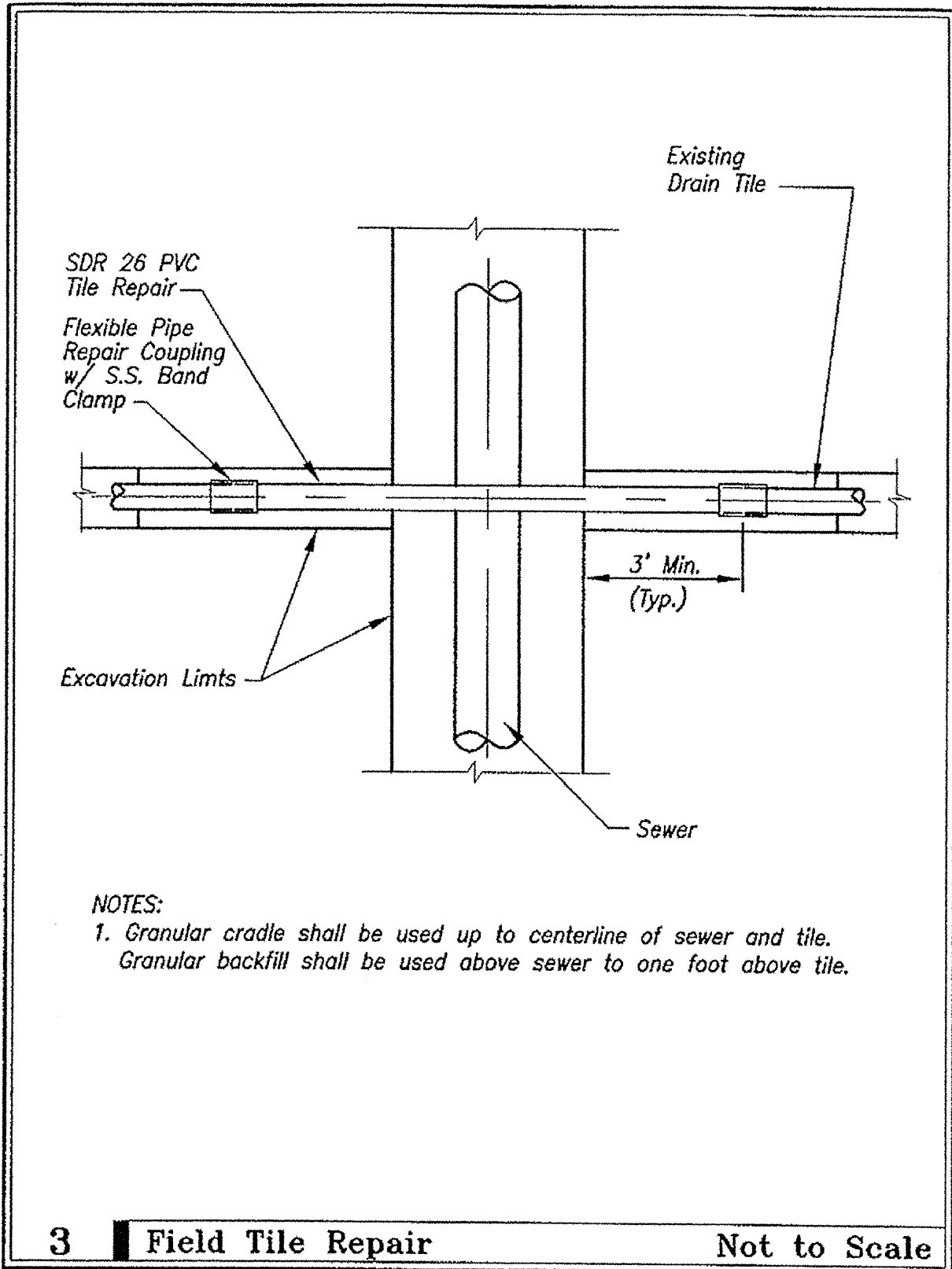
TEMPORARY PLANK GRADE CROSSING

SURVEYED:	DATE: NOV. 2017	VERT. NTS
DESIGNED:	REV:	HORIZ. NTS
DRAWN: ARA		PAGE 095-48
CHECKED: JES		
APPROVED: JES		



GREATER PEORIA SANITARY DIST.
2322 South Darst Street
Peoria, Illinois 61607-2093
Phone 637-3511 Fax 637-6614

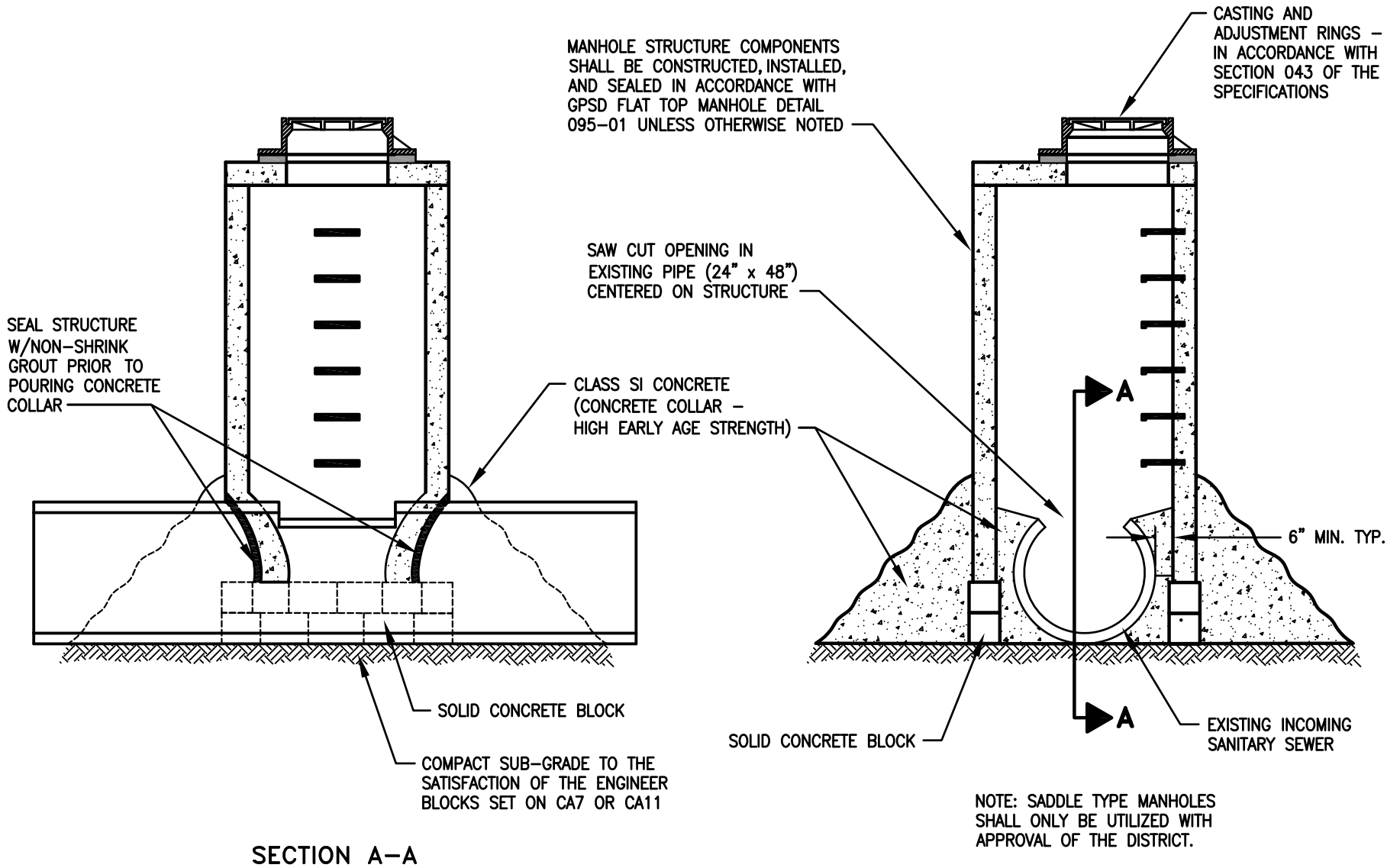
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NOTES:

1. Granular cradle shall be used up to centerline of sewer and tile.
Granular backfill shall be used above sewer to one foot above tile.

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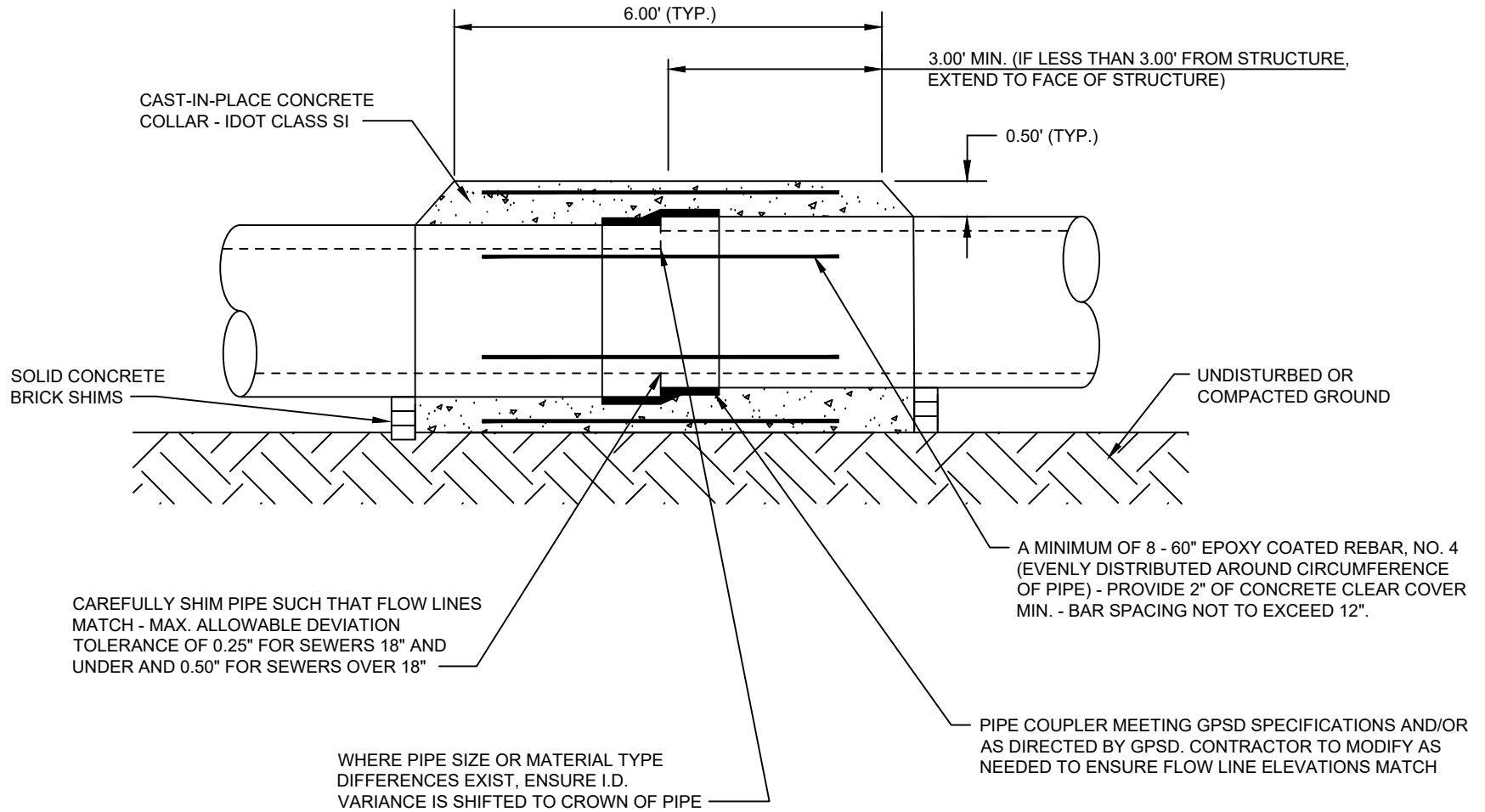
SADDLE-TYPE MANHOLE

SURVEYED:	DATE: JAN 21	VERT. NTS
DESIGNED:	REV:	HORIZ. NTS
DRAWN: ARA		PAGE 095-50
CHECKED: JLA		
APPROVED: JLA		



GREATER PEORIA SANITARY DIST.
 2322 South Darst Street
 Peoria, Illinois 61607-2093
 Phone 637-3511 Fax 637-6614

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REMAINING PIPE BEDDING AND BACKFILL SHALL BE IN ACCORDANCE WITH THE PLANS AND DISTRICT SPECIFICATIONS

**REINFORCED PIPE COUPLING COLLAR
DETAIL**



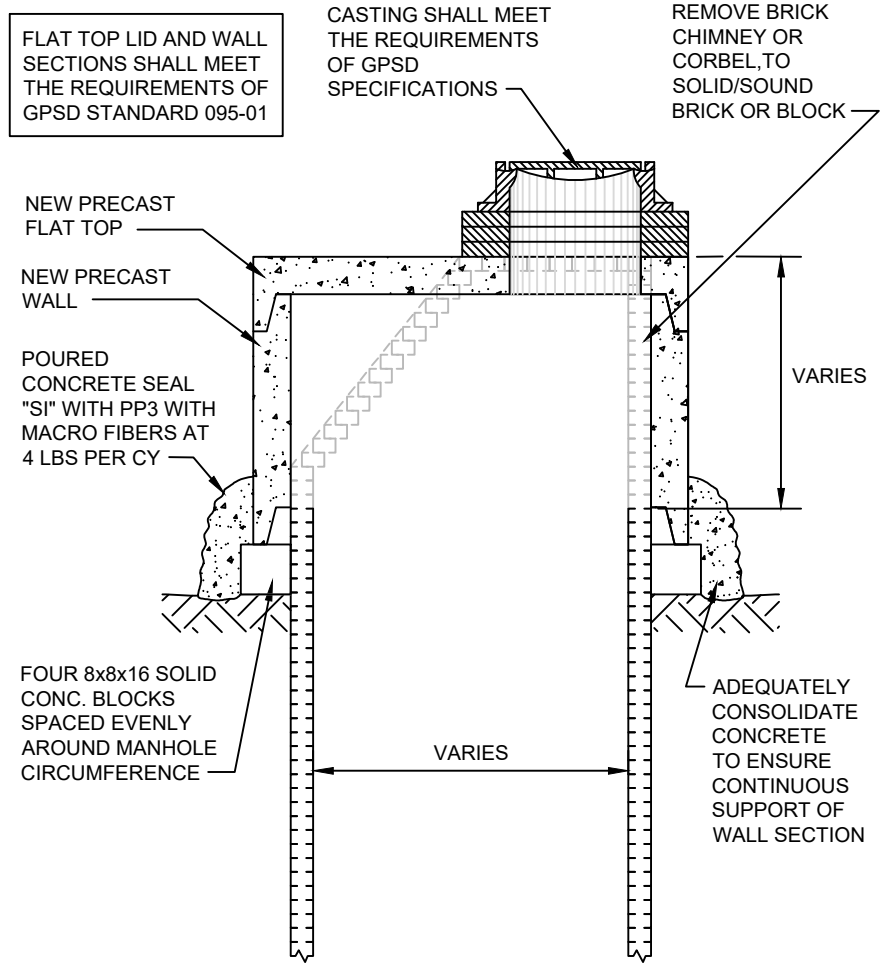
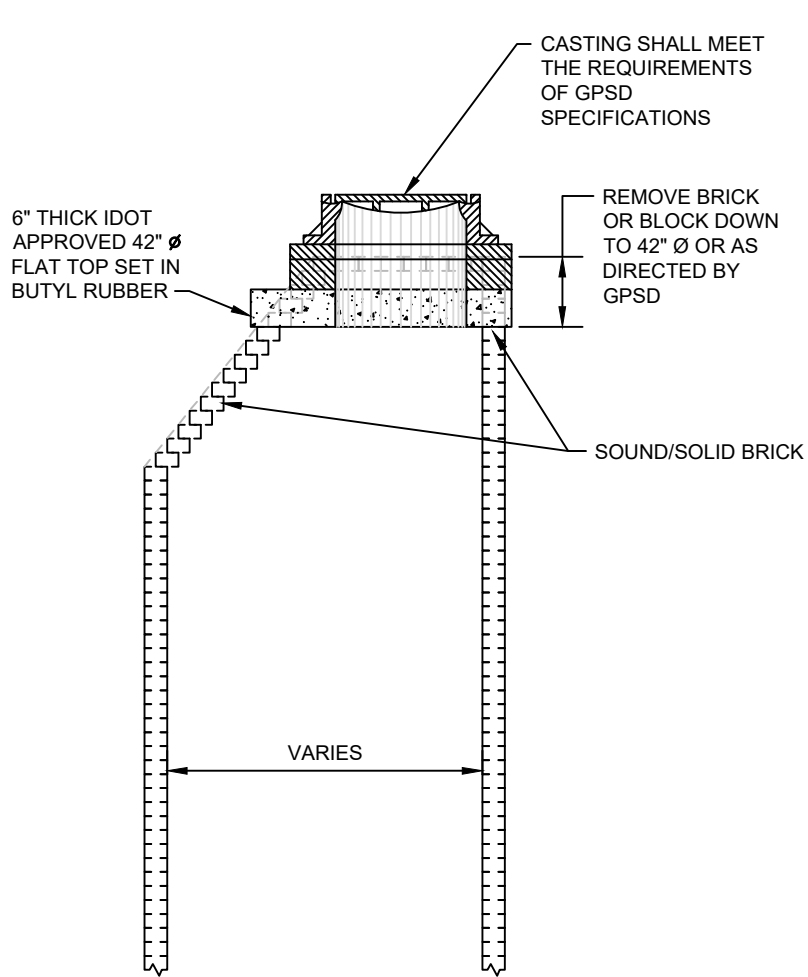
GREATER PEORIA SANITARY DIST.
 2322 South Darst Street
 Peoria, Illinois 61607-2093
 Phone 637-3511 Fax 637-6614

SURVEYED:
 DESIGNED:
 DRAWN: ARA
 CHECKED: JLA
 APPROVED: JLA

DATE: NOV 21
 REV:

VERT. NTS
 HORIZ. NTS
 PAGE 095-51

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BRICK MANHOLE ADJUSTMENT & RECONSTRUCTION DETAIL



GREATER PEORIA SANITARY DIST.
 2322 South Darst Street
 Peoria, Illinois 61607-2093
 Phone 637-3511 Fax 637-6614

SURVEYED:
 DESIGNED: JWB
 DRAWN: ARA
 CHECKED: JLA
 APPROVED: JLA

DATE: NOV 21
 REV:

VERT. NTS
 HORIZ. NTS
 PAGE 095-52

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SECTION 099
SPECIFICATIONS - TRAFFIC CONTROL

The Contractor shall construct, maintain and deconstruct temporary work zone traffic control devices as required by the Authority with jurisdiction over the work zone and these Specifications. Requirements will be conveyed to the Contractor in the form of permits issued by the Authority, verbal or written directions provided by the Authority in lieu of or that amend or supersede any issued permit, or, if no permit is required, as detailed in the Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction, latest edition, except as amended by these Specifications. Illinois Department of Transportation (IDOT) Illinois Highway Design Standards for Traffic Control can be accessed through the following URL: <http://idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Guides-&-Handbooks/Highways/Safety-Engineering/Illinois%20Highway%20Design%20Standards%20for%20Traffic%20Control%202013.pdf>. IDOT Quality Standards for Work Zone Traffic Control Devices can be accessed through the following URL: <http://www.idot.illinois.gov/Assets/uploads/files/Transportation-System/Manuals-Guides-&-Handbooks/T2/P006%20Quality%20Standard%20for%20Work%20Zone%20Traffic%20Control%20Devices.pdf>.

Any permits granted by an Authority are often included in appendices made part of these Specifications. The Contractor shall be responsible for obtaining any additional permits necessary to perform the work prescribed herein.

Access to locations of work within City of Peoria rights-of-way requires the acquisition of a permit or permits from the City of Peoria. Unless included in these Specifications, as necessary to allow completion of the work specified within these Specifications and shown on the Plans, the Contractor shall be responsible for the acquisition of all permits necessary from the City of Peoria and the completion of all tasks thereto, including, but not limited to, the design and proposal of proposed traffic control measures and the completion and submittal of necessary application forms. The Contractor shall be responsible for any and all payments required as part of the application process. Information about the City's application process can be obtained from the City of Peoria Department of Public Works.

The contractor shall recognize that the sanitary district cannot estimate either the time or effort necessary to acquire the necessary permits from the City of Peoria. The contractor shall not make claim for additional compensation in the forms of either time or money for unanticipated delay or labor necessary to acquire the necessary, City of Peoria, permits.

Upon receipt of verbal or written directions from any Authority with jurisdiction over a given work area or the Engineer, the Contractor shall be responsible for making any alternations or additions to existing traffic control measures and devices.

Removed permanent signing and pavement markings shall be replaced as before the commencement of construction, unless otherwise detailed in either a permit issued or in the Specifications of an agency having jurisdiction over a right-of-way in question.

If required in an issued permit, the Contractor shall notify the contact person of the agency with jurisdiction of a right-of-way in accordance with the time period required.

The Contractor shall have an individual on call twenty-four (24) hours a day familiar with and responsible for traffic control. The name and telephone number of this individual shall be submitted to the Engineer.

Open holes not yet backfilled shall be allowed during non-working hours only upon approval of the Engineer or his Representative. If such conditions are allowed, the Contractor shall immediately provide surveillance of the work site in accordance with the directions of the Engineer. Non-working hours might include overnight hours, holidays and weekends. As required by the Engineer, the Contractor shall document surveillance and activities performed towards the maintenance of traffic control measures.

The Contractor shall be allowed to close traffic lanes during normal working hours only with the approval of the agency that has jurisdiction over the right-of-way in question and as allowed by the Engineer. The Contractor shall notify the Engineer at least one (1) calendar week before any intended lane closures. The Contractor shall notify both the police dispatcher and the fire dispatcher of the community in which the work is to be performed of the exact time of the commencement of any lane or road closure at least one (1) calendar day before said lane or road closure. The Contractor shall erect all of the traffic controls and warnings necessary and shall be responsible for the protection of the public safety in connection with lane and road closures for the execution of operations to complete the Project.

Unless otherwise specified by the Engineer, all costs associated with traffic control design, equipment, implementation, maintenance, and removal shall be made part of the contract amount. Additionally, unless otherwise specified by the Engineer, all costs associated with the reestablishment, or construction, of permanent traffic control measures shall also be made part of the contract amount.

END OF SECTION



BUILDING SEWER REGULATIONS

for

THE GREATER PEORIA SANITARY AND SEWAGE DISPOSAL DISTRICT

Peoria County, Illinois

ADOPTED FEBRUARY 2023

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I N D E X

<u>Title</u>	<u>Page No.</u>
BUILDING SEWER REGULATIONS.....	1
APPENDIX A SANITARY SEWER CONNECTION DETAILS	A-1
APPENDIX B RESIDENCY OCCUPANCY CRITERIA	B-1
APPENDIX C COMMONLY USED QUANTITIES OF SEWAGE FLOWS FROM MISCELLANEOUS TYPE FACILITIES	C-1
APPENDIX D 77 ILLINOIS ADMINISTRATIVE CODE, PART 890 ILLINOIS PLUMBING CODE	D-1
APPENDIX E GPSD ORDINANCE No. 581	E-1
APPENDIX F GPSD POLICY REGARDING FATS, OILS AND GREASES (FOG).....	F-1

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1. A building sewer is the private property owner's sewer serving residential, commercial, or industrial property and shall be located whenever possible within the property lines of the owner.

Once the connection is made to the public main the entire building sewer becomes the property of the building owner for operation and maintenance. Building sewers include all pipe, wye, tee, stub or risers between the trunk sewer and the building. No connection may be made to the Sanitary District sewer without a permit.

A building sewer permit will only be issued to companies, corporations or other entities licensed and bonded with the Greater Peoria Sanitary District and actually making the physical connection. To avoid confusion on who should obtain the permit, the permit to connect must be obtained by companies, corporations, or any other entity actually making the connection to a GPSD or City of Peoria sewer. In addition, all connections must be made by those entities licensed and bonded with the Greater Peoria Sanitary District. Commercial Permits will only be issued after the District reviews the project site plan. Work on the project shall not begin until one working day after receiving the permit.

2. All building sewers shall be constructed in accordance with the Ordinances of the District, including but not limited to the GPSD Standard Specifications, and the Rules and Regulations for Trailer Coach Parks of the Illinois Department of Public Health.
3. Any person desiring to make a connection, or perform maintenance or repairs to a building sewer connected to a District sewer or one maintained and operated by the District, shall be licensed and bonded per District ordinance.
4. A building sewer permit issued by the Sanitary District does not authorize the opening of any highway, street, or alley without first notifying the proper state, county, township or city highway department, and securing a permit or bond as required by said highway department or street department.
5. The lowest floor elevation served by gravity must be above the ground surface over the District sewer at the point of connection ¹. In areas where the ground line over the District sewer is to be altered, the proposed final ground elevation shall be used. The maximum depth to the top of the building service sewer shall be three (3) feet below finished grade at the point where it enters the building. In all buildings in which the building drain is too low to provide gravity flow to the District sewer, all sewage carried by such drain shall be lifted by approved mechanical means and discharged into the building sewer. No water operated sewage ejector shall be used.
6. The building sewer shall be connected to the District sewer at an existing wye, tee, stub or riser location as provided in the building sewer permit. Such connection, locations, depth or other information given by the District shall serve only as a guide, however, and no guarantee of accuracy is made by the District. All connections to sewer mains shall be approved by the District.

1 - See Appendix A.

- A. Connection to a District sewer where there is no existing wye, tee, stub or riser, or where such inlet location cannot be found, shall be made by tapping the existing sewer and connecting the proposed lateral with a saddle as specified in the following table.

