JOHNSON CITY
TENNESSEE

Purchasing Department

209 Water Street
Johnson City, TN 37601
(423) 975-2716

ADDENDUM

TO: All Prospective Vendors

FROM: Valerie Harless,
Assistant Director of Purchasing

SUBJECT: Addendum No. 1 ITB #6498
J C Schools- Interior Renovations and Classroom Addition-Lake Ridge

DATE: May 19, 2021

Consider this addendum an integral part of the above referenced Invitation to Bid:

See attached 160 page addendum from Thomas Weems, Architect

Note: **Bid Opening Date changed to June 2, 2021 at 3:00 PM**

Questions due by 12:00 PM local time on Friday May 28, 2021

All other specifications/requirements remain the same. Failure to acknowledge this addendum could be cause for rejection of your submittal. Your un-opened response envelope can be returned to you for re-submittal upon request. Any questions regarding addendum submittal please contact this office.

THOMAS WEEMS ARCHITECT

ADDENDUM #01

INTERIOR RENOVATIONS & CLASSROOM ADDITION FOR:
LAKE RIDGE ELEMENTARY SCHOOL
1001 Lake Ridge Square | Johnson City, Tennessee 37601
TFM # 09665
TFM Project No. 2021-03-24-03

THOMAS E. WEEMS REGISTERED ARCHITECT AGRICULTURE COMMERCE No. 21770 STATE OF TENNESSEE

05/18/2021

May 18, 2021

This Addendum forms a part of the Contract Documents and modifies the original Procurement Documents dated March 25, 2021. Bidders shall acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

This **160** page Addendum is issued *VIA Email* to the Owner, All Known Plan Holders of Record, and All Known Plan Rooms of Record on May 18, 2021.

CHANGES TO PROJECT MANUAL:

1. Refer to **00 1113 Advertisements for Bids**
   a. The bid date found in the first paragraph should be modified as follows:
   "Wednesday, June 2, 2021 at 3:00 PM local time"

2. Refer to **00 2113 Instructions to Bidders**
   a. Modify paragraph 3.2.2 as follows:
   "Submit questions in electronic format via email to: ***katie@thomasweemsarchitect*** *no later than* ***Friday, May 28, 2021*** *at 12:00 PM local time"*

3. Refer to **00 2113.1 Supplementary Instructions to Bidders**
   a. Modify paragraph 1.6 Questions as follows:
   "DATE: ***Friday, May 28, 2021*** *at 12:00 PM local time"*

4. Refer to **01 1100 Summary of Work**
   a. Modify paragraph 1.6 Phase Construction to ***remove all references to completion dates***. Contractor to propose construction phasing order and schedule.

5. Refer to **01 2100 Allowances**
   a. Modify paragraph 3.1.H Allowance No. 8 as to add items noted below:
   2. [$460,000.00] Four Hundred Sixty Thousand Dollars and Zero Cents of the total Trane HVAC Equipment Allowance is for controls labor subcontract and is not subject to sales taxes and is Non-Taxable. The remaining [$728,129.00] Seven Hundred Twenty Eight Thousand One Hundred Twenty Nine Dollars and Zero Cents is subject to Sales Tax.

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3. Sales Tax is not included in the Trane HVAC Equipment Allowance and is to be calculated by the Contactor and included in the Base Bid cost.

6. Refer to **04 0516 Masonry Grouting**
    a. Modify paragraph 2.3.B.2 as follows:
    *"Compressive strength: Minimum strength **[4,000]** psi at [28] days."*

7. Refer to **08 1113, Section 2.1 Manufacturers**
    a. Add ***CertainTeed*** as an acceptable manufacturer of a comparable product.
    b. Substitution Request approved

8. Refer to **09 5100 Acoustical Ceilings, Section 2.1 Acceptable Manufacturers**
    a. Add ***Metal Products, Inc.*** as an acceptable manufacturer of a comparable product.
    b. Substitution Request approved

9. Insert **12 2113 Horizontal Louver Blinds**

10. Insert **22 0500 Common Work for Plumbing**

CHANGES TO CONSTRUCTION DRAWINGS:

1. Refer to **G004 – Phasing Plan**
    a. Remove all references to completion dates. Contractor to propose construction phasing order and schedule.

