STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J.R. "JOEY" HOPKINS
SECRETARY

May 22, 2024

County: **Wake**

Subject: **Encroachment Contract**
SR 2053
E051-092-23-01269

Rivercrest Realty Associates, LLC
8816 Six Forks Rd, #201
Raleigh, NC 27615

Dear Sir or Madam,

Attached for your files is a copy of Right of Way Encroachment Agreement, which has been properly executed. This contract covers the following:

Approximately 700 LF of road widening for the construction of a left and right turn lane.

A PERFORMANCE AND INDEMNITY BOND IN THE VALUE OF $70,000.00 IS REQUIRED AND SHALL BE POSTED WITH THE DISTRICT OFFICE PRIOR TO THE START OF WORK. THE BOND SHALL DISPLAY THE ENCROACHMENT AGREEMENT NUMBER.

This encroachment is approved subject to the Standard and Special Provisions which are attached to and made a part of the Encroachment Contract.

Sincerely,

Daniel Boulware Digitally signed by Daniel Boulware
Date: 2024.06.27 14:13:31 -04'00'

Daniel T. Boulware, PE, District Engineer
for B. H. Jones, PE, Division Engineer
BHJ/dtb/mvs

cc: Mr. Daniel Boulware (w/ orig)
Town of Rolesville

Attachment

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION 5 – DISTRICT 1
1575 MAIL SERVICE CENTER
RALEIGH, NC 27699-1575

Telephone: (919) 814-6115
Fax: (919) 715-5778
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
4009 DISTRICT DRIVE
RALEIGH, NC 27607

Encroachment Special Provisions

1. NCDOT WORK ZONE TRAFFIC CONTROL QUALIFICATIONS AND TRAINING PROGRAM:

   A. Effective July 1, 2010, all flagging operations within NCDOT Right of Way require qualified and trained Work Zone Flaggers.

   B. Effective July 1, 2011, qualified and trained Work Zone Traffic Control Supervisors will be required on Significant Projects.

   C. Training for this certification is provided by NCDOT approved training sources and by private entities that have been pre-approved to train themselves. If you have questions, contact our web site at http://www.ncdot.org/doh/preconstruct/wztc/WZTCTrainingProgram/default.html, or contact Kenneth Thornewell, PE. with NCDOT Work Zone Traffic Control Unit at (919) 662-4338.

2. Before work begins, please forward the contact information of the general contractor to the Senior Assistant District Engineer, Montel Sparrow at mvsparrow@ncdot.gov. Include contact name, emergency phone number and email.

3. Current and future state projects take precedence over this encroachment.

4. The construction of the driveway(s) and associated roadway improvements shall be in accordance with Driveway Permit #D051-092-23-00187.

5. Roadway improvements shall be required as shown on the attached plans.

6. This encroachment agreement only covers work within NCDOT Right-of-Way as shown on the attached plans.

7. Before work begins, a preconstruction meeting with NCDOT shall be required. Please contact NCDOT 2 weeks prior to construction activities to set up this meeting by emailing Montel Sparrow, Senior Assistant District Engineer at mvsparrow@ncdot.gov.

8. Any personnel or equipment working within five feet of a travel lane shall require a full lane closure. No lane of traffic shall be closed or restricted between the hours of 6:00 AM to 9:00 AM and 4:00 PM to 7:00 PM Monday thru Friday, during any time of inclement weather, or upon District Engineers' directive. Traffic shall be maintained at all times. Any violation of these hours will result in termination of the Driveway Permit and liquidated damages in the amount of $2,000.00 per hour or any portion thereof will be assessed by the District Engineers Office.

9. Nighttime and weekend operations will NOT be allowed unless written approval is received from the District Engineer. If nighttime or weekend work is allowed or required, all signs must be retro-reflective, and a work zone lighting plan must be submitted for approval prior to construction. If written approval is needed, please contact the District Office at 919-814-6115.

10. A $70,000.00 Performance and Indemnity Bond shall be executed and posted with the District Office at 4009 District Drive, Raleigh, North Carolina 27607, prior to beginning any work on the Right of Way. When the project has been completed, and upon written request from the Permittee, the project will be inspected and reviewed by NCDOT. If all work is found to be satisfactory, the bond can be reduced and project will be placed under a one year warranty period. When the warranty period is completed, and upon written request by the Permittee to the District Office, final inspection and review will be performed by NCDOT. If all work is found to be satisfactory, the bond will be released.

11. The encroacher shall submit a comprehensive traffic control plan to the District Engineer's office for approval prior to beginning work. Contact the District Office at (919) 814-6115.

12. Notify the District Office at 919-814-6115 a minimum of 48 hours prior to beginning work. Please provide name and contact number for the contractor in case of emergency .

13. Notify the Town of Rolesville before starting work.

14. Minimum pavement design on SR 2053 (Jones Dairy Road) shall be as follows:
    For areas 6 feet wide or greater:
    3 inches Bituminous Concrete Surface Course - Type S9.5C (includes overlay)
    4 inches Bituminous Concrete Binder Course - Type I19.0C
    10 inches Aggregate Base Course
    or for areas 6 feet wide or less:
    3 inches Bituminous Concrete Surface Course - Type S9.5C (includes overlay)
    4 inches Bituminous Concrete Binder Course - Type I19.0C
    5 inches Bituminous Concrete Base Course - Type B25.0C

15. A minimum 1.5 inch overlay of Type S9.5C asphalt shall be required as shown on the attached plans and in any areas of conflicting pavement markings. Mill a minimum of 1.5 inches to match existing pavement.

16. The edges of the existing asphalt shall be saw cut to provide a straight and uniform edge before paving to it. Diagonal joints will not be permitted.

    Any existing attachments or paved shoulder that do not meet the required pavement design shall be removed before any widening begins. All edges shall be saw cut to provide a good longitudinal joint.

    The width of the existing paved shoulder shall be included in addition to the required widening.

17. Pavement pre-markings shall be field reviewed and approved by the District Office before thermoplastic pavement markings are placed.

18. It shall be the responsibility of the Encroacher to address existing pavement failures prior to asphalt overlay. Please contact the District Office at (919) 814-6115 to mark areas to be addressed.

19. Any abandoned storm drainage pipe and associated structures shall be removed and properly backfilled.

20. Crossline installation shall have one passing subgrade density test performed prior to the replacement of asphalt for each half of the roadway crossing. Only one half of the roadway shall be open cut at one time in order to maintain traffic movements.

21. Pipes shall be installed as necessary to maintain existing drainage patterns. Pipes shall be sized properly to accommodate the drainage area at its point of discharge. Pipes shall be reinforced concrete pipe with a minimum inside diameter of 15 inches. Storm drain crosslines traversing the roadway shall be reinforced concrete pipe with a minimum inside diameter of 18 inches.

22. Existing driveway pipes affected by the proposed widening may need to be moved back from the edge of pavement to allow for a proper ditch and shoulder section, as per NCDOT Standards and Specifications.

23. Any catch basins and/or drop inlets that are to be converted to traffic bearing junction boxes shall include a manhole frame and cover. Blind boxes are not permitted within NCDOT Right-of-Way.

24. All (cast-in-place and/or pre-cast) splice boxes, handholes, manholes, drainage structures and other appurtenances within NCDOT Right of Way shall be of a NCDOT approved design for traffic bearing, HS-20 loading, and shall be flush mounted. Manholes, handholes and vaults shall not be placed in the ditch-line, side slopes of the ditch or in the pavement.

    All frames, grates, rings, covers, etc. are to be manufactured in accordance with the requirements of Section 106-1B - "Domestic Steel". Foreign castings are not approved for use within NCDOT Right of Way.

25. All curb and gutter constructed in the right of way shall be 30 inch standard. Any curb and gutter removed shall be removed in full sections at existing joints. A compacted base shall be prepared prior to placement of curb and gutter; consisting of a minimum 10 inches of Aggregate Base Course or a minimum 5 inches of Asphalt Concrete Base Course, type B25.0C. Placement and compaction shall adhere to NCDOT Standards and Specifications.

26. The addition/replacement of curb and gutter next to an existing asphalt roadway shall be constructed as follows:

    1.) The edges of the existing asphalt shall be saw-cut to provide a straight and uniform edge for concrete to be placed along.

    2.) Mill minimum 1.5-in by 1.5-ft section at the edge of pavement along the proposed curb & gutter.

    3.) The contractor shall use an appropriate method to provide a straight, uniform front edge of concrete where tying to the ultimate top of pavement. This office recommends using a 2x4 laid flat and pinned along the milled surface at the edge of pavement. Concrete curb and gutter shall be constructed per NCDOT Standards and Specifications.

    4.) Once the concrete is poured and set, a minimum 1.5-inch lift of surface asphalt, type S9.5C, shall be placed in the milled section. It is the sole responsibility of the contractor to ensure that the proposed curb and gutter is placed at the correct height to provide proper drainage in addition to a smooth tie-in once asphalt is placed. Additional milling may be required to repair any damages done to the existing asphalt during construction.

    For questions feel free to contact the District Engineer's Office at (919) 814-6115.

27. The Encroacher shall contact the District Engineer's office at (919) 814-6115 for inspection of forms or grade line prior to placing concrete for curb and gutter. The Encroacher shall provide 24 hours notification for inspections. All hoods, frames and grates intended for use in NCDOT Right of Way shall be onsite for inspection at this time or the curb and gutter inspection will not be conducted.

28. Sidewalks and curb cuts and ramps for disabled persons shall be constructed in accordance with the current NCDOT "Standard for Wheelchair Ramp Curb Cuts" and the Americans With Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities. NCDOT shall not maintain the proposed sidewalks.

29. All Traffic signs moved shall be reinstalled as soon as possible to meet NCDOT specifications.

30. All pavement cuts, including those for the tapping for water services, sanitary sewer and/or gas line attachments, shall be made prior to paving the area to be widened/overlayed.

31. All bare and disturbed areas must have a sufficient stand of vegetation. Address any erosion issues that may arise during time of construction. Monitor these areas as needed to assure this requirement is satisfied.

32. The roadway shall be kept free of silt, mud and debris at all times.

33. Pavement cores made to expose existing utilities shall be made with a maximum 18” pavement core. Pavement core locations shall not be placed in the wheel path whenever possible. Vacuum excavation shall be utilized to expose underground utilities. Pavement cores shall be repaired within the same working day. The pavement core shall be retained and reused to fill the core hole. The excavation shall be backfilled and compacted with select material to the bottom of the existing pavement structure or as indicated on the manufacturer's specifications. The retained core shall be placed in the hole and secured with a waterproof, mechanical joint. All materials must be listed on the NCDOT Approved.
Products List (APL) found here: https://apps.ncdot.gov/vendor/approvedproducts/ Prior to completion, ensure road surface is clean. If the pavement core is damaged and cannot be re-used, the core may be replaced with the surface mix, S9.5B. The asphalt patch shall match the thickness of the existing asphalt or four inches, whichever is greater. Prior to completion, ensure road surface is clean. If it becomes necessary for NCDOT to make any repairs associated with this encroachment, then the encroaching party will be charged for all costs associated with the repair.

Encroachment Standard Provisions

1. Current and future state projects take precedence over this encroachment.

2. An executed copy of this encroachment agreement will be present at the construction site at all times during construction. NCDOT reserves the right to stop all work unless evidence of approval can be shown.

3. NCDOT reserves the right to revise, restrict, suspend and/or void this encroachment agreement if the execution and/or operation of said permit is found to be a hazard to the traveling public.

4. This encroachment agreement only covers work within NCDOT Right-of-Way. The encroacher is responsible for verifying all right of way. NCDOT does not guarantee the right of way on this road. If the right of way was not obtained by the fee simple method, it is the responsibility of the encroacher to obtain permission from the underlying property owner/owners.

   Encroacher shall be responsible for obtaining all necessary permanent and/or temporary construction, drainage, utility and/or sight distance easements. All Right of Way and easements necessary for construction and maintenance shall be dedicated to NCDOT with proof of dedication furnished to the District Engineer prior to beginning work.

5. Notify the District Engineer's Office at (919) 814-6115 or at 4009 District Drive, Raleigh, NC 27607, prior to beginning and after completion of work.

6. The encroacher is responsible for any claim for damages brought by any property owner by reason of the installation.

7. The Encroacher shall notify the public, including all adjacent property owners and businesses, a minimum of 2 weeks prior to beginning work.

8. Any and all changes noted in red on the plans shall be incorporated into and made part of the approved permit.

9. The encroaching party shall comply with all applicable local, state and federal environmental regulations, and shall obtain all necessary state and federal environmental permits, including but not limited to, those related to sediment control, storm water, wetland, streams, endangered species, and historical sites.

10. All materials and construction shall be in accordance with NCDOT standards and specifications, including but not limited to, the NCDOT Standard Specifications for Roads and Structures 2024, the NCDOT Roadway Standards Drawings, and NCDOT Policies and Procedures for Accommodating Utilities on Highway Rights of Way.

11. The encroacher shall provide traffic control devices, lane closures, road closures, positive protection and/or any other warning or positive protection devices necessary for the safety of road users during construction and any subsequent maintenance. This shall be performed in conformance with the latest NCDOT Roadway Standard Drawings and Standard Specifications for Roads and Structures and Amendments or Supplements thereto. When there is no guidance provided in the Roadway Standard Drawings or Specifications, comply with the Manual on Uniform Traffic Control Devices for Streets and Highways and Amendments or Supplements thereto. No work shall be performed in the Right of Way unless this requirement is satisfied. NCDOT reserves the right to require a written traffic control plan for encroachment operations.

    Sidewalk closures shall be installed as necessary. Pedestrian traffic shall be detoured around these closures and shall be signed appropriately and in accordance with The American with Disabilities Act Accessibility Guidelines.

12. No parking or material storage shall be allowed along the shoulders of any NCDOT roadways.

13. Two-way traffic shall be maintained at all times.

14. No lane closures shall be permitted between the hours of 6:00 AM to 9:00 AM and 4:00 PM to 7:00 PM, Monday through Friday unless otherwise specified in the Special Provisions of this encroachment agreement.

15. At the end of each working day, equipment shall be parked outside of the clear recovery zone in order to avoid any obstruction to the travelling public. This clear recovery zone is measure from the edge of the nearest travel lane.

16. Work shall not be performed on both sides of the road simultaneously within the same area.

17. Ingress and egress shall be maintained to all businesses and dwellings at all times.

18. The paving of this roadway shall be in accordance with the revised NCDOT 2024 Standard Specifications, Sections 610, 1012 and 1020. The Contractor shall follow all procedures of the attached Quality Management System (QMS) for asphalt pavement - Maintenance Version. The Contractor must adhere to all testing requirements and quality control requirements specified. The Contractor shall contact the NCDOT Division 5 QA Supervisor at (919) 562-0018 prior to producing plant mix and make the Supervisor aware that the mix is being produced for a future NCDOT road. Only NCDOT approved mix designs will be acceptable. A quality control plan shall be submitted to the District Engineer's Office prior to asphalt production. Use form QMS-MV1 for the Quality Control Plan submittal. Failing mixes and/or densities are subject to penalties including monetary payments or removal and replacement.

19. Roadway certification reports sealed by a Professional Engineer shall be submitted to the North Carolina Department of Transportation at 4009 District Drive, Raleigh, North Carolina, indicating the following:
    * Pavement thickness by type
    * Pavement density, core and/or test locations
    * Base thickness
    * Base density
    * Subgrade density

    Test frequency and method shall be in conformance with the NCDOT "Materials and Tests" Manual. Test must be performed by a Certified Technician including name and Certification number on report.

20. Any existing driveways, pavement, sidewalk, curb and gutter or drainage structures that are damaged during construction shall be repaired to their original condition.

21. When surface area in excess of one acre will be disturbed, the Encroacher shall submit a Sediment and Erosion Control Plan which has been approved by the appropriate regulatory agency or authority prior to beginning any work on the Right of Way. Failure to provide this information shall be grounds for suspension of operations.

22. All erosion control devices and measures shall be constructed, installed, maintained, and removed by the Encroacher in accordance with all applicable Federal, State, and Local laws, regulations, ordinances, and policies. All earth areas shall be regraded and seeded in accordance with NCDOT Standards Specifications for Roads and Structures 2012.

23. The applicant is responsible for identifying project impacts to waters of the United States (wetlands, intermittent streams, perennial streams and ponds) located within the NCDOT right-of-way. The discharge of dredged or fill material into waters of the United States requires authorization from the United States Army Corps of Engineers (USACE) and certification from the North Carolina Division of Water Quality (NCDWQ). The applicant is required to obtain pertinent permits or certification from these regulatory agencies if construction of the project impacts waters of the United States within the NCDOT right-of-way. Additional information can be obtained by contacting the USACE or NCDWQ.

24. The applicant is responsible for avoiding impacts to federally protected species during project construction. Bald eagle, Michaux's sumac, smooth coneflower, dwarf wedgemussel, harperella, red-cockaded woodpecker and tar spinymussel are federally protected species that have been identified within NCDOT right-of-way in Durham, Person, Granville, Wake, Franklin, Vance, and Warren counties. Additional information can be obtained by contacting the North Carolina Natural Heritage Program or the United States Fish and Wildlife Services.

25. The applicant is responsible for complying with the Neuse and Tar-Pamlico Riparian Buffer Rule as regulated by the NCDWQ. The Rule regulates activity within a 50-foot buffer along perennial streams, intermittent streams and ponds. Additional information can be obtained by contacting the NCDWQ.

26. All proposed landscaping and plantings located within the NCDOT right of way shall be approved by the Division Roadside Environmental Unit. Contact Corey Sudderth at (919) 816-9290.

    In the event these plants require relocation or removal for highway construction, reconstruction, or maintenance of safety, such removal or relocation will be done immediately by the permittee upon notification by the NCDOT entirely at the expense of the permittee.

27. Existing drainage patterns shall be maintained at all times throughout the proposed construction. The encroacher shall keep the roadway clean of dirt and debris at all times throughout the duration of the project.

28. Excavation within 1000 feet of a signalized intersection will require notification by the encroaching party to the Division Traffic Engineer at telephone number (919) 536-4000 no less than one week prior to beginning work. All traffic signal or detection cables must be located prior to excavation. Cost to replace or repair NCDOT signs, signals, pavement markings or associated equipment and facilities shall be the responsibility of the encroaching party. Any intersection modifications pertaining to signalization, lane additions/modifications, striping changes/additions, and or pedestrian accomodation installation/revision shall require a new signal plan of record be prepared, submitted and reviewed by the Division Traffic Engineer.

29. All temporary and final pavement markings, reflective pavement markings, raised pavement markers, non-cast iron snowplowable pavement markers and signage are the responsibility of the Encroacher. All final pavement markings shall be thermoplastic. Any pavement markings/markers that are damaged or obliterated shall be restored at no expense to NCDOT.

30. All Traffic signs moved shall be reinstalled as soon as possible to meet NCDOT specifications.

31. Strict compliance with the Policies and Procedures for Accommodating Utilities on Highway Right of Way manual shall be required.

32. It shall be the responsibility of the Encroacher to determine the location of other utilities within the encroachment area. The Encroacher shall be responsible for notifying other utility owners and providing protection and safeguards to prevent damage or interruption to existing facilities and to maintain accessibility to existing utilities.

33. All earth areas disturbed shall be regraded and reseeded in accordance with Division of Highways Standards and Specifications.

34. The Encroacher shall remove all trees, stumps and vegetative material from the right of way and dispose of in a licensed landfill or disposal site.

35. Excavated material shall not be placed on the roadway at any time.

36. Trenching, bore pits and/or other excavations shall not be left open or unsafe overnight. The Contractor shall comply with all OSHA requirements and provide a competent person on site to supervise excavation at all times.

37. All excavations inside the theoretical 1:1 slope from the existing edge of pavement to the bottom of the nearest excavation wall should be made in accordance with the following conditions. Traffic should be moved to a travel lane outside the limits of a theoretical one-to-one slope from the bottom of the nearest trench wall to the pavement surface. Active excavation shoring, such as sheet piling, shall be installed. The design of the shoring shall include the effects of traffic loads. The shoring system shall be designed and sealed by an engineer registered in North Carolina. Trench boxes shall not be accepted as shoring. The trench backfill material should meet the Statewide Borrow Criteria.

38. Excavated areas adjacent to pavement having more than a 2 inch drop shall be made safe with a 6:1 or flatter slope and shall be designated by appropriate delineation during periods of construction inactivity, including, but not limited to, night and weekend hours.

39. Backfill material is to be placed at a maximum of 6 inch loose layers and each layer thoroughly compacted. All embankment backfill shall be compacted to 95% density and all subgrade to 100% density in accordance with AASHTO T-99 as modified by NCDOT. They shall be signed by a Professional Engineer and sent to the District Engineers Office at 4009 District Drive, Raleigh, NC 27607.

40. No commercial advertising shall be allowed within NCDOT Right of Way.

41. Guardrail shall be installed where warranted and in accordance with the guidelines shown in the 2024 Highway Design Branch Roadway Standard Drawings.

    Guardrail removed or damaged during construction shall be replaced or repaired to their original condition.

42. Poles shall be located/relocated at or as near as possible to the right-of-way line, shall be set outside the Clear Recovery Area as outlined by AASHTO and outside sight distance triangles.

    Poles located within guardrail sections shall be installed a minimum of 5 feet behind any guardrail. When applicable, poles shall be placed behind sidewalk.

    Any associated guy wires to ground anchors and stub poles shall not be placed between a pole and the travel way and should be located outside the clear recovery area.

    Minimum vertical clearance shall be 18' for aerial crossings over NCDOT roadways and 15'-6" for installations parallel to the roadway.

43. Fire Hydrants shall be of the break-away type. Hydrants shall be placed a maximum of one foot inside the right of way in ditch sections or a minimum of 6 feet behind the curb in curb and gutter sections.

44. Retaining walls or other vertical structures shall not be permitted inside NCDOT right of way.

STATE OF NORTH CAROLINA

ROUTE SR-2053 PROJECT JONES DAIRY STORAGE FACILITY COUNTY OF WAKE

DEPARTMENT OF TRANSPORTATION

-AND-

RIVERCREST REALTY ASSOCIATES, LLC
8816 Six Forks Rd, #201
Raleigh, NC 27615

RIGHT OF WAY ENCROACHMENT AGREEMENT FOR CURB AND GUTTER, PAVEMENT WIDENING AND STORM DRAINAGE

THIS AGREEMENT, made and entered into this the 22th day of May , 20 24 , by and between the Department of Transportation, party of the first part; and RIVERCREST REALTY ASSOCIATES, LLC party of the second part,

WITNESSETH

THAT WHEREAS, the party of the second part desires to encroach on the right of way of the public road designated as Route(s) SR-2053 , located FROM THE INTERSECTION OF SR-2053 (JONES DAIRY ROAD) AND SR-4403 (WINTER SPRING DR) TO A POINT APPROXIMATELY 650-LF EAST with the construction and/or erection of: APPROXIMATELY 700-LF OF ROAD WIDENING FOR TOWN OF ROLESVILLE ULTIMATE RIGHT-OF-WAY CONSTRUCTION AND LEFT AND RIGHT TURN LANES INTO THE DEVELOPMENTS SITE DRIVEWAY.

WHEREAS, it is to the material advantage of the party of the second part to effect this encroachment, and the party of the first part in the exercise of authority conferred upon it by statute, is willing to permit the encroachment within the limits of the right of way as indicated, subject to the conditions of this agreement;

NOW, THEREFORE, IT IS AGREED that the party of the first part hereby grants to the party of the second part the right and privilege to make this encroachment as shown on attached plan sheet(s), specifications and special provisions which are made a part hereof upon the following conditions, to wit:

That the said party of the second part binds and obligates himself to install the encroaching facility in such safe and proper condition that it will not interfere with or endanger travel upon said highway.

That the party of the second part agrees to provide during construction proper signs, signal lights, flagmen and other warning devices for the protection of traffic in conformance with the latest Manual on Uniform Traffic Control Devices for Streets and Highways and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the Division Engineer of the party of the first part.

That the party of the second part hereby agrees to indemnify and save harmless the party of the first part from all damages and claims for damage that may arise by reason of the installation and maintenance of this encroachment.

It is clearly understood by the party of the second part that the party of the first part will assume no responsibility for any damage that may be caused to such facilities, within the highway rights of way limits, in carrying out its construction.

That the party of the second part agrees to restore all areas disturbed during construction to the satisfaction of the Division Engineer of the party of the first part. The party of the second part agrees to exercise every reasonable precaution during construction and maintenance to prevent eroding of soil; silting or pollution of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces or other property; or pollution of the air. There shall be compliance with applicable rules and regulations of the North Carolina Division of Environmental Management, North Carolina Sedimentation Control Commission, and with ordinances and regulations of various counties, municipalities and other official agencies relating to pollution prevention and control. When any construction operation disturbs the ground surface and existing ground cover, the party of the second part agrees to remove and replace the sod or otherwise reestablish the grass cover to meet the satisfaction of the Division Engineer of the party of the first part.

That the party of the second part agrees to assume the actual cost of any inspection of the work considered to be necessary by the Division Engineer of the party of the first part.

That the party of the second part agrees to have available at the encroaching site, at all times during construction, a copy of this agreement showing evidence of approval by the party of the first part. The party of the first part reserves the right to stop all work unless evidence of approval can be shown.

Provided the work contained in this agreement is being performed on a completed highway open to traffic; the party of the second part agrees to give written notice to the Division Engineer of the party of the first part when all work contained herein has been completed. Unless specifically requested by the party of the first part, written notice of completion of work on highway projects under construction will not be required.

That in the case of noncompliance with the terms of this agreement by the party of the second part, the party of the first part reserves the right to stop all work until the facility has been brought into compliance or removed from the right of way at no cost to the party of the first part.

That it is agreed by both parties that this agreement shall become void if actual construction of the work contemplated herein is not begun within one (1) year from the date of authorization by the party of the first part unless written waiver is secured by the party of the second part from the party of the first part.

R/W (161B) : Party of the Second Part certifies that this agreement is true and accurate copy of the form

R/W (161B) incorporating all revisions to date.

IN WITNESS WHEREOF, each of the parties to this agreement has caused the same to be executed the day and year first above written.

DEPARTMENT OF TRANSPORTATION

BY: Daniel Boulware Digitally signed by Daniel Boulware Date: 2024.06.27 14:15:22 -04'00'

DIVISION ENGINEER

ATTEST OR WITNESS: GARRETT FRAL

BWELLNESS HEALTH ASSOCIATES, LLC

Second Party

INSTRUCTIONS

When the applicant is a corporation or a municipality, this agreement must have the corporate seal and be attested by the corporation secretary or by the empowered city official, unless a waiver of corporate seal and attestation by the secretary or by the empowered City official is on file in the Raleigh office of the State Utilities Manager. In the space provided in this agreement for execution, the name of the corporation or municipality shall be typed above the name, and title of all persons signing the agreement should be typed directly below their signature.

When the applicant is not a corporation, then his signature must be witnessed by one person. The address should be included in this agreement and the names of all persons signing the agreement should be typed directly below their signature.

This agreement must be accompanied, in the form of an attachment, by plans or drawings showing the following applicable information:

1. All roadways and ramps.
2. Right of way lines and where applicable, the control of access lines.
3. Location of the proposed encroachment.
4. Length and type of encroachment.
5. Location by highway survey station number. If station number cannot be obtained, location should be shown by distance from some identifiable point, such as a bridge, road, intersection, etc. (To assist in preparation of the encroachment plan, the Department's roadway plans may be seen at the various Highway Division Offices, or at the Raleigh office.)
6. Drainage structures or bridges if affected by encroachment.
7. Typical section indicating the pavement design and width, and the slopes, widths and details for either a curb and gutter or a shoulder and ditch section, whichever is applicable.
8. Horizontal alignment indicating general curve data, where applicable.
9. Vertical alignment indicated by percent grade, P.I. station and vertical curve length, where applicable.
10. Amount of material to be removed and/or placed on NCDOT right of way, if applicable.
11. Cross-sections of all grading operations, indicating slope ratio and reference by station where applicable.
12. All pertinent drainage structures proposed. Include all hydraulic data, pipe sizes, structure details and other related information.
13. Erosion and sediment control.
14. Any special provisions or specifications as to the performance of the work or the method of construction that may be required by the Department must be shown on a separate sheet attached to encroachment agreement provided that such information cannot be shown on plans or drawings.
15. The Department's Division Engineer should be given notice by the applicant prior to actual starting of installation included in this agreement.
16. Method of handling traffic during construction where applicable.
17. Scale of plans, north arrow, etc.

SUMMARY OF PROBABLE CONSTRUCTION COSTS

Road Improvements (Non-Utility Related; 2-Party Road Widening)

Project Name: Jones Dairy Storage
Rolesville, NC
25-Jan-24

OFF-SITE IMPROVEMENTS	Quantity	Unit	Unit Cost	Total Cost
General Conditions				
General Conditions, Bonding & Layout	10	%	$ 2,641	$ 26,408
Erosion Control				
Erosion Control	1	LS	$ 7,500	$ 7,500
Traffic Control				
Flaggers and Barricades	15	Days	$ 1,500	$ 22,500
Demolition				
Mill Tapers on Each End	2	EA	$ 1,500.00	$ 3,000
Grading				
Earthwork (Cut & Fill)	500	CY	$ 10.00	$ 5,000
Fine Grading	20000	SF	$ 1.00	$ 20,000
Final Shoulder Backfill	1200	LF	$ 1.00	$ 1,200
Site Improvements				
Asphalt Pvmt. - 1.5" Overlay	1760	SY	$ 25.00	$ 44,000
Asphalt Pvmt. - NCDOT Full Depth Widening	870	SY	$ 128.00	$ 111,360
Asphalt Pvmt. - Asphalt Side path	290	SY	$ 45.00	$ 13,050
Curb & Gutter - 30"	280	LF	$ 24.00	$ 6,720
Conc Driveway Aprons	100	SY	$ 85.00	$ 8,500
Conc. ADA Ramps	2	EA	$ 2,500.00	$ 5,000
15-in RCP Storm Sewer	50	LF	$ 75.00	$ 3,750
15-in Conc. FES	4	EA	$ 500.00	$ 2,000
Thermo Pavement Markings	1	EA	$ 2,500.00	$ 2,500
Mailbox Relocations	1	LS	$ 1,000.00	$ 1,000
Landscaping				
Seeding & Cleanup	20000	SF	$ 0.25	$ 5,000
Allowances				
Unsuitable Soil Allowance	20	CY	$ 100	$ 2,000

Subtotal :			**$ 290,488**
10%	Contractors OH&P	$	29,049
5%	Misc. Contingency	$	14,524
ROAD IMPROVEMENT COST TOTAL:		**$**	**334,061**

Timmons Group's Opinion of Probable Construction Cost (OPCC) is based on best judgment, experience and being qualified professionals generally familiar with the construction industry. Because Timmons Group has no control over the cost of labor, materials, equipment, services furnished by others, or over competitive bidding or market conditions, Timmons Group cannot guarantee that actual construction costs will not vary from the OPCC presented.

VERIFICATION OF COMPLIANCE WITH ENVIRONMENTAL REGULATIONS

(Check Appropriate Box)

☑ Permits from the N.C. Department of Environmental Quality and the U.S. Army Corp of Engineers are not required for this project. However, all applicable federal and state regulations have been followed.

☐ The required permits from the N.C. Department of Environmental Quality and the U.S. Army Corp of Engineers have been obtained for this project. Copies of the permits are attached.

☑ All applicable NPDES Stormwater Permit requirements have been or will be met for this project.

☑ The project is in compliance with all applicable sedimentation and erosion control laws and regulations.

Project Name: Jones Dairy Storage Facility

Township: Rolesville County: Wake

Project Engineer: Garrett Frank Phone Number 919-866-4503

Project Contact: Garrett Frank

Applicant's Name: Rivercrest Realty Associates, LLC

Date Submitted: 10/27/2023

Form VCER-1
June 2016

SITE PLAN REVIEW DRAWINGS:
FOR
JONES DAIRY STORAGE FACILITY

1200 JONES DAIRY RD
ROLESVILLE, NC 27587

SITE PLAN#: SDP-23-03
REZONING CASE #: MA-22-09
TEXT AMENDMENT CASE #: TA-22-02

MA-22-09 CONDITIONS OF APPROVAL:

1. DEVELOPMENT OF THE PROPERTY SHALL BE IN SUBSTANTIAL CONFORMANCE WITH THE ACCOMPANYING EXHIBIT D CONCEPT PLAN. LOCATIONS SHOWN FOR COMMITTED ELEMENTS INCLUDING, BUT NOT LIMITED TO BUILDINGS, PARKING, AND STORMWATER CONTROL MEASURES SHOWN ON EXHIBIT D, ARE CONCEPTUAL AND PROVIDED FOR ILLUSTRATION AND CONTEXT ONLY. FINAL LOCATIONS OF ELEMENTS SHALL BE DETERMINED AT SUBSEQUENT STAGES OF APPROVAL.
2. SUBJECT TO APPROVAL BY THE TOWN OF ROLESVILLE, THE VEGETATION IN THE AREA THAT EXTENDS AT LEAST 55 (55') FEET FROM THE PROPERTY LINE ABUTTING PINS 1850604353, 1850605343, 1850606333, 1850607323, AND 1850608313 EXISTING AT THE TIME OF SITE DEVELOPMENT PLAN APPLICATION SUBMISSION SHALL NOT BE DISTURBED AND SHALL BE INCLUDED IN THE BUFFER OTHERWISE REQUIRED BY THE LDO (THE "UNDISTURBED VEGETATION AREA") . THIS SHALL EXCLUDE MINOR ENCROACHMENTS FOR SITE DESIGN FEATURES, SUCH AS DRAINAGE AREAS OR PIPES AND UTILITY EASEMENTS.
3. ALL EXTERIOR LIGHT FIXTURES SHALL BE FULL CUTOFF FIXTURES, EXCEEDING THE MINIMUM STANDARD OF "CUTOFF FIXTURES" AS REQUIRED BY LDO § 6.6.G.2.
4. IF THE EXISTING VEGETATION IS REMOVED IN THE BUFFER AREA OTHERWISE REQUIRED BY THE LDO ON THE PROPERTY LINE ABUTTING PIN 1850700632 AND EXTENDING FROM THE UNDISTURBED VEGETATION AREA TO THE RIGHT-OF-WAY ON JONES DAIRY ROAD, THE FOLLOWING ADDITIONAL VEGETATION SHALL BE PROVIDED IN THE REQUIRED BUFFER OR WITHIN 5 (5') FEET OF ANY PERIMETER EASEMENT THAT WOULD PREVENT SUCH PLANTINGS: FAST-GROWING DENSE EVERGREEN TREES 15-FT ON CENTER. THE EVERGREEN TREES SHALL HAVE A MINIMUM MATURE HEIGHT OF 30-FT AND A SPREAD OF 12-FT. INSTALL HEIGHT SHALL BE 4-FT MINIMUM.
5. AT LEAST SEVENTY-FIVE PERCENT (75%) OF ANY REQUIRED PLANTS IN THE STORMWATER CONTROL MEASURE POND, EXCLUDING GRASSES, SHALL BE POLLINATOR PLANTS SUCH AS NATIVE MILKWEEDS AND OTHER NECTAR-RICH FLOWERS.
6. GATES TO ACCESS AREAS WITH EXTERIOR-ACCESS STORAGE UNITS SHALL BE LOCKED BETWEEN 10PM AND 6AM.
7. ON EXTERIOR FAÇADES FACING A PUBLIC RIGHT-OF-WAY OR EXTERIOR FAÇADES FACING PINS 1850700632, 1850604353, 1850605343, 1850606333, 1850607323, AND 1850608313:
   - 7.1. THE FOLLOWING MATERIALS ARE PROHIBITED: CINDERBLOCK, CONCRETE, METAL SIDING, AND VINYL SIDING; AND
   - 7.2. BRICK, EIFS BRICK, STONE, OR CONCRETE MASONRY COMPONENTS SHALL BE A MINIMUM OF 10%.

APPROVED TA-22-02:

1. 5.1.6.D.5.b. - 'INDUSTRIAL, LIGHT' PRINCIPAL USE - SELF-SERVICE STORAGE SHALL BE CONTAINED WITHIN A FULLY ENCLOSED BUILDING AND CONTAINED IN A SINGLE BUILDING, ACCESS INTERNALLY, EXCEPT IN THE GENERAL INDUSTRIAL DISTRICT NOT LOCATED ON N MAIN ST OR S MAIN ST.
2. 5.1.6.I.4. - 'WAREHOUSING' PRINCIPAL USE - EXAMPLES. INCLUDES WAREHOUSES AND MINI-WAREHOUSES.

APPROVED ALTERNATE PARKING PLAN CONDITIONS:

1. 1 PARKING SPACE PER 100 SELF-STORAGE UNITS.
2. PARKING PERMITTED BETWEEN A PROPOSED BUILDING AND THE STREET FRONTAGE.

ATTENTION CONTRACTORS

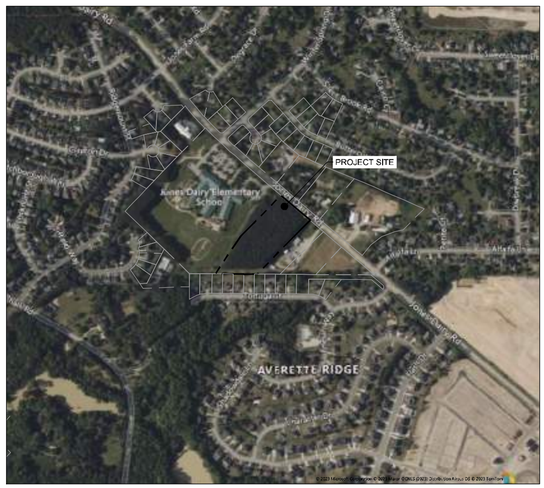
The *Construction Contractor* responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for *contacting* the *Public Utilities Department* at *(919) 996-4540* at least *twenty four hours* prior to beginning any of their construction.

Failure to notify both *City Departments* in advance of beginning construction, will result in the issuance of *monetary fines*, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for *Inspection, Install a Downstream Plug*, have *Permitted Plans* on the *Jobsite*, or any other *Violation* of *City of Raleigh Standards* will result in a *Fine and Possible Exclusion* from future work in the *City of Raleigh*.

SITE DATA TABLE

PROJECT NAME:	JONES DAIRY STORAGE FACILITY
SITE PLAN NUMBER	SDP-23-03
PROPERTY OWNER/ DEVELOPER:	ROLESVILLE (LOCKBOX) LLC 8816 SIX FORKS ROAD, SUITE 201 RALEIGH, NC 27615
REAL ESTATE ID:	0162697
PIN:	1850608722
DEED ACRES:	5.50 ACRES
PROPERTY ADDRESS:	1200 JONES DAIRY RD, ROLESVILLE NC 27587
PROPERTY ZONING:	GI-CZ
CURRENT USE:	VACANT
PROPOSED USE:	SELF STORAGE (COMMERCIAL)
DISTURBED AREA:	5.77 ACRES
CURRENT IMPERVIOUS:	0 ACRES
PROPOSED IMPERVIOUS:	2.92 ACRES
TREE SAVE SUMMARY:	
REQUIRED TREE PRESERVATION:	10% SAVE = 0.10*4.76 (TREE AREA ON-SITE) = 0.476 ACRES
PROVIDED TREE PRESERVATION:	0.607 ACRES = 13%
PARKING SUMMARY:	
REQUIRED VEHICULAR SPACES:	1 SPACE PER 100 STORAGE UNITS = 540/100 = 6 SPACES
PROVIDED VEHICULAR SPACES:	7 SPACES
ADA PARKING SUMMARY:	
REQUIRED VEHICULAR SPACES:	1 SPACE
PROVIDED VEHICULAR SPACES:	1 SPACE
BUILDING HEIGHT:	MAXIMUM BUILDING HEIGHT: WITHOUT SPRINKLERS: 35-FT WITH SPRINKLERS: 60-FT PROVIDED BUILDING HEIGHTS: 16 FT
BUILDING SQUARE FOOTAGE(S):	CLIMATE CONTROLLED BUILDING: 62,610 SQFT STORAGE BUILDING(S): 1800 SQFT (2), 3600 SQFT (2), 6600 SQFT
NUMBER OF STORAGE UNITS:	TOTAL NUMBER OF UNITS: 540 BUILDING 'A' 5X5: 61 UNITS 5X10: 82 UNITS 10X7.5: 28 UNITS 10X10: 137 UNITS 10X15: 53 UNITS 10X20: 53 UNITS 10X25: 16 UNITS 10X30: 16 UNITS BUILDING 'B' 10X20: 18 UNITS BUILDING 'C' 10X20: 18 UNITS BUILDING 'D' 10X30: 22 UNITS BUILDING 'E' 10X10: 18 UNITS BUILDING 'F' 10X10: 18 UNITS
BUILDING/STRUCTURE SETBACKS:	
FRONT:	30-FT
SIDE:	15-FT
REAR:	35-FT
LANDSCAPE BUFFERS:	
ADJACENT PROPERTY:	50' TYPE "4" BUFFER (SOUTH & WEST OF PARCEL)
ADJACENT PROPERTY:	SEE CONDITION 4 (EAST OF PARCEL)
WATERSHED:	NEUSE RIVER
RIVER BASIN:	SANFORD CREEK (NEUSE)
SURFACE WATER CLASSIFICATION:	NONE



NAD 83

VICINITY MAP
SCALE 1"=500'

Sheet List Table

Sheet Number	Sheet Title
C0.0	COVER
C0.1	OVERALL SITE PLAN & KEY MAP
C1.0	EXISTING CONDITIONS & DEMOLITION PLAN
C2.0	SITE PLAN
~~C2.1~~	~~VEHICULAR ROUTING PLAN~~
C3.0	GRADING & DRAINAGE PLAN
~~C3.1~~	~~SPOT ELEVATION PLAN~~
~~C3.2~~	~~STORM SEWER PROFILES~~
~~C3.3~~	~~STORM SEWER PROFILES~~
~~C3.4~~	~~SCM PLAN & PROFILE~~
~~C3.5~~	~~SCM NOTES & DETAILS~~
C4.0	SITE UTILITY PLAN
C4.1	OFF-SITE UTILITY PLAN
C4.2	OFF-SITE UTILITY PLAN & PROFILE
C4.3	OFF-SITE DETOUR PLAN
~~C4.4~~	~~FIRE HOSE LAY PLAN~~
C5.0	EROSION & SEDIMENATION CONTROL PLAN - PH I
C5.1	EROSION & SEDIMENATION CONTROL PLAN - PH II
C6.0	SITE DETAILS
C6.1	SITE DETAILS
C6.2	SITE DETAILS
C6.3	SITE DETAILS
C6.4	SITE DETAILS
C6.5	SITE DETAILS
C6.6	SITE DETAILS
C6.7	SITE DETAILS
~~C6.8~~	~~SITE DETAILS~~
~~C6.9~~	~~NCG01 GROUND STABILIZATION AND MATERIALS~~ HANDLING
~~C6.10~~	~~NCG01 SELF INSPECTION, RECORDKEEPING, AND~~ REPORTING

Sheet List Table

Sheet Number	Sheet Title
C7.0	ROAD WIDENING PLAN - DEMO, SITE AND SIGNAGE & STRIPING PLANS
C7.1	ROAD WIDENING PLAN - GRADING, DRAINAGE & EROSION CONTROL PLAN
C7.2	JONES DAIRY ROAD - CROSS SECTIONS STA. 10+00 - 10+50
C7.3	JONES DAIRY ROAD - CROSS SECTIONS STA. 11+00 - 11+50
C7.4	JONES DAIRY ROAD - CROSS SECTIONS STA. 12+00 - 12+50
C7.5	JONES DAIRY ROAD - CROSS SECTIONS STA. 13+00 - 13+50
C7.6	JONES DAIRY ROAD - CROSS SECTIONS STA. 14+00 - 14+50
C7.7	JONES DAIRY ROAD - CROSS SECTIONS STA. 15+00 - 15+50
C7.8	JONES DAIRY ROAD - CROSS SECTIONS STA. 16+00 - 16+50
C7.9	JONES DAIRY ROAD DRIVEWAY STEM PROFILE
~~L1.0~~	~~LANDSCAPE PLAN~~
~~L1.1~~	~~TREE PRESERVATION PLAN~~
~~L2.0~~	~~LANDSCAPE NOTES AND DETAILS~~
~~PS1.0~~	~~PUMP STATION SITE AND FORCEMAIN~~
~~PS1.1~~	~~PUMP STATION NOTES AND DETAILS~~
~~W1.0~~	~~HYDRAULIC ANALYSIS LAYOUT AND RESULTS~~
~~A-101~~	~~FLOOR PLAN~~
~~A-200~~	~~BUILDING ELEVATIONS - BUILDING A AND B~~
~~A201~~	~~BUILDING ELEVATIONS - BUILDING C AND D~~
~~A202~~	~~BUILDING ELEVATIONS - BUILDING E AND F~~
~~E-010~~	~~SITE PHOTOMETRICS~~

PROJECT TEAM

LAND OWNER
CONTACT: ROLESVILLE (LOCKBOX) LLC
8816 SIX FORKS ROAD, SUITE 201
RALEIGH NC, 27615

DEVELOPER
RIVERCREST REALTY INVESTORS
CONTACT: BRIAN HOLDER
PHONE: (919) 846-4046
8816 SIX FORKS ROAD , SUITE 201
RALEIGH, NC 27615

CIVIL ENGINEER
TIMMONS GROUP
CONTACT: GARRETT FRANK, PE, PLA
PHONE: (919) 866-4503
5410 TRINITY ROAD, SUITE 102
RALEIGH, NC 27607

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.
City of Raleigh
Public Utilities Department Permit # S-5375
Authorization to Construct ____
Date ____

EROSION CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT
APPROVED
EROSION CONTROL ☐ S-____
STORMWATER MGMT. ☐ S-____
FLOOD STUDY ☐ S-____
DATE ____

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

ELECTRONIC APPROVAL: THIS APPROVAL IS BEING ISSUED ELECTRONICALLY. THIS APPROVAL IS VALID ONLY UPON THE SIGNATURE OF A CITY OF RALEIGH REVIEW OFFICER BELOW. THE CITY WILL RETAIN A COPY OF THE APPROVED PLANS. ANY WORK AUTHORIZED BY THIS APPROVAL MUST PROCEED IN ACCORDANCE WITH THE PLANS KEPT ON FILE WITH THE CITY. THIS ELECTRONIC APPROVAL MAY NOT BE EDITED ONCE ISSUED. ANY MODIFICATION TO THIS APPROVAL ONCE ISSUED WILL INVALIDATE THIS APPROVAL.

CITY OF RALEIGH DEVELOPMENT APPROVAL ____
RALEIGH WATER REVIEW OFFICER

NORTH CAROLINA PROFESSIONAL SEAL 035780 ENGINEER GARRETT W. FRANK

THIS DRAWING PREPARED AT THE RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE: 04/05/2023
DRAWN BY: L. BARNES
DESIGNED BY: G. FRANK
CHECKED BY: G. FRANK
SCALE: AS SHOWN

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
COVER

JOB NO. 54832
SHEET NO. C0.0

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

OVERALL SITE PLAN & KEY MAP

JOB NO. 54832

SHEET NO. C0.1

DATE 04/05/2023

DRAWN BY L. BARNES

DESIGNED BY G. FRANK

CHECKED BY G. FRANK

SCALE AS SHOWN

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035780 DARRELL W. FRANK

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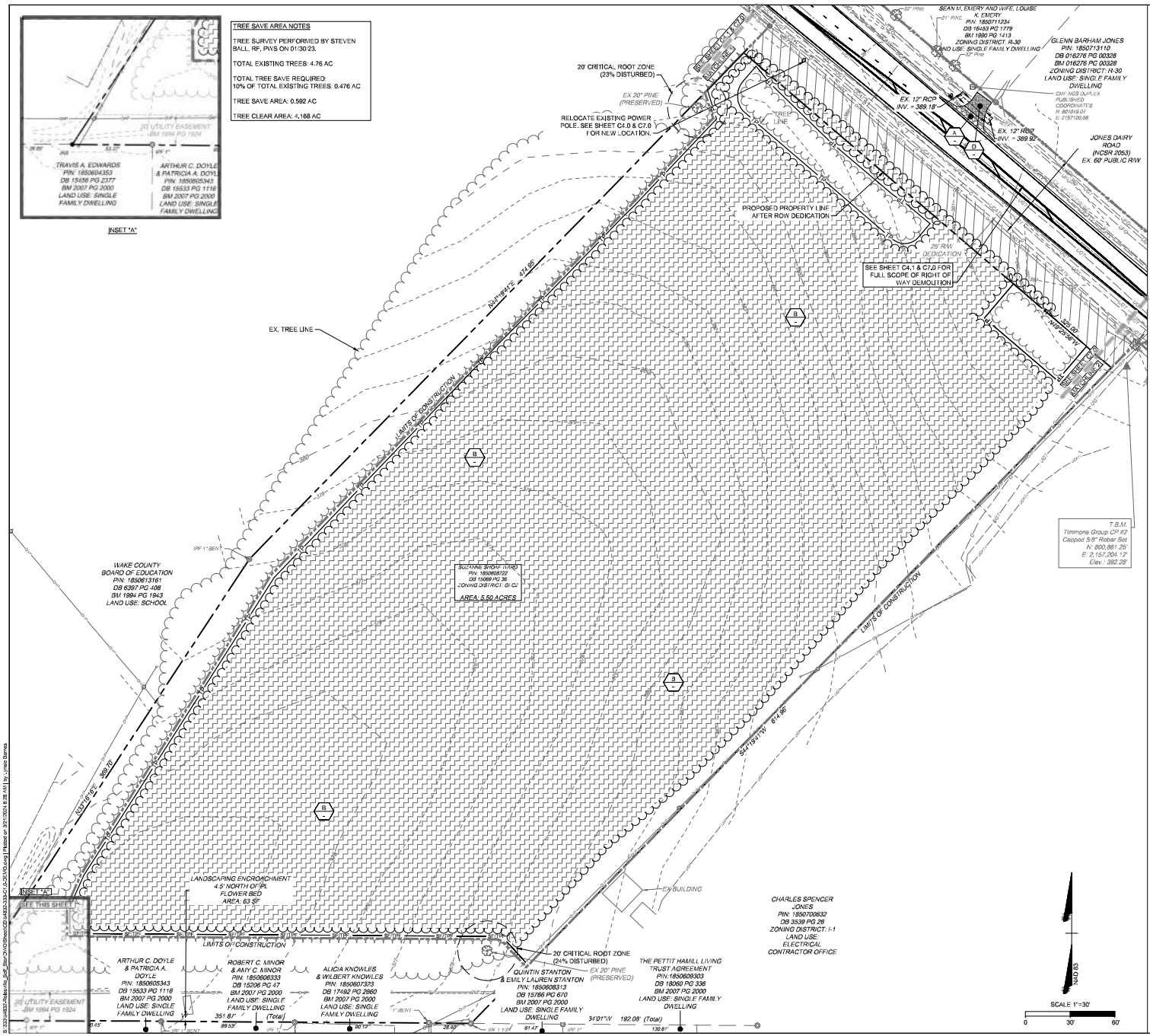

DEMOLITION NOTES

1. ALL UTILITIES OR STRUCTURES NOT INDICATED FOR REMOVAL OR MODIFICATION ARE TO REMAIN AND BE PROTECTED FROM DAMAGE.
2. ALL WASTE MATERIAL GENERATED FROM CLEARING AND DEMOLITION ACTIVITIES SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH WITH ALL APPLICABLE RULES AND REGULATIONS. CONTRACTOR SHALL SALVAGE ALL SIGNAGE, METERS, ETC. TO OWNER. COORDINATE WITH OWNER PRIOR TO DEMOLITION.
3. CLEAR AND GRUB AS NEEDED WITHIN CONSTRUCTION LIMITS PER SPECIFICATIONS AND DRAWINGS. EXISTING TREES, SHRUBS OR OTHER LANDSCAPE MATERIAL WHICH WILL CONFLICT WITH NEW CONSTRUCTION SHALL BE REMOVED (WHETHER OR NOT SHOWN ON THE DRAWINGS) FOLLOWING APPROVAL OF ENGINEER. BY SUBMITTING A BID, CONTRACTOR ACKNOWLEDGES THAT THE SITE HAS BEEN INVESTIGATED TO DETERMINE TYPE, SIZE AND QUANTITY OF CLEARING REQUIRED FOR CONSTRUCTION.
4. ALL PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAW CUT TO PROVIDE A STRAIGHT AND UNIFORM JOINT WITH NEW CONSTRUCTION. ANY EXISTING PAVEMENT, SIDEWALK, CURB & GUTTER, ETC. THAT MUST BE REMOVED TO ALLOW NEW CONSTRUCTION SHALL BE REMOVED AND REPAIRED PER THE SPECIFICATIONS AND DETAILS OR TO MATCH EXISTING CONDITIONS (WHETHER OR NOT SHOWN ON THE DRAWINGS TO BE REMOVED). UTILITY INSTALLATIONS MAY UTILIZE OPEN CUT OF PAVEMENTS UNLESS INDICATED OTHERWISE. TRENCH IN EXISTING ASPHALT SHALL BE PATCHED PER PAVEMENT REPAIR DETAIL.
5. PROTECT ALL ADJACENT PROPERTIES, THE GENERAL PUBLIC AND ALL OF THE OWNER'S FACILITIES. SHOULD DAMAGES OCCUR, NOTIFY ENGINEER IMMEDIATELY.
6. THE CONTRACTOR SHALL EMPLOY A QUALIFIED UTILITY LOCATOR SERVICE TO LOCATE ALL UNDERGROUND UTILITIES (INCLUDING BUT NOT LIMITED TO ELECTRICAL, TELEPHONE, GAS, CABLE, FIBER OPTIC) WITHIN THE LIMITS OF CONSTRUCTION.
7. VERIFY ALL ILLUSTRATED KNOWN UNDERGROUND ELEMENTS, EXERCISE REASONABLE EFFORTS TO PROTECT ANY UNKNOWN UNDERGROUND ELEMENTS. NOTIFY THE ENGINEER IMMEDIATELY IF UNKNOWN ELEMENTS ARE DISCOVERED THAT WOULD NECESSITATE MODIFICATION TO THE PROPOSED DESIGN.
8. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND OSHA REGULATIONS.
9. EXISTING MANHOLES, VALVE BOXES, VAULTS, CLEANOUTS, UTILITY POLES ETC. TO REMAIN WITHIN THE GRADING LIMITS SHALL BE ADJUSTED AS NEEDED TO FUNCTION PROPERTY WITH THE PROPOSED FINISHED GRADES (WETHER OR NOT INDICATED TO BE MODIFIED).
10. ANY AND ALL LANDSCAPING AND EXISTING TREES & SHRUBS TO REMAIN WHICH ARE DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR UTILIZING A LICENSED LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
11. PROTECT EXISTING SITE FURNISHINGS AND PLAYGROUNDS DURING CONSTRUCTION. REPLACE AT NO COST TO THE OWNER IF DAMAGED.
12. A TREE SURVEY PER ROLESVILLE LDO SECTION 6 WAS PERFORMED BY STEVEN BALL, RF AT SOIL & ENVIRONMENTAL CONSULTANTS, PA.
13. ALL TREE PROTECTION FENCING MUST REMAIN IN PLACE THROUGHOUT THE ENTIRE SITE DEVELOPMENT PROCESS UNTIL THE TIME A CERTIFICATE OF OCCUPANCY IS ISSUED

DEMOLITION KEY NOTES

A	REMOVE ASPHALT PAVEMENT AND STONE BASE
B	REMOVE TREE CLEARING
C	50-FT MILL TAPER FROM 0" - 1.5" (SEE C7.0)
D	SAW CUT AND REMOVE CONCRETE AT NEAREST JOINT.
E	REMOVE AND REPLACE EXISTING CULVERT
F	RELOCATE EXISTING MAIL BOX
G	REMOVE EXISTING GRAVEL
H	REMOVE EXISTING HEADWALL
I	REMOVE SANITARY SEWER PIPES
J	REMOVE SANITARY SEWER STRUCTURE
K	MILL AND REMOVE 1.5" OF ASPHALT

EXISTING CONDITIONS LEGEND

EX. CONSTRUCTION LIMITS	
EX. STORM PIPE	
EX. FENCE	X
EX. GAS LINE	G
EX. POWER LINE	UGP
EX. TELEPHONE LINE	UGT
EX. WATER LINE	W
EX. SANITARY SEWER FORCE MAIN	FM
EX. SANITARY SEWER LINE	SAN
EX. CABLE TV LINE	UCATV
EX. FIBER OPTIC LINE	UFO
EX. TREE LINE	
LIGHT POLE	
SITE BOLLARD	
UTILITY POLE	
SANITARY SEWER MANHOLE	S
STORM SEWER MANHOLE	D
CLEANOUT (SANITARY OR STORM)	
DROP INLET	
FIRE HYDRANT	
WATER VALVE	
TELECOM BOX	
GROUND MOUNTED SIGN	

TREE DISTURBANCE LEGEND

PN PINE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035700 GARRETT W. FRANK

THIS DRAWING PREPARED AT THE FOLLOWING ADDRESS
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TEL 919.466.9951 FAX 919.833.4124 www.timmons.com

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DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

EXISTING CONDITIONS & DEMOLITION PLAN

JOB NO. 54832
SHEET NO. C1.0

TRAFFIC CONTROL NOTES

1. ALL SITE SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARDS.
2. PAVEMENT MARKINGS WITHIN RIGHT-OF-WAY SHALL BE THERMOPLASTIC. PAVEMENT MARKINGS ON SITE SHALL BE 2-COATS ALKYD RESIN PAINT.
3. ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH NCDOT STANDARDS AND THE PROJECT SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.
4. ALL SIGNAGE SHALL HAVE HIGH INTENSITY PRISMATIC SHEETING.
5. SIGNS SHALL BE FABRICATED FROM ALUMINUM ALLOY SHEETS.
6. ALL MOUNTING HARDWARE SHALL BE GALVANIZED.
7. "VAPS" ON PLANS DENOTES VAN ACCESSIBLE PARKING SIGN. INSTALL R7-8A, R7-8D, & R7-8P.
8. "APS" ON PLANS DENOTES ACCESSIBLE PARKING SIGN. INSTALL R7-8A & R7-8D ONLY.