6" Diameter Lateral Sewer Type	Receiving Sewer Diameter	Manufacturer	Saddle Type
PVC, SDR 26	8-14"	Ford Meter Box	FSS-1440
	15-25"	Ford Meter Box	FSS-25800
	26-50"	Ford Meter Box	FSS-5080

- B. Existing pipes shall be protected after the "tapping" process by installing a CLSM encasement around the pipe. The encasement shall start at the saddle and proceed upstream and downstream a minimum of 12". Encasement shall be installed a minimum of 12" thick around the pipe.
- C. Alternatively, at the approval of GPSD, the existing sewer may be cut and a PVC tee inserted and secured with shielded Fernco couplings.
- D. Building sewers, 8-inch in diameter, or larger, may be connected to existing manholes with District approval. These connections may be made when the existing manhole base contains a pre-cast invert and pre-formed, plugged, opening at the flow line of the manhole. Opening shall have a "Press Seal Boot" or "A-Lock" providing a water tight seal. When no pre-formed opening exists at the flow line, a new opening may be core drilled with a boot installed in accordance with the District's General Specifications. Splash drops for building sewers will not be permitted.
7. In general, the building sewers shall be 6-inch diameter bell and spigot pipe. Branch connections within five feet of the building may be 4-inch diameter bell and spigot pipe. Within five feet of the building, the sanitary sewer shall comply with the State of Illinois Plumbing Code.

Pipe materials shall be poly vinyl chloride (PVC). Clay or ductile iron pipe may be used only as approved by GPSD. PVC pipe shall comply with ASTM designation D-3034, SDR26 minimum wall thickness and joints shall conform to ASTM designation D-3212. PVC joint gaskets shall meet ASTM designation F-477. Glued joints will be allowed on 6" PVC fittings provided that:

- A. There is no free running water in the building sewer service excavation.
- B. Pipe and fittings are kept clean and in new condition.
- C. The glued joints shall be kept dry until the glue has set. Set time shall be determined by the glue manufacturer.

- D. If wet conditions exist, the contractor shall be required to use gasket fittings.
- E. PVC within 5' of the building shall comply with the State of Illinois Plumbing Code.

Clay pipe shall be extra strength vitrified conforming to the ASTM designation C-700 as amended with joints conforming ASTM designation C-425 as amended. Ductile iron pipe and fittings shall meet the requirements of ASTM designation A- 746. All ductile iron pipe and fittings shall be ceramic epoxy lined.

Where pipes of different sizes are to be joined, such as 4-inch cast iron to 6-inch clay, a Fernco Strongback reducer coupling must be used. Donut reducers are acceptable in transition from 6" clay to 4" or 6" PVC at a bell. Reducers shall be backfilled with approved bedding material. Concrete or other types of sealing will not be acceptable. All pipes must be joined in accordance with the manufacturer's recommendations so that no storm or ground water shall infiltrate into the sanitary sewer.

- 8. Building sewers shall have a minimum cover of not less than 30 inches in private property and 48 inches in public rights of way or private access roads. Approved slopes for 6-inch sewers shall not be less than 12 inches per 100 feet. Except for the riser pipe connections in mobile home parks, the maximum slope shall not be more than 12 inches per foot.

Building sewers for privately owned mobile home parks shall terminate on the mobile home site with a vertical riser pipe which shall extend not less than six inches above the ground. The vertical riser shall be capped and sealed at the time of construction, and shall be kept sealed at all times that it is not connected directly to the discharge piping of the mobile home or trailer.

Clean-outs used on building sewers shall be constructed in accordance with the Building Sewer Cleanout Detail of the Sanitary District's General Specifications. Pipe material shall be PVC. The clean-out shall be tightly plugged to eliminate surface water inflow. Clean-outs on commercial building sewers or sewers subject to vehicular traffic shall be concrete encased.

- 9. A building sewer may be constructed by directional drilling, or other boring methods, when approved by the District. When boring is used for construction, the pipe must be uncovered for inspection at the point of connection with the main line sewer and within five (5) feet of the building.
- 10. All new building sewer installations, with the exception of those constructed by directional drilling or boring, shall be bedded with crushed stone in accordance the Sanitary District's General Specifications.

11. All commercial building sewers shall incorporate a pre-cast sampling access structure constructed in accordance with the Sanitary District's General Specifications. Sampling access structures shall be located downstream of all branch connections and may be used as clean-outs. Each commercial unit shall have their own pre-cast sampling access structures. More than one unit will not be allowed to use the same structure.
12. No downspouts, open drains, footing tile, septic tanks or cesspools are to be connected to the building sewer, nor is any other source of storm or ground water permitted into the sanitary sewers. Septic tanks or cesspools should be drained and filled with granular materials. Storm water drains should be connected to a storm sewer if possible, or otherwise designated to drain onto the surface of the property or the street.

Building sewers subject to flooding or ponding conditions, shall be provided with drain plugs or valves to protect the sanitary sewers and property owners building during heavy rain or high-water periods. Exposed drain lines shall be protected from freezing as directed by GPSD.

13. Mobile Home Parks may connect multiple units to privately owned building sewer as approved by GPSD. Each structure including each mobile home unit facility shall pay an individual permit fee as specified in the District Ordinance.
14. A separate and independent building sewer shall be provided for every building, except that where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, yard, or driveway, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer.
15. Building sewers to service new structures, but not including Mobile Home Parks, shall be constructed as follows:

The building sewer shall terminate at a point not closer than five feet from the outside of the structure. A connection shall be made at this point with an eight-foot minimum length piece of pipe meeting the requirements of the State of Illinois Plumbing Code, five feet of which shall extend outside the building wall or footing. The remaining three feet or more shall extend inside the building and be plugged. The plug shall only be removable by destruction. Plugs shall be solvent cement PVC cap or cast-iron blind plug with gasket. Under no conditions shall this plug be removed until the house or structure is under roof and the interior plumbing is to be connected to the various fixtures in the building.

16. Building plans for all new or existing commercial or industrial buildings, and Mobile Home Parks, showing plumbing lines, traps, clean-outs and fixtures, shall be submitted to the District for approval before a Building Sewer Permit is issued. Permit fees shall be determined by the proposed building use.
17. All sewer permits shall be valid for one year after date of issue shown on the permit. If work is not completed in this year, it shall be necessary to secure a new permit. Work on

the building sewers for Commercial Permits shall not begin until one working day after receiving the Permit. Once excavation for the building sewer is initiated, all work associated with the building sewer, except surface restoration, must be completed within 5 working days. This 5-day construction period may be extended based on written documentation of factors beyond the control of the person performing the work. The written request for a time extension shall be submitted before the original 5 days have expired.

18. Grease Interceptor

- A. Commercial buildings which can be expected to generate significant quantities of fats, oils and greases (as determined by the Sanitary District) shall install a grease interceptor with a minimum volume of 250 gallons. Restaurants generating large quantities of fats, oils and greases (as determined by the Sanitary District) shall install a grease interceptor with a minimum volume of 1000 gallon. The interceptor shall be installed on those drain lines serving the grease generating area of the building. All domestic waste lines from the restroom facilities shall exit the building in a separate drain line and shall not discharge into the grease interceptor. Grease intercepting facilities shall be constructed of an approved standard design in accordance with the Typical Detail, 250 Gallon Grease Trap and the Typical Detail, 1000 Gallon Grease Trap of the Sanitary District's General Specifications.

Grease interceptor installation is required for all commercial buildings where the initial use involves a significant quantity of food preparation. Where an existing building is being remodeled or rehabilitated to include a food preparation activity, the quality of the actual sewage generated may be monitored for compliance with fat, oil and grease concentration limits. Failure to comply with established limits will result in the owner being required to bring the quality of the sewage into compliance. This may result in the installation of a grease interceptor. Maximum concentration for Grease & Oil (FOG) is stated in Appendix F.

- B. Gasoline, oil and flammable liquids interceptors shall be required as per the Illinois Plumbing Code Section 890.520. (Appendix D)

19. Contractor shall backfill and restore the lateral excavation to IDOT, county, township, city, engineers, or owner's specifications.

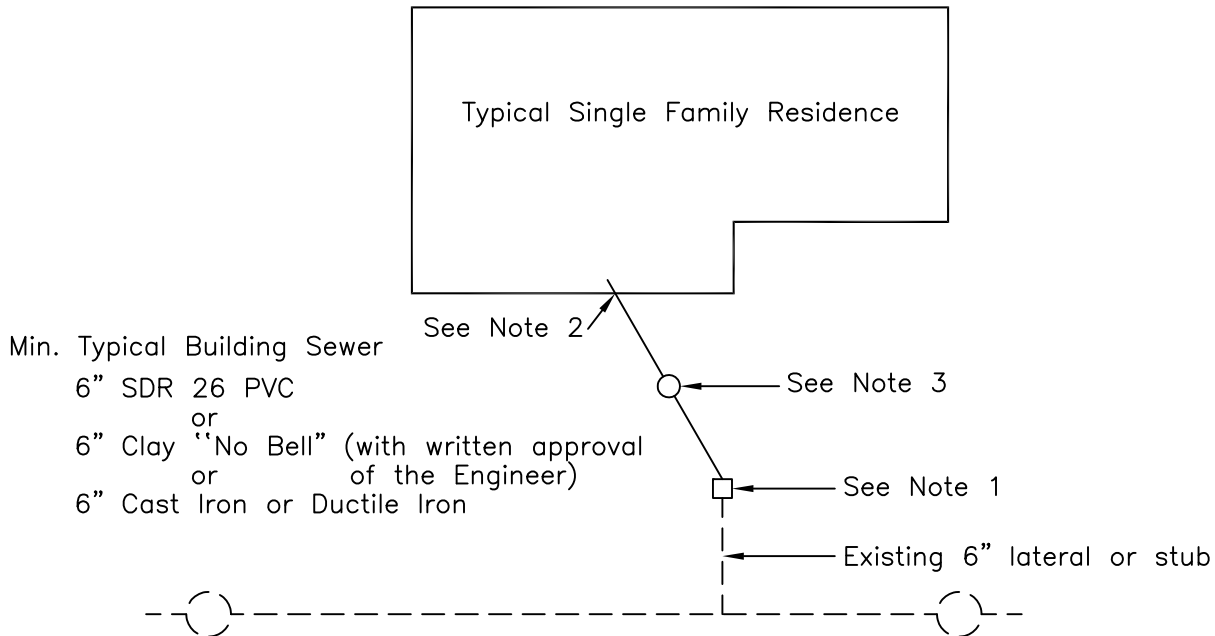
20. The GPSD Engineering Department, telephone number (309) 272-4844, must be notified when the building sewer is under construction. All building sewers must remain uncovered until after they have been inspected by the District. Any installation that has been completed or backfilled without an inspection by the District shall be uncovered at the Contractor's expense, then inspected by the District.

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APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL A

Residential (Single Family Dwelling)
 (Mobile or Modular Homes see 095-13 of GPSD Standard Details)



Min. Typical Building Sewer
 6" SDR 26 PVC
 or
 6" Clay "No Bell" (with written approval
 or of the Engineer)
 6" Cast Iron or Ductile Iron

- Note:
1. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 2. Building sewers within 5' of the building shall meet State of Illinois Plumbing Code.
 3. Install a clean-out on the outside of the building.
 4. Residential Permit Required per dwelling unit.

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 - 5.0 Bedding GPSD General Specification.

Legend

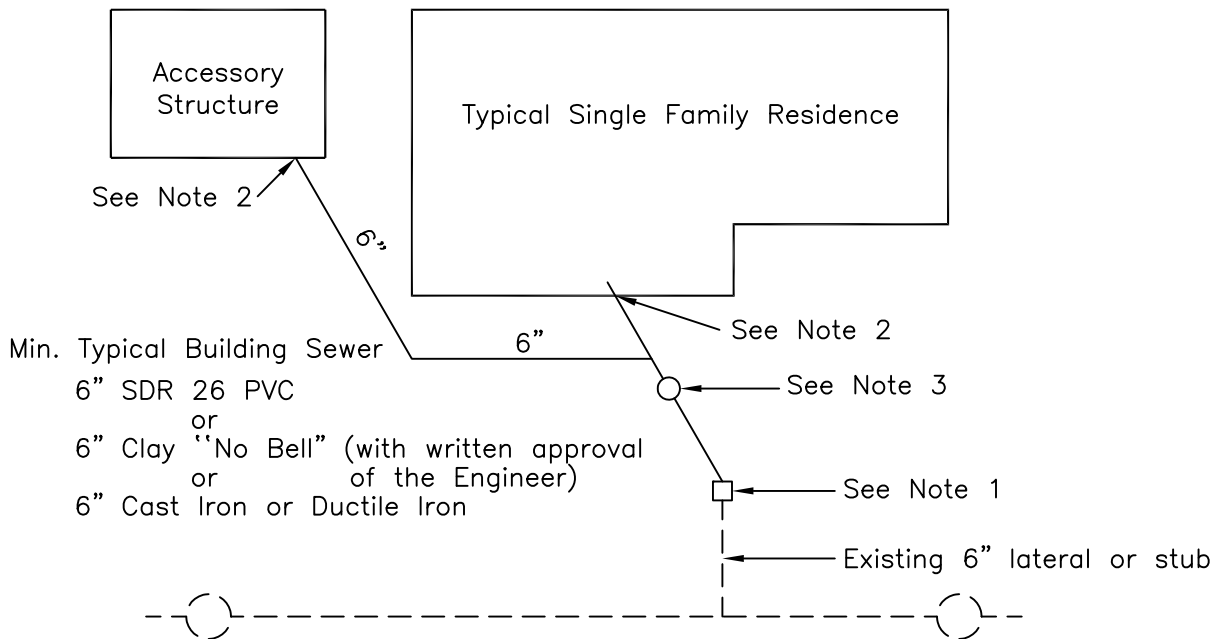
----- 8" or larger Main Line Sewer

 Existing Manhole

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL B

Residential (Single Family Dwelling)
 (Mobile or Modular Homes see 095-13 of GPSD Standard Details)



- Note:
1. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 2. Building sewers within 5' of the building shall meet State of Illinois Plumbing Code.
 3. Install a clean-out on the outside of the building.
 4. Residential Permit Required per dwelling unit.

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 - 5.0 Bedding GPSD General Specification.

Legend

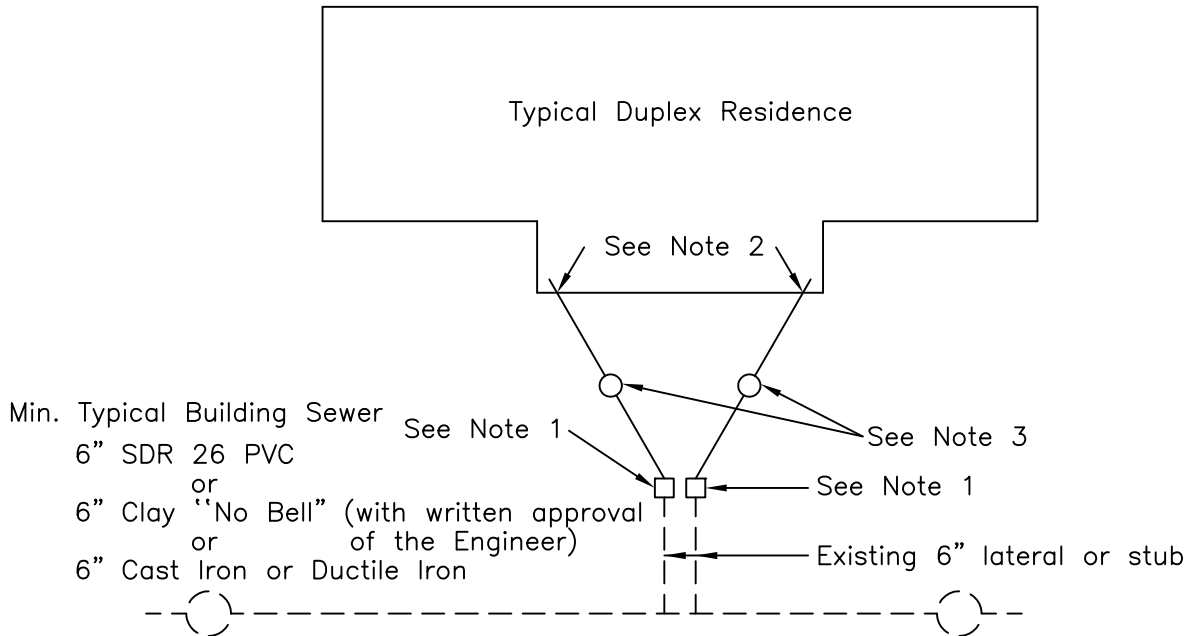
----- 8" or larger Main Line Sewer

 Existing Manhole

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL C

Residential Townhouse, Duplex, Triplex, etc.



- Note:
1. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 2. Building sewers within 5' of the building shall meet State of Illinois Plumbing Code.
 3. Install a clean-out on the outside of the building.
 4. One Residential Permit Required per dwelling unit.

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 – 5.0 Bedding GPSD General Specification.

Legend

----- 8" or larger Main Line Sewer

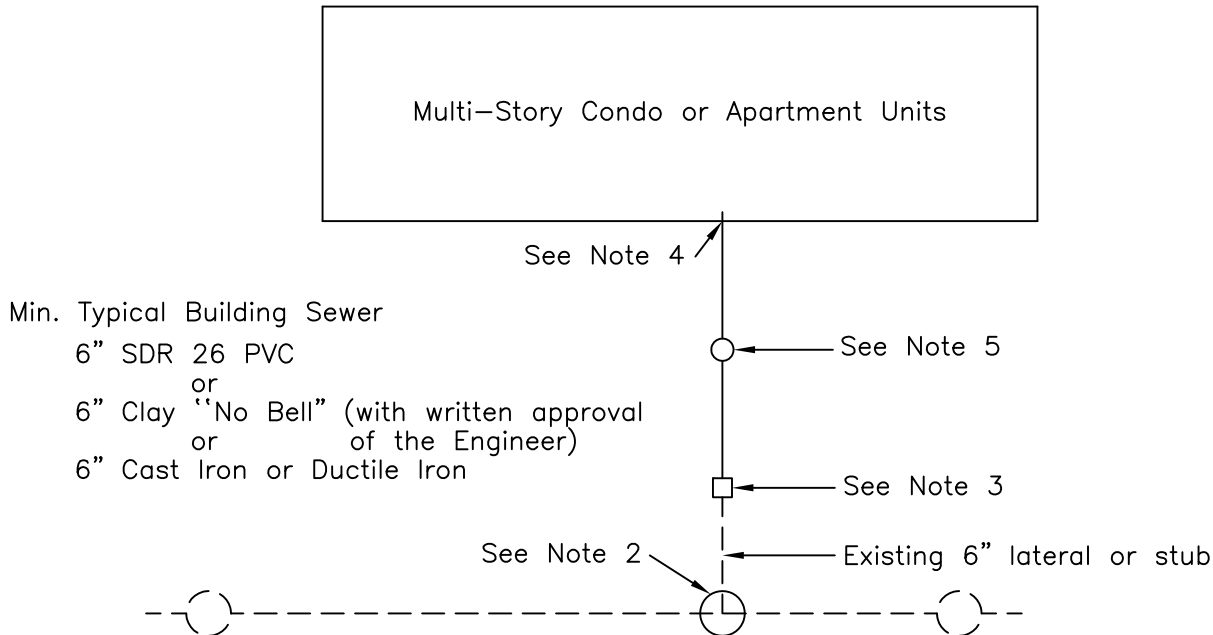
 Existing Manhole

BUILDING SEWER REGULATIONS

SANITARY SEWER CONNECTION DETAILS

DETAIL D

Residential Condominium, Apartment,
Retirement Centers, Dormitories, etc.



- Note:
1. Building sewer shall be sized per Illinois Administrative Code Chapter II (attached in appendix) and GPSD General Specifications Section Design Criteria. Discharges greater than 15 P.E. will require an EPA Permit.
 2. If 8" or larger building sewer is installed, a manhole will be installed in the main line sewer.
 3. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 4. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 5. Install a clean-out on the outside of the building.
 6. One Residential Permit Required per dwelling unit.
 7. See Detail "F", Note 9 for residential in combination with a commercial building.

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 - 5.0 Bedding GPSD General Specification.

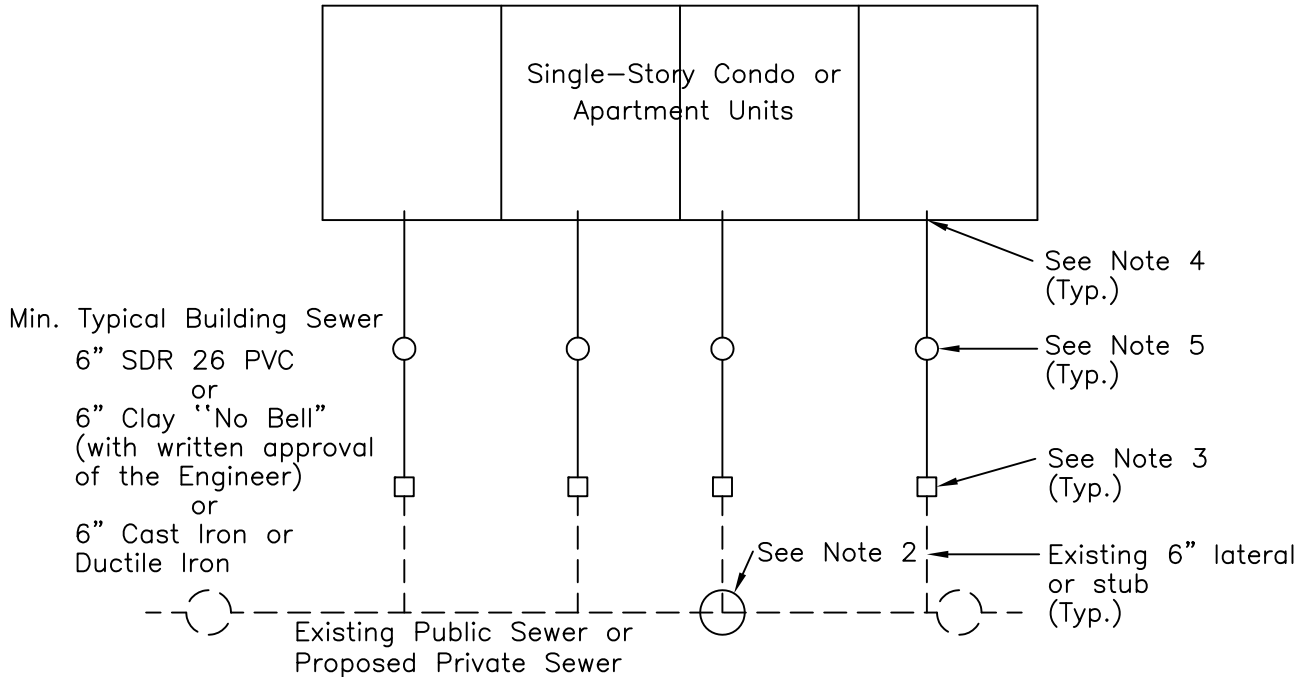
Legend

- 8" or larger Main Line Sewer
- Existing Manhole
- Proposed Manhole

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL E

Single-Story Residential Condominium or Apartment



- Note:
1. Building sewer shall be sized per Illinois Administrative Code Chapter II (attached in appendix) and GPSD General Specifications Section Design Criteria. Discharges greater than 15 P.E. will require an EPA Permit.
 2. If 8" or larger building sewer is installed, a manhole will be installed in the main line sewer.
 3. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 4. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 5. Install a clean-out on the outside of the building.
 6. One Residential Permit Required per dwelling unit.
 7. See Detail "F", Note 9 for residential in combination with a commercial building.

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 - 5.0 Bedding GPSD General Specification.

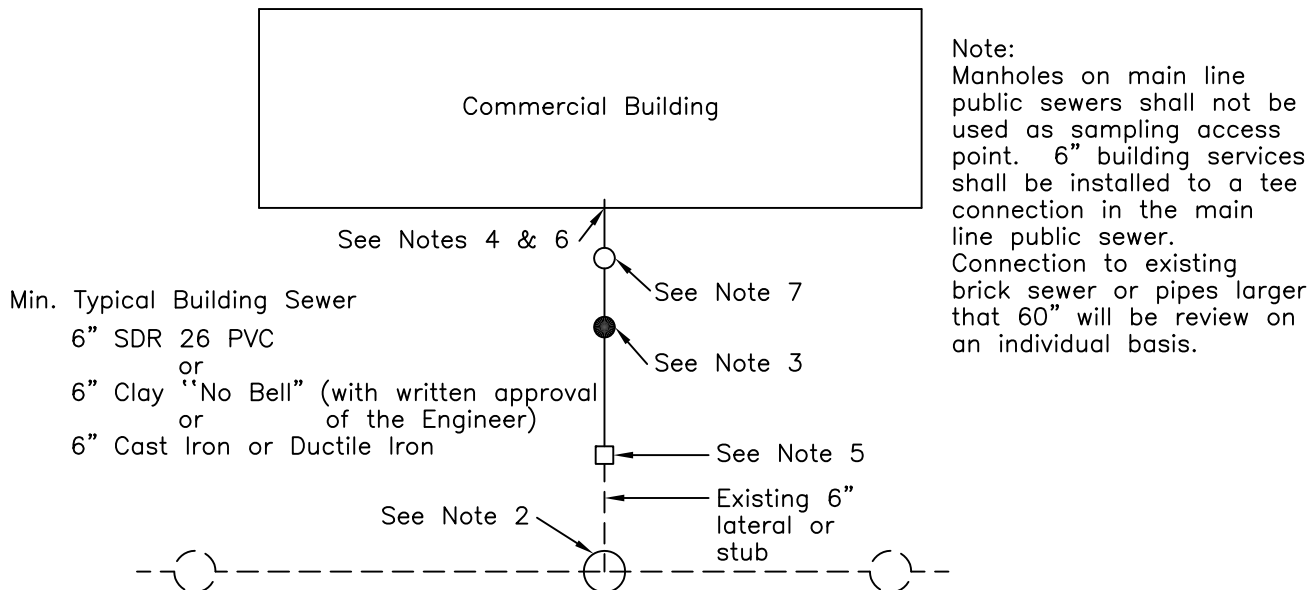
Legend

- 8" or larger Main Line Sewer
- Existing Manhole
- Proposed Manhole

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL F

Commercial Individual Building (Single or Multi Story)
 (Includes Multi Story, Multi Tenant, with One Owner)



Min. Typical Building Sewer
 6" SDR 26 PVC
 or
 6" Clay "No Bell" (with written approval of the Engineer)
 or
 6" Cast Iron or Ductile Iron

- Note:
1. Building sewer shall be sized per Illinois Administrative Code Chapter II (attached in appendix) and GPSD General Specifications Section Design Criteria. Discharges greater than 15 P.E. will require an EPA Permit.
 2. If 8" or larger building sewer is installed, a manhole will be installed in the main line sewer.
 3. A Sampling Access Structure shall be located at any convenient location along the building sewer.
 4. Gasoline, oil and flammable liquids interceptor shall be required as per 77 Illinois Administrative Code Section 890.520 (See attached Appendix C.)
 5. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 6. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 7. Option of installing a clean-out on the outside of the building.
 8. Commercial Permit Required
 9. Residential units in combination with a commercial building will be covered by the commercial permit. A separate residential permit will not be required.

