



PROJECT MANAGEMENT

Informal Bid Request

#25-26-03

Project:

ADA Route of Travel
Hillsdale Park
Greenville, NC

Scope of Work:

Provide material, equipment, and labor to install a sidewalk and curb ramp at Hillsdale Park.

Special Conditions:

Work must comply with all OSHA safety guidelines.

Contractor is responsible for all needed paperwork to obtain required permits. All permits must be posted prior to the commencement of work.

A site visit is recommended but is not required to submit a bid.

Site Location:

Hillsdale Park
2531 Sunset Ave.
Greenville, NC

Bid Submittal Deadline:

Thursday, August 7, 2025 @ 2:00 PM

Via email to: mwatson@greenvillenc.gov

INVITATION FOR INFORMAL BID ON

ADA ROUTE OF TRAVEL - HILLSDALE PARK

INSTRUCTIONS FOR BIDDERS

The person, firm or corporation making a proposal shall submit a bid to *Mike Watson, Project Coordinator*, on or before the hour and day stated on the attached bid request form. The preferred method of delivery of the bid is by email to mwatson@greenvillenc.gov. The bid may also be mailed or hand delivered to the Jaycee Park Administrative office located at 2000 Cedar Lane, Greenville, N.C., 27858 and must be received prior to the submittal deadline time and date stated and shall have the words *Bid Enclosed, ADA Hillsdale Attn: Mike Watson* along with the company name on the outside of the envelope.

All mailed or hand delivered bids received in the office will be marked with the date and time they are received by reception staff. Bids will not be opened and read aloud. The bids will be opened and evaluated, and a tabulation sheet will be available upon request once the contract is awarded to the successful bidder.

The bidder shall include the required responses and supply all the information as indicated on the Bid Submittal Form, Attachment B. The prices inserted shall be net and shall be the full cost including all factors whatsoever. Any bids not submitted on such forms provided will be considered unresponsive.

No bid may be changed or withdrawn after the time of the opening. Modifications or withdrawals will only be accepted if submitted in writing to *Mike Watson, Project Coordinator*, before the specified time of the bid.

The City of Greenville reserves the right to reject any and all bids, to waive any formalities, and to accept the bid or any portion thereof that is deemed most advantageous to the City. Any bid submitted will be binding for 60 days after the opening.

The scope of work attached represents the minimum specification or description of work to be purchased or contracted. These requirements are not intended to prevent fair responses or to eliminate competition, but they are intended for the protection of each and every proposer to ensure, if possible, that all bids submitted shall be upon a fair and comparable basis.

It is expressly understood by the bidders that written notice of award and/or receipt of purchase order will constitute agreement by the City to consummate the transaction and will serve together with the proposal, scope of work, and these instructions as the entire form of contract between the parties except in cases where formal contracts are warranted.

All work shall be FOB, Greenville, N.C.

Each bidder shall affirm that no official or employee of the City of Greenville is directly or indirectly interested in this proposal for any reason of personal gain.

Sales taxes may be listed on the proposal, but as a separate item. No charge will be allowed for Federal Excise and Transportation tax from which the City is exempt.

All new vendors, including subcontractors/consultants, must register with the City of Greenville's online portal prior to the rendering goods and services.

Registration as a vendor with the City of Greenville is the responsibility of prime or subcontractor/consultant, and requires the prospective new vendor to submit a W-9, and complete the registration through the City's vendor portal at the following web address: <https://cityofgreenvillenc.munisselfservice.com/vss>

Minority and/or Women Business Enterprise (MWBE) Program:

It is the policy of the City of Greenville to provide minorities and women equal opportunity for participating in all aspects of the City's contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts. In accordance with this policy, the City has adopted a Minority and Women Business Enterprise (M/WBE) Plan and subsequent program, outlining verifiable goals.

The City has established a 10% Minority Business Enterprise (MBE) and 6% Women Business Enterprise (WBE) goal for the participation of MWBE firms in supplying goods and services for the completion of this project. All firms submitting bids agree to utilize minority and women-owned firms whenever possible.

Questions regarding the City's MWBE Program should be directed to Wanda House, Financial Services Manager, at (252) 329-4862.

Equal Employment Opportunity Clause:

The City of Greenville, NC is an equal opportunity employer and strictly prohibits discrimination against any employee or applicant for employment because of the individual's race, color, religion, age, gender, disability, national origin, genetic information, sexual orientation, gender identity/reassignment or expression, military or veteran status, marital status, or any characteristic protected by applicable law.

TITLE VI NONDISCRIMINATION NOTIFICATION:

The City of Greenville, NC in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby 1178814- v4 7 notifies all respondents that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this advertisement and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award. See Attachment A for more information.

Insurance Requirements:

The following insurance coverages and limits are standard insurance requirements for City contracts. At times the scope of the contracted work may require additional or unique coverages and increased limits.

The name of the contracting party must agree to purchase at its own expense insurance coverages to satisfy the following minimum requirements. A certificate reflecting the following minimum coverages shall be required and accompany the Contract:

1. **Workers' Compensation Insurance:**

Limits:

Workers Compensation: Statutory for the State of North Carolina

Employers Liability: Bodily Injury by Accident \$1,000,000 each accident
 Bodily Injury by Disease \$1,000,000 policy limit
 Bodily Injury by Disease \$1,000,000 each employee.

No sub-contractor may exclude executive officers. Workers Compensation must include **all employees**.

2. **Commercial General Liability:**

Limits:

Each Occurrence:	\$1,000,000
Personal and Advertising Injury	\$1,000,000
General Aggregate Limit	\$2,000,000
Products and Completed Operations Aggregate	\$2,000,000

The aggregate limit must apply per project. The form of coverage must be the ISO CG 00 01 policy as approved by the State of North Carolina Department of Insurance. If a form of coverage other than the CG 00 01 is used it must be approved. Any endorsed exclusions or limitations from the standard policy must be clearly stated in writing and attached to the Certificate of Insurance. Completed Operations coverage must be maintained for the period of the applicable statute of limitations

The City of Greenville must be added as an Additional Insured to the Commercial General Liability policy.