STRIPING KEY NOTES

		NCDOT STD.	WIDTH	COLOR
11 C6.0	HIGH VISIBILITY CROSSWALK MARKINGS	-	-	WHITE
1 C6.2	PARKING STALL AND TRAFFIC STRIPE	1205.07 (STD)	4-IN	WHITE
7 C6.2	ACCESSIBLE PARKING LAYOUT	-	-	WHITE
9 C6.2	TRAFFIC ARROWS	1205.08	-	WHITE
10 C6.2	FIRE LANE MARKING	1205.01	4-IN	YELLOW
E -	STOP BAR	1205.01	24-IN	WHITE

SIGNAGE KEY NOTES

		MUTCD
2 C6.2	STOP SIGN	R1-1 (PER PLAN & DETAIL)
3 C6.2	VAN ACCESSIBLE PARKING SIGN	R7-8P, R7-8A, R7-8D (PER PLAN & DETAIL)
M -	GROUND SIGN (REQUIRES SEPARATE PERMIT)	-

SITE LAYOUT NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE ROLESVILLE, WAKE COUNTY, NCDOT AND OSHA STANDARDS AND SPECIFICATIONS.
2. ALL DIMENSIONS ARE TO FACE OF CURB, EDGE OF PAVEMENT, BUILDING WALL FACE OR PROPERTY LINE, UNLESS OTHERWISE NOTED.
3. ALL RADII ARE DIMENSIONED FROM BACK OF CURB. IF NOT STATED, RADII DIMENSION IS 5'.
4. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, UTILITIES AND GRADES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING ANY RELATED CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL WASTE MATERIALS GENERATED DURING CONSTRUCTION AND FOR OBTAINING ALL APPLICABLE PERMITS FOR OFF-SITE STOCKPILES AND/OR WASTE AREAS.
6. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES DURING CONSTRUCTION AND SHALL MAKE REPAIRS AT NO EXPENSE TO THE OWNER.
7. AT LEAST 72 HOURS PRIOR TO CONSTRUCTION OR EXCAVATION THE CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (811) OR (1-800-632-4949) TO HAVE EXISTING UTILITIES LOCATED. ALL PRIVATE UTILITIES SHALL BE LOCATED AS NEEDED BY A PRIVATE UTILITY LOCATE COMPANY EMPLOYED BY THE CONTRACTOR.
8. ALL CURB AND GUTTER OFFSITE SHALL BE 30" WIDE UNLESS NOTED OTHERWISE.
9. ALL DISTURBED CURB & GUTTER AND ASPHALT SHALL BE REPLACED PER PROJECT DETAILS AND NCDOT STANDARDS AND SPECIFICATIONS.
10. RAISE ALL STRUCTURES AT NO ADDITIONAL COST TO THE OWNER SO THAT THE TOP OF THE STRUCTURE EQUALS THE FINISH GRADE OF THE NEW ASPHALT.
11. COORDINATE THE PROJECT SCHEDULE WITH THE CIVIL ENGINEER AND OWNER. ANY UTILITY INTERRUPTIONS SHALL BE COORDINATED WITH THE OWNER AT LEAST 72 HOURS PRIOR TO THE INTERRUPTION.
12. PROVIDE A SMOOTH TRANSITION BETWEEN NEW ASPHALT AND EXISTING ASPHALT SURFACES.
13. ALL SIDEWALKS ARE TO HAVE NO MORE THAN A 1:20 (5.0%) SLOPE FOR THE LENGTH OF THE SIDEWALK AND NO MORE THAN A 1:50 (2.0%) SLOPE FOR THE WIDTH OF THE SIDEWALK. NOTIFY ENGINEER IF THIS CANNOT BE ACHIEVED.

KEY NOTES

- C6.0	ACCESSIBLE CURB RAMP
2 C6.0	STANDARD DUTY CONCRETE PAVEMENT
3 C6.0	HEAVY DUTY CONCRETE PAVEMENT
4 C6.0	STANDARD DUTY ASPHALT PAVEMENT
5 C6.0	LIGHT DUTY ASPHALT PAVEMENT
6 C6.0	NCDOT ASPHALT (FULL DEPTH)
7 C6.0	NCDOT OVERLAY
8 C6.0	ASPHALT MULTI-USE PATH
9 C6.0	NCDOT 30" CONCRETE CURB & GUTTER
10 C6.0	CURB ENDING TAPER
1 C6.1	ORNAMENTAL FENCE
2 C6.1	ORNAMENTAL FENCE PRIVACY SLATS
3 C6.1	ORNAMENTAL GATES WITH ADJACENT KNOX BOX (SEE PLAN FOR GATE WIDTH)
1 C6.2	MODULAR RETAINING WALL
5 C6.2	BOLLARD TYP.
6 C6.2	24" CONCRETE CURB & GUTTER
A -	RELOCATED MAILBOX
B -	RELOCATE OR PROVIDE TURN DOWN GUY WIRE BAR
C -	10-FT X 70-FT SIGHT TRIANGLE
D -	1.5" MILL & LAP JOINT (1.5" S-9.5B)

CTP COMPLIANCE DIAGRAM
(SECTION F OF NCDOT MOBILITY + 10' SIDE PATH)

SCALE 1"=30'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652
YOUR VISION ACHIEVED THROUGH OURS.

THIS DRAWING PREPARED AT THE FOLLOWING ADDRESS
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

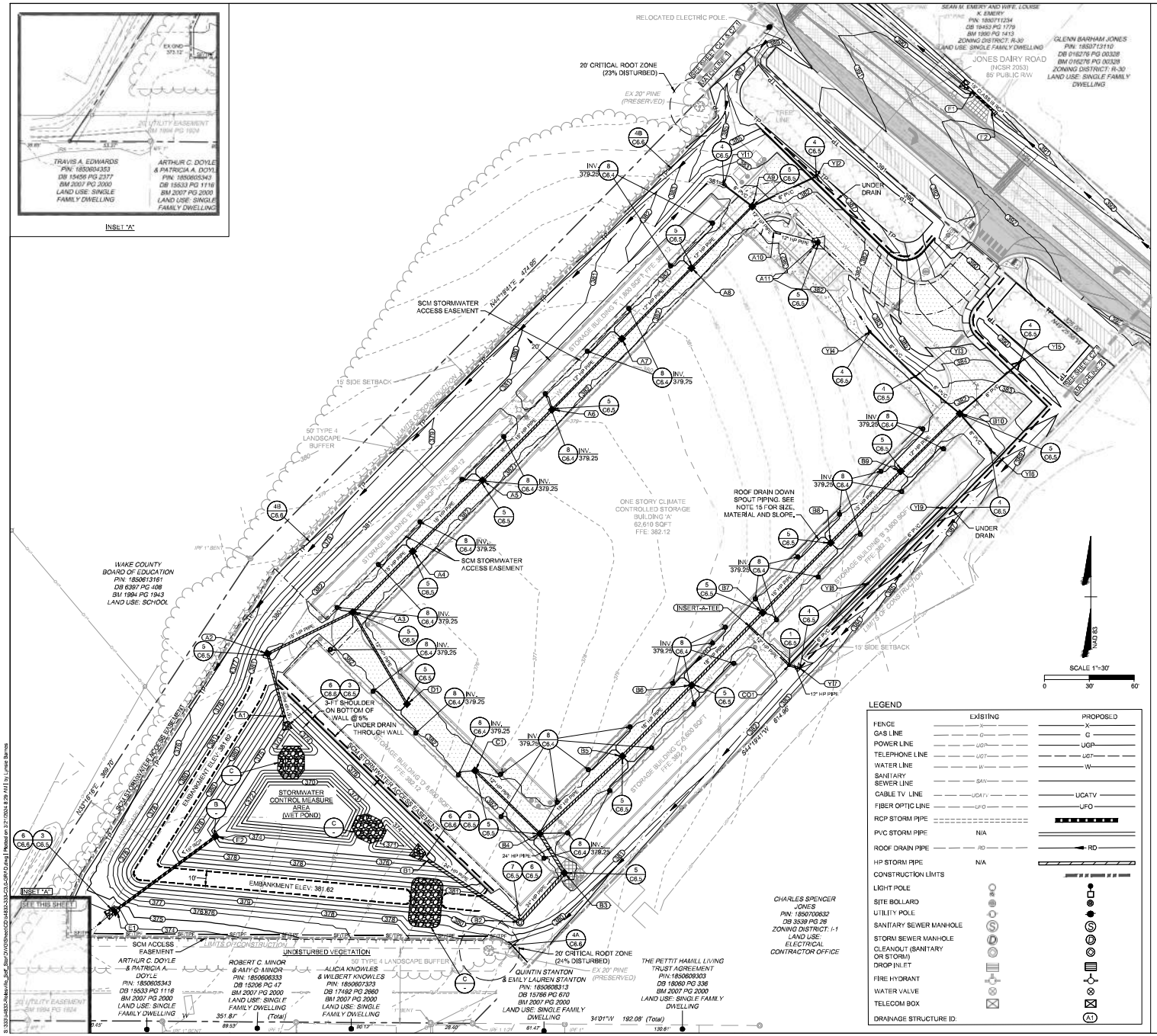
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035780 GARRETT W. FRANK

DATE	REVISION DESCRIPTION
06.01.2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08.01.2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11.01.2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

JONES DAIRY STORAGE FACILITY
NORTH CAROLINA LICENSE NO. C-1652
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
SITE PLAN

JOB NO. 54832
SHEET NO. C2.0



GRADING & DRAINAGE NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE ROLESVILLE, WAKE COUNTY, NCDOT AND OSHA STANDARDS AND SPECIFICATIONS.
2. COORDINATE THE PROJECT SCHEDULE WITH THE OWNER, AND ADJACENT USERS OF THE PROPERTY. MAINTAIN TRAFFIC FLOW AND DO NOT INTERRUPT UTILITIES AROUND THE SITE. DO NO DISTURB OPERATIONS OF ADJACENT SITES AND FACILITIES AND/OR THEIR OWNER'S ONGOING OPERATIONS.
3. ALL EXISTING VAULTS, MANHOLES, STORM DRAIN STRUCTURES, VALVE BOXES, CLEANOUTS, ETC. SHALL BE ADJUSTED AS NEEDED TO MATCH FINISHED GRADE.
4. ALL BACKFILL, COMPACTION, SOILS TESTING, ETC. SHALL BE PERFORMED BY THE OWNER'S INDEPENDENT TESTING LABORATORY.
5. ALL SPOT ELEVATIONS INDICATED ARE AT TOP OF CURB UNLESS NOTED OTHERWISE.
6. SPOT GRADE ABBREVIATIONS:
   - 6.1. TC: TOP OF CURB
   - 6.2. EP: EDGE OF PAVEMENT
   - 6.3. HP: HIGH POINT
   - 6.4. SWK: SIDEWALK
   - 6.5. FFE: FINISHED FLOOR ELEVATION
   - 6.6. TW: TOP OF WALL
   - 6.7. BW: BOTTOM OF WALL
   - 6.8. FL: FLOW LINE
   - 6.9. GND: GROUND
   - 6.10. EX GND: EXISTING GROUND
7. SPOT ELEVATIONS ARE GIVEN AT THE MAJORITY OF THE MAJOR BREAK POINTS BUT IT SHOULD NOT BE ASSUMED THAT ALL NECESSARY SPOT ELEVATIONS ARE SHOWN. DUE TO SPACE LIMITATIONS, THERE MAY BE OTHER CRITICAL SPOTS NOT LABELED THAT SHOULD BE TAKEN INTO CONSIDERATION. THE CONTRACTOR SHALL REVIEW THE GRADING PLAN IN DETAIL AND SHALL ENSURE THAT ALL CRITICAL GRADE POINTS ARE STAKED AND FOLLOWED TO PROVIDE POSITIVE DRAINAGE.
8. ALL ELEVATIONS ARE BASED ON NC GRID NORTH (NAD 83 2011).
9. THE CONTRACTOR SHALL USE NC ONE CALL (811) TO LOCATE ALL UNDERGROUND UTILITIES. PRIVATE UTILITIES SHALL BE LOCATED BY A PRIVATE LOCATE SERVICE AT THE EXPENSE OF THE CONTRACTOR.
10. INSTALL ALL STORM SEWERS TO PROVIDE REQUIRED CLEARANCES TO CROSSING UTILITIES AS INDICATED IN THE DRAWINGS AND SPECIFICATIONS.
11. PROVIDE HALF-BENCH CONCRETE INLET SHAPING FOR ALL CONCRETE STORM SEWER STRUCTURES.
12. ALL ROOF DRAINS FROM BUIDLING 'A' SHALL BE 8" PVC (SCH 40) @ 1.04% MIN. SLOPE UNLESS INDICATED OTHERWISE. ALL ROOF DRAINS FROM BUIDLING 'B', 'C', AND 'D', SHALL BE 6" PVC (SCH 40) @ 1.04% MIN. SLOPE UNLESS INDICATED OTHERWISE. USE DUCTILE IRON WHEN COVER IS LESS THAN 24-IN, MATCH PIPE CROWNS WITH CONNECTION TO DROP INLET.
13. PVC ROOF DRAIN PIPING UNDER PAVEMENT SHALL HAVE 24-IN MINIMUM COVER. IF ROOF DRAIN PIPING UNDER PAVEMENT HAS LESS THAN 24-IN COVER, ROOF DRAIN PIPING SHALL BE 8" DIP (IN LIEU OF PVC).
14. JOINT FILL AND CAULK EACH CONCRETE EXPANSION JOINT AND WHERE CONCRETE PAVEMENT ABUTS OTHER PAVEMENTS, SIDEWALKS, OR HARD SURFACES.
15. MAINTAIN ALL EROSION CONTROL DEVICES AFTER EACH RAINFALL EVENT IN ACCORDANCE WITH NCDEQ LAND QUALITY REQUIREMENTS AND AS DIRECTED BY THE NCDEQ AND CIVIL ENGINEER.
16. FLUSH ALL SEDIMENT OUT OF STORM DRAINAGE PIPES AND STRUCTURES FOLLOWING SITE STABILIZATION AND AT THE END OF CONSTRUCTION. FLUSH OUT PIPES AS NEEDED THROUGHOUT CONSTRUCTION TO MAINTAIN PROPER FUNCTIONING OF THE DRAINAGE SYSTEM.
17. IN DISTURBED AREAS, AMEND THE TOP 6 INCHES OF LAWN AREAS WITH TOPSOIL FROM THE SITE
18. ALL SIDEWALKS ARE TO HAVE NO MORE THAN A 1:20 (5.0%) SLOPE FOR THE LENGTH OF THE SIDEWALK AND NO MORE THAN A 1:50 (2.0%) SLOPE FOR THE WIDTH OF THE SIDEWALK.
19. IF CONTRACTOR NOTICES ANY DISCREPANCIES IN ANY OF THESE SLOPE REQUIREMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNER & ENGINEER PRIOR TO POURING ANY CONCRETE.
20. PRIOR TO FINAL PROJECT ACCEPTANCE, PROVIDE AN AS-BUILT SURVEY OF ALL UTILITY SYSTEMS AND STORM SEWERS.
21. ANY AND ALL LANDSCAPING AND EXISTING TREES & SHRUBS TO REMAIN WHICH ARE DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR USING A LICENSED LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

KEY NOTES

6 C6.4	DOWNSPOUT BOOT CONNECTOR
1 C6.5	STORM SEWER CLEANOUT
2 C6.5	STORM DRAINAGE TRENCHES
3 C6.5	FLARED END SECTION
4 C6.5	YARD INLET
5 C6.5	CONCRETE DROP INLET
6 C6.5	STORM SEWER MANHOLE
7 C6.5	STORM SEWER MANHOLE COVER
SF C6.6	SILT FENCE (COMBINATION FENCE; SEE TREE FENCE DETAIL; SEE EROSION CONTROL PLAN)
4B C6.6	TREE PROTECTION FENCE (SEE EROSION CONTROL PLAN)
6 C6.6	RIP RAP OUTLET PROTECTION (SEE EROSION CONTROL PLAN)
A	PROVIDE SMOOTH PAVING TRANSITION
B	CONCRETE RISER STRUCTURE (SEE SHEET C3.3)
C	CLASS B RIP RAP, SEE SCM DETAIL SHEETS.

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

GRADING & DRAINAGE PLAN

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035780 GARNETT W. FRANK

THIS DRAWING PREPARED AT THE FOLLOWING ADDRESS
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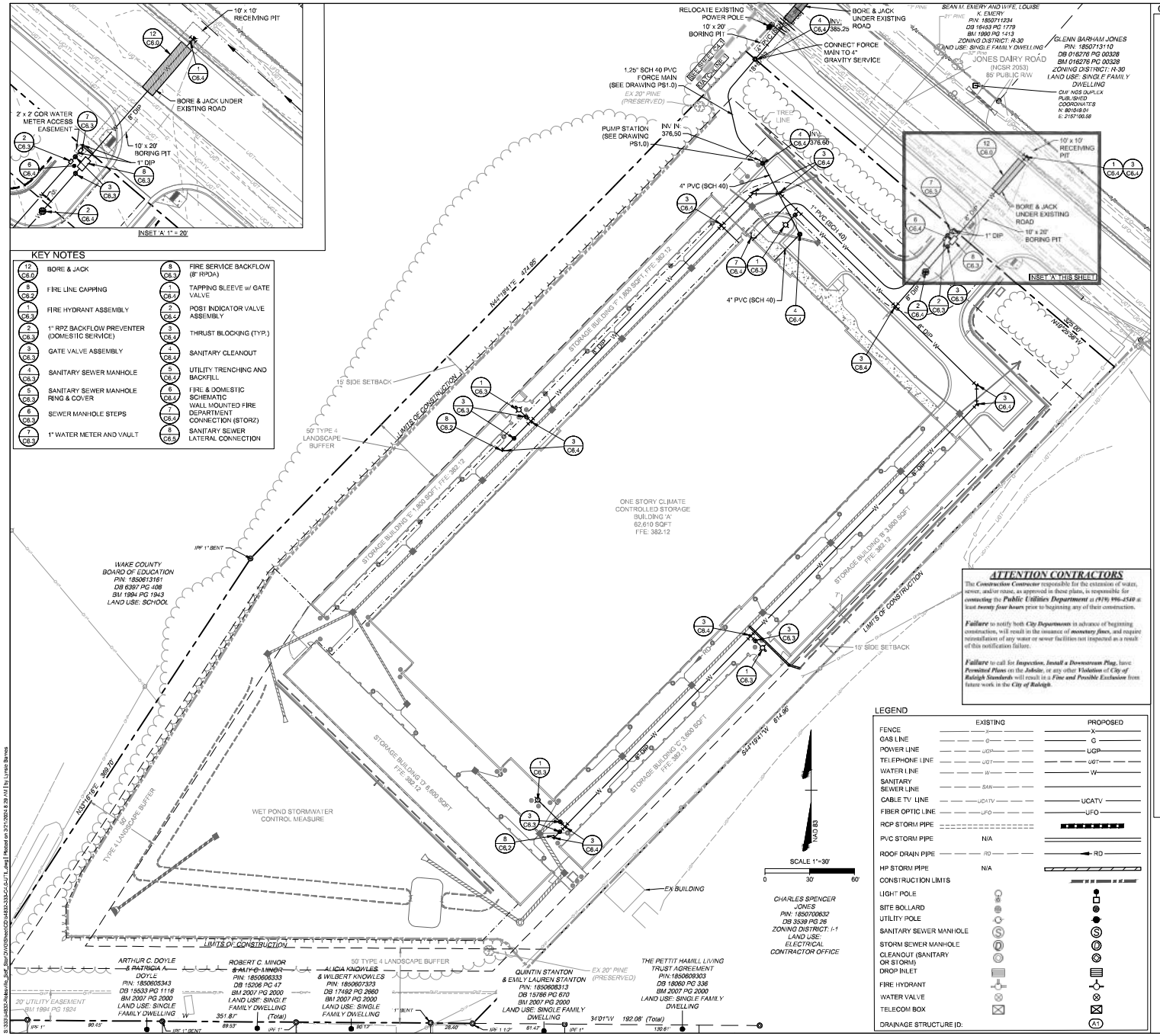

KEY NOTES

12 C6.0	BORE & JACK	9 C6.3	FIRE SERVICE BACKFLOW (8" RPDA)
9 C6.2	FIRE LINE CAPPING	1 C6.4	TAPPING SLEEVE w/ GATE VALVE
1 C6.3	FIRE HYDRANT ASSEMBLY	2 C6.4	POST INDICATOR VALVE ASSEMBLY
2 C6.3	1" RPZ BACKFLOW PREVENTER (DOMESTIC SERVICE)	3 C6.4	THRUST BLOCKING (TYP.)
3 C6.3	GATE VALVE ASSEMBLY	4 C6.4	SANITARY CLEANOUT
4 C6.3	SANITARY SEWER MANHOLE	5 C6.4	UTILITY TRENCHING AND BACKFILL
5 C6.3	SANITARY SEWER MANHOLE RING & COVER	6 C6.4	FIRE & DOMESTIC SCHEMATIC
6 C6.3	SEWER MANHOLE STEPS	7 C6.4	WALL MOUNTED FIRE DEPARTMENT CONNECTION (STORZ)
7 C6.3	1" WATER METER AND VAULT	8 C6.5	SANITARY SEWER LATERAL CONNECTION

ATTENTION CONTRACTORS

The **Construction Contractor** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for *contacting the* **Public Utilities Department** *at* **(919) 996-4540** *at least* ***twenty four hours*** prior to beginning any of their construction.

Failure to notify both ***City Department***s in advance of beginning construction, will result in the issuance of ***monetary fines***, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for ***Inspection, Install a Downstream Plug***, have ***Permitted Plans*** on the ***Jobsite***, or any other ***Violation of City of Raleigh Standards*** will result in a ***Fine and Possible Exclusion*** from future work in the ***City of Raleigh***.

LEGEND

	EXISTING	PROPOSED
FENCE	X	X
GAS LINE	G	G
POWER LINE	UGP	UGP
TELEPHONE LINE	UGT	UGT
WATER LINE	W	W
SANITARY SEWER LINE	SAN	
CABLE TV LINE	UCATV	UCATV
FIBER OPTIC LINE	UFO	UFO
RCP STORM PIPE		
PVC STORM PIPE	N/A	
ROOF DRAIN PIPE	RD	RD
HP STORM PIPE	N/A	
CONSTRUCTION LIMITS		
LIGHT POLE		
SITE BOLLARD		
UTILITY POLE		
SANITARY SEWER MANHOLE		
STORM SEWER MANHOLE		
CLEANOUT (SANITARY OR STORM)		
DROP INLET		
FIRE HYDRANT		
WATER VALVE		
TELECOM BOX		
DRAINAGE STRUCTURE ID:		A1

CITY OF RALEIGH UTILITY NOTES

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
2. UTILITY SEPARATION REQUIREMENTS:
   a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
   b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
   c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
   d) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-11 & S-19)
   f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT
6. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
7. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
8. INSTALL 1.5" PVC WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
9. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM
10. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI. BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
11. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION
12. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
13. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BLDG PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION
14. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. A CERTIFICATE OF COMPLIANCE SHALL ALSO BE OBTAINED FROM THE RW CROSS-CONNECTION COORDINATOR FOR EACH DEVICE PRIOR TO ISSUANCE OF A UC / BLDG PERMIT. CONTACT (919) 996-5923 OR CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION.
15. NOTIFY WAKE COUNTY PARCELS 1850613161 (SCHOOL), 1850611627 (DAYCARE), 1850616622 (TASHONDA BROOKS), AND 1850614731 (STEPHANIE CANNON) OF SEWER SHUT DOWN 2 WEEKS PRIOR TO STARTING WORK. WORK SHALL BE PERFORMED OVER A WEEKEND OR UTILIZING BYPASS PUMPING AS COORDINATED AND APPROVED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh Public Utilities Department Permit # S-5375

Authorization to Construct _____

Date _____

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

ELECTRONIC APPROVAL: THIS APPROVAL IS BEING ISSUED ELECTRONICALLY. THIS APPROVAL IS VALID ONLY UPON THE SIGNATURE OF A CITY OF RALEIGH REVIEW OFFICER BELOW. THE CITY WILL RETAIN A COPY OF THE APPROVED PLANS. ANY WORK AUTHORIZED BY THIS APPROVAL MUST PROCEED IN ACCORDANCE WITH THE PLANS KEPT ON FILE WITH THE CITY. THIS ELECTRONIC APPROVAL MAY NOT BE EDITED ONCE ISSUED. ANY MODIFICATION TO THIS APPROVAL ONCE ISSUED WILL INVALIDATE THIS APPROVAL.

CITY OF RALEIGH DEVELOPMENT APPROVAL

RALEIGH WATER REVIEW OFFICER

THIS DRAWING PREPARED AT THE FOLLOWING ADDRESS
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TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

SITE UTILITY PLAN

DATE	04/05/2023
DRAWN BY	L. BARNES
DESIGNED BY	G. FRANK
CHECKED BY	G. FRANK
SCALE	AS SHOWN
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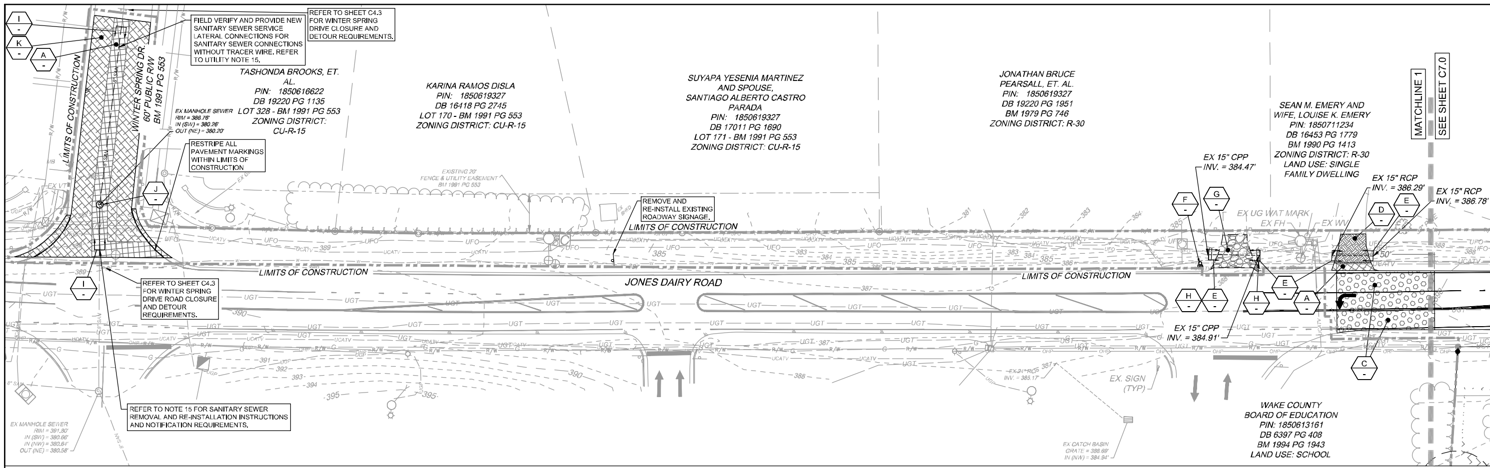
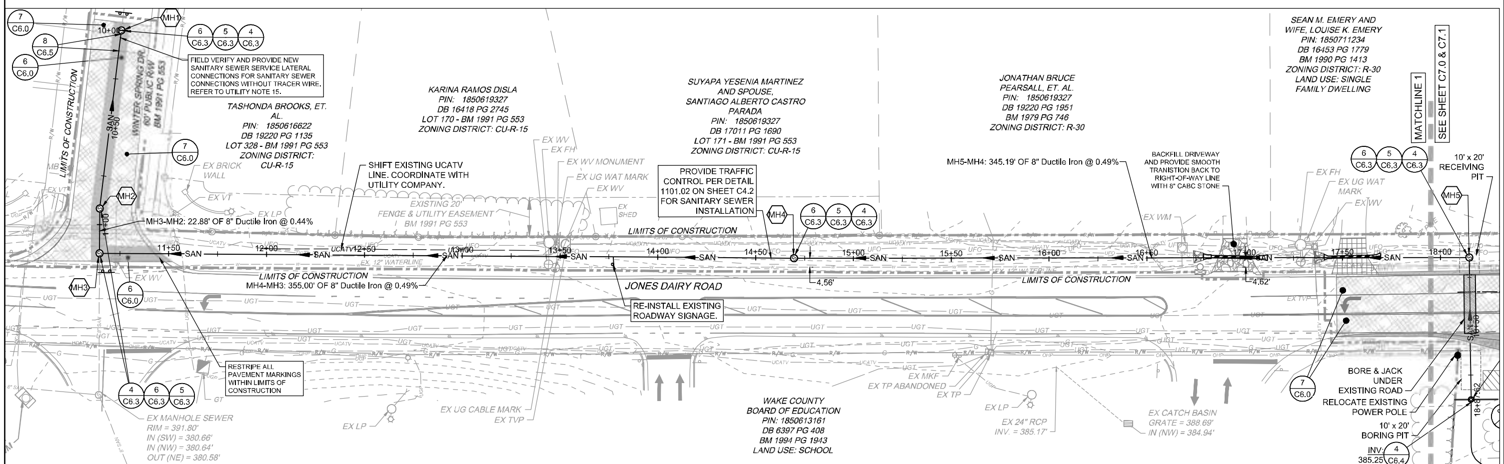
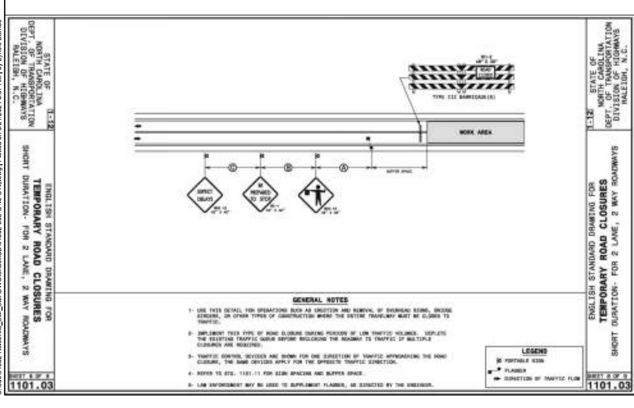


PLAN VIEW 1 - EX CONDITIONS & DEMOLITION

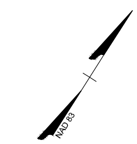


PLAN VIEW 2 - SITE & UTILITY PLAN



KEY NOTES

A	REMOVE ASPHALT PAVEMENT AND STONE BASE
C	50-FT MILL TAPER FROM 0" - 1.5" (SEE C7.0)
D	SAW CUT AND REMOVE CONCRETE AT NEAREST JOINT.
E	REMOVE AND REPLACE EXISTING CULVERT
F	REMOVE & REINSTALL MAIL BOX AFTER UTILITY INSTALLATION
G	REMOVE EXISTING GRAVEL
H	REMOVE EXISTING HEADWALL
I	REMOVE SANITARY SEWER PIPE
J	REMOVE SANITARY SEWER STRUCTURE
K	MILL AND REMOVE 1.5" OF ASPHALT
2 / C6.0	STANDARD DUTY CONCRETE PAVEMENT
6 / C6.0	NCDOT ASPHALT (FULL DEPTH)
7 / C6.0	NCDOT OVERLAY
4 / C6.3	SANITARY SEWER MANHOLE
5 / C6.3	SANITARY SEWER MANHOLE RING & COVER
6 / C6.3	SEWER MANHOLE STEPS
4 / C6.4	SANITARY CLEANOUT
5 / C6.4	UTILITY TRENCHING AND BACKFILL
8 / C6.5	SANITARY SEWER LATERAL CONNECTION



SCALE 1"=30'

0 30' 60'

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   c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
   d) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
   f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT
6. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
7. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
8. INSTALL 1.5" PVC WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
9. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM
10. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
11. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION
12. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
13. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BLDG PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION
14. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. A CERTIFICATE OF COMPLIANCE SHALL ALSO BE OBTAINED FROM THE RW CROSS-CONNECTION COORDINATOR FOR EACH DEVICE PRIOR TO ISSUANCE OF A UC / BLDG PERMIT. CONTACT (919) 996-5923 OR CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION.
15. NOTIFY WAKE COUNTY PARCELS 1850613161 (SCHOOL), 1850611627 (DAYCARE), 1850616622 (TASHONDA BROOKS), AND 1850614731 (STEPHANIE CANNON) OF SEWER SHUT DOWN 2 WEEKS PRIOR TO STARTING WORK. WORK SHALL BE PERFORMED OVER A WEEKEND OR UTILIZING BYPASS PUMPING AS COORDINATED AND APPROVED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh Public Utilities Department Permit # S-5375

Authorization to Construct ____

Date ____

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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CITY OF RALEIGH DEVELOPMENT APPROVAL ____

RALEIGH WATER REVIEW OFFICER

THIS DRAWING PREPARED AT THE RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE	04/05/2023
DRAWN BY	L. BARNES
DESIGNED BY	G. FRANK
CHECKED BY	G. FRANK
SCALE	AS SHOWN

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

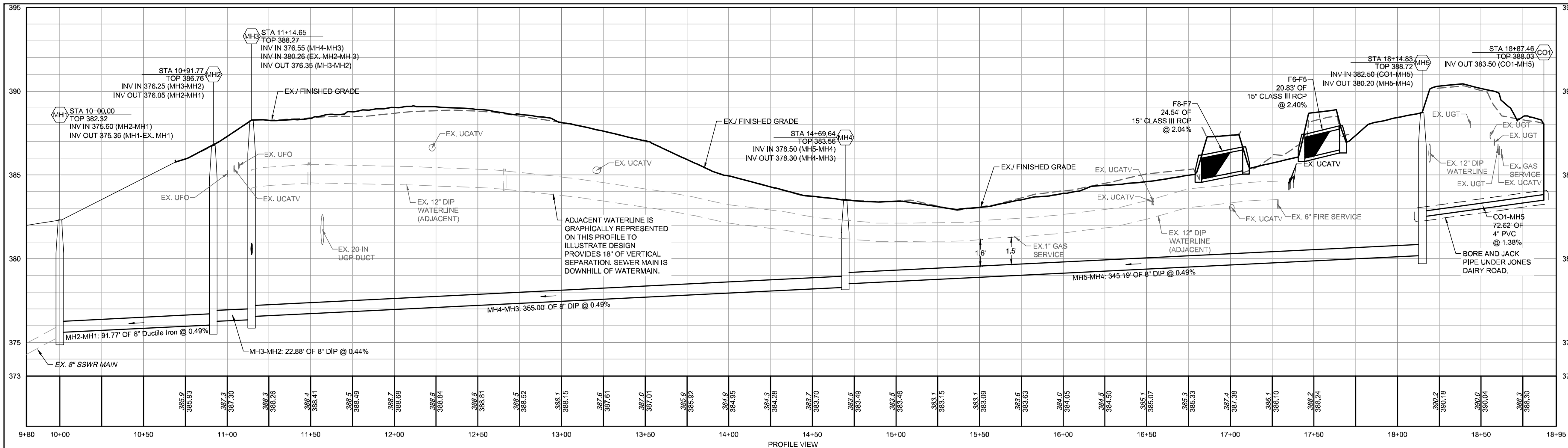
JONES DAIRY STORAGE FACILITY

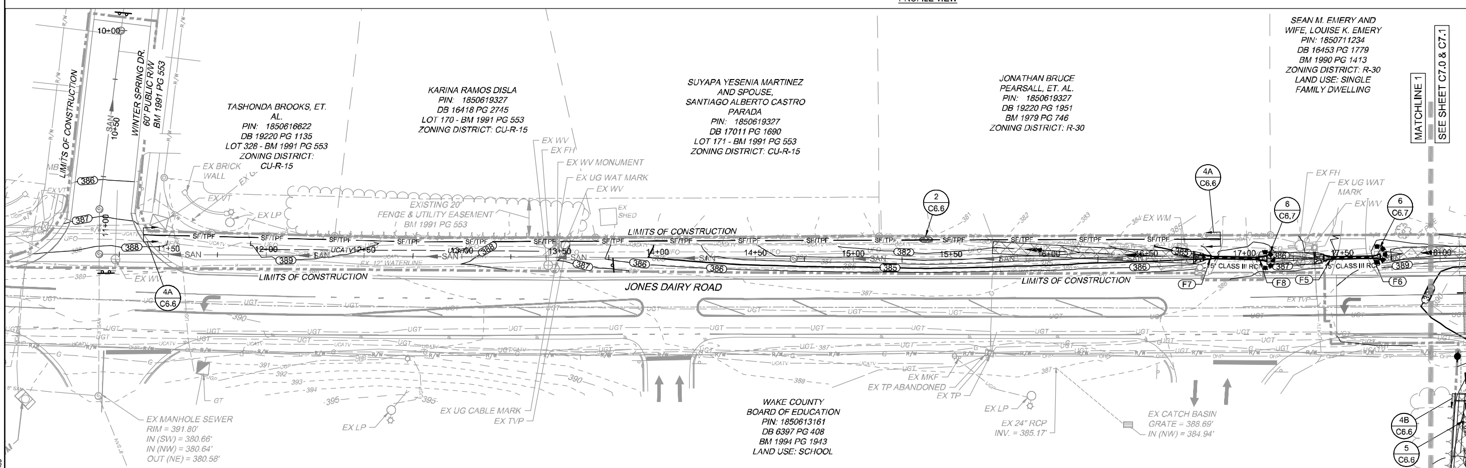
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

OFF-SITE UTILITY PLAN

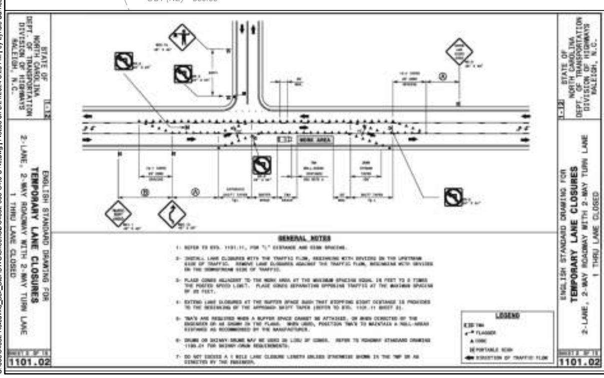
JOB NO. 54832

SHEET NO. C4.1


STA 10+00.00
TOP 382.32
INV IN 375.60 (MH2-MH1)
INV OUT 375.36 (MH1-EX. MH1)
STA 10+91.77
TOP 386.76
INV IN 376.25 (MH3-MH2)
INV OUT 376.05 (MH2-MH1)
STA 11+14.65
TOP 388.27
INV IN 376.55 (MH4-MH3)
INV IN 380.26 (EX. MH2-MH 3)
INV OUT 376.35 (MH3-MH2)
STA 14+69.64
TOP 383.56
INV IN 378.50 (MH5-MH4)
INV OUT 378.30 (MH4-MH3)
STA 18+14.83
TOP 388.72
INV IN 382.50 (CO1-MH5)
INV OUT 380.20 (MH5-MH4)
STA 18+67.46
TOP 388.03
INV OUT 383.50 (CO1-MH5)
F8-F7
24.54' OF
15" CLASS III RCP
@ 2.04%
F6-F5
20.83' OF
15" CLASS III RCP
@ 2.40%
EX./ FINISHED GRADE
ADJACENT WATERLINE IS GRAPHICALLY REPRESENTED ON THIS PROFILE TO ILLUSTRATE DESIGN PROVIDES 18" OF VERTICAL SEPARATION. SEWER MAIN IS DOWNHILL OF WATERMAIN.
EX. 12" DIP WATERLINE (ADJACENT)
EX. 20-IN UGP DUCT
EX.1" GAS SERVICE
EX. 6" FIRE SERVICE
CO1-MH5
72.62' OF
4" PVC
@ 1.38%
BORE AND JACK PIPE UNDER JONES DAIRY ROAD.
MH2-MH1: 91.77' OF 8" Ductile Iron @ 0.49%
MH3-MH2: 22.88' OF 8" DIP @ 0.44%
MH4-MH3: 355.00' OF 8" DIP @ 0.49%
MH5-MH4: 345.19' OF 8" DIP @ 0.49%
EX. 8" SSWR MAIN
PROFILE VIEW


TASHONDA BROOKS, ET. AL.
PIN: 1850616622
DB 19220 PG 1135
LOT 328 - BM 1991 PG 553
ZONING DISTRICT: CU-R-15
KARINA RAMOS DISLA
PIN: 1850618327
DB 16418 PG 2745
LOT 170 - BM 1991 PG 553
ZONING DISTRICT: CU-R-15
SUYAPA YESENIA MARTINEZ AND SPOUSE, SANTIAGO ALBERTO CASTRO PARADA
PIN: 1850619327
DB 17011 PG 1690
LOT 171 - BM 1991 PG 553
ZONING DISTRICT: CU-R-15
JONATHAN BRUCE PEARSALL, ET. AL.
PIN: 1850619327
DB 19220 PG 1951
BM 1979 PG 746
ZONING DISTRICT: R-30
SEAN M. EMERY AND WIFE, LOUISE K. EMERY
PIN: 1850711234
DB 16453 PG 1779
BM 1990 PG 1413
ZONING DISTRICT: R-30
LAND USE: SINGLE FAMILY DWELLING
MATCHLINE 1
SEE SHEET C7.0 & C7.1
WINTER SPRING DR. 60' PUBLIC R/W BM 1991 PG 553
LIMITS OF CONSTRUCTION
EXISTING 20' FENCE & UTILITY EASEMENT BM 1991 PG 553
JONES DAIRY ROAD
WAKE COUNTY BOARD OF EDUCATION
PIN: 1850613161
DB 6397 PG 408
BM 1994 PG 1943
LAND USE: SCHOOL
EX MANHOLE SEWER
RIM = 391.80'
IN (SW) = 380.66'
IN (NW) = 380.64'
OUT (NE) = 380.58'
EX 24" RCP
INV. = 385.17'
EX CATCH BASIN
GRATE = 388.69'
IN (NW) = 384.94'

PLAN VIEW 3 - GRADING & EROSION CONTROL PLAN



SANITARY SEWER SCHEDULE

MH1	TOP = 382.32 INV IN = 375.60 (SW) INV OUT = 375.36 (NE)	MH4	TOP = 383.56 INV IN = 378.50 (SE) INV OUT = 378.30 (NW)
MH2	TOP = 386.76 INV IN = 376.25 (SW) INV OUT = 376.05 (NE)	MH5	TOP = 388.72 INV IN = 382.50 (SW) INV OUT = 380.20 (NW)
MH3	TOP = 388.27 INV IN = 376.55 (SE) INV IN = 380.26 (NE) INV OUT = 376.35 (NE)		

PIPE TABLE

PIPE NAME	SIZE	LENGTH	SLOPE	BEARING
MH2-MH1	8"	91.77 LF	0.49%	N47° 42' 17"E
MH3-MH2	8"	22.88 LF	0.44%	N41° 04' 56"E
MH5-MH4	8"	345.19 LF	0.49%	N49° 16' 50"W
MH4-MH3	8"	355.00 LF	0.49%	N48° 48' 46"W
CO1-MH5	4"	72.62 LF	1.38%	N40° 05' 55"E

SCALE 1"=30'

0 30' 60'

NCDOT STORM PIPE TABLE

PIPE #	DIA	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DESCRIPTION
F6-F5	15"	386.50	386.00	2.40%	20.83 LF	15" CLASS III RCP
F8-F7	15"	385.25	384.75	2.04%	24.54 LF	15" CLASS III RCP

EROSION CONTROL KEYNOTES

2 / C6.6	REINFORCED SILT FENCE OUTLET
4A / C6.6	SILT FENCE (COMBINATION FENCE; SEE TREE FENCE DETAIL)
4B / C6.6	TREE PROTECTION FENCE
5 / C6.6	TEMPORARY DIVERSION DITCH
6 / C6.6	RIPRAP OUTLET PROTECTION

ATTENTION CONTRACTORS

The ***Construction Contractor*** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for ***contacting*** the ***Public Utilities Department*** at ***(919) 996-4540*** at least ***twenty four hours*** prior to beginning any of their construction.

Failure to notify both ***City Departments*** in advance of beginning construction, will result in the issuance of ***monetary fines***, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for ***Inspection, Install a Downstream Plug***, have ***Permitted Plans*** on the ***Jobsite***, or any other ***Violation*** of ***City of Raleigh Standards*** will result in a ***Fine and Possible Exclusion*** from future work in the ***City of Raleigh.***

PROFILE SCALE

Public

Sewer Collection / Extension System

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City of Raleigh
Public Utilities Department Permit # S-5375

Authorization to Construct ______

Date ______

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SCALE AS SHOWN

TIMMONS GROUP

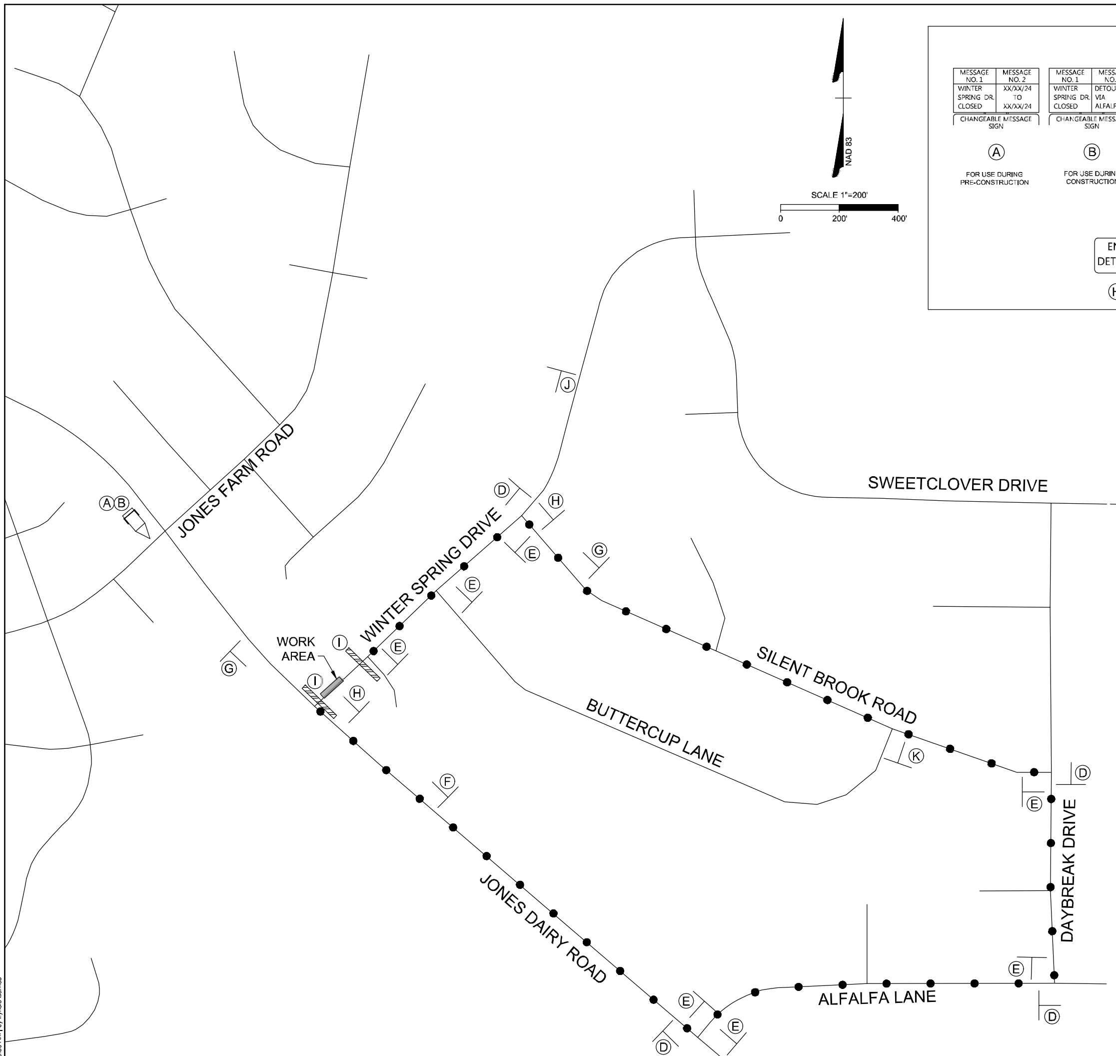
NORTH CAROLINA LICENSE NO. C-1652

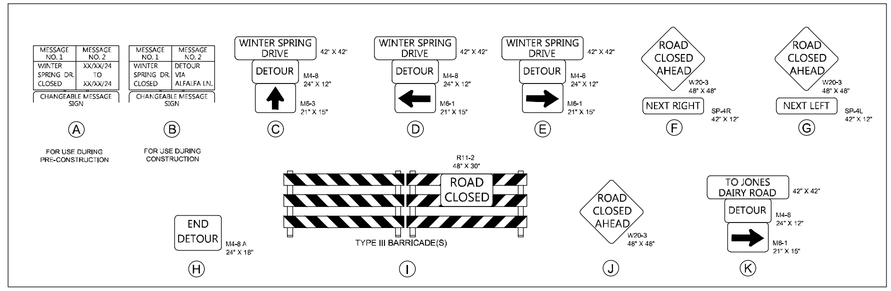
JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

OFF-SITE UTILITY PLAN & PROFILE

JOB NO. 54832
SHEET NO. C4.2





CONSTRUCTION SEQUENCE

STEP 1: PLACE CHANGEABLE WARNING SIGNS, AS SHOWN, A MINIMUM OF THREE (3) WEEKS PRIOR TO ROAD CLOSURE.
STEP 2: USING ROAD STANDARD DRAWING (RSD) 1101.01, SHEET 3 OF 3, INSTALL ADVANCE WARNING SIGNS ON WINTER SPRING DRIVE, JONES DAIRY ROAD, ALFALFA LANE,DAYBREAK DRIVE, AND SILENT BROOK ROAD.
STEP 3: USING RSD 1101.03 SHEETS 1 & 2 OF 9, THIS SHEET, AND FLAGGERS AS NECESSARY, CLOSE WINTER SPRING DRIVE (FROM JONES DAIRY ROAD TO CLOUD 9 COURT) AND DETOUR TRAFFIC OFF-SITE AS SHOWN ON THIS SHEET.
STEP 4: USING RSD 1101.03 SHEETS 1 & 2 OF 9, THIS SHEET, AND FLAGGERS AS NECESSARY, PERFORM THE FOLLOWING IN A CONTINUOUS MANNER.

-- REMOVE EXISTING SANITARY SEWER LINES AS SHOWN ON THE PLANS
-- INSTALL NEW SANITARY SEWER LINES AS SHOWN ON THE PLANS
-- PLACE PAVEMENT UP TO BUT NO INCLUDING THE FINAL SURFACE LAYER
-- PLACE TEMPORARY PAVEMENT MARKINGS. REMOVE ANY CONFLICTING PAVEMENT MARKINGS.

STEP 5: USING RSD 1101.03 SHEETS 1 & 2 OF 9, THIS SHEET, AND FLAGGERS AS NECESSARY, PERFORM THE FOLLOWING IN A CONTINUOUS MANNER

-- PLACE FINAL PAVEMENT SURFACE LAYER
-- PLACE FINAL PAVEMENT MARKINGS ACCORDING TO THE STRIPING PLANS
-- REMOVE CONFLICTING MARKINGS.

STEP 6: REMOVE ALL TRAFFIC CONTROL DEVICES AND RE-OPEN WINTER SPRING DRIVE TO ALL TRAFFIC.

TRANSPORTATION MANAGEMENT PLAN

MANAGEMENT STRATEGIES:

1. VEHICULAR AND PEDESTRIAN TRAFFIC SHALL BE MAINTAINED DURING CONSTRUCTION ACTIVITIES INCLUDING, SANITARY SEWER INSTALLATION, MILLING AND OVERLAYING PAVEMENT OPERATIONS AND FINAL PAVEMENT MARKING INSTALLATION.
2. DRIVEWAY ACCESS TO THE ADJACENT HOMES, LOCATED ALONG WINTER SPRING DRIVE SHALL BE MAINTAINED WITH MINIMAL IMPACT.
3. TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC SHALL MEET MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.
4. NOTIFY THE ENGINEER, WAKE COUNTY EMERGENCY SERVICES AND THE TOWN OF ROLESVILLE AT LEAST ONE (1) MONTH PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

ROADWAY STANDARD DRAWINGS:

1. THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JUNE 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

	STD. NO.	TITLE
1.1.	654.01	PAVEMENT REPAIRS
1.2.	904.50	MOUNTING OF TYPE 'D', 'E', AND 'F' SIGNS ON 'U' CHANNEL POSTS
1.3.	1101.01	WORK ZONE ADVANCE WARNING SIGNS
1.4.	1101.02	TEMPORARY LANE CLOSURES
1.5.	1101.03	TEMPORARY ROAD CLOSURES
1.6.	1101.04	TEMPORARY SHOULDER CLOSURES
1.7.	1101.11	TRAFFIC CONTROL DESIGN TABLES
1.8.	1110.01	STATIONARY WORK ZONE SIGNS
1.9.	1110.02	PORTABLE WORK ZONE SIGNS
1.10.	1130.01	DRUMS
1.11.	1145.01	BARRICADES
1.12.	1150.01	FLAGGERS
1.13.	1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1.14.	1205.05	PAVEMENT MARKINGS - TURN LANES
1.15.	1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1.16.	1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES

TRANSPORTATION OPERATION PLAN:

1. IN CASE OF EMERGENCY, CALL 911

   THE FOLLOWING IS A LIST OF LOCAL NON-EMERGENCY NUMBERS:
   WAKE COUNTY EMERGENCY SERVICES: 919-856-6020
   TOWN OF ROLESVILLE POLICE: 919-556-7226

2. ANY TRAFFIC INCIDENT (IF APPLICABLE) THAT OCCURS DURING THE LIFE OF THE SANITARY SEWER INSTALLATION WILL BE DISCUSSED BY THE CONTRACTOR, AND THE ENGINEER OF RECORD TO DETERMINE WHETHER ANY CHANGES NEED TO BE MADE TO THE TRAFFIC CONTROL ON THE PROJECT.

GENERAL NOTES:

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF CONSTRUCTION OF THE SANITARY SEWER EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS - REQUIRES INTERMEDIATE CONTRACT TIME PROJECT SPECIAL PROVISIONS.

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
JONES DAIRY ROAD	SCHOOL DAYS 8:45 AM TO 9:45 AM & 3:15 PM TO 4:15PM

LANE AND SHOULDER CLOSURE REQUIREMENTS

B) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15-FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5-FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
F) DO NOT WORK SIMULTANEOUSLY WITHIN 15-FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED BY GUARDRAIL OR BARRIER.
G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OR EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

   BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER

   BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

   BACKFILL WITH SUSTAINABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 100-FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

I) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40-FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
K) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

   PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.
L) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

   COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
M) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
N) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100-FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

O) WHEN LANE CLOSURES ARE NOT IN EFFECT, SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT 10-FT ON-CENTER RADII, AND 3-FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES), AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE THE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

Q) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES
R) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

S) LAW ENFORCEMENT SHALL BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.
T) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) AND RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.
U) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.)

NORTH CAROLINA PROFESSIONAL SEAL 055780 ENGINEER GARRETT W. FRANK

THIS DRAWING PREPARED AT THE
RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE: 04/05/2023
DRAWN BY: L. BARNES
DESIGNED BY: G. FRANK
CHECKED BY: G. FRANK
SCALE: AS SHOWN

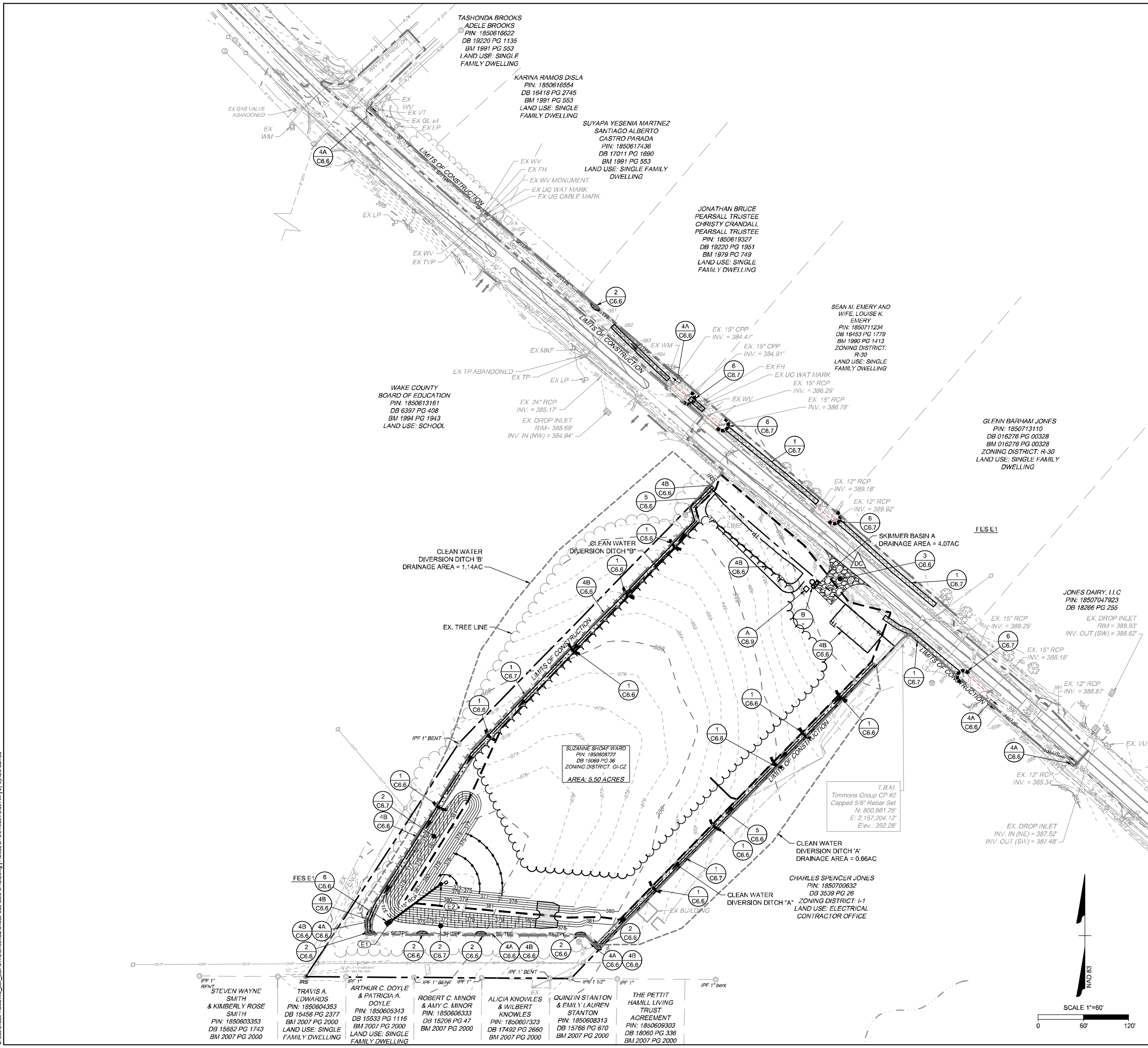
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

OFF-SITE DETOUR PLAN

JOB NO. 54832
SHEET NO. C4.3



EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL CODES IN OBSERVING EROSION CONTROL MEASURES BOTH ON AND OFF SITE. ALL OFF-SITE SOIL BORROW AND WASTE SITES SHALL BE PROPERLY PERMITTED FOR SUCH ACTIVITIES.
2. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES AFTER EACH RAINFALL EVENT OR AS DIRECTED BY LOCAL AUTHORITIES OR ENGINEER.
3. ALL OPEN STORM PIPES SHALL BE PROTECTED WITH STONE FILTER PROTECTION AFTER WORK STOPPAGE EACH DAY.
4. ALL STORM DRAINAGE PIPES SHALL BE THOROUGHLY FLUSHED OF ALL SEDIMENT FOLLOWING SITE STABILIZATION. INTERIOR FLUSHING OF SYSTEM SHALL BE PERFORMED AS NEEDED TO MAINTAIN PROPER FUNCTIONING OF THE DRAINAGE SYSTEM.
5. THE INDICATED STAGING AREA IS INTENDED FOR VEHICLES AND NON-ERODIBLE MATERIALS ONLY. NO SOIL, SAND OR OTHER ERODIBLE, FINE GRAINED MATERIAL SHALL BE STORED OUTSIDE OF THE LIMITS OF THE SITE PROTECTED BY SEDIMENT AND EROSION CONTROL DEVICES AND MEASURES.
6. SOIL AND OTHER MATERIALS SHALL ONLY BE TEMPORARILY STOCKPILED WITHIN THE CONSTRUCTION LIMITS PROTECTED BY SEDIMENT AND EROSION CONTROL DEVICES AND MEASURES.
7. TREE PROTECTION INSPECTION SHALL BE COMPLETED PRIOR TO INSTALLING EROSION CONTROL DEVICES.
8. ALL APPLICABLE E&S CONTROL MEASURES ARE TO BE PROPERLY MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED.
9. PERMANENT GROUNDCOVER SHALL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS (WHICHEVER IS SHORTER).
10. TOTAL DISTURBED AREA: 5.93 AC.