- General Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 - 5.0 Bedding GPSD General Specification.

Legend

----- 8" or larger Main Line Sewer



Existing Manhole



Proposed Manhole

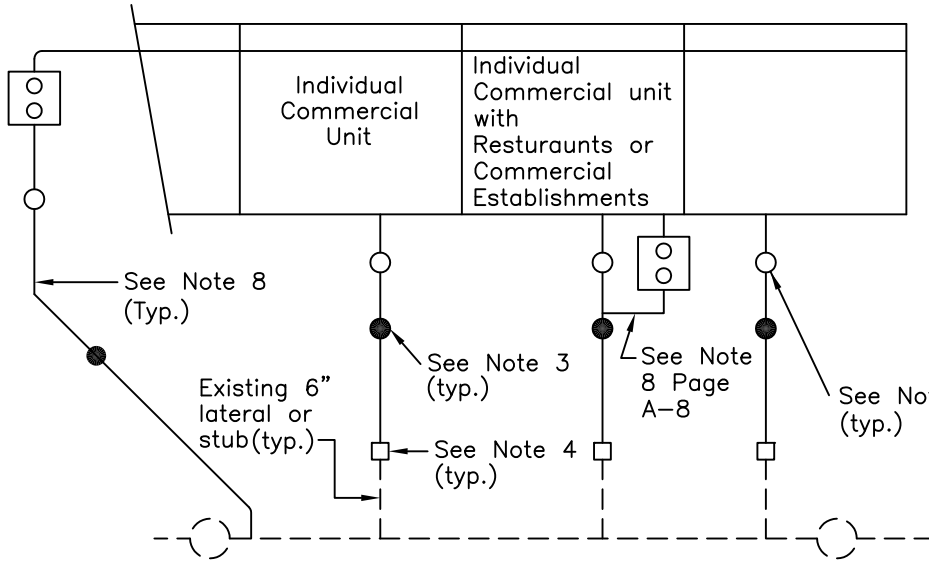


Typ. Sampling Access Structure

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL G

Commercial Strip Mall or Strip Office Building



Note:
 Manholes on main line public sewers shall not be used as sampling access point. 6" building services shall be installed to a tee connection in the main line public sewer. Connection to existing brick sewer or pipes larger than 60" will be review on an individual basis.

Min. Typical Building Sewer

- 6" SDR 26 PVC or 6" Clay "No Bell" (with written approval of the Engineer) or
- 6" Cast Iron or Ductile Iron.

- Note:
1. Building sewer shall be sized per Illinois Administrative Code Chapter II (attached in appendix) and GPSD General Specifications Section Design Criteria. Discharges greater than 15 P.E. will require an EPA Permit.
 2. If 8" or larger building sewer is installed, a manhole will be installed in the main line sewer.
 3. A Sampling Access Structure shall be located at any convenient location along the building sewer.
 4. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 5. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 6. Option of installing a clean-out on the outside of the building.
 7. Commercial Permit Required, one per unit.
 8. All Commercial Strip Mall or Office Building shall have a min. of a 6" common Grease line and a 1000 Gallon Grease Trap or Individual Grease Trap installed per Detail H on page A-8, in each unit.

- General Notes:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 - 5.0 Bedding GPSD General Specification.

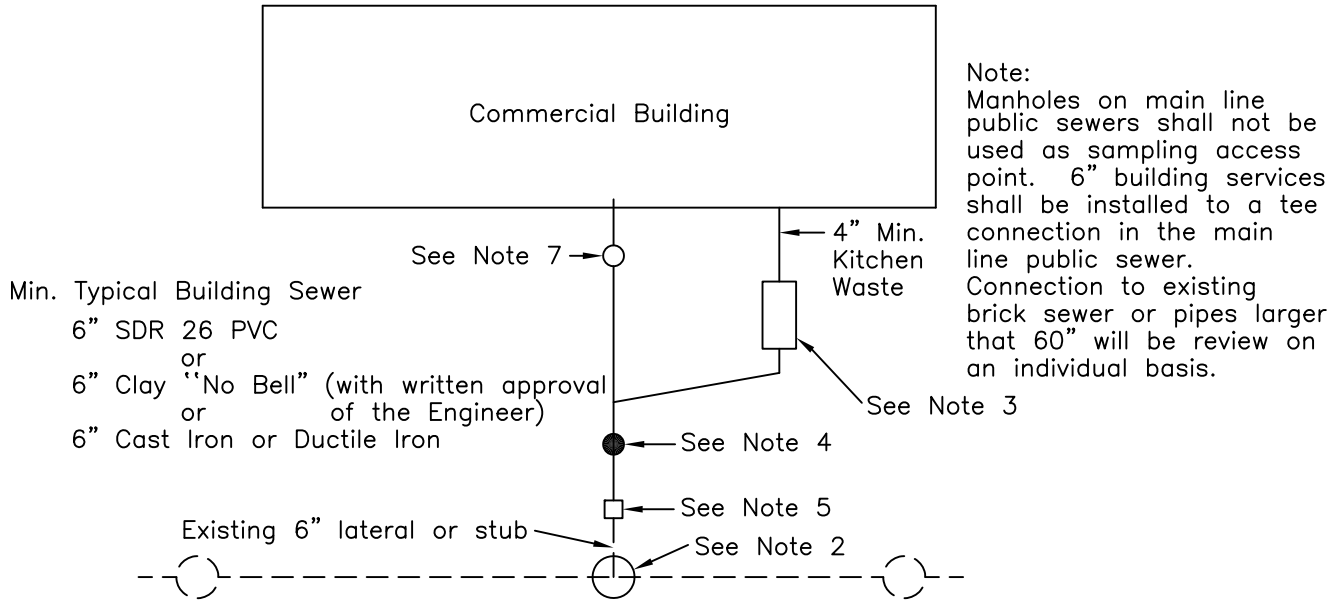
Legend

- 8" or larger Main Line Sewer
- Existing Manhole
- Proposed Manhole
- Typ. Sampling Access Structure

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL H

Restaurants or Commercial Establishments
 (Individual, strip or high rise with kitchen or food processing areas)




- Note:
1. Building sewer shall be sized per Illinois Administrative Code Chapter II (attached in appendix) and GPSD General Specifications Section Design Criteria. Discharges greater than 15 P.E. will require an EPA Permit.
 2. If 8" or larger building sewer is installed, a manhole will be installed in the main line sewer.
 3. 250 gallon grease trap must be installed (see specifications).
 4. A Sampling Access Structure shall be located at any convenient location along the building sewer after the grease trap connection point.
 5. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 6. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 7. Option of installing a clean-out on the outside of the building.
 8. Commercial Permit Required

- General Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 – 5.0 Bedding GPSD General Specification.

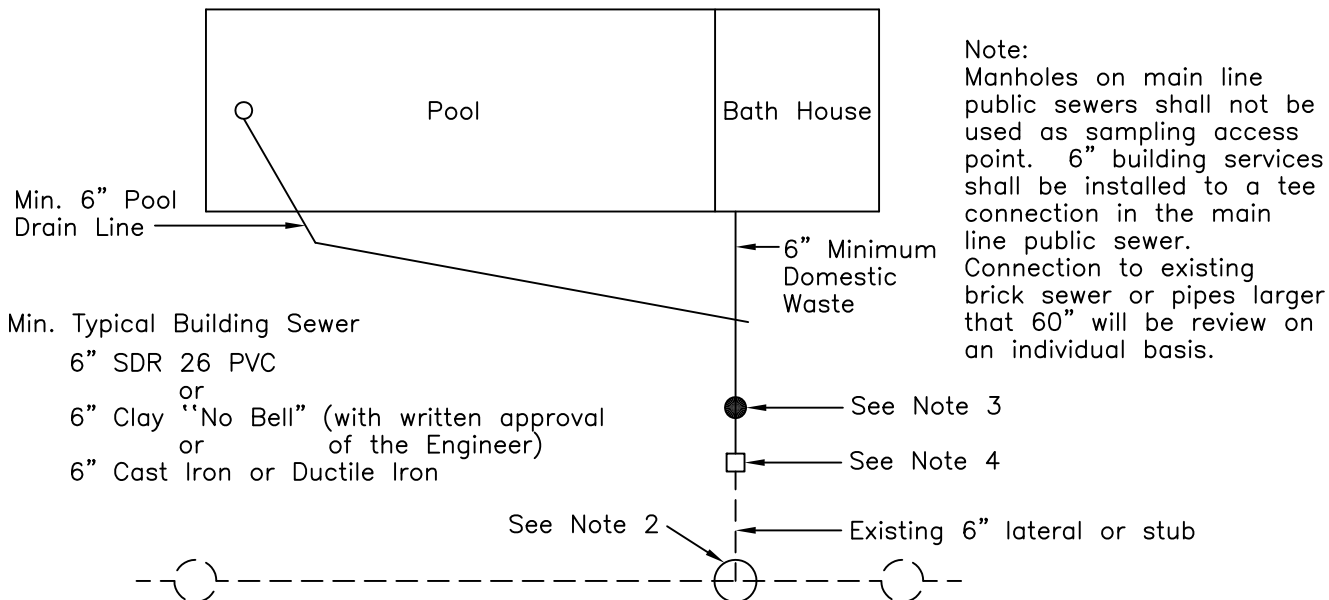
Legend

- 8" or larger Main Line Sewer
- Existing Manhole
- Proposed Manhole
- Typ. Sampling Access Structure
- Typ. 250 Gallon Grease Trap

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL 

Swimming Pools (Commercial)






Note:
 Manholes on main line public sewers shall not be used as sampling access point. 6" building services shall be installed to a tee connection in the main line public sewer. Connection to existing brick sewer or pipes larger than 60" will be review on an individual basis.

- Note:
1. Building sewer shall be sized per Illinois Administrative Code Chapter II (attached in appendix) and GPSD General Specifications Section Design Criteria. Discharges greater than 15 P.E. will require an EPA Permit.
 2. If 8" or larger building sewer is installed, a manhole will be installed in the main line sewer.
 3. A Sampling Access Structure shall be located at any convenient location along the building sewer after the pool drain line connection point.
 4. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 5. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 6. Option of installing a clean-out on the outside of the building.
 7. Commercial Permit Required

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 – 5.0 Bedding GPSD General Specification.

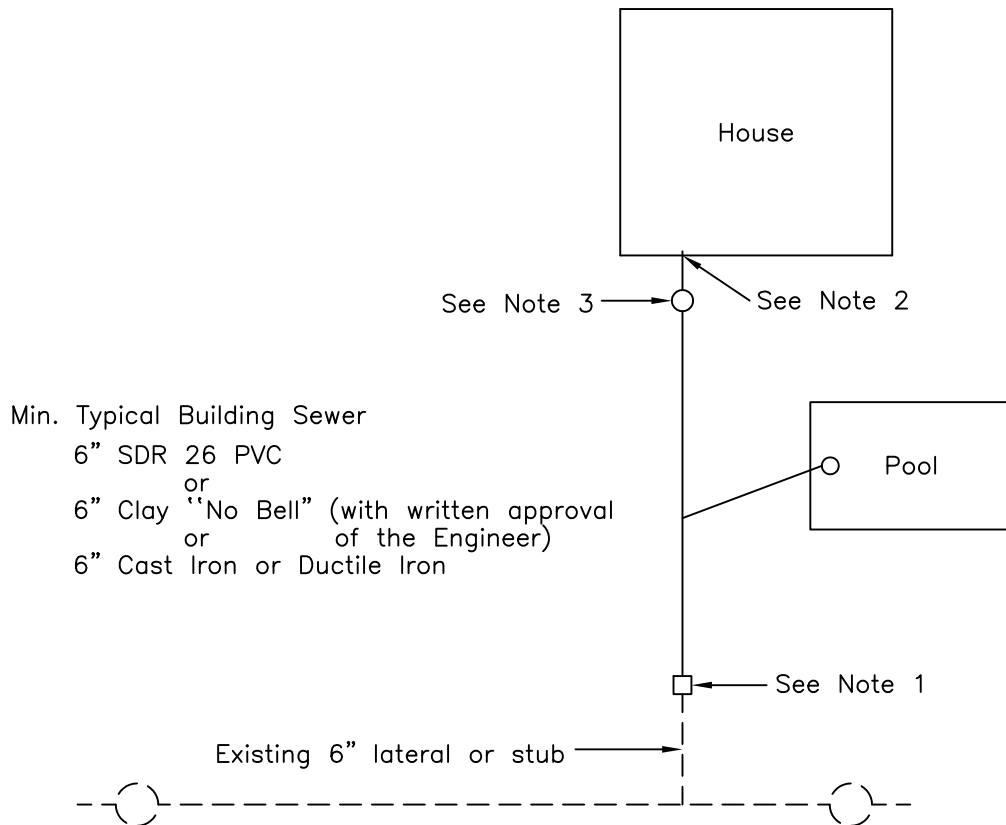
Legend

- 8" or larger Main Line Sewer
-  Existing Manhole
-  Proposed Manhole
-  Typ. Sampling Access Structure

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL J

Swimming Pools (Residential)



- Note:
1. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 2. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 3. Install a clean-out on the outside of the building.
 4. Individual Residential Permit Required for both the house and pool.

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 - 5.0 Bedding GPSD General Specification.

Legend

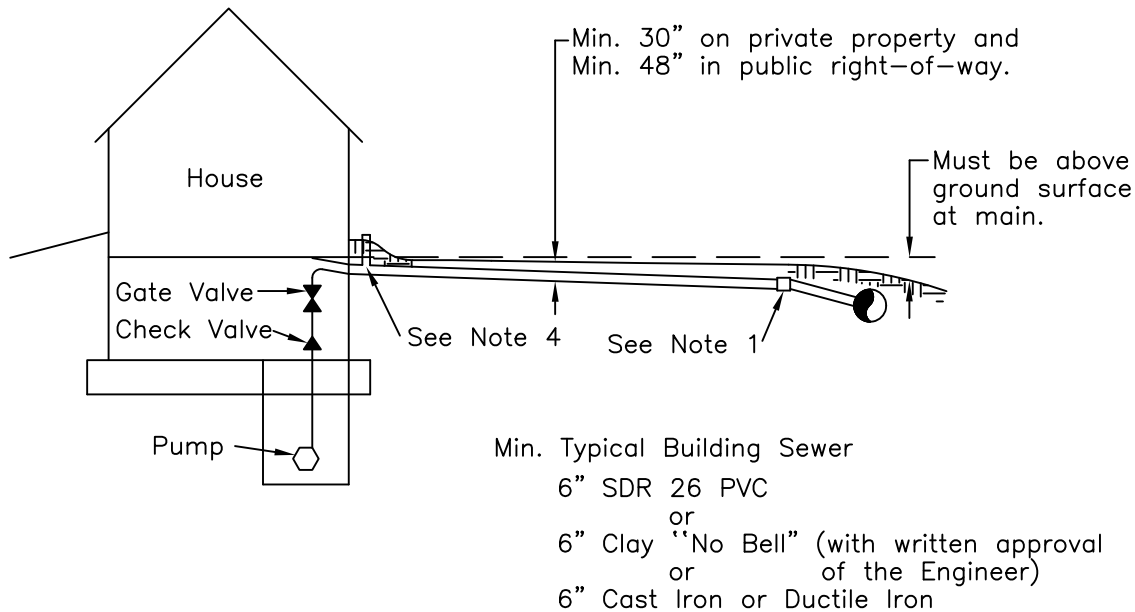
----- 8" or larger Main Line Sewer

 Existing Manhole

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL K

Single Family Residential Service
 with basement level pumping required



- Note:
1. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 2. Waste discharge pump required for basement draining.
 3. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 4. Install a clean-out on the outside of the building.
 5. Pump shall be a solids handling or a grinder pump sized for the application.
 6. Pump basin located in the basement shall be gas tight construction, vented per plumbing code specifications.
 7. Pump basins may be located outside the building in a water tight structure. Basin may be fiberglass, plastic or concrete, properly sized for the pumping application.
 8. Residential Permit Required per dwelling unit.


General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 - 5.0 Bedding GPSD General Specification.

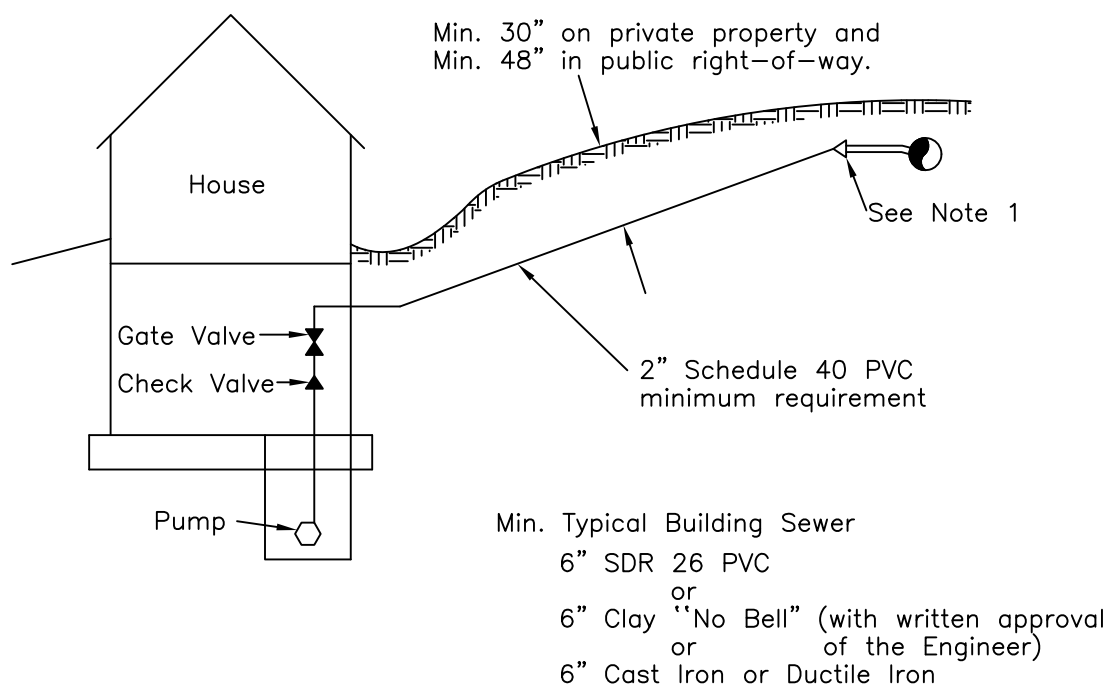
Legend

 8" or larger Main Line Sewer

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL 

Single Family Residential Service



- Note:
1. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 2. Waste discharge pump required for first floor and basement draining.
 3. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 4. Pump shall be a solids handling or a grinder pump sized for the application.
 5. Pump basin located in the basement shall be gas tight construction, vented per plumbing code specifications.
 6. Pump basins may be located outside the building in a water tight structure. Basin may be fiberglass, plastic or concrete, properly sized for the pumping application.
 7. Residential Permit Required per dwelling unit.

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 – 5.0 Bedding GPSD General Specification.

Legend

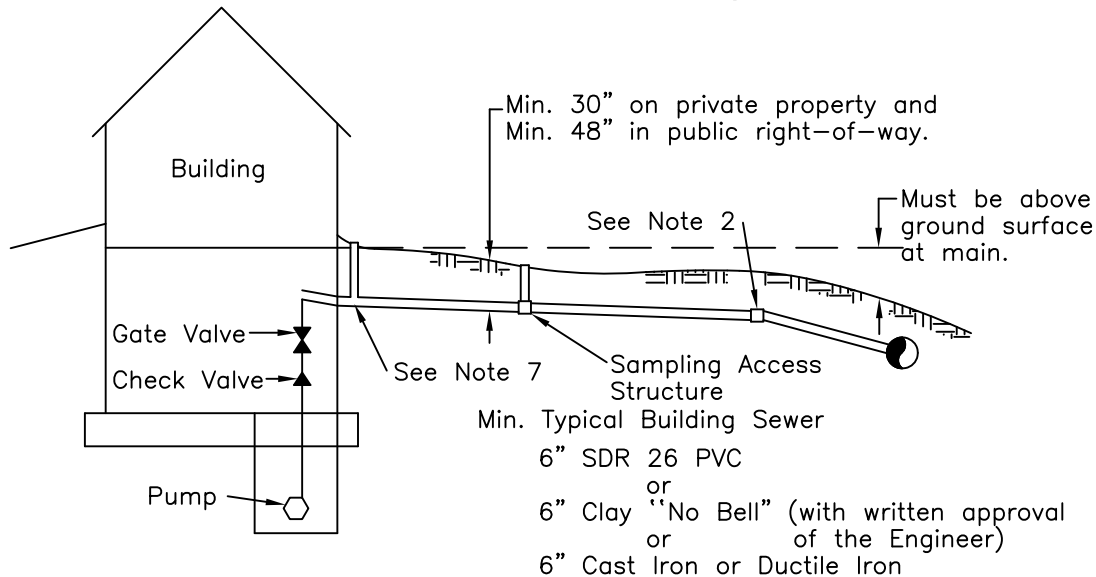
 8" or larger Main Line Sewer

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL



Commercial Service
 with basement level pumping required



- Note:
1. Building sewer shall be sized per Illinois Administrative Code Chapter II (attached in appendix) and GPSD General Specifications Section Design Criteria. Discharges greater than 15 P.E. will require an EPA Permit.
 2. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 3. A Sampling Access Structure shall be located at any convenient location along the building sewer.
 4. Gasoline, oil and flammable liquids interceptor shall be required as per 77 Illinois Administrative Code Section 890.520 (See attached Appendix C.)
 5. Waste discharge pump required for basement draining.
 6. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 7. Option of installing a clean-out on the outside of the building.
 8. Pump shall be a solids handling or a grinder pump sized for the application.
 9. Pump basin located in the basement shall be gas tight construction, vented per plumbing code specifications.
 10. Pump basins may be located outside the building in a water tight structure. Basin may be fiberglass, plastic or concrete, properly sized for the pumping application.
 11. Commercial Permit Required

General

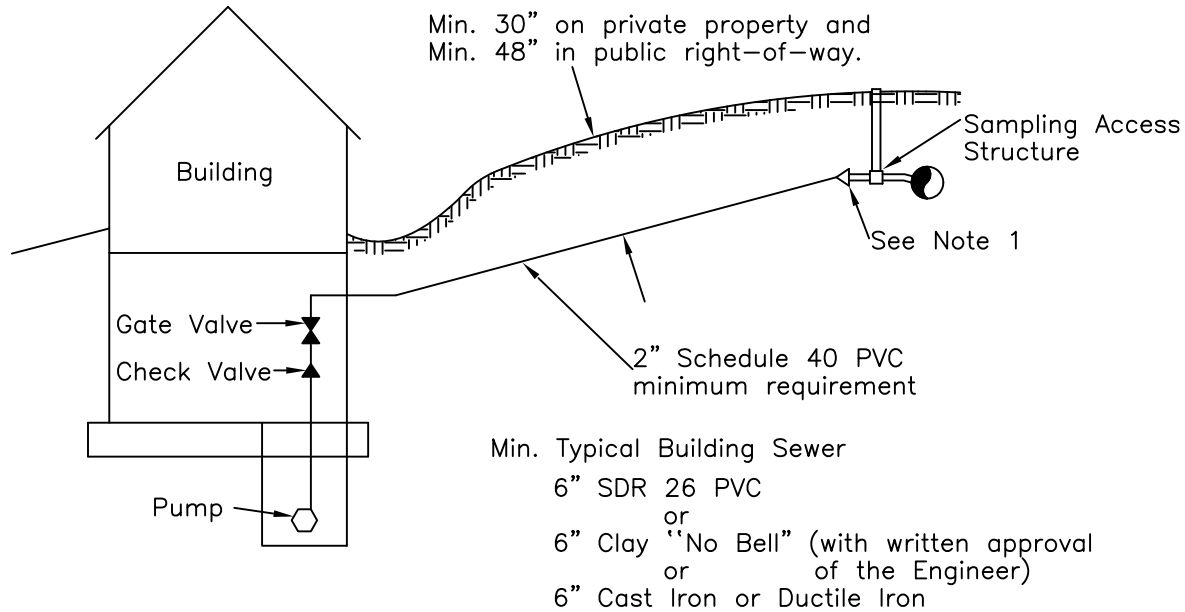
- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 – 5.0 Bedding GPSD General Specification.

Legend

8" or larger Main Line Sewer

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL 
 Commercial Service



- Note:
1. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 2. A Sampling Access Structure shall be located at any convenient location along the building sewer.
 3. Gasoline, oil and flammable liquids interceptor shall be required as per 77 Illinois Administrative Code Section 890.520 (See attached Appendix C.)
 4. Waste discharge pump required for first floor and basement draining.
 5. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 6. Pump shall be a solids handling or a grinder pump sized for the application.
 7. Pump basin located in the basement shall be gas tight construction, vented per plumbing code specifications.
 8. Pump basins may be located outside the building in a water tight structure. Basin may be fiberglass, plastic or concrete, properly sized for the pumping application.
 9. Commercial Permit Required.

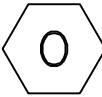
General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 – 5.0 Bedding GPSD General Specification.

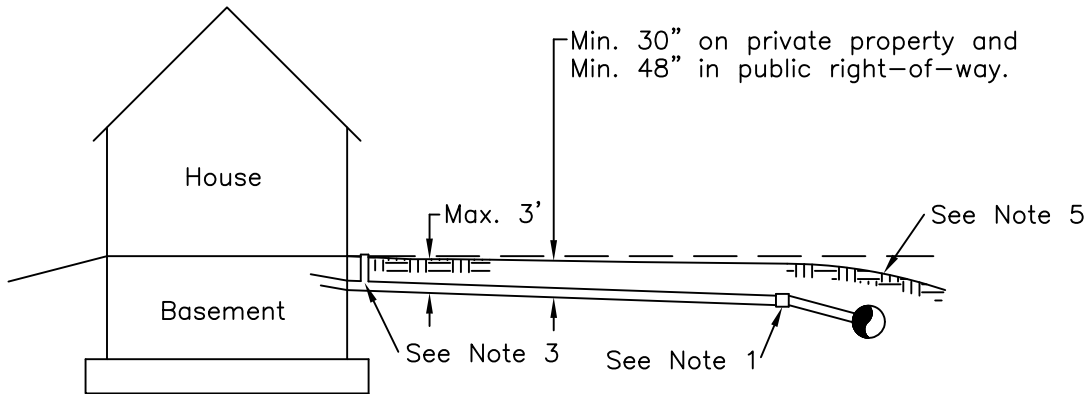
Legend

 8" or larger Main Line Sewer

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL 

Single Family Residential Service
 with no basement service



Min. Typical Building Sewer
 6" SDR 26 PVC
 or
 6" Clay "No Bell" (with written approval
 or of the Engineer)
 6" Cast Iron or Ductile Iron

- Note:
1. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 2. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 3. Install a clean-out on the outside of the building.
 4. Residential Permit Required per dwelling unit
 5. Ground surface elevation at point of connection with main line sewer must be below first floor elevation.

