



TOWN OF PLATTEVILLE

David Brand

Public Works Director

400 Grand Avenue

Platteville, Colorado 80651

970.785.2245 - 970.785.2476 (fax)

dbrand@plattevillegov.org

Manhole Rehabilitation Request for Proposal

April 18, 2025

The Town of Platteville Colorado is soliciting proposals for the rehabilitation of 9 Sewer Manholes along Division from Justin Avenue, North, between Grand Avenue and Elizebeth. The Town is choosing to follow the City of Greeley's Construction Standards for Manhole Rehabilitation. Please see the provided documents for specific details.

The proposals must be to Town Hall at 400 Grand Avenue, Platteville, CO 80651 by 12:00 PM, Thursday, May 1, 2025. Electronic Submissions can be made to dbrand@plattevillegov.org by the same deadline.

Town staff will review all submissions and will make recommendations to the Platteville Board of Trustees at the May 6, 2025, meeting.

SUBSTANTIAL COMPLETION by June 20, 2025; FINAL COMPLETION no later than June 30, 2025.

Please direct questions to the Public Works Director, David Brand at dbrand@plattevillegov.org or 970-539-3001.

Submission of the lowest bid does not guarantee selection. The Town of Platteville reserves the right to select the proposal (if any) it deems most appropriate.

Thank you for your consideration of the proposed project for the Town.



SECTION 02957 A

SANITARY SEWER MANHOLE REHABILITATION

PART 1 – GENERAL

1.1 SCOPE

- A. This Section covers work necessary for construction of miscellaneous existing manhole rehabilitation work associated with, and in preparation for, construction specification *Section 02957 B, Sanitary Sewer Manhole Coating*.

1.2 SUBMITTALS

- A. Submittal procedures as required by contract documents.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Material requirements as specified by construction specification *Section 02957 B, Sewer Manhole Coating*.

PART 3 – EXECUTION

3.1 GENERAL

- A. The Contractor shall comply with the contract documents for surface preparation and application.
- B. If necessary, temporary bypassing pump shall be used to maintain flow while working on existing sanitary structures. See *Section 02960, Temporary Sanitary Sewer Bypass Pumping*.

3.2 PREPARATION

- A. Cover all inverts to prevent debris from entering the sewer main.
- B. Wash the interior surface with a high-pressure water blast sufficient to remove all laitance and loose material and flush debris downward. The manhole surfaces must be entirely free of oil, grease, wax, paint, detergents, rust, dirt, or other surface contaminants.
- C. Any spalled, unsound or loose concrete should be removed to sound concrete. Care shall be taken to avoid flushing anything removed from entering the sewer system.

- D. Manhole floors scheduled for removal and replacement shall be cleaned of all oil, grease, wax, paint, detergents, rust, dirt, sludge, or other surface contaminants. Care shall be taken to avoid flushing anything removed from entering the sewer system.
- E. Joints which are to be sealed shall be thoroughly cleaned prior to the application of any material. Protruding mastic shall be removed a minimum of one inch into the joint.
- F. Once the manhole has been cleaned, the Contractor shall inform the City if there are any active hydrostatic leaks which need to be stopped prior to application of any rehabilitation materials. See construction specification *Section 02957 B, Sewer Manhole Coating*.

3.3 APPLICATION

- A. The Contractor shall complete the manhole rehabilitation for each manhole as indicated in the Construction Drawings. The Contractor shall submit a schedule for the proposed manhole rehabilitation work to the City prior to the start of work. The following paragraphs describe in more detail the application of the following work:
 - 1. Stop Active Leaks
 - 2. Repair Manhole Floor, Bench, Invert
 - 3. Seal Manhole Base to Manhole Wall
 - 4. Manhole Joint Sealing
 - 5. Seal Manhole Joints and around Pipe Penetrations
 - 6. Fill Holes in Manhole Wall
 - 7. Structural Restoration
- B. Stop Active Leaks: The Contractor shall identify any active hydrostatic leaks and plug them using watertight cement plug material as indicated in the contract documents. Once the leak has been stopped and the plug has been cured in accordance with the manufacturer's instructions, apply cementitious coating over the plug to provide an additional watertight seal.
- C. Repair or Reconstruction of Manhole Floor, Bench, Invert: The Contractor shall remove loose concrete or brick from the existing floor until sound material is reached. Once the floor is cleaned and the excess concrete has been disposed of, apply a bonding agent to the surface of the existing concrete or patching material as indicated in the manufacturer recommendations or contract documents. The new floor shall match the existing invert elevations with construction of bench with suitable materials as necessary. Prior to the installation of the new floor, the Contractor shall stop all leaks around the influent and effluent line as well as through the base by sealing the manhole base to wall as described, and then placing the new floor.