KEYNOTES

1 / C6.6	CHECK DAM
2 / C6.6	REINFORCED SILT FENCE OUTLET
3 / C6.6	GRAVEL CONSTRUCTION ENTRANCE
4A / C6.6	SILT FENCE (COMBINATION FENCE; SEE TREE FENCE DETAIL)
4B / C6.6	TREE PROTECTION FENCE
5 / C6.6	TEMPORARY DIVERSION DITCH
6 / C6.6	RIPRAP OUTLET PROTECTION
1 / C6.7	TEMPORARY CHANNEL LINING
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1 / C6.8	SKIMMER BASIN
A / C6.9	CONCRETE WASHOUT AREA
B / -	RAIN GAUGE AND PERMIT RECORDS BOX
	LIMITS OF CONSTRUCTION
	PROPOSED RCP STORM SEWER PIPES
	PROPOSED HP STORM SEWER PIPES
	PROPOSED PVC STORM SEWER PIPES
	PROPOSED ROOF DRAINS
	SKIMMER BASIN DRAINAGE AREA
	EXISTING CONTOUR
	FINISHED CONTOUR
	DUST CONTROL

CONSTRUCTION SEQUENCE - PH I

1. OBTAIN AN APPROVED PLAN AND APPLICABLE PERMIT PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITY. A COPY OF THE APPROVED PLAN AND APPROVAL LETTER MUST BE ON FILE AT THE JOB SITE. NOTIFY EROSION CONTROL AUTHORITIES OF PROPOSED STARTING DATE OF LAND DISTURBING ACTIVITIES BY CALLING JEEVAN NEUPANE, PE AT (919) 819-8907.
2. SCHEDULE A PRECONSTRUCTION CONFERENCE WITH JEEVAN NEUPANE, PE BY CALLING AT (919) 819-8907. OBTAIN A LAND DISTURBING PERMIT.
3. INSTALL GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
4. INSTALL STORM STRUCTURES E2-E1 WITH RIP RAP OUTLET PROTECTION RR-1 AS SHOWN ON PLANS (PRIOR TO SKIMMER BASIN INSTALLATION)
5. CALL ENVIRONMENTAL CONSULTANT, JEEVAN NEUPANE, PE, FOR AN ONSITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT TO OBTAIN A CERTIFICATE OF COMPLIANCE.
6. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.
7. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL INLET CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN ON THE PLAN. BEGIN CONSTRUCTION, BUILDING, ETC.
8. MAINTAIN ALL EROSION & SEDIMENT CONTROL MEASURES THROUGHOUT CONSTRUCTION. REMOVE AND STABILIZE CONSTRUCTION LAY DOWN, STAGING, DIRT & WASTE PILE AREAS. ALL APPLICABLE E&S CONTROL MEASURES ARE TO REMAIN UNTIL PERMANENT VEGETATION IS ESTABLISHED.
9. ONCE THE SITE IS READY TO MOVE FORWARD WITH SITE PAVING, STABILIZE THE SITE AND PROCEED TO PHASE 2 EROSION CONTROL.

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARRETT W. FRANK

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TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY

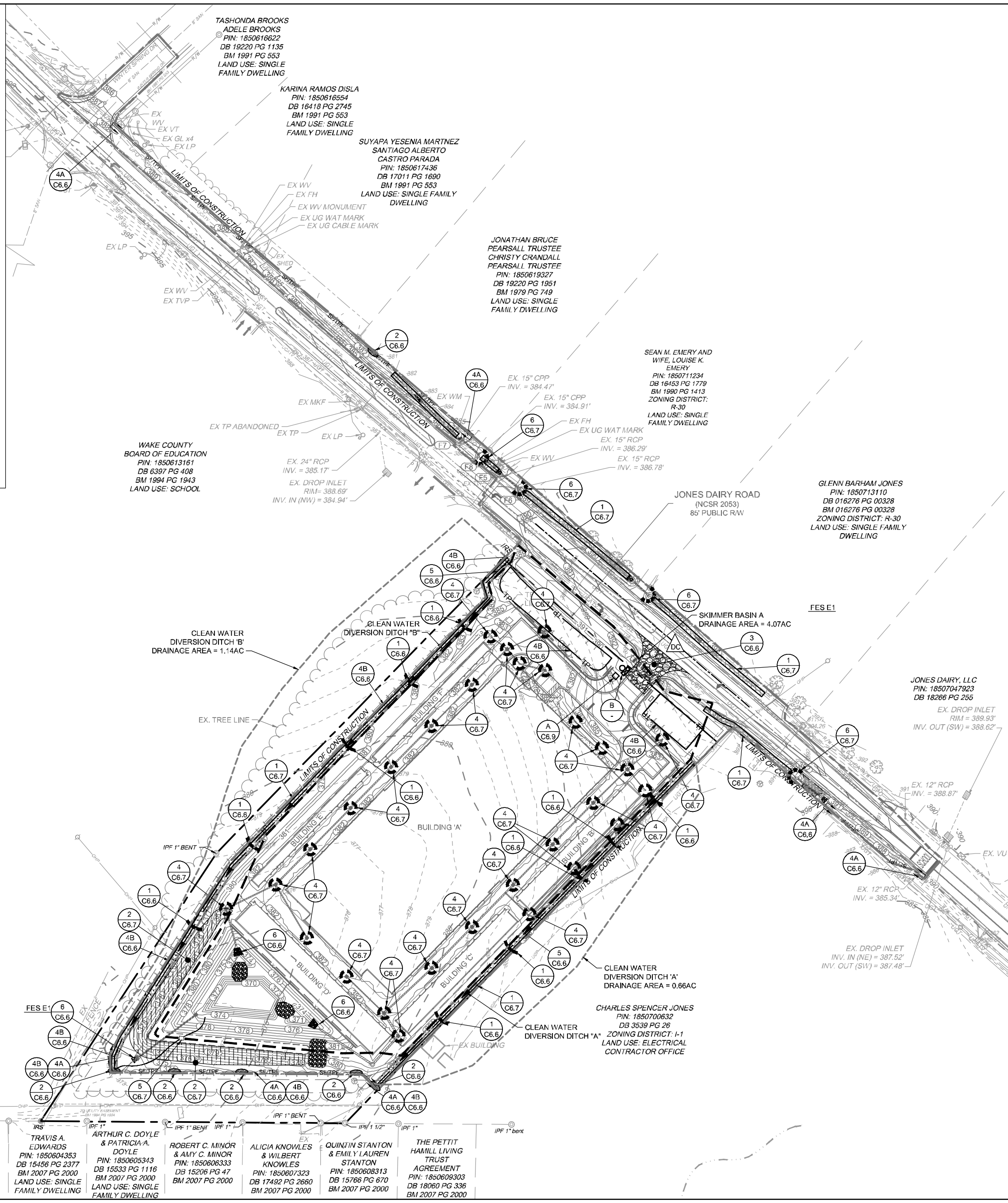
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

EROSION & SEDIMENATION CONTROL PLAN - PH I

JOB NO. 54832
SHEET NO. C5.0

CONSTRUCTION SEQUENCE - PH II

1. MAINTAIN ALL EXISTING EROSION & SEDIMENT CONTROL MEASURES PREVIOUSLY CONSTRUCTED AND ASSOCIATED WITH PHASE I. ADJUST AS NEEDED.
2. AS SITE IS PAVED AND BROUGHT UP TO FINAL GRADE, INSTALL THE REMAINDER OF THE STORM DRAINAGE SYSTEM. INSTALL INLET AND OUTLET PROTECTION DEVICES AT NEW STRUCTURES AS THEY ARE CONSTRUCTED.
3. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS,ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
4. INSTALL REMAINDER OF PAVING AND SITE FEATURES.
5. RESPREAD TOPSOIL, INSTALL SLOPE PROTECTION BLANKETS ON ANY 3:1 SLOPES AND VEGETATE STEEP SLOPES AS THEY ARE ESTABLISHED AS SHOWN ON PLANS.
6. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL JEEVAN NEUPANE, PE AT (919) 819-8907 AND TIMMONS GROUP AT (919) 866-4503 FOR AN INSPECTION AND APPROVAL FOR SEDIMENT BASIN CONVERSION.
7. CONTACT NCDEQ – RALEIGH REGIONAL OFFICE (919) 791-4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAYS PRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDEQ-DEMLR CONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOU ONSITE. THE EMAIL SHOULD INCLUDE: E&SC JURISDICTION: WAKE COUNTY, WAKE COUNTY PROJECT: NAME, NUMBER, AND LOCATION (CITY/TOWN), ENVIRONMENTAL CONSULTANT NAME, AND ADDRESS THE FOLLOWING: A)REASON FOR CONVERSION, B)BASIN #, C)DEWATERING METHOD, AND D) ALL OTHER NECESSARY INFO FROM PART II, SECTION G, ITEM 4 OF THE NCG01. (KEEP EMAIL FOR YOUR NPDES MONITORING DOCUMENTATION)
8. AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDEQ-DEMLR THAT YOU MAY REMOVE THE BASIN OR ON > DAY 11, WHICHEVER IS SOONER. REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
9. PERFORM SEEDBED PREPARATION, SEED, MULCH AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY.
10. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
11. WHEN SITE IS FULLY STABILIZED, CALL JEEVAN NEUPANE, PE AT (919) 819-8907 FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION.
12. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
13. WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY JEEVAN NEUPANE, PE. OBTAIN A CERTIFICATE OF COMPLETION.



TASHONDA BROOKS ADELE BROOKS PIN: 1850616622 DB 19220 PG 1135 BM 1991 PG 553 LAND USE: SINGLE FAMILY DWELLING
KARINA RAMOS DISLA PIN: 1850616554 DB 16418 PG 2745 BM 1991 PG 553 LAND USE: SINGLE FAMILY DWELLING
SUYAPA YESENIA MARTNEZ SANTIAGO ALBERTO CASTRO PARADA PIN: 1850617436 DB 17011 PG 1690 BM 1991 PG 553 LAND USE: SINGLE FAMILY DWELLING
JONATHAN BRUCE PEARSALL TRUSTEE CHRISTY CRANDALL PEARSALL TRUSTEE PIN: 1850619327 DB 19220 PG 1951 BM 1979 PG 749 LAND USE: SINGLE FAMILY DWELLING
SEAN M. EMERY AND WIFE, LOUISE K. EMERY PIN: 1850711234 DB 16453 PG 1779 BM 1990 PG 1413 ZONING DISTRICT: R-30 LAND USE: SINGLE FAMILY DWELLING
WAKE COUNTY BOARD OF EDUCATION PIN: 1850613161 DB 6397 PG 408 BM 1994 PG 1943 LAND USE: SCHOOL
JONES DAIRY ROAD (NCSR 2053) 85' PUBLIC R/W
GLENN BARHAM JONES PIN: 1850713110 DB 016276 PG 00328 BM 016276 PG 00328 ZONING DISTRICT: R-30 LAND USE: SINGLE FAMILY DWELLING
JONES DAIRY, LLC PIN: 1850747923 DB 18266 PG 255
SKIMMER BASIN A DRAINAGE AREA = 4.07AC
CLEAN WATER DIVERSION DITCH 'B' DRAINAGE AREA = 1.14AC
CLEAN WATER DIVERSION DITCH "B"
CLEAN WATER DIVERSION DITCH 'A' DRAINAGE AREA = 0.66AC
CLEAN WATER DIVERSION DITCH "A"
CHARLES SPENCER JONES PIN: 1850700632 DB 3539 PG 26 ZONING DISTRICT: I-1 LAND USE: ELECTRICAL CONTRACTOR OFFICE
BUILDING 'A'
BUILDING 'B'
BUILDING 'C'
BUILDING 'D'
LIMITS OF CONSTRUCTION
EX. TREE LINE
STEVEN WAYNE SMITH & KIMBERLY ROSE SMITH PIN: 1850603353 DB 15682 PG 1743 BM 2007 PG 2000
TRAVIS A. EDWARDS PIN: 1850604353 DB 15456 PG 2377 BM 2007 PG 2000 LAND USE: SINGLE FAMILY DWELLING
ARTHUR C. DOYLE & PATRICIA A. DOYLE PIN: 1850605343 DB 15533 PG 1116 BM 2007 PG 2000 LAND USE: SINGLE FAMILY DWELLING
ROBERT C. MINOR & AMY C. MINOR PIN: 1850606333 DB 15206 PG 47 BM 2007 PG 2000
ALICIA KNOWLES & WILBERT KNOWLES PIN: 1850607323 DB 17492 PG 2660 BM 2007 PG 2000
QUINTIN STANTON & EMILY LAUREN STANTON PIN: 1850608313 DB 15766 PG 670 BM 2007 PG 2000
THE PETTIT HAMILL LIVING TRUST AGREEMENT PIN: 1850609303 DB 18060 PG 336 BM 2007 PG 2000
SCALE 1"=60'
0 60' 120'
NAD 83

EROSION CONTROL NOTES

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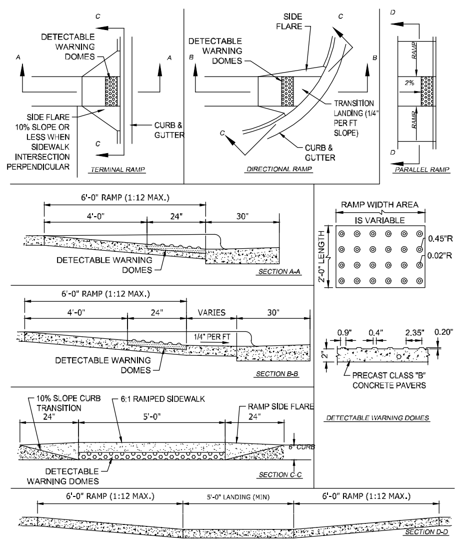
JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

EROSION & SEDIMENATION CONTROL PLAN - PH II

JOB NO. 54832

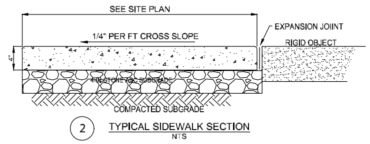
SHEET NO. C5.1



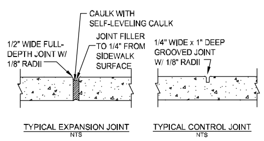
NOTES:

1. NO SLOPE ON THE SIDEWALK ACCESS RAMP SHALL EXCEED 1"/1' (1:12) IN RELATIONSHIP TO THE GRADE OF THE STREET. WHERE SIDEWALK INTERSECTS RAMP PERPEDICULAR, SIDE FLARES SHALL BE LESS THAN 10% SLOPE.
2. IN NO CASE SHALL THE WIDTH OF THE ACCESS RAMP BE LESS THAN 48" (4'-0")
3. DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN.
4. FLARES MAY BE SLOPED GREATER THAN 10% WHEN A SIDEWALK IS NOT INTERSECTING PERPENDICULAR WITH RAMP

(1) ACCESSIBLE CURB RAMPS N.T.S.



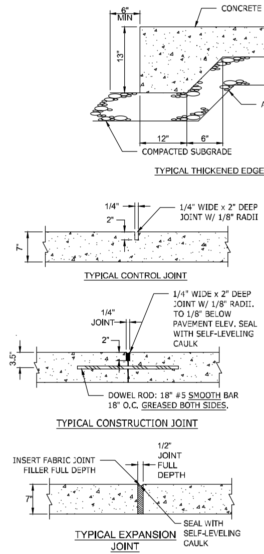
(2) TYPICAL SIDEWALK SECTION
NTS



GENERAL NOTES:

1. PROVIDE GROOVE CONTROL JOINT 1-IN DEEP WITH 1/8-IN RADII IN SIDEWALK AT 5' INTERVALS UNLESS INDICATED OTHERWISE.
2. PROVIDE 1/2-IN EXPANSION JOINT AT 50' INTERVALS.
3. PROVIDE 1/2-IN EXPANSION JOINT WHERE THE SIDEWALK ABUTS ANY RIGID STRUCTURE.
4. SEE SPECIFICATIONS FOR ADDITIONAL JOINT SPACING REQUIREMENTS.
5. ALL CONCRETE SHALL BE 3,000 P.S.I. WITH BROOM FINISH.
6. ALL SIDEWALKS SHALL HAVE 2% OR LESS CROSS SLOPE.
7. ALL SIDEWALKS SHALL HAVE 5% OR LESS LONGITUDINAL SLOPE.
8. CAULK ALL EXPANSION JOINTS WITH SELF LEVELING COMPOUND.

(2) CONCRETE SIDEWALK N.T.S.



CONCRETE PAVEMENT DIMENSIONS

CONC SLAB THICKNESS = 7"
CABC THICKNESS = 6"
REINFORCEMENT = 6x6 - W2.9xW2.9
DOWEL RODS = 18" #5 SMOOTH BARS GREASED BOTH SIDES

NOTES:

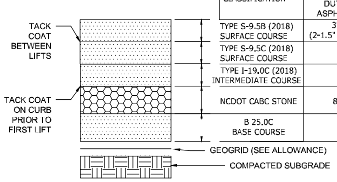
1. ALL CONCRETE PAVEMENT SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI MIN. (ASTM C39).
2. CONTROL JOINTS SHALL BE SPACED AT 10' O.C.E.W. MAX. OR AS INDICATED ON THE PLAN.
3. EXPANSION JOINTS SHALL BE SPACED AT 30' O.C.E.W. MAX. OR AS INDICATED ON THE PLAN AND WHERE CONCRETE PAVEMENT ABUTS ANY RIGID OBJECT.
4. INSTALL THICKENED EDGES ALONG ALL EDGES / SIDES OF CONCRETE PAVEMENT.
5. O.C.E.W. REFERS TO "ON CENTER EACH WAY".
6. CAULK ALL EXPANSION JOINTS WITH SELF LEVELING COMPOUND.

(12) HEAVY DUTY CONCRETE PAVEMENT N.T.S.

COMPACTION NOTES:

SUBGRADE AND ABC STONE
1. COMPACT TO MAXIMUM DRY DENSITY PER ASTM D698 STANDARD PROCTOR AND WITHIN 3% MAXIMUM MOISTURE CONTENT.
2. COMPACT SUBGRADE SOIL TO 95%
3. COMPACT ABC STONE TO 100%.
4. REFER TO NCDOT SPECIFICATION FOR ADDITIONAL INFORMATION.

ASPHALT
1. COMPACT ASPHALT TO 92% MAXIMUM SPECIFIC GRAVITY.
2. REFER TO NCDOT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

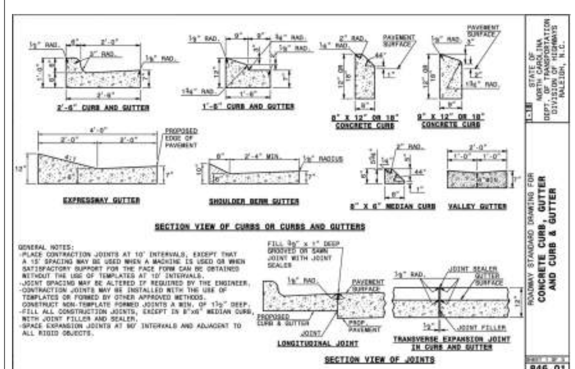


KEYNOTE	4 / C6.0	5 / C6.0	6 / C6.0	7 / C6.0	8 / C6.0
PATTERN					
CLASSIFICATION	STANDARD DUTY ASPHALT	LIGHT DUTY ASPHALT	NCDOT FULL DEPTH ASPHALT	NCDOT OVERLAY	ASPHALT MULTI-USE PATH
TYPE S-9.5B (2018) SURFACE COURSE	3" (2-1.5" LIFTS)	3" (2-1.5" LIFTS)	-	-	2"
TYPE S-9.5C (2018) SURFACE COURSE	-	-	3" (2-1.5" LIFTS)	1.5"	
TYPE I-19.0C (2018) INTERMEDIATE COURSE	-	-	4"	-	-
NCDOT CABC STONE	8"	6"	-	-	4"
B 25.0C BASE COURSE	-	-	5"	-	-

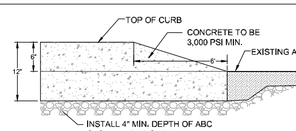
NOTES:

1. THE CONTRACTOR MAY CHOOSE TO INSTALL INTERMEDIATE COURSES OF PAVEMENT TO STABILIZE THE SITE DURING CONSTRUCTION AT NO ADDITIONAL COST. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ADEQUATE THICKNESS REQUIRED FOR INTERMEDIATE PAVING. INCREASES IN THE DESIGN PAVEMENT SECTION TO FACILITATE INTERMEDIATE PAVING SHALL BE PROVIDED AT NO ADDITIONAL COST.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING PAVEMENT DURING ALL PHASES OF WORK. THE FINAL SURFACE OF PAVEMENT SHALL BE FREE OF ALL DEFECTS OR DAMAGE.
3. CONTRACTOR IS RESPONSIBLE FOR THEIR OWN QC TESTING, PROOF ROLL, AND REQUIREMENTS NOTED IN SPECIFICATIONS.
4. OWNER WILL ACQUIRE 3RD PARTY QC TESTING SERVICES FOR SOILS AND PAVEMENTS.
5. REFER TO NCDOT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

(4)(5)(6)(7)(8) ASPHALT & GRAVEL PAVEMENTS N.T.S.

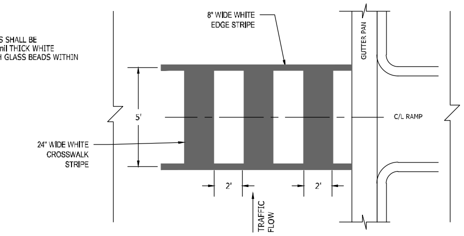


(9) NCDOT 30" CONCRETE CURB AND GUTTER N.T.S.

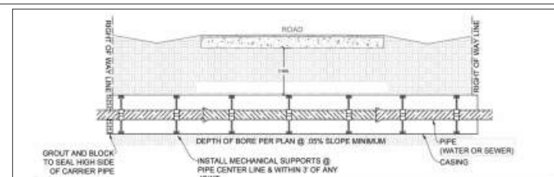


(10) CURB ENDING TAPER N.T.S.

NOTE:
1. ALL ARROW MARKINGS SHALL BE REFLECTORIZED 120-mil THICK WHITE THERMOPLASTIC WITH GLASS BEADS WITHIN RIGHT OF WAY.



(11) HIGH VISIBILITY CROSS WALK MARKING N.T.S.



NOTES:

1. CASING SHALL BE UNCOATED SPIRAL WELDED STEEL MEETING ASTM A-139, GRADE B WITH A YIELD STRENGTH OF 35,000 PSI.
2. CROSSINGS ON NCDOT MAINTAINED ROADS TO BE IN ACCORDANCE WITH CURRENT NCDOT STANDARDS AND APPROVED ENCROACHMENT AGREEMENT.
3. RESTRAINED JOINT PIPE ONLY. MEGE-LUGS ARE NOT PERMITTED.
4. SUPPORTS SHALL BE MANUFACTURED BY ADVANCE PRODUCTS & SYSTEMS, INC. PIPELINE SEAL AND INSULATOR LTD. OR BWM COMPANY.
5. THREE SUPPORTS SHALL BE INSTALLED ON EACH PIPE SEGMENT.
6. LARGER ENCASEMENT SIZES MAY BE UTILIZED AT THE DISCRETION OF THE DESIGN ENGINEER AND/OR CONTRACTOR FOR EASE OF INSTALLATION AS LONG AS ALL OTHER DESIGN CRITERIA IS MET.
7. ALL PIPES 36" AND LARGER SHALL REQUIRE 4 SUPPORTS.

Carrier Pipe Nominal Diameter (inches)	Casing Minimum Inside Diameter (inches)	Casing Nominal Wall Thickness (inches)
6	14	0.375
8	16	0.375
10	18	0.375
12	20	0.375
14	24	0.375
16	30	0.500
18	30	0.500
20	36	0.500
24	36	0.625
30	42	0.625
36	48	0.750
42	54	0.875

(12) BORE & JACK N.T.S.

NORTH CAROLINA PROFESSIONAL SEAL 035780 ENGINEER GARRETT W. FRANK

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DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

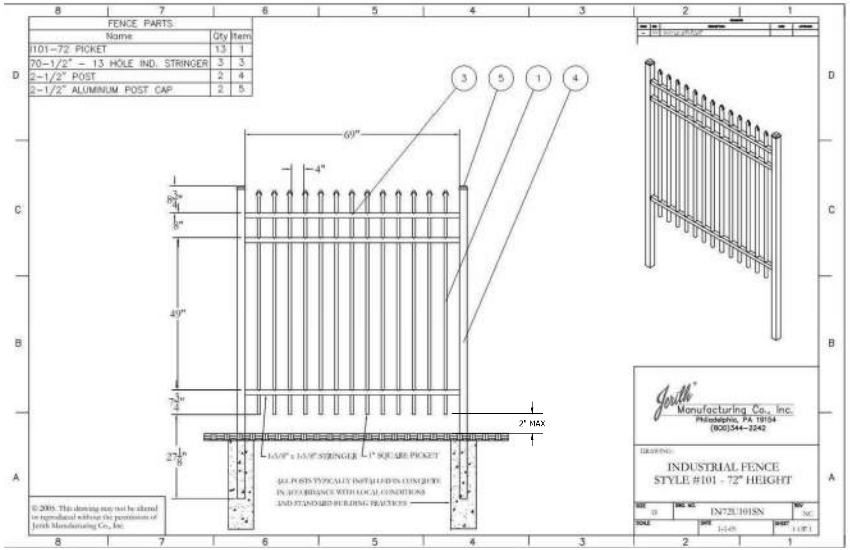
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

SITE DETAILS

JOB NO. 54832
SHEET NO. C6.0

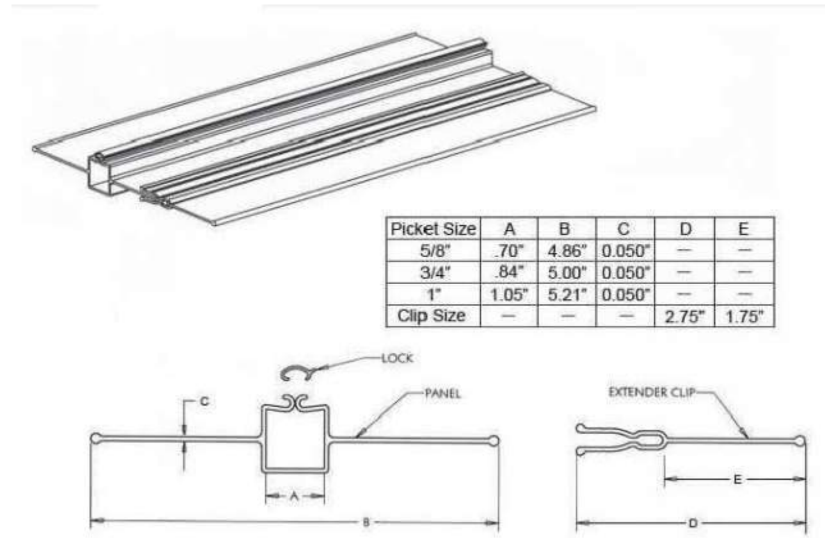
S:\333\54832-Rolesville_Self_Stor\DWG\Sheet\CD\54832-333-C6.0-NTDT.dwg | Plotted on 3/21/2024 8:31 AM | by Lynsie Barnes



Name	Qty	Item
I101-72 PICKET	13	1
70-1/2" - 13 HOLE IND. STRINGER	3	3
2-1/2" POST	2	4
2-1/2" ALUMINUM POST CAP	2	5

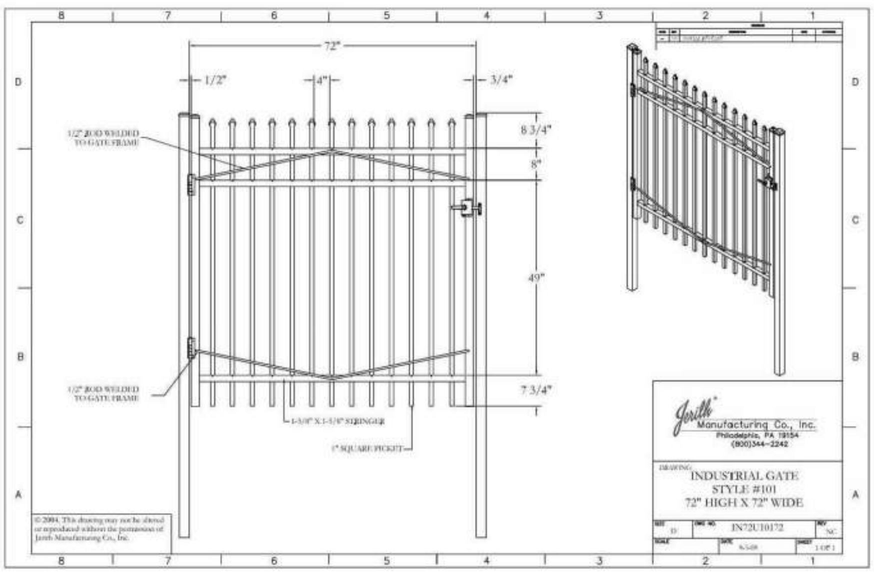
NOTES:
1. ALL FENCING SHALL BE INSTALLED PER MANUFACTURES STANDARDS AND SPECIFICATIONS.
2. PROVIDE BUILDING PERMITTING AS REQUIRED BY WAKE COUNTY

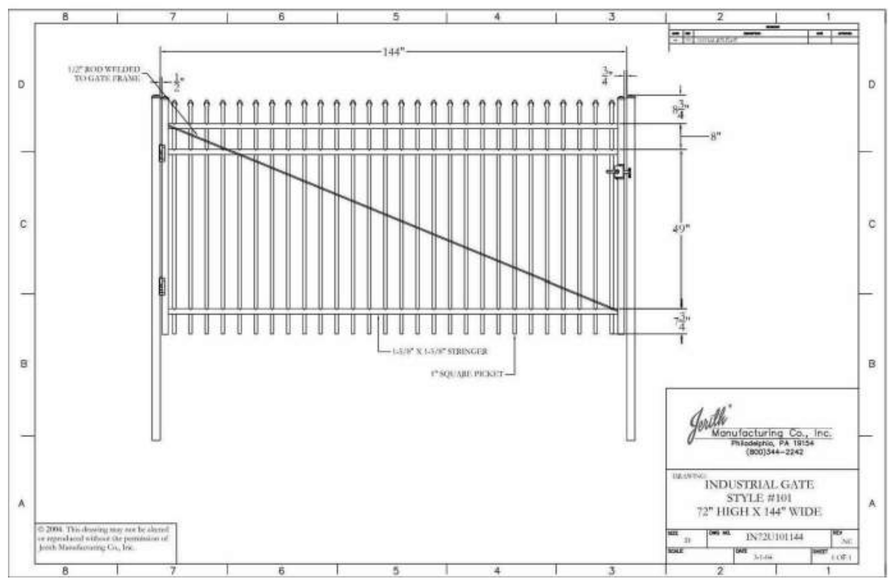
(1) ORNAMENTAL FENCE (6' HEIGHT) N.T.S.



Picket Size	A	B	C	D	E
5/8"	.70"	4.86"	0.050"	—	—
3/4"	.84"	5.00"	0.050"	—	—
1"	1.05"	5.21"	0.050"	—	—
Clip Size	—	—	—	2.75"	1.75"

(2) ORNAMENTAL FENCE PRIVACY SLATS N.T.S.





NOTES:
1. ALL FENCING SHALL BE INSTALLED PER MANUFACTURES STANDARDS AND SPECIFICATIONS.
2. PROVIDE BUILDING PERMITTING AS REQUIRED BY WAKE COUNTY

(3) ORNAMENTAL GATES (SEE PLANS FOR GATE WIDTH) N.T.S.

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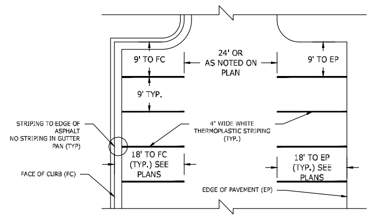
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

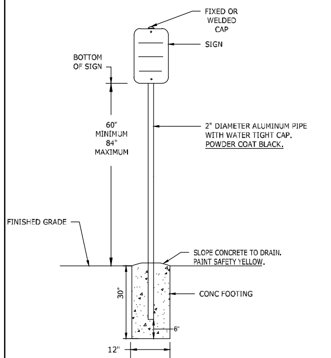
SITE DETAILS

JOB NO. 54832
SHEET NO. C6.1

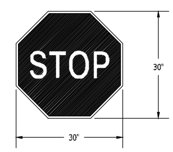
NOTE:
1. ALL PARKING STALL MARKINGS SHALL BE 2 COATS 15-mil THICK ALKYD RESIN PAINT.
2. FC = FACE OF CURB
3. EP = EDGE OF PAVEMENT



1 PARKING STALL AND TRAFFIC STRIPE N.T.S.

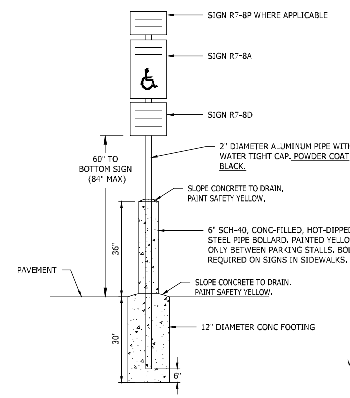


NOTES:
1. MOUNTING HEIGHT TO BOTTOM OF SIGN SHALL BE 60" FROM BOTTOM OF SIGN TO PAVEMENT OR 84" IN PEDESTRIAN AREAS UNLESS OTHERWISE NOTED.
2. ALL SIGNAGE SHALL HAVE HIGH INTENSITY PRISMATIC SHEETING.
3. SIGNS SHALL BE FABRICATED FROM ALUMINUM ALLOY SHEETS.
4. SIGNS SHOULD MEET MUTCD AND NCDOT STANDARDS AND SPECIFICATIONS FOR ROADWAY SIGNAGE AND FOUNDATIONS.



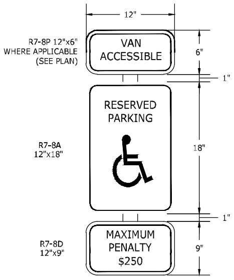
13 MUTCD STANDARD R1-1

2 TYPICAL ROADWAY SIGN N.T.S.

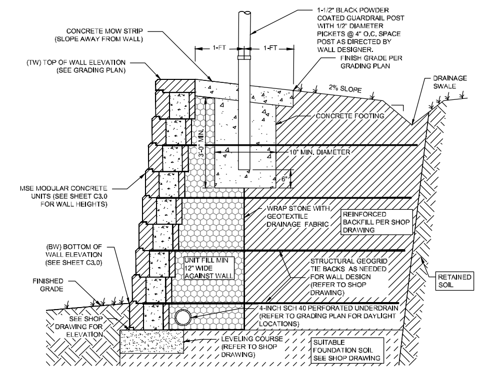


SIGN R7-8P WHERE APPLICABLE
SIGN R7-8A
SIGN R7-8D
60" TO BOTTOM SIGN (84" MAX)
2" DIAMETER ALUMINUM PIPE WITH WATER TIGHT CAP. POWDER COAT BLACK.
SLOPE CONCRETE TO DRAIN. PAINT SAFETY YELLOW.
6" SCH-40, CONC-FILLED, HOT-DIPPED GALV. STEEL PIPE BOLLARD. PAINTED YELLOW. INSTALL ONLY BETWEEN PARKING STALLS. BOLLARD NOT REQUIRED ON SIGNS IN SIDEWALKS.
PAVEMENT
36"
SLOPE CONCRETE TO DRAIN. PAINT SAFETY YELLOW.
12" DIAMETER CONC FOOTING
30"
6"

NOTES:
1. MOUNTING HEIGHT TO BOTTOM OF SIGN SHALL BE 60" FROM BOTTOM OF SIGN TO PAVEMENT OR 84" IN PEDESTRIAN AREAS UNLESS OTHERWISE NOTED.
2. ALL SIGNAGE SHALL HAVE HIGH INTENSITY PRISMATIC SHEETING.
3. SIGNS SHALL BE FABRICATED FROM ALUMINUM ALLOY SHEETS.
4. ALL MOUNTING HARDWARE SHALL BE GALVANIZED.
5. "VAPS" ON PLANS DENOTES VAN ACCESSIBLE PARKING SIGN. INSTALL R7-8A, R7-8D, & R7-8P.
6. "APS" ON PLANS DENOTES ACCESSIBLE PARKING SIGN. INSTALL R7-8A & R7-8D ONLY.



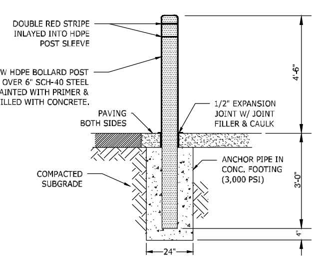
3 ACCESIBLE PARKING SIGN N.T.S.



1-1/2" BLACK POWDER COATED GUARDRAIL POST WITH 1/2" DIAMETER PICKETS @ 4" O.C. SPACE POST AS DIRECTED BY WALL DESIGNER.
CONCRETE MOW STRIP (SLOPE AWAY FROM WALL)
(TW) TOP OF WALL ELEVATION (SEE GRADING PLAN)
1-FT
1-FT
FINISH GRADE PER GRADING PLAN
2% SLOPE
DRAINAGE SWALE
CONCRETE FOOTING
10" MIN. DIAMETER
MSE MODULAR CONCRETE UNITS (SEE SHEET C3.0 FOR WALL HEIGHTS)
WRAP STONE WITH GEOTEXTILE DRAINAGE FABRIC
REINFORCED BACKFILL PER SHOP DRAWING
(BW) BOTTOM OF WALL ELEVATION (SEE SHEET C3.0)
UNIT FILL MIN 12" WIDE AGAINST WALL
STRUCTURAL GEOGRID TIE BACKS AS NEEDED FOR WALL DESIGN (REFER TO SHOP DRAWING)
RETAINED SOIL
FINISHED GRADE
4-INCH SCH 40 PERFORATED UNDERDRAIN (REFER TO GRADING PLAN FOR DAYLIGHT LOCATIONS)
SEE SHOP DRAWING FOR ELEVATION
LEVELING COURSE (REFER TO SHOP DRAWING)
SUITABLE FOUNDATION SOIL SEE SHOP DRAWING

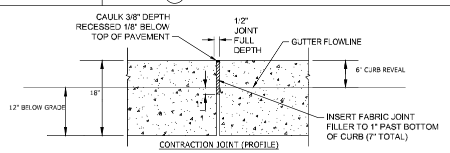
NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHOP DRAWING OF WALL DESIGN, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER (REGISTERED IN NORTH CAROLINA), FOR APPROVAL PRIOR TO CONSTRUCTION. CONTRACTOR MUST BE CERTIFIED TO BUILD THE WALL OR HAVE LICENSE PROFESSIONAL ENGINEER CERTIFY CONSTRUCTION.
2. FURNISH AND INSTALL ALL MATERIALS IN ACCORDANCE WITH THE SIGNED AND SEALED RETAINING WALL SHOP DRAWING.
3. MODULAR CONCRETE WALL UNITS SHALL CONCRETE WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000-PSI. UNITS SHALL HAVE STRAIGHT, SPLITFACE EXTERIOR FACE. PROVIDE CAP UNITS WITH SMOOTH TOP SURFACES. BASIS OF DESIGN BLOCK IS ANCHOR DIAMOND PRO.
4. CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MATERIALS IN THE REINFORCED ZONE FOR THE WALL CONSTRUCTION IN ACCORDANCE WITH THE SHOP DRAWINGS. ANY BORROW OR IMPORTED FILL MATERIAL REQUIRED FOR PROPER BACKFILLING OF THE WALL SHALL BE PROVIDED BY THE CONTRACTOR IN THE BASE BID CONTRACT. (REFER TO THE ATTACHED GEOTECHNICAL REPORT FOR EXISTING ONSITE SOILS)
5. THE FOUNDATION SOIL (BELOW THE WALL AND GEOGRID TIE BACKS) MUST MEET THE REQUIREMENTS IN THE SHOP DRAWING. THESE SOILS WILL BE TESTED BY THE MATERIAL TESTING COMPANY HIRED BY THE OWNER; SHOULD THE SITE SOILS NOT MEET THE REQUIREMENTS CONSULT WITH THE WALL DESIGNER AND CIVIL ENGINEER PRIOR TO CONSTRUCTION.
   5.1. PROVIDE A DESIGN THAT WORKS WITH THE FOUNDATION SOILS (REFER TO ATTACHED GEOTECHNICAL REPORT).
6. ACCOUNT FOR PREMIUM COLOR BLOCK IN THE BID. BASIS OF DESIGN COLOR IS ANCHOR DIAMOND PRO PLANTATION.
7. REFER TO WALL MANUFACTURERS SPECIFICATIONS AND GEOTECHNICAL ENGINEERING REPORT BY TIMMONS GROUP, DATED MARCH 10, 2023, INCLUDING OTHER ACCEPTABLE MSE WALL SYSTEMS BASED ON OWNER APPROVAL.

4 MODULAR BLOCK RETAINING WALL WITH BLACK SAFETY FENCE N.T.S.

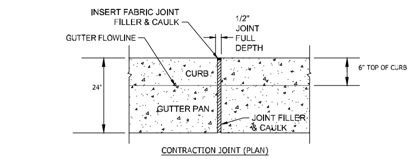


DOUBLE RED STRIPE INLAYED INTO HDPE POST SLEEVE
YELLOW HDPE BOLLARD POST SLEEVE OVER 6" SCH-40 STEEL PIPE PAINTED WITH PRIMER & FILLED WITH CONCRETE.
4'-6"
1/2" EXPANSION JOINT W/ JOINT FILLER & CAULK
PAVING BOTH SIDES
COMPACTED SUBGRADE
ANCHOR PIPE IN CONC. FOOTING (3,000 PSI)
3'-0"
6"
24"

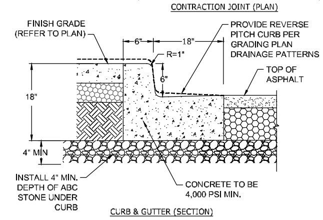
5 6" STEEL BOLLARD w/ HDPE SLEEVE N.T.S.



CONTRACTION JOINT (PROFILE)

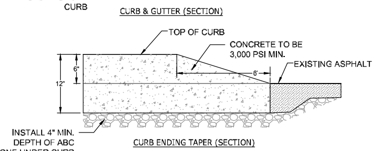


CONTRACTION JOINT (PLAN)



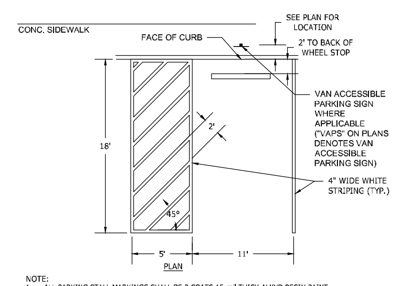
CURB & GUTTER (SECTION)

NOTES:
1. LOCATE CONTRACTION JOINTS 10' MAXIMUM APART IN CURB & GUTTER
2. INSERT FIBERBOARD STRIPS INTO EACH CONTRACTION JOINT AND TOP WITH CAULK
3. PROVIDE ¼" RADIUS ON EACH SIDES OF JOINT.
4. REFER TO NCDOT SPECIFICATION FOR ADDITIONAL INFORMATION.



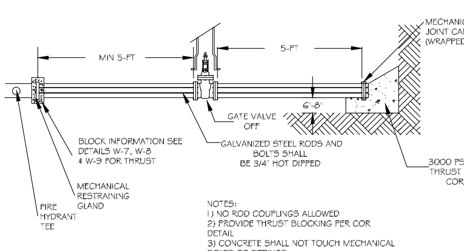
CURB ENDING TAPER (SECTION)

6 24" CONCRETE CURB & GUTTER N.T.S.



NOTE:
1. ALL PARKING STALL MARKINGS SHALL BE 2 COATS 15-mil THICK ALKYD RESIN PAINT.

7 ACCESSIBLE PARKING SPACE LAYOUT N.T.S.

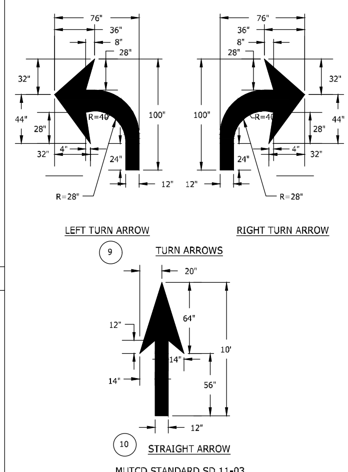


MIN 5-FT
5-FT
MECHANICAL JOINT CAP (WRAPPED)
GATE VALVE OFF
6'-8'
BLOCK INFORMATION SEE DETAILS W-7, W-8 & W-9 FOR THRUST
GALVANIZED STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED
3000 PSI CONCRETE THRUST BLOCK (SEE COR DETAIL)
MECHANICAL RESTRAINING GLAND
FIRE HYDRANT TEE

NOTES:
1) NO ROD COUPLINGS ALLOWED
2) PROVIDE THRUST BLOCKING PER COR DETAIL
3) CONCRETE SHALL NOT TOUCH MECHANICAL BOLTS OR FITTINGS

8 FIRE LINE CAPPING DETAIL N.T.S.

NOTE:
1. ALL ARROW MARKINGS SHALL BE REFLECTORIZED 120-mil THICK WHITE THERMOPLASTIC WITH GLASS BEADS WITHIN RIGHT OF WAY.

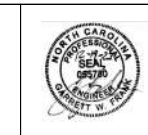


MUTCD STANDARD SD 11-03

9 TRAFFIC ARROWS N.T.S.

** FIRE LANE MARKING SHALL CONSIST OF A 4" SOLID YELLOW STRIPE AND 8" HIGH YELLOW TEXT "FIRE LANE" AT 50' INTERVALS.

10 FIRE LANE MARKINGS N.T.S.



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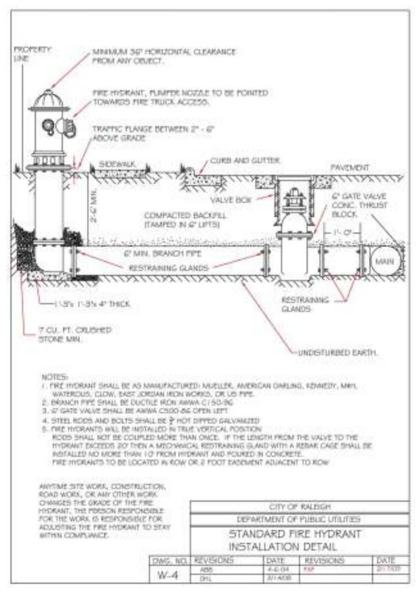
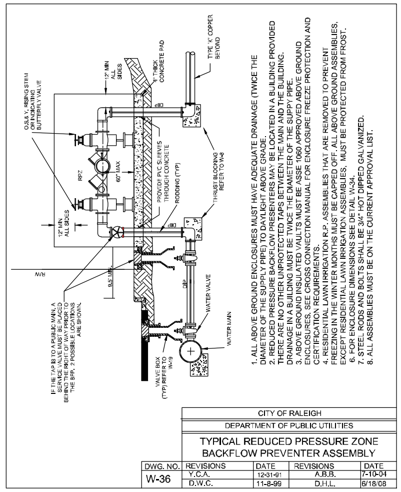


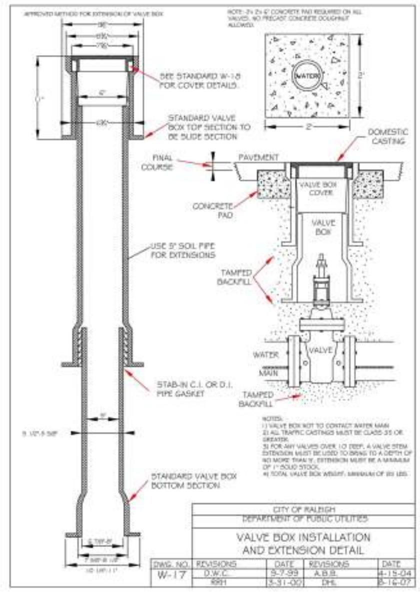
PROPERTY LINE
MINIMUM 36" HORIZONTAL CLEARANCE FROM ANY OBJECT.
FIRE HYDRANT, PUMPER NOZZLE TO BE POINTED TOWARDS FIRE TRUCK ACCESS.
TRAFFIC FLANGE BETWEEN 2" - 6" ABOVE GRADE
SIDEWALK
CURB AND GUTTER
PAVEMENT
VALVE BOX
6" GATE VALVE
CONC. THRUST BLOCK
COMPACTED BACKFILL (TAMPED IN 6" LIFTS)
6" MIN. BRANCH PIPE
RESTRAINING GLANDS
MAIN
1'-3½ 1'-3½ 4" THICK
7 CU. FT. CRUSHED STONE MIN.
RESTRAINING GLANDS
UNDISTURBED EARTH
NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M&H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C/ 50-96.
3. 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT.
4. STEEL RODS AND BOLTS SHALL BE ¾" HOT DIPPED GALVANIZED.
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD FIRE HYDRANT INSTALLATION DETAIL
DWG. NO. W-4

1 FIRE HYDRANT ASSEMBLY N.T.S.

NOTES:
1. SIZE ENCLOSURE AND HEATERS BASED ON SIZE OF THE BACKFLOW PREVENTER PER MANUFACTURER RECOMMENDATIONS.
2. PROVIDE COMPLETE ASSEMBLY IN ACCORDANCE WITH THE CITY OF RALEIGH STANDARDS OR INSPECTION POLICY. COORDINATE WITH WATER AUTHORITY IN ADVANCE OF CONSTRUCTION.
3. DOMESTIC REDUCED PRESSURE ZONE ASSEMBLY BASIS OF DESIGN IS WILKINS 975XL2. OTHER ACCEPTABLE DEVICES ARE FEBCO 860 OR WATTS 919 RPZA. COORDINATE WITH ARCHITECT AND ENGINEER.
4. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS OF BACKFLOW PREVENTER, VALVES, ENCLOSURE, ETC.
5. HEATING DEVICE AND POWER LINES BY G.C., SHALL BE LISTED FOR WET LOCATIONS.
6. PROVIDE PVC SLEEVES AT ALL PIPE AND WIRE PENETRATIONS OF CONCRETE BASE SLAB.
7. SEE SHEETS ELECTRICAL FOR TAMPER SWITCHES, LOW TEMPERATURE DEVICE, AND OTHER ELECTRICAL INFORMATION.

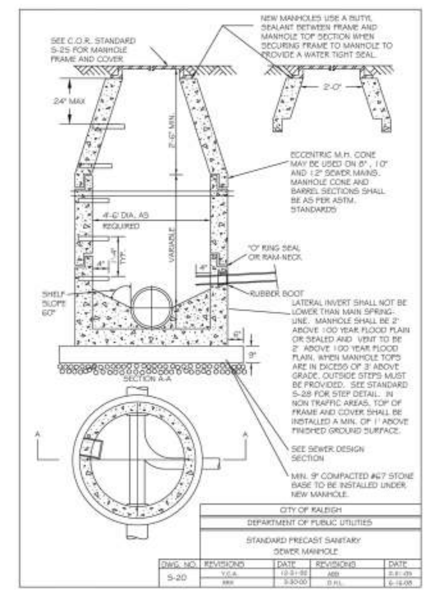


2 1.5" RPZ BACKFLOW PREVENTER (DOMESTIC SERVICE) N.T.S.



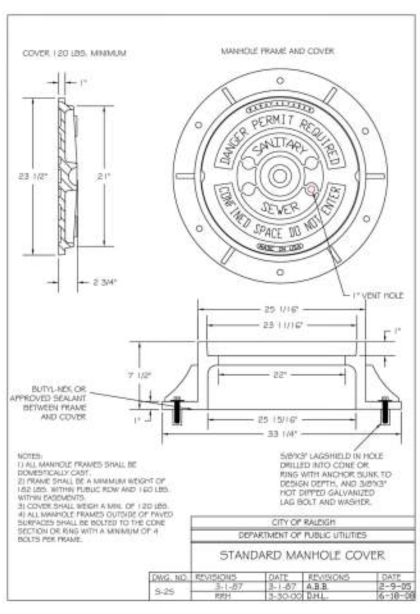
SEE STANDARD W-18 FOR COVER DETAILS.
STANDARD VALVE BOX TOP SECTION TO BE SLIDE SECTION
DOMESTIC CASTING
FINAL COURSE
PAVEMENT
VALVE BOX COVER
CONCRETE PAD
VALVE BOX
USE 5" SOIL PIPE FOR EXTENSIONS
TAMPED BACKFILL
WATER MAIN
VALVE
STAB-IN C.I. OR D.I. PIPE GASKET
TAMPED BACKFILL
STANDARD VALVE BOX BOTTOM SECTION
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
VALVE BOX INSTALLATION AND EXTENSION DETAIL
DWG. NO. W-17

3 GATE VALVE ASSEMBLY N.T.S.



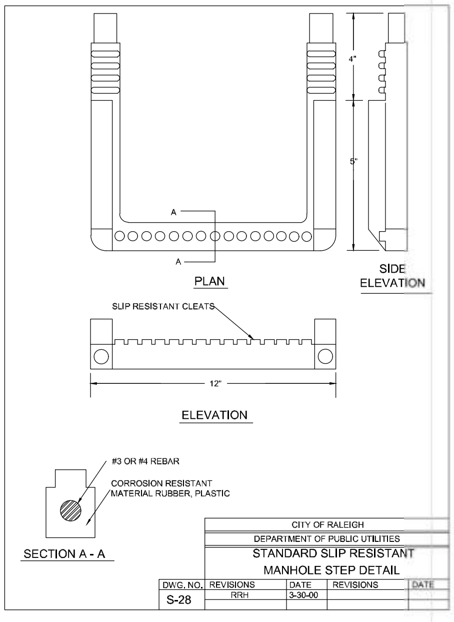
SEE C.O.R. STANDARD S-25 FOR MANHOLE FRAME AND COVER
NEW MANHOLES USE A BUTYL SEALANT BETWEEN FRAME AND MANHOLE TOP SECTION WHEN SECURING FRAME TO MANHOLE TO PROVIDE A WATER TIGHT SEAL.
24" MAX
2'-0"
ECCENTRIC M.H. CONE MAY BE USED ON 8", 10" AND 12" SEWER MAINS. MANHOLE CONE AND BARREL SECTIONS SHALL BE AS PER ASTM STANDARDS
4'-0" DIA. AS REQUIRED
"O" RING SEAL OR RAM-NECK
SHELF SLOPE 60°
RUBBER BOOT
SECTION A-A
SEE SEWER DESIGN SECTION
MIN. 9" COMPACTED #67 STONE BASE TO BE INSTALLED UNDER NEW MANHOLE.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD PRECAST SANITARY SEWER MANHOLE
DWG. NO. S-20

4 SANITARY SEWER MANHOLE N.T.S.



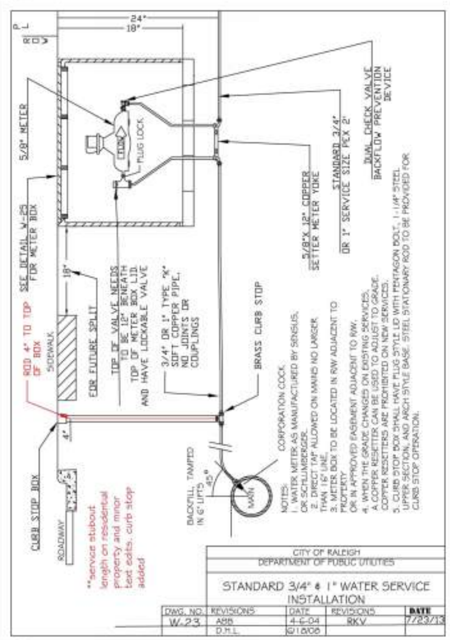
COVER 120 LBS. MINIMUM
MANHOLE FRAME AND COVER
DANGER PERMIT REQUIRED
SANITARY SEWER
CONFINED SPACE DO NOT ENTER
1" VENT HOLE
23 1/2"
21"
2 3/4"
25 1/16"
23 11/16"
22"
25 15/16"
33 1/4"
BUTYL-NEK OR APPROVED SEALANT BETWEEN FRAME AND COVER
NOTES:
1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2) FRAME SHALL BE A MINIMUM WEIGHT OF 162 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.
5/8"X3" LAGSHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DESIGN DEPTH, AND 3/8"X3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE COVER
DWG. NO. S-25

5 SANITARY SEWER MANHOLE RING & COVER N.T.S.



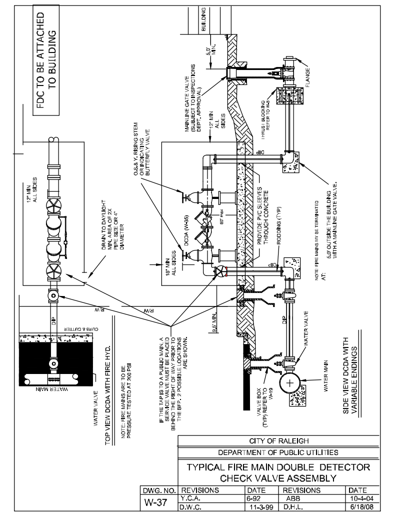
PLAN
SIDE ELEVATION
SLIP RESISTANT CLEATS
12"
ELEVATION
#3 OR #4 REBAR
CORROSION RESISTANT MATERIAL RUBBER, PLASTIC
SECTION A - A
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL
DWG. NO. S-28
REVISIONS RRH DATE 3-30-00

6 MANHOLE STEPS N.T.S.



24"
18"
5/8" METER
PLUG LOCK
STANDARD 3/4" DUAL CHECK VALVE BACKFLOW PREVENTION DEVICE
5/8"X 1/2" COPPER SETTER METER YOKE OR 1" SERVICE SIZE PCX 2"
SEE DETAIL W-25 FOR METER BOX
ROD 4" TO TOP OF BOX
SIDEWALK
FOR FUTURE SPLIT
TOP OF VALVE NEEDS TO BE 12" BENEATH TOP OF METER BOX LID AND HAVE LOCKABLE VALVE
3/4" OR 1" TYPE "K" SOFT COPPER PIPE, NO JOINTS OR COUPLINGS
BRASS CURB STOP
CURB STOP BOX
ROADWAY
**service stubout length on residential property and minor tied edits, curb stop added
BACKFILL TAMPED IN 6" LIFTS
MAIN
CORPORATION COCK
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD 3/4" & 1" WATER SERVICE INSTALLATION
DWG. NO. W-23

7 1" WATER METER AND VAULT N.T.S.