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 – 5.0 Bedding GPSD General Specification.

Legend

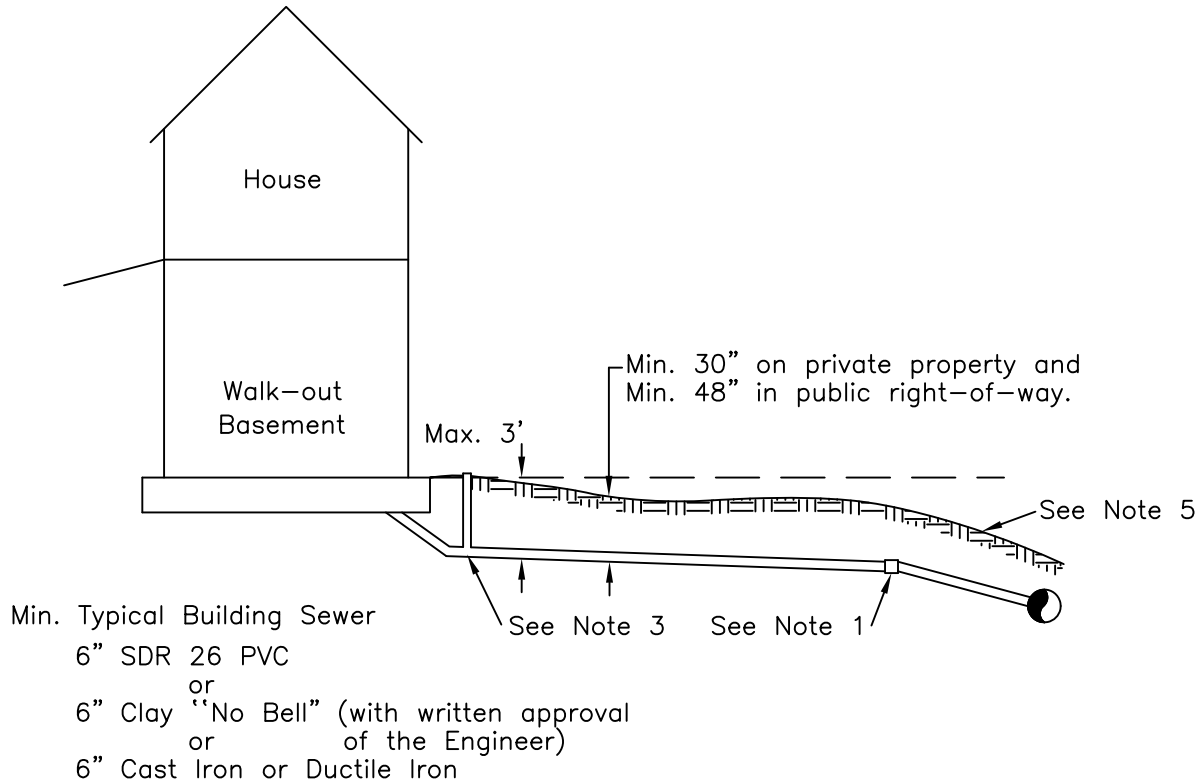
 8" or larger Main Line Sewer

APPENDIX A
 BUILDING SEWER REGULATIONS
 SANITARY SEWER CONNECTION DETAILS

DETAIL



Single Family Residential Service
 with walk-out basement



- Note:
1. Rubber boot transition coupling as needed unless other method is approved prior to construction.
 2. Building sewer within 5' of the building shall meet State of Illinois Plumbing Code.
 3. Install a clean-out on the outside of the building.
 4. Residential Permit Required per dwelling unit
 5. Ground surface elevation at point of connection with main line sewer must be below the floor elevation of the lowest floor served by gravity.

General

- Note:
1. Taps to existing main line sewer pipe shall be mechanical drilled by Predco or equal, typ.
 2. All pipe shall be bedded with CA7 or CA11 material from an approved source per Building Reg. 10 and Sec. 035 – 5.0 Bedding GPSD General Specification.

Legend

8" or larger Main Line Sewer

APPENDIX B
BUILDING SEWER REGULATIONS

Title 35: Environmental Protection
Subtitle C: Water Pollution
Chapter II Environmental Protection Agency Part 370

TABLE NO. 1

RESIDENCY OCCUPANCY CRITERIA

<u>Residence Type</u>	<u>Number of Persons</u>
Efficiency or Studio Apartment	1
1 Bedroom Apartment	1.5
2 Bedroom Apartment	3
3 Bedroom Apartment	3
Single Family Dwelling	3.5
Mobile Home	2.25

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APPENDIX C
BUILDING SEWER REGULATIONS

TABLE NO. 2

COMMONLY USED QUANTITIES OF SEWAGE FLOWS
FROM MISCELLANEOUS TYPE FACILITIES

Type of Establishment	Gallons Per Person Per Day (Unless otherwise noted)
Airports (per passenger)	5
Bathhouses and swimming pools	10
Camps:	
Campground with central comfort stations	35
With flush toilets, no showers	25
Construction camps (semi-permanent)	50
Day camps (no meals served)	15
Resort camps (night and day) with limited plumbing	50
Luxury camps	100
Cottages and small dwellings with seasonal occupancy	75
Country clubs (per resident member)	100
Country clubs (per non-resident member present)	25
Dwellings:	
Boarding houses	50
(additional for non-resident boarders)	10
Rooming houses	40
Factories (gallons per person, per shift, exclusive of industrial wastes)	35
Hospitals (per bed space)	250
Hotels with laundry (2 persons per room) per room	150
Institutions other than hospitals including Nursing Homes (per bed space)	125
Laundries-self service (gallons per wash)	30
Motels (per bed space) with laundry	50
Picnic parks (toilet wastes only per park user)	5
Picnic parks with bathhouses, showers and flush toilets (per park user)	10
Restaurants (toilet and kitchen wastes per patron)	10

Restaurants (kitchen wastes per meal served)	3
Restaurants (additional for bars and cocktail lounges)	2
Schools:	
Boarding	100
Day, without gyms, cafeterias or showers	15
Day, with gyms, cafeterias and showers	25
Day, with cafeterias, but without gyms or showers	20
Service stations (per vehicle served)	5
Swimming pools and bathouses	10
Theaters:	
Movie (per auditorium seat)	5
Drive-in (per car space)	10
Travel trailer parks without individual water and sewer hook-ups (per space)	50
Travel trailer parks with individual water and sewer hook-ups (per space)	100
Workers:	
Offices, schools and business establishments (per shift)	15

NOTE: Peaking Factor of 4 shall be used.

Source: 35 IAC 370, Appendix B, Table No. 2 (Amended at 21 Ill. Reg. 12444, effective August 28, 1997)

APPENDIX D
BUILDING SEWER REGULATIONS

77 ILLINOIS ADMINISTRATIVE CODE, PART 890
ILLINOIS PLUMBING CODE

Section 890.520 Gasoline, Oil and Flammable Liquids

- a) Commercial vehicle repair garages, gasoline stations with grease racks or pits, and oil change facilities shall be provided with floor drains or trench drains connected to a gas and oil interceptor. If these facilities are connected to a private sewage disposal system, the floor or trench drains shall be connected to a holding tank in lieu of a gas and oil interceptor in accordance with the Private Sewage Disposal Licensing Act. Where trench drains are used to carry wastes to a gas and oil interceptor, the trench drain shall either extend the entire length of the work area or shall be installed in each working stall. For all facilities specified in this Section in which floor drains are installed, a minimum of one floor drain per working stall or one floor drain for each 500 square feet shall be installed.
- b) Commercial and residential vehicle storage areas greater than 1,000 square feet with floor or trench drains installed shall comply with subsection (c)(1), (2) or (3). Exception: residential garages with fewer than five vehicle bays are exempted from this requirement.
- c) All facilities, other than those specified in subsection (a), that generate fuel, oil or flammable waste shall meet one of the following requirements:
 - 1) provide floor drains or trench drains connected to a gas and oil interceptor.
 - 2) provide floor or trench drains connected to a holding tank in lieu of a gas and oil interceptor when these drains are connected to a private sewage disposal system.
 - 3) provide an alternative system approved by the Department (i.e., an oil reclamation system or containment area).
- d) General Requirements
 - 1) Gas and oil interceptors shall be of cast iron, steel, polyethylene, polymer concrete or equally durable fiberglass materials suitable for gas and oil. Fiberglass interceptors shall not be used for receiving any substance other than gas and oil. Poured concrete interceptors are prohibited.
 - 2) Each gas and oil interceptor or basin shall be provided with a heavy metal cover, which shall be bolted into place and made gas and -water-tight.
 - 3) Each gas and oil interceptor and, if provided with separate compartments, each compartment and basin shall be provided with a vent of at least 2 inches, which shall extend independently to the outer air. Two or more vents may be connected to a header, which shall be 6 inches or higher than

the lowest floor or trench drain served.

- 4) The inlet of the gas and oil interceptor or the first basin shall be trapped except when floor drains are individually trapped.
 - 5) Floor drains above the level of the gas and oil interceptor or basins shall connect to a stack vent extending independently to the outer air.
 - 6) Gas and oil interceptors must be constructed in accordance with the Illinois State Fire Marshal's rules and regulations for underground storage tanks (41 Ill. Adm. Code 174, 175, 176, 177), when applicable, and shall be maintained to prevent loss of gas, oil, etc. Gas and oil interceptors using an automatic draw off feature shall have a separate U.L. approved underground storage tank or storage tank installed integral with the interceptor.
 - 7) Minimum Dimension. Gas and oil interceptors shall have a depth of at least 2 feet below the invert of the discharge drain.
 - 8) Performance. The gas and oil interceptor shall have at least a 12-inch water seal with a minimum 90 percent efficiency rating or have a minimum of an 18-inch water seal. Gas and oil in the effluent from the gas and oil interceptor or triple basin shall not exceed the levels specified by the sewage treatment authority having jurisdiction, in accordance with local ordinances and regulations.
 - 9) Poured concrete trench drains are prohibited for gas and oil discharges.
- e) Aircraft hangars used exclusively for storing aircraft shall be exempt from this Section under the following conditions:
- 1) No operation of aircraft or maintenance of any kind, including, but not limited to, mechanical work upon an aircraft, or aircraft fueling, oiling, lubricating or washing, may be performed in the hangar.
 - 2) Oil, gasoline or flammable materials of any kind shall not be stored in the hangar.
 - 3) The hangar shall not be provided with floor drains or trench drains.
 - 4) The hangar shall not contain drains of any kind that are connected to a public sewer/private sewage disposal system/holding tank.
 - 5) In lieu of the requirements of subsections (e)(1) through (4), aircraft storage hangars may install floor drains or trench drains that comply with the requirements of subsections (a) through (e).
- f) Sizing
- 1) The minimum size interceptor for all facilities required to comply with subsection (a) shall be 6 cubic feet (45 gallons) for the first 500 square feet of floor area plus 1 cubic foot per each additional 500 square feet to be drained into the interceptor.

- 2) The minimum size interceptor for all facilities, except those facilities required to comply with subsection (a), shall be 6 cubic feet (45 gallons) for the first 3,000 gross square feet plus 1 cubic foot per each additional 1,000 square feet to be drained into the interceptor. Floor area for parking decks or garages shall be determined by the gross square feet of the parking spaces.

(Source: Amended at 38 Ill. Reg. 9940, effective April 24, 2014)

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APPENDIX E
BUILDING SEWER REGULATIONS

ORDINANCE NO. 581

ORDINANCE NO. 581

THE GREATER PEORIA SANITARY AND SEWAGE DISPOSAL DISTRICT AN ORDINANCE ENACTING A GENERAL INDUSTRIAL PRETREATMENT PROGRAM, REGULATING THE USE OF PUBLIC AND PRIVATE SEWERS AND DRAINS, PRIVATE SEWAGE DISPOSAL, THE INSTALLATION AND CONNECTION OF BUILDING SEWERS, THE DISCHARGING OF WATERS AND WASTES INTO THE PUBLIC SEWER SYSTEM, PROVIDING PENALTIES FOR VIOLATIONS THEREOF, AND REPEALING CERTAIN ORDINANCES THEREIN NAMED, IN THE GREATER PEORIA SANITARY AND SEWAGE DISPOSAL DISTRICT OF PEORIA COUNTY, ILLINOIS.

Adopted: January 18, 2011

Effective May 1, 2011

ORDINANCE NO. 581

OF THE GREATER PEORIA SANITARY AND SEWAGE DISPOSAL DISTRICT

TABLE OF CONTENTS

	<u>Page No.</u>
Article I Abbreviations and Definitions.....	1
Article II Use of Wastewater Facilities Required	17
Article III Private and Isolated Sewerage Systems	18
Article IV Wastewater Haulers and Permits.....	19
Article V Building Sewers and Connections	21
Article VI Wastewater Discharge Criteria	25
Article VII Wastewater Discharge Permits.....	33
Article VIII Monitoring Facilities, Records and Reports	43
Article IX Powers and Authority of Inspectors.....	49
Article X Confidential Information.....	50
Article XI Protection of Sewage Works from Damage	51
Article XII Enforcement Procedures and Penalties	52
Article XIII General.....	65
Article XIV Effective Date.....	66
Table A	67

ORDINANCE NO. 581

OF THE GREATER PEORIA SANITARY AND SEWAGE DISPOSAL DISTRICT AN ORDINANCE ENACTING A GENERAL INDUSTRIAL PRETREATMENT PROGRAM, REGULATING THE USE OF PUBLIC AND PRIVATE SEWERS AND DRAINS, PRIVATE SEWAGE DISPOSAL, THE INSTALLATION AND CONNECTION OF BUILDING SEWERS, THE DISCHARGING OF WATERS AND WASTES INTO THE PUBLIC SEWER SYSTEM, PROVIDING PENALTIES FOR VIOLATIONS THEREOF, AND REPEALING CERTAIN ORDINANCES THEREIN NAMED, IN THE GREATER PEORIA SANITARY AND SEWAGE DISPOSAL DISTRICT OF PEORIA COUNTY, ILLINOIS.

BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE GREATER PEORIA SANITARY AND SEWAGE DISPOSAL DISTRICT:

ARTICLE I

ABBREVIATIONS AND DEFINITIONS

Unless the context specifically indicates otherwise, the meaning of terms used in this Ordinance shall be as follows:

Section 101. Abbreviations -

The following abbreviations shall have the designated meanings:

BOD	Biochemical Oxygen Demand
CFR	Code of Federal Regulations
COD	Chemical Oxygen Demand
FOG	Fats, Oils and Grease (see Grease and Oil)
G&O	Grease and Oil (equivalent to FOG)
GPSD	Greater Peoria Sanitary and Sewage Disposal District
IEPA	Illinois Environmental Protection Agency
IPCB	Illinois Pollution Control Board
MSDS	Material Safety Data Sheet
mg/l	Milligrams per liter
NCPS	National Categorical Pretreatment Standards
NPDES	National Pollutant Discharge Elimination System
POTW	Publicly Owned Treatment Works
PSES	Pretreatment Standards for Existing Sources
PSNS	Pretreatment Standards for New Sources
RCRA	Resource Conservation and Recovery Act(42 USC 6944 <u>et-seq.</u>)
SIC	Standard Industrial Classification

SS	Suspended Solids
SWDA	Solid Waste Disposal Act (42 USC 6901 <u>et-seq.</u>)
TTO	Total Toxic Organics
USC	United States Code
USEPA	United States Environmental Protection Agency

Section 102. "A" as in "Cyanide-A" shall mean amenable to alkaline chlorination.

Section 103. "Ammonia Nitrogen" or "NH₃-N" shall mean the amount of ammonia, expressed in milligrams per liter of nitrogen as determined by Standard Methods.

Section 104. "Authorized Representative of an Industrial User" shall mean:

- 104.1 If the Industrial User is a corporation, authorized representative shall mean:
 - 104.1.1 the president, secretary, treasurer, or a vice-president of the corporation in charge of a principal business function or any other Person who performs similar policy or decision-making functions for the corporation;
 - 104.1.2 The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for control mechanism requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- 104.2 If the Industrial User is a partnership, or sole proprietorship, an authorized representative shall mean a general partner or proprietor, respectively;
- 104.3 If the Industrial User is a Federal, State or local governmental facility, an authorized representative shall mean a Director or highest official appointed or designated to oversee the operation and

performance of the activities of the government facility;

- 104.4 The individuals described in paragraphs 104.1-104.3 above may designate another authorized representative if the authorization is in writing, the authorization specifies the individual or position responsible for the overall operation of the facility from which the discharge originates or having overall responsibility for environmental matters for the company and the written authorization is submitted to the District.
- 104.5 If an authorization under paragraph 104.4 of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, or overall responsibility for environmental matters for the company, a new authorization satisfying the requirements of paragraph 104.4 of this section must be submitted to the Control Authority prior to or together with any reports to be signed by an authorized representative.

Section 105. "Baseline Report" shall mean that report required by 40 CFR Section 403.12(b).

Section 106. "Best management Practices" or "BMPs" shall mean schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to implement the prohibitions listed in Article VII of this Ordinance. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw materials storage.

Section 107. "Biochemical Oxygen Demand" or "BOD" shall mean a measure of the quantity of oxygen, expressed in milligrams per liter, utilized in the biochemical oxidation of organic matter as determined by Standard Methods. Incubation at 20 degrees Celsius for 5 days shall be assumed unless otherwise stated.

Section 108. "Building Drain" shall mean that part of the lowest horizontal piping of a drainage system that receives the discharge from soil, waste, and other drainage pipes within a building and that conducts it to the Building Sewer or other approved point of discharge beginning outside the inner face of the building wall.

Section 109. "Building Sewer" shall mean the extension from Building Drain to the Public Sewer or other place of disposal and shall include all appurtenances thereof.

Section 110. "Bypass" shall mean the intentional diversion of waste streams from any portion of an Industrial User's treatment facility.

Section 111. "Cesspool" shall mean a lined or partially lined underground pit into which household Wastewater is discharged and from which liquid seeps into the surrounding soil.

Section 112. "Chemical Oxygen Demand" or "COD" shall mean a measure of the quantity of oxygen consumed from a strong chemical oxidant (standard potassium dichromate in a hot, strongly acid solution) as determined by Standard Methods.

Section 113. "Combined Sewer" shall mean a Sewer which is designated and intended to receive Wastewater, Unpolluted Water, Stormwater Runoff and/or surface water.

Section 114. "Combined Waste stream Formula" shall mean the formula as found in 40 CFR Section 403.6(e).

Section 115. "Compatible Pollutant" shall mean a Pollutant which is appropriate for discharge to and does not interfere with the POTW, which would not better be disposed of by other means, which is treatable by the District's facilities, and which is soluble or miscible with water or suspended in a waste stream moving with a velocity of no more than 2 feet per second, and if solid, no longer than 1/2 inch in any dimension. Compatible Pollutants may include, within limits established elsewhere in this Ordinance, Ammonia-Nitrogen, Biochemical Oxygen Demand, Grease and Oil, Suspended Solids, pH, and Fecal Coliform Bacteria.

Section 116. "Composite Sample" shall mean a combination of individual samples obtained over a stated period of time at regular intervals (proportional-to-time) or at varying intervals and/or volumes in conjunction with the rate of flow (proportional-to-flow or ptf) to represent the integrated composition of the sample source.

Section 117. "Control Manhole" shall mean a structure located on a site through which all Industrial Wastes from that site are discharged and which is to provide access to a District representative to sample and/or measure discharges.

Section 118. "Consistent Treatment Works Removal", "Pollutant Removal" or "Removal" shall mean reduction in the amount of a Pollutant or alteration of the nature or concentration of a Pollutant in the influent of the District's treatment facilities to a less incompatible or concentrated state in the effluent. Consistent removal efficiency shall be the difference between the average concentration of the Pollutant in the influent of the treatment plant and the average concentration in the effluent of the treatment plant divided by the average concentration of the Pollutant in the influent.

Section 119. "Cooling Water" shall mean the water discharged from any use such as air conditioning, cooling or refrigeration, to which the only Pollutant added is heat.

Section 120. "Director" shall mean the Executive Director of The Greater Peoria Sanitary and Sewage Disposal District of the County of Peoria and State of Illinois, or his authorized deputy, agent, or representative.

Section 121. "District" shall mean The Greater Peoria Sanitary and Sewage Disposal District of the County of Peoria and State of Illinois, acting by a duly constituted Board of Trustees or other duly authorized representative or representatives.

Section 122. "District Sewer" shall mean any Sewer owned or under the jurisdiction of the District.

Section 123. "Domestic Wastewater" shall mean the Wastewater including human wastes discharged from Residential dwelling units as the result of human occupancy and/or the discharges from the sanitary conveniences of non-Residential establishments.

Section 124. "Easement" shall mean an acquired legal right for the specific use of land owned by others.

Section 125. "Effluent Limitations" are defined in any applicable NPDES Permit.

Section 126. "Existing Source" shall mean any establishments, building, structure, facility, installation, or property from which there is or may be a discharge, which is not a New Source.

Section 127. "Fecal Coliform Bacteria" shall mean certain aerobic and facultative, gram-negative, nonspore-forming, rod-shaped bacteria associated with fecal matter of warm-blooded animals as determined by Standard Methods.

Section 128. "Federal Act" shall mean the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended (33 USC Section 1251, et seq).

Section 129. "Federal Administrator" shall mean the Administrator of the U.S. Environmental Protection Agency.

Section 130. "Garbage" shall mean solid wastes from the preparation, cooking and dispensing of food and from the handling, storage and sale of produce.

Section 131. "Grab Sample" shall mean a sample which is taken from a waste stream on a one-time basis without regard to the flow in the waste stream and without consideration of time.

Section 132. "Grease and Oil" or "Oil and Grease" or "Fats", Oil, or Grease" or "FOG" or Hexane Extractable Material (HEM) shall mean any hydrocarbons, fatty acids, soaps, Fats, waxes, Oils and any other material or materials that are extracted by hexane as determined by Standard Methods.

Section 133. "Incompatible Pollutant" shall mean any Pollutant other than a Compatible Pollutant as defined in this Article.

Section 134. "Indirect Discharger" shall mean a non-domestic source of Pollutants discharged to the POTW and regulated under Section 307(b), (c), or (d) of the Federal Act.

Section 135. "Industrial User" shall mean any source of discharges to the Publicly Owned Treatment Works which includes Industrial Wastes regardless of the frequency or quantities of

those discharges and shall include all indirect discharges. All Users of the Publicly Owned Treatment Works identified in the Standard Industrial Classification Manual are included unless determined to be discharging only segregated Domestic Wastewater as described in this Ordinance.

Section 136. "Industrial Wastes" shall mean any solid, liquid, or gaseous wastes or excess energy resulting from any process of industry, manufacturing, trade, service or business or from the development, processing or recovery of any natural resource.

Section 137. "Infiltration" shall mean the water unintentionally entering the Sewer system, including Building Drains and Sewers, from the ground, through such means as, but not limited to, defective pipes, pipe joints, connections, or manhole walls. (Infiltration does not include and is distinguished from Inflow).

Section 138. "Infiltration/Inflow" shall mean the total quantity of water from both Infiltration and Inflow without distinguishing the source.

Section 139. "Inflow" shall mean the water discharged into the Sewer system, including Building Drains and Sewers, from such sources as, but not limited to, roof drains, cellar, yard, and area drains, foundation drains, unpolluted (except for heat) Cooling Water discharges, drains from springs and swampy areas, manhole covers, cross connections from Storm Sewers and/or combined Sewers, catch basins, storm waters, surface runoff, street wash waters or drainage. (Inflow does not include, and is distinguished from, Infiltration.)

Section 140. "Interference" shall mean a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(1) Inhibits or disrupts the POTW, its treatment processes or operations, or its Sludge processes, use or disposal; and

(2) Therefore is the cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of the violation) or of the prevention of Sewage Sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State Sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Section 141. "Isolated Sewerage System" is a system for the collection, storage and treatment of Wastewater which serves more than 15 Persons.

Section 142. "Mobile Home" or "Trailer Coach" shall mean any vehicle or similar portable structure used or so constructed as to permit its being used as a conveyance upon the public streets or highways and designed to permit the occupancy thereof, as a dwelling place for one or more Persons, provided that any such structure resting in whole on a permanent foundation with wheels,

tongue and hitch permanently removed shall not be construed as a "Mobile Home" or "Trailer Coach".

Section 143. "Multiple Dwelling Unit" shall mean any single structure designed for occupancy by more than a single family.

Section 144. "National Categorical Pretreatment Standard" or "Categorical Pretreatment Standard" shall mean any Pretreatment Standard specifying quantities or concentrations of Pollutants which may be discharged to a POTW by Industrial Users in specific industrial subcategories as established in regulations promulgated by the USEPA in 40 CFR Chapter I, Subchapter N.

Section 145. "National Pollutant Discharge Elimination System Permit" or "NPDES Permit" shall mean a permit issued under the National Pollutant Discharge Elimination System for discharge of Wastewaters to the navigable Waters of the United States pursuant to the Federal Act.

Section 146. "Natural Outlet" shall mean any outlet into a Watercourse, pond, ditch, lake or other body of surface or underground water.

Section 147. "New Source" shall mean:

147.1 Any building, structure, facility, or installation from which there is or may be a discharge of Pollutants, the construction of which commenced after the publication of proposed Pretreatment Standards under Section 307(c) of the Act which will be applicable to such source if such Standards are thereafter promulgated in accordance with that section, provided that:

147.1.1 The building, structure, facility or installation is constructed at a site at which no other source is located.

147.1.2 The building, structure, facility or installation totally replaces the process or production equipment that causes the discharge of Pollutants at an Existing Source; or

147.1.3 The production or Wastewater generating processes of the building, structure, facility or installation are substantially independent of an Existing Source at the same site. In determining whether these are substantially independent, factors such as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the Existing Source, should be considered.