2. Insert revised **C1.1 – Notes & Legends**

3. Insert revised **C2.1 – Existing Condition and Demolition Plan**

4. Insert revised **C3.1 – Layout And Utility Plan**

5. Insert revised **C4.1 – Grading Plan**

6. Insert revised **C4.2 – Storm Sewer Profiles**

7. Insert revised **C5.1 – Erosion & Sediment Control Plan Phase 1**

8. Insert revised **C5.2 – Erosion & Sediment Control Plan Phase 2**

9. Insert revised **C5.3 – Erosion & Sediment Control Details**

10. Insert revised **C6.1 – Miscellaneous Details**

11. Insert revised **C6.2 – Miscellaneous Details**

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12. Insert revised **AS011 – Architectural Site Plan**
    a. Graphics updated to coordinate with Civil drawings and indicate new paving.

13. Insert revised **A601 – Door Schedule and Details**
    a. Revised door ratings

14. Refer to **A800 – Finish Schedule**
    a. Revise all references to "CT-1" to "RB-2"
    b. Revise base in Stair 195, Stair 255, Roof Stair 500A to "RB-2"

15. Refer to **Electrical Drawings E101B, E101C, E101D, E103A, E201B and E203A**
    a. Refer to attached Electrical Addendum dated May 13, 2021.

GENERAL ITEMS:

1. Insert attached **Pre-Bid Conference Agenda**
2. Insert attached **Pre-Bid Sign In Sheet**
3. Insert revised **Stormwater Management Plan dated 4/21/2021**
4. Insert attached **Electrical Addendum dated May 13, 2021**
5. Insert **PTA Request for Payment Form dated 9/6/19**. Cost of Owner-provided, Contractor-Installed Sunshade listed.
6. Insert Rejected – Substitution Request – Quaker Windows. Not an equal product.

RESPONSE TO QUESTIONS:
Refer to the following responses to questions received by the Architect:

1. *Given that the board will not meet to approve the project/contractor until the third week of June, I'd like to request the bid date be moved back to June 8th.*
   a. **Bid Date revised to June 2, 2021. This is the latest date possible in order to prepare the agenda for the June 17, 2021 meeting.**

2. *The bid form included in specification section 00 4100 list the project name as Addition and Alterations to Existing Building Indian Trail Intermediate School.*
   a. **Corrected bid form will be provided prior to bid date.**

3. *Structural Drawings call for grout to be 4000 psi, project manual calls for 3000 psi. Which is correct?*
   a. **Refer to 04 0516 Masonry Grouting modification above.**

4. *Drawing A800 calls for the CT-1 base and none listed on finish description. No RB-2 shown on finish schedule.*
   a. **Refer to modifications noted above.**

5. *The project manual calls out spec section 12 2113 Horizontal Blinds but there is no spec section under this heading or number.*

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   a. **12 2113 Horizontal Blinds attached**

6. *With no Geotechnical Report available for this project will there be consideration for unit pricing for unsuitable soils or rock excavation since no information provided.*
   a. **Yes. Refer to revised 00 4100 Bid Form and 01 2200 Unit Prices**

7. *With Spec 06-4600 Wood Trim: Is this specification section applicable to this project. No finish wood trim shown on drawings*
   a. **Wood trim used at the junction of GWB and CMU. Refer to section details.**

8. *Detail 10&11/A414, 8/A612, 3/A613: Double 2x blocking shown on these details will fastened to a face block with an expansion anchor. This will not carry any load.*
   a. **Detail 10 and 11 / A414: Double 2x blocking is not shown on either detail.**
   b. **Detail 8 / A612: The detail shows that the double 2x's create a shelf for the bull nose sill. Not structural.**
   c. **Detail 3 / A613: Standard head detail. The double 2x's create a shelf for the thru-wall flashing so any moisture doesn't pond. Not intended to be structural.**