FDC TO BE ATTACHED TO BUILDING
SIDE VIEW DDCA WITH VARIABLE ENDINGS
TOP VIEW DDCA WITH FIRE HYD.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TYPICAL FIRE MAIN DOUBLE DETECTOR CHECK VALVE ASSEMBLY
DWG. NO. W-37
REVISIONS Y.C.A. 6-92 ABB 10-4-04
D.W.C. 11-3-99 D.H.L. 6/18/08

PROJECT NOTES:
1. SIZE ENCLOSURE AND HEATERS BASED ON SIZE OF THE BACKFLOW PREVENTER AND FORWARD FLOW TEST DEVICE.
2. PROVIDE COMPLETE ASSEMBLY IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS OR INSPECTION POLICY. COORDINATE WITH WATER AUTHORITY IN ADVANCE OF CONSTRUCTION.
4. FIRE SERVICE REDUCED PRESSURE DETECTOR ASSEMBLY ACCEPTABLE DEVICES ARE FEBCO 826YD OR WATTS 957
5. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS
6. HEATING DEVICE AND POWER LINES BY G.C., SHALL BE
7. PROVIDE PVC SLEEVES AT ALL PIPE AND WIRE PENETRAT
8. SEE SHEETS ELECTRICAL FOR TAMPER SWITCHES, LOW INFORMATION.

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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CITY OF RALEIGH DEVELOPMENT APPROVAL ____________ RALEIGH WATER REVIEW OFFICER

8 FIRE SERVICE BACKFLOW (8" RPDA) N.T.S.

NORTH CAROLINA PROFESSIONAL SEAL 095780 ENGINEER GARRETT W. FRANK

THIS DRAWING PREPARED AT THE **RALEIGH OFFICE**
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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

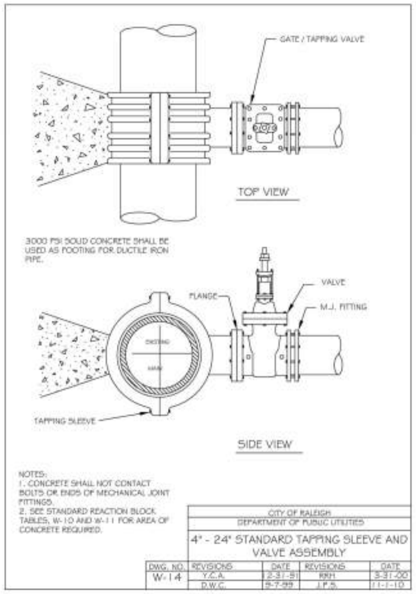
DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

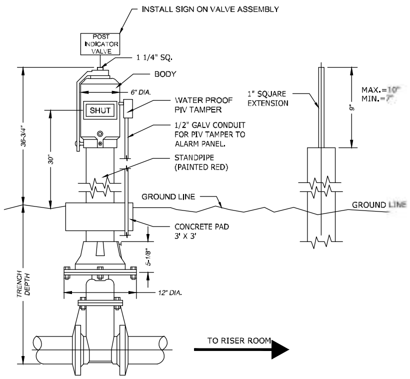
SITE DETAILS

JOB NO. 54832
SHEET NO. C6.3



GATE / TAPPING VALVE
TOP VIEW
3000 PSI SOLID CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.
FLANGE
VALVE
M.J. FITTING
TAPPING SLEEVE
SIDE VIEW
NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" - 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY
DWG. NO. W-14

① TAPPING SLEEVE w/ GATE VALVE — N.T.S.

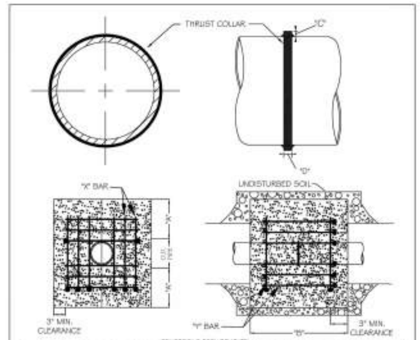


INSTALL SIGN ON VALVE ASSEMBLY
POST INDICATOR VALVE
1 1/4" SQ.
BODY
6" DIA.
WATER PROOF PIV TAMPER
SHUT
1/2" GALV CONDUIT FOR PIV TAMPER TO ALARM PANEL.
STANDPIPE (PAINTED RED)
GROUND LINE
CONCRETE PAD 3' X 3'
12" DIA.
TRENCH DEPTH
TO RISER ROOM
1" SQUARE EXTENSION
MAX.=10" MIN.=7"
GROUND LINE

FIELD ADJUSTMENT INSTRUCTIONS

1. REMOVE THE BODY FROM THE TOP OF THE INDICATOR POST ASSEMBLY.
2. CUT THE REQUIRED LENGTH OFF THE BOTTOM OF THE STANDPIPE FOR THE GROUND LINE TO MATCH UP WITH STANDPIPE GROUND LINE MARK.
3. CUT THE 1" SQ. EXTENSION AT A DISTANCE OF 9" ABOVE THE TOP OF THE STANDPIPE.
4. SET THE "OPEN" AND "SHUT" TARGETS FOR THE APPROPRIATE VALVE SIZE.
5. RE-ATTACH THE BODY TO THE TOP OF THE INDICATOR POST ASSEMBLY.
6. ALL PIV(s) SHALL BE INSTALLED WITH AN ELECTRONICALLY CONTROLLED TAMPER SWITCH.

② POST INDICATOR VALVE ASSEMBLY — N.T.S.



REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6" - 36"	#5	2'-2"+ O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X-24, Y-12
48" & greater	#6	3'-0"+ O.D. PIPE	1.502 LBS/FT	1'-8"	1.8 LBS. EACH	X-24, Y-12

THRUST COLLAR, AND THRUST SCHEDULE

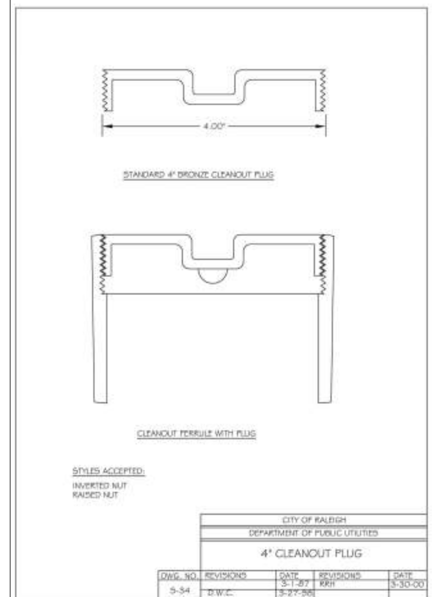
I.D. PIPE	"A"	"B"	"C"	"D"
6" - 16"	1'-4"	1'-7"	2"	3/8"
20" - 24"	1'-4"	1'-7"	3"	1/2"
30" - 36"	1'-4"	1'-7"	4"	5/8"
48" & greater	1'-6"	1'-9"	6"	7/8"

NOTES:
1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
5. BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

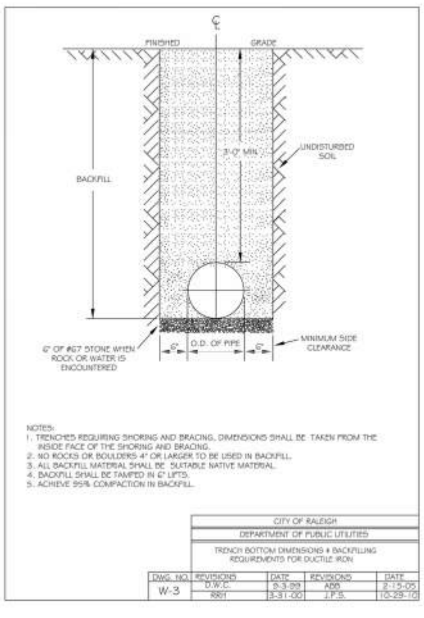
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN DATA FOR WATER MAINS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-7	RRH	1-21-00	J.P.S.	11-1-10
	D.H.L.	6-18-08		

③ THRUST BLOCKING — N.T.S.

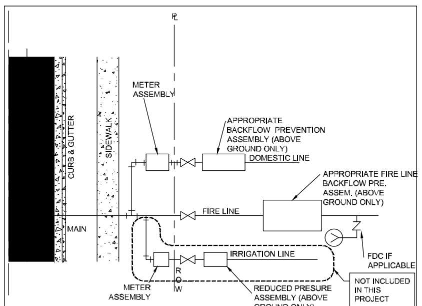


④ SANITARY SEWER CLEANOUT — N.T.S.



FINISHED GRADE
UNDISTURBED SOIL
BACKFILL
3'-0" MIN.
6" OF #67 STONE WHEN ROCK OR WATER IS ENCOUNTERED
O.D. OF PIPE
MINIMUM SIDE CLEARANCE
NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON
DWG. NO. W-3

⑤ UTILITY TRENCHING AND BACKFILL — N.T.S.



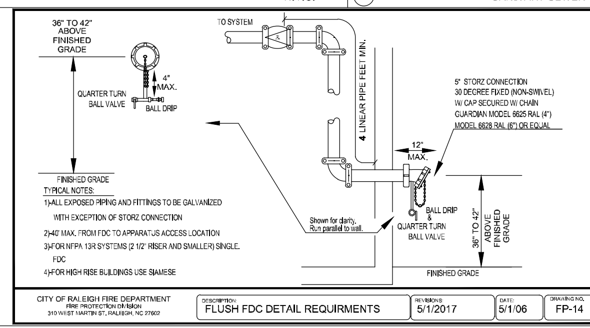
CURB & GUTTER
SIDEWALK
METER ASSEMBLY
APPROPRIATE BACKFLOW PREVENTION ASSEMBLY (ABOVE GROUND ONLY)
DOMESTIC LINE
APPROPRIATE FIRE LINE BACKFLOW PRE. ASSEM. (ABOVE GROUND ONLY)
FIRE LINE
MAIN
IRRIGATION LINE
FDC IF APPLICABLE
METER ASSEMBLY
R O W
REDUCED PRESURE ASSEMBLY (ABOVE GROUND ONLY)
NOT INCLUDED IN THIS PROJECT

1. SERVICE TAPS FOR 2" AND SMALLER DOMESTIC SERVICES MAY BE BY CORPORATION COCKS. LARGER SERVICES WILL REQUIRE A TEE AND GATE VALVE OR TAPPING SLEEVE AND VALVE ASSEMBLY AND 90° BEND.
2. DOMESTIC SERVICE TAPS SHALL BE ALLOWED ONLY ON 6" OR LARGER FIRE LINES BEFORE THE BACKFLOW ASSEMBLY.
3. ONE DOMESTIC TAP PER FIRE LINE ON STREET SIDE OF BACKFLOW. 4. FIRE LINE SHALL HAVE A FIRE HYDRANT OR BLOW OFF ASSEMBLY AT ITS END TO FACILITATE FLUSHING WHEN NEEDED.
5. IRRIGATION METER SHALL BE LOCATED ON THE SIDE OF DOMESTIC METER WITH INCREASING ADDRESSES.
6. THE BACKFLOW SHALL BE INSTALLED NO MORE THAN10' FROM THE METER IN A VISIBLE LOCATION.
7. DOMESTIC'/IRRIGATION BACKFLOW RISER/STANDPIPE SHALL BE OF COPPER OR BRASS.
8. THE RP RELIEF VALVE SHALL BE A MINIMUM OF 12" ABOVE ANY MATERIAL (MULCH INCLUDED) OR GRADE.
9. A SERVICE VALVE IS REQUIRED AFTER THE METER BUT BEFORE THE BACKFLOW ASSEMBLY FOR MAINTENANCE AND REPLACEMENT PURPOSES.
10. THE INSTALLATION MUST ALSO MEET ALL CODE REQUIREMENTS PER THE NC PLUMBING CODE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
FIRE, DOMESTIC & IRRIGATION OPTIONS SCHEMATIC

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-34	D.W.C.	11-18-99	A.B.B.	7-10-04
	RRH	3-31-00	D.H.L.	6/18/08

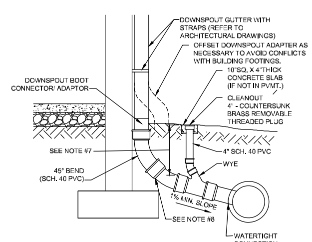
⑥ FIRE, DOMESTIC , & IRRIGATION OPTIONS — N.T.S.



36" TO 42" ABOVE FINISHED GRADE
QUARTER TURN BALL VALVE
4" MAX.
BALL DRIP
TO SYSTEM
4 LINEAR PIPE FEET MIN.
5" STORZ CONNECTION
30 DEGREE FIXED (NON-SWIVEL)
W/ CAP SECURED W/ CHAIN
GUARDIAN MODEL 6625 RAL (4")
MODEL 6626 RAL (6") OR EQUAL
12" MAX.
FINISHED GRADE
TYPICAL NOTES:
1)ALL EXPOSED PIPING AND FITTINGS TO BE GALVANIZED WITH EXCEPTION OF STORZ CONNECTION
2)40' MAX. FROM FDC TO APPARATUS ACCESS LOCATION
3)FOR NFPA 13R SYSTEMS (2 1/2" RISER AND SMALLER) SINGLE, FDC
4)FOR HIGH RISE BUILDINGS USE SIAMESE
Shown for clarity. Run parallel to wall.
BALL DRIP & QUARTER TURN BALL VALVE
36" TO 42" ABOVE FINISHED GRADE
FINISHED GRADE
CITY OF RALEIGH FIRE DEPARTMENT
FIRE PROTECTION DIVISION
310 WEST MARTIN ST, RALEIGH, NC 27602
DESCRIPTION: FLUSH FDC DETAIL REQUIRMENTS
REVISIONS: 5/1/2017
DATE: 5/1/06
DRAWING NO. FP-14

NOTE: SEE BUILDING PLUMBING DRAWINGS FOR ADDITIONAL DETAILS.

⑦ WALL MOUNTED FDC (STORZ) — N.T.S.



DOWNSPOUT GUTTER WITH STRAPS (REFER TO ARCHITECTURAL DRAWINGS)
OFFSET DOWNSPOUT ADAPTER AS NECESSARY TO AVOID CONFLICTS WITH BUILDING FOOTINGS.
10"SQ. X 4"THICK CONCRETE SLAB (IF NOT IN PVMT.)
CLEANOUT 4" + COUNTERSUNK BRASS REMOVABLE THREADED PLUG
DOWNSPOUT BOOT CONNECTOR/ ADAPTOR
SEE NOTE #7
4" SCH. 40 PVC
WYE
45° BEND (SCH. 40 PVC)
1% MIN. SLOPE
SEE NOTE #8
WATERTIGHT CONNECTION

ROOF DRAIN COLLECTOR NOTES:

1. CONNECT ALL BUILDING ROOF DRAINS INTO THE ROOF DRAIN COLLECTOR SYSTEM OR DIRECTLY INTO THE STORM SEWER SYSTEM.
2. THE ROOF DRAIN COLLECTOR SYSTEM IS SMOOTH-LINED, CORRUGATED POLYETHYLENE PIPE LAID AT MINIMUM SLOPES AS INDICATED.
3. PIPES CONNECTING TO INDIVIDUAL ROOF DRAINS ARE 6". PROVIDE MINIMUM 6" PIPE SIZE 5' OUTSIDE BUILDING. ALL OTHER DRAIN PIPES ARE SIZED AS INDICATED INCREASING IN SIZE FROM UPSTREAM TO DOWNSTREAM.
4. PROVIDE CLEANOUTS AS INDICATED, AS REQUIRED BY LOCAL BUILDING CODE.
5. MAKE CONNECTIONS INTO CONCRETE PIPES WITH A FLEXIBLE WATERTIGHT TEE CONNECTOR THAT IS MECHANICALLY EXPANDED INTO A CORDED OPENING. CONNECTOR TO BE KOR-N-TEE OR APPROVED EQUAL.
6. MAINTAIN ADEQUATE OUTFALL FOR ROOF DRAIN DURING AND AFTER THE COMPLETION OF CONSTRUCTION.
7. MINIMUM DEPTH OF COVER IS ONE (1) FOOT. FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE DIP. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, SCHEDULE 40 PVC MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.
8. MAINTAIN A WATERTIGHT CONNECTION AT ALL PIPE CONNECTIONS BELOW GRADE.
9. THE SITE WORK CONTRACTOR IS RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE 45° BEND FOR ROOF DRAINS.

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

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CITY OF RALEIGH DEVELOPMENT APPROVAL — RALEIGH WATER REVIEW OFFICER

⑧ 4" X 5" DOWNSPOUT BOOT CONNECTOR — N.T.S.

NORTH CAROLINA PROFESSIONAL SEAL 035780 ENGINEER GARRETT W. FRANK

THIS DRAWING PREPARED AT THE **RALEIGH OFFICE**
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
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YOUR VISION ACHIEVED THROUGH OURS.

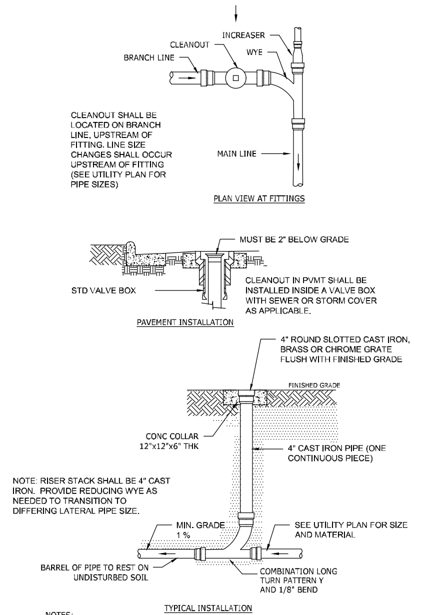
DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE: 04/05/2023
DRAWN BY: L. BARNES
DESIGNED BY: G. FRANK
CHECKED BY: G. FRANK
SCALE: AS SHOWN

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

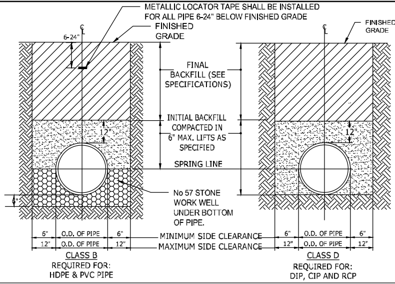
JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
SITE DETAILS

JOB NO. 54832
SHEET NO. C6.4


INCREASER
CLEANOUT
WYE
BRANCH LINE
CLEANOUT SHALL BE LOCATED ON BRANCH LINE, UPSTREAM OF FITTING. LINE SIZE CHANGES SHALL OCCUR UPSTREAM OF FITTING (SEE UTILITY PLAN FOR PIPE SIZES)
MAIN LINE
PLAN VIEW AT FITTINGS
MUST BE 2" BELOW GRADE
STD VALVE BOX
CLEANOUT IN PVMT SHALL BE INSTALLED INSIDE A VALVE BOX WITH SEWER OR STORM COVER AS APPLICABLE.
PAVEMENT INSTALLATION
4" ROUND SLOTTED CAST IRON, BRASS OR CHROME GRATE FLUSH WITH FINISHED GRADE
FINISHED GRADE
CONC COLLAR 12"x12"x6" THK
4" CAST IRON PIPE (ONE CONTINUOUS PIECE)
NOTE: RISER STACK SHALL BE 4" CAST IRON. PROVIDE REDUCING WYE AS NEEDED TO TRANSITION TO DIFFERING LATERAL PIPE SIZE.
MIN. GRADE 1%
SEE UTILITY PLAN FOR SIZE AND MATERIAL
BARREL OF PIPE TO REST ON UNDISTURBED SOIL
COMBINATION LONG TURN PATTERN Y AND 1/8" BEND
TYPICAL INSTALLATION

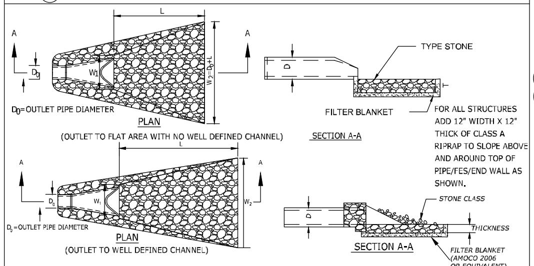
NOTES:
THE FULL LENGTH OF THE SERVICE DITCH BE COMPACTED IN 6" LAYERS WITH MECHANICAL TAMP.

(1) STANDARD SEWER CLEANOUT N.T.S.


METALLIC LOCATOR TAPE SHALL BE INSTALLED FOR ALL PIPE 6-24" BELOW FINISHED GRADE
FINISHED GRADE
FINAL BACKFILL (SEE SPECIFICATIONS)
INITIAL BACKFILL COMPACTED IN 6" MAX. LIFTS AS SPECIFIED
SPRING LINE
No 57 STONE WORK WELL UNDER BOTTOM OF PIPE.
MINIMUM SIDE CLEARANCE
MAXIMUM SIDE CLEARANCE
CLASS B
REQUIRED FOR: HDPE & PVC PIPE
CLASS D
REQUIRED FOR: DIP, CIP AND RCP

NOTES
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LAYERS.
5. IF ROCK IS ENCOUNTERED AT BOTTOM OF TRENCH, OVER EXCAVATE ROCK A MIN. OF 6"CHS AND BACK FILL WITH NO. 67 STONE TO THE BOTTOM OF PIPE.

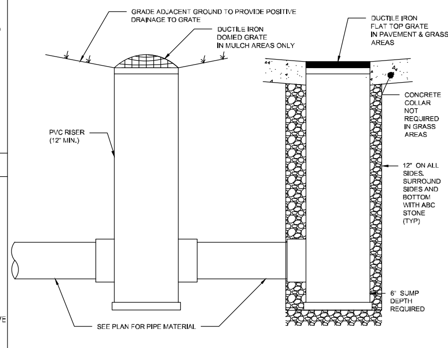
(2) STORM SEWER TRENCHES N.T.S.


D0=OUTLET PIPE DIAMETER
PLAN
(OUTLET TO FLAT AREA WITH NO WELL DEFINED CHANNEL)
TYPE STONE
FILTER BLANKET
SECTION A-A
FOR ALL STRUCTURES ADD 12" WIDTH X 12" THICK OF CLASS A RIPRAP TO SLOPE ABOVE AND AROUND TOP OF PIPE/FES/END WALL AS SHOWN.
STONE CLASS
THICKNESS
PLAN
(OUTLET TO WELL DEFINED CHANNEL)
SECTION A-A
FILTER BLANKET (AMOCO 2006 OR EQUIVALENT)

MAINTENANCE:
1. RIP RAP OUTLET STRUCTURES TO BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL EVENT. REPAIRS ARE TO BE MADE IMMEDIATELY.

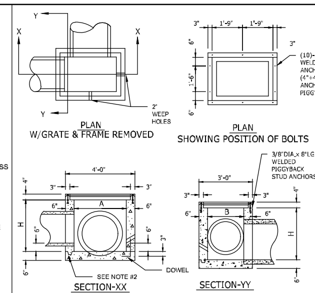
NOTES:
1. A FILTER BLANKET SHOULD BE INSTALLED BETWEEN THE RIP RAP AND SOIL FOUNDATION.
2. MAINTAIN ENERGY DISSIPATERS INSTALLED DURING EARLY SITE WORK THROUGHOUT THE CONSTRUCTION AREA.
3. TOP OF RIP RAP AT DOWNSTREAM END OF APRON SHALL BE FLUSH WITH NATURAL GRADE OF THE RECEIVING CHANNEL.
4. VEGETATE ALL DISTURBED AREAS WITH VEGETATION IMMEDIATELY AFTER INSTALLATION.
5. SEE EROSION CONTROL PLAN FOR DIMENSIONS.

(3) FLARED END SECTION N.T.S.


GRADE ADJACENT GROUND TO PROVIDE POSITIVE DRAINAGE TO GRATE
DUCTILE IRON DOMED GRATE IN MULCH AREAS ONLY
DUCTILE IRON FLAT TOP GRATE IN PAVEMENT & GRASS AREAS
PVC RISER (12" MIN.)
CONCRETE COLLAR NOT REQUIRED IN GRASS AREAS
12" ON ALL SIDES. SURROUND SIDES AND BOTTOM WITH ABC STONE (TYP)
6" SUMP DEPTH REQUIRED
SEE PLAN FOR PIPE MATERIAL

NOTES:
1. GRATES SHALL BE 18" DIAMETER, SLOTTED, CAST IRON, HINGED AT BASE.
2. PIPE AND FITTINGS SHALL BE PVC, SMOOTH INTERIOR AND EXTERIOR.
3. REFER TO DRAWING C3.0 FOR INLINE DRAIN SCHEDULE.

(4) YARD INLET N.T.S.

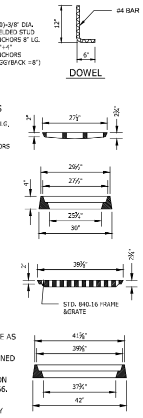


NOTES:
1. 3,000-PSI CONCRETE TO BE USED THROUGHOUT.
2. OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTER, AS DIRECTED BY THE DESIGNER.
3. TWO 2" PIPE WEEP HOLES TO BE PLACED AS DIRECTED BY DESIGNER.
4. FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
5. IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON NCDOT STANDARD 840.00.
6. A STONE DRAIN CONSISTING OF 1 CUBIC FOOT OF NO. 78M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE.
7. ALL DROP INLETS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 15" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH NCDOT STANDARD 840.66. THE FIRST STEP SHALL BE 24" BELOW RIM OF GRATE.
8. ALL GRATES IN SIDEWALK AREAS SHALL BE ADA COMPLIANT. V-5660-80 BY EAST JORDAN IRON WORKS OR APPROVED EQUAL.
9. INLETS MAY BE CONSTRUCTED OF BLOCK AND MORTAR IN LIEU OF PRE-CAST CONCRETE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

DIMENSIONS FOR DROP INLET			
DIMENSIONS OF BOX & PIPE			
PIPE	SPAN	WIDTH	HEIGHT
D	A	B	H
12"	3'-0"	2'-0"	2'-8"
15"			3'-0"
18"			3'-5"
24"			4'-0"
30"	3'-0"	2'-0"	4'-3"

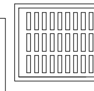
DIMENSIONS FOR CHANNELS			
NO.	SIZE	LENGTH	TOTAL LIN. FT.
2	3"x4.1"	4'-0"	8'-0"
2	3"x4.1"	2'-6"	5'-0"

CURB INLET WITH "H" VALUES (HEIGHT) LESS THAN MINIMUM SHOWN IN CHART SHALL HAVE SHOP DRAWINGS DESIGNED AND SEALED BY PROFESSIONAL ENGINEER MEETING SPEC SECTION 33 40 00 REQUIREMENTS. THESE STRUCTURES CAN BE CAST-IN-PLACE CONCRETE AND/OR MASONRY DESIGN



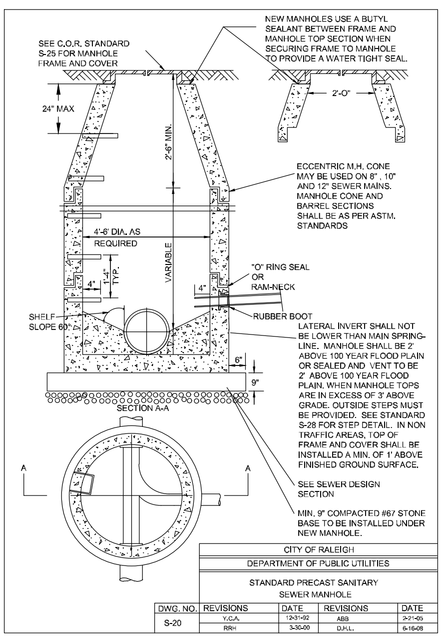
GRATE SECTIONS

FRAME & GRATE SHALL BE ADA COMPLIANT (V-5660-80 BY EJIW OR APPROVED EQUAL)

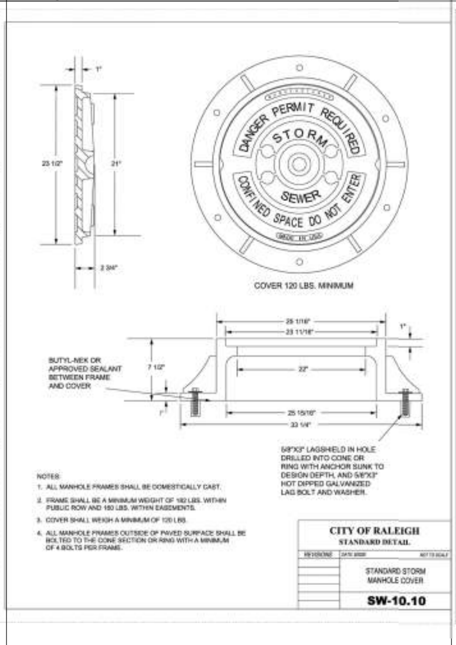


GRATE PLAN

(5) STANDARD CONCRETE DROP INLET N.T.S.


SEE C.O.R. STANDARD S-25 FOR MANHOLE FRAME AND COVER
NEW MANHOLES USE A BUTYL SEALANT BETWEEN FRAME AND MANHOLE TOP SECTION WHEN SECURING FRAME TO MANHOLE TO PROVIDE A WATER TIGHT SEAL.
24" MAX
2'-6" MIN.
ECCENTRIC M.H. CONE MAY BE USED ON 8", 10" AND 12" SEWER MAINS. MANHOLE CONE AND BARREL SECTIONS SHALL BE AS PER ASTM. STANDARDS
4'-6" DIA. AS REQUIRED
VARIABLE
"O" RING SEAL OR RAM-NECK
RUBBER BOOT
SHELF SLOPE 60°
LATERAL INVERT SHALL NOT BE LOWER THAN MAIN SPRING-LINE. MANHOLE SHALL BE 2' ABOVE 100 YEAR FLOOD PLAIN OR SEALED AND VENT TO BE 2' ABOVE 100 YEAR FLOOD PLAIN. WHEN MANHOLE TOPS ARE IN EXCESS OF 3' ABOVE GRADE, OUTSIDE STEPS MUST BE PROVIDED. SEE STANDARD S-28 FOR STEP DETAIL. IN NON TRAFFIC AREAS, TOP OF FRAME AND COVER SHALL BE INSTALLED A MIN. OF 1' ABOVE FINISHED GROUND SURFACE.
SECTION A-A
SEE SEWER DESIGN SECTION
MIN. 9" COMPACTED #67 STONE BASE TO BE INSTALLED UNDER NEW MANHOLE.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD PRECAST SANITARY SEWER MANHOLE
DWG. NO.
S-20

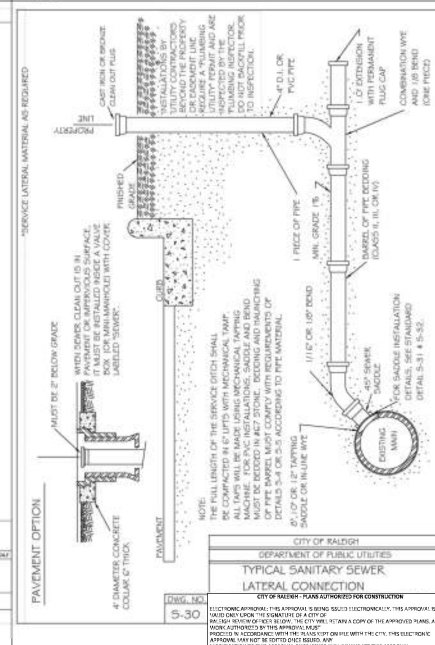
(6) SANITARY SEWER MANHOLE N.T.S.


DANGER PERMIT REQUIRED
STORM
SEWER
CONFINED SPACE DO NOT ENTER
COVER 120 LBS. MINIMUM
BUTYL-NEK OR APPROVED SEALANT BETWEEN FRAME AND COVER
5/8"X3" LAGSHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DESIGN DEPTH, AND 5/8"X3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.

NOTES:
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2. FRAME SHALL BE A MINIMUM WEIGHT OF 160 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3. COVER SHALL WEIGH A MINIMUM OF 120 LBS.
4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACE SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

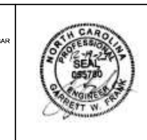
CITY OF RALEIGH
STANDARD DETAIL
STANDARD STORM MANHOLE COVER
SW-10.10

(7) STANDARD STORM MANHOLE COVER N.T.S.



CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

(8) SANITARY SEWER



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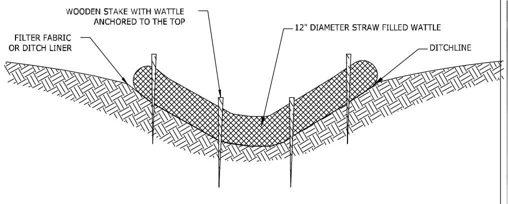
DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

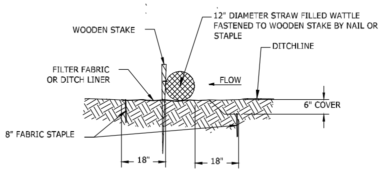
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
SITE DETAILS

JOB NO. 54832
SHEET NO. C6.5



PROFILE VIEW



CROSS SECTION

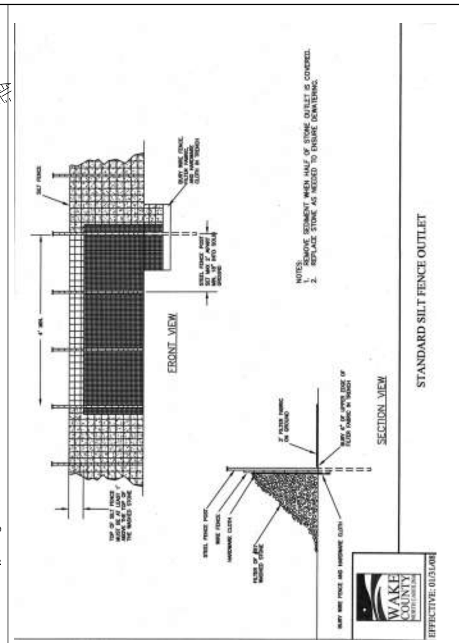
NOTES:

1. WATTLES SHALL BE FILLED WITH STRAW OR OTHER APPROVED MATERIAL.
2. SPACING FOR WATTLES SHALL BE AS SHOWN ON EROSION CONTROL PLAN.
3. STAKE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
4. THE SOCK SHALL BE PRODUCED FROM A 5 MIL THICK CONTINUOUS POLYPROPYLENE, WOVEN INTO A TUBULAR MESH NETTING MATERIAL, WITH OPENINGS IN THE KNITTED MESH OF 1/8"TO 3/8" OPENINGS.
5. HARDWOOD 2"x2" STAKES SHALL BE DRIVEN THROUGH CENTER OF COMPOST SOCK AT 4' O.C. MAXIMUM SPACING ANGLED UP SLOPE.

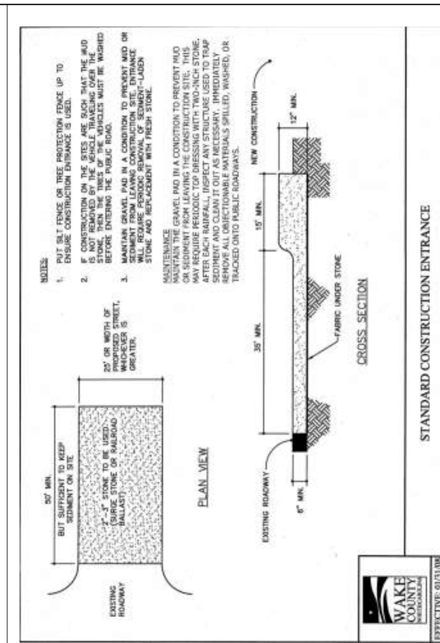
MAINTENANCE NOTES:

1. INSPECT COMPOST SOCKS WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER).
2. REMOVE ACCUMULATED SEDIMENT AND ANY DEBRIS. THE COMPOST SOCK MUST BE REPLACED IF CLOGGED OR TORN.
3. IF PONDING BECOMES EXCESSIVE, THE SOCK MAY NEED TO BE REPLACED WITH A LARGER DIAMETER OR A DIFFERENT MEASURE.
4. THE SOCK NEEDS TO BE REINSTALLED IF UNDERMINED OR DISLODGED.
5. THE COMPOST SOCK SHALL BE INSPECTED UNTIL LAND DISTURBANCE IS COMPLETE AND THE AREA ABOVE THE MEASURE HAS BEEN PERMANENTLY STABILIZED.

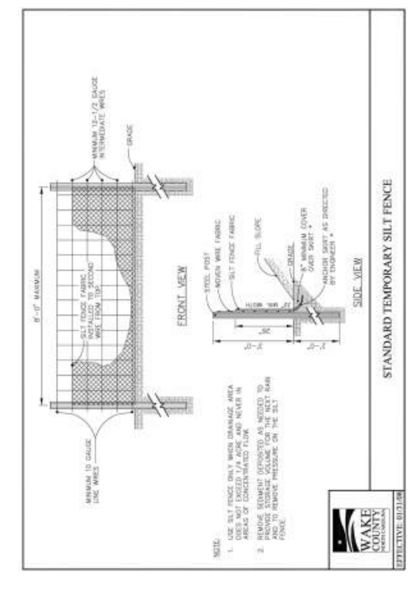
(1) CHECK DAM N.T.S.



(2) REINFORCED SILT FENCE OUTLET N.T.S.

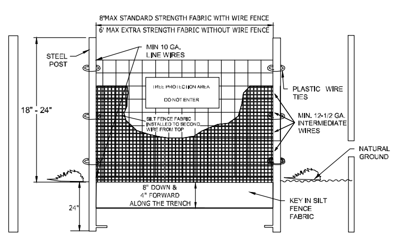


(3) GRAVEL CONSTRUCTION ENTRANCE N.T.S.



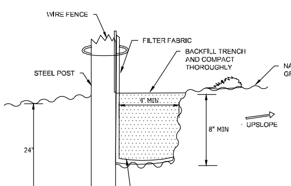
(4A) TEMPORARY SEDIMENT FENCE N.T.S.

PROVIDE FENCE AS DESCRIBED IN DRAWING I.E TREE PROTECTION, SILT FENCE.



INSTALLATION SPECIFICATIONS:

1. THE BASE OF BOTH END POSTS SHOULD BE AT LEAST ON FOOT HIGHER THAN THE MIDDLE OF THE FENCE. CHECK WITH A LEVEL IF NECESSARY.
2. INSTALL POSTS 4 FEET APART IN CRITICAL AREAS AND 6 FEET APART ON STANDARD APPLICATIONS.
3. INSTALL POSTS 2 FEET DEEP ON THE DOWNSTREAM SIDE OF THE SILT FENCE, AND AS CLOSE AS POSSIBLE TO THE FABRIC, ENABLING POSTS TO SUPPORT THE FABRIC FROM UPSTREAM WATER PRESSURE.
4. INSTALL POSTS WITH THE NIPPLES FACING AWAY FROM THE SILT FABRIC.
5. ATTACH THE FABRIC TO EACH POST WITH THREE TIES, ALL SPACED WITHIN THE TOP 8 INCHES OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1 INCH VERTICALLY APART. ALSO, EACH TIE SHOULD BE POSITIONED TO HANG ON A POST NIPPLE WHEN TIGHTENED TO PREVENT SAGGING.
6. WRAP APPROXIMATELY 6 INCHES OF FABRIC AROUND THE END POSTS AND SECURE WITH 3 TIES.
7. NO MORE THAN 24 INCHES OF A 36 INCH FABRIC IS ALLOWED ABOVE GROUND LEVEL.
8. THE INSTALLATION SHOULD BE CHECKED AND CORRECTED FOR ANY DEVIATIONS BEFORE COMPACTION.
9. COMPACTION IS VITALLY IMPORTANT FOR EFFECTIVE RESULTS. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE WITH THE FRONT WHEEL OF THE TRACTOR, SKID STEER, OR ROLLER EXERTING AT LEAST 60 POUNDS PER SQUARE INCH. COMPACT THE UPSTREAM SIDE FIRST, AND THEN EACH SIDE TWICE FOR A TOTAL OF FOUR TRIPS.
10. TREE PROTECTION SIGNS ARE TO BE PLACED EVERY 50-FT AND FENCE MUST REMAIN UNTIL CLOSEOUT OF PROJECT.



SILT FENCE KEY-IN DETAIL

MAINTENANCE:

1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT IMMEDIATELY.
3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

TREE PROTECTION AREA

DO NOT ENTER

ZONA DE PROTECCION

PARA ARBOLES - NO ENTRE

16" X12' SIGN
1" BLOCK LETTERS
BLACK LETTERS ON WHITE BACKGROUND
1/4" BLACK BORDER
ALL WEATHER MEDIA
200' SPACING BETWEEN SIGNS

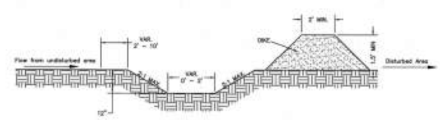
PLACE SIGN ON ALL TREE PROTECTION FENCING AND WHERE SILT FENCE REPLACES TREE PROTECTION FENCING.

TREE PROTECTION AREA SIGNAGE

(4B) TREE PROTECTION FENCE N.T.S.

NOTES:

1. DIVERSION TO BE USED UPSLOPE OF A CONSTRUCTION SITE TO PREVENT STORM RUNOFF FROM ENTERING THE DISTURBED AREA.
2. IMMEDIATELY LINE AND STABILIZE BEFORE ANY DOWNSLOPE GRADING BEGINS (STABILIZATION MUST OCCUR BEFORE ISSUANCE OF A CERTIFICATE OF COMPLIANCE). STABILIZATION METHOD IS BASED ON VELOCITY OF OFFSITE DRAINAGE.
3. DIVERSIONS SHOULD ONLY BE USED FOR DRAINAGES 5 ACRES OR LESS.
4. ANY SEDIMENT LADEN WATER PRIOR TO STABILIZATION OF THE DIVERSION MUST BE DIVERTED INTO AN APPROVED EROSION AND SEDIMENT CONTROL BMP. CLEAN WATER SHOULD EMPTY INTO AN APPROVED OUTLET DEVICE.



CROSS SECTIONAL VIEW

WAKE COUNTY
EFFECTIVE: 01/31/08

STANDARD CLEAN WATER DIVERSION

MAINTENANCE

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

NOTES:

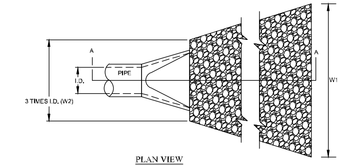
1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR SCM.
2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.

DITCH	TOTAL FLOW (CFS)	SLOPE (%)	BOTTOM WIDTH (FT)	RIGHT SLOPE (H:V)	LEFT SLOPE (H:V)	FLOW DEPTH (FT)	TEMPORARY LINER	PERMANENT LINER
A	2.9	2.2	0	3:1	3:1	0.70	CURLED MAT	GRASS
B	1.2	2.0	0	3:1	3:1	0.50	CURLED MAT	GRASS
F2	0.7	3.0	0	3:1	3:1	0.32	CURLED MAT	GRASS
F4	0.4	2.6	0	3:1	3:1	0.27	CURLED MAT	GRASS
F6	1.7	1.0	0	3:1	3:1	0.54	CURLED MAT	GRASS
F8	1.9	4.7	0	3:1	3:1	0.43	CURLED MAT	GRASS

*SWALES HAVE BEEN DESIGNED USING RAINFALL INTENSITY FOR THE 10-YEAR STORM ACCORDING TO THE NCDENR EROSION CONTROL MANUAL.

**NORTH AMERICAN GREEN MATERIAL OR APPROVED EQUIVALENT

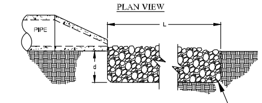
(5) TEMPORARY CLEAN WATER DIVERSION DITCH N.T.S.



PLAN VIEW

MAINTENANCE

RIP RAP SHOULD BE INSPECTED PERIODICALLY FOR SCOUR OR DISLODGED STONES. CONTROL OF WEED AND BRUSH GROWTH MAY BE NEEDED IN SOME LOCATIONS.



SECTION 'A-A'

NOTES:

1. L = THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES).
3. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.
4. MAINTAIN ENERGY DISSIPATERS INSTALLED DURING EARLY SITE WORK THROUGHOUT THE CONSTRUCTION AREA.

ENERGY DISSIPATER SCHEDULE

	PIPE SIZE	W1 (FT)	W2 (FT)	LENGTH (FT)	THICKNESS (IN). (d)	D50 SIZE (IN.)	STONE CLASS
FES-A1	15"	6.3	3.8	5.0	12	3	A
FES-B1	24"	10.0	6.0	8.0	22	6	B
FES-E1	15"	6.3	3.8	5.0	12	3	A
FES-F1	15"	6.3	3.8	5.0	12	3	A
FES-F3	15"	6.3	3.8	5.0	12	3	A
FES-F5	15"	6.3	3.8	5.0	12	3	A
FES-F7	15"	6.3	3.8	5.0	12	3	A

(6) RIP RAP OUTLET PROTECTION N.T.S.

NORTH CAROLINA PROFESSIONAL SEAL 035780 ENGINEER GARRETT W. FRANK

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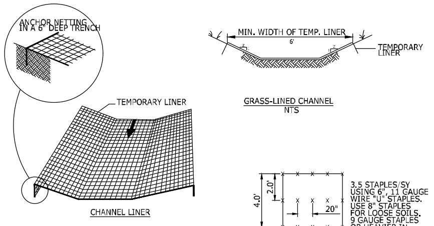
JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

SITE DETAILS

JOB NO. 54832
SHEET NO. C6.6

S:\333\54832-Rolesville_Self_Stor\DWG\Sheet\CD\54832-333-C6.0-NTDT.dwg | Plotted on 3/21/2024 8:31 AM | by Lynsie Barnes



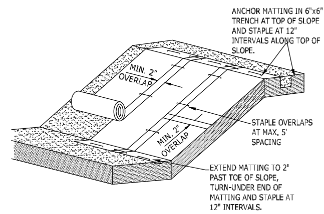
CONSTRUCTION NOTES:

1. INSTALL EXCELSIOR CHANNEL LINING IN ALL SWALES OR AREAS OF CONCENTRATED STORMWATER FLOW.
2. SEE SPECIFICATIONS FOR TEMP. LINING REQUIREMENTS.
3. PREPARE SOIL BEFORE INSTALLING MATS OR NETS, INCLUDING APPLICATION OF LIME, FERTILIZER AND SEED.
4. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE NET OR MAT IN A 6" DEEP TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
5. ROLL CENTER MAT OR NET IN DIRECTION OF WATER FLOW ON BOTTOM OF CHANNEL.
6. PLACE MAT OR NET END OVER END (SHINGLE STYLE) WITH A 6" OVERLAP. USE DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE.
7. FULL LENGTH EDGE OF MAT OR NET AT TOP SIDE SLOPES SHALL BE ANCHORED IN 6" DEEP TRENCH AFTER STAPLING.
8. MATS OR NETS SHALL BE OVERLAPPED 4" OVER THE CENTER BLANKET AND STAPLED.
9. THE TERMINAL END OF THE MAT OR NET MUST BE ANCHORED IN A 6" DEEP TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

MAINTENANCE NOTES:

1. GRASSED-LINED CHANNELS TO BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL EVENT, DURING THE ESTABLISHMENT AND AFTER THE ESTABLISHMENT PERIOD.
2. REPAIRS ARE TO BE MADE IMMEDIATELY.
3. REMOVE SEDIMENT ACCUMULATIONS TO MAINTAIN DESIGNED CARRYING CAPACITY.
4. GRASS TO BE HEALTHY AND IN VIGOROUS CONDITIONS AT ALL TIMES.

1 TEMPORARY CHANNEL LINING N.T.S.



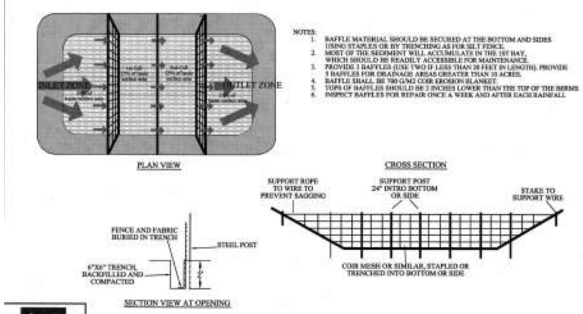
NOTES:

1. SLOPE SURFACE SHALL BE SMOOTH PRIOR TO PLACEMENT OF MATTING TO ENSURE PROPER SOIL CONTACT.
2. LIME, FERTILIZE, AND SEED PRIOR TO PLACING MATTING. PLANT SHRUBS, TREES, ETC. FOLLOWING PLACEMENT OF MATTING.
3. ON SLOPES FLATTER THAN 4:1, ROLLS MAY BE PLACED IN HORIZONTAL STRIPS.
4. DO NOT STRETCH MATTING TIGHT. ALLOW ROLLS TO CONFORM TO ANY IRREGULARITIES.
5. INSTALL STAPLES IN PATTERNS AS RECOMMENDED BY MATTING MANUFACTURER.

MAINTENANCE NOTES:

1. INSPECT MATTING AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" OR GREATER) RAINFALL AND REPAIR IMMEDIATELY AS NEEDED.
2. ENSURE GOOD CONTACT WITH SOIL SURFACE IS MAINTAINED AND EROSION DOES NOT OCCUR BENEATH MATTING.
3. AREAS OF MATTING THAT ARE DAMAGED OR WHERE NOT IN CLOSE CONTACT WITH THE SOIL SHALL BE REPAIRED AND STAPLED.
4. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREAS PROTECTED.
5. MONITOR AND REPAIR MATTING AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

2 ROLLED EROSION CONTROL PRODUCT N.T.S.



NOTES:

1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3. PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH). PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
4. BAFFLE SHALL BE 700 G/M2 COIR EROSION BLANKET.
5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS.
6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD BAFFLES DETAIL

MAINTENANCE

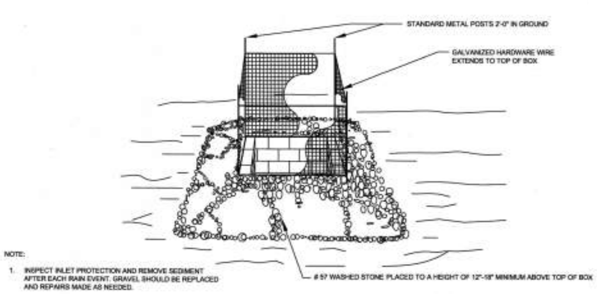
INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.

REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

3 COIR MESH BAFFLES (NCDENR 6.65) N.T.S.



NOTE:

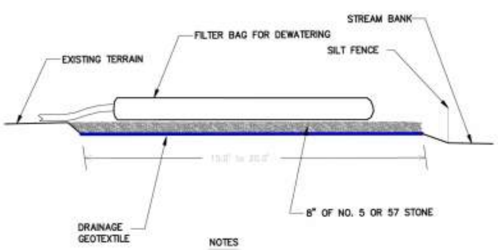
1. INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT. GRAVEL SHOULD BE REPLACED AND REPAIRS MADE AS NEEDED.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD GRAVEL YARD INLET PROTECTION

4 YARD INLET PROTECTION N.T.S.



NOTES

PROVIDE STABILIZED OUTLET TO STREAM BANK. WOOD PALLETS MAY BE USED IN LIEU OF STONE AND GEOTEXTILE AS DIRECTED. A SUFFICIENT NUMBER OF PALLETS MUST BE PROVIDED TO ELEVATE THE ENTIRE FILTER BAG FOR DEWATERING ABOVE NATURAL GROUND.

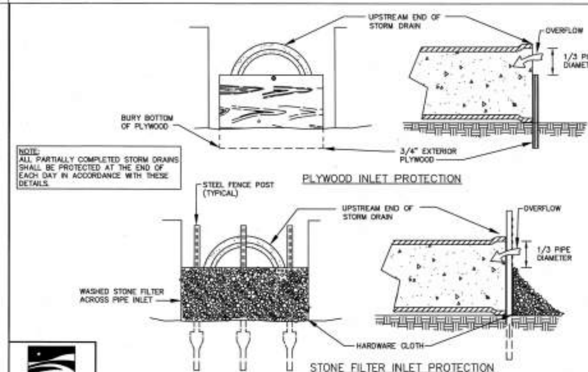
NOT TO SCALE

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD FILTER BAG FOR DEWATERING ACTIVITIES

5 DEWATERING PUMP WITH SILT BAG N.T.S.



NOTE:
ALL PARTIALLY COMPLETED STORM DRAINS SHALL BE PROTECTED AT THE END OF EACH DAY IN ACCORDANCE WITH THESE DETAILS.

WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)

6 PIPE INLET PROTECTION N.T.S.

NORTH CAROLINA PROFESSIONAL SEAL 055780 ENGINEER GARRETT W. FRANK 12-19-23

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06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY

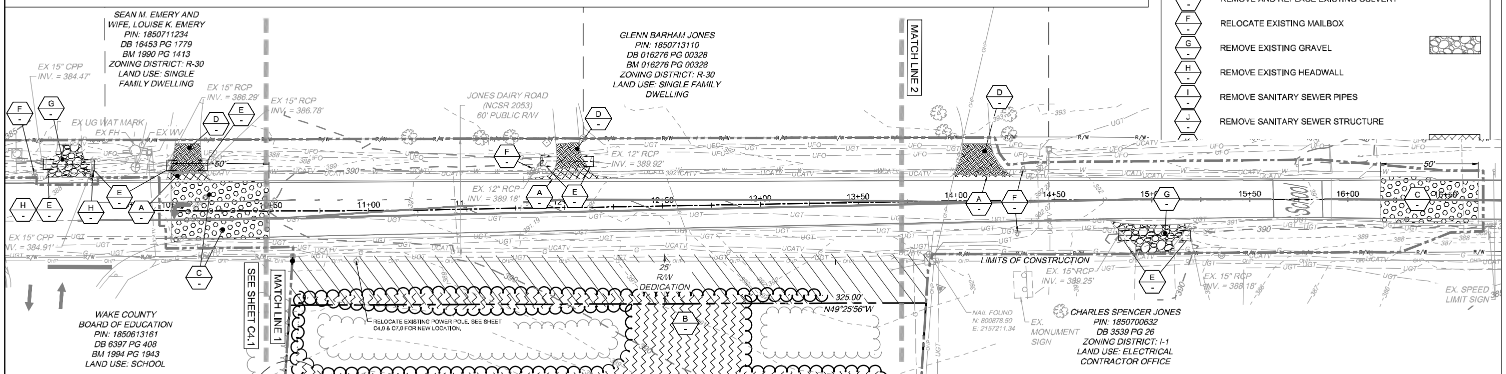
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

SITE DETAILS

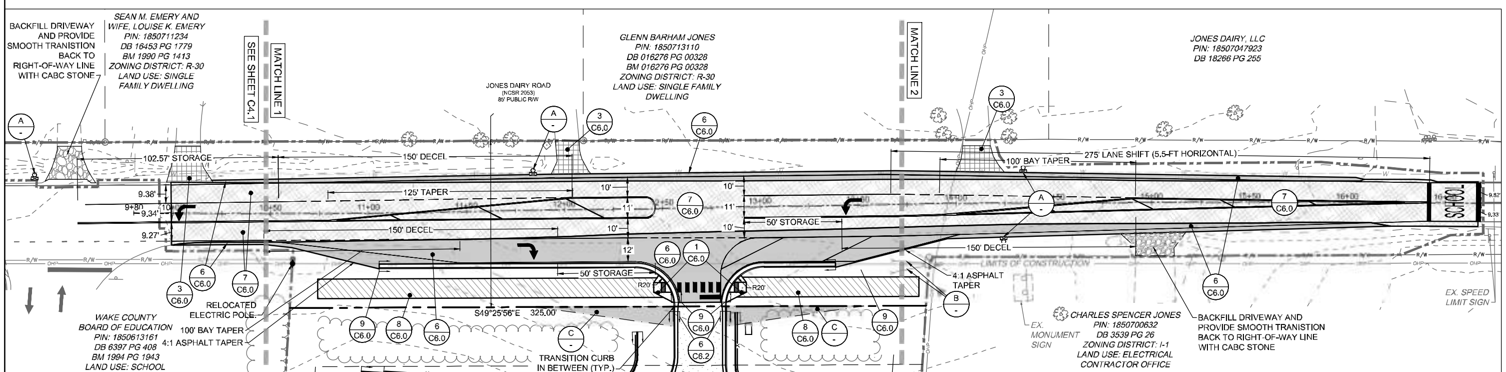
JOB NO. 54832
SHEET NO. C6.7

DEMOLITION KEY NOTES

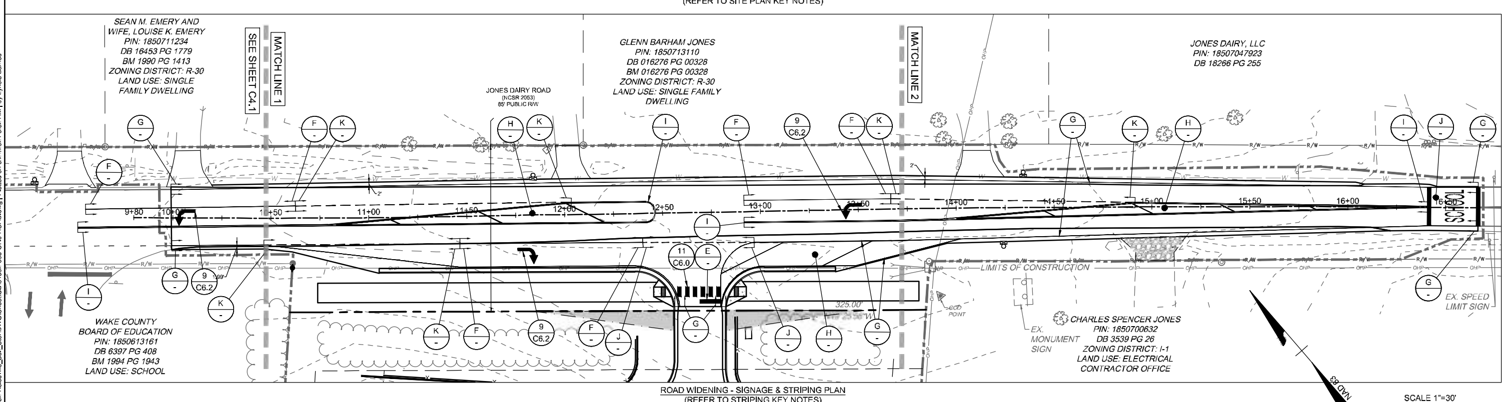
A	REMOVE ASPHALT PAVEMENT AND STONE BASE	
B	REMOVE TREE CLEARING	
C	50-FT MILL TAPER FROM 0" - 1.5" (SEE C7.0)	
D	SAW CUT AND REMOVE CONCRETE AT NEAREST JOINT.	
E	REMOVE AND REPLACE EXISTING CULVERT	
F	RELOCATE EXISTING MAILBOX	
G	REMOVE EXISTING GRAVEL	
H	REMOVE EXISTING HEADWALL	
I	REMOVE SANITARY SEWER PIPES	
J	REMOVE SANITARY SEWER STRUCTURE	



ROAD WIDENING - EXISTING CONDITIONS & DEMOLITION PLAN
(REFER TO DEMOLITION KEY NOTES)



ROAD WIDENING PLAN - PAVING PLAN
(REFER TO SITE PLAN KEY NOTES)



ROAD WIDENING - SIGNAGE & STRIPING PLAN
(REFER TO STRIPING KEY NOTES)

SCALE 1"=30'
0 30' 60'

SITE LAYOUT NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE ROLESVILLE, WAKE COUNTY, NCDOT AND OSHA STANDARDS AND SPECIFICATIONS.
2. ALL DIMENSIONS ARE TO FACE OF CURB, EDGE OF PAVEMENT, BUILDING WALL FACE OR PROPERTY LINE, UNLESS OTHERWISE NOTED.
3. ALL RADII ARE DIMENSIONED FROM BACK OF CURB. IF NOT STATED, RADII DIMENSION IS 5'.
4. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, UTILITIES AND GRADES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING ANY RELATED CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL WASTE MATERIALS GENERATED DURING CONSTRUCTION AND FOR OBTAINING ALL APPLICABLE PERMITS FOR OFF-SITE STOCKPILES AND/OR WASTE AREAS.
6. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES DURING CONSTRUCTION AND SHALL MAKE REPAIRS AT NO EXPENSE TO THE OWNER.
7. AT LEAST 72 HOURS PRIOR TO CONSTRUCTION OR EXCAVATION THE CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (811) OR (1-800-632-4949) TO HAVE EXISTING UTILITIES LOCATED. ALL PRIVATE UTILITIES SHALL BE LOCATED AS NEEDED BY A PRIVATE UTILITY LOCATE COMPANY EMPLOYED BY THE CONTRACTOR.
8. ALL CURB AND GUTTER OFFSITE SHALL BE 30" WIDE UNLESS NOTED OTHERWISE.
9. ALL DISTURBED CURB & GUTTER AND ASPHALT SHALL BE REPLACED PER PROJECT DETAILS AND NCDOT STANDARDS AND SPECIFICATIONS.
10. RAISE ALL STRUCTURES AT NO ADDITIONAL COST TO THE OWNER SO THAT THE TOP OF THE STRUCTURE EQUALS THE FINISH GRADE OF THE NEW ASPHALT.
11. COORDINATE THE PROJECT SCHEDULE WITH THE CIVIL ENGINEER AND OWNER. ANY UTILITY INTERRUPTIONS SHALL BE COORDINATED WITH THE OWNER AT LEAST 72 HOURS PRIOR TO THE INTERRUPTION.
12. PROVIDE A SMOOTH TRANSITION BETWEEN NEW ASPHALT AND EXISTING ASPHALT SURFACES.
13. ALL SIDEWALKS ARE TO HAVE NO MORE THAN A 1:20 (5.0%) SLOPE FOR THE LENGTH OF THE SIDEWALK AND NO MORE THAN A 1:50 (2.0%) SLOPE FOR THE WIDTH OF THE SIDEWALK. NOTIFY ENGINEER IF THIS CANNOT BE ACHIEVED.
14. REFER TO SHEET C2.0 FOR THE CTP COMPLIANCE DIAGRAM.

SITE PLAN KEY NOTES

1 C6.0	ACCESSIBLE CURB RAMP	
2 C6.0	STANDARD DUTY CONCRETE PAVEMENT	
3 C6.0	HEAVY DUTY CONCRETE PAVEMENT	
4 C6.0	STANDARD DUTY ASPHALT PAVEMENT	
5 C6.0	LIGHT DUTY ASPHALT PAVEMENT	
6 C6.0	NCDOT ASPHALT (FULL DEPTH)	
7 C6.0	NCDOT OVERLAY	
8 C6.0	ASPHALT MULTI-USE PATH	
9 C6.0	NCDOT 30" CONCRETE CURB & GUTTER	
10 C6.0	CURB ENDING TAPER	
6 C6.2	24" CONCRETE CURB & GUTTER	
A	RELOCATED MAILBOX	
B	RELOCATE OR PROVIDE TURN DOWN GUY WIRE BAR	
C	10-FT X 70-FT SIGHT TRIANGLE	
D	1.5" MILL & LAP JOINT (1.5" S-9.5B)	

TRAFFIC CONTROL NOTES

1. ALL SITE SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARDS.
2. ALL PAVEMENT MARKINGS WITHIN RIGHT-OF-WAY SHALL BE THERMOPLASTIC.
3. ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH NCDOT STANDARDS AND THE PROJECT SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.
4. ALL SIGNAGE SHALL HAVE HIGH INTENSITY PRISMATIC SHEETING.
5. SIGNS SHALL BE FABRICATED FROM ALUMINUM ALLOY SHEETS.
6. ALL MOUNTING HARDWARE SHALL BE GALVANIZED.
7. "VAPS" ON PLANS DENOTES VAN ACCESSIBLE PARKING SIGN. INSTALL R7-8A, R7-8D, & R7-8P.
8. "APS" ON PLANS DENOTES ACCESSIBLE PARKING SIGN. INSTALL R7-8A & R7-8D ONLY.

STRIPING KEY NOTES

		NCDOT STD.	WIDTH	COLOR
11 C6.0	HIGH VISIBILITY CROSSWALK MARKINGS	-	-	WHITE
9 C6.2	TRAFFIC ARROWS	1205.08	-	WHITE
E	STOP BAR	1205.01	24-IN	WHITE
F	LANE LINE	1205.1	4-IN	WHITE
G	EDGE LINE	1205.1	4-IN	WHITE
H	DIAGANOL LINES (2:1 SLOPE 45-FT SPACING)	1205.1	8-IN	YELLOW
I	DOUBLE YELLOW CENTER LINE	1205.1	4-IN (EA)	YELLOW
J	2'-6'SP MINI SKIP LINE	1205.1	4-IN	WHITE
K	3'-9'SP MINI SKIP LINE	1205.1	4-IN	WHITE
L	MULTI-LANE WIDTH "SCHOOL"	1205.8	-	WHITE

NORTH CAROLINA PROFESSIONAL SEAL 055780 ENGINEER GARRETT W. FRANK

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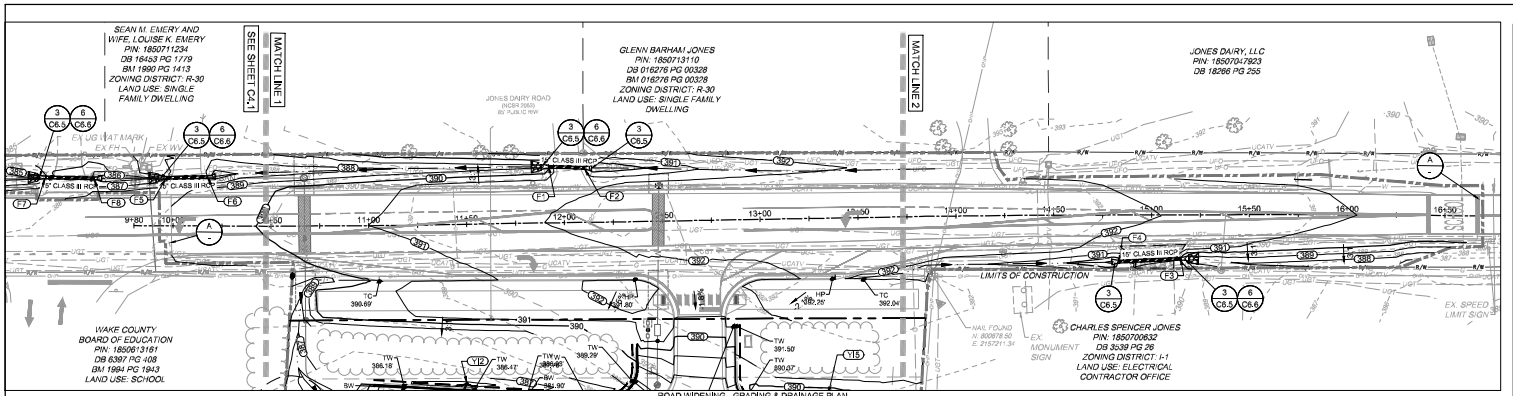
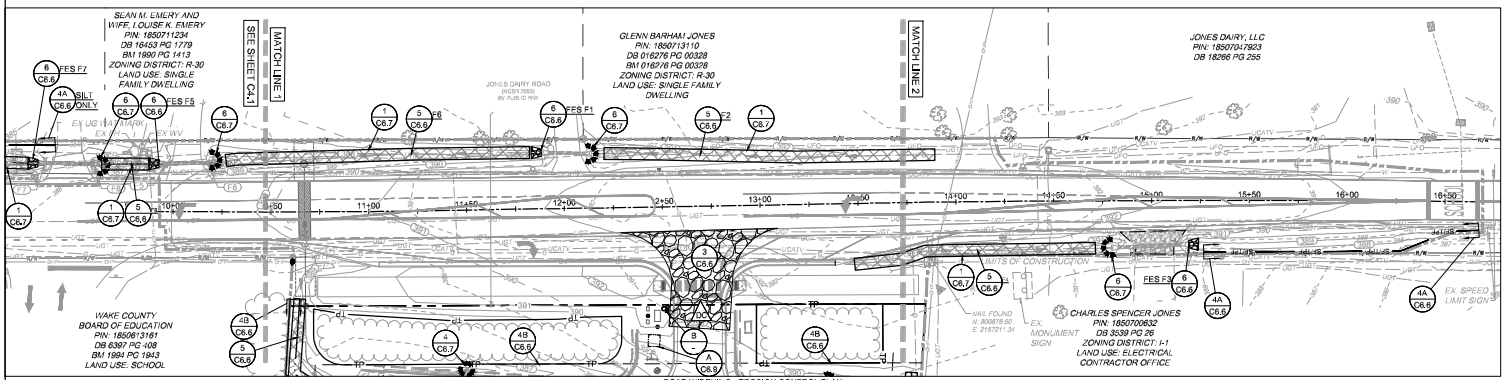
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

ROAD WIDENING PLAN - DEMO, SITE AND SIGNAGE & STRIPING PLANS

JOB NO. 54832
SHEET NO. C7.0



ROAD WIDENING - GRADING & DRAINAGE PLAN
(REFER TO GRADING & DRAINAGE KEYNOTES)



ROAD WIDENING - EROSION CONTROL PLAN
(REFER TO EROSION CONTROL KEYNOTES)

GRADING & DRAINAGE NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE ROLESVILLE, WAKE COUNTY, NCDOT AND OSHA STANDARDS AND SPECIFICATIONS.
2. COORDINATE THE PROJECT SCHEDULE WITH THE OWNER, AND ADJACENT USERS OF THE PROPERTY. MAINTAIN TRAFFIC FLOW AND DO NOT INTERRUPT UTILITIES AROUND THE SITE. DO NO DISTURB OPERATIONS OF ADJACENT SITES AND FACILITIES AND/OR THEIR OWNER'S ONGOING OPERATIONS.
3. ALL EXISTING VAULTS, MANHOLES, STORM DRAIN STRUCTURES, VALVE BOXES, CLEANOUTS, ETC. SHALL BE ADJUSTED AS NEEDED TO MATCH FINISHED GRADE.
4. ALL BACKFILL, COMPACTION, SOILS TESTING, ETC, SHALL BE PERFORMED BY THE OWNER'S INDEPENDENT TESTING LABORATORY.
5. ALL SPOT ELEVATIONS INDICATED ARE AT TOP OF CURB UNLESS NOTED OTHERWISE.
6. SPOT GRADE ABBREVIATIONS:
   - 6.1. TC: TOP OF CURB
   - 6.2. EP: EDGE OF PAVEMENT
   - 6.3. HP: HIGH POINT
   - 6.4. SWK: SIDEWALK
   - 6.5. FFE: FINISHED FLOOR ELEVATION
   - 6.6. TW: TOP OF WALL
   - 6.7. BW: BOTTOM OF WALL
   - 6.8. FL: FLOW LINE
   - 6.9. GND: GROUND
   - 6.10. EX GND: EXISTING GROUND
7. SPOT ELEVATIONS ARE GIVEN AT THE MAJORITY OF THE MAJOR BREAK POINTS BUT IT SHOULD NOT BE ASSUMED THAT ALL NECESSARY SPOT ELEVATIONS ARE SHOWN, DUE TO SPACE LIMITATIONS, THERE MAY BE OTHER CRITICAL SPOTS NOT LABELED THAT SHOULD BE TAKEN INTO CONSIDERATION. THE CONTRACTOR SHALL REVIEW THE GRADING PLAN IN DETAIL AND SHALL ENSURE THAT ALL CRITICAL GRADE POINTS ARE STAKED AND FOLLOWED TO PROVIDE POSITIVE DRAINAGE.
8. ALL ELEVATIONS ARE BASED ON NC GRID NORTH (NAD 83 2011).
9. THE CONTRACTOR SHALL USE NC ONE CALL (811) TO LOCATE ALL UNDERGROUND UTILITIES. PRIVATE UTILITIES SHALL BE LOCATED BY A PRIVATE LOCATE SERVICE AT THE EXPENSE OF THE CONTRACTOR.
10. INSTALL ALL STORM SEWERS TO PROVIDE REQUIRED CLEARANCES TO CROSSING UTILITIES AS INDICATED IN THE DRAWINGS AND SPECIFICATIONS.
11. PROVIDE HALF-BENCH CONCRETE INLET SHAPING FOR ALL CONCRETE STORM SEWER STRUCTURES.
12. ALL ROOF DRAINS FROM BUILDING 'A' SHALL BE 8" PVC (SCH 40) @ 1.04% MIN. SLOPE UNLESS INDICATED OTHERWISE. ALL ROOF DRAINS FROM BUILDING 'B', 'C', AND 'D', SHALL BE 6" PVC (SCH 40) @ 1.04% MIN. SLOPE UNLESS INDICATED OTHERWISE. USE DUCTILE IRON WHEN COVER IS LESS THAN 24-IN, MATCH PIPE CROWNS WITH CONNECTION TO DROP INLET.
13. PVC ROOF DRAIN PIPING UNDER PAVEMENT SHALL HAVE 24-IN MINIMUM COVER. IF ROOF DRAIN PIPING UNDER PAVEMENT HAS LESS THAN 24-IN COVER, ROOF DRAIN PIPING SHALL BE 8" DIP (IN LIEU OF PVC).
14. JOINT FILL AND CAULK EACH CONCRETE EXPANSION JOINT AND WHERE CONCRETE PAVEMENT ABUTS OTHER PAVEMENTS, SIDEWALKS, OR HARD SURFACES.
15. MAINTAIN ALL EROSION CONTROL DEVICES AFTER EACH RAINFALL EVENT IN ACCORDANCE WITH NCDEQ LAND QUALITY REQUIREMENTS AND AS DIRECTED BY THE NCDEQ AND CIVIL ENGINEER.
16. FLUSH ALL SEDIMENT OUT OF STORM DRAINAGE PIPES AND STRUCTURES FOLLOWING SITE STABILIZATION AND AT THE END OF CONSTRUCTION. FLUSH OUT PIPES AS NEEDED THROUGHOUT CONSTRUCTION TO MAINTAIN PROPER FUNCTIONING OF THE DRAINAGE SYSTEM.
17. IN DISTURBED AREAS, AMEND THE TOP 6 INCHES OF LAWN AREAS WITH TOPSOIL FROM THE SITE.
18. ALL SIDEWALKS ARE TO HAVE NO MORE THAN A 1:20 (5.0%) SLOPE FOR THE LENGTH OF THE SIDEWALK AND NO MORE THAN A 1:50 (2.0%) SLOPE FOR THE WIDTH OF THE SIDEWALK.
19. IF CONTRACTOR NOTICES ANY DISCREPANCIES IN ANY OF THESE SLOPE REQUIREMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNER & ENGINEER PRIOR TO POURING ANY CONCRETE.
20. PRIOR TO FINAL PROJECT ACCEPTANCE, PROVIDE AN AS-BUILT SURVEY OF ALL UTILITY SYSTEMS AND STORM SEWERS.
21. ANY AND ALL LANDSCAPING AND EXISTING TREES & SHRUBS TO REMAIN WHICH ARE DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR USING A LICENSED LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

GRADING & DRAINAGE KEY NOTES

- 3 / C6.5 — FLARED END SECTION
- 6 / C6.6 — RIP RAP OUTLET PROTECTION (SEE EROSION CONTROL PLAN)
- A — PROVIDE SMOOTH PAVING TRANSITION

EROSION CONTROL NOTES

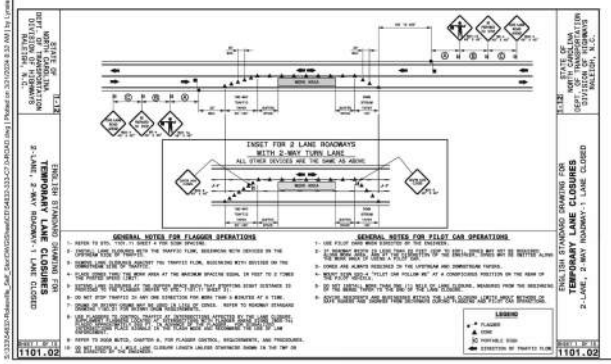
1. THE CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL CODES IN OBSERVING EROSION CONTROL MEASURES BOTH ON AND OFF SITE. ALL OFF-SITE SOIL BORROW AND WASTE SITES SHALL BE PROPERLY PERMITTED FOR SUCH ACTIVITIES.
2. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES AFTER EACH RAINFALL EVENT OR AS DIRECTED BY LOCAL AUTHORITIES OR ENGINEER.
3. ALL OPEN STORM PIPES SHALL BE PROTECTED WITH STONE FILTER PROTECTION AFTER WORK STOPPAGE EACH DAY.
4. ALL STORM DRAINAGE PIPES SHALL BE THOROUGHLY FLUSHED OF ALL SEDIMENT FOLLOWING SITE STABILIZATION. INTERIOR FLUSHING OF SYSTEM SHALL BE PERFORMED AS NEEDED TO MAINTAIN PROPER FUNCTIONING OF THE DRAINAGE SYSTEM.
5. THE INDICATED STAGING AREA IS INTENDED FOR VEHICLES AND NON-ERODIBLE MATERIALS ONLY. NO SOIL, SAND OR OTHER ERODIBLE, FINE GRAINED MATERIAL SHALL BE STORED OUTSIDE OF THE LIMITS OF THE SITE PROTECTED BY SEDIMENT AND EROSION CONTROL DEVICES AND MEASURES.
6. SOIL AND OTHER MATERIALS SHALL ONLY BE TEMPORARILY STOCKPILED WITHIN THE CONSTRUCTION LIMITS PROTECTED BY SEDIMENT AND EROSION CONTROL DEVICES AND MEASURES.
7. TREE PROTECTION INSPECTION SHALL BE COMPLETED PRIOR TO INSTALLING EROSION CONTROL DEVICES.
8. ALL APPLICABLE E&S CONTROL MEASURES ARE TO BE PROPERLY MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED.
9. PERMANENT GROUNDCOVER SHALL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS (WHICHEVER IS SHORTER).
10. TOTAL DISTURBED AREA: 5.93 AC.

EROSION CONTROL KEYNOTES

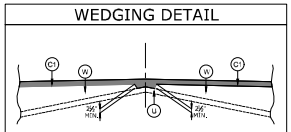
- 1 / C6.6 — CHECK DAM
- 3 / C6.6 — GRAVEL CONSTRUCTION ENTRANCE
- 4A / C6.6 — SILT FENCE (COMBINATION FENCE; SEE TREE FENCE DETAIL)
- 4B / C6.6 — TREE PROTECTION FENCE
- 5 / C6.6 — TEMPORARY DIVERSION DITCH
- 6 / C6.6 — RIPRAP OUTLET PROTECTION
- 1 / C6.7 — TEMPORARY CHANNEL LINING
- 1 / C6.7 — INLET PROTECTION
- 6 / C6.7 — PIPE INLET PROTECTION
- A / C6.8 — CONCRETE WASHOUT AREA
- B — RAIN GAUGE AND PERMIT RECORDS BOX
- LIMITS OF CONSTRUCTION
- EXISTING CONTOUR
- FINISHED CONTOUR
- DUST CONTROL

NCDOT STORM PIPE TABLE

PIPE #	DIA	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DESCRIPTION
F2-F1	15"	389.00	388.75	1.40%	17.85 LF	15" CLASS III RCP
F4-F3	15"	388.75	388.25	1.59%	31.45 LF	15" CLASS III RCP
F6-F5	15"	386.50	386.00	2.40%	20.83 LF	15" CLASS III RCP
F8-F7	15"	385.25	384.75	2.04%	24.54 LF	15" CLASS III RCP



WEDGING DETAIL

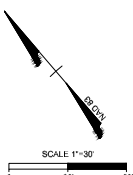


DETAIL SHOWING METHOD OF WEDGING

NOTE: MILL OR OVERLAY EXISTING PAVEMENT AS NECESSARY TO ACHIEVE REQUIRED CROSS SLOPE PER CROSS SECTIONS AND SUPERELEVATION TRANSITIONS. BUILD UP WITH ASPHALT CONCRETE INTERMEDIATE TYPE I19.0c AT VARIABLE DEPTH DEPENDING ON EXISTING CIRCUMSTANCES. REFER TO NCDOT ROAD DESIGN MANUAL FOR MINIMUM PAVEMENT LIFTS AND WEDGING REQUIREMENTS.

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
W	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
U	EXISTING PAVEMENT



NCDOT STORM STRUCTURE TABLE

STRUCTURE #	TOP	STRUCTURE HEIGHT	DESCRIPTION
F1	390.44	N/A	15" FES
F2	390.19	N/A	15" FES
F3	389.69	N/A	15" FES
F4	390.19	N/A	15" FES
F5	387.44	N/A	15" FES
F6	387.94	N/A	15" FES
F7	386.19	N/A	15" FES
F8	386.69	N/A	15" FES

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NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

ROAD WIDENING PLAN - GRADING, DRAINAGE & EROSION CONTROL PLAN

DATE 04/05/2023
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DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN
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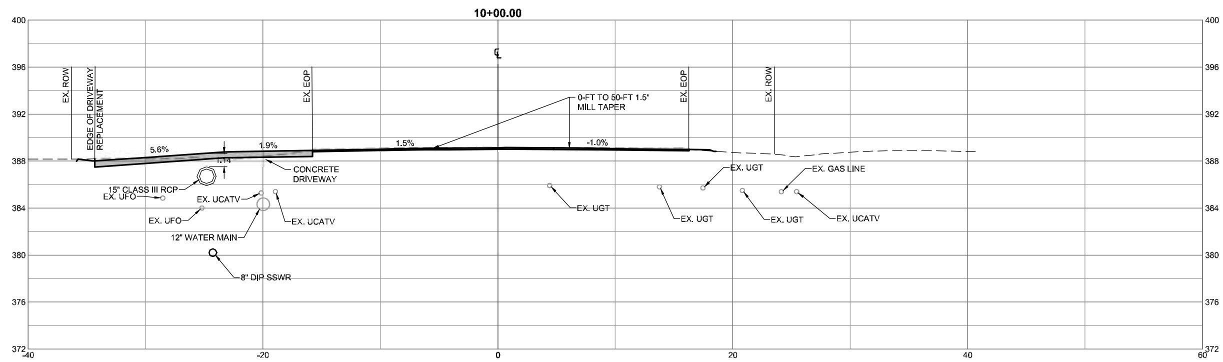
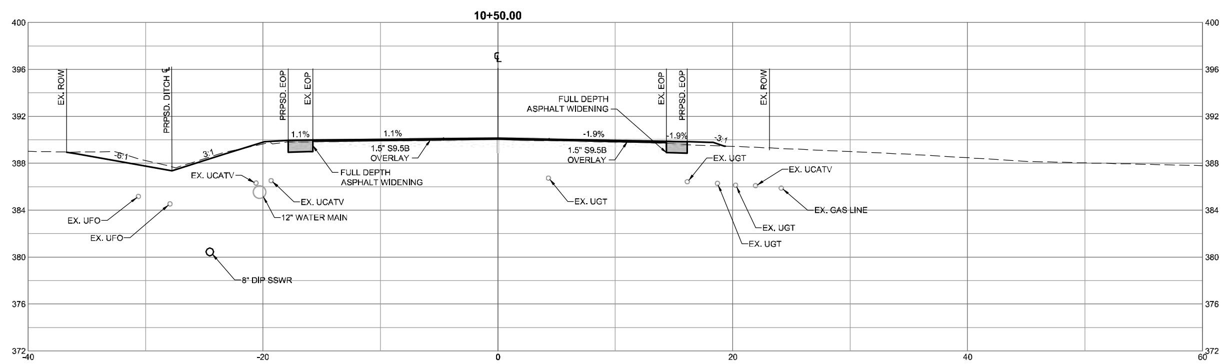
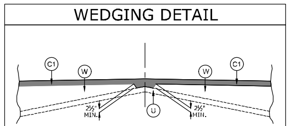
SHEET NO. C7.1





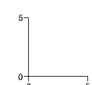
WEDGING DETAIL



DETAIL SHOWING METHOD OF WEDGING

NOTE: MILL OR OVERLAY EXISTING PAVEMENT AS NECESSARY TO ACHIEVE REQUIRED CROSS SLOPE PER CROSS SECTIONS AND SUPERELEVATION TRANSITIONS. BUILD UP WITH ASPHALT CONCRETE INTERMEDIATE TYPE I19.0c AT VARIABLE DEPTH DEPENDING ON EXISTING CIRCUMSTANCES. REFER TO NCDOT ROAD DESIGN MANUAL FOR MINIMUM PAVEMENT LIFTS AND WEDGING REQUIREMENTS.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
W	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
U	EXISTING PAVEMENT



SECTION SCALE

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DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

TIMMONS GROUP

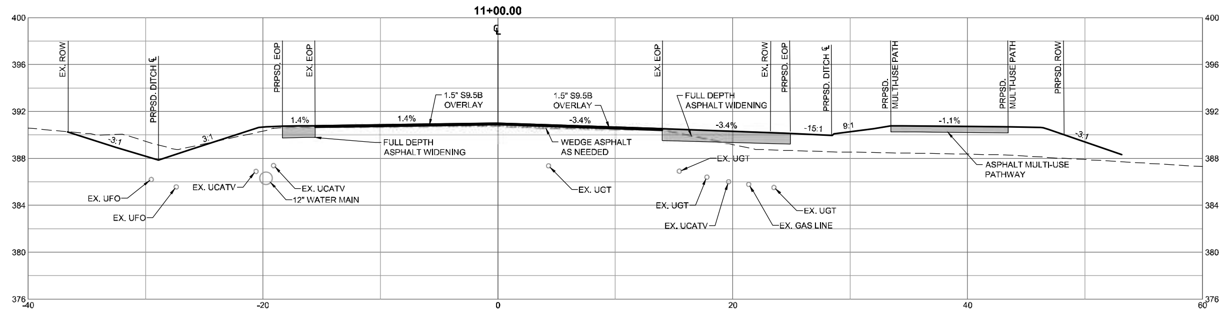
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY

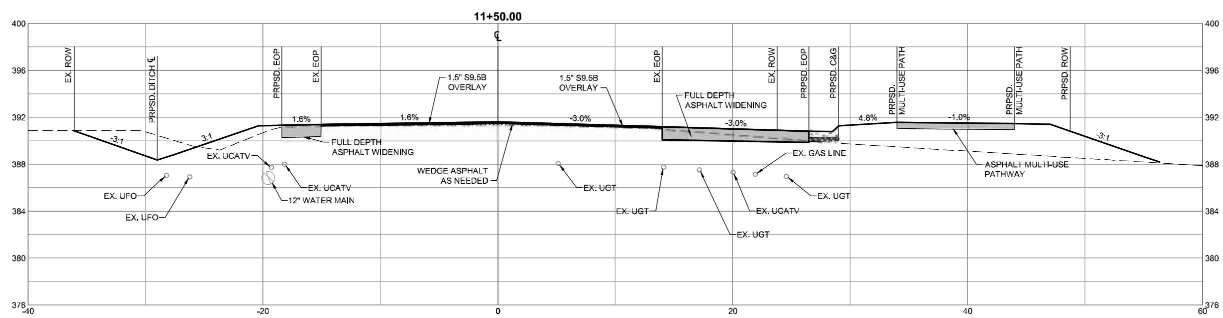
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

JONES DAIRY ROAD - CROSS SECTIONS STA. 10+00 - 10+50

JOB NO. 54832
SHEET NO. C7.2

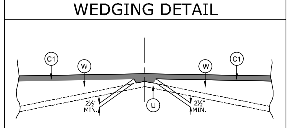


11+00.00
℄
EX. ROW
PRPSD. DITCH ℄
PRPSD. EOP
EX. EOP
EX. EOP
EX. ROW
PRPSD. EOP
PRPSD. DITCH ℄
PRPSD. MULTI-USE PATH
PRPSD. MULTI-USE PATH
PRPSD. ROW
1.5" S9.5B OVERLAY
1.5" S9.5B OVERLAY
FULL DEPTH ASPHALT WIDENING
FULL DEPTH ASPHALT WIDENING
WEDGE ASPHALT AS NEEDED
ASPHALT MULTI-USE PATHWAY
1.4%
1.4%
-3.4%
-3.4%
-15:1
9:1
-1.1%
-3:1
3:1
-3:1
EX. UFO
EX. UFO
EX. UCATV
EX. UCATV
12" WATER MAIN
EX. UGT
EX. UGT
EX. UGT
EX. UGT
EX. UCATV
EX. GAS LINE
400
396
392
388
384
380
376
-40
-20
0
20
40
60



11+50.00
℄
EX. ROW
PRPSD. DITCH ℄
PRPSD. EOP
EX. EOP
EX. EOP
EX. ROW
PRPSD. EOP
PRPSD. C&G
PRPSD. MULTI-USE PATH
PRPSD. MULTI-USE PATH
PRPSD. ROW
1.5" S9.5B OVERLAY
1.5" S9.5B OVERLAY
FULL DEPTH ASPHALT WIDENING
FULL DEPTH ASPHALT WIDENING
WEDGE ASPHALT AS NEEDED
ASPHALT MULTI-USE PATHWAY
1.8%
1.6%
-3.0%
-3.0%
4.8%
-1.0%
-3:1
3:1
-3:1
EX. UCATV
EX. UFO
EX. UFO
EX. UCATV
12" WATER MAIN
EX. UGT
EX. UGT
EX. UGT
EX. UGT
EX. UCATV
EX. GAS LINE
400
396
392
388
384
380
376
-40
-20
0
20
40
60

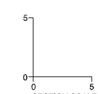
WEDGING DETAIL



DETAIL SHOWING METHOD OF WEDGING

NOTE: MILL OR OVERLAY EXISTING PAVEMENT AS NECESSARY TO ACHIEVE REQUIRED CROSS SLOPE PER CROSS SECTIONS AND SUPERELEVATION TRANSITIONS, BUILD UP WITH ASPHALT CONCRETE INTERMEDIATE TYPE I19.0c AT VARIABLE DEPTH DEPENDING ON EXISTING CIRCUMSTANCES. REFER TO NCDOT ROAD DESIGN MANUAL FOR MINIMUM PAVEMENT LIFTS AND WEDGING REQUIREMENTS.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
W	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
U	EXISTING PAVEMENT



SECTION SCALE

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06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
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11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE	04/05/2023
DRAWN BY	L. BARNES
DESIGNED BY	G. FRANK
CHECKED BY	G. FRANK
SCALE	AS SHOWN

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

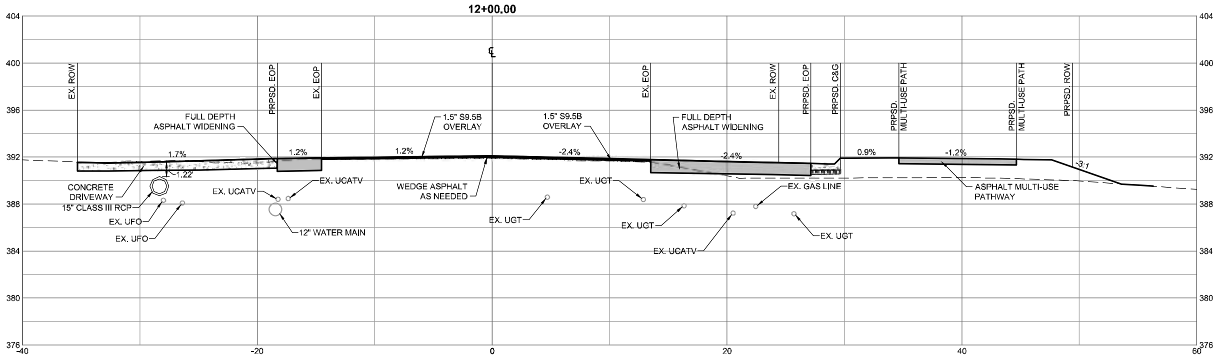
JONES DAIRY STORAGE FACILITY

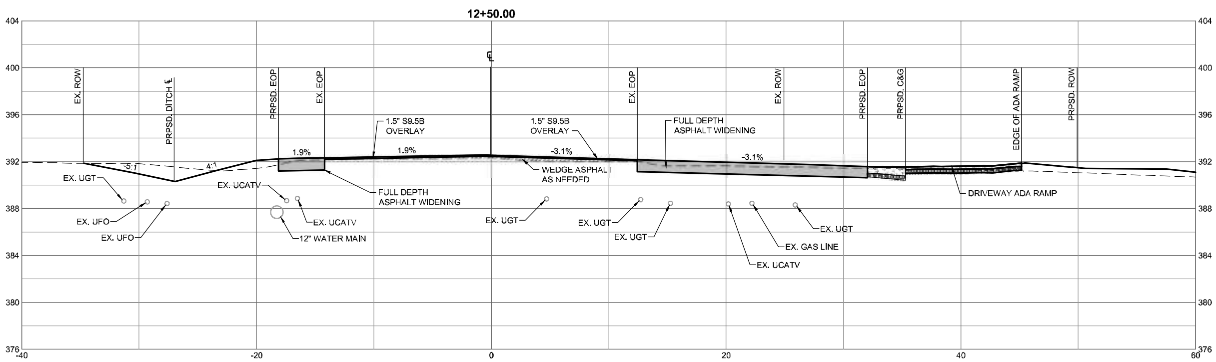
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

JONES DAIRY ROAD - CROSS SECTIONS STA. 11+00 - 11+50

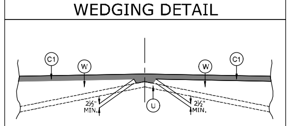
JOB NO.	54832
SHEET NO.	C7.3

S:\33\54832-Rolesville_Self_Stor\DWG\Sheet\CD\54832-C7-XSEC.dwg | Plotted on 3/11/2024 8:33 AM | by Lynsie Barnes





WEDGING DETAIL



DETAIL SHOWING METHOD OF WEDGING

NOTE: MILL OR OVERLAY EXISTING PAVEMENT AS NECESSARY TO ACHIEVE REQUIRED CROSS SLOPE PER CROSS SECTIONS AND SUPERELEVATION TRANSITIONS, BUILD UP WITH ASPHALT CONCRETE INTERMEDIATE TYPE I19.0c AT VARIABLE DEPTH DEPENDING ON EXISTING CIRCUMSTANCES. REFER TO NCDOT ROAD DESIGN MANUAL FOR MINIMUM PAVEMENT LIFTS AND WEDGING REQUIREMENTS.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
W	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
U	EXISTING PAVEMENT

SECTION SCALE

S:\333\54832-Rolesville_Self_Stor\DWG\Sheet\CD\54832-333-C7.2-XSEC.dwg | Plotted on 3/21/2024 8:33 AM | by Lynsie Barnes

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055780 GARRETT W. FRANK

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06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

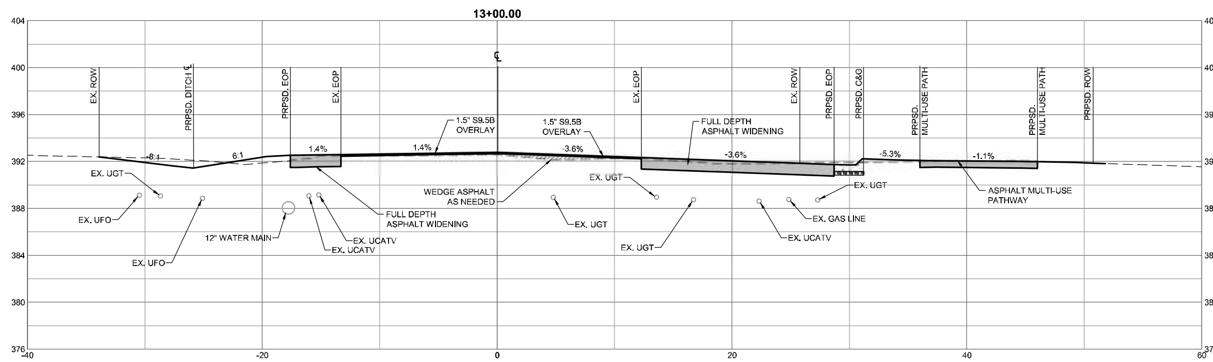
DATE	04/05/2023
DRAWN BY	L. BARNES
DESIGNED BY	G. FRANK
CHECKED BY	G. FRANK
SCALE	AS SHOWN

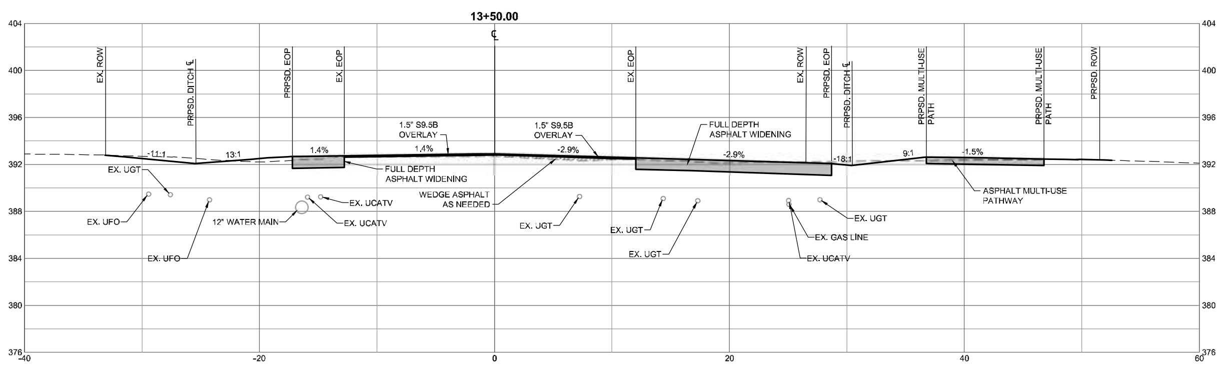
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

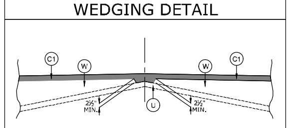
JONES DAIRY ROAD - CROSS SECTIONS STA. 12+00 - 12+50

JOB NO.	54832
SHEET NO.	C7.4


13+00.00
EX. ROW
PRPSD. DITCH ℄
PRPSD. EOP
EX. EOP
EX. EOP
EX. ROW
PRPSD. EOP
PRPSD. C&G
PRPSD. MULTI-USE PATH
PRPSD. MULTI-USE PATH
PRPSD. ROW
1.5" S9.5B OVERLAY
1.5" S9.5B OVERLAY
FULL DEPTH ASPHALT WIDENING
-8:1
6:1
1.4%
1.4%
-3.6%
-3.6%
-5.3%
-1.1%
EX. UGT
EX. UFO
EX. UFO
12" WATER MAIN
EX. UCATV
EX. UCATV
FULL DEPTH ASPHALT WIDENING
WEDGE ASPHALT AS NEEDED
EX. UGT
EX. UGT
EX. UGT
EX. UGT
EX. GAS LINE
EX. UCATV
ASPHALT MULTI-USE PATHWAY
404
400
396
392
388
384
380
376
-40
-20
0
20
40
60


13+50.00
EX. ROW
PRPSD. DITCH ℄
PRPSD. EOP
EX. EOP
EX. EOP
EX. ROW
PRPSD. EOP
PRPSD. DITCH ℄
PRPSD. MULTI-USE PATH
PRPSD. MULTI-USE PATH
PRPSD. ROW
1.5" S9.5B OVERLAY
1.5" S9.5B OVERLAY
FULL DEPTH ASPHALT WIDENING
-11:1
13:1
1.4%
1.4%
-2.9%
-2.9%
-18:1
9:1
-1.5%
EX. UGT
EX. UFO
EX. UFO
12" WATER MAIN
EX. UCATV
EX. UCATV
FULL DEPTH ASPHALT WIDENING
WEDGE ASPHALT AS NEEDED
EX. UGT
EX. UGT
EX. UGT
EX. UGT
EX. GAS LINE
EX. UCATV
ASPHALT MULTI-USE PATHWAY
404
400
396
392
388
384
380
376
-40
-20
0
20
40
60

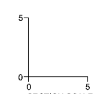
WEDGING DETAIL



DETAIL SHOWING METHOD OF WEDGING

NOTE: MILL OR OVERLAY EXISTING PAVEMENT AS NECESSARY TO ACHIEVE REQUIRED CROSS SLOPE PER CROSS SECTIONS AND SUPERELEVATION TRANSITIONS, BUILD UP WITH ASPHALT CONCRETE INTERMEDIATE TYPE I19.0c AT VARIABLE DEPTH DEPENDING ON EXISTING CIRCUMSTANCES. REFER TO NCDOT ROAD DESIGN MANUAL FOR MINIMUM PAVEMENT LIFTS AND WEDGING REQUIREMENTS.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
W	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
U	EXISTING PAVEMENT



SECTION SCALE

NORTH CAROLINA PROFESSIONAL SEAL 055780 ENGINEER GARRETT W. FRANK

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YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
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11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

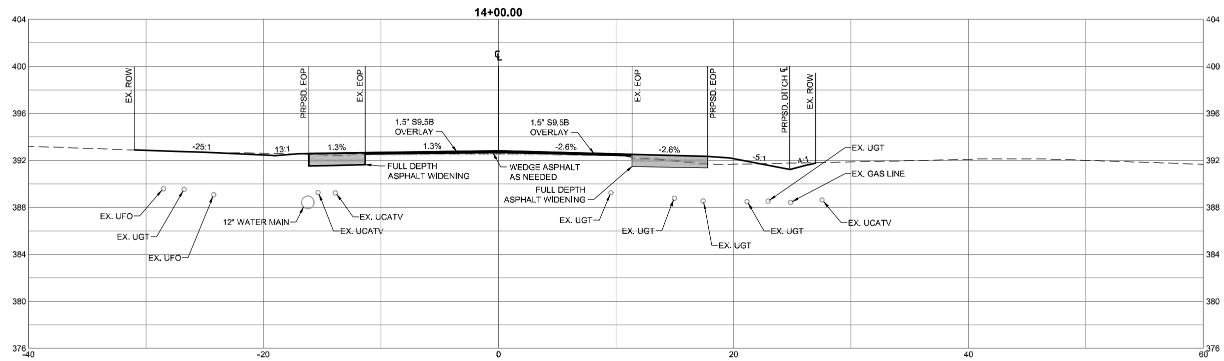
DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

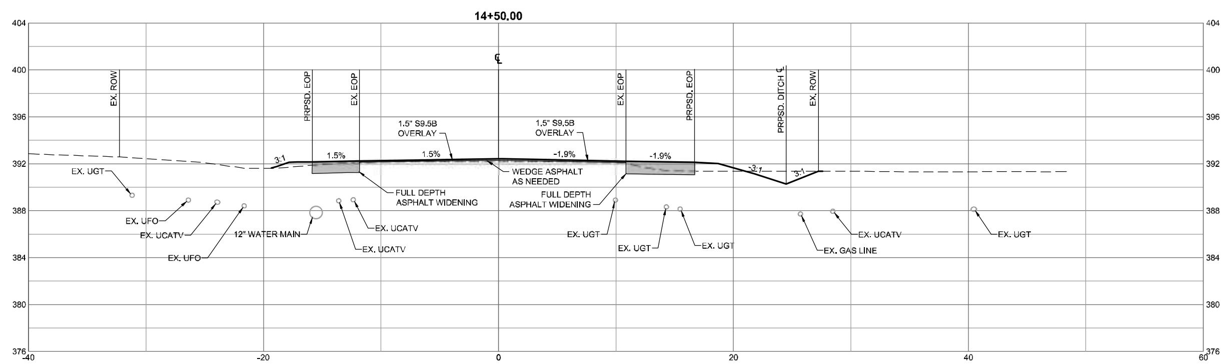
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

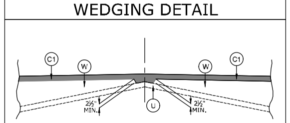
JONES DAIRY ROAD - CROSS SECTIONS STA. 13+00 - 13+50

JOB NO. 54832
SHEET NO. C7.5





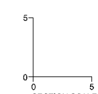
WEDGING DETAIL



DETAIL SHOWING METHOD OF WEDGING

NOTE: MILL OR OVERLAY EXISTING PAVEMENT AS NECESSARY TO ACHIEVE REQUIRED CROSS SLOPE PER CROSS SECTIONS AND SUPERELEVATION TRANSITIONS, BUILD UP WITH ASPHALT CONCRETE INTERMEDIATE TYPE I19.0c AT VARIABLE DEPTH DEPENDING ON EXISTING CIRCUMSTANCES. REFER TO NCDOT ROAD DESIGN MANUAL FOR MINIMUM PAVEMENT LIFTS AND WEDGING REQUIREMENTS.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
W	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
U	EXISTING PAVEMENT



TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

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11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

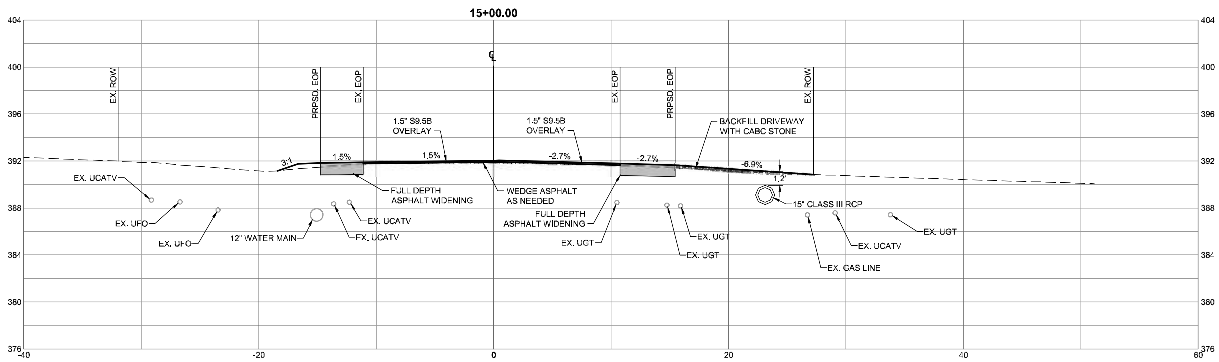
DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

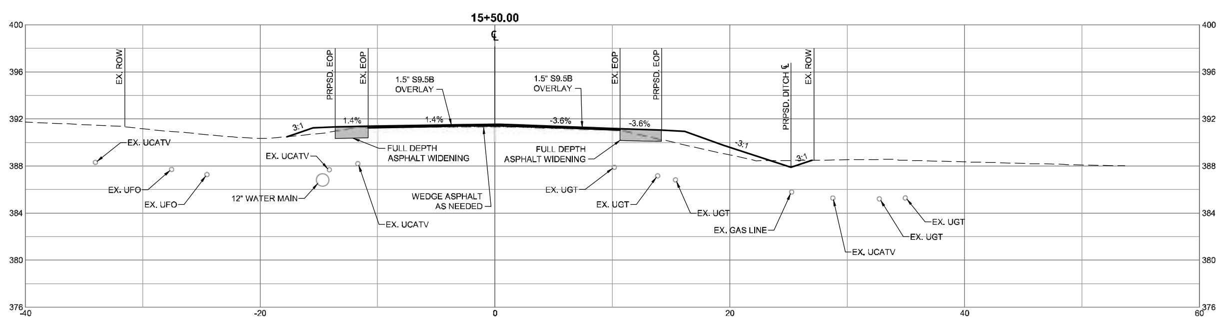
JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

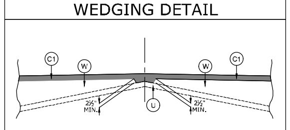
JONES DAIRY ROAD - CROSS SECTIONS STA. 14+00 - 14+50

JOB NO. 54832
SHEET NO. C7.6


15+00.00
EX. ROW
PRPSD. EOP
EX. EOP
EX. EOP
PRPSD. EOP
EX. ROW
1.5" S9.5B OVERLAY
1.5" S9.5B OVERLAY
BACKFILL DRIVEWAY WITH CABC STONE
3:1
1.5%
1.5%
-2.7%
-2.7%
-6.9%
1.2'
EX. UCATV
EX. UFO
EX. UFO
12" WATER MAIN
FULL DEPTH ASPHALT WIDENING
EX. UCATV
EX. UCATV
WEDGE ASPHALT AS NEEDED
FULL DEPTH ASPHALT WIDENING
EX. UGT
EX. UGT
EX. UGT
15" CLASS III RCP
EX. GAS LINE
EX. UCATV
EX. UGT
404
400
396
392
388
384
380
376
-40
-20
0
20
40
60


15+50.00
EX. ROW
PRPSD. EOP
EX. EOP
EX. EOP
PRPSD. EOP
PRPSD. DITCH
EX. ROW
1.5" S9.5B OVERLAY
1.5" S9.5B OVERLAY
3:1
1.4%
1.4%
-3.6%
-3.6%
-3:1
3:1
EX. UCATV
EX. UCATV
FULL DEPTH ASPHALT WIDENING
FULL DEPTH ASPHALT WIDENING
EX. UFO
EX. UFO
12" WATER MAIN
WEDGE ASPHALT AS NEEDED
EX. UCATV
EX. UGT
EX. UGT
EX. UGT
EX. GAS LINE
EX. UCATV
EX. UGT
EX. UGT
400
396
392
388
384
380
376
-40
-20
0
20
40
60

WEDGING DETAIL



DETAIL SHOWING METHOD OF WEDGING

NOTE: MILL OR OVERLAY EXISTING PAVEMENT AS NECESSARY TO ACHIEVE REQUIRED CROSS SLOPE PER CROSS SECTIONS AND SUPERELEVATION TRANSITIONS, BUILD UP WITH ASPHALT CONCRETE INTERMEDIATE TYPE I19.0c AT VARIABLE DEPTH DEPENDING ON EXISTING CIRCUMSTANCES. REFER TO NCDOT ROAD DESIGN MANUAL FOR MINIMUM PAVEMENT LIFTS AND WEDGING REQUIREMENTS.