- 147.2 Construction on a site at which an Existing Source is located results in a modification rather than a New Source if the construction does not create a new building, structure, facility or installation meeting the criteria of Section 146.1.2 or 146.1.3 above but otherwise alters, replaces, or adds to existing process or production equipment.
- 147.3 Construction of a New Source as defined under this paragraph has commenced if the owner or operator has:
 - 146.7.1 Begun, or caused to begin as part of a continuous on site construction program
 - 147.3.1.1 Any placement, assembly, or installation of facilities or equipment, or
 - 147.3.1.2 Significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of New Source facilities or equipment; or
 - 147.3.2 Entered into a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under this paragraph.

Section 148. "Ordinance" shall mean this Ordinance and includes all subsequent amendments thereto.

Section 149. "Pass Through" shall mean a discharge which exits the POTW into Waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in magnitude or duration of the violation).

Section 150. "Person" shall mean any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, society, group, agency, municipal corporation, the State of Illinois and political subdivisions thereof, the Federal Government and its agencies or any other legal entity or their legal representative, agent or assigns.

Section 151. "pH" shall mean the logarithm (base 10) of the reciprocal of the hydrogen ion concentration in gram moles per liter of solution as determined by Standard Methods.

Section 152. "Pollutant" shall mean any dredged spoil, solid waste, incinerator residue, Sewage, Garbage, Sewage Sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt or industrial, municipal, and agricultural waste discharged into any Waters as will or is likely to create a nuisance or render such Waters harmful or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate uses, or to livestock, wild animals, birds, fish, or other aquatic life, or cause or may cause Interference with the operation of the POTW.

Section 153. "Population Equivalent" or "P.E." shall mean for the purposes of this Ordinance the amount of Biochemical Oxygen Demand (BOD) contributed per capita per day which shall equal 0.17 pounds of BOD, per capita per day or as defined by 35 Illinois Administrative Code Section 301.345.

Section 154. "Pretreatment" shall mean the reduction of the amount of Pollutants, the elimination of Pollutants, or the alteration of the nature of Pollutant properties in Wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such Pollutants into the District's treatment facilities. The reduction or alteration may be obtained by physical, chemical or biological processes, process changes or by other means, except as prohibited by Section 615 of this Ordinance or other applicable provisions of this Ordinance. Appropriate Pretreatment technology includes equipment, such as equalization tanks or facilities, for protection against surges or Slug loadings that might Interfere with or otherwise be incompatible with the POTW.

Section 155. "Pretreatment Standards" shall mean for any specified Pollutant, the District's Wastewater discharge criteria as set forth in this Ordinance, the State of Illinois Pretreatment Standards or the applicable National Categorical Pretreatment Standards, whichever standard is most stringent.

Section 156. "Pretreatment Requirements" shall mean any substantive or procedural requirement related to Pretreatment, other than a Pretreatment Standard, imposed on an Industrial User.

Section 157. "Private Sewerage System" is a system for the collection, storage and treatment of Wastewater or other wastes which serves 15 or less Persons.

Section 158. "Properly Shredded Garbage" shall mean the wastes from the preparation, cooking, and dispensing of food that has been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in Public Sewers, with no particle greater than 1/2 inch in any dimension.

Section 159. "Publicly Owned Treatment Works" or "POTW" shall mean a Treatment Works as defined by Section 212 of the Act, owned by the District. This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal Sewage or Industrial Wastes of a liquid nature that convey Wastewater to the District's treatment plant regardless of ownership, but does not include Sewers, pipes, and other conveyances not connected to the District's treatment plant. The term also means the District, which has jurisdiction over the indirect discharges to and the discharges from such a Treatment Works.

Section 160. "Public Sewer" shall mean a Sewer provided by or subject to the jurisdiction of the District and shall also include Sewers within or outside the District boundaries that serve one or more Persons and ultimately discharge into the sanitary or combined Sewer system, even though those Sewers may not have been constructed with District funds.

Section 161. "Regional Administrator" shall mean the Regional Administrator for the USEPA for Region V.

Section 162. "Residence" shall mean a single family dwelling or one dwelling unit including a Mobile Home unit.

Section 163. "Residential" or "Commercial" or "Non-industrial" User, shall mean any User of the Treatment Works not classified as an Industrial User or excluded as an Industrial User as provided for in this Ordinance.

Section 164. "Sanitary Sewer" shall mean a Sewer which is designed to carry Sewage and Industrial Wastewater and into which storm, surface waters, groundwaters or Unpolluted Waters are not intentionally admitted.

Section 165. "Seepage Pit" shall mean and include a dry well, leaching pit or any other cavity in the ground which receives human excrement and Domestic Wastewater or the liquid discharge of a Septic Tank.

Section 166. "Septic Tank" shall mean and include a septic toilet, chemical closet or any other water tight enclosure used for treating Wastewater by a combination of settling and anaerobic digestion.

Section 167. "Servicing" or "Cleaning" or "Maintaining" shall mean Cleaning and removing wastes from any Septic Tank, Seepage Pit, Cesspool or other Sewage and waste treatment facility or removing wastes from any business, Commercial or industrial establishment and transporting such wastes to a point of disposal.

Section 168. "Severe Property Damage" shall mean substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a Bypass. Severe Property Damage does not mean economic loss caused by delays in production.

Section 169. "Sewage" shall mean household and Commercial Wastewater that contains human waste together with such other wastes, ground water, surface runoff, storm waters and Unpolluted Water as may be present. Sewage is also used interchangeably with "Domestic Wastewater".

Section 170. "Sewer" shall mean a pipe or conduit that carries Sewage or other waste liquids, including storm, surface and groundwater drainage.

Section 171. "Sewerage" shall mean a complete system of Sewers and appurtenances for the collection, transportation, pumping, treating and discharging of Wastewater.

Section 172. "Shall" is mandatory; "May" is permissive.

Section 173. "Significant Industrial User" shall mean:

173.1 All Industrial Users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and

173.2 Any other Industrial User that:

173.2.1 discharges an average of 25,000 gallons per day or more of process Wastewater to the POTW (excluding sanitary, noncontact cooling and boiler blowdown Wastewater); or

173.2.2 contributes a process waste stream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the District's treatment plant; or

173.2.3 is designated as such by the District on the basis that the Industrial User has a reasonable potential for adversely affecting the POTW's operation or for violating any Pretreatment Standard or Requirement.

173.3 The District may determine that an Industrial User subject to categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, subchapter N is a Non-Significant Categorical Industrial User rather than a Significant Industrial User on a finding that the Industrial User never discharges more than 100gallons per day (gpd) of total; categorical wastewater (excluding sanitary, non-contact cooling and boiler blowdown wastewater, unless specifically included in the Pretreatment Standard) and the following conditions are met:

173.3.1 the Industrial User, prior to the District's finding, has

consistently complied with all applicable categorical Pretreatment Standards and Requirements; and

173.3.2 the Industrial User annually submits the certification statement required in 40 CFR 403.12(q) together with any additional information necessary to support the certification statement: and

173.3.3 the Industrial User never discharges any untreated concentrated wastewater.

173.4 Upon a finding that an Industrial User meeting the criteria in Subsection 173.2 has no reasonable potential for adversely affecting the POTW's operation, or for violating any Pretreatment Standard or Requirement, the District may at any time, on its own initiative or in response to a petition received from an Industrial User, and in accordance with 40 CFR 403.8(f)(6), determine that such Industrial User is not a Significant Industrial User.

Section 174. "Significant Noncompliance (SNC)" shall mean:

174.1 Chronic violations of Wastewater discharge limits, defined here as those in which sixty-six percent or more of all of the measurements taken for the same pollutant parameter during a six-month period exceed (by any magnitude) a numeric Pretreatment Standard or Requirement, including instantaneous limits as defined by 40 CFR 403.3(l); or

174.2 Technical Review Criteria (TRC) violations, defined here as those in which thirty-three percent or more of all of the measurements for each Pollutant parameter taken for the same pollutant parameter during a six-month period equal or exceed the numeric Pretreatment Standard or Requirement, including instantaneous limits, as defined by 40 CFR 403.3(l) multiplied by the applicable TRC (TRC=1.4 for BOD, TSS, Oil and Grease, and 1.2 for all other Pollutants except pH); or

174.3 For those Users with Permits requiring pH monitoring be performed by grab sampling techniques, a daily pH violation is defined here as a pH outside the Permit limits by any magnitude. SNC is defined here as those in which thirty-three percent or more daily pH violations occur during a six-month period; or

174.4 For those Users with Permits requiring continuous pH monitoring, a daily pH violation is defined here as a pH outside the Permit limits for more than fifteen minutes each monitoring day or less than 5.0

pH units for any duration. SNC is defined here as those in which thirty-three percent or more daily pH violations occur during a six-month period; or

- 174.5 Any other violation of a Pretreatment Standard or Requirement as defined by 40 CFR 403.3(l) (daily maximum, long term average, instantaneous limit, or narrative standard) that the District determines has caused, alone or in combination with other discharges, Interference or Pass Through (including endangering the health of District personnel or the general public); or
- 174.6 Any discharge of a Pollutant that has caused imminent endangerment to human health, welfare or to the environment or has resulted in the District's exercise of its emergency authority under Article XIII Section 1327 and Section 1328 of this Ordinance to halt or prevent such a discharge; or
- 174.7 Failure to meet, within 90 days after the schedule date, a compliance schedule milestone contained in a Wastewater Discharge Permit or enforcement order for starting construction, completing construction or attaining final compliance; or
- 174.8 Failure to provide, within 30 days after the due date, required reports such as baseline monitoring reports, 90-day compliance reports, periodic self-monitoring reports, and reports on compliance with compliance schedules; or
- 174.9 Failure to accurately report noncompliance; or
- 174.10 Any other violation or group of violations, including a violation of Best Management Practices, which the District determines will adversely affect the operation or implementation of the District's Pretreatment program.

Section 175. "Sludge" shall mean any solid material (which may contain large amounts of entrained water) separated from the liquids during Wastewater treatment processes.

Section 176. "Slug" shall mean any discharge at a flow rate or concentration which could cause a violation of the prohibited discharge standards in Article VII of this Ordinance or any discharge of a non-routine, episodic nature, including but not limited to, an accidental spill or a non-customary batch discharge.

Section 177. "Standard Industrial Classification" or "SIC" shall mean the system and codes put forth in the Standard Industrial Classification Manual, 1987, Office of Management and Budget, as amended and supplemented.

Section 178. "Standard Methods" shall mean the sampling and analytical techniques prescribed in 40 CFR Part 136 and amendments thereto. Where 40 CFR Part 136 does not contain sampling and analytical techniques for the Pollutant in question, or where the District or Federal Administrator determines that the Part 136 sampling and analytical techniques are inappropriate for the Pollutant in question, sampling and analysis shall be performed by using validated analytical methods or any other applicable sampling and analytical procedures, including procedures suggested by the District or other parties, approved by the Federal Administrator.

Section 179. "State Act" shall mean the Sanitary District Act of 1917 (Illinois Compiled Statutes 1992, Chapter 70, Act 2405) or the Illinois Environmental Protection Act of 1970 as amended (Illinois Compiled Statutes 1992, Chapter 415, Act 5).

Section 180. "State Director " shall mean the Director of the Illinois Environmental Protection Agency.

Section 181. "Storm Sewer" or "Storm Drain" shall mean a Sewer that carries storm, surface and groundwater drainage but excludes Domestic Wastewater and Industrial Wastes other than unpolluted (except for heat) Cooling Water.

Section 182. "Stormwater Runoff" shall mean that portion of the precipitation over a given area which finds its way to natural or man-made drainage channels.

Section 183. "Suspended Solids" or "SS" or "TSS" or "Total Nonfilterable Residue" shall mean total suspended matter, expressed in milligrams per liter, that either floats on the surface of, or is in suspension in water, Wastewater or other liquids and is removable by laboratory filtration using a Whatman 934AH Millipore AP-40, Gelman type A/E, or equivalent glass fiber disc and dried to constant weight at 103 - 105 degrees Celsius as prescribed in Standard Methods.

Section 184. "T" as in "Cyanide-T" shall mean total.

Section 185. "Total Toxic Organics " or "TTO" shall mean the summation of all quantified values greater than 0.01 milligrams per liter for the toxic organics as specified in the applicable regulation.

Section 186. "Treatment Works" or "Sewage Treatment Plant" shall mean individually or collectively those facilities or devices, except Sewers, used for collecting, pumping, treating, or disposing of Wastewaters or for the recovery of by-products from such Wastewaters.

Section 187. "Unpolluted Water" shall mean water of quality equal to or better than the effluent criteria set forth in 35 Illinois Administrative Code Part 304 or water that would not cause violation of receiving Water Quality Standards set forth in 35 Illinois Administrative Code Parts 302 and 303 and would not be benefited by discharge to the Public Sewers and Wastewater treatment facilities provided.

Section 188. "Upset" shall mean an exceptional incident in which there is unintentional and temporary noncompliance with Categorical Pretreatment Standards because of factors beyond the reasonable control of the Industrial User. An Upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

Section 189. "User" shall mean any Person who contributes, causes or permits the contribution of Wastewater into the POTW and shall include any Person who owns the property where a discharge originates, any Person who owns the property where a discharge enters the Public Sewer, and any Person (including an Authorized Representative of an Industrial User) who can control a discharge to the Public Sewers.

Section 190. "User Class" shall mean the type of User either "Domestic as Residential or Commercial (non-industrial)" or "Industrial" as defined herein.

Section 191. "User Charge System" shall mean the system of charges established for the purpose of apportioning among Users the cost of operation and maintenance and replacement and improvement reserve requirements for Wastewater Facilities.

Section 192. "Water Quality Standards" are defined in 35 Illinois Administrative Code Parts 302 and 303.

Section 193. "Wastewater" shall mean the spent water or used water of a community or industry and is a combination of the liquid and water carried wastes from Residences, Commercial buildings, Industrial plants, and institutions including polluted Cooling Water and the discharges (but not Sludge) from Pretreatment facilities.

Section 194. "Wastewater Discharge Permit" shall mean the document or documents issued to a User by the District in accordance with the terms of this Ordinance.

Section 195. "Wastewater Facilities" or "Sewage Works" shall mean structures, equipment, and processes required to collect, convey, and treat domestic and Industrial Wastes and dispose of the effluent and Sludge.

Section 196. "Wastewater Hauler" shall mean any Person, partnership or corporation engaged in transporting sanitary Wastewater or other wastes as a Commercial venture.

Section 197. "Wastewater Source" shall mean any equipment, facility or other point source of any type whatsoever which discharges Wastewater.

Section 198. "Wastewater Treatment Plant" shall mean an arrangement of devices and structures for treating Wastewater, Industrial Wastes, and Sludge. Sometimes used as synonymous with "waste treatment plant" or "Wastewater Treatment Works" or "Sewage Treatment Plant" or "water pollution control plant".

Section 199. "Watercourse" shall mean a channel in which a flow of water occurs, either continuously or intermittently.

Section 200. "Waters" shall mean all streams, lakes, ponds, marshes, Watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface and underground, natural and artificial, public and private, or parts thereof, which are wholly or partially within, or flow through, or border upon the territorial boundaries of the District.

ARTICLE II

USE OF WASTEWATER FACILITIES REQUIRED

Section 201. It shall be unlawful to discharge any Pollutant, waste, or Wastewater to any Waters within the District, or in any area under its jurisdiction, without an NPDES Permit or other permit as may be required by federal, state or other agencies having jurisdiction.

Section 202. Except as provided in this Ordinance, it shall be unlawful to construct or maintain any privy, privy vault, Septic Tank, Cesspool, or other facility intended or used for the disposal of Wastewater.

Section 203. The owner of all houses, buildings or properties used for human occupancy, employment, recreation, or other purposes, situated within the District and abutting on any street, alley, Easement, or right-of-way in which there is located a Public Sewer is hereby required to connect directly with the Public Sewer at the owner's expense in accordance with the provisions of this Ordinance within one year of the effective date of this Ordinance, or in the case of a newly provided Sewer, within one year after the date of official notice by the Director to do so.

Section 204. It shall be unlawful for any Person to deposit or discharge, or to allow to be deposited or discharged, to the Publicly Owned Treatment Works, any solid, liquid or gaseous waste unless through a connection approved by the District or through a Wastewater Hauler who has been issued a permit by the District for the individual discharge.

Section 205. It shall be unlawful for any Industrial User to deposit or discharge, or to allow to be deposited or discharged, to the Publicly Owned Treatment Works, any solid, liquid, or gaseous waste without a currently valid operating permit (Wastewater Discharge Permit) issued by the District in addition to any other permits which may be required.

Section 206. It shall be unlawful to discharge any contaminant, Pollutant, waste, or Wastewater to a surface impoundment or lagoon within the District, or in any area under its jurisdiction, from which there is no discharge, without written authorization from the Federal Administrator, the Regional Administrator, or the State Director certifying that the surface impoundment or lagoon is not an open dump within the scope and meaning of Section 4004 of the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 USC Section 6944). Valid copies of appropriate permits issued under federal and state law, including but not limited to RCRA, the Federal Act, and/or the Illinois Environmental Protection Act, when provided to the District, will serve as the required certification.

ARTICLE III

PRIVATE AND ISOLATED SEWERAGE SYSTEMS

Section 301. Where a public sanitary or combined Sewer is not available, the Building Sewer shall be connected to a private or Isolated Sewerage System complying with the provisions of this Ordinance.

Section 302. Before commencement of construction of a Private Sewerage System, the owner shall first obtain a written permit from the Peoria County Health Department. The application and requirements for obtaining such permit and approval of the construction shall conform to the current requirements of the Peoria County Health Department.

Section 303. Where Isolated Sewerage Systems are to provide for more than 15 people, written approval of the plans and specifications shall be obtained from both the Illinois Environmental Protection Agency and the District. Permit applications shall be submitted to the Environmental Protection Agency and the District and said permits must be issued prior to the start of construction. Where necessary, applications shall also be made for an NPDES permit.

Section 304. At such time as a Public Sewer becomes available to a property served by a private or Isolated Sewerage System, a direct connection shall be made to the Public Sewer in compliance with this Ordinance, and any Septic Tanks, Cesspools, and similar Sewerage facilities shall be abandoned and filled with suitable material.

Section 305. The owner shall operate and maintain the private and isolated Sewerage facilities in a manner approved by and at no expense to the District.

Section 306. No statement contained in this Article shall be construed to interfere with any additional requirements that may be imposed by other regulatory agencies.

ARTICLE IV

WASTEWATER HAULERS AND PERMITS

Section 401. Except as hereinafter provided, no Person shall transport and discharge Wastewaters or other wastes from any tank, Septic Tank, Seepage Pit, Cesspool, private or Isolated Sewerage System, Treatment Works, business, Commercial or Industrial establishment, to a Public Sewer or appurtenance, thereof, without first obtaining a written permit.

Section 402. Wastewaters and other wastes, as described in this Article, originating from outside the corporate limits of the District may be accepted for discharge to a Public Sewer or to a location within the POTW at the option of the District and the acceptance of such discharge may be cancelled at any time without cause, and the discharge shall be immediately discontinued.

Section 403. Wastewaters and other wastes, as described in this Article, shall be accepted for discharge to a Public Sewer only when they are found, on examination by the District and in accordance with such tests as the District may require, to meet all the requirements of this Ordinance.

Section 404. Prior to the discharge of any Wastewater or other waste regulated by the provisions of this Article, any Person desiring to discharge Wastewaters or other wastes shall make application for a Wastewater Hauler permit for each individual discharge on a form furnished by the District. The permit application shall be supplemented by any information considered pertinent in the judgment of the District. Each permit application shall be accompanied by payment of a permit fee or other charges in an amount hereinafter provided. The permit issued must be in the possession of the Person at the time the waste is discharged at the designated location.

Section 405. There shall be two classes of Wastewater Hauler permits: (1) A Class I permit shall include wastes originating from within the corporate limits of the District; (2) A Class II permit shall include wastes originating from outside the corporate limits of the District. The payment of permit fees or other charges shall be as provided in another Ordinance adopted by the District, which Ordinance shall establish a fair and equitable User Charge System.

Section 406. Wastes of a nondomestic or industrial origin, from Commercial or Industrial establishments, located within the corporate limits of the District, must apply for and receive District authorization to discharge prior to discharging. The District may require additional information to establish the nature and strength of the waste including quality and quantity of all biological and chemical constituents prior to granting authorization to discharge the waste to the Public Sewer. The payment of permit fees or other charges shall be as specified in this Article.

Section 407. Before a permit shall be issued in accordance with the provisions of this Article, a Person must first comply with the following requirements:

- 407.1 Each Wastewater Hauler shall provide a bond in the amount stated in the attached Table A in the favor of the District. Such a bond shall be furnished on a form furnished by the District and shall cover all permits issued for a period of one year.
- 407.2 Each Wastewater Hauler must apply for and be issued a license by the District, granting permission to discharge wastes to a Public Sewer at a time and location designated by the Director. The cost of the license is stated in the attached Table A.
- 407.3 Each Wastewater Hauler must register each Wastewater hauling vehicle as may be required.
- 407.4 Each Wastewater hauling vehicle must prominently display any identifying markings as may be required.
- 407.5 Each truck tank shall have a sight glass calibrated in 100 gallon increments or other means of readily establishing load volumes.
- 407.6 Wastewater from an Industrial User shall not be mixed with Wastewater from a domestic User.
- 407.7 Vehicles which haul or have hauled materials not intended for discharge to the District's facilities may not be used for Wastewater hauling until thoroughly cleaned to the Director's satisfaction.
- 407.8 All procedures for discharging, for cleanliness, and for general sanitary operation as presented by the District shall be strictly adhered to by all Persons.

Section 408. Nothing in this Article shall be construed to require a license and bond for any property owner within the corporate limits of the District, where such property owner elects to service his own facility and transports the Wastewaters or other wastes collected, therefrom, to a designated Public Sewer. Such property owners shall meet all other provisions of this Ordinance.

Section 409. No statement contained in this Article shall be construed to interfere with any additional requirements that may be imposed by other regulatory agencies.

Section 410. Any Person who violates any provision of this Article shall be subject to a revocation of the required license and other penalties as may be prescribed in this Ordinance.

ARTICLE V

BUILDING SEWERS AND CONNECTIONS

Section 501. All disposal by any Person into the Sewer system is unlawful except those discharges in compliance with Federal Standards promulgated pursuant to the Federal Act and more stringent State and local standards.

Section 502. It shall be unlawful to uncover, make any connection with or opening into, use, alter or disturb any Public Sewer or appurtenances thereof, except as provided, in accordance with the provisions of this Article, and the requirements of the State, Federal or other public agencies of jurisdiction.

Section 503. No unauthorized Person shall uncover, make any connection with or opening into, use, alter, or disturb any Public Sewer or appurtenance thereof without first obtaining a written permit from the Director and such other permits as may be required by State, Federal or other agencies of jurisdiction.

Section 504. There shall be two classes of Building Sewer permits for Sanitary Sewers located inside the limits of the District. A Residential permit shall include a Building Sewer for all Residential units and a Commercial permit shall include Building Sewers to all other buildings. The Owner, his Agent, or both shall make application on permit forms furnished by the District and shall provide such additional plans, specifications or other information considered pertinent in the judgment of the Director. An Industrial User, as a condition of permit authorization, must provide information describing its Wastewater constituents, characteristics, and type of activity. The permit fee shall be paid to the District in amounts to be determined by the Director as stated in the attached Table A.

Section 505. Before a permit shall be issued, a Person must first secure a license and a bond as hereinafter provided.

Section 506. Any Person who desires to make a connection, or perform maintenance or repairs upon a Building Sewer connection, to Sewers owned, operated, or maintained by the District shall provide a bond in the amount stated in Table A in favor of the District and written on the proper bond forms provided by the District. Bonds for Persons in the business of building, Maintaining, or repairing Sewers and Sewer connections shall cover all permits issued and work done in the life of the bond. Bonds for all others not engaged in the business of building, Maintaining, or repairing Sewers and Sewer connections shall be good only for the permit issued and work to be done.

Section 507. Any competent Person engaged in the business of Building Sewers and Sewer connections must take out a Sewer license from the District, granting him permission to construct such Sewers and connections within the District. The cost of the license is stated in Table A.

Section 508. Any Person who shall neglect, refuse or fail to correct any defect in workmanship following a thirty day notice to make such correction, shall be notified of cancellation of the Sewer license and all outstanding permits. The Person may apply for a new license upon the correction of the defective work.

Section 509. All permits issued for Building Sewers or Sewer connections shall be valid for one year after date of issue shown on the permit. If the work is not completed during the one year period, the permit is cancelled and a new permit must be issued. Once excavation for the Building Sewer is initiated, all work associated with the Building Sewer, except surface restoration, must be completed within 5 working days. This 5 day construction period may be extended based on written documentation of factors beyond the control of the Person performing the Building Sewer work. Upon completion and approval of the work, the permit shall be given to the property owner.

Section 510. A Building Sewer permit will only be issued and a Sewer connection shall only be allowed if it can be demonstrated that the downstream Sewerage facilities, including Sewers, pump stations and Wastewater treatment facilities, have sufficient reserve capacity to adequately and efficiently handle the additional anticipated waste load.

Section 511. A Building Sewer permit shall only be issued and a Sewer connection shall only be allowed for an Industrial User if it can be demonstrated to the Director's satisfaction that all required Pretreatment facilities have been provided for in accordance with the specifications and regulations of the District. Pretreatment facilities shall include, at a minimum, a manhole which allows sampling access to the Building Sewer.

Section 512. All costs and expenses incident to the installation, connection, maintenance, or repair of the Building Sewer shall be borne by the building owner. The building owner shall indemnify the District for any loss or damage that may directly or indirectly be occasioned by the installation, connection, maintenance, or repair of the Building Sewer.

Section 513. All Building Sewers and Sewer connections shall be gas and watertight and shall also be constructed in accordance with the specifications entitled the "General Specifications for Sanitary Sewers and Appurtenances of The Greater Peoria Sanitary District" and the regulations entitled "Building Sewer Regulations" as approved and adopted by a resolution of the Board of Trustees of the District.

Section 514. No downspouts, open drains, footing tile, Septic Tank, or Cesspool shall be connected to a Building Sewer nor shall any storm water source be discharged to a Sanitary Sewer. Storm water drains shall be connected to a Storm Sewer, if possible, or otherwise discharged to the surface of the property or street.

Section 515. Building Sewers subject to flooding or ponding conditions, shall be provided with drain plugs, valves or other approved devices to protect the Sanitary Sewer and the property owner's building during heavy rain or high water periods. Exposed drain lines shall be protected from freezing as directed by the Director.