3. **Commercial Automobile Liability:** (If Applicable)

Limits:

Combined single limit	\$1,000,000
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The City of Greenville must be added as an Additional Insured on the Commercial Auto Liability policy.

4. **Professional Liability:** (If Applicable)

Limits:

Each Claim Made:	\$1,000,000
Aggregate:	\$2,000,000

5. **Builders Risk Coverage:** (If Applicable)

Limit:

Minimum limit in the amount of total bid price.

The Builder Risk policy must be endorsed to increase the limit of insurance for all change orders.

Policy Form:

Builder Risk coverage must be on a direct physical loss basis and contain no exclusion for theft, collapse or damage to foundations or underground structures, pipes or conduits.

6. **Named Insured:**

The named Insured shall be The City of Greenville, P.O. Box 7207, Greenville NC 27835, the Contractor and all sub-contractors with a contractual assumption of responsibility for damage to the project.

All insurance companies must be admitted doing business in North Carolina and be acceptable to the City of Greenville's Safety Risk Manager. If the insurance company(s) is a permitted surplus lines insurer, the insurance company name, and NAIC number must be submitted to the Safety Risk Manager for approval before

commencing work. Contractor shall be required to provide the City no less than thirty (30) days' notice of cancellation, or any material change, to any insurance coverage required by this Contract.

A Certificate of Insurance (COI) must be issued by an authorized representative of the insurance carrier(s). Certificates of Insurance must have the Insurance Company name and NAIC number clearly identified. The Certificate of Insurance must identify the Contract and contract work, including location, to be completed in the description section.

The City of Greenville's review or acceptance of Certificates of Insurance shall not relieve contractor of any requirement to provide the specific insurance coverages set forth in the Contract. Nor shall the City of Greenville's review or acceptance of Certificates of Insurance constitute a waiver of the specific insurance coverage requirements set forth in the Contract or acknowledgement that all insurance coverage requirements set forth in the Contract have been met.

Hold Harmless and Indemnity Agreement:

To the fullest extent permitted by law, the **Contractor** shall indemnify and hold harmless the City of Greenville, its employees, agents and consultants against any liability arising out of or in connection with any of the operations or obligations of the **Contractor**, including but not limited to any said operations or obligations subcontracted or assigned to a different person or entity from claims, damages, losses, and expenses, including but not limited to attorneys' fees, which is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, caused by acts or omissions of the **Contractor** or anyone directly or indirectly employed by them or anyone for whose acts the **Contractor** may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligation of indemnity which would otherwise exists as to a party or person described in this paragraph.

E-VERIFY COMPLIANCE: The Contractor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further, if the Contractor utilizes a Subcontractor, the Contractor shall require the Subcontractor to comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. By submitting a proposal, The Proposer represents that their firm and its Subcontractors are in compliance with the requirements of Article 2 Chapter 64 of the North Carolina General Statutes.

IRAN DIVESTMENT ACT: Vendor certifies that: (i) it is not on the Iran Final Divestment List created by the NC State treasurer pursuant to N.C.G.S. 147-86.58; (ii) it will not take any actions causing it to appear on said list during the term of any contract

with the City, and (iii) it will not utilize any subcontractor to provide goods and services hereunder that is identified on said list.

LIQUIDATED DAMAGES: If the Contractor fails to complete the work within the time specified in the bid package, the Contractor shall pay liquidated damages to the City of Greenville in the amount of \$150.00 for each calendar day of delay until the work is completed or accepted.

The City of Greenville has adopted a Local Preference Policy, Resolution No. 056-13, and a Professional and other Services Policy, Resolution No. 057-13 that may pertain to this project. For more information, please see the City of Greenville's webpage at <https://www.greenvillenc.gov/government/financial-services/purchasing>

Questions regarding any part of this proposal shall be directed via email to Mike Watson, Project Coordinator, at mwatson@greenvillenc.gov

Bids must be submitted using the provided Bid Submittal Form, Attachment B, accompanied by the completed Reference Information Sheet.



PROJECT MANAGEMENT

ADA Route of Travel Hillsdale Park

Scope of Work

Scope

The Contractor shall supply all labor, equipment and material to grade as needed, prepare and install a new ADA compliant sidewalk and curb ramp at Hillsdale Park. The Contractor shall adhere to the attached specifications and details and all work shall be to industry standards. All OSHA requirements and other safety guidelines associated with the work shall be followed.

Schedule

Weather permitting, the work shall commence within 15 days of the purchase order date and must be completed within 15 days of the start date. Weekend and evening work will need to be approved. Liquidated damages will apply if the work is not completed on time.

Debris

All debris associated with this project shall be removed and properly disposed of offsite.

General Requirements & Information:

1. Contractor is responsible for all measurements.
2. The Contractor shall make allowances and be responsible for providing a safe work site at all times.
3. Contractor shall take care not to damage any portion of the building, concrete, landscaping, etc. Any damage caused by the contractor shall be repaired prior to the completion of the project.
4. Contractor shall furnish all electric and water to complete the work.
5. The laydown area, parking, time of work, etc. will be discussed at a pre-construction meeting with the awarded contractor.
6. Contractor shall comply with all OSHA requirements and safety guidelines associated with the work within the scope of work.

Material & Insulation:

1. Refer to the attached specifications, detail drawings, layout, and notes for the installation of the sidewalk and curb ramp.
2. Sidewalks shall be four (4) feet wide and installed per ADA requirements and as close to existing grade as possible. The sidewalk (pad) to the grill shall be five (5) wide and extend one (1) foot past the grill post.