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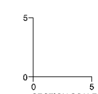
W	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
U	EXISTING PAVEMENT



SECTION SCALE

NORTH CAROLINA PROFESSIONAL SEAL 055780 ENGINEER GARRETT W. FRANK

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DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

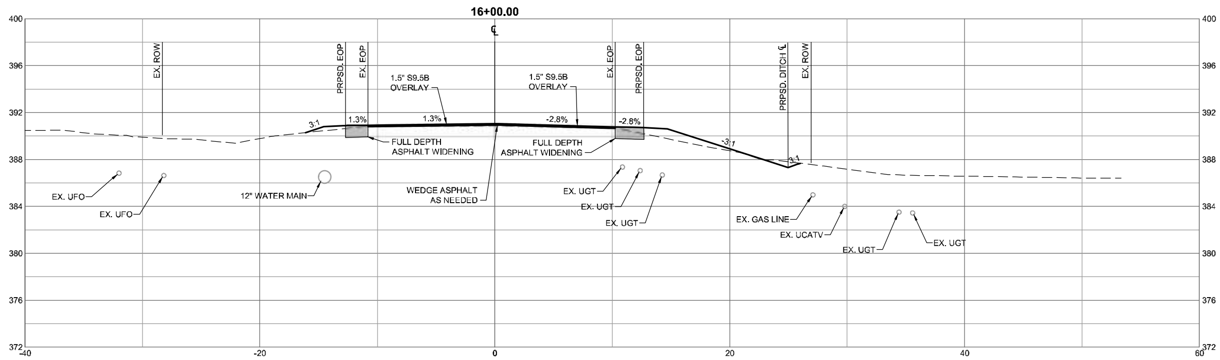
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

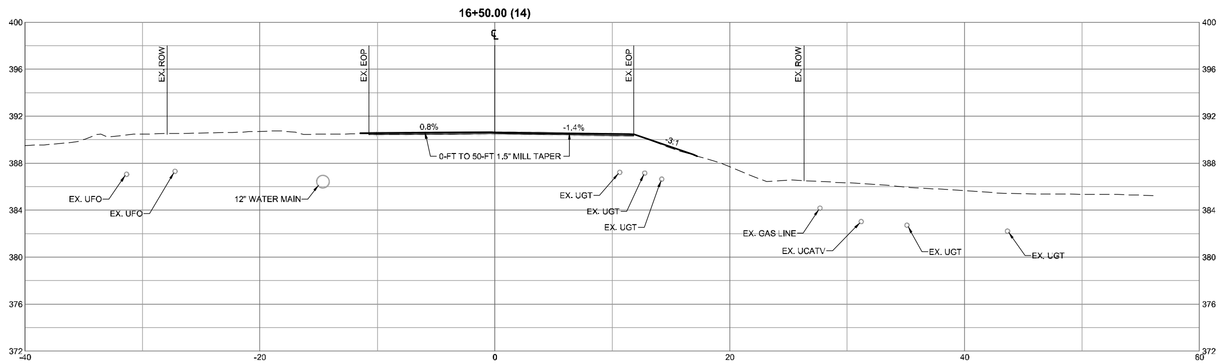
JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

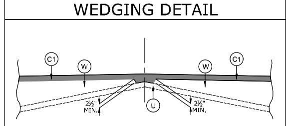
JONES DAIRY ROAD - CROSS SECTIONS STA. 15+00 - 15+50

JOB NO. 54832
SHEET NO. C7.7





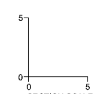
WEDGING DETAIL



DETAIL SHOWING METHOD OF WEDGING

NOTE: MILL OR OVERLAY EXISTING PAVEMENT AS NECESSARY TO ACHIEVE REQUIRED CROSS SLOPE PER CROSS SECTIONS AND SUPERELEVATION TRANSITIONS, BUILD UP WITH ASPHALT CONCRETE INTERMEDIATE TYPE I19.0c AT VARIABLE DEPTH DEPENDING ON EXISTING CIRCUMSTANCES. REFER TO NCDOT ROAD DESIGN MANUAL FOR MINIMUM PAVEMENT LIFTS AND WEDGING REQUIREMENTS.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
W	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C.
U	EXISTING PAVEMENT



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RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

DATE	04/05/2023
DRAWN BY	L. BARNES
DESIGNED BY	G. FRANK
CHECKED BY	G. FRANK
SCALE	AS SHOWN

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

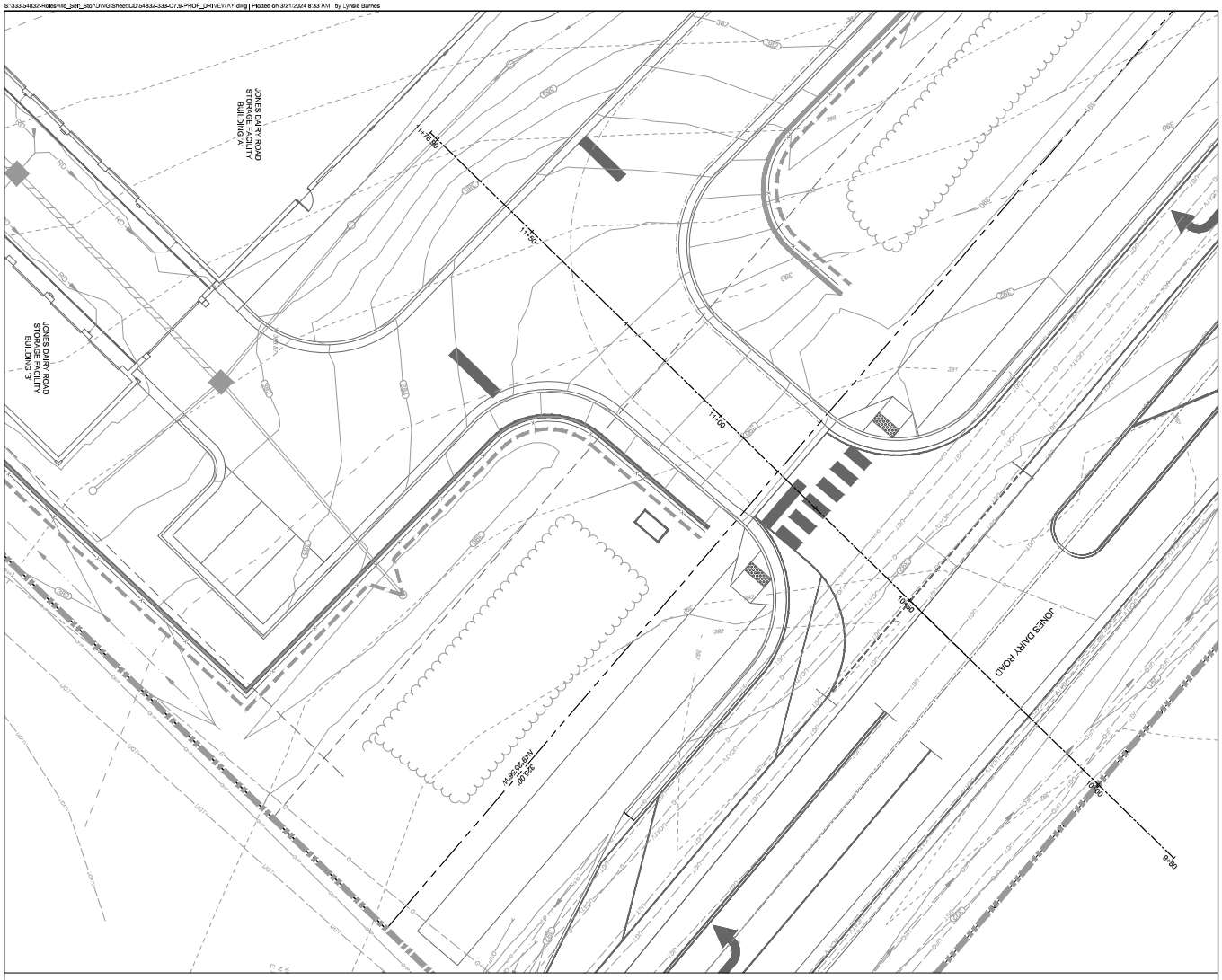
JONES DAIRY STORAGE FACILITY

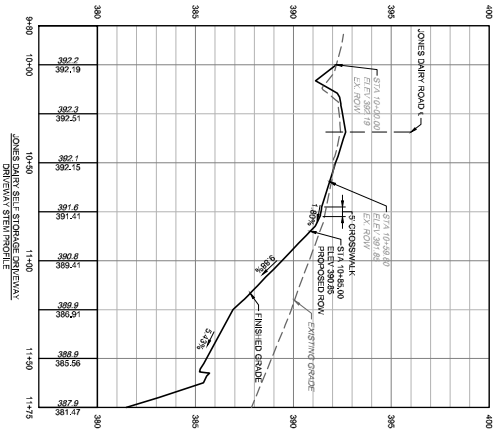
TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

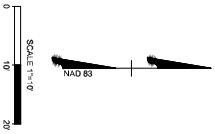
JONES DAIRY ROAD - CROSS SECTIONS STA. 16+00 - 16+50

JOB NO.	54832
SHEET NO.	C7.8

S:\333\54832-Rolesville_Self_Stor\DWG\Sheet\CD\54832-333-C7.9-PROF_DRIVEWAY.dwg | Plotted on 3/21/2024 8:33 AM | by Lynsie Barnes







TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

JONES DAIRY ROAD DRIVEWAY STEM PROFILE

SHEET NO.	JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
C7.9	54832	AS SHOWN	G. FRANK	G. FRANK	L. BARNES	04/05/2023

DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

JONES DAIRY STORAGE FACILITY
NCDOT HYDRAULIC CALCULATIONS

JANUARY 25, 2023

PREPARED BY:

Garrett Frank, PLA, PE
5410 Trinity Road, Suite 102
Raleigh, North Carolina 27607
919.866.4503 phone
919.859.5663 fax
Garrett.frank@timmons.com
www.timmons.com

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

RIP RAP OUTLET DESIGN

OUTLET PROTECTION DESIGN	DATE
	07/31/2023
PROJECT NAME	**PROJECT NO**
Rolesville Self Storage Facility	54832
LOCATION	**BY**
Rolesville, NC	LMB

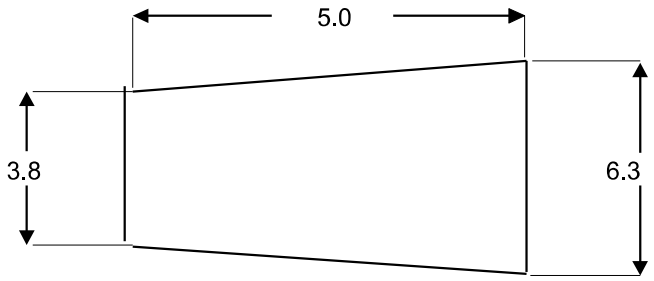
TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

RIPRAP FES F1

Pipe Diameter:	15.00	in	
Upper Invert:	389.00		
Lower Invert:	388.75		
Pipe Length:	17.45	ft	*Discharge from Storm Sewers
Pipe Slope:	0.014		Discharge: 0.47 cfs
Pipe Material:	RCP		

Q_{10} =	0.47	cfs	Q_{10}/Q_{full} = 0.06
Qfull =	7.74	cfs	V/Vfull = 0.52
Vfull =	6.31	fps	V = 3.29 fps

Dissipator Dimensions *		
Zone =	1	
Stone Filling Class =	A	
Entry Width (3 X D_0) =	3.8	ft
Length (4 X D_0) =	5.0	ft
Width (La + D_0) =	6.3	ft
Min. Thickness =	12	inches
Stone Diameter (D_{50})=	3	inches



* All units are in feet
** Dissipator pad designed for full flow of pipe

OUTLET PROTECTION DESIGN	DATE
	07/31/2023
PROJECT NAME	**PROJECT NO**
Rolesville Self Storage Facility	54832
LOCATION	**BY**
Rolesville, NC	LMB

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

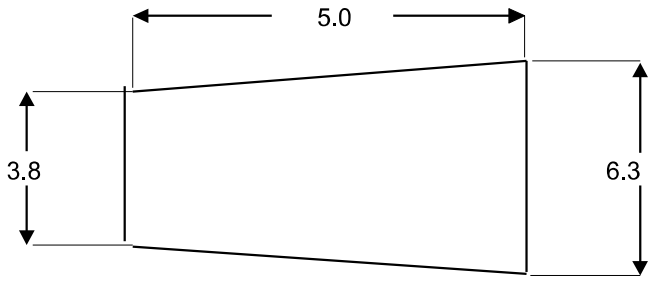
RIPRAP FES F3

Pipe Diameter:	15.00	in
Upper Invert:	389.00	
Lower Invert:	388.50	
Pipe Length:	31.45	ft
Pipe Slope:	0.016	
Pipe Material:	RCP	

*Discharge from Storm Sewers
Discharge: 0.32 cfs

Q_{10} =	0.32	cfs	Q_{10}/Q_{full} =	0.04
Qfull =	8.16	cfs	V/Vfull =	0.42
Vfull =	6.65	fps	V =	2.81 fps

Dissipator Dimensions *		
Zone =	1	
Stone Filling Class =	A	
Entry Width (3 X D_0) =	3.8	ft
Length (4 X D_0) =	5.0	ft
Width (La + D_0) =	6.3	ft
Min. Thickness =	12	inches
Stone Diameter (D_{50})=	3	inches



* All units are in feet
** Dissipator pad designed for full flow of pipe

OUTLET PROTECTION DESIGN	DATE
	01/19/2024
PROJECT NAME	**PROJECT NO**
Rolesville Self Storage Facility	54832
LOCATION	**BY**
Rolesville, NC	LMB

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

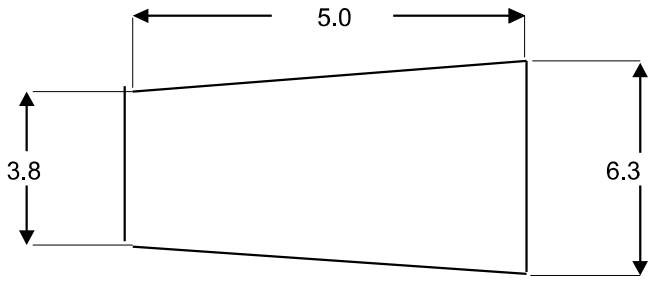
RIPRAP FES F5

Pipe Diameter:	15.00	in
Upper Invert:	387.00	
Lower Invert:	386.40	
Pipe Length:	20.35	ft
Pipe Slope:	0.029	
Pipe Material:	RCP	

*Discharge from Storm Sewers
Discharge: 1.70 cfs

Q_{10} =	1.70	cfs	Q_{10}/Q_{full} =	0.15
Qfull =	11.11	cfs	V/Vfull =	0.72
Vfull =	9.05	fps	V =	6.51 fps

Dissipator Dimensions *		
Zone =	1	
Stone Filling Class =	A	
Entry Width (3 X D_0) =	3.8	ft
Length (4 X D_0) =	5.0	ft
Width (La + D_0) =	6.3	ft
Min. Thickness =	12	inches
Stone Diameter (D_{50})=	3	inches



* All units are in feet
** Dissipator pad designed for full flow of pipe

OUTLET PROTECTION DESIGN	DATE
	01/19/2024
PROJECT NAME	**PROJECT NO**
Rolesville Self Storage Facility	54832
LOCATION	**BY**
Rolesville, NC	LMB

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

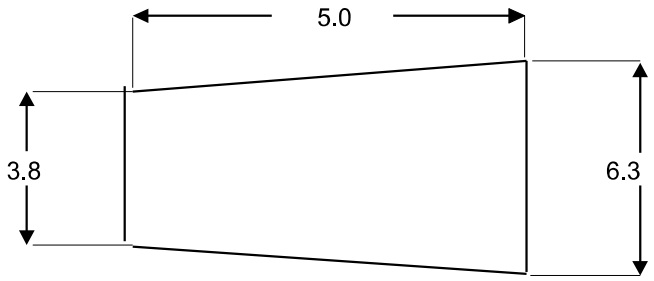
RIPRAP FES F7

Pipe Diameter:	15.00	in
Upper Invert:	385.00	
Lower Invert:	384.50	
Pipe Length:	24.50	ft
Pipe Slope:	0.020	
Pipe Material:	RCP	

*Discharge from Storm Sewers
Discharge: 1.90 cfs

Q_{10} =	1.90	cfs	Q_{10}/Q_{full} =	0.21
Qfull =	9.24	cfs	V/Vfull =	0.78
Vfull =	7.53	fps	V =	5.88 fps

Dissipator Dimensions *		
Zone =	1	
Stone Filling Class =	A	
Entry Width (3 X D_0) =	3.8	ft
Length (4 X D_0) =	5.0	ft
Width (La + D_0) =	6.3	ft
Min. Thickness =	12	inches
Stone Diameter (D_{50})=	3	inches



* All units are in feet
** Dissipator pad designed for full flow of pipe

CULVERT DESIGN

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Oct 27 2023

F2 - F1

Invert Elev Dn (ft)	=	388.75
Pipe Length (ft)	=	17.85
Slope (%)	=	1.40
Invert Elev Up (ft)	=	389.00
Rise (in)	=	15.0
Shape	=	Circular
Span (in)	=	15.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

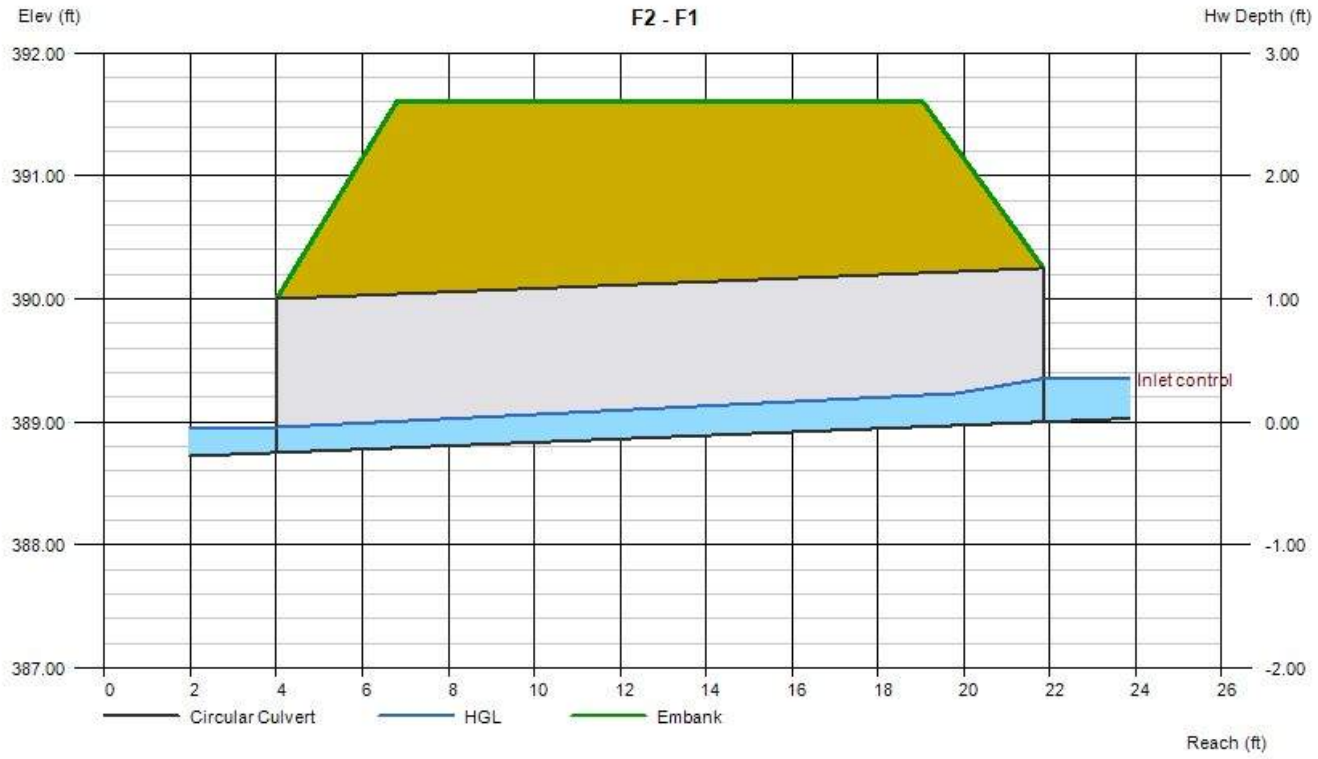
Top Elevation (ft)	=	391.60
Top Width (ft)	=	12.25
Crest Width (ft)	=	12.25

Calculations

Qmin (cfs)	=	0.47
Qmax (cfs)	=	0.47
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	0.47
Qpipe (cfs)	=	0.47
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	3.57
Veloc Up (ft/s)	=	2.45
HGL Dn (ft)	=	388.96
HGL Up (ft)	=	389.27
Hw Elev (ft)	=	389.35
Hw/D (ft)	=	0.28
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Oct 27 2023

F4 - F3

Invert Elev Dn (ft)	=	388.25
Pipe Length (ft)	=	31.45
Slope (%)	=	1.59
Invert Elev Up (ft)	=	388.75
Rise (in)	=	15.0
Shape	=	Circular
Span (in)	=	15.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

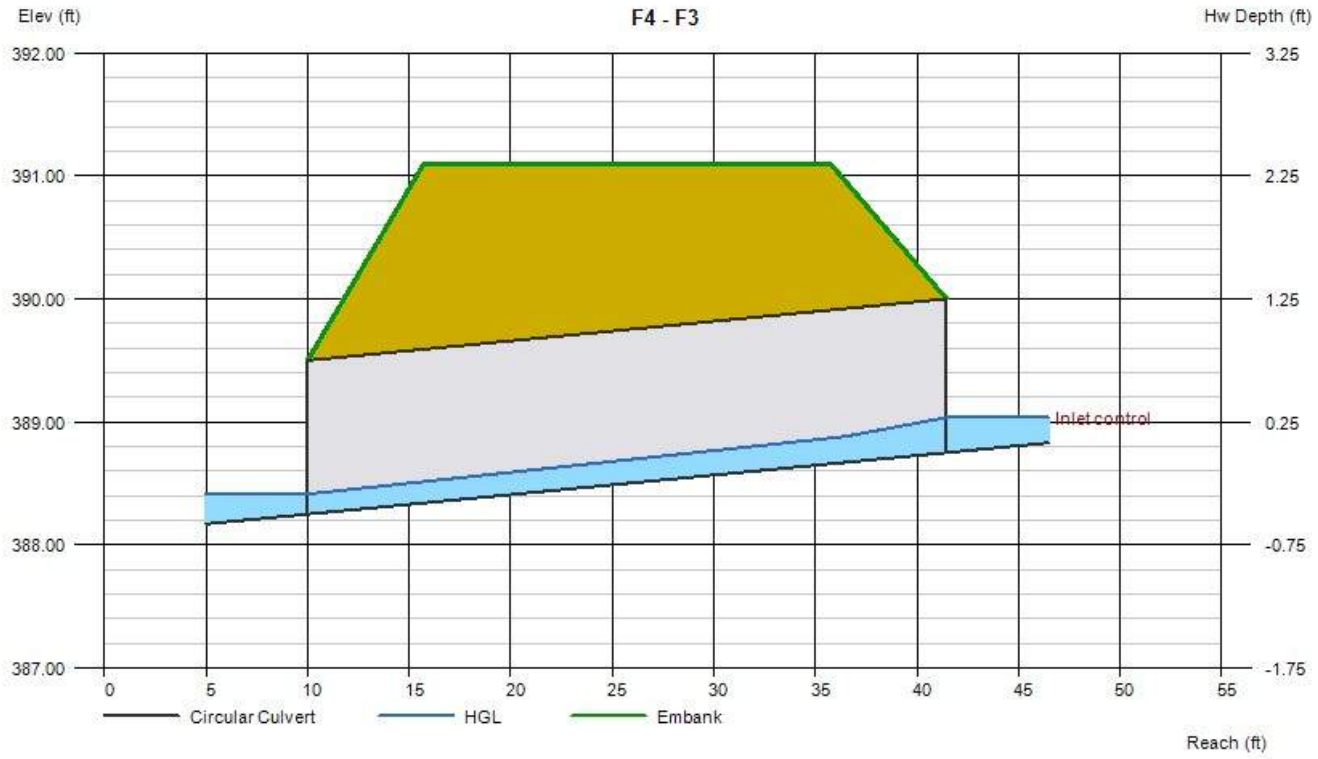
Top Elevation (ft)	=	391.10
Top Width (ft)	=	20.00
Crest Width (ft)	=	20.00

Calculations

Qmin (cfs)	=	0.32
Qmax (cfs)	=	0.32
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	0.32
Qpipe (cfs)	=	0.32
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	3.38
Veloc Up (ft/s)	=	2.21
HGL Dn (ft)	=	388.41
HGL Up (ft)	=	388.97
Hw Elev (ft)	=	389.04
Hw/D (ft)	=	0.23
Flow Regime	=	Inlet Control



Culvert Report

F6 - F5

Invert Elev Dn (ft)	=	386.00
Pipe Length (ft)	=	21.01
Slope (%)	=	2.38
Invert Elev Up (ft)	=	386.50
Rise (in)	=	15.0
Shape	=	Circular
Span (in)	=	15.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

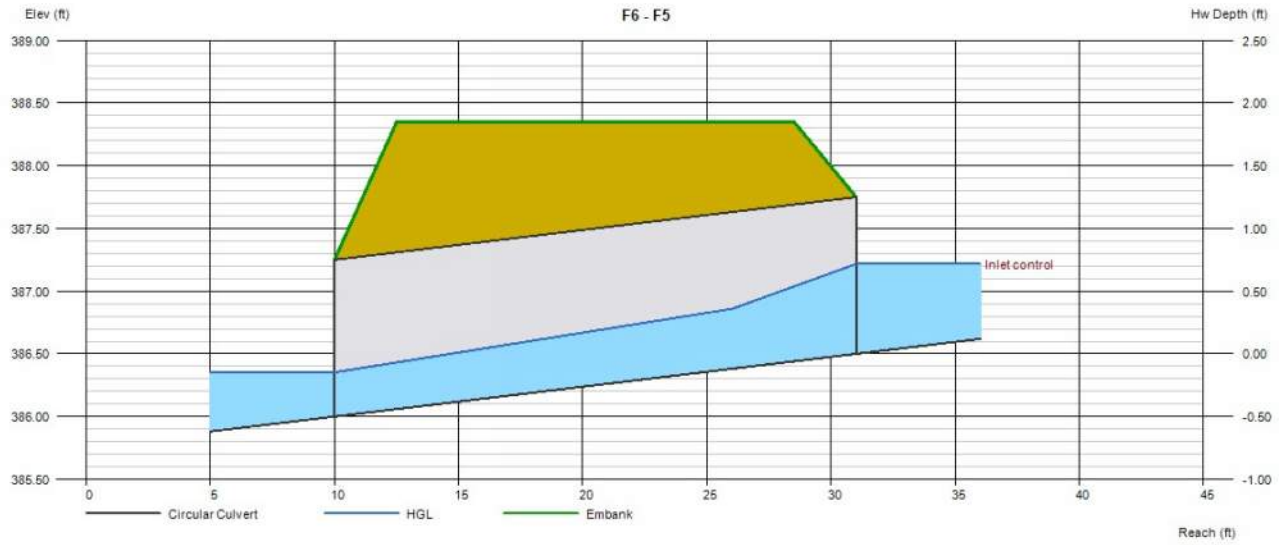
Top Elevation (ft)	=	388.35
Top Width (ft)	=	16.00
Crest Width (ft)	=	16.00

Calculations

Qmin (cfs)	=	1.70
Qmax (cfs)	=	1.70
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	1.70
Qpipe (cfs)	=	1.70
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	5.98
Veloc Up (ft/s)	=	3.55
HGL Dn (ft)	=	386.35
HGL Up (ft)	=	387.02
Hw Elev (ft)	=	387.22
Hw/D (ft)	=	0.57
Flow Regime	=	Inlet Control



Culvert Report

F8 - F7

Invert Elev Dn (ft)	=	384.75
Pipe Length (ft)	=	24.50
Slope (%)	=	2.04
Invert Elev Up (ft)	=	385.25
Rise (in)	=	15.0
Shape	=	Circular
Span (in)	=	15.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

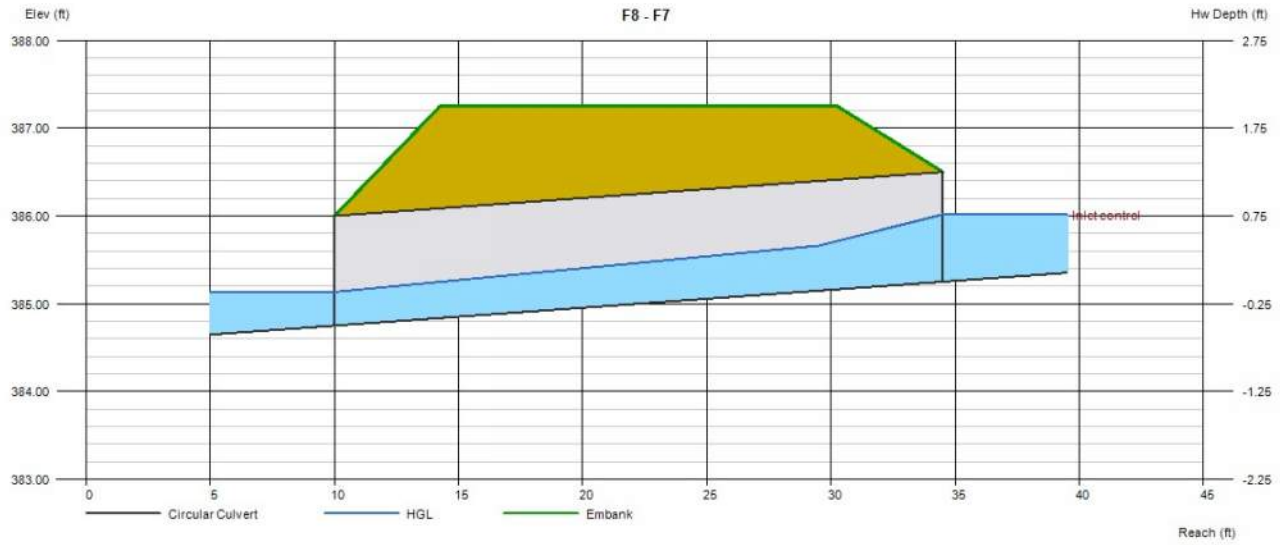
Top Elevation (ft)	=	387.25
Top Width (ft)	=	16.00
Crest Width (ft)	=	16.00

Calculations

Qmin (cfs)	=	1.89
Qmax (cfs)	=	1.89
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	1.89
Qpipe (cfs)	=	1.89
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	5.91
Veloc Up (ft/s)	=	3.66
HGL Dn (ft)	=	385.13
HGL Up (ft)	=	385.80
Hw Elev (ft)	=	386.02
Hw/D (ft)	=	0.61
Flow Regime	=	Inlet Control



CHANNEL DESIGN

DITCH NAME		PROJECT NAME
F2	TIMMONS GROUP ENGINEERING | DESIGN | TECHNOLOGY	Jones Dairy Storage
CALCULATED BY		PROJECT NUMBER
Lynsie Barnes		54832

Drainage Ditch Design (Velocity Constraint)

PERMANENT DIVERSION DITCH: F2

This worksheet is designed to determine channel lining based on flow and ditch geometry (base width, side slope, & channel slope). This program determines depth of flow, velocity and tractive force assuming n=0.03 for grass or rip rap (n can be varied if desired). (Vary depth until z actual equals z required; v & t will be correct; select appropriate lining based on tractive force)

Watershed Data

Area (A) =	0.17	(Acres)
Coef. (C) =	0.60	(Dimensionless)
Inte. (I) =	7.19	(in/hr)
Flow (Q_{10}) =	0.7	(cfs)

Known Quantities

Line channel with:	6	" rip-rap	(Assume 6" even if using grass)		
Manning n =	0.030	(Dimensionless)	Ditch Length =	122	LF
Slope =	0.030	(ft/ft)	Highest Elevation =	392.6	
Z Required =	0.08	Ratio	Lowest Elevation =	389	
Side Slope (M) =	3	:1			

Variable Quantities (Ditch Width & Depth)

Flow Depth (Y) =	0.32	ft	3.8	in
Bottom Width (B) =	0.00	ft	0.0	in
Freeboard =	0.00	ft	0.0	in

Compute Tractive Force

T=YxDxS

T = 0.59 LB/SF

Y = Weight of water (62.4 LB/CUFT)
D=Depth of flow in channel (ft)
S=Slope of channel (ft/ft)

General Lining	LB/SF
Jute Net	0.45
Curled Mat	1.55
Class A (4"@9"THK)	2.00
Class B (8"@18"THK)	3.50
Class I (12"@22"THK)	5.00
Class II (18"@30"THK)	7.50

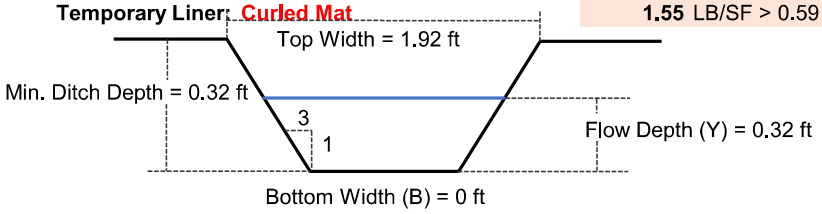
North American Green Lining	LB/SF
S75	1.55
S150	1.75
SC150	2.10
C125	2.25
P300	8.00

Determine If Z Actual Is Greater Than Z Required

New A =	0.31	SF		
New P =	2.02	Wetted perimeter		
New R =	0.15	Hydraulic radius		
Z Actual =	0.09	Must be greater than z required=>	0.08	Okay
New V =	2.43	fps		

Minimum Design Geometry

Permanent Liner:	Grass	3.50 LB/SF > 0.59 LB/SF	Okay
Temporary Liner:	Curled Mat	1.55 LB/SF > 0.59 LB/SF	Okay



Ditch Geometry				
Min. Ditch Depth (ft)	Bottom Width (ft)	Flow Depth (ft)	Top Width (ft)	Side Slope
0.32	0.00	0.32	1.92	3:1

Ditch Liner
Permanent Liner:Grass,Temporary Liner:Curled Mat

*RED IS USER INPUT

DITCH NAME	PROJECT NAME
F4	Jones Dairy Storage
CALCULATED BY	**PROJECT NUMBER**
Lynsie Barnes	54832

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

Drainage Ditch Design (Velocity Constraint)

PERMANENT DIVERSION DITCH: F4

This worksheet is designed to determine channel lining based on flow and ditch geometry (base width, side slope, & channel slope). This program determines depth of flow, velocity and tractive force assuming n=0.03 for grass or rip rap (n can be varied if desired). (Vary depth until z actual equals z required; v & t will be correct; select appropriate lining based on tractive force)

Watershed Data

Area (A) =	0.09	(Acres)
Coef. (C) =	0.60	(Dimensionless)
Inte. (I) =	7.19	(in/hr)
Flow (Q_{10}) =	0.4	(cfs)

Known Quantities

Line channel with:	6	" rip-rap (Assume 6" even if using grass)		
Manning n =	0.030	(Dimensionless)	Ditch Length =	132 LF
Slope =	0.026	(ft/ft)	Highest Elevation =	392.2
Z Required =	0.05	Ratio	Lowest Elevation =	388.75
Side Slope (M) =	3	:1		

Variable Quantities (Ditch Width & Depth)

Flow Depth (Y) =	0.27	ft	3.2 in
Bottom Width (B) =	0.00	ft	0.0 in
Freeboard =	0.00	ft	0.0 in

Compute Tractive Force

T=YxDxS

T = 0.44 LB/SF

Y = Weight of water (62.4 LB/CUFT)
D=Depth of flow in channel (ft)
S=Slope of channel (ft/ft)

General Lining	LB/SF
Jute Net	0.45
Curled Mat	1.55
Class A (4"@9"THK)	2.00
Class B (8"@18"THK)	3.50
Class I (12"@22"THK)	5.00
Class II (18"@30"THK)	7.50

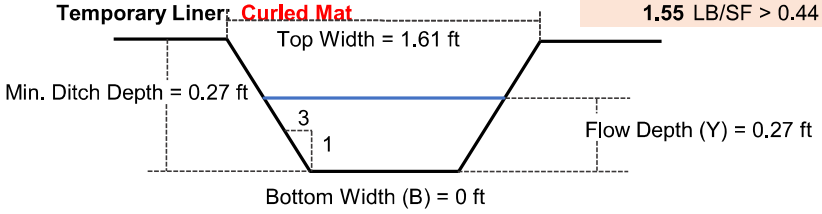
North American Green Lining	LB/SF
S75	1.55
S150	1.75
SC150	2.10
C125	2.25
P300	8.00

Determine If Z Actual Is Greater Than Z Required

New A =	0.22	SF		
New P =	1.70	Wetted perimeter		
New R =	0.13	Hydraulic radius		
Z Actual =	0.06	Must be greater than z required=>	0.05	Okay
New V =	2.04	fps		

Minimum Design Geometry

Permanent Liner:	Grass	3.50 LB/SF > 0.44 LB/SF	Okay
Temporary Liner:	Curled Mat	1.55 LB/SF > 0.44 LB/SF	Okay



Ditch Geometry				
Min. Ditch Depth (ft)	Bottom Width (ft)	Flow Depth (ft)	Top Width (ft)	Side Slope
0.27	0.00	0.27	1.61	3:1

Ditch Liner
Permanent Liner:Grass,Temporary Liner:Curled Mat

*RED IS USER INPUT

DITCH NAME		PROJECT NAME
F6		Jones Dairy Storage
CALCULATED BY		PROJECT NUMBER
Lynsie Barnes		54832

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

Drainage Ditch Design (Velocity Constraint)

PERMANENT DIVERSION DITCH: F6

This worksheet is designed to determine channel lining based on flow and ditch geometry (base width, side slope, & channel slope). This program determines depth of flow, velocity and tractive force assuming n=0.03 for grass or rip rap (n can be varied if desired). (Vary depth until z actual equals z required; v & t will be correct; select appropriate lining based on tractive force)

Watershed Data

Area (A) =	0.39	(Acres)
Coef. (C) =	0.60	(Dimensionless)
Inte. (I) =	7.19	(in/hr)
Flow (Q_{10}) =	1.7	(cfs)

Known Quantities

Line channel with:	6	" rip-rap	(Assume 6" even if using grass)		
Manning n =	0.030	(Dimensionless)	Ditch Length =	170	LF
Slope =	0.010	(ft/ft)	Highest Elevation =	388.75	
Z Required =	0.34	Ratio	Lowest Elevation =	387	
Side Slope (M) =	3	:1			

Variable Quantities (Ditch Width & Depth)

Flow Depth (Y) =	0.54	ft	6.5 in
Bottom Width (B) =	0.00	ft	0.0 in
Freeboard =	0.00	ft	0.0 in

Compute Tractive Force

T=YxDxS

T = 0.35 LB/SF

Y = Weight of water (62.4 LB/CUFT)
D=Depth of flow in channel (ft)
S=Slope of channel (ft/ft)

General Lining	LB/SF
Jute Net	0.45
Curled Mat	1.55
Class A (4"@9"THK)	2.00
Class B (8"@18"THK)	3.50
Class I (12"@22"THK)	5.00
Class II (18"@30"THK)	7.50

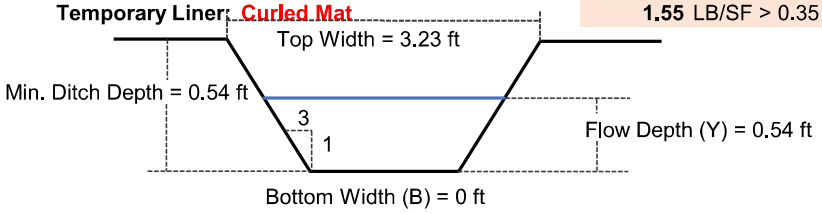
North American Green Lining	LB/SF
S75	1.55
S150	1.75
SC150	2.10
C125	2.25
P300	8.00

Determine If Z Actual Is Greater Than Z Required

New A =	0.87	SF		
New P =	3.41	Wetted perimeter		
New R =	0.26	Hydraulic radius		
Z Actual =	0.35	Must be greater than z required=>	0.34	Okay
New V =	2.03	fps		

Minimum Design Geometry

Permanent Liner:	Grass	3.50 LB/SF > 0.35 LB/SF	Okay
Temporary Liner:	Curled Mat	1.55 LB/SF > 0.35 LB/SF	Okay



Ditch Geometry				
Min. Ditch Depth (ft)	Bottom Width (ft)	Flow Depth (ft)	Top Width (ft)	Side Slope
0.54	0.00	0.54	3.23	3:1

Ditch Liner
Permanent Liner:Grass,Temporary Liner:Curled Mat

*RED IS USER INPUT

DITCH NAME		PROJECT NAME
F8		Jones Dairy Storage
CALCULATED BY		PROJECT NUMBER
Lynsie Barnes		54832

TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY

Drainage Ditch Design (Velocity Constraint)

PERMANENT DIVERSION DITCH: F8

This worksheet is designed to determine channel lining based on flow and ditch geometry (base width, side slope, & channel slope). This program determines depth of flow, velocity and tractive force assuming n=0.03 for grass or rip rap (n can be varied if desired). (Vary depth until z actual equals z required; v & t will be correct; select appropriate lining based on tractive force)

Watershed Data

Area (A) =	0.44	(Acres)
Coef. (C) =	0.60	(Dimensionless)
Inte. (I) =	7.19	(in/hr)
Flow (Q_{10}) =	1.9	(cfs)

Known Quantities

Line channel with:	6	" rip-rap	(Assume 6" even if using grass)		
Manning n =	0.030	(Dimensionless)	Ditch Length =	30	LF
Slope =	0.047	(ft/ft)	Highest Elevation =	386.4	
Z Required =	0.18	Ratio	Lowest Elevation =	385	
Side Slope (M) =	3	:1			

Variable Quantities (Ditch Width & Depth)

Flow Depth (Y) =	0.43	ft	5.1	in
Bottom Width (B) =	0.00	ft	0.0	in
Freeboard =	0.00	ft	0.0	in

Compute Tractive Force

T=YxDxS

T = 1.25 LB/SF

Y = Weight of water (62.4 LB/CUFT)
D=Depth of flow in channel (ft)
S=Slope of channel (ft/ft)

General Lining	LB/SF
Jute Net	0.45
Curled Mat	1.55
Class A (4"@9"THK)	2.00
Class B (8"@18"THK)	3.50
Class I (12"@22"THK)	5.00
Class II (18"@30"THK)	7.50

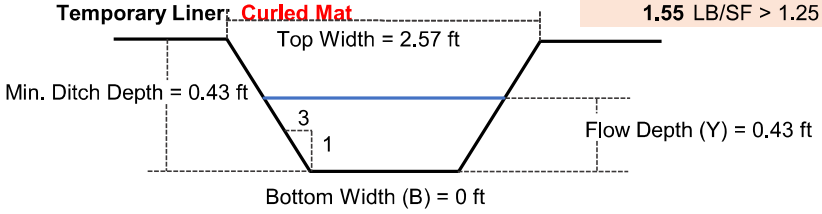
North American Green Lining	LB/SF
S75	1.55
S150	1.75
SC150	2.10
C125	2.25
P300	8.00

Determine If Z Actual Is Greater Than Z Required

New A =	0.55	SF		
New P =	2.71	Wetted perimeter		
New R =	0.20	Hydraulic radius		
Z Actual =	0.19	Must be greater than z required=>	0.18	Okay
New V =	3.71	fps		

Minimum Design Geometry

Permanent Liner:	Grass	3.50 LB/SF > 1.25 LB/SF	Okay
Temporary Liner:	Curled Mat	1.55 LB/SF > 1.25 LB/SF	Okay



Ditch Geometry				
Min. Ditch Depth (ft)	Bottom Width (ft)	Flow Depth (ft)	Top Width (ft)	Side Slope
0.43	0.00	0.43	2.57	3:1

Ditch Liner
Permanent Liner:Grass,Temporary Liner:Curled Mat

*RED IS USER INPUT

GUTTER SPREAD

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Jan 15 2024

Gutter Spread Plan East

Gutter

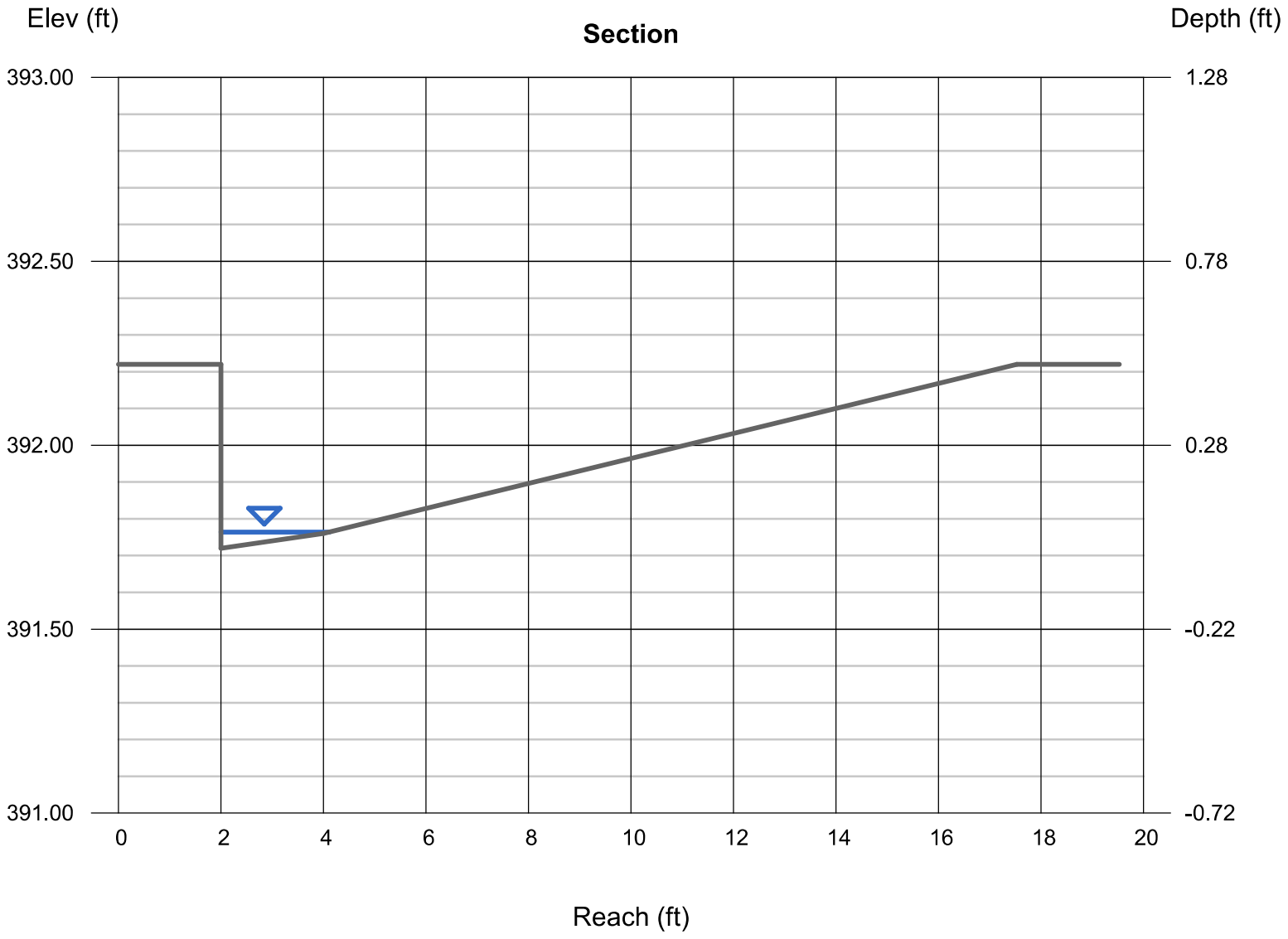
Cross Sl, Sx (ft/ft)	= 0.034
Cross Sl, Sw (ft/ft)	= 0.020
Gutter Width (ft)	= 2.00
Invert Elev (ft)	= 391.72
Slope (%)	= 1.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.06

Highlighted

Depth (ft)	= 0.04
Q (cfs)	= 0.060
Area (sqft)	= 0.05
Velocity (ft/s)	= 1.24
Wetted Perim (ft)	= 2.16
Crit Depth, Yc (ft)	= 0.06
Spread Width (ft)	= 2.12
EGL (ft)	= 0.07



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Jan 15 2024

Gutter Spread Plan West

Gutter

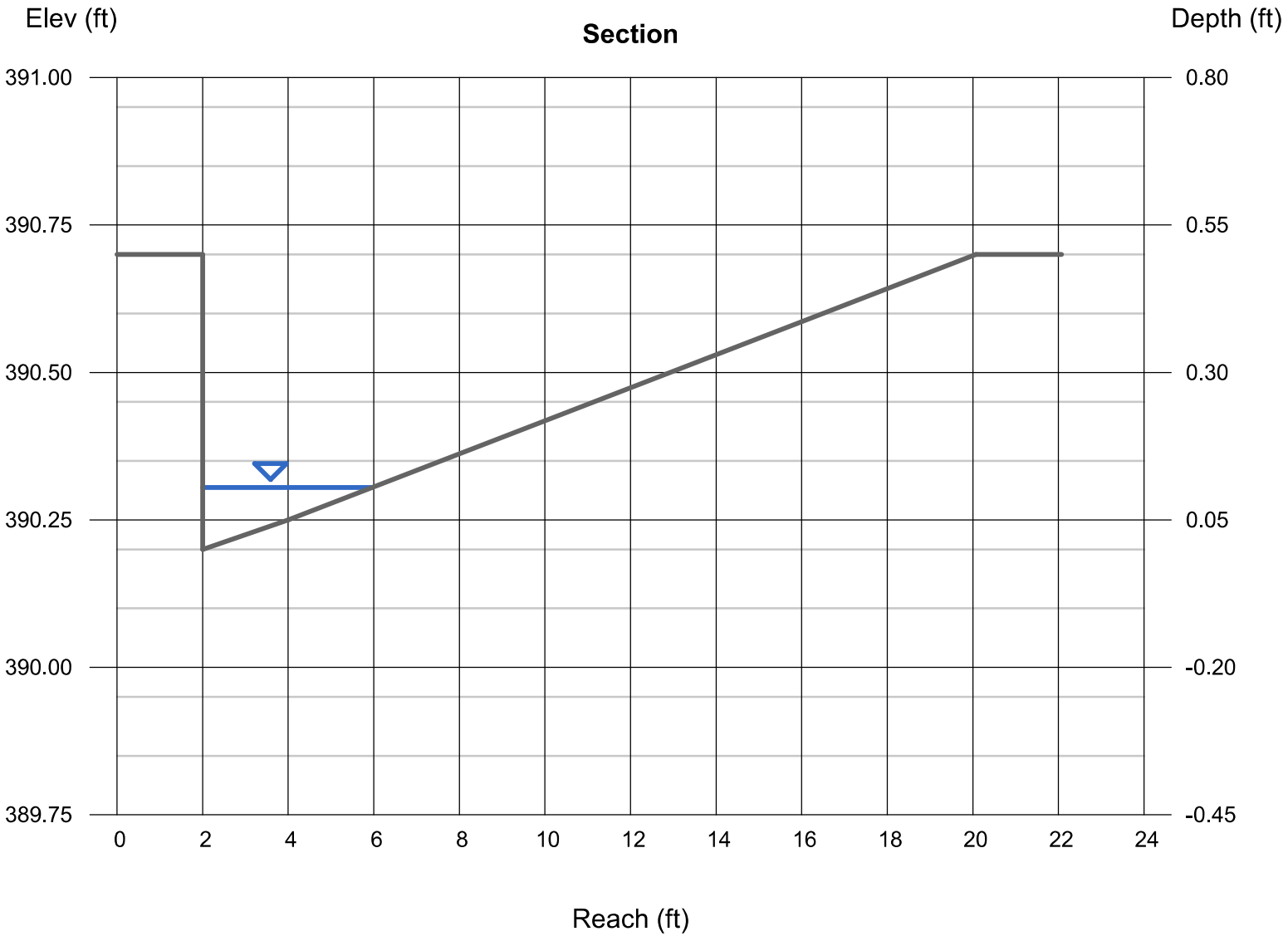
Cross Sl, Sx (ft/ft)	= 0.028
Cross Sl, Sw (ft/ft)	= 0.025
Gutter Width (ft)	= 2.00
Invert Elev (ft)	= 390.20
Slope (%)	= 1.25
N-Value	= 0.013

Calculations

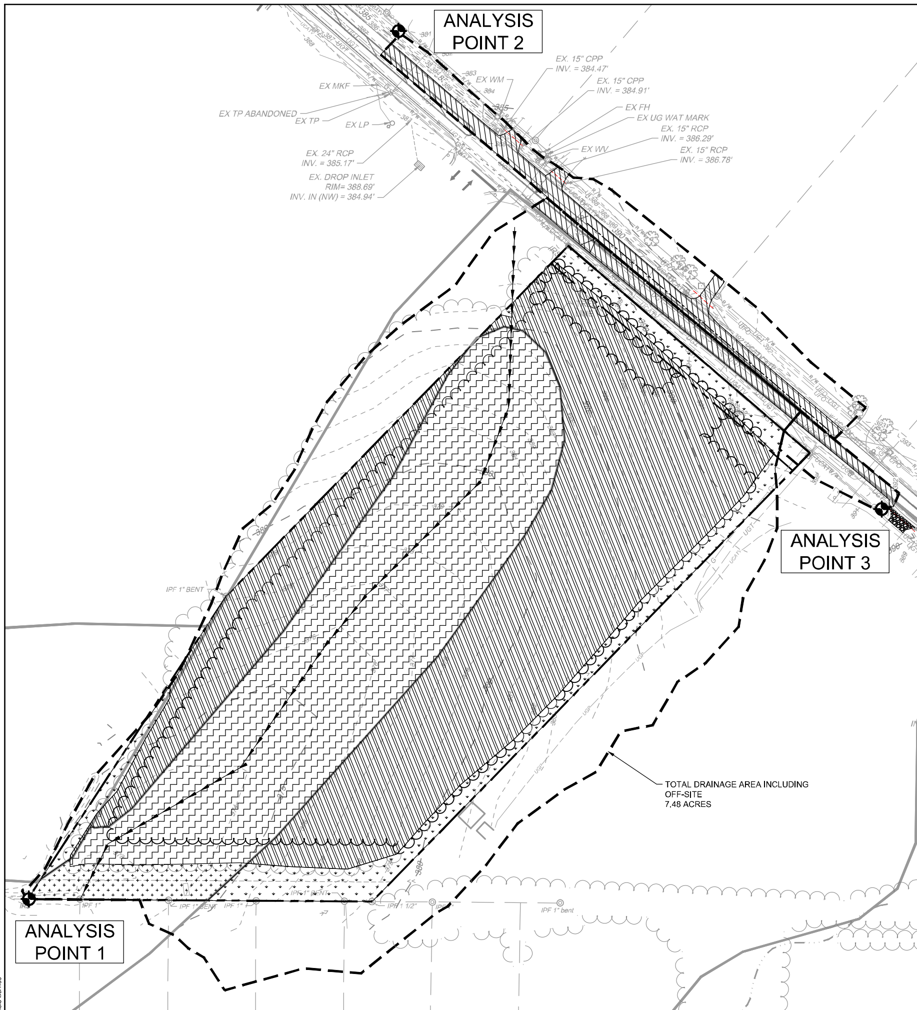
Compute by:	Known Q
Known Q (cfs)	= 0.46

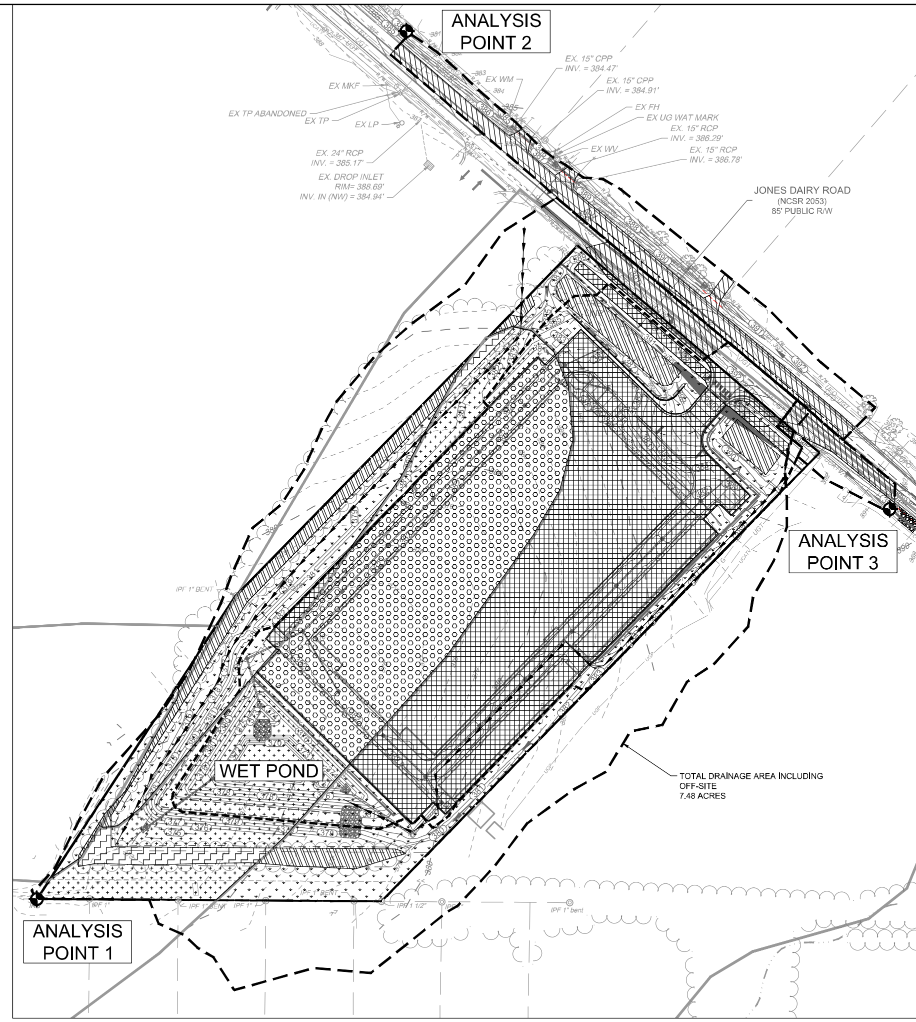
Highlighted

Depth (ft)	= 0.11
Q (cfs)	= 0.460
Area (sqft)	= 0.21
Velocity (ft/s)	= 2.15
Wetted Perim (ft)	= 4.07
Crit Depth, Yc (ft)	= 0.13
Spread Width (ft)	= 3.96
EGL (ft)	= 0.18



PRE/POST STORMWATER MAP


ANALYSIS POINT 2
ANALYSIS POINT 3
ANALYSIS POINT 1
EX. 15" CPP INV. = 384.47'
EX. 15" CPP INV. = 384.91'
EX WM
EX MKF
EX TP ABANDONED
EX TP
EX LP
EX FH
EX UG WAT MARK
EX. 15" RCP INV. = 386.29'
EX WV
EX. 15" RCP INV. = 386.78'
EX. 24" RCP INV. = 385.17'
EX. DROP INLET RIM= 388.69' INV. IN (NW) = 384.94'
TOTAL DRAINAGE AREA INCLUDING OFF-SITE 7.48 ACRES


ANALYSIS POINT 2
ANALYSIS POINT 3
ANALYSIS POINT 1
WET POND
JONES DAIRY ROAD (NCSR 2053) 85' PUBLIC R/W
EX. 15" CPP INV. = 384.47'
EX. 15" CPP INV. = 384.91'
EX WM
EX MKF
EX TP ABANDONED
EX TP
EX LP
EX FH
EX UG WAT MARK
EX. 15" RCP INV. = 386.29'
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EX. 24" RCP INV. = 385.17'
EX. DROP INLET RIM= 388.69' INV. IN (NW) = 384.94'
TOTAL DRAINAGE AREA INCLUDING OFF-SITE 7.48 ACRES

PRE-DEVELOPMENT IMPERVIOUS ANALYSIS MAP

1"=60'

STORM WATER QUANTITY CALCULATIONS

ANALYSIS POINT	DRAINAGE AREA (ac)	IMPERVIOUS AREA (ac)	COMPOSITE CN	Q1	Q2	Q10
1	7.48	1.05	65	1.51	2.94	7.85
2	0.58	0.23	57	0.09	0.29	1.06
3	0.12	0.03	49	0.00	0.01	0.11

LANDUSE SUMMARY

LEGEND	LANDUSE	EXISTING AREA (AC)	PROPOSED AREA (AC)
	IMPERVIOUS	1.05	3.37
	LAWN B SOIL	0.55	1.22
	LAWN D SOIL	0.16	0.86
	WOODS B SOIL	2.73	0.33
	WOODS D SOIL	2.04	0.10
	DRAINAGE AREA BOUNDARY	5.48	5.48

POST-DEVELOPMENT IMPERVIOUS ANALYSIS MAP

1"=60'

STORM WATER QUANTITY CALCULATIONS

ANALYSIS POINT	SUB-BASIN	DRAINAGE AREA (ac)	IMPERVIOUS AREA	FLOW TYPE	COMPOSITE CN	Q1	Q2	Q10
1	DA 1 - BYPASS	3.55	0.13	BYPASS	61	0.93	1.59	3.61
	DA 1 - SCM	3.93	2.92	MANAGED	91	0.44	1.21	2.86
	DA 1 - TOTAL	7.48	3.05	TOTAL	74	0.97	2.07	6.09
2		0.58	0.26	BYPASS	60	0.18	0.43	1.28
3		0.12	0.06	BYPASS	63	0.06	0.12	0.31

OVERALL SUMMARY

ANALYSIS POINT	Q1 (PRE)	Q1 (POST)	Q2 (PRE)	Q2 (POST)	Q10 (PRE)	Q10 (POST)
1	1.51	0.97	2.94	2.07	7.85	6.09
2	0.09	0.18	0.29	0.43	1.06	1.28
3	0.00	0.06	0.01	0.12	0.11	0.31

NAD 83

SCALE 1"=60'

0 60' 120'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055780 GARRETT W. FRANK

THIS DRAWING PREPARED AT THE **RALEIGH OFFICE**
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

DATE	REVISION DESCRIPTION
06/01/2023	ADDRESSED TOWN OF ROLESVILLE COMMENTS
08/01/2023	ADDRESSED TOWN OF ROLESVILLE 2ND REVIEW COMMENTS
11/01/2023	ADDRESSED TOWN OF ROLESVILLE 3RD REVIEW COMMENTS

YOUR VISION ACHIEVED THROUGH OURS.