Section 516. A separate and independent Building Sewer shall be provided for every building, except that where one building stands at the rear of another on an interior lot and no private Sewer is available or can be constructed to the rear building through an adjoining alley, yard, or driveway, the Building Sewer from the front building may be extended to the rear building and the whole considered as one Building Sewer.

Section 517. Old Building Sewers may be used in connection with new buildings only when they are found on examination and test to meet all requirements of this Ordinance.

Section 518. No basement, half-basement or any other portion of a building having a floor elevation beneath the ground surface over the Public Sewer at the point of connection may be connected into the Public Sewer by gravity. In areas where the ground line over the Public Sewer is to be altered, the proposed final ground elevation shall be used. The maximum depth to the top of the Building Sewer shall be three (3) feet below finished grade at the point where it enters such building.

Section 519. In all buildings in which any Building Drain is too low to permit gravity flow to the Public Sewer, sanitary Sewage carried by such drain shall be lifted by means approved by the Director and discharged to the Building Sewer.

Section 520. All excavations required for installation of a Building Sewer shall be open trench work unless otherwise approved by the Director. Pipe laying and the manner of making watertight joints and connections shall be in accordance with the specifications and regulations of the District. No Sewer connections shall be backfilled until the work has first been inspected and approved.

Section 521. The connection of the Building Sewer into a Public Sewer shall be made at the place and in the opening as provided and indicated by the Director. In the event that no such opening is available, a connection may be made by "tapping" the District Sewer in accordance with the specifications and regulations of the District.

Section 522. The applicant for the Building Sewer permit shall notify the Director when the Building Sewer is ready for inspection and connection to the Public Sewer. The connection shall be made under the supervision of the Director.

Section 523. All excavations for Building Sewer installation, maintenance, or repair shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways, and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the District.

Section 524. The issuance of a Building Sewer permit is conditional upon the provision of at least one public water supply utility water meter and water supply service for each facility served by a Building Sewer installed in accordance with the provisions of this Ordinance. No water supply meter shall be situated so that the metered water is discharged to more than one Building Sewer. This section is not intended to require metering of private sources of water except as

provided in another Ordinance adopted by the District, which Ordinance shall establish a fair and equitable User Charge System.

ARTICLE VI

WASTEWATER DISCHARGE CRITERIA

Section 601. No Person shall discharge or cause to be discharged any Wastewater or other wastes, storm water, surface water, ground water, roof runoff, subsurface drainage, Cooling Water or unpolluted industrial process water except in accordance with the provisions of this Article and such regulations imposed by State, Federal or other public agencies of jurisdiction or otherwise approved by the District.

Section 602. No Person shall discharge or cause to be discharged any stormwater, foundation drainwater, groundwater, roof runoff, surface drainage, Cooling Waters, or any other Unpolluted Water to any Sanitary Sewer.

Section 603. Storm water, surface water, ground water, roof runoff, subsurface drainage, Cooling Water and all other unpolluted drainage shall be discharged to such Sewers as are specifically designated as Combined Sewers or Storm Sewers, or to a Natural Outlet approved by the District. Industrial Cooling Water or unpolluted process waters may be discharged, upon approval of the District, to a Storm Sewer, Combined Sewer or Natural Outlet.

Section 604. No Person shall contribute or cause to be contributed, directly or indirectly, any Pollutant or Wastewater which will cause Interference with the operation or performance of the POTW.

Section 605. No Person shall contribute or cause to be contributed, directly or indirectly, any Pollutant which will Pass Through the POTW.

Section 606. No Person shall discharge or cause to be discharged any of the following described substances to the POTW:

- 606.1 Any liquids, solids or gases which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substances to cause a fire or explosion hazard or be injurious or hazardous in any other way to the POTW or to the operation or maintenance of the POTW including, but not limited to, waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21. Prohibited substances include, but are not limited to, petroleum distillates (hydrocarbons), gasoline, kerosene, naphtha, benzene, toluene, xylene, stoddard solvent, chlorinated hydrocarbons, methylene chloride, chloroform, carbon tetrachloride, pesticides, polychlorinated biphenyls, polybrominated biphenyls, carbides, hydrides, sulfides, and except when highly diluted, ethers,

alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, and bromates. At no time and at no point in the POTW shall gases or vapors accumulate so that any of the following occur:

- 606.1.1 Two successive readings of an explosion hazard meter be more than five percent (5%) nor any single reading be over ten percent (10%) of the lower explosive limit (LEL) of methane;
 - 606.1.2 The reading of a toxic gas meter indicating more than fifty parts per million of carbon monoxide by volume or ten parts per million hydrogen sulfide by volume; or
 - 606.1.3 The response of an oxygen availability meter indicating the presence of less than nineteen and one half percent (19.5%) oxygen by volume.
- 606.2 Any Wastewater containing Incompatible Pollutants in sufficient quantity, either singly or by interaction with other Pollutants, to injure or interfere with any Wastewater treatment process, constitute a hazard to humans or animals, create a public nuisance, cause a violation of the Water Quality Standards of the receiving Waters of the POTW, or exceed the limitations set forth in a National Categorical Pretreatment Standard or in accordance with the provisions of this Article.
- 606.3 Any noxious or malodorous liquids, gases or solids which either singly or by interaction with other Wastewaters are sufficient to create a public nuisance or hazard to life or are sufficient to prevent entry into Sewers for their maintenance and repair.
- 606.4 Any Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute or chronic worker health and safety problems;
- 606.5 Any water or wastes having a pH lower than 5.5 or higher than 9.0, or having any other corrosive property capable of causing damage or hazard to structures, equipment, and personnel of the POTW.
- 606.6 Any water or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.
- 606.7 Solid or viscous substances which may cause obstruction to the flow in a Sewer or other Interference with the operation of the POTW such as, but not limited to, Grease, animal guts or tissues, paunch

manure, bones, hair, hides or fleshings, entrails, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastics, tar, asphalt, residues from refining or processing of fuel or lubricating oil, mud, glass grinding or polishing wastes, or tumbling and deburring stones.

- 606.8 Any Garbage that has not been properly shredded. The installation and operation of any Garbage grinder equipped with a motor of 3/4 horsepower or greater shall be subject to the review and approval of the District.
- 606.9 Any liquid or vapor having a temperature which will result in the inhibition of the biological activity at the District's Treatment Works or otherwise interfere with the POTW; in no case shall Wastewater liquid or vapor be introduced into the POTW which exceeds 65 degrees Celsius (149 degrees Fahrenheit) or which causes the influent at the District's Treatment Works to exceed 40 degrees Celsius (104 degrees Fahrenheit).
- 606.10 Any water or waste containing Fats, wax, Grease, or Oils, whether emulsified or not, in excess of 100 mg/l as Grease and Oil (G&O) or hexane extractable materials or containing substances which may solidify or become viscous at temperatures between 32 and 149 degrees Fahrenheit (0 to 65 degrees Celsius).
- 606.11 Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by State or Federal regulations or more stringent limits established by the District.
- 606.12 Any Pollutants, including Compatible Pollutants released at a flow or Pollutant concentration which a User knows or has reason to know will cause Interference to the POTW or will Pass Through the POTW.
- 606.13 Any substance which will cause the POTW to violate its NPDES Permit, applicable effluent standards or the receiving Water Quality Standards.
- 606.14 In no case shall a substance discharged to the POTW cause the POTW to be in noncompliance with Sludge use or disposal criteria, guidelines or regulations developed under Section 405 of the Federal Act; any criteria guidelines or regulations affecting Sludge use or disposal developed pursuant to the RCRA, SWDA, the Clean

Water Act, the Toxic Substances Control Act, or State criteria applicable to the Sludge management method being used.

- 606.15 Any Wastewater containing BOD, COD, chlorine requirements, total solids, or Suspended Solids of such character and quantity (i.e. lime slurries, lime residues, Fuller's earth, dissolved solids such as but not limited to sodium chloride and sodium sulfate) that unusual attention or expense is required to handle such materials at the Sewage Treatment Plant; provided however, that a User may be permitted by specific, written agreement with the District, which agreement to discharge such BOD or SS may provide for special charges, payment or provisions for treating and testing equipment.
- 606.16 Any discharge exceeding the standards established in 35 Illinois Administrative Code Part 307.
- 606.17 Any unusual volume of flow or concentration of wastes constituting a Slug, as defined herein, discharged to the POTW.
- 606.18 Materials which exert or cause excessive discoloration as determined by the Director (such as, but not limited to, dye wastes and tanning solutions).
- 606.19 Any Pollutant, including oxygen demanding Pollutants (BOD, etc.), released in a discharge at a flow rate and/or Pollutant concentration which will cause Interference with the POTW.

Section 607. Unless a User has been classified an Industrial User by the District, and has a valid Wastewater Discharge Permit issued by the District which provides alternative limits for a specific Pollutant, no Person shall discharge any Wastewater or waste, based on a working day or 24-hour Composite Sample (except Grab Samples must be used for Hexavalent Chromium, Cyanide, Grease and Oil, Phenols and Volatile Organics) obtained and analyzed under the provisions of this Ordinance, which contains any Pollutants in concentration greater than listed as follows:

<u>Pollutant</u>	<u>Maximum Allowed Concentration (mg/l)</u>
Arsenic (As)	0.25
Barium (Ba)	2.0
Cadmium (Cd)	0.15
Chromium (Cr)	
- Total	1.0
- Hexavalent	0.1

Copper (Cu)	0.5
Cyanide	0.1
Fluoride (F)	15.0
Grease & Oil (FOG)	100
Iron (Fe)	2.0
Lead (Pb)	0.2
Manganese (Mn)	1.0
Mercury (Hg)	0.0005
Nickel (Ni)	1.0
Phenols	0.3
Silver (Ag)	0.1
Total Dissolved Solids (TDS)	3500
Zinc (Zn)	1.0

All Pollutants listed in
40 CFR Part 401.15 and
not regulated elsewhere in
this Ordinance 0.1

Alternative limits may be granted to Industrial Users by issuance of a Wastewater Discharge Permit provided the District has determined that no adverse effect on the District's facilities will occur (including but not limited to Pass Through, Interference, POTW Sludge disposal options or violations of Water Quality Standards) from the alternative limits and the Industrial User can justify to the District's satisfaction the above listed limits cannot reasonably be achieved.

Section 608. At the District's discretion, the District may establish equivalent limits in accordance with the provisions of 40 CFR 403.6.

Section 609. Whenever sufficient information is available the District shall establish the maximum levels that can be tolerated by the District to assure that no Interference of the POTW, no Pass Through, nor any reduction in the quality of the District's Sludge occurs with respect to any Pollutants, not otherwise controlled by the provisions of this Ordinance, for which water quality criteria of the District's receiving stream, effluent standards by regulation or by NPDES permit and/or Sludge disposal criteria by IEPA permit have been established.

Section 610. Industrial Users shall provide necessary Wastewater treatment as required to comply with this Ordinance, Federal Pretreatment Standards, as established by 40 CFR Chapter N, Subpart I, State standards and permit conditions, and shall achieve compliance with all National Categorical Pretreatment Standards within the time limitations as specified by the Federal Pretreatment Regulations, and with any other Pretreatment Standards by applicable deadlines.

Section 611. Any facilities required to pretreat Wastewater shall be provided, operated, and maintained at the Industrial User's expense. Detailed plans showing the Pretreatment facilities and operating procedures shall be submitted to the District for review and approval before construction of the facility. The review and approval of plans and operating procedures does not relieve the

Industrial User from complying with the provisions of this Ordinance and permit conditions. Any subsequent changes in the Pretreatment facilities or method of operation shall be reported to and approved by the District prior to the Industrial User's initiation of the changes.

Section 612. New Sources shall install and have in operating condition, and shall "start up" all pollution control equipment required to meet applicable Pretreatment Standards before beginning to discharge. Within the shortest feasible time (not to exceed 90 days), New Sources must meet all applicable Pretreatment Standards.

Section 613. All conditions of discharge, discharge criteria, and Pretreatment Standards imposed on a User under the Federal or State acts and regulations including, but not limited to 40 CFR Part 403; 40 CFR Chapter I, Subchapter N; 35 Illinois Administrative Code Section 307; and provisions in any applicable NPDES permit or IEPA Water Pollution Control Permit, are Wastewater discharge criteria for purposes of this Ordinance, are enforceable as provisions of this Ordinance, and, if more stringent, take precedence over other Wastewater discharge criteria or conditions provided by this Ordinance. The District shall classify and notify all known affected Industrial Users of the applicable reporting requirement under 40 CFR 403.12. Upon application by the Industrial User, the District will issue or modify a Wastewater Discharge Permit to show the most stringent discharge criteria applicable to that User including any applicable National Categorical Pretreatment Standards.

Section 614. Only after request by an Industrial User and acceptance of all associated costs by that Industrial User will the District, if it is determined by the District to be in its own best interest, develop the procedures whereby the following could be accomplished:

- 614.1 An Industrial User might receive revision of Pretreatment Standards to reflect POTW removal of Pollutants which, if for revision of Federal Categorical Pretreatment Standards, would be in accordance with 40 CFR 403.7 as revised.
- 614.2 An Industrial User might receive variances from Pretreatment Standards for nontoxic Pollutants for fundamentally different factors which, if for revision of Federal Categorical Pretreatment Standards, would be in accordance with 40 CFR 403.13.
- 614.3 An Industrial User's Pretreatment Standards might be adjusted to reflect the presence of Pollutants in the Industrial User's intake water which, if for Federal Categorical Pretreatment Standards adjustment, would be in accordance with 40 CFR 403.15.

Section 615. No Industrial User shall ever increase the use of process water, or in any way attempt to dilute a discharge, as a partial or complete substitute for adequate treatment to achieve compliance with a discharge limitation unless expressly authorized by an applicable Pretreatment Standard or Requirement. The District may impose mass limitations on Industrial Users which are

using dilution to meet applicable Pretreatment Standards or Requirements, or in other cases when the imposition of mass limitations is appropriate.

Section 616. Each User having the ability to cause Interference with the POTW or to violate the regulatory provisions of this Ordinance shall provide protection from accidental discharge to the POTW of prohibited materials or other substances regulated by this Ordinance. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the owner or User's own cost and expense.

Section 617. The District may require any User whose Wastewater includes or could include Compatible or Incompatible Pollutants in amounts great enough to cause Interference with the POTW to have detailed plans on file at the District showing facilities and operating procedures to provide protection from Slug discharges. These plans shall contain, at a minimum, the following:

- 617.1 Description of discharge practices, including nonroutine batch discharges.
- 617.2 Description of stored chemicals.
- 617.3 Procedures for immediately notifying the POTW of an accidental or Slug discharge. Such notification must also be given for any discharge which would violate any of the prohibited discharges in this Article.
- 617.4 Procedures to prevent adverse impact from any accidental or Slug discharge. Such procedures include, but are not limited to, inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker training, building of containment structures or equipment, measures for containing toxic organic Pollutants (including solvents) and/or measures and equipment for emergency response.

These Industrial Users shall complete construction of said facilities by the deadline established in the Industrial User's Wastewater Discharge Permit. No Industrial User who begins contributing to or could contribute such Pollutants to the POTW after the effective date of this Ordinance shall be permitted to introduce such Pollutants into the POTW until accidental discharge facilities and procedures, as appropriate, have been approved by the District and installed by the Industrial User. Review and approval of such plans and operating procedures shall not relieve the Industrial User from the responsibility to modify its facility as necessary to meet the requirements of this Ordinance.

Section 618. In the case of a Slug or an accidental or deliberate discharge of Compatible or Incompatible Pollutants which may cause Interference at the POTW or will Pass Through the POTW or violate requirements of this Ordinance, it shall be the responsibility of the Industrial

User to immediately telephone and notify the District of the incident. The notification shall include name of caller, location and time of discharge, type of Wastewater, concentration and volume.

Section 619. Within five (5) working days following such an accidental or deliberate discharge the Industrial User shall submit to the District a detailed written report detailing the date, time and cause of the discharge, the quantity and characteristics of the discharge, and the measures to be taken by the User to prevent similar future occurrences. Follow up reports may be required by the District as needed. Such report, or reports, shall not relieve the Industrial User of any expense, loss, damage or other liability which may be incurred as a result of damage to the POTW, fish kills, or any other damage to Person or property; nor shall such report relieve the Industrial User of any fines, civil penalties, or other liability which may be imposed by this Ordinance or otherwise. Failure to report accidental or deliberate discharges may, in addition to any other remedies available to the District result in the revocation of the Industrial User's Wastewater Discharge Permit.

Section 620. The Industrial User shall control production activities and/or discharges to the District's facilities to the extent necessary to maintain compliance with all applicable regulations upon reduction, loss, or failure of its Pretreatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost or fails.

Section 621. The Authorized Representative of an Industrial User shall receive reports from the Industrial User's employees concerning accidental or deliberate discharges and report to the District as described in this Article. In the same manner, reports of the failure of any aspect of the Industrial User's discharge monitoring equipment and Pretreatment facility are to be received by and reported to the District by the Authorized Representative. To this end, the Authorized Representative shall inform all of the Industrial User's employees of the type and nature of the discharges and equipment failures that must be reported, the information that must be reported, and the urgency of the reporting requirement. The Authorized Representative shall provide to the District upon request evidence that all employees have been informed as required and as to the information provided.

Section 622. Grease, Oil, and sand interceptors shall be provided when, in the opinion of the District, they are necessary for the proper handling of liquid wastes containing Grease in excessive amounts, or any sand, flammable wastes, and other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be a type and capacity approved by the District, and shall be located as to be readily and easily accessible for Cleaning and inspection. Such interceptors shall be maintained by the User, at his expense, in continuously efficient operation at all times.

Section 623. Grease and Oil interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, watertight, and equipped with easily removable covers which when bolted in place shall be gastight and watertight.

ARTICLE VII

WASTEWATER DISCHARGE PERMITS

Section 701. It shall be unlawful for any Significant Industrial User to discharge Wastewater to the District's POTW without a Wastewater Discharge Permit, or contrary to the conditions of a Wastewater Discharge Permit, issued by the District in accordance with the provisions of this Ordinance.

Section 702. All Significant Industrial Users proposing to connect to or to contribute to the POTW shall obtain a Wastewater Discharge Permit before connecting to or contributing to the POTW.

Section 703. Except where otherwise provided in this Article, Significant Industrial Users required to obtain a Wastewater Discharge Permit shall complete and file with the District an application in a form to be prescribed and furnished by the District and accompanied by a fee as may be determined by the District.

Section 704. Proposed new Significant Industrial Users shall apply for a Wastewater Discharge Permit at least 90 days prior to discharging to the POTW.

Section 705. In support of the application, the Significant Industrial User shall submit, in units and terms appropriate for evaluation, the following information:

- 705.1 Name, address and location of the facility including the name of the operator and owners.
- 705.2 SIC number according to the Standard Industrial Classification Manual, Bureau of the Budget, 1987, as amended.
- 705.3 Name of Authorized Representative of the Industrial User.
- 705.4 Total number of employees and hours of operation of the facility.
- 705.5 List of any environmental control permits held by or for the facility and copies of all currently valid NPDES Permits (and attached applications).
- 705.6 Average and maximum Wastewater flow rates, including monthly and seasonal variations, if any.
- 705.7 Time and duration of discharge.

- 705.8 Industrial User's source of intake water together with the types of usage and disposal sources of water and the estimated volumes in each category.
- 705.9 Site plans showing all pipe sizes, manholes and location of Sanitary and Storm Sewers leaving the building or premises, together with all connections to lateral Sanitary and Storm Sewers, and sampling access locations.
- 705.10 Listing of each process activity and, where there are two or more connections to the Public Sewers from the User's facilities, a schematic diagram identifying all processes, the source of water for each process and the drains and Sewers by which each process waste is discharged.
- 705.11 Wastewater constituents and characteristics including, but not limited to, those set forth in this Ordinance as determined by an analytical laboratory approved by the District; sampling and analysis shall be performed in accordance with Standard Methods. Samples shall be daily composite or Grab Samples, as applicable, representative of the Wastewater as discharged to the Public Sewer. The User shall take a minimum of one representative sample to compile that data necessary to comply with the requirements of this paragraph.
- 705.12 Proposed or actual hours of operation of the Industrial User's Pretreatment system and the name of the IEPA certified Pretreatment operator, if applicable.
- 705.13 Line diagram and basic information, including capacity, of existing or proposed spill containment areas and installation.
- 705.14 Listing of raw materials and chemicals that are used in the manufacturing process and are capable of being discharged into the POTW, and, if not previously provided, Material Safety Data Sheets for each such material or chemical.
- 705.15 If additional Industrial User operation and maintenance or Pretreatment techniques or installations will be required to meet Pretreatment Standards, the shortest schedule by which the Industrial User will provide such additional Pretreatment. The completion date in this schedule shall not be later than the compliance date established for the Pretreatment Standard.

- 705.15.1 The schedule shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional Pretreatment required for the Industrial User to meet the applicable Pretreatment Standards (e.g., hiring an engineer, completing preliminary plans, completing final plans, executing contract for major components, commencing construction, completing construction, etc.).
 - 705.15.2 No increment referred to in the above paragraph shall exceed nine months.
 - 705.15.3 Not later than 14 days following each date in the schedule and the final date for compliance, the Industrial User shall submit a progress report to the District including, as a minimum, whether or not it complied with the increment of progress to be met on such date and, if not, the date on which it expects to comply with this increment of progress, the reason for delay, and the steps being taken by the Industrial User to return the construction to the schedule established. In no event shall more than nine months elapse between such progress reports to the District.
- 705.16 Any other information as may be deemed by the District to be necessary to evaluate the permit application.

Section 706. In support of an application for a revised Wastewater Discharge Permit (equivalent to a Baseline Report), where an Industrial User is subject to a National Categorical Pretreatment Standard, that Industrial User shall submit, in addition to all information listed in Section 806, in units and terms appropriate for evaluation, the following information:

- 706.1 Brief description of the nature, average rate of production, and Standard Industrial Classification of each process and operation carried out by such User. This description shall include a schematic process diagram indicating points of discharge to the POTW from the regulated processes.
- 706.2 Information showing the measured average daily and maximum daily flow, in gallons per day, to the POTW from each of the following:
 - 706.2.1 Regulated process streams, and

- 706.2.2 Other streams as necessary to allow use of the Combined Waste Stream Formula of 40 CFR Section 403.6(e).
- 706.3 The Industrial User shall identify the National Categorical Pretreatment Standards applicable to each regulated process, and shall do the following:
- 706.3.1 Submit the results of sampling and analysis identifying the nature and concentration of regulated Pollutants in the discharge from each regulated process. Both daily maximum and average concentration shall be reported. This sample shall be representative of daily operations.
- 706.3.2 A minimum of four (4) Grab Samples must be used for pH, cyanide, total phenols, Oil and Grease, sulfide, and volatile organics. For all other Pollutants, 24-hour Composite Samples must be obtained through flow-proportional composite sampling techniques where feasible. The District may waive flow-proportional composite sampling for any Industrial User that demonstrates that flow-proportional sampling is infeasible. In such cases samples may be obtained through time-proportional composite sampling techniques or through a minimum of four (4) Grab Samples where the User demonstrates that this will provide a representative sample of the effluent being discharged.
- 706.3.3 The User shall take a minimum of one representative sample to compile that data necessary to comply with the requirements of this paragraph.
- 706.3.4 Take the samples immediately downstream from Pretreatment facilities if such exist or immediately downstream from the regulated process if no Pretreatment exists. If other Wastewaters are mixed with the regulated Wastewater prior to Pretreatment, in order to evaluate compliance with the National Categorical Pretreatment Standards, the Industrial User shall measure the flows and concentrations necessary to allow use of the Combined Waste Stream Formula of 40 CFR Section 403.6(e). Where an alternate concentration has been calculated in accordance with 40

CFR Section 403.6(e), this adjusted limit along with supporting data shall be submitted to the District.

- 706.3.5 Perform sampling and analysis in accordance with Standard Methods.
- 706.3.6 Submit, only with District authorization, a revised Wastewater Discharge Permit Application/Baseline Report which utilizes only historical data, so long as the data provides information sufficient to determine the need for Industrial Pretreatment measures.
- 706.3.7 Provide, for each report the time, date, and place, of sampling and methods of analysis and certification that such sampling and analysis is representative of normal work cycles and expected Pollutant discharges to the POTW.

706.4 The Industrial User shall provide a statement, reviewed by an Authorized Representative of the Industrial User and certified by an Illinois Registered Professional Engineer, indicating whether National Categorical Pretreatment Standards are being met on a consistent basis and, if not, whether additional operation and maintenance measures (O&M) or additional Pretreatment is required for the Industrial User to meet the National Categorical Pretreatment Standards.

706.5 If additional Pretreatment or operation and maintenance will be required to meet the National Categorical Pretreatment Standards, the Industrial User will provide the shortest schedule which will provide such additional Pretreatment or operation and maintenance. The completion date in this schedule shall not be later than the compliance date established for the applicable National Categorical Pretreatment Standard.

706.5.1 Where the Industrial User's National Categorical Pretreatment Standard has been modified by a removal allowance (40 CFR Section 403.7) or the Combined Waste stream Formula (40 CFR Section 403.6(e)), or net/gross calculations (40 CFR Section 403.15), at the time the Industrial User submits a revised Wastewater Discharge Permit Application/Baseline Report the information required in Sections above shall pertain to the modified limits.

706.5.2 If the National Categorical Pretreatment Standard for the Industrial User is modified after the application for a revised Wastewater Discharge Permit/Baseline Report is submitted, the Industrial User shall make any necessary amendments to information provided as a response to Sections above and submit them to the District within 60 days after the modified limit is approved.

706.5.3 The conditions described in Section 805.15.1, 805.15.2, and 805.15.3 of this Article shall apply.

Section 707. Within 180 days after the effective date of a National Categorical Pretreatment Standard, or 180 days after a final administrative decision has been made upon a categorical determination submission in accordance with 40 CFR Section 403.6(a)(4), whichever is later, existing Industrial Users subject to such National Categorical Pretreatment Standards and currently discharging to the District's POTW shall apply for a revised Wastewater Discharge Permit. The Baseline Report required by 40 CFR Part 403.12(b) will constitute the application for revision.

Section 708. New Sources, when subject to a National Categorical Pretreatment Standard, shall submit a Baseline Report at least 90 days prior to commencement of discharge to the POTW.