- D. Seal Manhole Base to Manhole Wall: The Contractor shall seal water infiltration using pressure chemical grouting. The chemical grout shall be used to stop all leaks between the wall and base of the manhole and around the influent and effluent lines. Application shall be in accordance with the manufacturer recommendations or contract documents. The grout shall be applied around the entire base and the influent and effluent lines. The chemical grout shall be dyed to aid in tracing the flow of the grout. Injection holes shall be drilled through the manhole as per the manufacturer's instruction. The injection probes shall be suitable for the application and the pressure used shall not cause damage to the manhole structure. Upon completion of the injection, the injection ports shall be removed, and the remaining holes filled with non-shrink grout, covered with cementitious coating, and troweled flush with the surface of the manhole walls.
- E. Seal Manhole Joints and around Pipe Penetrations: The Contractor shall clean the joints and around the pipe penetrations to remove protruding mastic, spalled concrete, mortar, etc. Existing mastic must be removed from the joints a minimum of one inch in depth into the joint. Once the area has been cleaned and prepared according to the manufacturer's recommendations, the Contractor shall seal the joints and around pipe penetrations using non-shrink grout or injected chemical grout. After the grout has cured, an 18" band of cementitious coating shall be applied to provide a watertight seal.
- F. Fill Holes in Manhole Wall: The Contractor shall fill holes in the manhole walls such as lifting holes and manhole stub-outs using non-shrink grout. Once the grout has cured, cementitious coating shall be applied over the hole to provide a watertight seal.
- G. Structural Restoration: Structures shall be prepared following the procedures described in this section followed by the application of a cementitious liner system as specified in construction specification *Section 02957 B, Sewer Manhole Coating*.
- H. Upon completion of the manhole rehabilitation work, the base covering shall be removed, and any debris properly disposed of.
- I. Flow is to be maintained through temporary pumping. Prior approval of the proposed bypass pumping plan shall be obtained from the City, see *Section 02960, Temporary Sanitary Sewer Bypass Pumping*.

3.4 FINAL ACCEPTANCE TESTING

- A. Contractor shall provide all testing equipment. Equipment shall be in good condition and shall be calibrated as defined by applicable standards.
- B. Contractor shall notify the City prior to performing testing so a representative may be present. All testing shall follow the manufacturer's recommendation allowing for appropriate cure times.
- C. A test report shall be completed for every manhole.
- D. Testing shall be conducted by the Contractor as directed by the City. Unless otherwise specified, all rehabilitated manholes shall be tested for infiltration/exfiltration. A visual

inspection shall be made to verify the absence of leaks. All visible leaks shall be repaired by the Contractor prior to testing.

- E. As directed by the City, testing shall be as specified in construction specification *Section 01715, Sewer and Manhole Testing*.

SECTION 02957 B

SANITARY SEWER MANHOLE COATING

PART 1 – GENERAL

1.1 SCOPE

- A. Manhole coating with cementitious liner including preparation, build back and corrosion protection. Manhole coating shall follow any miscellaneous existing manhole rehabilitation work associated with *Section 02957 A, Sanitary Sewer Manhole Rehabilitation*.

1.2 REFERENCES

- A. ASTM International (ASTM)
 - 1. C94/C94M, *Standard Specification for Ready-Mixed Concrete*, latest revision.
 - 2. C109/C109M, *Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in or [50 mm] Cube Specimens)*, latest revision.
 - 3. C267, *Standard Test Method for Chemical Resistance of Mortar, Grout, and Monolithic Surfacing and Polymer Concrete*, latest revision.
 - 4. C348, *Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars*, latest revision.
 - 5. C496/C496M, *Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens*, latest revision.
 - 6. C596, *Standard Test Method for Drying Shrinkage of Mortar Containing Hydraulic Cement*, latest revision.
 - 7. C666/C666M, *Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing*, latest revision.
 - 8. C882/C882M, *Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete by Slant Shear*, latest revision.