3. The running slope of the sidewalk and pad shall not exceed 1:20 (5%) and the cross slope shall not exceed 1:48 (2%). The curb ramp maximum running slope shall not exceed 1:12 (8.33%) and a maximum cross slope of 1:48 (2%).
4. See Attachment C for the sidewalk layout and details on the construction of the sidewalk and curb ramp.
5. See Attachment D for the specifications on the grading, forms, and concrete.
6. Contractor shall be responsible for watching over the newly poured concrete. *Any marred concrete will not be accepted.*
7. No work shall start prior to 7:00 AM. All areas of work shall be cleaned up and any material will need to be out of the way after work is completed for the day

Warranty

Provide a 2-year warranty on all labor and material.



PROJECT MANAGEMENT

Title VI of the Civil Rights Act of 1964
Nondiscrimination Provisions, Appendices A & E.

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

(1) Compliance with Regulations: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation (USDOT), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(2) Nondiscrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, creed (religion), low-income, limited English proficiency, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

(3) Solicitations for Subcontractors, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

(4) Information and Reports: The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its

facilities as may be determined by the Recipient or the USDOT to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the USDOT, as appropriate, and will set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the USDOT may determine to be appropriate, including, but not limited to:

- (a) withholding payments to the contractor under the contract until the contractor complies; and/or
- (b) cancelling, terminating, or suspending a contract, in whole or in part.

(6) Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the USDOT may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

- I. During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

Pertinent Nondiscrimination Authorities

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq);
- Federal transit laws, specifically 49 U.S.C. § 5332 (prohibiting discrimination based on race, color, religion, national origin, sex (including gender identity), disability, age, employment, or business opportunity).

Bid Submittal Form

ADA Route of Travel – Hillsdale Park
Bids Due: Thursday, August 7, 2025 by 2:00pm

Contractor's Business Name: _____ License #: _____

Address: _____ Zip Code: _____

Contact Person: _____ Title: _____

Phone: _____ Email: _____

Business Type (sole proprietor, partnership, LLC, Inc., Other): _____

We hereby submit our bid to supply all materials and labor required to complete the scope of work.

Bid Amount:

(\$ _____) _____
_____ and _____ / 100 Dollars

Addenda Received (if applicable): _____

Submitted by: _____
(print)

Signature: _____ Date: _____

The Reference Information Sheet must accompany the completed Bid Submittal Form upon submission.

REFERENCE INFORMATION SHEET

Vendors must include a list of three (3) references from clients they've worked with on similar projects. All client information must be provided in full. This information is to be submitted with the Bid Submittal Form. Contractors should possess relevant experience in comparable construction projects.

Contractor Business Name: _____

Years in business: _____

1. Project Name: _____

Project Description: _____

Contact Name: _____ Completion Date: _____

Phone Number: _____ Email: _____

2. Project Name: _____

Project Description: _____

Contact Name: _____ Completion Date: _____

Phone Number: _____ Email: _____

3. Project Name: _____

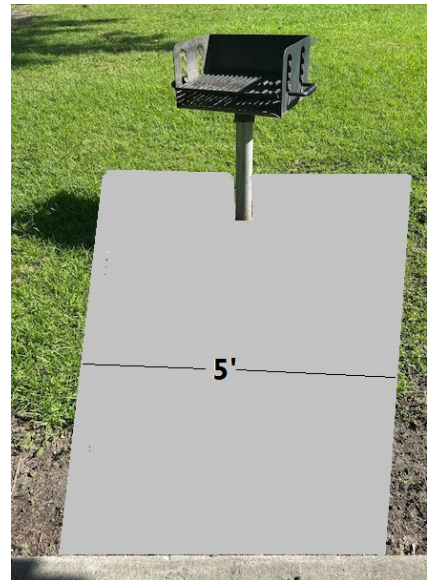
Project Description: _____

Contact Name: _____ Completion Date: _____

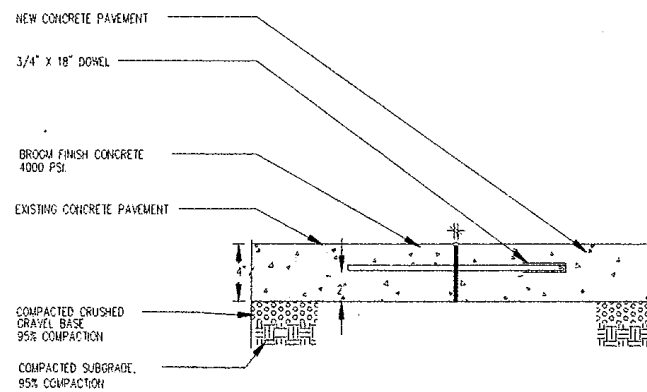
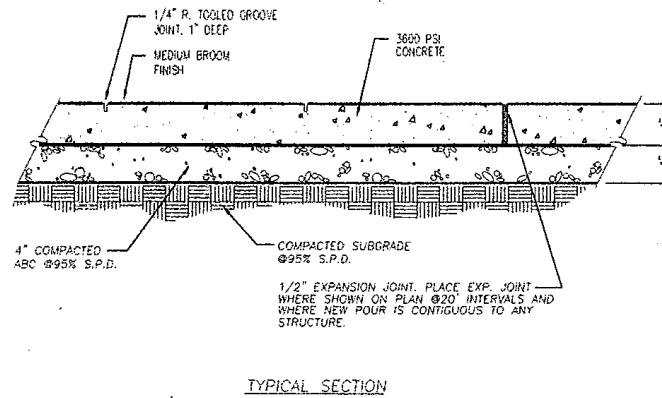
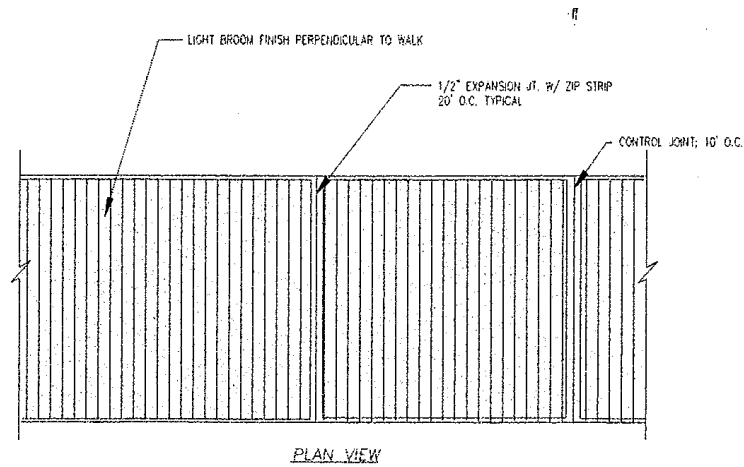
Phone Number: _____ Email: _____