Section 709. The District will evaluate the data furnished by the Industrial User and may require additional information from the Industrial User. After evaluation of the data furnished, the District may issue a Wastewater Discharge Permit. No interim or temporary permit will be issued by the District except as set forth in this Article.

Section 710. A Wastewater Discharge Permit issued to an Industrial User shall be revised by the incorporation of standards and conditions for an Industrial User which has processes regulated by National Categorical Pretreatment Standards. The revised Wastewater Discharge Permit shall include the limits on average and daily maximum Pollutant concentrations from the applicable National Categorical Pretreatment Standard.

Section 711. Where the National Categorical Pretreatment Standards are modified by a removal allowance (40 CFR Section 403.7) or the Combined Waste Stream Formula (40 CFR Section 403.6(e)) or net/gross calculations (40 CFR Section 403.15) or Fundamentally Different Factor Variance for non-toxics (40 CFR Section 403.13), of the General Pretreatment Regulations, the limits as modified shall be made a part of the Wastewater Discharge Permit and shall be adjusted consistent with USEPA guidelines and regulations.

Section 712. Where an Industrial User has manufacturing processes which are regulated by more than one National Categorical Pretreatment Standard at the same permitted discharge location, the limitation in the Wastewater Discharge Permit shall be adjusted consistent with USEPA guidelines and regulations.

Section 713. Wastewater Discharge Permits shall be expressly subject to all provisions of this Ordinance and all other applicable regulations, User charges, and fees established by the District. Wastewater Discharge Permits shall include such conditions as are reasonably deemed necessary by the District to prevent Pass Through or Interference, protect the quality of the water body receiving the treatment plant's effluent, protect worker health and safety, facilitate Sludge management and disposal, protect ambient air quality, and protect against damage to the POTW.

- 713.1 Wastewater Discharge Permits shall contain the following conditions:
 - 713.1.1 A statement that indicates Wastewater Discharge Permit duration, which in no event shall exceed 5 years.
 - 713.1.2 A statement that the Wastewater Discharge Permit is nontransferable.
 - 713.1.3 Effluent limits applicable to the User based on applicable standards in Federal, State and local law.
 - 713.1.4 Self-monitoring, sampling, reporting, notification, and record keeping requirements. These requirements shall include an identification of Pollutants to be monitored, sampling location, sampling frequency, and sample type based on Federal, State, and local law.
 - 713.1.5 Statement of applicable civil, criminal, and administrative penalties for violation of Pretreatment Standards and Requirements, and any applicable compliance schedule. Such schedule may not extend the time for compliance beyond that required by applicable Federal, State, or local law.
- 713.2 Wastewater Discharge Permits may contain, but not be limited to, the following:
 - 713.2.1 Limits on the average and/or maximum rate of discharge, time of discharge, and/or requirement for flow regulation and equalization.
 - 713.2.2 Limits on the instantaneous, daily and monthly average and/or maximum concentration, mass, or other measure of identified Wastewater Pollutants or properties.

- 713.2.3 Requirements for the installation of Pretreatment technology, pollution control, or construction of appropriate containment devices, designed to reduce, eliminate, or prevent the introduction of Pollutants into the Treatment Works.
- 713.2.4 Requirements for the development and implementation of spill control plans or other special conditions including management practices necessary to adequately prevent accidental, unanticipated, routine, or Slug discharges.
- 713.2.5 Requirements to control Slug discharges, if determined by the District to be necessary.
- 713.2.6 Requirements for the development and implementation of waste minimization plans to reduce the amount of Pollutants discharged to the POTW.
- 713.2.7 The unit charge or schedule of Industrial User charges and fees for the management of the Wastewater discharged to the POTW.
- 713.2.8 Requirements for installation and maintenance of inspection and sampling facilities and equipment.
- 713.2.9 A statement that compliance with the Wastewater Discharge Permit does not relieve the permittee of responsibility for compliance with all applicable Federal and State Pretreatment Standards, including those which become effective during the term of the Wastewater Discharge Permit.
- 713.2.10 Other conditions, including Best Management Practices, as deemed appropriate by the District to ensure compliance with this Ordinance, and State and Federal laws, rules, and regulations.

Section 714. In the event the type, quality, or volume of Wastewater from the property for which a Wastewater Discharge Permit was previously granted shall materially or substantially change or in the event of any change affecting the potential for a Slug discharge (as determined by the District), the Person previously granted such permit shall make a new application to the District, at least 30 days in advance of any such change, in the same manner and form as originally made, provided that information previously submitted and unchanged need not be resubmitted by

the permittee. No permittee shall materially or substantially change the type, quality or volume of its Wastewater beyond that allowed by its permit without prior approval of the District.

Section 715. Wastewater Discharge Permits shall be issued for a specified time period, not to exceed five (5) years. The Permittee shall file an application for renewal of its permit at least 90 days prior to expiration of the Industrial User's permit. The Industrial User shall apply for reissuance of the permit on a form provided by the District. The terms and conditions of the permit may be subject to modification by the District during the term of the permit as limitations or requirements are modified or other just cause exists. The Industrial User shall be informed of any proposed changes in the permit at least 30 days prior to the effective date of change. Where any changes are made in the Industrial User's permit, a reasonable time shall be given to achieve compliance.

Section 716. Wastewater Discharge Permits are issued to a specific Industrial User for the process activities specified in the permit except at the discretion of the District, General Wastewater Discharge Permits may be issued in accordance with the provisions of 40 CFR 403.8(f)(1)(iii). A Wastewater Discharge Permit shall not be assigned, transferred or sold without the approval of the District. If the premises are sold or otherwise transferred by the permittee to a new owner who will maintain the operation in the same premises, then the permit held by the seller shall be reissued by the District to the new owner as a temporary permit, provided that the new owner shall immediately apply for a new permit in accordance with this Ordinance and further provided that the temporary permit shall only be effective for ninety (90) days after the date of sale or transfer. The District shall have the same remedies for violation of temporary permits as it has for violation of other discharge permits.

Section 717. Detailed plans and specifications, prepared by an Illinois Registered Professional Engineer, of Pretreatment facilities proposed to be constructed shall be submitted to the District for review and must be acceptable to the District before construction of the facility is commenced. The review of such plans shall in no way relieve the Industrial User from the responsibility of modifying its facility as necessary to comply with this Ordinance. Within a reasonable time after the completion of the facility, the Industrial User shall furnish its operations and maintenance procedures for the District to review. Any subsequent alteration or additions to such Pretreatment facilities shall not be made without due notice to and prior approval of the District.

Section 718. No Wastewater Discharge Permit shall be issued by the District to any Person whose discharge of material to Sewers, whether shown upon his application or determined after inspection and testing conducted by the District, is not in conformity with District Ordinances and regulations, or whose application is incomplete or does not comply with the requirements of District Ordinances as applicable. The District shall state the reason or reasons for denial in writing, which shall be mailed or personally delivered to the applicant, within ten (10) working days after denial.

Section 719. If the application is denied by the District, the Industrial User may obtain review of the denial by the District's Board of Trustees, provided that the Industrial User shall give written notice of this request therefore, within thirty (30) days after receipt of such denial. The

Board of Trustees shall review the permit application, the written denial and such other evidence and matters as the applicant and District shall present. The decision of the Board of Trustees shall be final.

ARTICLE VIII

MONITORING FACILITIES, RECORDS, AND REPORTS

Section 801. Within 90 days following the date for final compliance with applicable Pretreatment Standards, or in the case of a New Source, within 90 days following commencement of the introduction of Wastewater into the POTW, any Industrial User subject to Pretreatment Standards shall submit to the District a report, on forms provided by the District, indicating the nature and concentration of all Pollutants in the discharge, using the sampling techniques identified in Section 706.3.2, from the regulated process which are limited by Pretreatment Standards and the average and maximum daily flow for those process units in the Industrial User facility which are limited by such Pretreatment Standards. Where equivalent mass or concentration limits are established by the POTW for a User, this report shall contain a reasonable measure of the User's long-term production rate. Where a User is subject to Categorical Pretreatment Standards expressed in terms of allowable Pollutant discharge per unit of production, the report shall include the User's actual production during the appropriate sampling period. The report shall state whether the applicable Pretreatment Standards are being met on a consistent basis and, if not, what additional Industrial User operation and maintenance or Pretreatment techniques or installations are necessary to bring the Industrial User into compliance with the applicable Pretreatment Standards. This statement shall be signed by an Authorized Representative of the Industrial User and certified by an Illinois Registered Professional Engineer.

Section 802. Any Industrial User subject to an applicable Pretreatment standard, after the compliance date of such applicable Pretreatment Standard or, in the case of a New Source, after discharge of Wastewater to the POTW begins, shall submit to the District on or before the 20th day of the months of July and January, for the preceding two calendar quarters, a certified report indicating the nature and concentration of Pollutants in the effluent which are limited by such applicable Pretreatment Standards. In addition, this report shall include a record of measured or estimated average and maximum daily flows for the reporting period. In cases where the Pretreatment Standard requires compliance with a Best Management Practice (or pollution control alternative), the User shall submit documentation required by the District or the Pretreatment Standard necessary to determine the compliance status of the User. At the discretion of the District, this report shall also include concentrations of BOD, SS or other Pollutants specified by the District. The permittee shall sample and analyze its Wastewater for BOD, SS or other Pollutants at the discretion of the District as set forth in the permit issued to the Industrial User. At the discretion of the District and in consideration of such factors as a local high or low flow rate, holidays or budget cycles, the District may alter the months during which the above reports are submitted. The District may require more frequent reporting of flow rates and Pollutant discharges.

Section 803. The District may impose mass limitations on Industrial Users which are using dilution to meet applicable Pretreatment Standards or Requirements, or in other cases where the imposition of mass limitations are appropriate. In such cases, the report required by Section 802 shall indicate the mass of Pollutants regulated by Pretreatment Standards in the effluent of the

Industrial User. These reports shall contain the results of sampling and analysis of the discharge, including the flow and the nature and concentration, or production and mass where requested by the District, of Pollutants contained therein which are limited by the applicable Pretreatment Standards.

Section 804. For Industrial Users subject to equivalent mass or concentration limits established by the District in accordance with the procedures in 40 CFR 403.6(c), the report required by Section 802 shall contain a reasonable measure of the User's long-term production rate. For all other Industrial Users subject to Categorical Pretreatment Standards expressed only in terms of allowable Pollutant discharge per unit of production (or other measure of operation), the report required by Section 802 shall include the User's actual average production rate for the reporting period.

Section 805. The District may authorize an Industrial User subject to a categorical Pretreatment Standard to forego sampling of a pollutant regulated by a categorical Pretreatment Standard if the Industrial User has demonstrated through sampling and other technical factors that the pollutant is neither present nor expected to be present in the Discharge, or is present only at background levels from intake water and without any increase in the pollutant due to activities of the Industrial User. This authorization is subject to the conditions found in 40 CFR 403.12(e)(2).

Section 806. Significant noncategorical Industrial Users shall submit to the District at least once every six months (on dates specified by the District) a description of the nature, concentration, and flow of the Pollutants required to be reported by the District. The District may require more frequent reporting of flow rates and Pollutant discharges.

Section 807. If sampling performed by an Industrial User indicates a violation, the User shall notify the District within 24 hours of becoming aware of the violation. The User shall also repeat the sampling and analysis and submit the results of the repeat analysis to the POTW within 30 days after becoming aware of the violation, except the Industrial User is not required to resample if:

- 807.1 The POTW performs sampling at the Industrial User at a frequency of at least once per month, or
- 807.2 The POTW performs sampling at the User between the time when the User performs its initial sampling and the time when the User receives the results of this sampling.

Section 808. The reports required in this Article shall be based upon data obtained through appropriate sampling and analysis performed during the period covered by the report, which data is representative of conditions occurring during the reporting period. The POTW shall require that frequency of monitoring necessary to assess and assure compliance by Industrial Users with applicable Pretreatment Standards and Requirements.

Section 809. If an Industrial User subject to the reporting requirements in this Ordinance monitors any Pollutant more frequently than required by the District, using the procedures prescribed in this section, the results of this monitoring shall be included in the report.

Section 810. The POTW shall require appropriate reporting from those Industrial Users with discharges that are not subject to Categorical Pretreatment Standards and are not otherwise deemed by the District to be significant.

Section 811. Each Industrial User, where required by the District, shall be required to install, maintain, calibrate, and operate at the Industrial User's own expense, monitoring facilities to allow inspection, sampling, and flow measurement of the Building Sewer or internal drainage systems. All such facilities and their locations shall be in accordance with plans and specifications approved by the District.

Section 812. No Industrial User which is a New Source may discharge to the POTW without written certification by the District that all Pretreatment Requirements including, but not limited to, the monitoring and Pretreatment facilities required by this Ordinance have been provided and have been inspected by the District.

Section 813. An Industrial User shall provide one metered water supply for the Industrial User's building or complex and connect to the POTW by way of one Building Sewer and Control Manhole unless otherwise approved by the District. If the discharge as measured at the Control Manhole is not representative in quality or quantity of the Wastewaters discharged to the POTW by the Industrial User, or in quantity as measured by the water supply meter, then the District may require remedies, which the Industrial User shall undertake at the Industrial User's own expense, and which may include, but are not limited to, the following:

- 813.1 Require existing Sewer connections be consolidated into one.
- 813.2 Require water meters be installed and maintained to determine the total water supplied and any quantities of water not discharged to the Sewer.
- 813.3 Require that a flume be installed and maintained in each Control Manhole and that a flow monitoring system (including totalizer, recorder and automatic proportional-to-flow sampler actuator) be installed, maintained, calibrated, and operated.

Section 814. Monitoring facilities which may be required of any Industrial User include, but are not limited to, Control Manholes, flumes, weirs, flow monitoring systems, automatic Wastewater sampling systems, pH recorder, and temperature recorders. These and all monitoring facilities shall be constructed and located in accordance with plans and specifications approved by the District. Industrial Users which are New Sources or which are moving, expanding, or improving their facilities within the District shall contact the District to determine which new or revised monitoring facilities will be required.

Section 815. Whenever required by permit, an Industrial User shall install a Control Manhole or sampling chamber for each separate discharge in the Building Sewer in accordance with plans and specifications approved by the District and installed and maintained at all times at the Industrial User's expense. There shall be ample room in each sampling chamber to permit the District to take accurate Composite Samples for analysis. The chamber shall be safely, easily and independently accessible to authorized representatives of the District at all times.

Section 816. Where required by the District, additional Control Manholes or sampling chambers shall be provided at the end of each industrial process within an Industrial User's facility suitable for the determination of compliance with Pretreatment Standards.

Section 817. The sampling chamber, metering device, and documentation of the frequency of sampling, sampling methods and analyses of samples shall be subject, at any reasonable time, to inspection and verification by the District.

Section 818. All measurements, test, and analysis of the characteristics of Wastewater and wastes to which reference is made in this Ordinance shall be determined in accordance with Standard Methods and shall be determined at the Control Manhole provided, or upon suitable samples taken at said Control Manhole. In the event that no special manhole has been required, the Control Manhole shall be considered to be the nearest downstream manhole in the Public Sewer to the point at which the Building Sewer is connected. Sampling shall be carried out by customarily accepted methods, as determined by the District, to reflect the effect of constituents upon the Wastewater Facilities and to determine the existence of hazards to life, limb, and property. The District will determine whether a 24-hour composite of all outfalls of a premise is appropriate or whether a Grab Sample or samples should be taken.

Section 819. Users and the District shall maintain records of all the information resulting from any monitoring activities required by this Ordinance, and in the case of Industrial Users, shall include the following:

- 819.1 The date, exact place, method and time of sampling and the names of the Person or Persons taking the samples;
- 819.2 The dates the analyses were performed;
- 819.3 Who performed the analyzes;
- 819.4 The analytical techniques/methods used; and
- 819.5 The results of such analyses.

Section 820. The User of any property serviced by a Building Sewer carrying Industrial Wastes shall provide measurements of flow and laboratory tests and analyses of water and wastes to illustrate compliance with this Ordinance and any special conditions for discharge established

by the District or regulatory agencies having jurisdiction over the discharge. The number, type and frequency of laboratory analyses to be performed by the User shall be as stipulated by the District but no less than once per year the industry must supply a complete analysis of the constituents of the Wastewater discharge to assure that compliance with the Federal, State, and local standards are being met. The User shall report the results of measurements as prescribed by the District. The User shall bear the expense of all measurements, analyses, and reporting required by the District. At such times as deemed necessary, the District reserves the right to take measurements and samples for analysis by an outside laboratory service or by the District's laboratory.

Section 821. Each User who handles, stores, generates, receives, transfers, ships out, treats, or disposes of any hazardous or toxic materials or wastes as defined in the applicable laws, statutes, rules and regulations of the federal and state governments or any other governmental agencies of authority, shall maintain a Material Safety Data (MSD) Sheet (Occupational Safety and Health Administration Form 20 or equivalent) for each of these materials and an inventory list of all of these materials. The inventory list shall show, for each material, the substance and chemical name (or names) as shown on the MSD Sheet, the quantities involved, and the period of time when the material was under the control of or on the premises of the User. These records shall be open for inspection and photocopying by the District, the IEPA, and the USEPA at all reasonable times. Additionally, the District may request and the User shall provide verification that no inventory of toxic or hazardous material has been lost to the environment. Verification may include for instance, the proper testing of underground tanks intended for storage of hazardous or toxic materials to assure that such material does not leak into the ground or Sewers in violation of this Ordinance.

Section 822. A Material Safety Data (MSD) Sheet (OSHA Form 20 or equivalent) may be valuable in determining the character biodegradability, or treatability of a substance. Therefore, in making the determination as to appropriateness for discharge to the District's facilities of a material, the District may request, or a User may provide, appropriate MSD sheets to the District.

Section 823. All Industrial Users with Pretreatment facilities shall maintain records as to the types, quantities, haulers, disposal site, and date of removal for all Sludges or other wastes resulting from the Pretreatment of Industrial waste. Pretreatment facilities include those facilities built to protect Building Drains and Sewers and the POTW as the result of laws of federal, state, and other agencies having jurisdiction.

Section 824. The District and Industrial Users shall maintain all records required by this Ordinance for a minimum of three (3) years. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of Pollutants by the Industrial User or regarding the operation of the District's Pretreatment program or when requested by the Regional Administrator or the State Director.

Section 825. A User shall provide, upon request, to the District, copies of any records or MSD Sheets the User has or maintains as the result of this Ordinance.

Section 826. All monitoring equipment and facilities obtained, installed or operated by the User as provided by the provisions of this Ordinance shall be maintained continuously in satisfactory and effective operation by the User at his expense. If for any reason, any monitoring equipment or facility does not operate in conformity with these regulations and, in the case of an Industrial User, with the provisions of his Wastewater Discharge Permit, the User shall immediately notify the District so that any feasible corrective action may be taken to protect the POTW. In addition, a written report addressed to the District detailing the date, time, and cause of the equipment malfunction or failure, the estimated time required for repair or replacement, the substitute monitoring being undertaken in the interim, and the corrective action being undertaken to prevent repetitive failures, shall be forwarded by the User within five (5) working days of the equipment malfunction or failure if so requested by the District.

ARTICLE IX

POWER AND AUTHORITY OF INSPECTORS

Section 901. The Director and other duly authorized employees or representatives of the District bearing proper credentials and identification shall be permitted to enter all private properties through which the District holds an Easement for the purposes of, but not limited to, inspection, observation, measurement, sampling, repair, and maintenance of any portion of the POTW lying within said Easement. All entry and subsequent work, if any, on said Easement, shall be done in full accordance with the terms of the Easement pertaining to the private property involved.

Section 902. The District, the IEPA, the USEPA, and their authorized representatives may inspect the facilities of Users to ascertain whether the purposes of this Ordinance are being met and if all requirements of this Ordinance are being complied with. Persons or occupants of premises in which a discharge source or treatment system is located or in which reports are being kept shall allow the Director and other duly authorized employees of the District, the IEPA, the USEPA, and authorized representatives, bearing proper credentials and identification, ready access at reasonable times to all parts of said premises for the purposes of inspection, sampling, examination and photocopying of records required to be kept by this Ordinance, and in the performance of any other duties. The Director and other duly authorized employees of the District, the IEPA, the USEPA, and authorized representatives shall have the right to set up on the User's property such devices as are necessary to conduct sampling, monitoring and metering operations. Where a User has security measures in force which would require suitable identification, necessary arrangements with their security guards shall be completed so that upon presentation of suitable identification, duly authorized personnel from the District shall be permitted immediate entry for the purposes of performing their specific responsibilities.

Section 903. While performing the necessary work on private properties, the Director or duly authorized employees of the District, the IEPA, the USEPA, and authorized representatives shall observe all reasonable safety rules applicable to the premises established by the User, and the User shall be held harmless for injury or death to the District employees, and the District shall indemnify the User against loss or damage to its property by District employees and against liability claims and demands growing out of the monitoring and sampling operation, except as such may be caused by negligence or failure of the User to maintain safe conditions as required in this Ordinance.

ARTICLE X

CONFIDENTIAL INFORMATION

Section 1001. Information and data relating to a User obtained from reports, questionnaires, permit applications, permits and monitoring programs and from inspections shall be available to the public or other governmental agencies without restriction unless the User specifically requests, and is able to demonstrate to the satisfaction of the District, that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the User.

Section 1002. When requested by the Person furnishing a report, and until such time as the District determines that the requested information is not entitled to confidential treatment, the portions of a report which might disclose trade secrets or secret processes shall not be made available for inspection by the public, but shall be made available upon written request to governmental agencies for uses related to this Ordinance, the National Pollutant Discharge Elimination System (NPDES) permit, and for use by the state or any state agency in judicial review or enforcement proceeding involving the User furnishing the report.

Section 1003. Information and data provided to the District which is effluent data shall be available to the public without restriction.

Section 1004. Information claimed by a User to be confidential shall not be transmitted to the general public by the District until and unless a thirty day notification is given to the User.

Section 1005. The District shall implement measures to prevent the negligent release of confidential information; however, the District or its employees shall not be held legally responsible for release of information if they have acted in good faith.

Section 1006. Nothing in this Article shall be construed as a reason for a User not to provide required information to the District.

Section 1007. Nothing in this Article shall be construed to interfere with the District providing a User with information directly related to that User if such information does not conflict with the confidentiality of information relating to other Users.

ARTICLE XI

PROTECTION OF SEWAGE WORKS FROM DAMAGE

Section 1101. No Person shall willfully, maliciously or negligently break, deface, destroy or injure any District Sewer, manhole or other appurtenance thereto, or any pumping station or Treatment Works or any other aspect of the POTW. Any Person violating this provision shall be subject to immediate arrest under charge of disorderly conduct.

ARTICLE XII

ENFORCEMENT PROCEDURES AND PENALTIES

Section 1201. The term "permit" as used in this Article shall mean the District's NPDES Permit, the Water Pollution Control Permit issued by the IEPA covering the District's Sludge management and disposal system, the Building Sewer Permit, and/or the User's Wastewater Discharge Permit, as indicated by the context in which the term is used.

Section 1202. Any User or other Person who violates any provision of this Ordinance, any permit condition, any Pretreatment Standards or Requirements, the Illinois Environmental Protection Act or the Federal Act or regulations promulgated under either act, or who:

- 1202.1 Fails to factually report the Wastewater constituents and characteristics of its discharge as determined by the User's or the District's analysis, or
- 1202.2 Fails to report significant changes in process activity or Wastewater constituents or characteristics, or
- 1202.3 Refuses reasonable access to premises by authorized District personnel for the purpose of inspection, monitoring, sampling, examination and photocopying of records required to be kept by this Ordinance, and in the performance of any other duties, or
- 1202.4 Tampers with, disrupts, or destroys District equipment, or
- 1202.5 Fails to report a Slug discharge as defined in Article I of this Ordinance, or
- 1202.6 Fails to report an accidental discharge of a Pollutant, or
- 1202.7 Fails to report an Upset of the User's Pretreatment facilities, or
- 1202.8 Violates conditions of the User's Wastewater Discharge Permit,

is subject to the procedures and penalties set forth in this Article.

Section 1203. Whenever the District has cause to believe a User or other Person has committed or is committing any of the violations set forth in Section 1202., the District may prepare a Notice of Violation to be served on the User or other alleged violator in any of the following manners, or combinations thereof:

- 1203.1 By regular first class mail addressed to the User or other alleged violator at his place of business where it is reasonably believed that he will receive the Notice;
- 1203.2 By certified or registered mail, return receipt requested, addressed to the User or other alleged violator at his place of business or residence or other address where it is reasonably believed that he will receive the Notice;
- 1203.3 By personal or abode service in the manner and by person that would be appropriate for the service of a summons in a civil action on an individual, partnership or corporation pursuant to the civil practice of law of Illinois in effect at the time of service, except that no court order appointing the person shall be required; or
- 1203.4 By publication in the manner and to the extent permitted in a civil action in lieu of service of summons pursuant to the civil practice law of Illinois in effect at the time of publication, except that no court filing is necessary.

The Notice of Violation shall be served at least ten (10) days before the meeting where the service is by mail and at least five (5) days before the meeting where personal or abode service is utilized and a first publication at least thirty (30) days before the meeting if publication service is utilized. Service by mail is accomplished upon mailing. The affidavit of the person who mailed, served or published the Notice of Violation is prima facie evidence of service and may be rebutted only by clear and convincing evidence to the contrary.

Section 1204. The Notice of Violation shall specify with reasonable detail the violation and, at the discretion of the District, the time and place for a compliance meeting to be attended by representatives of the District and by the User or other alleged violator. The District may also notify any other Person with an interest in the matter whose rights may be affected by the continued enforcement proceedings.

Section 1205. Any request for a continuance of the compliance meeting must be in writing to the Director setting forth in detail the reasons for the request. The Director may grant or deny continuances upon said written request.

Section 1206. The purpose of the compliance meeting shall be to obtain a voluntary plan to remedy the specific violation. It is specifically designed as an informal process and is not penal in nature.

Section 1207. The compliance meeting shall be conducted by the Director. No formal rules of evidence shall be in effect and the proceedings shall not be transcribed by a court reporter. The Director shall discuss with the User or other alleged violator a compliance plan for remedying the specified violation.

Section 1208. Within a reasonable time after the conclusion of the compliance meeting, a letter shall be issued by the Director indicating the results of the meeting and a compliance plan for remedying the specified violation. The letter may contain a compliance schedule of events as may be required to remedy the specified violation.