1.3 SYSTEM DESCRIPTION

- A. Manhole lining under this specification shall govern all work, materials, and equipment required for the following:
 - 1. Substrate rehabilitation for the purpose of eliminating infiltration, providing corrosion protection, repair of voids, and restoration of the structural integrity of the substrate as a result of the applying a monolithic fiber reinforced structural/structurally enhanced cementitious liner to the wall and the bench surfaces of brick, concrete, or any other masonry construction material.

- B. Manhole lining shall be applied by an applicator who is approved and trained by the manufacturer of the lining system materials. All aspects of the installation shall be in accordance with the manufacturers recommended and per the following specification.
- C. Manhole lining as referred to on the Drawings and specified herein shall include:
 - 1. The removal of any loose unsound materials.
 - 2. Cleaning of the area to be sprayed with high pressure water.
 - 3. The repair and filling of voids.
 - 4. The repair and sealing of the pipe seals, pipe invert, and benches.
 - 5. The elimination of active infiltration prior to making the application.
 - 6. The spray application of a cementitious mix to form a structural/structurally enhanced monolithic liner.

1.4 SUBMITTALS

- A. Work Plan: Prior to the pre-construction conference, the Contractor shall submit a work plan for review and acceptance by the City. The following items shall be addressed in the work plan, as a minimum:
 - 1. Written description of construction procedures, including bypassing pumping sewage flow and reconnection of service laterals.
 - 2. The locations, dimensions, and number of equipment staging areas and working areas.
 - 3. Product data for review by City. Detailed and complete data pertaining to the manhole lining products and installations
 - 4. Applicator shall provide to City 3 references from Municipal projects completed in the last 12 months.
 - 5. Certificate of “Compliance with Specifications” for the manhole rehabilitation material and installation.
 - 6. Certificates for each applicators experience with installation of the proposed product from the manufacturer of the manhole lining product.
 - 7. Manufacturer’s certifications indicated in Section 1.6.
- B. Manhole rehabilitation product testing reports which shall include but not be limited to:
 - 1. Compressive strength
 - 2. Bond Strength
 - 3. Tensile Strength

- 4. Flexural Strength
 - 5. Shrinkage
 - 6. Freeze/Thaw
- C. Manhole acceptance testing reports

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with manufacturer's instructions.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum ten years documented experience.
- B. Applicator: Material manufacturer shall provide owner with current written certification that applicator's current employees have been trained and approved in handling mixing and application of the product to be used.
- C. Applicator shall initiate and enforce quality control procedures consistent with applicable ASTM, NACE and SSPC together with the manufacturer's recommendations.
- D. Applicator shall have completed and follow all OSHA confined space regulations along with having completed all hazard communication training.
- E. Contractor shall provide to City 3 references from Municipal projects completed in the last 12 months indicating successful application of products to be used by application method generally used for the product.
- F. Equipment: Certification that the equipment to be used for applying the products has manufacturer approval and applicator personnel have been trained and certified for proper use of equipment by manufacturer.

1.7 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

PART 2 – PRODUCTS

2.1 PRODUCTS

- A. Manhole Lining Products: Products shall be manufactured by SewperCoat, Coating information found at <https://www.imerys.com/services/document-finder>, or City preapproved equal. Labor, equipment, and materials, including the machinery specially designed for the application, shall be provided by the applicator.
- B. Patching Material: A quick setting corrosion resistant cementitious material shall be a used as a patching material, and is to be mixed and applied according to manufacturer's recommendations, and shall have the following minimum requirements:
 - 1. Compressive Strength ASTM C109 >1800 psi, 1 hr.