Proposed Layout

Hillsdale Park:



Sidewalk & Curb Ramp Details:



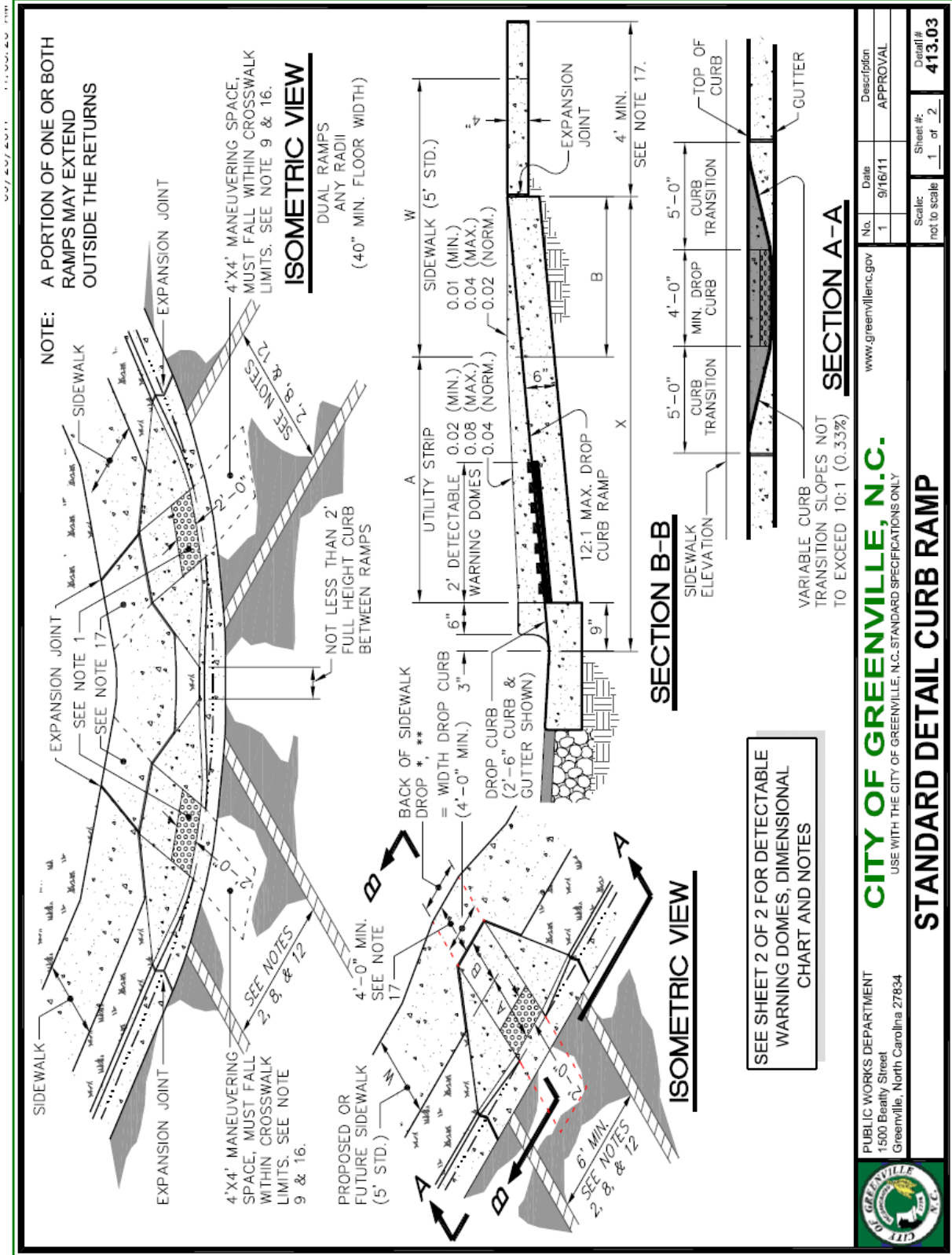
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BROOM FINISH CONCRETE