9. *Provide the cost of the Owner-provided, Contractor-installed sunshade.*
   a. **Refer to attached PTW Request for Payment Form.**

10. *Is the fire alarm new throughout the school or for the new addition only?*
   a. **Refer to attached Electrical Addendum.**

ATTACHMENTS:

1. Project Manual (2 sections – 9 pages – 8 ½" x 11")
2. Construction Drawings (12 sheets – 30" x 42")
3. Stormwater Management Plan Report (112 pages – 8 ½" x 11")
4. Pre-Bid Agenda (6 page – 8 ½" x 11")
5. Pre-Bid Sign-In (5 pages – 8 ½" x 11")
6. PTA Form (1 page – 8 ½" x 11")
7. Substitution Requests (3 requests - 9 pages – 8 ½" x 11")

END OF ADDENDUM NO. 1

Cc: Randy Trivette – City of Johnson City
Dennis Rhodes, Plans Examiner 2, TN State Fire Marshal's Office

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SECTION 12 2113

HORIZONTAL LOUVER BLINDS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Horizontal slat louver blinds.
   1. Operating hardware.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section 04 2000 – Unit Masonry.
   3. Section 06 1000 – Rough Carpentry.
   4. Section 09 9100 – Painting.

1.2 REFERENCES

A. National Fire Protection Association (NFPA):
   1. 701 - Fire Tests for Flame-Resistant Textiles and Films.

1.3 SUBMITTALS

A. Product Data: Submit Manufacturer’s product data and installation information per type of blind specified.

B. Sample: Submit [3] inch long slat samples in each color.

C. Warranty: Submit Manufacturer’s standard warranty form.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum Five [5] years documented experience in work of this Section.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver to job site in manufactures original packaging.

B. Packaging shall include labels with designation if required.

C. Shades shall be stored horizontally in a way to prevent damages from accidents and water.

D. Area of installation shall be enclosed and dry. All work operations above area of installation on ceilings, must be completed before installing.

1.6 PROJECT CONDITIONS

A. Verify dimensions at site prior to fabrication of blinds.

B. Do not install blinds until painting and finishing work is complete.

1.7 WARRANTY

A. Warranty: Provide manufacturer's standard warranty against defects in materials and manufacturing.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Design Basis – Horizontal Louver Blinds: Contract Documents are based on products by:
   1. Caco, Inc.
      119 Perma R Road
      Johnson City, Tennessee 37604
      Telephone: 800-552-5278
      Website: (www.cacoinc.com)

B. Substitutions: Under provisions of Division 01.

2.2 HORIZONTAL LOUVER BLINDS

A. Custom Signature Series [2] inch Aluminum Maxi Horizontal Maxi Blinds:
   1. Louver Slats: [2] inches wide, prefinished spring tempered aluminum, horizontal slats with radiused corners.
   2. Slat Support: Woven polypropylene ladders.
   3. Head Rail: Prefinished, formed aluminum or steel box, internally fitted for hardware, pulleys, and bearings for blind operation.
   4. Cord: Braided nylon or polypropylene.
   5. Control Wand: Hollow extruded plastic, height of window opening less [12] inches.
   6. Support Brackets: Suitable for wall or soffit mounting, formed metal to match head rail, allowing removal of head rail for maintenance without removing bracket.
   7. Operation: Full range lift locking.

2.3 FABRICATION

A. Fabricate blinds to fit openings with uniform edge clearance of [1/4] inch.

B. At openings requiring multiple blind units, provide separate blind assemblies with space of [1/4] inch between assemblies, occurring at window mullion centers.

2.4 FINISH

A. Slats: Baked enamel, Color: To be selected from Manufacturer’s standard colors.

B. Head Rails and Brackets: Baked enamel, color to match slats.

C. Ladders and cords: Dyed to closely match slats.

D. Control Wands: Clear.

PART 3 EXECUTION

3.1 EXAMINATION

A. Work area in which blinds will be installed should be free of conditions that interfere with blind installations and operations.