Section 1209. The Director is, in his discretion, hereby empowered to enter into consent orders, assurances of voluntary compliance, or other similar documents establishing an agreement with a User or other Person responsible for violation or noncompliance. Such orders may include compliance schedules, stipulated fines, specified remedial actions, and signatures of the User and other violator or their Authorized Representatives. Upon approval by the Board of Trustees, consent orders shall have the same force and effect as orders issued pursuant to Section 1222.

Section 1210. In the event that the user or other alleged violator does not appear at a scheduled compliance meeting, said User shall be deemed to have waived the right to a formal show cause hearing, and waiving rights to a show cause hearing, the Director may make the recommendations to the Board of Trustees that a hearing officer could make under Section 1220. and the Board of Trustees may act pursuant to Section 1222. and may proceed in all respects as if a show cause hearing had taken place.

Section 1211. Nothing herein shall prohibit the Director from attempting by less formal means to persuade the User or other violator to cease and eliminate the alleged violation.

Section 1212. The Director may, in the case of:

- 1212.1 A failure at a compliance meeting to reach a voluntary agreement to remedy the specified violation, or
- 1212.2 A failure on the part of a User or other alleged violator to perform according to the compliance plan developed at a compliance meeting, or
- 1212.3 Discovery of an ongoing or potential discharge to the POTW which presents or may present a danger to the environment or which threatens to Interfere or Interferes with the operation of the POTW,

order the User, other alleged violator, or whoever causes or contributes to such discharge to show cause why the violation or discharge should not be discontinued and why other appropriate enforcement action should not be taken, and the provisions set forth in Section 1213 through 1226 shall apply.

Section 1213. A notice shall be served on the offending party specifying the violation, the time and place of a show cause hearing, and requiring the User or other alleged violator to appear at the hearing and show cause, if any, before an impartial hearing officer appointed by the Board of Trustees, why an Order should not be entered directing the discontinuance of the User's or other

alleged violator's discharge or violation or directing that other appropriate enforcement action be taken. The Notice to Show Cause may be served on the User or other alleged violator in the manner set forth in Section 1203. The District may also notify any other party with an interest in the matter whose rights may be affected by continual enforcement proceedings whether or not a duly notified User or other alleged violator appears as noticed, enforcement action may be pursued as appropriate.

Any requests for a continuance must be made in writing to the hearing officer with a copy to the Director setting forth in detail reasons for the request. The hearing officer shall grant or deny continuances in writing upon said written requests and may, if he desires, ask for the Director's response to the request before ruling, a copy of which shall be provided to the requesting party. Additionally, the hearing officer may in his discretion ask for argument before ruling. The grant of a continuance may be conditioned on such terms as the hearing officer in his discretion believes appropriate.

Section 1214. The hearing officer shall conduct the hearing and take the evidence.

Section 1215. Upon written request prior to the hearing, the District shall provide the following:

- 1215.1 A list of all witnesses expected to testify at the show cause hearing;
- 1215.2 Copies of any documents expected to be used at the show cause hearing;
- 1215.3 An opportunity to examine any physical evidence expected to be used at the show cause hearing or upon which any documentary evidence is based.

Section 1216. The District shall make its employees available for examination at the show cause hearing upon written request. Further, upon the request of any party to the show cause hearing, or upon his own request, the hearing officer shall issue subpoenas to compel the attendance of witnesses and the production of evidence reasonably necessary to the resolution of the matter under consideration and may examine witnesses.

Section 1217. The Director may enter into stipulations of fact or law on behalf of the District.

Section 1218. The following procedures shall apply to all show cause hearings:

- 1218.1 Testimony shall be taken under oath and recorded stenographically. The transcript so recorded must be made available to any member of the public or any party to the hearing upon payment of the usual charges therefore;

- 1218.2 The hearing officer shall open the hearing by stating his name and stating the User's or other alleged violator's name and the matter involved;
- 1218.3 The hearing officer shall ask for the appearances of the parties and in responding thereto, any persons representing the various parties shall state for the record their names and whom they represent;
- 1218.4 The District shall offer a copy of the Notice to Show Cause as an exhibit into evidence and establish the date of mailing, publication, or personal service thereof. The User or other alleged violator shall be given an opportunity to object to the form or sufficiency of notice. Notice may be waived by the User or other alleged violator;
- 1218.5 The hearing officer shall determine for the record whether due notice was given;
- 1218.6 Following the determination of notice, the hearing officer shall solicit an opening statement from the District and then from the User or other alleged violator;
- 1218.7 Following the opening statements, the District shall call and examine its witnesses and present its documentary and physical evidence. The User or other alleged violator shall be afforded an opportunity to cross-examine and object to any documentary or physical evidence;
- 1218.8 After the District presents its witnesses and documentary and physical evidence, the User or other alleged violator shall be afforded the same opportunity to call witnesses and present documentary and physical evidence. The District shall be afforded the opportunity to cross-examine the witnesses and object to any documentary or physical evidence presented by the User or other alleged violator;
- 1218.9 The hearing officer shall accept or reject any documentary or physical evidence offered. Such acceptance or rejection shall be noted for the record. No formal rules of evidence shall apply. All evidence which is relevant and authentic may be accepted into evidence;
- 1218.10 Following the presentation of witnesses and documents, the hearing officer shall solicit closing statements from the District, then from the User or other alleged violator, and then rebuttal from the District.

- 1218.11 The hearing officer may suspend the hearing to show cause and set a date on which the hearing is to continue.

Section 1219. The District shall have the burden of showing by a preponderance of the evidence the following elements:

- 1219.1 Notice of the hearing conforming to the provisions of this Article, if not waived by the user or other violator;
- 1219.2 The specified violation;
- 1219.3 That the User or other alleged violator is or was responsible for the specified violation.

Section 1220. The hearing officer shall render a decision in writing with specific findings as to the elements set forth in Section 1219. herein within thirty (30) days of the hearing. If the hearing officer finds that the District has proven each of the elements set forth in Section 1219. herein, the hearing officer shall transmit a report of the evidence and hearing, which need not include the transcript, together with recommendations, to the Board of Trustees for action thereon. The recommendation of the hearing officer may consist of one or more of the following:

- 1220.1 That any permits held by the User or other violator be revoked immediately;
- 1220.2 That following a specified time any permits held by the User of other violator be revoked;
- 1220.3 That the User or other violator cease the discharge immediately;
- 1220.4 That the User or other violator cease the discharge after a specified period of time;
- 1220.5 That the relevant permits held by the User or other violator be revised to include conditions that will eliminate violations; which may include but not be limited to installation of adequate treatment and Pretreatment facilities, devices or other appurtenances, installation of Pretreatment technology, additional self-monitoring and management practices;
- 1220.6 That the User or other violator engage qualified persons and carry out designated permit conditions (for instance, engage a consultant qualified by the District to sample or analyze a given waste);

- 1220.7 That fines be assessed against the user or other violators as provided in Section 1226.
- 1220.8 That such other actions deemed necessary by the hearing officer to abate the specified violation be taken by the Board of Trustees.

Section 1221. In all cases where the hearing officer finds that the District has proven a specified violation, the hearing officer may assess the costs of enforcement as part of the recommendations. The costs shall include hearing officer fees, service fees, reasonable attorney's fees and other expenses incurred by the District in relation to the hearing.

Section 1222. After reviewing the report and recommendations transmitted by the hearing officer, or a recommendation by the Director pursuant to Section 1210, the Board of Trustees may issue an order to the User or other violator directing the implementation of one or more of the recommendations made by the hearing officer or directing implementation of such other action as deemed necessary by the Board of Trustees to cure the specified violation. The Board of Trustees may, independent of any recommendation of the hearing officer, assess the costs of the proceedings against the User or violator. Any cost and any fines assessed hereunder may be added to the User's monthly bill and the District may pursue appropriate collection proceedings in a court of appropriate jurisdiction. Fees and costs incurred in collection are also chargeable to the User or other violator.

Section 1223. Following an order of revocation or suspension of its Wastewater Discharge Permit, the User or other violator shall cease discharging to the POTW in accordance with the terms of said Order. Failure to do so shall be prima facie evidence of continuing harm to the POTW and provide grounds for the granting of injunctive relief or temporary restraining orders.

Section 1224. If the User or other violator fails to cease the discharge or violation in accordance with the Order of the Board of Trustees, the District may physically disconnect the user from the POTW by any effective and appropriate means.

Section 1225. A violation of any order of the Board of Trustees shall be considered a nuisance. If any person discharges Sewage or Industrial Waste or other wastes or Pollutants into any Waters contrary to the orders of the Board of Trustees, the District, acting through the Director, may commence an action in the Circuit Court for the purpose of having the discharge stopped either by mandamus or injunction.

Section 1226. Notwithstanding and in addition to any other Section of this Ordinance, any User or other Person who violates any provision of this Ordinance, orders of the Board of Trustees, or permits and orders issued hereunder, may be fined in an amount not less than \$100.00 nor more than \$1,000.00, except, when the violation is by an Industrial User of a Pretreatment Standard or Requirement, as those terms are used in 40 CFR 403, the fine shall be no less than \$1,000.00 nor more than \$10,000.00 per day per violation. Each day on which noncompliance shall occur or continue shall be deemed a separate and distinct violation. Such assessments may be added to the User's next scheduled Sewer user charge bill and the Director shall have such other collection

remedies as he has to collect other user charges. Unpaid charges, fines, and penalties shall constitute a lien against the individual user's property. If the fine was not assessed following the procedures in Section 1203, through Section 1224, then the User shall upon his request made within 30 days of this notification by regular first class mail of the fines, be entitled to a show cause hearing as a matter of right, and the show cause procedures shall apply. Such user or other Person shall also be liable for reasonable attorney's fees, court costs and other expenses of litigation.

Section 1227. The Director may in lieu of proceeding under Section 1203, through Section 1224, suspend the Wastewater Treatment service, Wastewater Discharge Permit, and/or any permit held by any User whenever such suspension is necessary in order to stop an actual or threatened discharge presenting or causing an imminent and substantial endangerment to the health or welfare of Persons, the efficient operation of the POTW, or the environment.

1227.1 Any User notified of a suspension of the Wastewater Treatment service, the Wastewater Discharge Permit, or other permit pursuant to the preceding paragraph shall immediately stop or eliminate its discharge to District facilities. In the event of a User's failure to immediately comply voluntarily with the suspension order, the Director shall take such steps as are deemed necessary, including immediate severance of the sewer connection, to prevent or minimize damage to the POTW, its receiving stream, or endangerment to any individuals. The Director may allow the User to recommence its discharge when the endangerment has passed.

1227.2 A User which is responsible, in whole or in part, for such imminent endangerment shall submit a detailed written statement describing the causes of the harmful contribution and the measures taken to prevent any future occurrence to the Director prior to being allowed to recommence its discharge to the POTW.

Section 1228. If any Person discharges Sewage, Industrial Wastes, or other wastes into the Wastewater disposal system contrary to the provisions of this Ordinance or any order or permit issued hereunder or violates any other provision of this Ordinance, the Director may commence an action for appropriate legal and/or equitable relief in State or Federal courts. In addition, the Director may, upon discovery of an ongoing or potential discharge of Pollutants to the POTW which reasonably appears to present an imminent danger to the health or welfare of Persons, seek and obtain from the Circuit Court a Temporary Restraining Order and an injunction to halt or prohibit such discharge or proceed under any other provision of this Ordinance. The remedies hereunder may be utilized immediately, without first resorting to other available procedures.

1228.1 In addition to all other applicable provisions of this Ordinance, and all applicable statutes, regulations and laws, the District may institute a civil action for an injunction which restrains or compels activities of the User: To assure compliance with applicable

Pretreatment Standards and Requirements; to assure compliance with any provisions of the District's Ordinances; or to assure compliance with any order of the Board of Trustees. It shall not be a requirement that the District show an inadequate remedy at law or irreparable injury.

- 1228.2 The District, in its discretion, may commence a civil action for the assessment of fines for violations of this Ordinance and permits pursuant to the provisions of Illinois Compiled Statutes, Chapter 415, Act 5, Section 46.
- 1228.3 In the event that all or part of the relief prayed for in an action brought pursuant to this Section is granted, the District shall be entitled as a part of its judgment, to its attorney's fees, costs, expert witness fees and all other costs and expenses of litigation.
- 1228.4 The District may commence an action for recovery of actual damages caused by any User to District property.

Section 1229. The District may, upon discovering an ongoing or potential discharge to the POTW which presents or may present a danger to the environment or which threatens to Interfere with the operation of the POTW, immediately issue an order to the responsible User to show cause before the Board of Trustees why the District should not disconnect service, revoke or suspend the User's Wastewater Discharge Permit or seek injunctive relief to prohibit the User from making the discharge to the POTW. Procedures to be followed by the Board of Trustees in said show cause hearing shall be in accordance with this Article. After said hearing, the District may disconnect service, revoke or suspend the Wastewater Discharge Permit, or seek injunctive relief to prohibit the Industrial User from making the discharge to the POTW.

Section 1230. In addition to remedies available to the District set forth elsewhere in this Ordinance, if the District is fined by the State of Illinois or the United States for violation of its NPDES Permit or its Sludge permit (issued by the IEPA) or for violation of Effluent or Water Quality Standards or for a fish kill as the result of a discharge of pollutants, then the fine, including all District legal, sampling, analytical testing costs and any other related costs shall be charged to the responsible User. Such charge shall be in addition to, and not in lieu of, any other remedies the District may have under this Ordinance, statutes, regulations, at law or in equity.

Section 1231. If the discharge from any User causes a deposit, obstruction, or damage to any of the District's Wastewater Facilities, the Director shall cause the deposit or obstruction to be promptly removed or cause the damage to be promptly repaired. The cost for such work, including materials, labor, and supervision, shall be borne by the Person causing such deposit, obstruction, or damage.

Section 1232. Any Person violating any of the provisions of this Ordinance shall become liable to the District for any expense, including reasonable attorney's fees, loss, or damage occasioned the District by reason of such violation.

Section 1233. Any Person who knowingly makes any false statements, representation or certification in any application, record, report, plan or other document filed or required to be maintained pursuant to this Ordinance or Wastewater Discharge Permit, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required under this Ordinance or Wastewater Discharge Permit, shall be subject to the penalties and costs provided in this Article and shall in addition be guilty of a misdemeanor and upon conviction, be punished by a fine of not more than one thousand dollars (\$1,000.00) and/or shall be incarcerated in a penal institution other than the penitentiary for a period not to exceed six (6) months.

Section 1234. In the case of Industrial Users, the District shall annually publish in a daily newspaper, which general circulation area includes the District, a list of Industrial Users who were in Significant Noncompliance of any Pretreatment Standard or Requirement during the previous twelve months. The notification shall also summarize any enforcement actions taken against the Industrial User(s) during the same twelve months.

Section 1235. A User shall have an affirmative defense in any action brought against it alleging an Interference and/or Pass Through violation of this Ordinance where the User can demonstrate that the User did not know or have reason to know that its discharge, alone or in conjunction with a discharge or discharges from other sources, would cause a Pass Through or Interference; and

1235.1 A District limit or prohibition designed to prevent Pass Through and/or Interference, as the case may be, has been established in this Ordinance or in the User's Wastewater Discharge Permit for each Pollutant in the User's discharge that caused Pass Through or Interference, and the User was in compliance with each such local limit or prohibition directly prior to and during the Pass Through or Interference; or

1235.2 In the case where a District limit or prohibition designed to prevent Pass Through and/or Interference, as the case may be, has not been established for the Pollutant(s) that caused the Pass Through or Interference, and the User's discharge directly prior to and during the Pass Through or Interference did not change substantially in nature or in constituents from the User's prior discharge activity when the POTW was regularly in compliance with the POTW's NPDES permit requirement and, in the case of Interference, applicable requirements for Sewage sludge use or disposal.

Section 1236. The District may institute a civil action to specifically enforce the terms of an agreement entered into by the District with any User, including any Industrial User. When such agreement relates to protection of the environment or protection of the POTW, and/or when the

agreement relates to affirmative acts to be undertaken by the User, it shall not be a defense to the User that the agreement is to imprecise, indefinite or otherwise unclear to be enforced specifically under the traditional equitable principles, nor shall it be a defense that contracts for construction of works on structures should not be specifically enforced.

Section 1237. In addition to the authority granted elsewhere in this Article, the District shall have all powers and capabilities as may be necessary to comply with Section 307 of the Federal Water Pollution Control Act and regulations promulgated thereunder, as now required, or as may be required by amendment from time to time. It is the specific intent of this provision that the District shall not be required to amend its Ordinance from time to time to have the powers and capabilities required of it by the Act and regulations herein referenced.

Section 1238. Bypass

- 1238.1 Subject to the requirements of Section 1338.3, an Industrial User may allow any Bypass to occur which does not violate Pretreatment Standards or Requirements, but only if it is for essential maintenance to assure efficient operation. These Bypasses are not subject to 1338.2.
- 1238.2 Notice
 - 1238.2.1 If an Industrial User knows in advance of the need for a Bypass, it shall submit prior notice to the District, if possible at least ten days before the date of the Bypass.
 - 1238.2.2 An Industrial User shall orally notify the District of an unanticipated Bypass that exceeds applicable Pretreatment Standards or Requirements within 24 hours of becoming aware of the Bypass. A written submission shall also be provided within 5 days of becoming aware of the Bypass. The written submission shall contain a description of the Bypass and its cause; the duration of the Bypass, including exact times and dates, and if the Bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the Bypass.
- 1238.3 Prohibition of bypass
 - 1238.3.1 Bypass is prohibited and the District may take enforcement action against an Industrial User for a Bypass, unless: (i) Bypass was unavoidable to prevent loss of life, personal injury or Severe Property Damage;

(ii) There are no feasible alternatives to Bypass, such as use of auxiliary treatment facilities, retention of wastes or maintenance during normal periods of equipment downtime (This condition is not satisfied if adequate back-up equipment should have been installed to prevent bypass which occurred during normal periods of equipment downtime or preventative maintenance); and (iii) The Industrial User submitted notices as required by paragraph 1338.2.

1238.3.2 The District may approve an anticipated Bypass, after considering its adverse effects, if the District determines that it will meet the three conditions listed in paragraph 1338.3.1.

Section 1239. Upset provisions

1239.1 For the purposes of this section, "Upset" means an exceptional incident in which there is an unintentional and temporary noncompliance with Categorical Pretreatment Standards because of factors beyond the reasonable control of the Industrial User. An Upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

1239.2 An Upset shall constitute an affirmative defense to an action brought for noncompliance with Categorical Pretreatment Standards if the requirements of paragraph 1339.3 are met.

1239.3 An Industrial User who wishes to establish the affirmative defense of Upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

1239.3.1 An Upset occurred and the Industrial User can identify the cause(s) of the Upset;

1239.3.2 The facility was at the time being operated in a prudent and workman-like manner and in compliance with applicable operation and maintenance procedures.

1239.3.3 The Industrial User has submitted the following information to the District within 24 hours of becoming aware of the Upset (if this information is provided

orally, a written submission must be provided within five days):

1239.3.3.1 A description of the discharge and cause of noncompliance;

1239.3.3.2 The period of noncompliance, including exact dates and times, or if not corrected, the anticipated time the noncompliance is expected to continue;

1239.3.3.3 Steps being taken and/or planned to reduce, eliminate and prevent recurrence of the noncompliance.

1239.4 In any enforcement proceeding the Industrial User seeking to establish the occurrence of an Upset shall have the burden of proof.

1239.5 The Industrial User shall control production of all discharges to the extent necessary to maintain compliance with Categorical Pretreatment Standards upon reduction, loss, or failure of its treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost or fails.

ARTICLE XIII
GENERAL

Section 1301. On the effective date of this Ordinance all other Ordinances or parts of other Ordinances inconsistent or conflicting with any part of this Ordinance are hereby repealed to the extent of such inconsistency or conflict. Specifically 408 (July 20, 1993), Ordinance No. 422 (July 19, 1994), Ordinance No. 449 (August 19, 1997), Ordinance No. 451 (October 21, 1997), Ordinance No.531 (April 19, 2005, and Ordinance No. 575 (November 17, 2009) are hereby repealed on the effective date of this Ordinance. This Ordinance shall be effective and applicable only from the effective date of this Ordinance and shall not affect the validity or enforceability of causes of action pursuant to the provisions of Ordinance No. 408 and prior amendments thereto prior to the effective date of this Ordinance.

Section 1302. The invalidity of any provision of this Ordinance or amendments thereto shall not impair the validity of any other provision. Any provision of this Ordinance or amendments thereto determined by a court of competent jurisdiction to be unenforceable will be deemed severable and the Ordinance or amendments thereto shall be enforced with that provision severed or as modified in the court.

Section 1303. Failure on the part of the District to exercise any rights or remedies provided for in this Ordinance shall not be deemed to be a waiver of any of the provisions of this Ordinance or of any such rights and remedies and shall not preclude the District from the exercise of any such rights and remedies upon any future violation of the terms and provisions of this Ordinance.

Section 1304. Each right, power and remedy herein, or by law conferred upon the District is cumulative of every other right, power or remedy of the District, whether herein or by law conferred, and the exercise of one or more of the same shall not be deemed or considered an election of remedies. Any and all such rights, powers and remedies may be exercised and enforced concurrently and whenever and as often as the occasion therefore arises.

Section 1305. Any mention herein of the Code of Federal Regulations (CFR) or any particular rule, regulation, statute or law, and any specific sections or paragraphs thereof by reference, means the text thereof and not necessarily the heading, section or paragraph number, and shall continue to apply to and mean the text thereof as it exists on the date hereof, as amended from time to time, even if such rule, regulation, statute or law is renumbered or becomes a part of another rule, regulation, statute or law. Any mention of a particular title, office, position, government, or agency thereof, as used herein shall also mean any successor title, office, position, government or agency thereof who shall assume or be given the duties of the title, office, position, government or agency thereof, on the date of adoption of this Ordinance. It is the express intent of this paragraph to try to avoid amendments to this Ordinance every time a rule, regulation, provision of the Code of Federal Regulations, statute or law is renumbered, amended, or placed elsewhere in the rules, regulations, statutes and laws of various governments, or when the duties of a particular title, office, position, government or agency thereof are transferred to someone or somewhere else.

ARTICLE XIV

EFFECTIVE DATE

Section 1401. This Ordinance shall take effect from and after its passage, approval, recording and due publication as provided by law or on May 1, 2011, whichever is later.

THE GREATER PEORIA SANITARY
AND SEWAGE DISPOSAL DISTRICT

BY Michael J. M... ..
President

ATTEST:

Christopher S. M...
Clerk



Passed: January 18, 2011

Approved: January 18, 2011

Recorded: January 18, 2011

Published: January 21, 2011

**GREATER PEORIA SANITARY DISTRICT
TABLE A
Effective Date May 1, 2011**

Section 407.1 Wastewater Hauler Bond Amount	\$25,000
Section 407.2 Wastewater Hauler License Amount (per year from May 1st)	\$25.00
Section 504 <u>Building Sewer Permit Class</u>	<u>Permit Fee</u>
Residential, Each Living Unit	\$125.00
Commercial	\$250.00
Section 506 Building Sewer Bond Amount	\$25,000.00
Section 507 Building Sewer Construction/Maintenance License (per year from May 1st)	\$25.00

APPENDIX F
BUILDING SEWER REGULATIONS

GPSD
Policy Regarding Fats, Oils and Greases
(FOG)
March 21, 1995

Goals:

Reduce the potential for a public sewer plug-up resulting from fat, oil and grease (FOG) discharged from a single user.

Reduce the intensity of preventive sewer maintenance as a result of the direct discharge from a single user.

Reduce the total quantity of FOG reaching the sewage treatment facility since these substances are not significantly treated in the waste treatment process.

Authority:

The District has established quality criteria by ordinance applicable to all users of the treatment facilities. This criterion protects the free-flowing nature of the sewage collection system, the integrity of the biological treatment process, the quality of the biosolids resulting from the treatment process and the resulting quality of the water discharged to the Illinois River. FOG is one of the specific regulated parameters. Regulation of FOG discharges shall be through enforcement of FOG limits established by ordinance. To accomplish this enforcement, it is necessary to have the ability to sample each waste stream prior to discharge to the public sewer. District policy will require installation of sampling facilities at every opportunity for uses requiring a Commercial permit. District policy will further require installation of a grease interceptor on new construction where the use can reasonably be expected to generate significant quantities of FOG. Exceptions will only be granted for new construction when the site will not physically accommodate an outside grease interceptor.

Procedure:

Construction of New Commercial Buildings

New construction is defined as building construction on a previously undeveloped site or redevelopment of a site where the previous structure was substantially demolished. All new commercial buildings shall provide a means of sampling the sewage generated prior to discharge to the public sewer. This typically requires installation of a sampling access structure. The sampling access structure shall be located at a point representing the combined discharge from the facility.

Uses of the commercial building which can be expected to generate significant quantities of FOG, such as restaurants and cafeterias, shall utilize a grease interceptor. The interceptor shall have a minimum volume of 250 gallons and be installed on those drain lines serving the grease generating area of the building. All domestic waste lines from restroom facilities shall exit the building in a separate drain line and shall not discharge into the grease interceptor. The grease interceptor requirement does not apply to warming kitchens where food is not prepared and small office kitchens.

Reconstruction or Rehabilitation of Commercial Buildings

Reconstruction or rehabilitation of existing commercial buildings, regardless of intended use, shall be handled as follows:

- Use change that does not require modification or reconstruction of the building sewer.
 - No maintenance permit or commercial building connection permit is required.
 - Installation of a sampling access structure or grease interceptor is not required.
- Use change results in replacement of a portion of the existing building sewer.
 - A maintenance permit (no fee) is required.
 - Building owner will be required to provide a sampling access structure.
- Use change involves an extension of the existing building sewer.
 - A commercial building connection permit is required with the fee based on current District ordinances.
 - Means of sampling the discharge from the building shall be provided.
 - Quality of actual discharge will be monitored for cause and may result in the installation of grease intercepting facilities.

Enforcement of FOG Limit:

Enforcement of the FOG limit will be on a for cause basis. For example, investigating the cause of a sewer plug-up may conclude a grease accumulation restricted the sewer. If the District determines that the grease accumulation was caused by a specific user, that user will be required to bring the quality of the discharge into compliance. The District shall take the following steps to assure compliance by the user.

1. The user shall be notified in writing of the problem by certified mail.
2. The letter shall state that if another plug-up occurs within 2 years, the following action will be taken by the District:
 - A. The user will be charged for the cost involved with cleaning the sewer of grease, and
 - B. The user shall be required to install pretreatment equipment, such as a grease interceptor.
3. If the user fails to comply, the District shall proceed with additional enforcement action as provided in District ordinances.