NTS

1. CONTRACTOR SHALL BE FAMILIAR WITH EXISTING SITE CONDITIONS AND CONDITIONS AND FAMILIARIZE THEMSELVES WITH THE SITE PRIOR TO CONSTRUCTION. NO ADJUSTMENT IN THE CONTRACT WILL BE CONSIDERED AFTER BID ACCEPTED.
2. THE SITE LAYOUT SHALL BE BASED ON THE DIMENSIONS AND OTHER INFORMATION SHOWN. MINOR ADJUSTMENTS TO LAYOUT APPROVED BY THE PROJECT MANAGER MAY BE NEEDED IN THE FIELD TO ACHIEVE THE DESIRED ALIGNMENT WITH EXISTING FEATURES TO REMAIN.
3. CONTRACTOR SHALL BE FAMILIAR WITH THE SITE AND CHECK ALL FINAL DIMENSIONS ON THE GROUND PRIOR TO CONSTRUCTION ACTIVITIES. NOTIFY THE CITY IMMEDIATELY OF DISCREPANCIES FROM THE PLANS.
4. THE EXACT LOCATION OF ALL EXISTING UTILITIES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. CARE SHALL BE TAKEN TO PROTECT ANY UTILITIES THAT ARE TO REMAIN AND ALL CONSTRUCTION SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY/AGENCY. ANY DAMAGE OR RELOCATION SHALL BE DONE BY LOCAL STANDARDS AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED PRIOR TO ANY CONSTRUCTION ACTIVITY TAKING PLACE.
5. THE CONTRACTOR SHALL CONTACT RECREATION AND PARKS 48 HOURS BEFORE EXCAVATION TO ALLOW PARK STAFF TO LOCATE IRRIGATION LINES, HEADS AND ELECTRICAL CONTROL LINES. ALL DAMAGES TO IRRIGATION SYSTEM WILL BE REPAIRED AT NO COST TO THE CITY. THE CONTRACTOR SHALL NOTIFY THE CITY OF ANY REPAIR TO IRRIGATION LINES AND GET APPROVAL BEFORE BACKFILLING.
6. MINIMUM CROSS SLOPE ON ALL WALKS SHALL ALSO BE 1%. MAXIMUM CROSS SLOPE SHALL BE 2 % ALL WALKS SHALL SLOPE TO CREATE POSITIVE DRAINAGE.
7. TRANSITION BETWEEN EXISTING PAVEMENT AND PROPOSED PAVEMENTS SHALL BE SMOOTH IN BOTH HORIZONTAL AND VERTICAL ALIGNMENT. FIELD ADJUSTMENT MAY BE NECESSARY.
8. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS AS TO PROTECT THE EXISTING ELEMENTS AND AMENITIES TO REMAIN.
9. CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY AND MAKE NECESSARY REPAIRS FOR ANY DAMAGE AT NO EXPENSE TO THE OWNER.
10. EXISTING UTILITY SERVICE MUST BE MAINTAINED TO ALL SITE FEATURES.
11. CONTRACTOR SHALL SEED AND STRAW ALL DISTURBED AREAS.
12. THE LAYOUT PLAN IS SCHEMATIC IN NATURE; THE DRAWING HAS BEEN PROVIDED AS A COURTESY TO CONVEY THE DESIGN INTENT. MINOR FIELD ADJUSTMENTS MAY BE NEEDED. THE CONTRACTOR SHALL STAKE THE CENTERLINE OF THE PROPOSED WALKS FOR FINAL APPROVAL BY THE GREENVILLE RECREATION AND PARKS DEPARTMENT.

LAYOUT NOTES

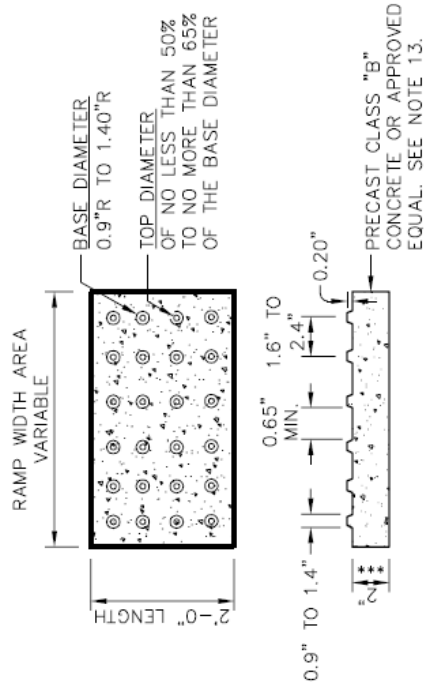


PUBLIC WORKS DEPARTMENT
1500 Beatty Street
Greenville, North Carolina 27834

CITY OF GREENVILLE, N.C.
USE WITH THE CITY OF GREENVILLE, N.C. STANDARD SPECIFICATIONS ONLY

www.greenvillenc.gov

No.	Date	Description
1	9/16/11	APPROVAL
Scale:	Sheet #:	Detail #:
not to scale	1 of 2	413.03



DETECTABLE WARNING

DOMES

B = X-(A+9")

B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (8.33%) SLOPE.

* BACK OF SIDEWALK DROP REQUIRED FOR ALL SIDEWALK SLOPES.

** BACK OF SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 0.04.

*** THICKNESS MAY VARY FOR APPROVED EQUAL PRECAST MATERIAL



W	A	W + A + 9"	X	B
5'	0.0'	5.8'	5.8'	5.0' *
6'	0.0'	6.8'	6.8'	6.0' **
7'	0.0'	7.8'	7.3'	6.5' **
8'	0.0'	8.8'	7.3'	6.5' **
5'	1.5'	7.3'	7.5'	5.2'
5'	2.0'	7.8'	7.8'	5.0'
5'	2.5'	8.3'	8.1'	4.8'
5'	3.0'	8.8'	8.3'	4.4'
5'	3.5'	9.3'	8.3'	4.1'
5'	4.0'	9.8'	8.6'	3.8'
5'	4.5'	10.3'	8.7'	3.4'
5'	5.0'	10.8'	8.9'	3.1'

NOTES:

1. Detectable warning domes shall cover 2'-0" length and full width of the ramp floor as shown on the details.
2. The entire ramp shall be Black in color or any color with a 70% contrast ratio and approved by City Engineer.