DATE 04/05/2023
DRAWN BY L. BARNES
DESIGNED BY G. FRANK
CHECKED BY G. FRANK
SCALE AS SHOWN

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

JONES DAIRY STORAGE FACILITY

TOWN OF ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

STORMWATER COMPLIANCE PLAN

JOB NO. 54832
SHEET NO. C3.5

PRE/POST DRAINAGE AREA CALCULATIONS

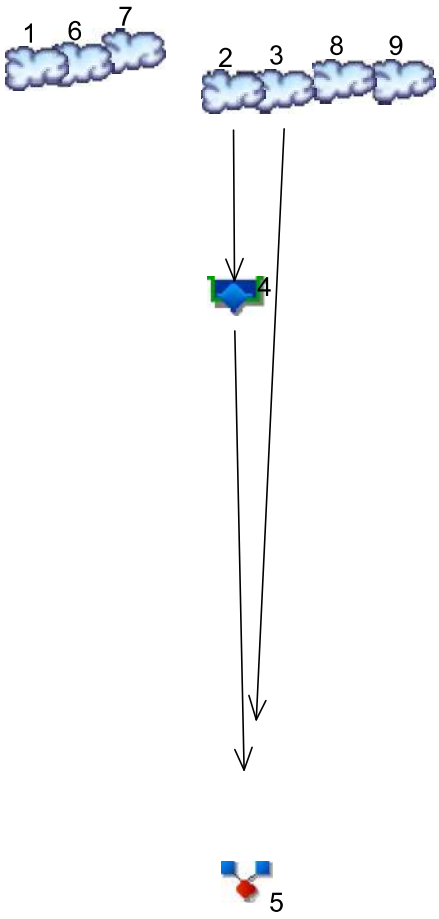
Hydraflow Table of Contents

Rolesville Stormwater Compliance_NCDOT.gpw

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Monday, 01 / 29 / 2024

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	Analysis Point 1_PRE
2	SCS Runoff	Analysis Point 1_POST SCM
3	SCS Runoff	Analysis Point 1_POST BYPASS
4	Reservoir	Wetpond
5	Combine	POST SITE
6	SCS Runoff	Analysis Point 2_PRE
7	SCS Runoff	Analysis Point 3_PRE
8	SCS Runoff	Analysis Point 2_POST
9	SCS Runoff	Analysis Point 3_POST

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	2.063	4.009	-------	-------	10.71	-------	-------	23.44	Analysis Point 1_PRE
2	SCS Runoff	------	10.85	13.85	-------	-------	21.66	-------	-------	33.79	Analysis Point 1_POST SCM
3	SCS Runoff	------	0.704	1.658	-------	-------	5.251	-------	-------	12.38	Analysis Point 1_POST BYPASS
4	Reservoir	2	0.437	1.213	-------	-------	2.863	-------	-------	10.53	Wetpond
5	Combine	3, 4	0.745	2.255	-------	-------	7.737	-------	-------	20.55	POST SITE
6	SCS Runoff	------	0.089	0.289	-------	-------	1.062	-------	-------	2.617	Analysis Point 2_PRE
7	SCS Runoff	------	0.001	0.005	-------	-------	0.105	-------	-------	0.370	Analysis Point 3_PRE
8	SCS Runoff	------	0.178	0.432	-------	-------	1.279	-------	-------	2.923	Analysis Point 2_POST
9	SCS Runoff	------	0.061	0.120	-------	-------	0.310	-------	-------	0.667	Analysis Point 3_POST

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

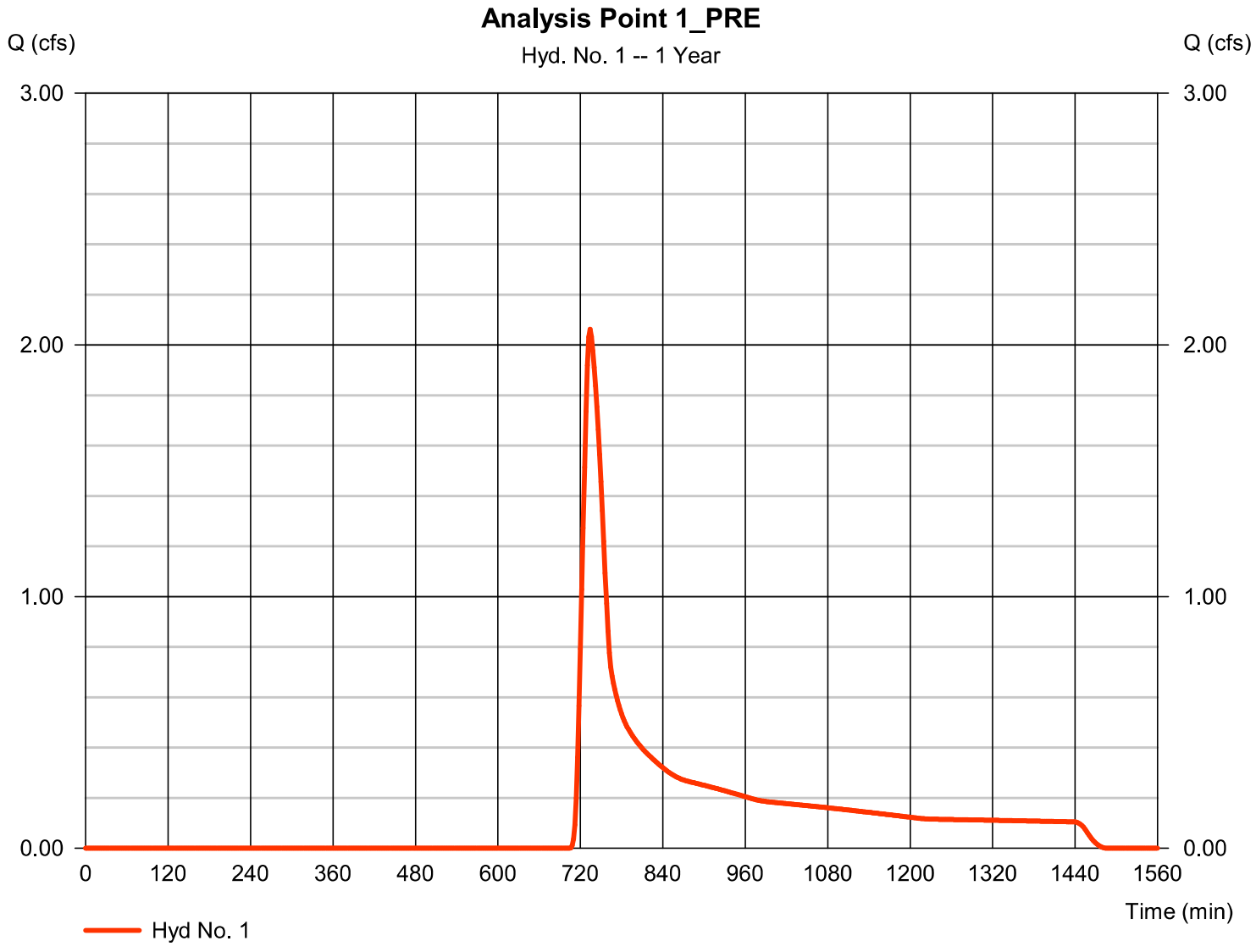
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.063	2	734	12,044	------	------	------	Analysis Point 1_PRE
2	SCS Runoff	10.85	2	720	28,557	------	------	------	Analysis Point 1_POST SCM
3	SCS Runoff	0.704	2	728	4,036	------	------	------	Analysis Point 1_POST BYPASS
4	Reservoir	0.437	2	836	18,230	2	376.98	19,520	Wetpond
5	Combine	0.745	2	728	22,267	3, 4	------	------	POST SITE
6	SCS Runoff	0.089	2	720	405	------	------	------	Analysis Point 2_PRE
7	SCS Runoff	0.001	2	902	22	------	------	------	Analysis Point 3_PRE
8	SCS Runoff	0.178	2	720	561	------	------	------	Analysis Point 2_POST
9	SCS Runoff	0.061	2	718	153	------	------	------	Analysis Point 3_POST

Hydrograph Report

Hyd. No. 1

Analysis Point 1_PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 2.063 cfs
Storm frequency	= 1 yrs	Time to peak	= 734 min
Time interval	= 2 min	Hyd. volume	= 12,044 cuft
Drainage area	= 7.480 ac	Curve number	= 65
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 28.10 min
Total precip.	= 2.86 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No. 1

Analysis Point 1_PRE

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.400		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.46		0.00		0.00		
Land slope (%)	= 2.93		0.00		0.00		
Travel Time (min)	**= 17.73**	**+**	**0.00**	**+**	**0.00**	**=**	**17.73**
Shallow Concentrated Flow							
Flow length (ft)	= 1315.00		0.00		0.00		
Watercourse slope (%)	= 1.71		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=2.11		0.00		0.00		
Travel Time (min)	**= 10.39**	**+**	**0.00**	**+**	**0.00**	**=**	**10.39**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

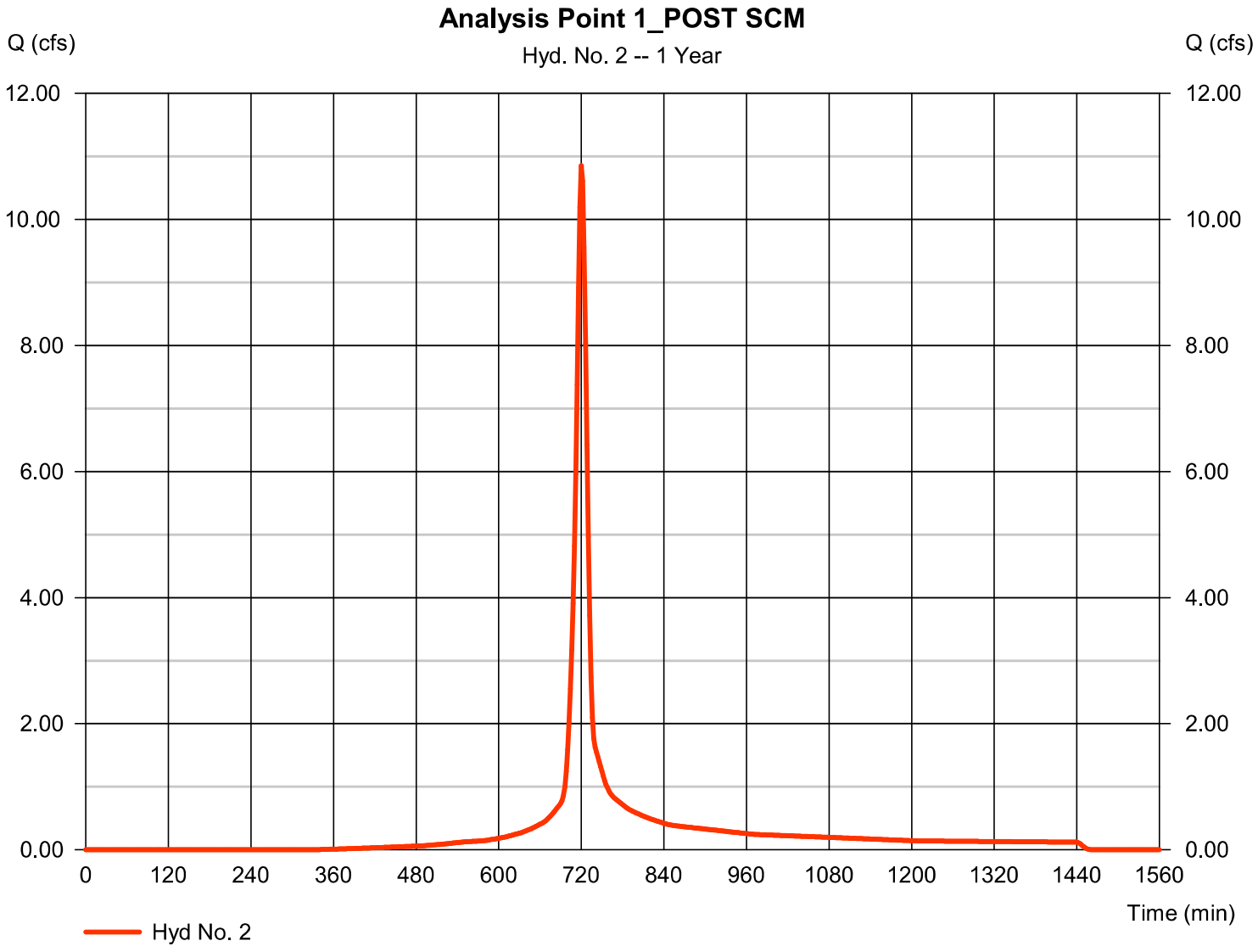
Total Travel Time, Tc ..... 28.10 min

Hydrograph Report

Hyd. No. 2

Analysis Point 1_POST SCM

Hydrograph type	= SCS Runoff	Peak discharge	= 10.85 cfs
Storm frequency	= 1 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 28,557 cuft
Drainage area	= 3.930 ac	Curve number	= 91
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 13.20 min
Total precip.	= 2.86 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

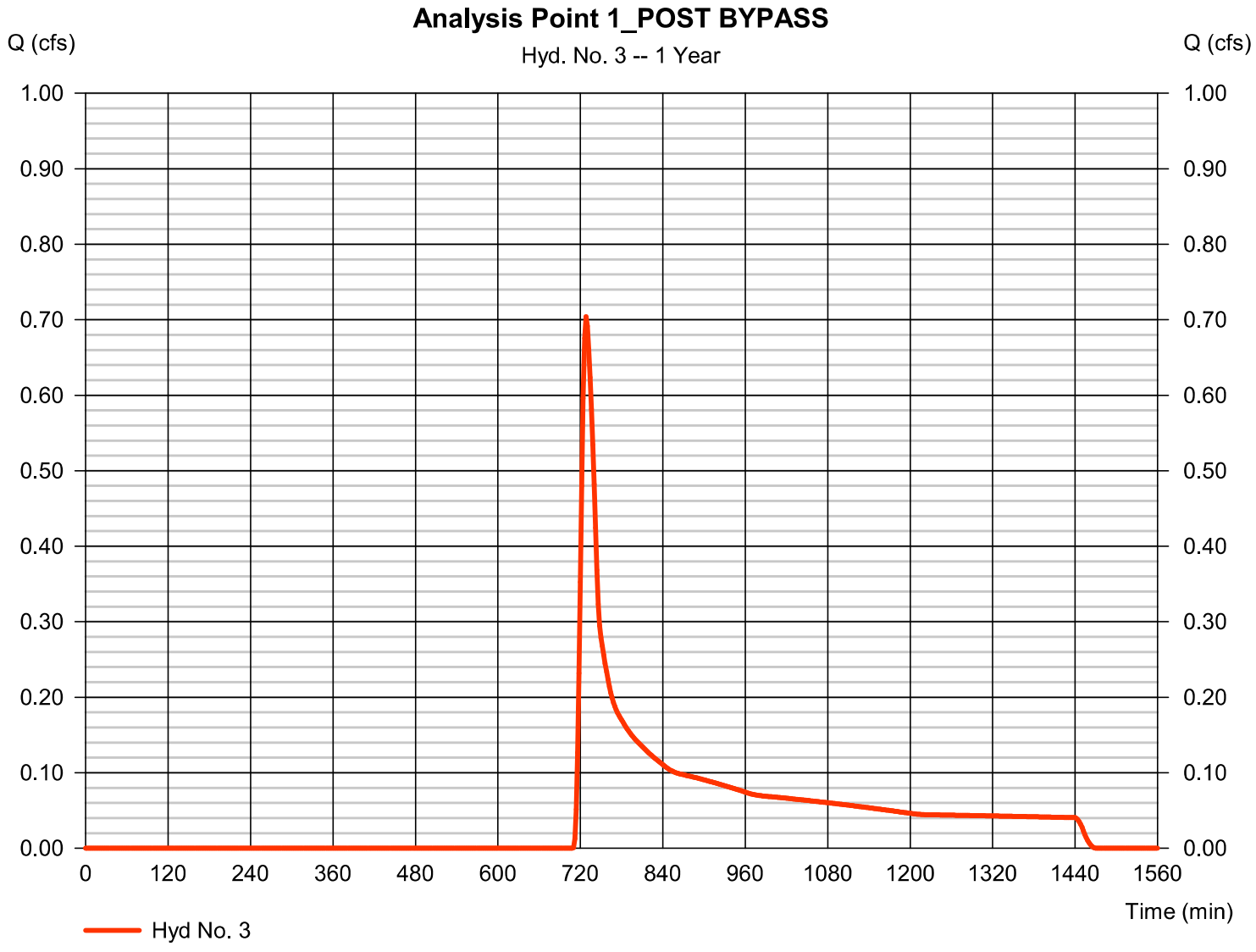


Hydrograph Report

Hyd. No. 3

Analysis Point 1_POST BYPASS

Hydrograph type	= SCS Runoff	Peak discharge	= 0.704 cfs
Storm frequency	= 1 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 4,036 cuft
Drainage area	= 3.550 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 20.00 min
Total precip.	= 2.86 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



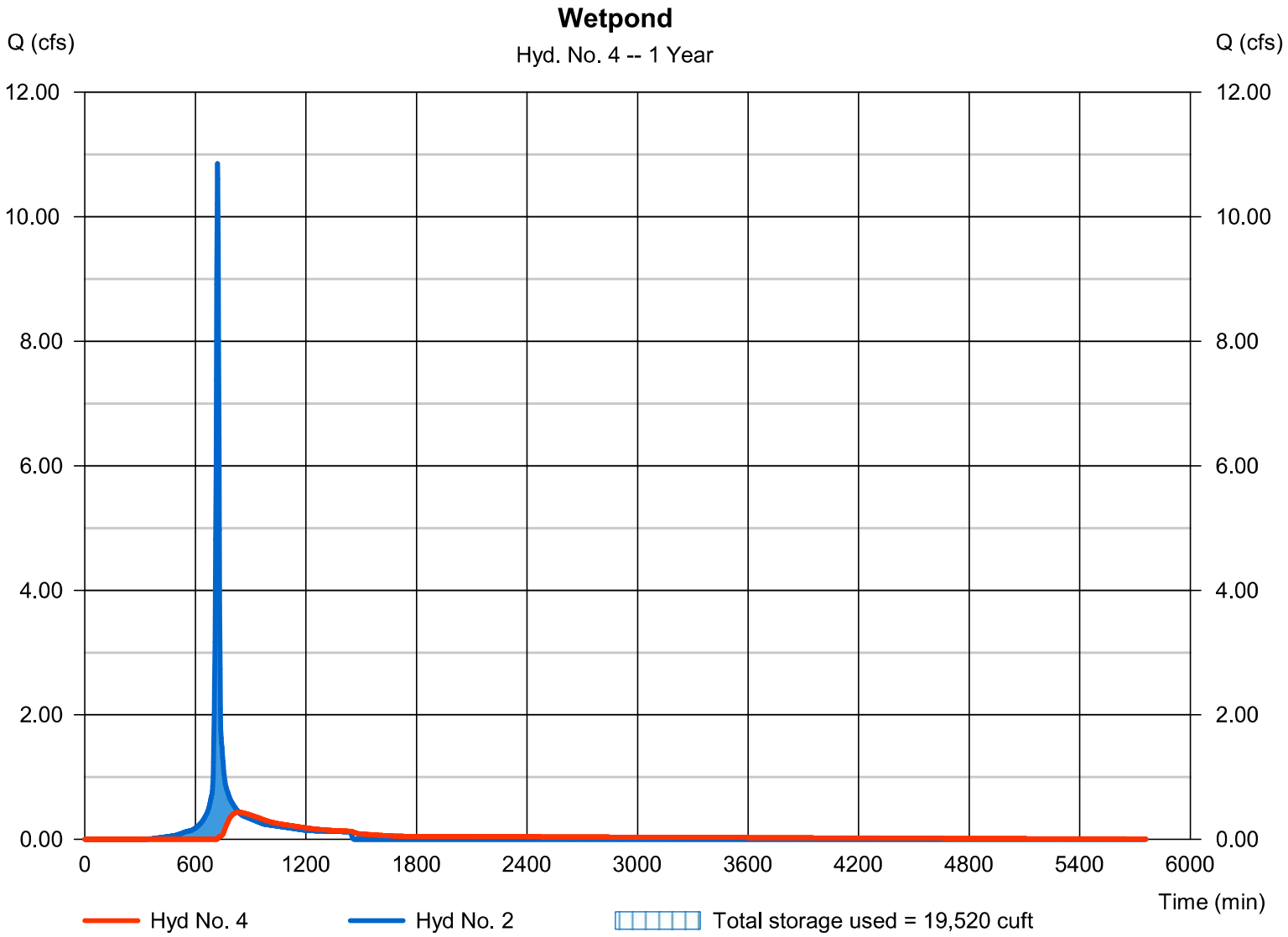
Hydrograph Report

Hyd. No. 4

Wetpond

Hydrograph type	= Reservoir	Peak discharge	= 0.437 cfs
Storm frequency	= 1 yrs	Time to peak	= 836 min
Time interval	= 2 min	Hyd. volume	= 18,230 cuft
Inflow hyd. No.	= 2 - Analysis Point 1_POST SC	Max. Elevation	= 376.98 ft
Reservoir name	= Wet Pond	Max. Storage	= 19,520 cuft

Storage Indication method used.

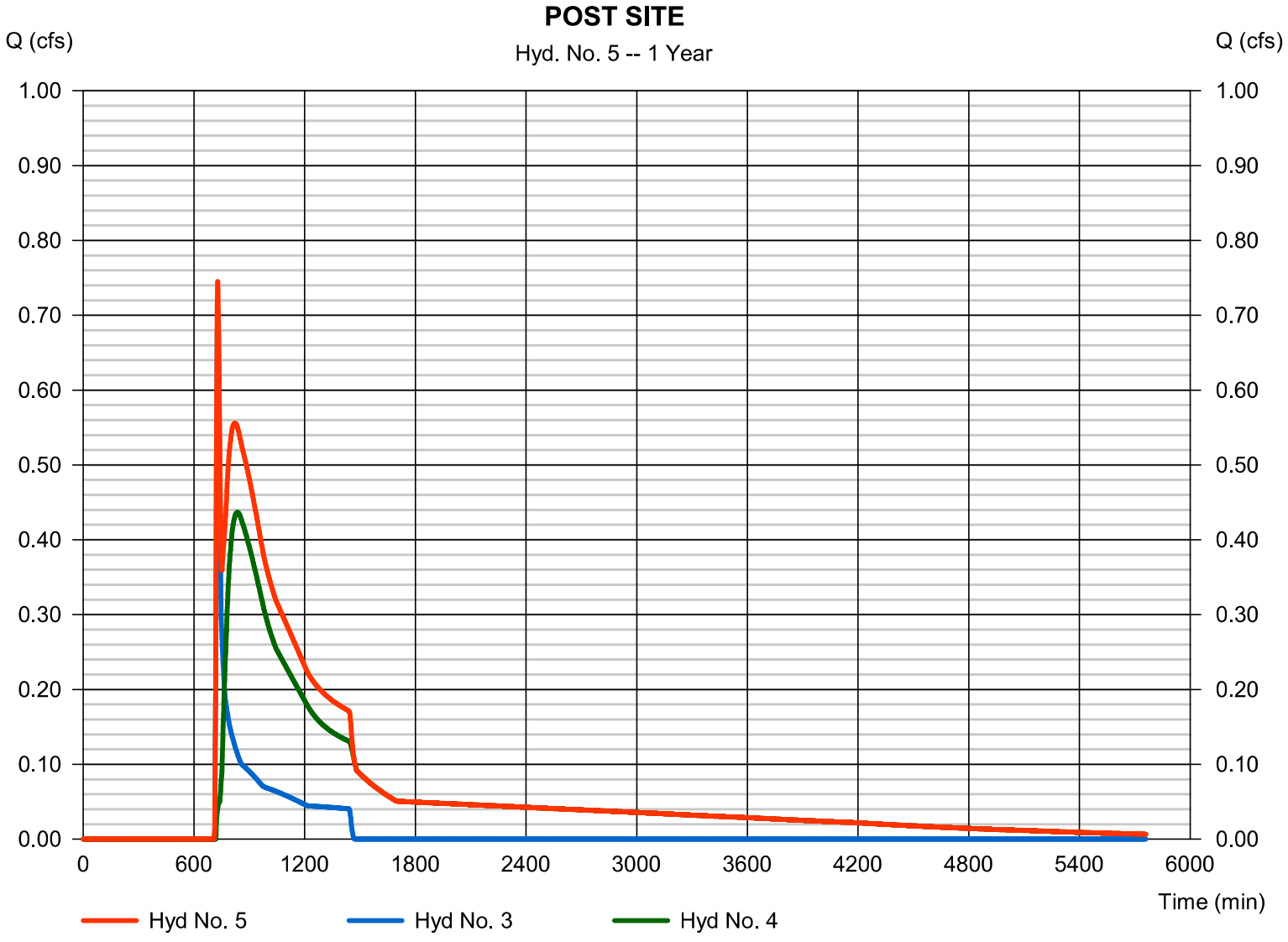


Hydrograph Report

Hyd. No. 5

POST SITE

Hydrograph type	= Combine	Peak discharge	= 0.745 cfs
Storm frequency	= 1 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 22,267 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 3.550 ac

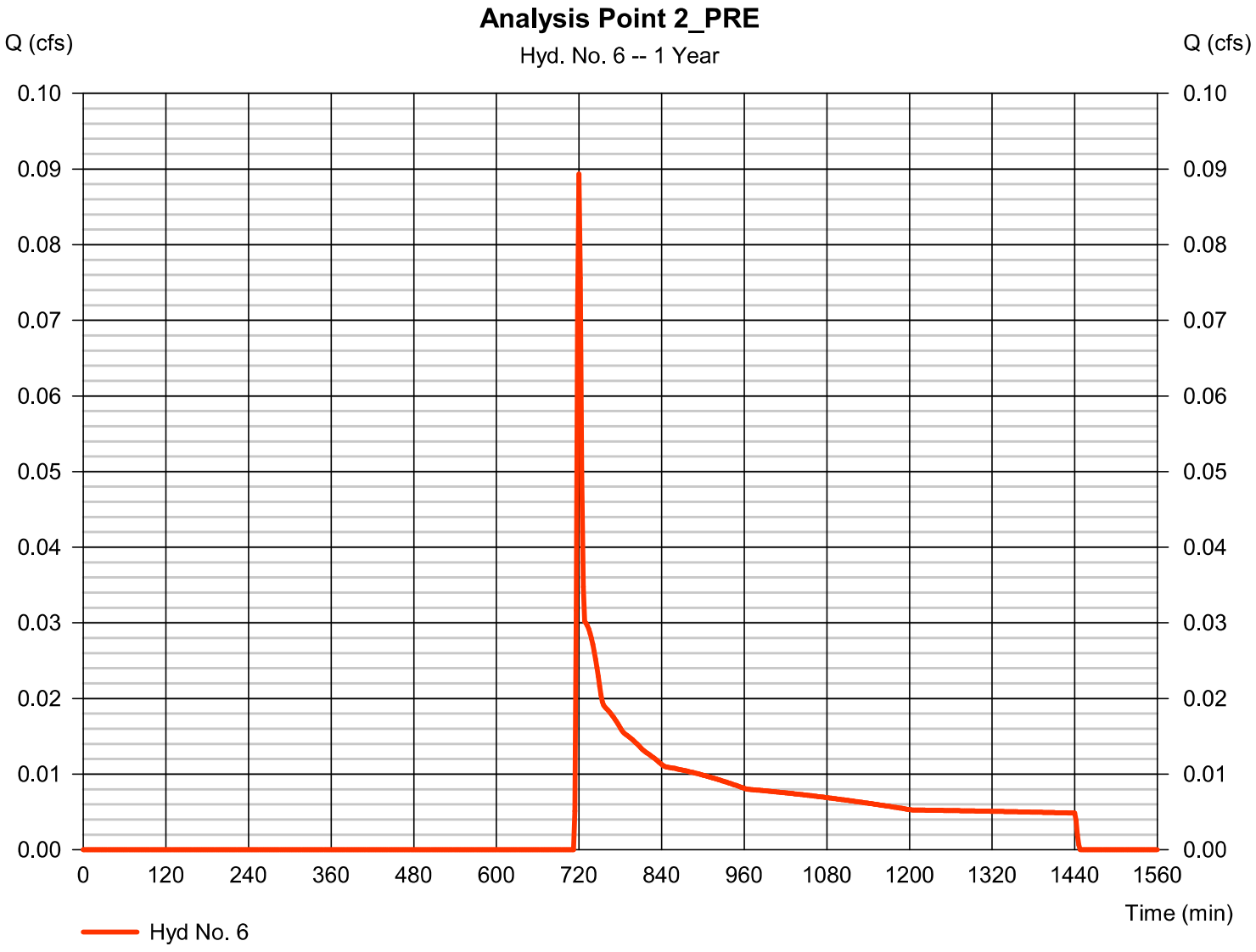


Hydrograph Report

Hyd. No. 6

Analysis Point 2_PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.089 cfs
Storm frequency	= 1 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 405 cuft
Drainage area	= 0.580 ac	Curve number	= 57
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.86 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

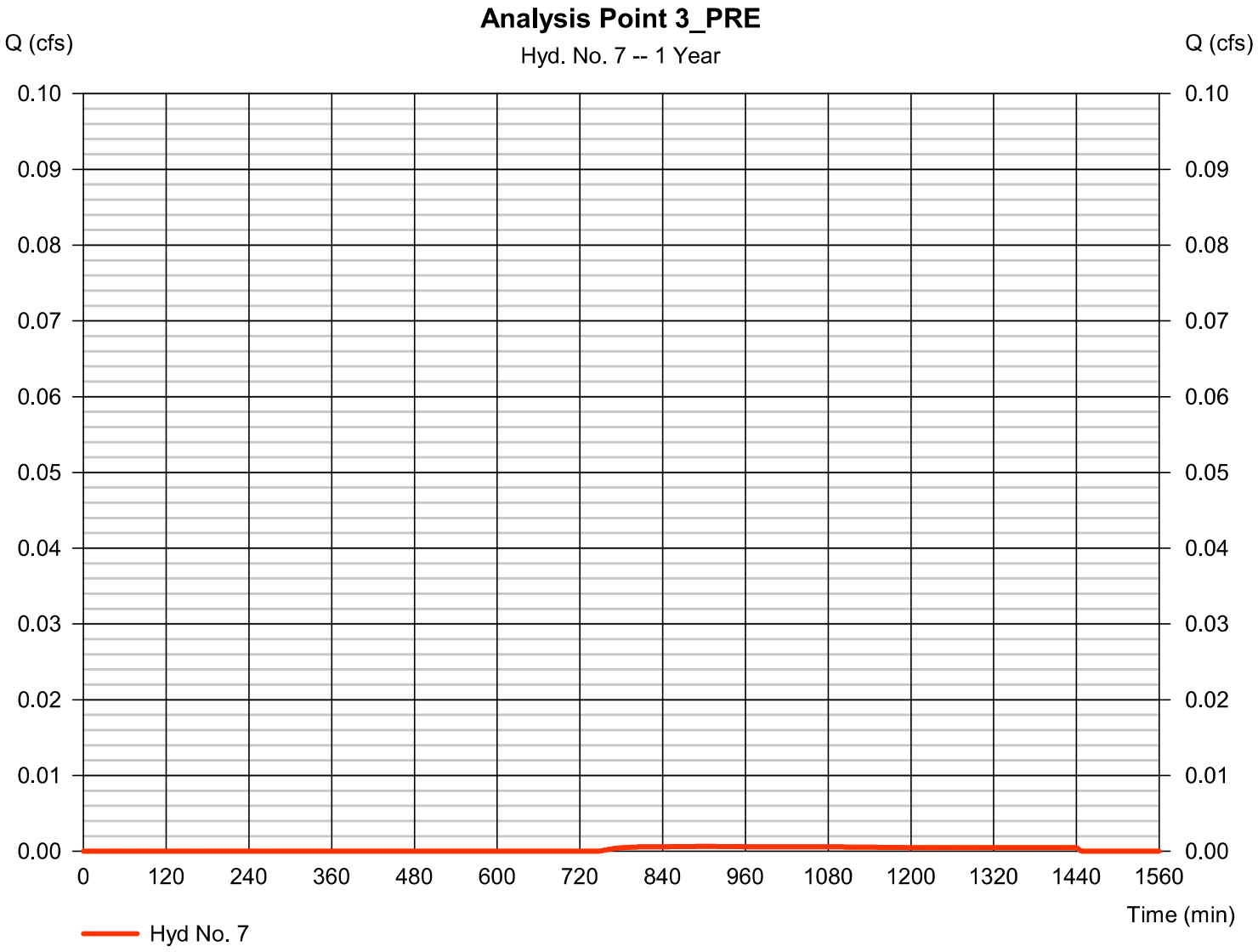


Hydrograph Report

Hyd. No. 7

Analysis Point 3_PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.001 cfs
Storm frequency	=	1 yrs	Time to peak	=	902 min
Time interval	=	2 min	Hyd. volume	=	22 cuft
Drainage area	=	0.120 ac	Curve number	=	49
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.86 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

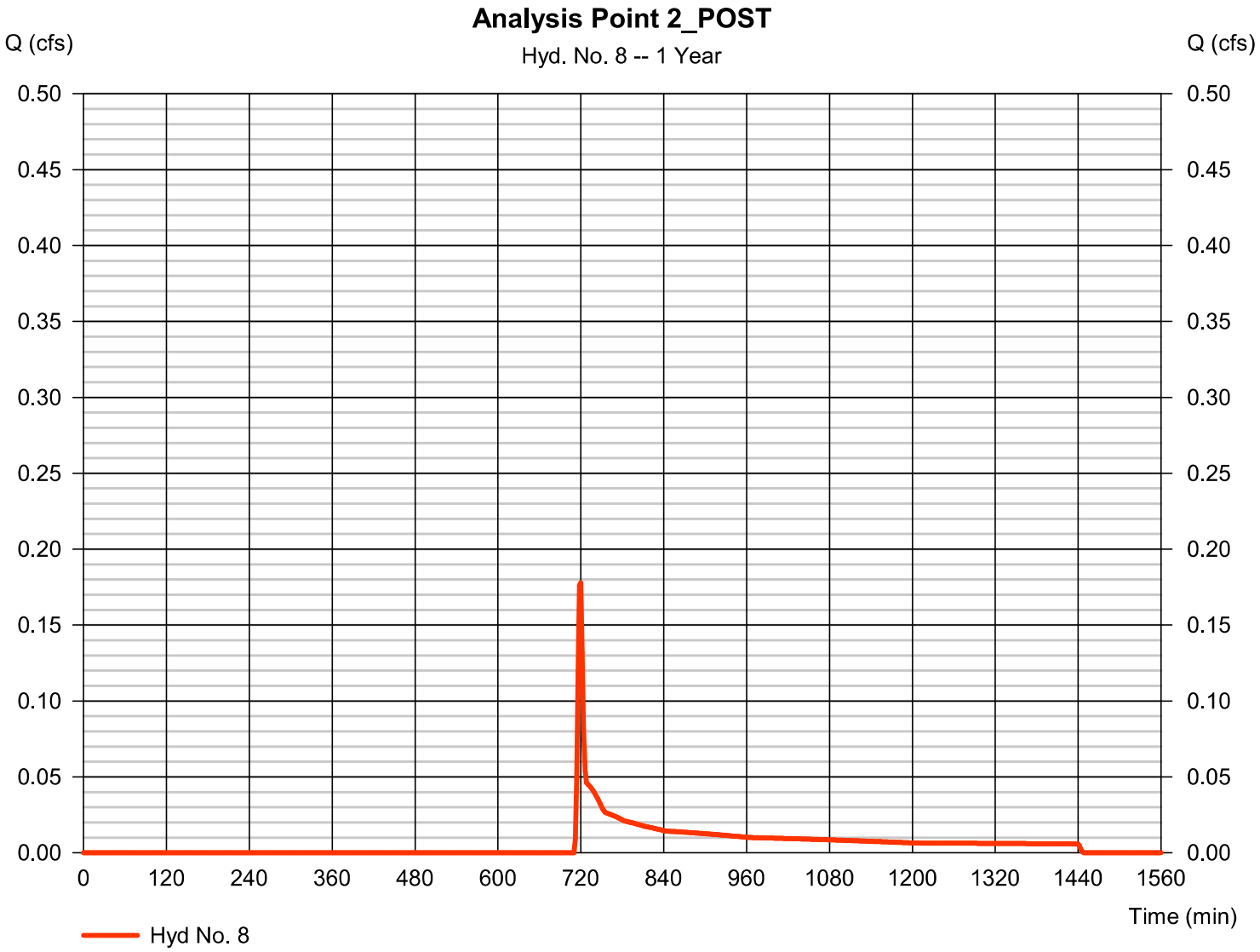


Hydrograph Report

Hyd. No. 8

Analysis Point 2_POST

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.178 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	561 cuft
Drainage area	=	0.580 ac	Curve number	=	60
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.86 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

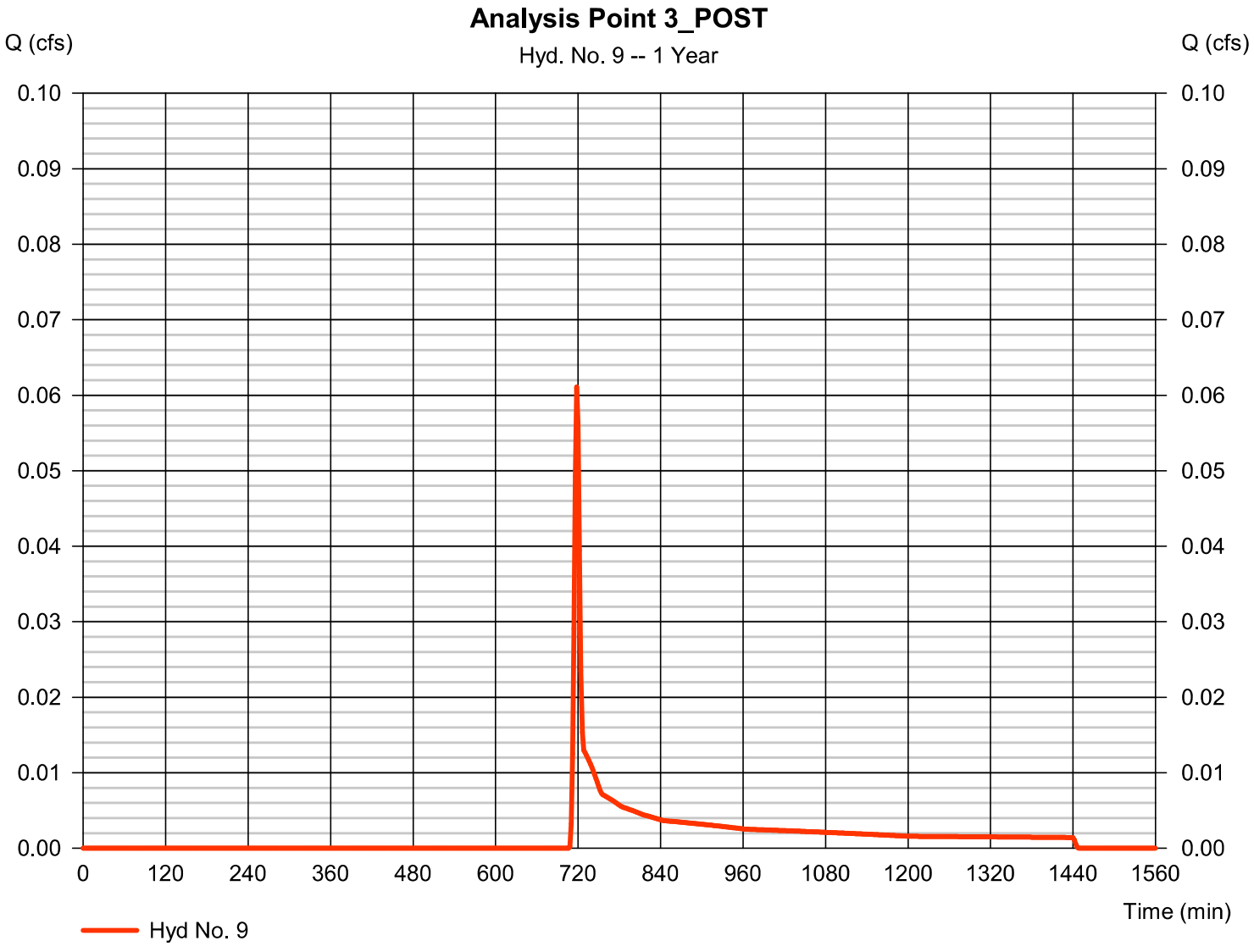


Hydrograph Report

Hyd. No. 9

Analysis Point 3_POST

Hydrograph type	= SCS Runoff	Peak discharge	= 0.061 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 153 cuft
Drainage area	= 0.120 ac	Curve number	= 63
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 2.86 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

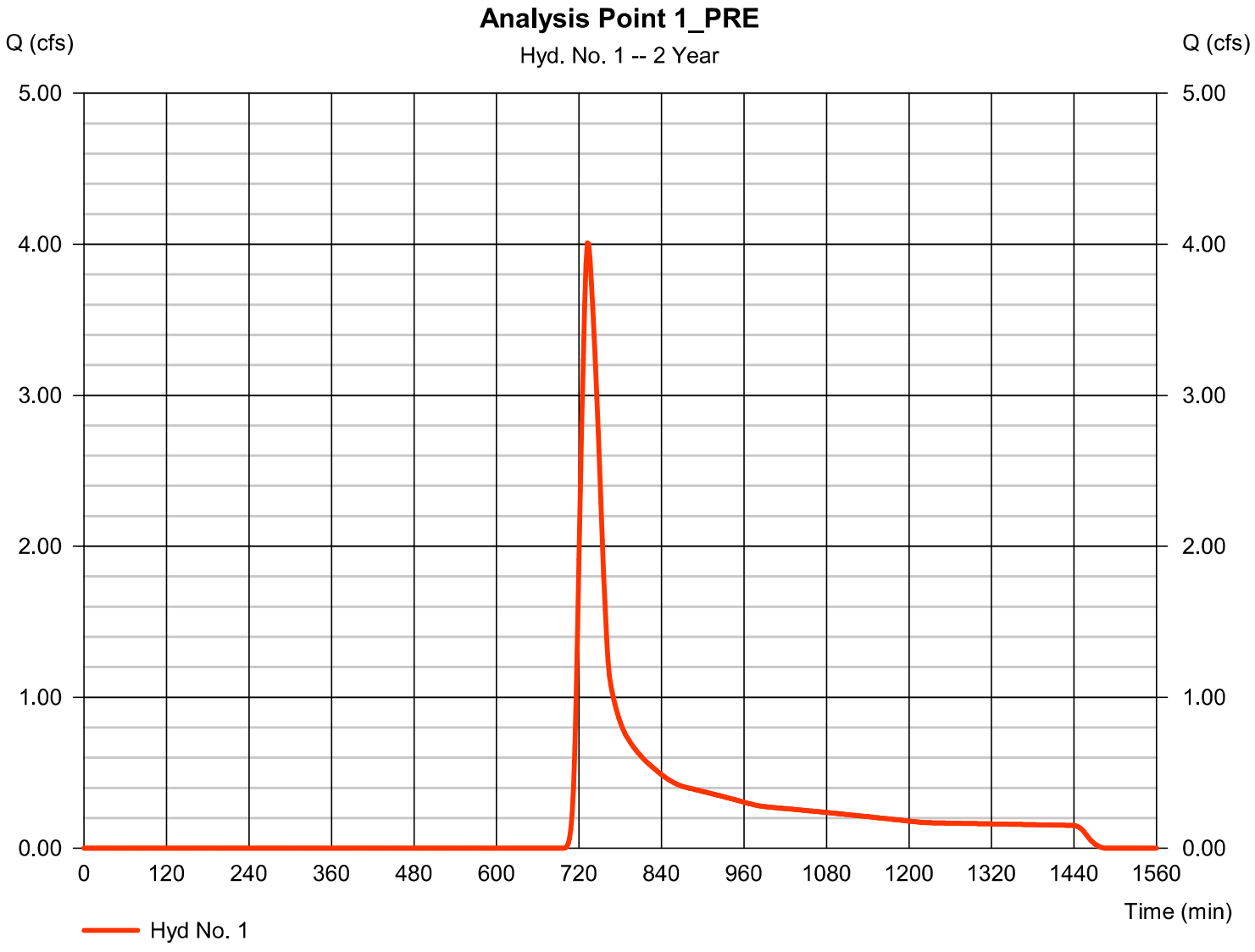
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	4.009	2	732	19,850	------	------	------	Analysis Point 1_PRE
2	SCS Runoff	13.85	2	720	36,827	------	------	------	Analysis Point 1_POST SCM
3	SCS Runoff	1.658	2	728	7,150	------	------	------	Analysis Point 1_POST BYPASS
4	Reservoir	1.213	2	758	26,493	2	377.24	22,234	Wetpond
5	Combine	2.255	2	732	33,643	3, 4	------	------	POST SITE
6	SCS Runoff	0.289	2	718	791	------	------	------	Analysis Point 2_PRE
7	SCS Runoff	0.005	2	722	66	------	------	------	Analysis Point 3_PRE
8	SCS Runoff	0.432	2	718	1,015	------	------	------	Analysis Point 2_POST
9	SCS Runoff	0.120	2	718	261	------	------	------	Analysis Point 3_POST

Hydrograph Report

Hyd. No. 1

Analysis Point 1_PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.009 cfs
Storm frequency	=	2 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	19,850 cuft
Drainage area	=	7.480 ac	Curve number	=	65
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	28.10 min
Total precip.	=	3.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

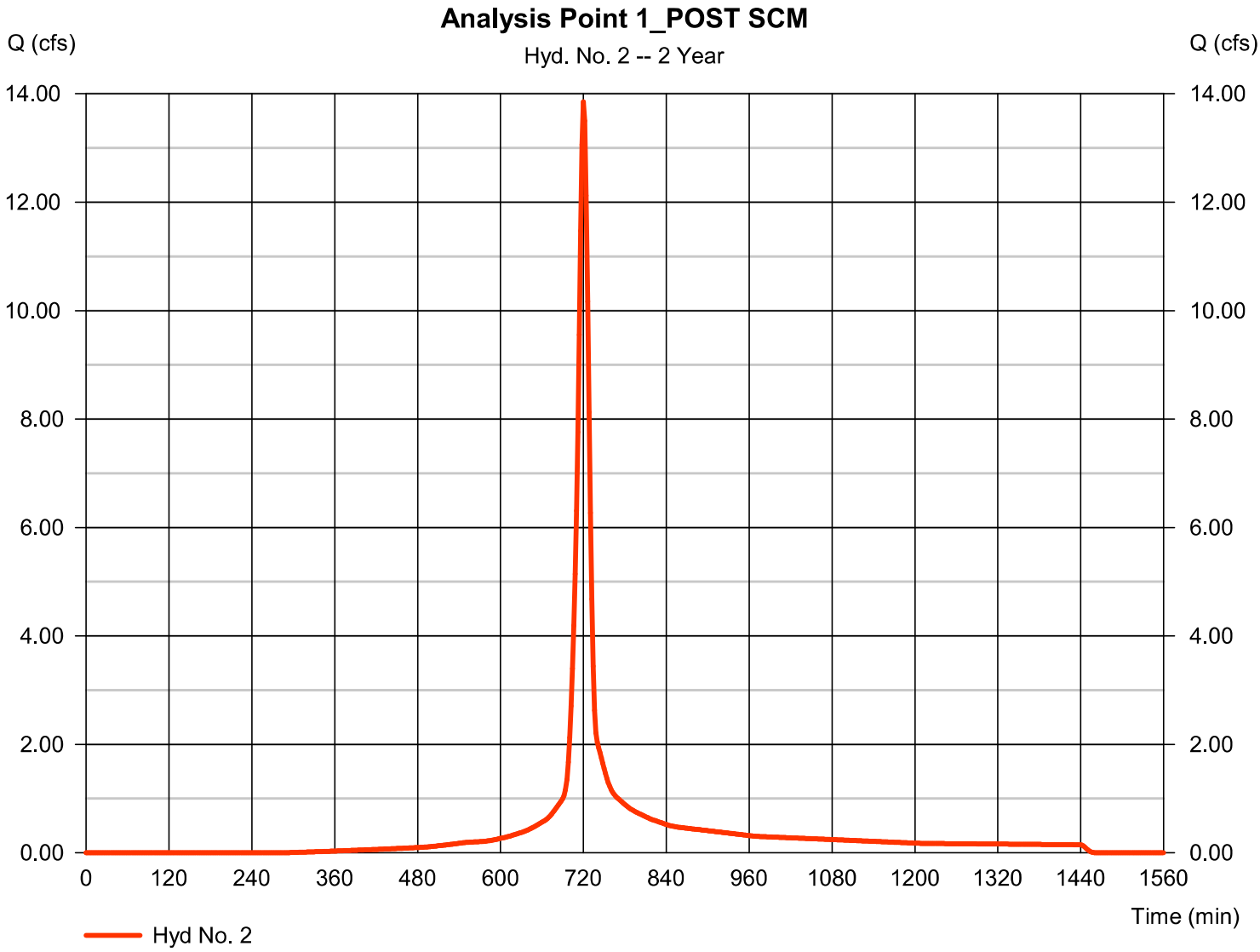


Hydrograph Report

Hyd. No. 2

Analysis Point 1_POST SCM

Hydrograph type	= SCS Runoff	Peak discharge	= 13.85 cfs
Storm frequency	= 2 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 36,827 cuft
Drainage area	= 3.930 ac	Curve number	= 91
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 13.20 min
Total precip.	= 3.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

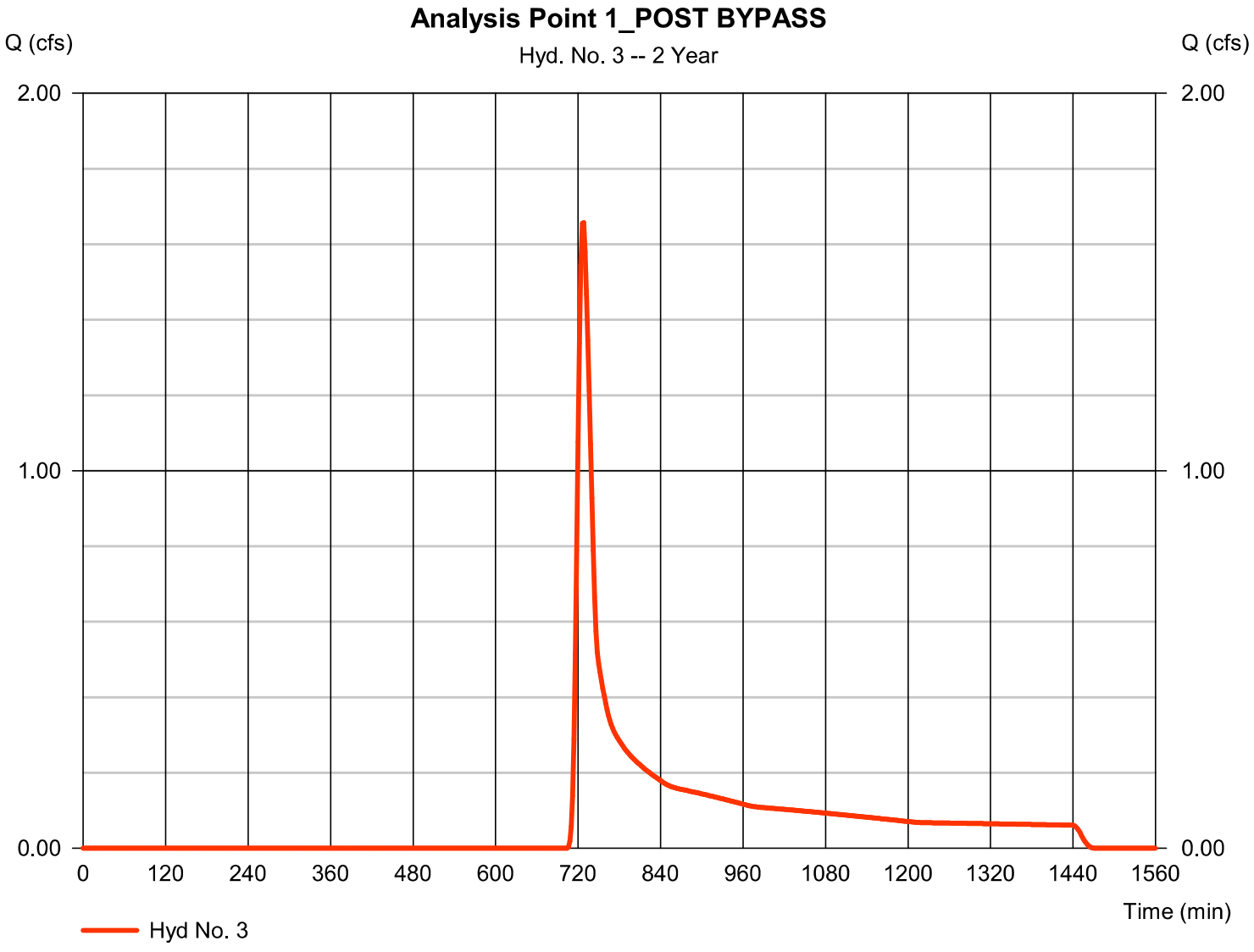


Hydrograph Report

Hyd. No. 3

Analysis Point 1_POST BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.658 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	7,150 cuft
Drainage area	=	3.550 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	20.00 min
Total precip.	=	3.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



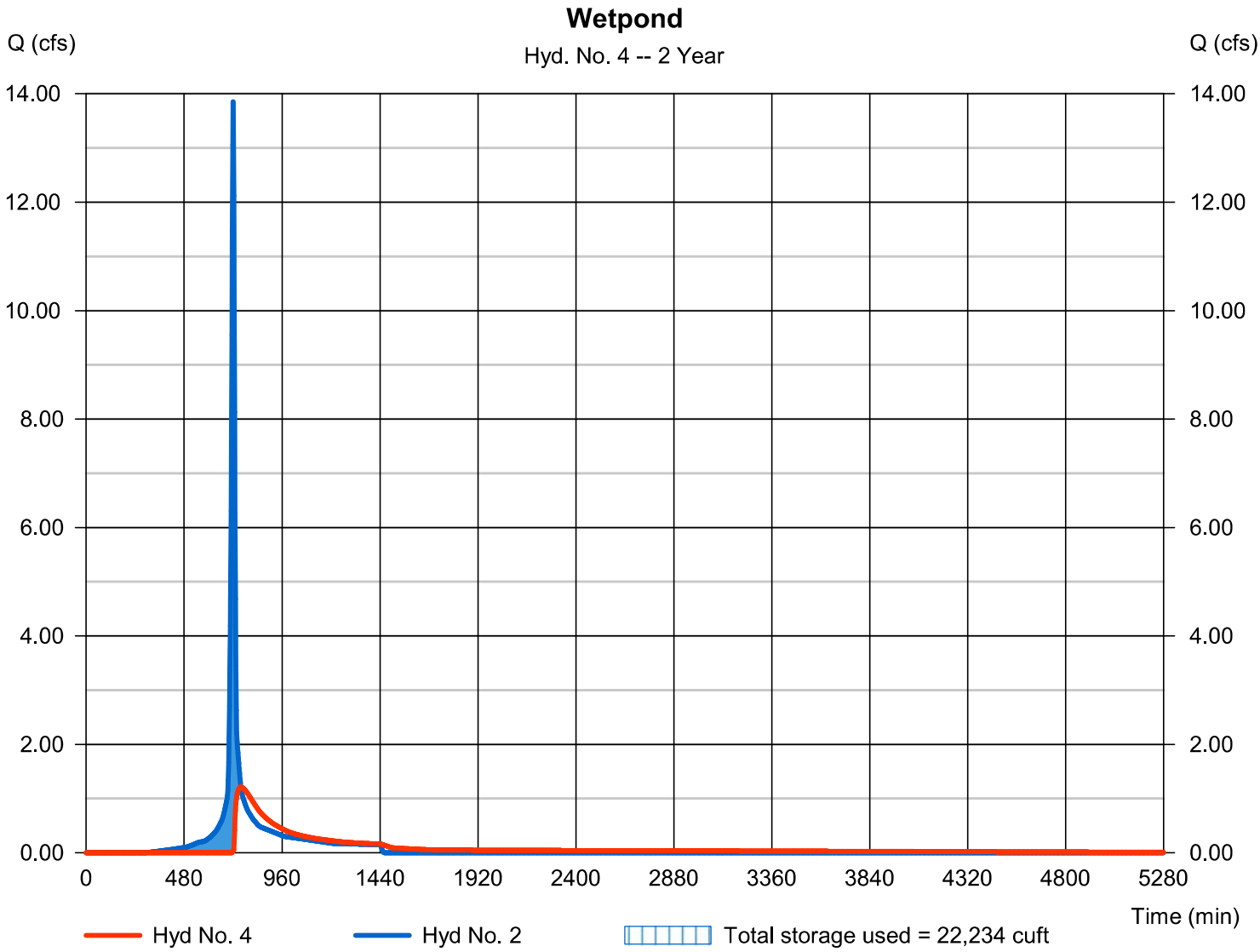
Hydrograph Report

Hyd. No. 4

Wetpond

Hydrograph type	=	Reservoir	Peak discharge	=	1.213 cfs
Storm frequency	=	2 yrs	Time to peak	=	758 min
Time interval	=	2 min	Hyd. volume	=	26,493 cuft
Inflow hyd. No.	=	2 - Analysis Point 1_POST SC	Max. Elevation	=	377.24 ft
Reservoir name	=	Wet Pond	Max. Storage	=	22,234 cuft

Storage Indication method used.