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| | | | >2600 psi, 24 hrs. |
| 2. | Bond | ASTM C882 | >1600 psi, 28 days |
| 3. | Applied Density | | 105 pcf ± 5 lbs. |
| 4. | Shrinkage | ASTM C596 | 0% at 90% R.H. |
| 5. | Cement | | Sulfate resistant |
| 6. | Placement Time | | 5 to 10 minutes |
| 7. | Set Time | | 15 to 30 minutes |
| 8. | Patching material shall equal or exceed requirements for the liner material. | | |
| 9. | Material shall be: | | |
| | a. | Strong Seal “QSR” | |
| | b. | City Approved Equal. | |

C. Infiltration Control Material: A rapid setting cementitious product, specifically formulated for leak control, shall be used to stop minor water infiltration, shall be mixed and applied according to the manufacturer’s recommendations and shall have the following minimum requirements:

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| 1. | Compressive Strength | ASTM C109 | >1000 psi, 1 hour
>2500 psi, 24 hours |
| 2. | Sulfate Resistance | ASTM C267 | No weight loss after 15 cycles @ 2000 ppm |
| 3. | Freeze Thaw | ASTM C666 | Method A 100 Cycles |
| 4. | Pull Out Strength | | 14,000 lbs. |
| 5. | Set Time | | <1.0 minute |
| 6. | Material shall be: | | |
| | a. | Strong Seal “Strong-Plug” | |
| | b. | City Approved Equal. | |

D. Grouting Material

1. Chemical or grouts may be used for stopping very active infiltration and shall be mixed and applied per manufacturer’s recommendations. Grout for this purpose

shall be volume stable and have a minimum 28-day compressive strength of 250 psi.

2. If pressure grouting is required, the material shall be:

- a. Avanti A-220, Deneef
- b. City-Approved Equal.

E. Liner Material: A cementitious product shall be used to form a structural/structurally enhanced monolithic liner covering all interior substrate surfaces. The liner material shall be applied with machinery specially designed for the application, and shall have the following minimum requirements at twenty-eight (28) days:

Compressive Strength	ASTM C109	>7000 psi
Tensile Strength	ASTM C496	>700 psi
Flexural Strength	ASTM C348	>1300 psi
Shrinkage @ 90% R.H.	ASTM C596	0.07%
Bond	ASTM C882	>2000 psi
Density, when applied		151 +/- 4 lbs./ft ³ pcf
Freeze/Thaw	ASTM C666	300 previous cycles no visible damage

1. Liner material shall be the following:

- a. SewperCoat
- b. City Approved Equal

F. Water: Water used to mix product shall be clean and potable. A laboratory shall test questionable water in accordance per ASTM C-94 procedure. Potable water need not be tested. –

G. Other Materials: No other material shall be used with the mixes described above without prior approval or recommendation of the City.

PART 3 – EXECUTION

3.1 MANHOLE LINING

A. Equipment Application equipment shall be as recommended by materials manufacturer.

B. Application:

1. Preparation:

- a. Provide means, labor and equipment to dam, plug, and/or divert or bypass the flow from services entering the manhole.
- b. Place covers over invert to prevent extraneous material from entering the sanitary sewer. Adequately sized pumps shall be provided and used by the Contractor continuously to protect the work.

- c. All foreign material shall be removed from the manhole wall and bench using a high pressure water spray (minimum 3,500 psi). Loose and protruding brick, mortar, and concrete shall be removed using a mason's hammer and chisel and/or scraper. Detergent water cleaning and hot water blasting may be necessary to remove oils, grease or other hydrocarbon residues from the manhole surface. Cleaned surface shall be a sound uniform neutralized and are not excessively damaged.
 - d. Fill any large voids with patching material as specified herein. Submit proposed method of discovering voids and proposed product to fill voids.
 - e. A mild chlorine solution may be used to neutralize the surface to diminish microbiological bacteria growth unless it is not acceptable to the manufacture of the product to be supplied. Provide manufacturer's acceptance.
 - f. Surface preparation shall produce a cleaned, abraded and sound surface with evidence of laitance, loose concrete, brick or mortar, contaminants or debris, and shall display a surface profile suitable for application of liner system.
 - i. If required, sandblasting or abrasive blasting may be used to create a roughened surface.
 - g. Active leaks shall be stopped using infiltration control material according to manufacturer's recommendations. Some leaks may require weep holes to localize the infiltration during the application. After application, the weep holes shall be plugged with infiltration control material prior to the application of the final coat. When severe infiltration exists, drilling may be required in order to pressure grout using a cementitious grout or chemical grout, as specified herein for grouting material. Manufacturer's recommendations shall be followed when pressure grouting is required.
 - h. All manhole steps shall be removed and the wall repaired prior to lining.
 - i. Structure to be lined shall be wetted per the manufacturer's recommendations prior to applying lining material.
 - j. Manhole frames and covers that are shifted or are not flush with pavement elevation shall be reset.
 - i. Center the manhole frame and cover over the manhole opening
 - ii. Adjust the frame and cover top elevation to City standards.
2. Invert, pipe seal, and bench repair:
- a. After all preparations have been completed, remove all loose material and wash wall again.