B. Begin blind installation only when unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install blinds in accordance with manufacturer's instructions.

B. Secure with concealed fasteners.

C. Place intermediate head supports at maximum [48] inches on center.

D. Install intermediate support brackets and extension brackets as needed to prevent deflection in head rail.

E. Installation Tolerances: Install blinds with adequate clearance to permit smooth operation of blinds and any sash operations.
   1. Maximum gap at window opening perimeter: [1/4] inch.
   2. Maximum offset from level: [1/8] inch.

3.3 ADJUSTING

A. Adjust shades for smooth, quiet operation.

END OF SECTION

SECTION 22 0500
COMMON WORK FOR PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.2 WORK INCLUDED

A. The work required under this section of the specifications consists of basic materials and methods and is applicable to all work under Division 22.

B. The work of this section is subject to the requirements of the 22 05 01 General Work for Plumbing section of the specifications.

PART 2 - PRODUCTS

2.1 MOTORS

A. Furnish and install (or arrange for installation) all electric motors for all equipment specified under this section requiring same in accordance with the following:

1. All motors shall be NEMA standard designed for ample size to operate at their proper load and full speed continuously without causing noise or vibration or temperature rise in excess of their rating.

2. Motors 1/2 HP and less shall be designed & nameplated for 120 volt, 1 phase, 60 cycle operation; shall be permanent split capacitor type, 40 degrees Celsius continuous rise, open dripproof type; and shall be equipped with ball bearings.

3. All motors 3/4 HP and larger (unless specified otherwise) shall be designed and nameplated for 3 phase, 60 cycle operation, shall be single speed squirrel-cage type, NEMA Design B, normal starting torque, open dripproof type, quiet operating, 40 degrees Celsius continuous rise and shall be equipped with ball bearings.

4. All three phase motors one horsepower and larger shall comply with NEMA MG-1 Table 12-11 Energy Efficient standards or Table 12-12 Premium Efficient Standards as applicable to meet the Energy Independent Security Act of 2007.

B. The above shall apply to all motors unless otherwise specified with equipment.

2.2 STARTERS

A. Provide motor starters for all equipment under this division of the specifications. Installation shall be as specified in Division 26 of these specifications. Unless built-in as an integral part of the equipment or of custom design for specific application, all starters shall be the product of a single manufacturer. Starters shall meet requirements of current National Electric Codes.

B. All starters shall have overload protection. Starters shall have phase failure and undervoltage relay similar to Square D Type MPS, with built-in adjustable time delay response (3 second minimum). Undervoltage setting is adjustable from 75% to 100%. Starters shall have all necessary auxiliary interlocks required for operation of the respective systems, plus one spare auxiliary interlock. Starters shall have NEMA 1 general purpose enclosures.

C. All starters shall be manufactured by Cutler-Hammer; equal by General Electric, Square D, or Westinghouse are acceptable.

1. Single pole, 120 volt, 1 phase, 60 cycle manual (unless noted otherwise) starter for motors 1/2 HP and less. Note: Where motors have built-in thermal overload protection and starter is not required to accomplish control scheme, manual starter may be omitted.

2. Full voltage, three-pole, combination magnetic starter with fused disconnect with Bussman Low-Peak or Fusetron dual element fuses for all 3 phase motors. Fuses shall be sized in accordance with N.E.C. for all 3 phase motors.

3. For motors larger than 25 HP, the starting equipment of the resistance type, increment start, induction type or a combination of resistance and induction starting shall be used to limit the first step of the starting voltage, to not more than 65% of the line voltage or as required by the local electrical utility.

D. In addition to the features described above, the starters furnished shall include the following features:

1. All starters for 3 phase motors shall have 3 phase thermal overload protection. Size the heater overload elements to properly protect the motor being served. Heaters shall not be sized to be any larger than 115% of full-load amps, heater element furnished, and rating range of heater element in tabulate form.