PUBLIC WORKS DEPARTMENT
1500 Beatty Street
Greenville, North Carolina 27834

CITY OF GREENVILLE, N.C.
USE WITH THE CITY OF GREENVILLE, N.C. STANDARD SPECIFICATIONS ONLY

STANDARD CURB RAMP

No.	Date	Description
1	9/16/11	APPROVAL
Scale:	Sheet #:	Detail #:
not to scale	2 of 2	413.03

NOTES:

1. Construct the walking surface of the detectable domes with slip resistance and a 70% contrasting color to the sidewalk.
2. Crosswalk widths and configuration vary but must conform to traffic design standards.
3. Provide curb ramps at locations as shown on the plans or as directed by the engineer. Locate curb ramps as directed by the engineer where existing light poles, fire hydrants, drop inlets, etc. affect placement. Where two ramps are installed place not less than 2 feet of full height curb between the ramps. Place dual ramps as near perpendicular to the travel lane being crossed as possible.
4. Do not exceed 0.08 ft./ft. (12:1) slope on the curb ramp in relationship to the grade of the street.
5. Construct curb ramps a minimum of 48" wide (4'-0"); Greater for dual ramps.
6. Use class "B" concrete with a sidewalk finish in order to obtain a rough non-skid type surface.
7. Place a 1/2" expansion joint where the concrete curb ramp joins the curb.
8. Place the inside pedestrian crosswalk lines no closer in the intersection than would be established by bisecting the intersection radii, with an allowance of a 4'x4' maneuvering space (2003 ICC/ANSI a117 Commentary, Fig. C406.6 & 406.10) in the vehicular travel way when one ramp is installed.
9. Coordinate the curb cut and the pedestrian crosswalk lines so the floor of the curb ramp will fall within the pedestrian crosswalk lines. Place diagonal ramps with flared sides so 24" of the full height curb falls within the crosswalk markings on each side of the flares.
10. Construct the pedestrian crosswalk a minimum width of 6 feet. A crosswalk width of 10 feet or greater is required for all thoroughfares.
11. Use stop lines, normally perpendicular to the lane lines, where it is important to indicate the point behind which vehicles are required to stop in compliance with a traffic signal, stop sign or other legal requirement. An unusual approach skew may require the placement of the stop line to be parallel to the intersecting roadway.
12. Place all pavement markings in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) published by the Federal Highway Administration and the North Carolina Supplement to the MUTCD.
13. Other detectable warning materials may be considered from that shown, but require City Engineer's written approval prior to installation.



PUBLIC WORKS DEPARTMENT
1500 Beatty Street
Greenville, North Carolina 27634

CITY OF GREENVILLE, N.C.

USE WITH THE CITY OF GREENVILLE, N.C. STANDARD SPECIFICATIONS ONLY

www.greenvillemc.gov

No.	Date	Description
1	9/16/11	APPROVAL

STANDARD CROSSWALK & CURB RAMP NOTES

Scale:	Sheet #:	Detail #:
not to scale	1 of 2	413.01

NOTES:

14. For all roads with radius 25' or less. Only one curb ramp is required. Curb ramps to be placed as per traffic design standards to ensure pedestrians enter & exit without entering travel lanes.
15. Terminate parking a minimum of 20 feet back of pedestrian walk.
16. A 4'x4' maneuvering space is required at the bottom of the curb ramp and must be within the crosswalk.
17. Drop curb width (4'-0" min.) x 4' long landing required at top of curb ramp
18. North Carolina General Statute 136-44.14 requires that all street curbs being constructed or reconstructed for maintenance procedures, traffic operations, repairs, correction of utilities or altered for any reason after September 1, 1973 shall provide curb ramps for the physically disabled at all intersections where both curb and gutter and sidewalks are provided and at other points of pedestrian flow.
In addition, section 228 of the 1973 Federal Aid Highway Safety Act requires provision of curb ramps on any curb construction after July 1, 1976 whether a sidewalk is proposed initially or is planned for a future date.
The Americans with Disability Act (ADA) of 1990 extends to individuals with disabilities. Comprehensive civil rights protections similar to those provided to persons on the basis of race, sex, national origin and religion under the Civil Rights Act of 1964. These curb ramps have been designed to comply with the current ADA standards.
19. Construct all ramp surfaces to comply with sections R301 and R303.3.3 of the revised ADA guidelines.
20. Construct all ramps and sidewalks with a 2% cross slope.



PUBLIC WORKS DEPARTMENT
1500 Beatty Street
Greenville, North Carolina 27834

CITY OF GREENVILLE, N.C.

USE WITH THE CITY OF GREENVILLE, N.C. STANDARD SPECIFICATIONS ONLY

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No.	Date	Description
1	9/16/11	APPROVAL
Scale: not to scale		
Sheet # 2 of 2		
Detail # 413.01		

STANDARD CROSSWALK & CURB RAMP NOTES

Attachment C Grading Specifications – CONCRETE SIDEWALKS

SECTION 02300 – GRADING SPECIFICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Preparing subgrades for pavements.
 - 2. Excavating and backfilling for structures.
 - 3. Drainage course for slabs-on-grade.
 - 4. Base course for asphalt paving.

1.3 DEFINITIONS

- A. Backfill: Soil materials used to fill an excavation.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Layer placed between the subbase course and asphalt paving.
- D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Excavation: Removal of material encountered above subgrade elevations.
 - 1. Additional Excavation: Excavation below subgrade elevations as directed by the Project Manager. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by the Project Manager. Unauthorized excavation, as well as remedial work directed by the Project Manager, shall be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.
- I. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

GREENVILLE RECREATION AND PARKS

1.5 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by the City or others unless permitted in writing by the Project Manager and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Project Manager not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Project Manager's written permission.
 - 3. Contact utility-locator service for area where project is located before excavating.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 2 ½ inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols.
 - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Backfill and Fill: Satisfactory soil materials.
- E. Subbase: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- F. Base: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- G. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- H. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

GREENVILLE RECREATION AND PARKS

- I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.
- J. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Existing plant material to remain; protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding areas.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

GREENVILLE RECREATION AND PARKS

3.5 APPROVAL OF SUBGRADE

- A. Notify Project Manager when excavations have reached required subgrade.
- B. If Project Manager determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
 - 1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect.