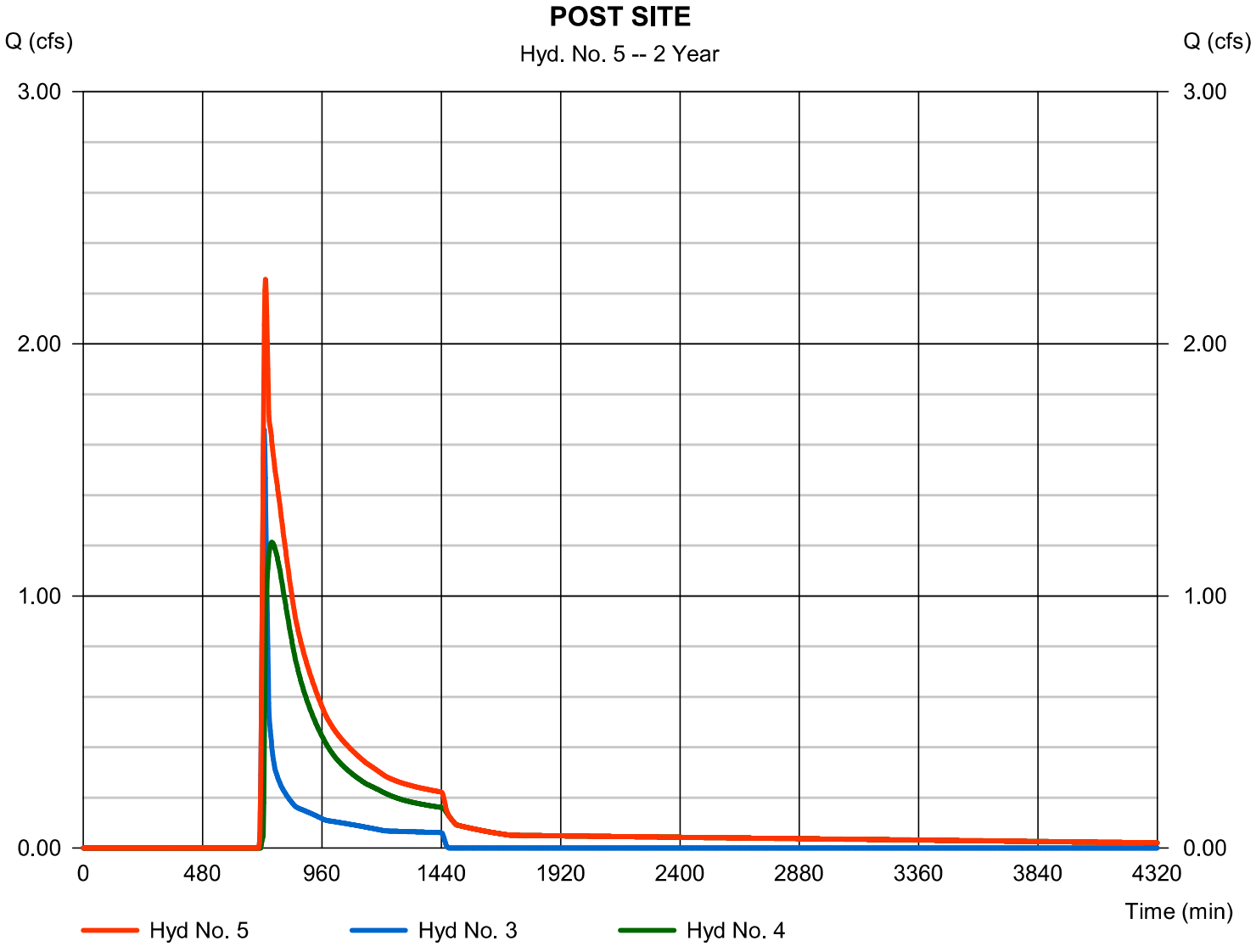


Hydrograph Report

Hyd. No. 5

POST SITE

Hydrograph type	= Combine	Peak discharge	= 2.255 cfs
Storm frequency	= 2 yrs	Time to peak	= 732 min
Time interval	= 2 min	Hyd. volume	= 33,643 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 3.550 ac

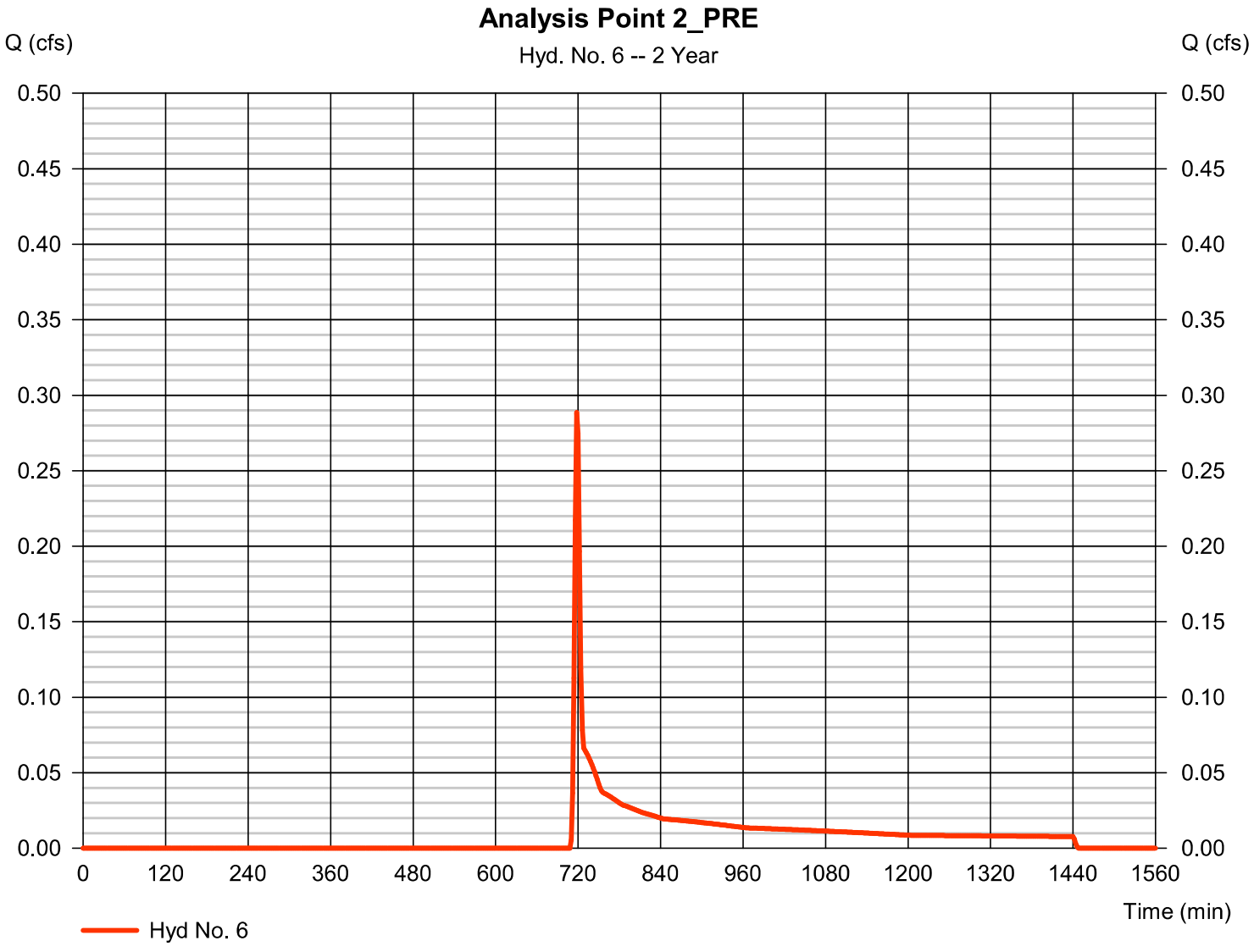


Hydrograph Report

Hyd. No. 6

Analysis Point 2_PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.289 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 791 cuft
Drainage area	= 0.580 ac	Curve number	= 57
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

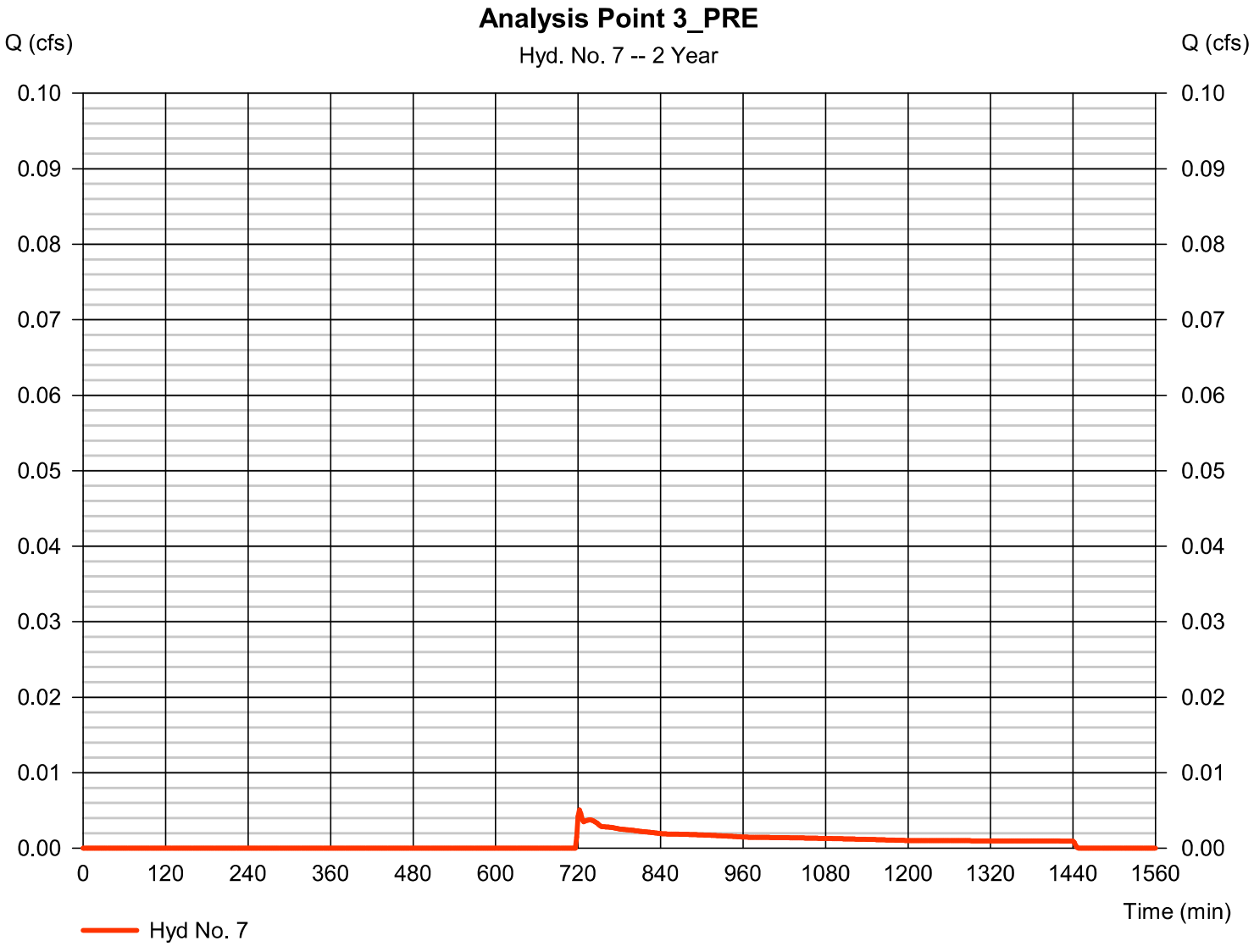


Hydrograph Report

Hyd. No. 7

Analysis Point 3_PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.005 cfs
Storm frequency	= 2 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 66 cuft
Drainage area	= 0.120 ac	Curve number	= 49
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

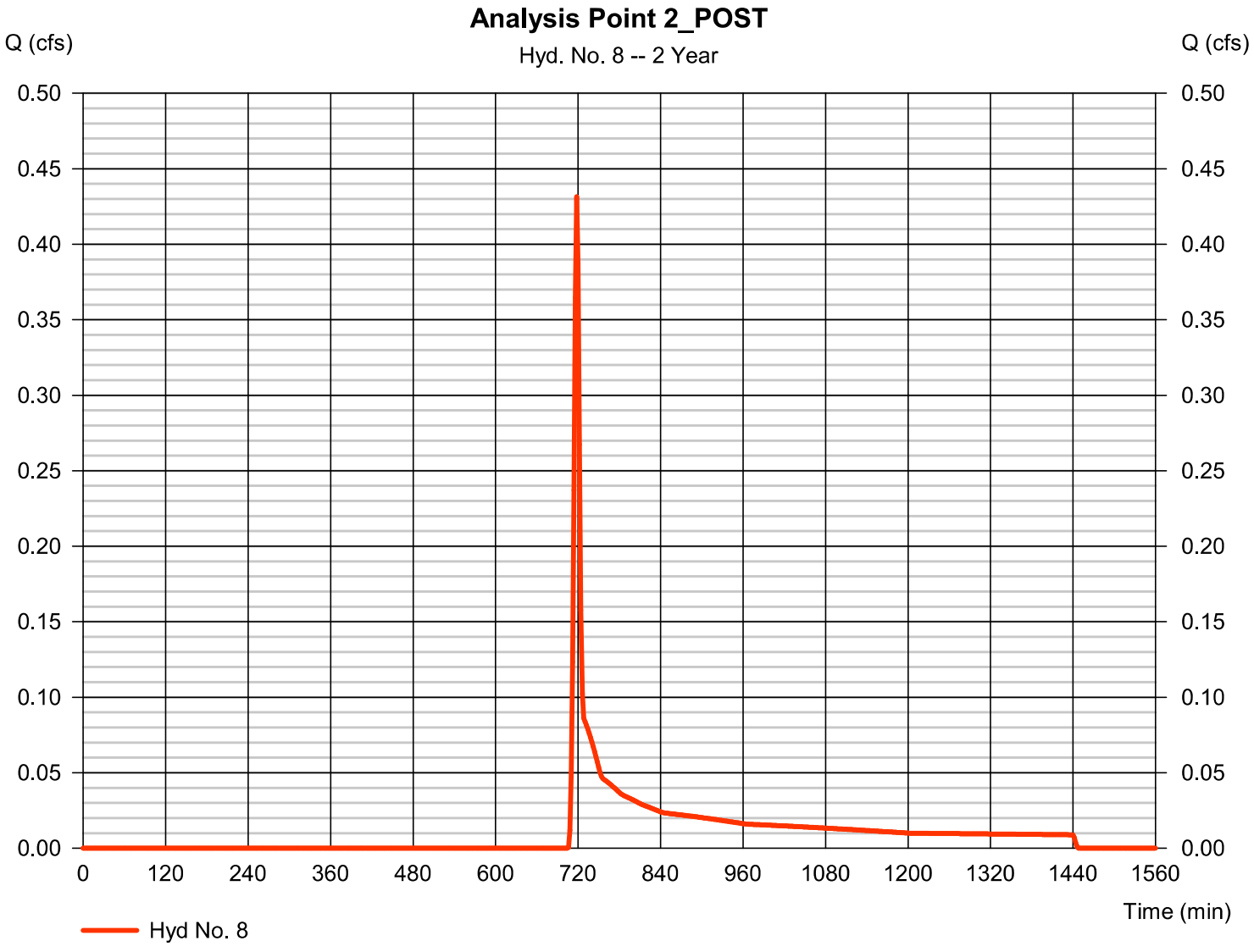


Hydrograph Report

Hyd. No. 8

Analysis Point 2_POST

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.432 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	1,015 cuft
Drainage area	=	0.580 ac	Curve number	=	60
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

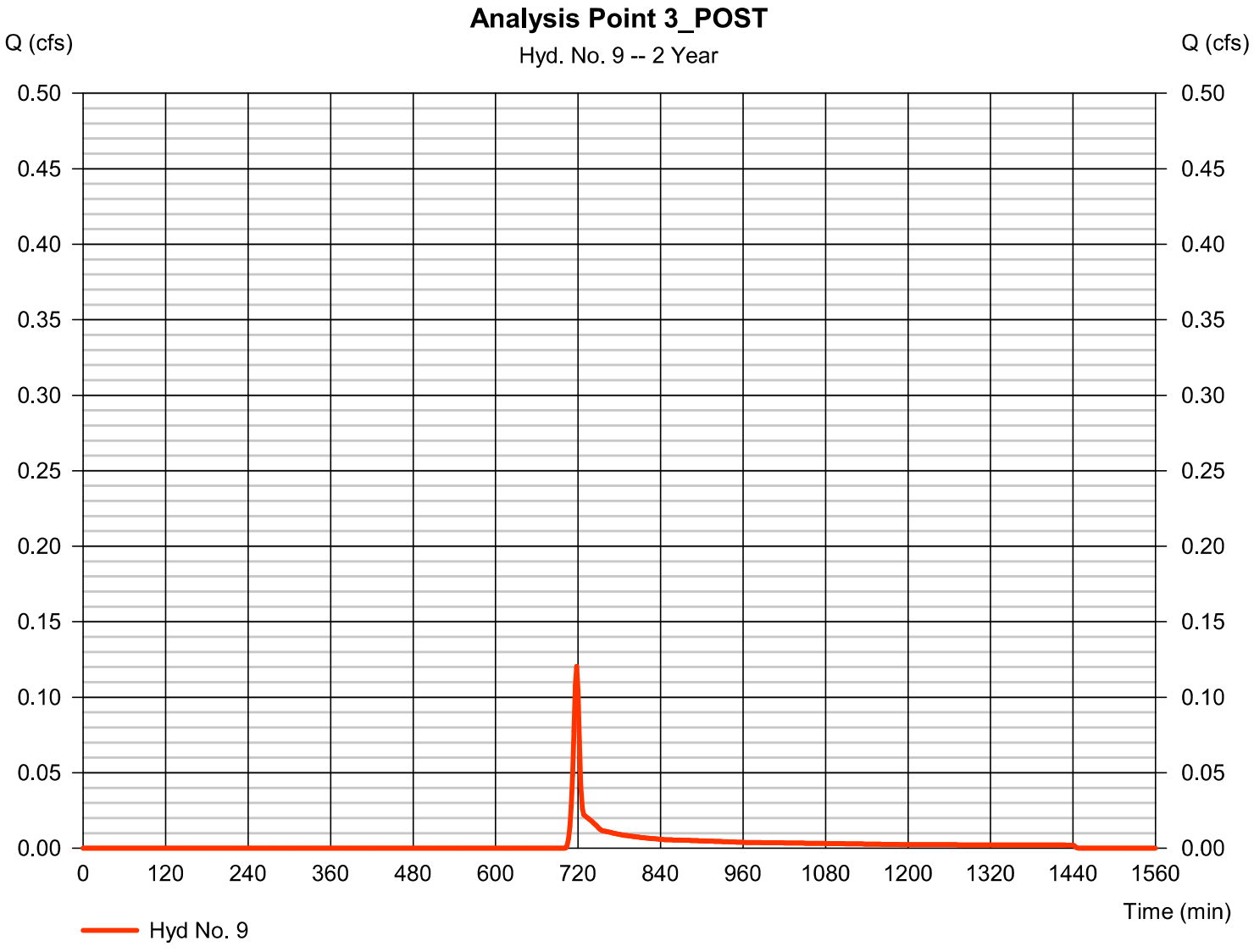


Hydrograph Report

Hyd. No. 9

Analysis Point 3_POST

Hydrograph type	= SCS Runoff	Peak discharge	= 0.120 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 261 cuft
Drainage area	= 0.120 ac	Curve number	= 63
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

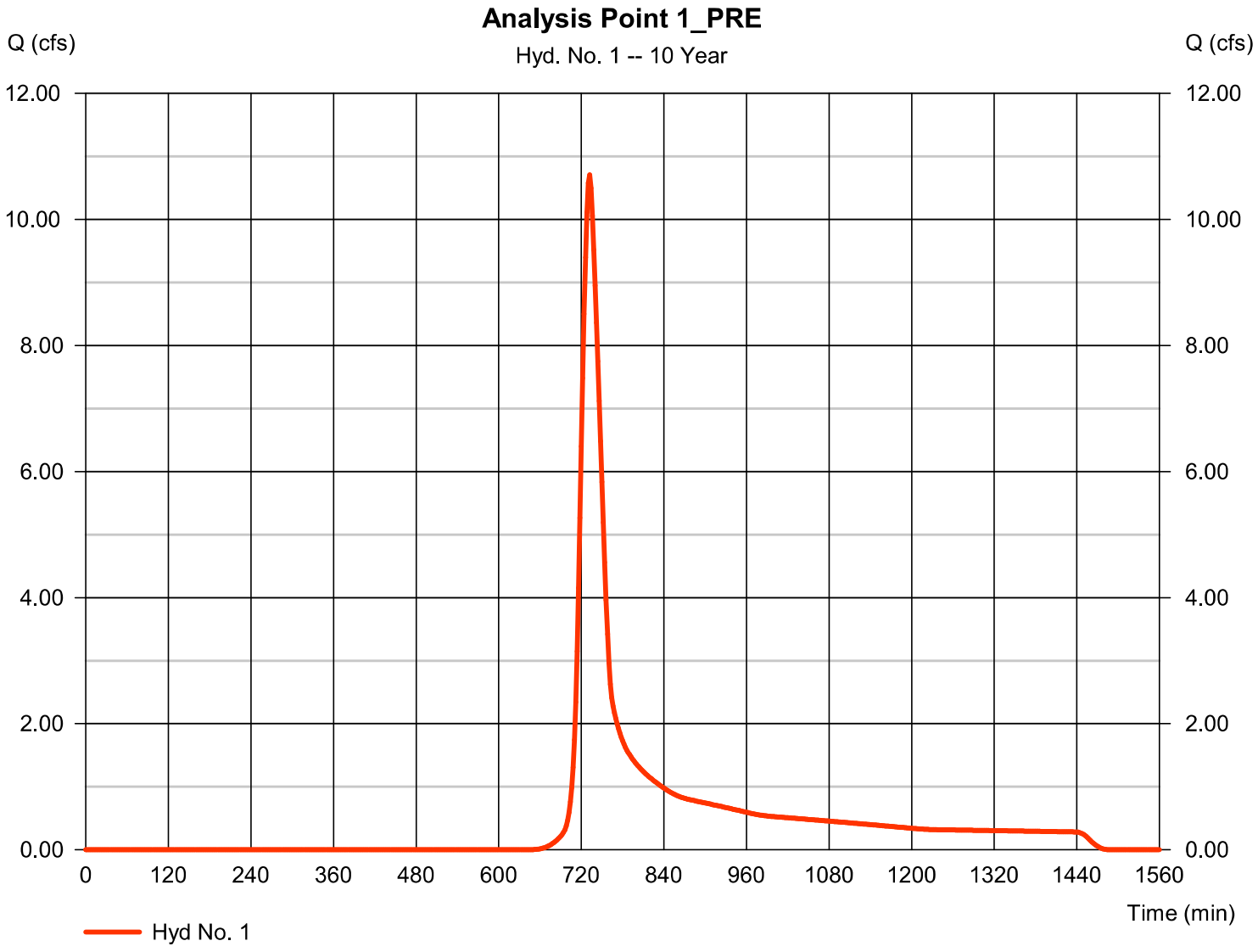
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	10.71	2	732	45,440	------	------	------	Analysis Point 1_PRE
2	SCS Runoff	21.66	2	720	59,012	------	------	------	Analysis Point 1_POST SCM
3	SCS Runoff	5.251	2	726	17,876	------	------	------	Analysis Point 1_POST BYPASS
4	Reservoir	2.863	2	744	48,663	2	378.33	34,009	Wetpond
5	Combine	7.737	2	726	66,539	3, 4	------	------	POST SITE
6	SCS Runoff	1.062	2	718	2,212	------	------	------	Analysis Point 2_PRE
7	SCS Runoff	0.105	2	718	266	------	------	------	Analysis Point 3_PRE
8	SCS Runoff	1.279	2	718	2,603	------	------	------	Analysis Point 2_POST
9	SCS Runoff	0.310	2	718	624	------	------	------	Analysis Point 3_POST

Hydrograph Report

Hyd. No. 1

Analysis Point 1_PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.71 cfs
Storm frequency	=	10 yrs	Time to peak	=	732 min
Time interval	=	2 min	Hyd. volume	=	45,440 cuft
Drainage area	=	7.480 ac	Curve number	=	65
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	28.10 min
Total precip.	=	5.03 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

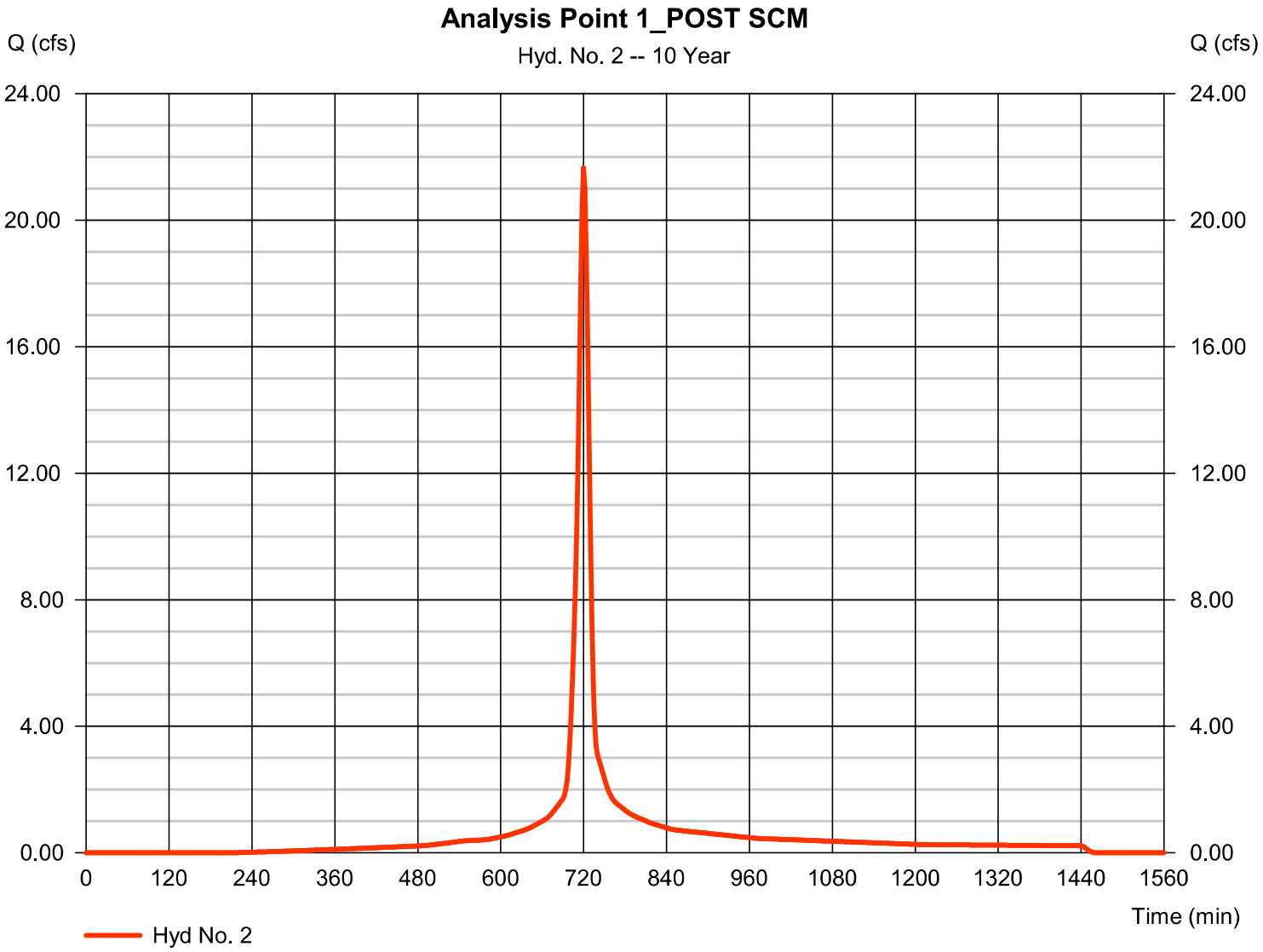


Hydrograph Report

Hyd. No. 2

Analysis Point 1_POST SCM

Hydrograph type	= SCS Runoff	Peak discharge	= 21.66 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 59,012 cuft
Drainage area	= 3.930 ac	Curve number	= 91
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 13.20 min
Total precip.	= 5.03 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

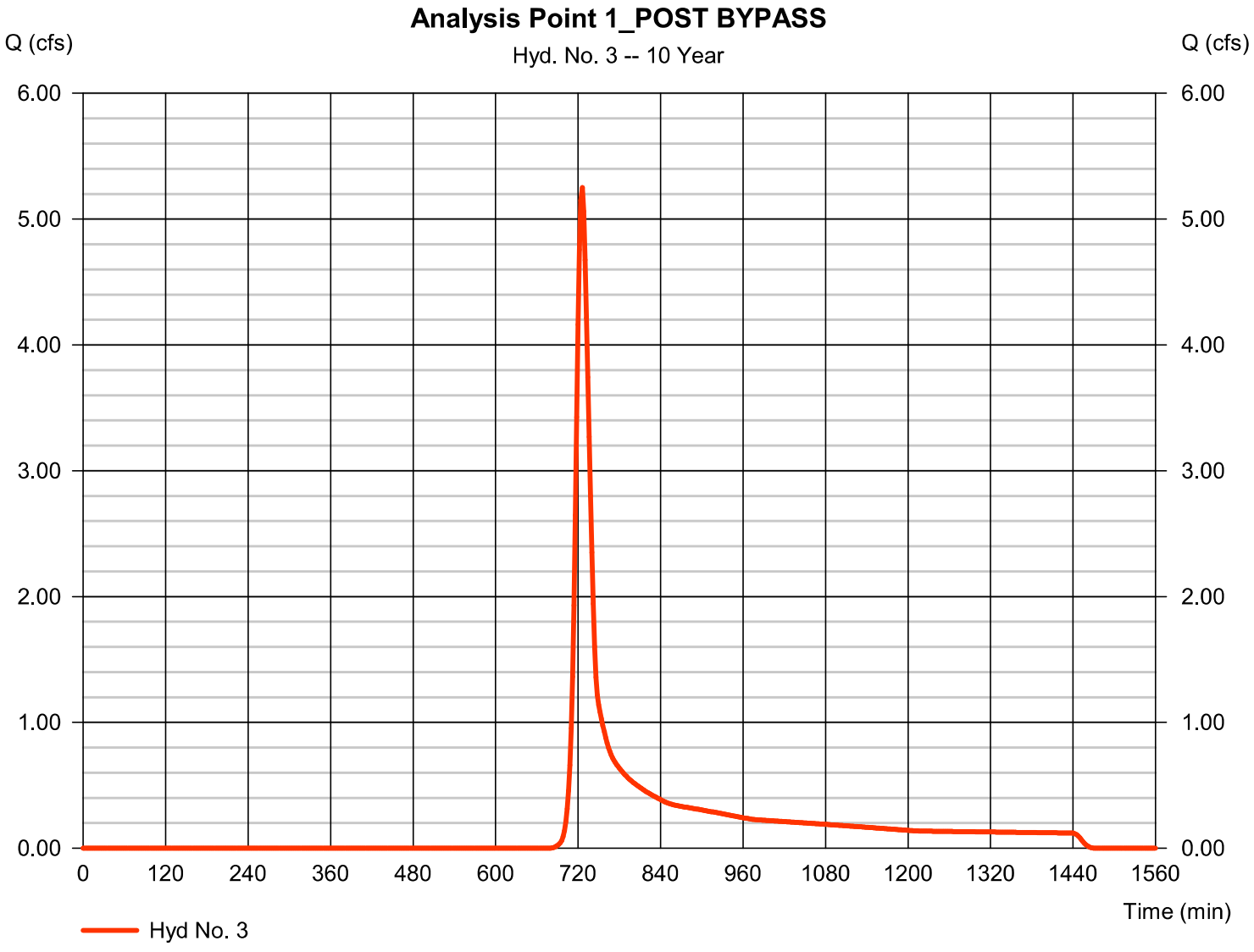


Hydrograph Report

Hyd. No. 3

Analysis Point 1_POST BYPASS

Hydrograph type	= SCS Runoff	Peak discharge	= 5.251 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 17,876 cuft
Drainage area	= 3.550 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 20.00 min
Total precip.	= 5.03 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



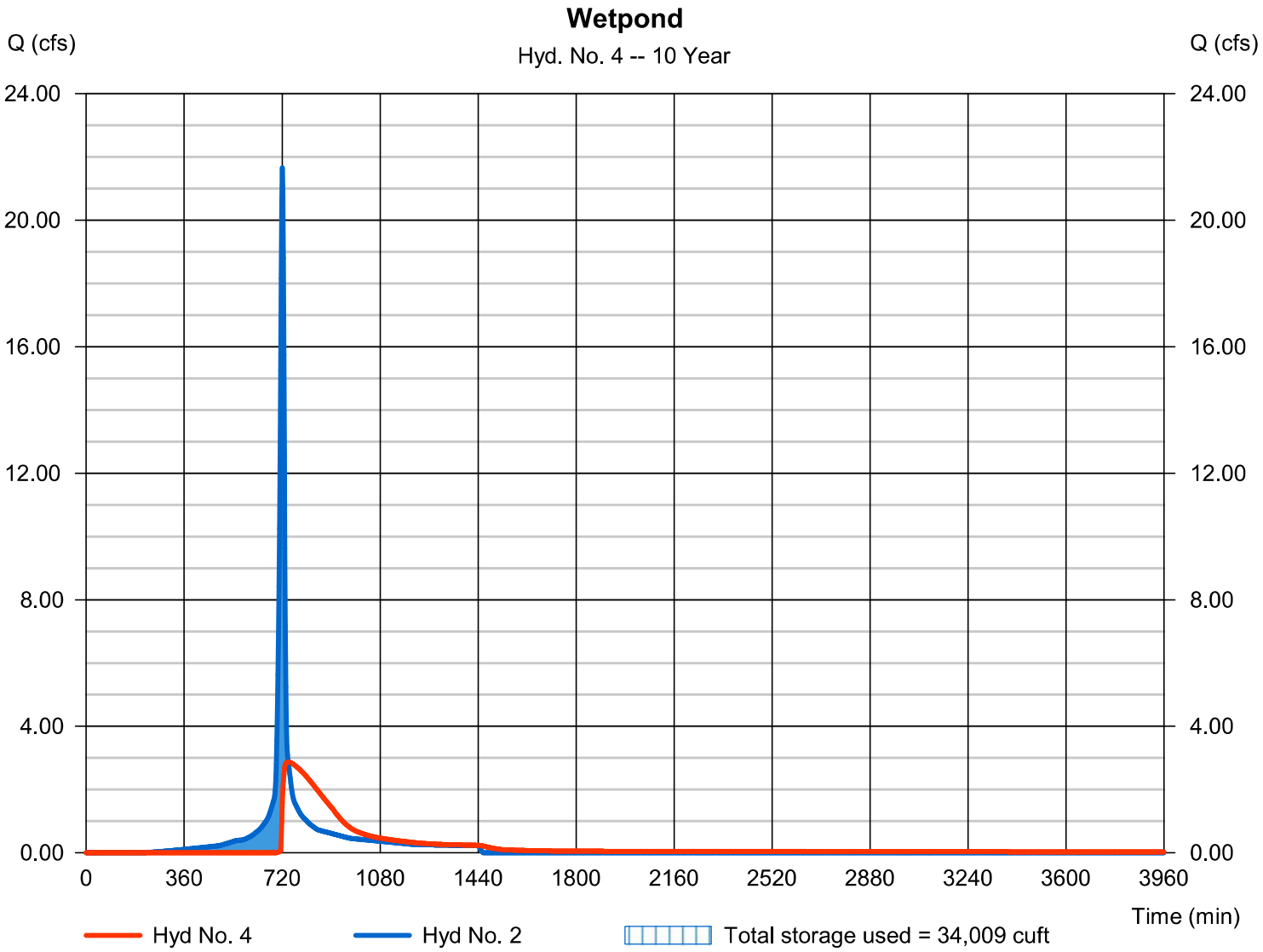
Hydrograph Report

Hyd. No. 4

Wetpond

Hydrograph type	=	Reservoir	Peak discharge	=	2.863 cfs
Storm frequency	=	10 yrs	Time to peak	=	744 min
Time interval	=	2 min	Hyd. volume	=	48,663 cuft
Inflow hyd. No.	=	2 - Analysis Point 1_POST SC	Max. Elevation	=	378.33 ft
Reservoir name	=	Wet Pond	Max. Storage	=	34,009 cuft

Storage Indication method used.

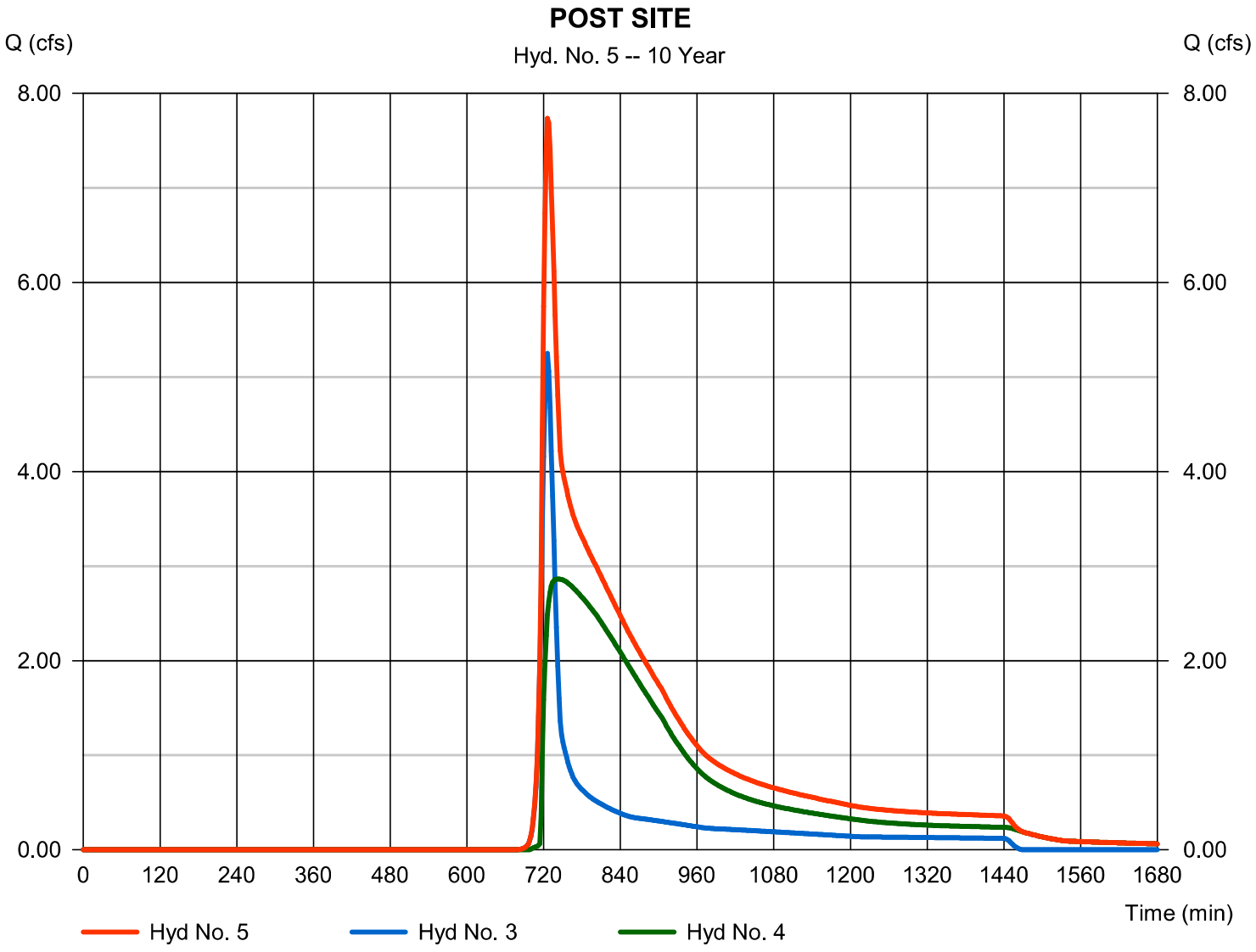


Hydrograph Report

Hyd. No. 5

POST SITE

Hydrograph type	=	Combine	Peak discharge	=	7.737 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	66,539 cuft
Inflow hyds.	=	3, 4	Contrib. drain. area	=	3.550 ac

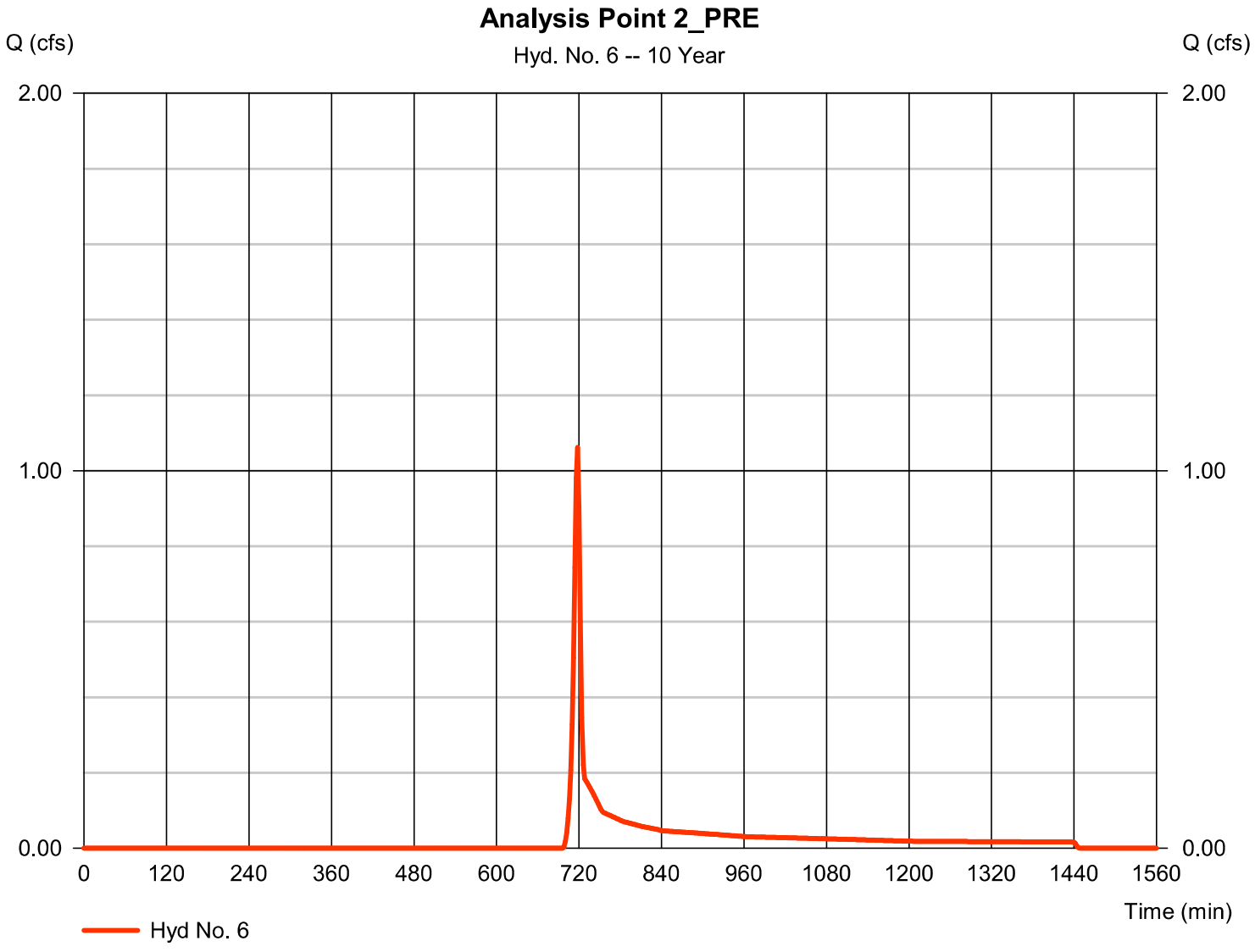


Hydrograph Report

Hyd. No. 6

Analysis Point 2_PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.062 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,212 cuft
Drainage area	=	0.580 ac	Curve number	=	57
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.03 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

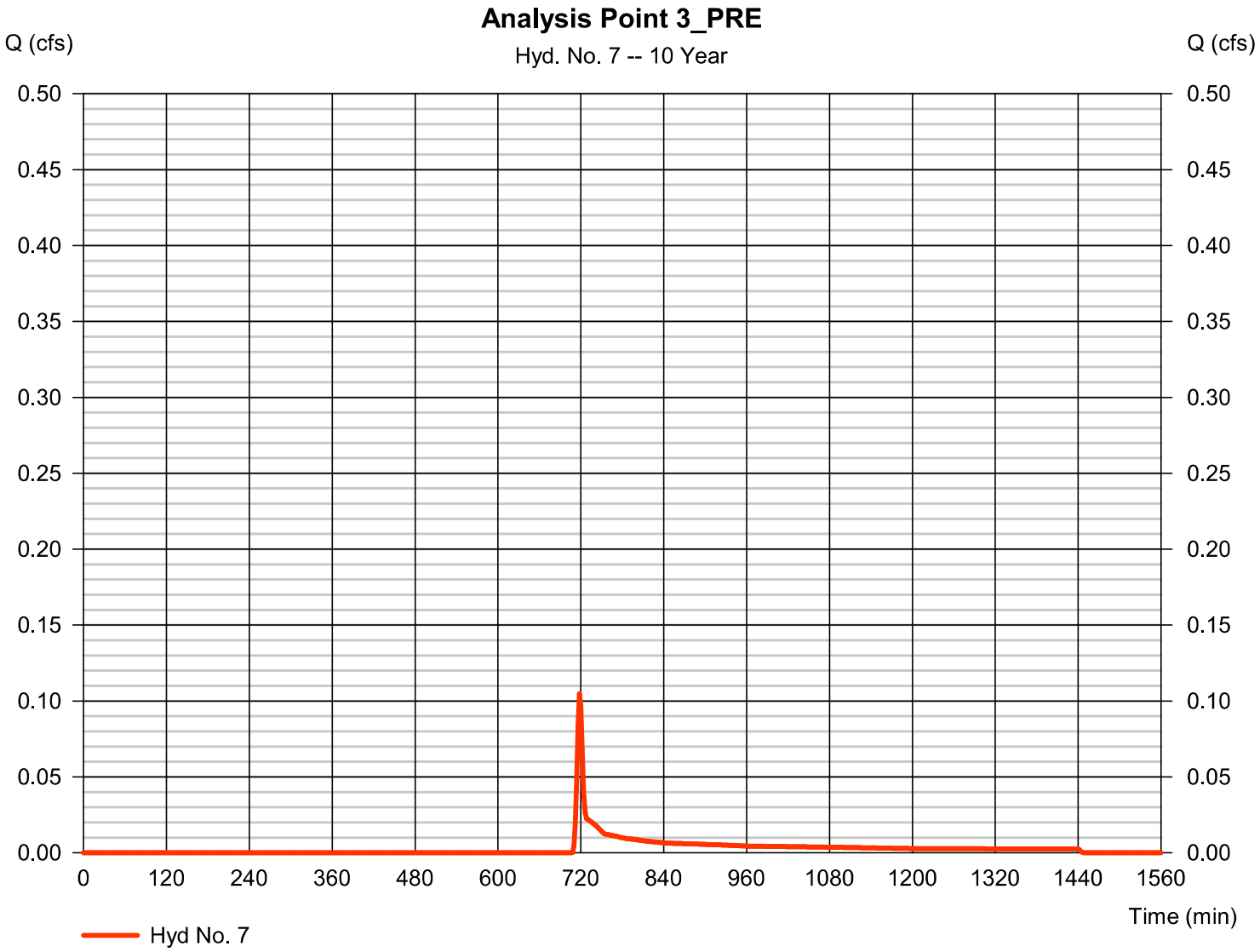


Hydrograph Report

Hyd. No. 7

Analysis Point 3_PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.105 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	266 cuft
Drainage area	=	0.120 ac	Curve number	=	49
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.03 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

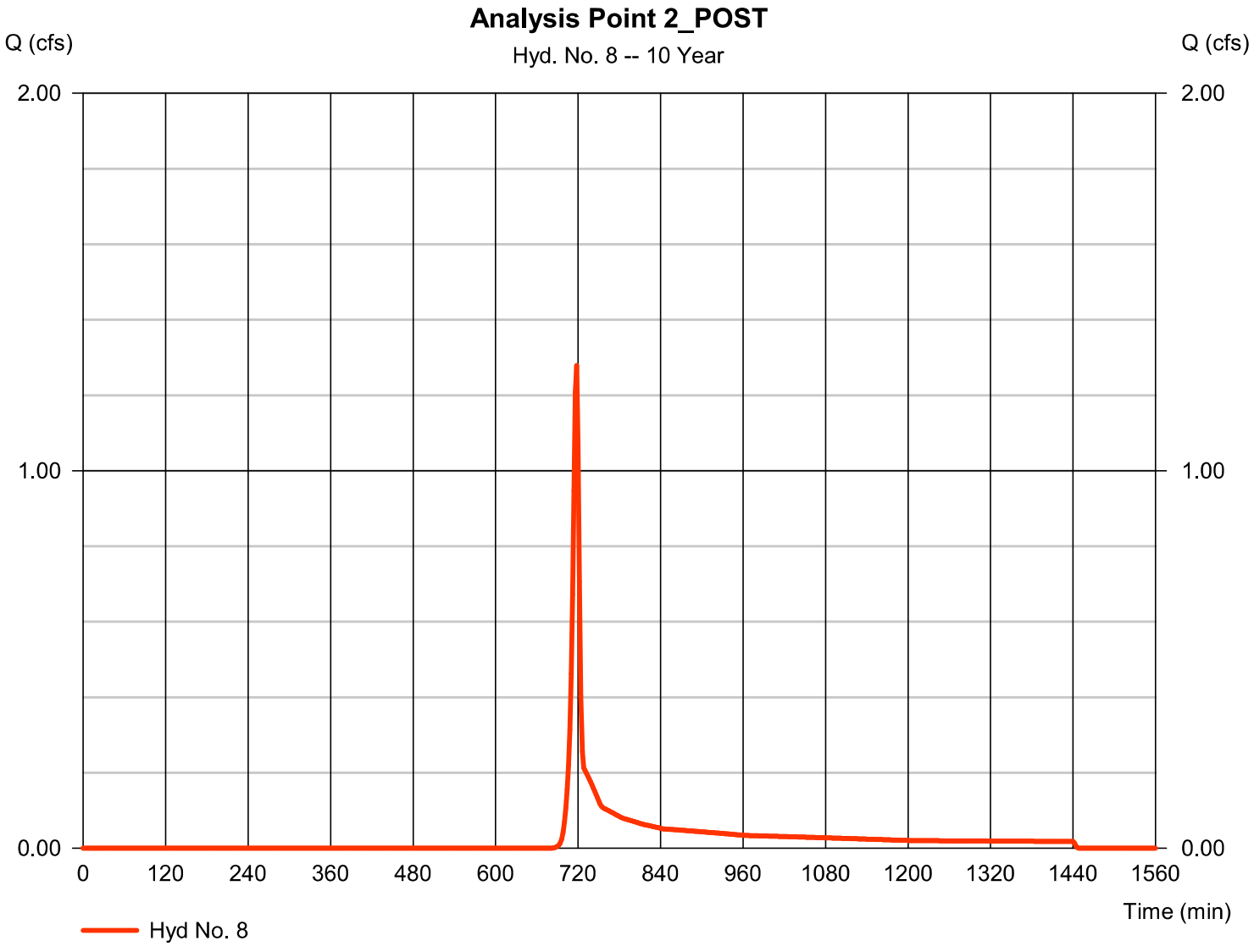


Hydrograph Report

Hyd. No. 8

Analysis Point 2_POST

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.279 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,603 cuft
Drainage area	=	0.580 ac	Curve number	=	60
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.03 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

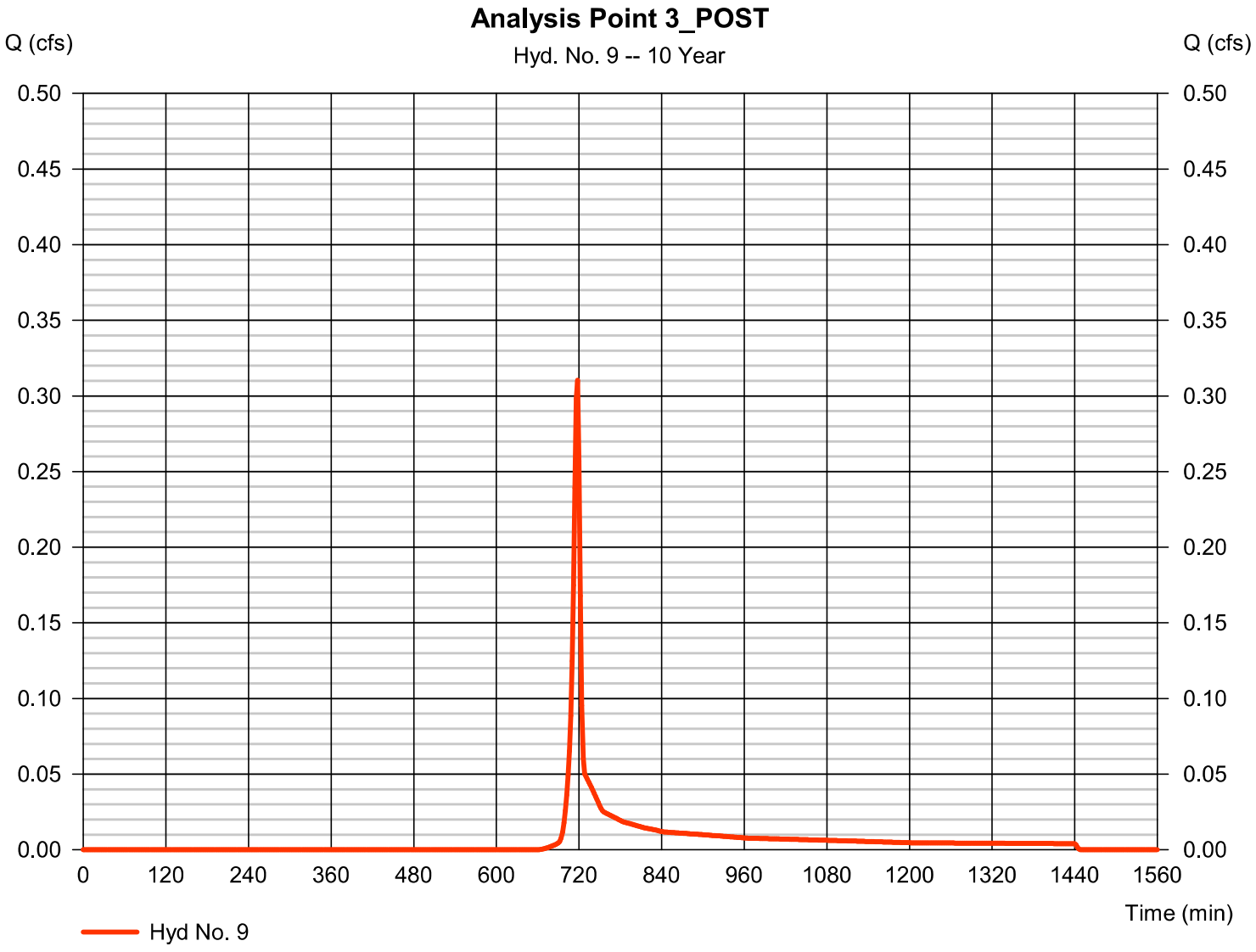


Hydrograph Report

Hyd. No. 9

Analysis Point 3_POST

Hydrograph type	= SCS Runoff	Peak discharge	= 0.310 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 624 cuft
Drainage area	= 0.120 ac	Curve number	= 63
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.03 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	67.6239	13.2000	0.9048	--------
2	0.0000	0.0000	0.0000	--------
3	0.0000	0.0000	0.0000	--------
5	0.0000	0.0000	0.0000	--------
10	68.3177	11.9000	0.7902	--------
25	62.3903	11.0000	0.7384	--------
50	0.0000	0.0000	0.0000	--------
100	0.0000	0.0000	0.0000	--------

File name: Town of Rolesville.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	4.90	3.93	3.30	2.84	2.50	2.24	2.03	1.86	1.71	1.59	1.48	1.39
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	7.32	5.96	5.07	4.43	3.95	3.57	3.27	3.01	2.80	2.62	2.47	2.33
25	8.05	6.59	5.63	4.94	4.43	4.02	3.69	3.42	3.19	3.00	2.83	2.68
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Tc = time in minutes. Values may exceed 60.

Precip. file name: S:\333\54832-Rolesville_Self_Stor\Calc\Stm\Town of Rolesville.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.86	3.46	0.00	4.40	5.03	5.85	6.56	7.50
SCS 6-Hr	2.05	2.44	0.00	0.00	3.54	4.10	4.55	5.44
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00