- b. Any bench, invert, pipe seal and/or service line repairs shall be made at this time using patching material and shall be used per manufacturer's recommendations.
 - c. Invert repair shall be performed on all inverts with visible damage or where infiltration is present, or when vacuum testing is specified. After blocking through the manhole, and thoroughly cleaning invert, the patching material shall be applied to the invert in an expeditious manner. The material shall be troweled uniformly onto the damaged invert at a minimum thickness of ½ inch at the invert extending out onto the bench of the manhole sufficiently to tie into the structural/structurally enhanced monolithic liner to be applied. The finished invert surfaces shall be smooth and free of ridges. The flow may be reestablished in the manhole within thirty (30) minutes after placement of the material.
3. Mixing:
- a. Mixing shall be done in strict accordance with the material manufacturer's instructions.
 - b. Addition of water to the mix shall be in strict accordance with the manufacture's recommendations.
 - c. Re-mixing or tempering shall not be permitted. Rebound material shall not be reused.
 - d. The mixer shall be cleaned to remove all adherent materials for the mixing valves and from the drum at regular intervals.
4. Spraying:
- a. The surface shall be clean and free of all foreign material and shall be damp without noticeable free water droplets or running water, but totally saturated, just prior to application. Materials shall be spray applied up to one (1) inch thick in one or more passes from the bottom of the frame, however, minimum total thickness shall not be less than ½ inch to insure that all cracks, crevices, and voids are filled and a relatively smooth surface remains after light troweling. The light troweling is performed to compact the material into voids and to set the bond.
 - b. Bench application: The covers shall be removed at this time and the bench sprayed with materials mixed as specified in Part 2 and spray applied in such a manner that a gradual slope is produced from the walls to the invert with the thickness at the edge of the invert to be no less than 1 inch. The wall/bench intersection shall be rounded to a uniform radius the full circumference of the intersection.
 - c. Operations: Manufacturer recommended equipment shall control the actual amounts of material applied.
 - d. Surface Defect Repair:

- i. Continual inspection during coating application shall be maintained
 - ii. Any imperfections shall be removed and replaced with sound material.
- C. Curing:
 1. Care should be taken to minimize exposure of applied product to sunlight and air movement. At no time should the finished product be exposed to sunlight or air movement for longer than fifteen (15) minutes before covering or closing access. In extremely hot and arid climates, manhole should be shaded while application is in process. Contact manufacturer for curing compound recommendations.
 - a. The application shall have a minimum of four (4) hours cure time before being subjected to active flow.
 - b. For traffic areas, calcium aluminate-based products shall be used. Traffic shall be deferred for a maximum of six (6) hours.
- D. Weather: No application shall be made to frozen surfaces or if freezing is expected to occur within the substrate within twenty-four (24) hours after application. If ambient temperatures are in excess of 95 degrees F, precautions shall be taken to keep the mix temperature at time of application below 90 degrees F. Mix water temperature shall not exceed 85 degrees F. Chill with ice if necessary.
- E. Product Testing: Four two inch cube specimens shall be cast each day or from every fifty (50) bags of product used and shall be properly packaged, labeled, and returned to manufacturer for testing in accordance with the Owner's or manufacturer's directions for compression strength testing as described in ASTM C109.
- F. Acceptance Testing: Contractor shall test rehabilitated manholes as follows:
 1. Visually verify the absence of leaks. Visible leaks shall be corrected immediately.
 2. Vacuum tests in accordance with construction specification *Section 01715, Sewer and Manhole Testing* shall be conducted on all manholes
 3. Visual inspection shall be made by the Owner. Any deficiencies in the finished liner system shall be marked and repaired according to the procedures set forth by the Manufacture.