3.6 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing in a location described by the Project Manager. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.7 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
 - 2. Removing all trash and debris.

3.8 FILL

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- C. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use satisfactory soil material approved by the Project Manager.

GREENVILLE RECREATION AND PARKS

2. Under walks and pavements, use satisfactory soil material approved by the Project Manager.

3.9 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
 1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
 2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.10 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of walls to required elevations, and uniformly along the full length of each wall.
- C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
- D. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
 1. Under steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 95 percent.
 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 92 percent.
 3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 85 percent.

3.13 GRADING

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 1. Provide a smooth transition between adjacent existing grades and new grades.
 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to achieve positive drainage and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

GREENVILLE RECREATION AND PARKS

1. Lawn or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

3.14 SUBBASE AND BASE COURSES

- A. Install separation fabric on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
- B. Under pavements and walks, place subbase course on prepared subgrade and as follows:
 1. Place base course material over subbase.
 2. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
 3. Shape subbase and base to required crown elevations and cross-slope grades.
 4. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.
 5. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

3.15 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 1. Scarify or remove and replace soil material to depth as directed by the Project Manager; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.17 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off City's property.

- B. Disposal: Transport surplus satisfactory soil to designated storage areas on City's property. Stockpile or spread soil as directed by the Project Manager.
 - 1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off City's property.

END OF SECTION 02300

GREENVILLE RECREATION AND PARKS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Formwork for cast-in place concrete, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-In-Place Concrete

1.3 REFERENCES

- A. ACI 318 - Building Code Requirements for Reinforced Concrete.
- B. ACI 347 - Recommended Practice For Concrete Formwork.
- C. PS 1 - Construction and Industrial Plywood.

1.4 DESIGN REQUIREMENTS

- A. Design, engineer and construct formwork, shoring and bracing to conform to design and code requirements; resultant concrete to conform to required shape, line and dimension.

1.5 SUBMITTALS FOR REVIEW

- A. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.
- B. Product Data: Provide data on void form materials and installation requirements.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 347, 301, 318, State of North Carolina Department of Transportation standards.

1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable local code for design, fabrication, erection and removal of formwork.

1.8 MOCK-UP

- A. For review of the Project Manager: Conduct mock-up of concrete formwork for review of the Project Manager.
- B. Mock-up may not remain as part of the Work.

PART 2 PRODUCTS

2.1 WOOD FORM MATERIALS

- A. Form Materials: At the discretion of the Contractor. Must be new material, void of defects and cuts.

2.2 PREFABRICATED FORMS

- A. Manufacturers:
 - 1. Company specializing in Products with minimum ten years experience.
- B. Preformed Steel Forms: Minimum 16 gage matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- C. Preformed Plastic Forms: Thermoplastic polystyrene form liner, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- D. Glass Fiber Fabric Reinforced Plastic Forms: Matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished concrete surfaces.
- E. Pan Type: Steel or Glass fiber of size and profile required.
- F. Tubular Column Type: Round, spirally wound laminated fiber material, surface treated with release agent, non-reusable, of sizes required.

- G. Void Forms: Moisture resistant treated paper faces, biodegradable, structurally sufficient to support weight of wet concrete mix until initial set; 2 inches thick.

2.3 FORMWORK ACCESSORIES

- A. Form Ties: Removable Snap-off type, metal adjustable length, cone type, with waterproofing washer, free of defects that could leave holes larger than 1 inch concrete surface.
- B. Form Release Agent: Colorless mineral oil, which will not stain concrete, or absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.
- C. Corners: Filleted Chamfered, type; ¼ x ¼ inch; maximum possible lengths.
- D. Dovetail Anchor Slot: Galvanized steel, 22 gage thick, foam filled release tape sealed slots, anchors for securing to concrete formwork
- E. Flashing Reglets: Galvanized steel 22 gage thick, longest possible lengths, with alignment splines for joints, foam filled, release tape sealed slots, anchors for securing to concrete formwork.
- F. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify lines, levels and centers before proceeding with formwork.

3.2 EARTH FORMS

- A. Hand trim sides and bottom of earth forms. Remove loose soil prior to placing concrete.

3.3 ERECTION - FORMWORK

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- D. Align joints and make watertight. Keep form joints to a minimum.
- E. Obtain approval before framing openings in structural members which are not indicated on Drawings.
- F. Provide fillet and chamfer strips on external corners.
- G. Install void forms in accordance with manufacturer's recommendations. Protect forms from moisture or crushing.
- H. Coordinate this section with other sections of work, which require attachment of components to formwork.
- I. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Designer.

3.4 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings, which are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items, which will be cast directly into concrete.
- C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.
- D. Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.

- E. Install water stops in accordance with manufacturer's instructions continuous without displacing reinforcement. [Heat seal joints watertight.
- F. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
- G. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

3.6 FORM CLEANING

- A. Clean forms as erection proceeds to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
- C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
- D. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

3.7 FORMWORK TOLERANCES

- A. Construct formwork to maintain tolerances required by ACI 301.
- B. Construct and align formwork for elevator hoist way in accordance with ASME A17.1.
- C. Camber slabs and beams ¼ inch per 10 feet in accordance with ACI 301.

3.8 FIELD QUALITY CONTROL

- A. Section 01400 - Quality Control: Field inspection and testing.
- B. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.
- C. Do not reuse formwork more than 2 times for concrete surfaces to be exposed to view. Do not patch formwork.

3.9 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cast-in-place concrete sidewalks, footings, and curbs.
- B. Slabs on grade.
- C. Control, expansion and contraction joint devices associated with concrete work, including joint sealants.

1.2 RELATED SECTIONS

- A. Section 03100 - Concrete Formwork: Formwork and accessories.

1.3 REFERENCES

- A. ACI 211.1 - Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
- B. ACI 211.2 - Selecting Proportions for Structural Lightweight Concrete.
- C. ACI 301 - Structural Concrete for Buildings.
- D. ACI 302 - Guide for Concrete Floor and Slab Construction.
- E. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- F. ACI 305R - Hot Weather Concreting.
- G. ACI 306R - Cold Weather Concreting.

- H. ACI 308 - Standard Practice for Curing Concrete.
- I. ASTM C33 - Concrete Aggregates.
- J. ASTM C94 - Ready-Mixed Concrete.
- K. ASTM C150 - Portland Cement.
- L. ASTM C260 - Air Entraining Admixtures for Concrete.

- M. ASTM C494 - Chemical Admixtures for Concrete.
 - N. ASTM C618 - Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
 - O. ASTM C948 - Test Method for Dry and Wet Bulk Density, Water Absorption and Apparent Porosity of Thin Sections of Glass-Fiber-Reinforced Concrete.
 - P. ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type).
 - Q. ASTM D1190 - Concrete Joint Sealer, Hot-Poured Elastic Type.
 - R. ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
 - S. ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- 1.5 SUBMITTALS FOR INFORMATION
- A. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent Work.
- 1.6 SUBMITTALS AT PROJECT CLOSEOUT
- A. Accurately record actual locations of embedded utilities and components, which are concealed from view.
- 1.7 QUALITY ASSURANCE
- A. Perform Work in accordance with ACI 301.
 - B. Maintain one copy of each document on site.
 - C. Acquire cement and aggregate from same source for all work.
 - D. Conform to ACI 305R when concreting during hot weather.
 - E. Conform to ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

A.

2.1 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I – Normal Portland type.

B. Fine and Coarse Aggregates: ASTM C33.

C. Water: Clean and not detrimental to concrete.

2.2 ADMIXTURES

B. Air Entrainment: ASTM C260

C. Chemical: ASTM C494 Type A - Water Reducing Type D - Water Reducing and Retarding Water Reducing and Type F - Water Reducing, High Range.

2.3 ACCESSORIES

A. Bonding Agent: Polymer resin emulsion Polyvinyl Acetate Latex emulsion, Two component modified epoxy resin Non-solvent, two component polysulfide epoxy mineral filled polysulfide polymer epoxy. Versamid cured epoxy.

B. Vapor Retarder: 6 mil. thick.

C. Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days;

2.4 JOINT DEVICES AND FILLER MATERIALS

A. Joint Filler Type A ASTM D1751 Asphalt impregnated fiberboard or felt 3/8 inch thick; tongue and groove profile.

B. Construction Joint Devices: Integral extruded plastic 3/8 inch thick, formed to tongue and groove profile with removable top strip. Exposing sealant trough, knockout holes spaced at 6 inches, ribbed with tongue to fit top screed edge.

C. Expansion and Contraction Joint Devices: ASTM B221 alloy, extruded aluminum; resilient elastomeric vinyl neoprene filler strip with a Shore A hardness of 35 to prevent plus or minus 25 percent joint movement with full recovery; extruded aluminum vinyl cover plate, of longest manufactured length at

Attachment E Concrete Specifications - CAST-IN-PLACE CONCRETE

each location, flush, recessed mounted; color to match concrete finish as approved by designer.

D. Sealant: ASTM D1190; Hot applied rubber compound.

A. 2.5 CONCRETE MIX

A. Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94.

B. Select proportions for normal weight concrete in accordance with ACI 301 Method 1.

C. Provide concrete to the following criteria:

<u>Unit</u>	<u>Measurement</u>
Compressive Strength (7 day)	3000 psi
Compressive Strength (28 day)	4000 psi
Aggregate Size (maximum)	¾ inch
Aggregate Size (minimum)	¼ inch
Slump- Plus or minus 1 inch	3 inches

D. Use accelerating admixtures in cold weather only when approved by the Project Manager. Use of admixtures will not relax cold weather placement requirements.

E. Use calcium chloride only when approved by the Project Manager.

F. Use set retarding admixtures during hot weather only when approved by the Project Manager.

G. Add air entraining agent to normal weight concrete mix for work exposed to exterior.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify site conditions are acceptable to proceed with work. Starting work means conditions are acceptable.

B. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.2 PREPARATION

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- B. In locations where new concrete is dowelled to existing work, drill holes in existing concrete; insert steel dowels and pack solid with non-shrink grout.
- C. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

3.3 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301.
- B. Notify the Project Manager a minimum 24 hours prior to commencement of operations.
- C. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints, are not disturbed during concrete placement.
- D. Extend joint filler from bottom of slab to within 1/2 inch of finished slab surface.
- E. Install joint devices in accordance with manufacturer's instructions.
- F. Install joint covers in one piece length, when adjacent construction activity is complete.
- G. Apply sealants in joint devices.
- H. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- I. Place concrete continuously between predetermined expansion, control, and construction joints.
- J. Do not interrupt successive placement; do not permit cold joints to occur
- K. Saw cut joints within 24 hours after placing. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.

3.4 CONCRETE FINISHING

- A. Provide formed concrete surfaces to be left exposed with smooth rubbed finish.

3.5 CURING AND PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

3.6 FIELD QUALITY CONTROL

- A. Provide free access to Work and cooperate with appointed firm.
- B. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of Work.
- C. Tests of cement and aggregates may be performed to ensure conformance with specified requirements.
- D. Three concrete test cylinders will be taken for every 75 or less yds of each class of concrete placed.
- E. One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.
- F. One slump test will be taken for each set of test cylinders taken.

3.7 PATCHING

- A. Allow the Project Manager to inspect concrete surfaces immediately upon removal of forms.
- B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify the Project Manager upon discovery.
- C. Patch imperfections as directed.

3.8 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Project Manager.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of the Project Manager for each individual area.

END OF SECTION