2. Starters on all, 3-phase, 60 cycle electrical service shall have a 120 volt control circuit obtained from a fused control transformer built into the starter. Transformer shall be fused on each of the two lines. Fuses and transformers shall be sized to carry the holding coil circuits and any miscellaneous devices included plus 50-VA.

E. All starters shall have maintained contact hand-off-automatic switch & reset button in cover. All motors shall automatically restart after power loss is restored when set in automatic setting.

2.3 VIBRATION ISOLATION EQUIPMENT

A. Isolation shall conform to seismic requirements of Section 22 05 29 Hangers and Supports for Plumbing." Unless otherwise noted, equipment over 1 horsepower shall be isolated from the structure with resilient vibration and noise isolators supplied by Kinetics or Mason Industries to the Mechanical Installer. Where isolator type and required deflection are not shown, equipment shall be isolated in accordance with the ASHRAE systems book. Submittal shall include the complete design for the supplementary bases; a tabulation of the design data on the isolators including O.D., free operating and solid heights of the springs, free and operating heights of the neoprene or fiberglass isolators. Mounts and bases shall be manufactured by Peabody Noise Control or Mason Industries.

B. Model KIP-Q shall be precompressed molded fiberglass isolation pads, neoprene-jacketed and stabilized during manufacture. Pads shall be sized for 40 to 60 psi loading and shall be made of glass fibers produced by a multiple flame attenuation process which generates nominal fiber diameters not to exceed .00018 inches. Where the equipment base does not provide a uniform load surface, steel plates shall be bonded to the top of the pads. Model RD neoprene mounts shall incorporate completely enclosed metal inserts to permit bolting to the supported unit.

C. Model FDS shall be freestanding, unhoused, laterally stable spring mounts, incorporating leveling bolts and 1/4" thick noise isolation pads. To assure stability, the outside spring diameter shall be equal to or greater than the designed spring operating heights, and the horizontal stiffness. Springs shall have a minimum additional travel of 50% between the designed operating height and the solid height.

D. Model SFH shall be combination spring and fiberglass hangers, incorporating 2" thick neoprene-jacketed precompressed molded fiberglass inserts in series with springs, all encased in welded steel bracket. The outside spring diameter shall be a minimum of 0.8 times the designed spring operating height, and shall have a minimum additional travel of 50% between the design height and solid height.

E. Model FLS shall be freestanding, stable spring mounts, similar to Type FDS. They shall incorporate vertical limit stops to assure a constant height if the supported weight is removed, and to reduce movement due to wind load. The limit stops shall be isolated.

F. Model FYS spring isolators shall be seismic control restrained spring isolators, shall incorporate a single vibration isolator, having all of the characteristics of Model FDS springs as previously specified. Springs shall be assembled into a welded steel housing assembly engineered to limit movement of supported equipment during an earthquake without degrading the vibration isolation of the spring during normal equipment operating conditions. Vibration isolators shall incorporate a steel angle and plate motion limit assembly, and steel spring isolator, engineered as a system to accept a force in any direction equal to a minimum of 1.0 times the rated load capacity of the spring isolator without yield or failure, and shall limit movement of the point of level bolt connection to supported equipment to less than 1/2" in any direction, relative to any fixed point on the isolator assembly, while subjected to the rated force specified. The motion limit assembly shall be welded to a steel base plate having a 1/4" thick ribbed neoprene noise stop pad, and drilled holes for bolting to the supporting structures. A spring isolator, drilled and tapped load plate and leveling bolt assembly shall be positioned on the base plate, and shall carry all normal equipment operating loads.

G. All piping and electrical conduit in the mechanical equipment room and piping three supports away from other mechanical equipment shall be isolated from the structure by means of vibration and noise isolators. Suspended piping shall be isolated with Model SFH Hangers as described above. Floor mounted piping shall be isolated with FDS Spring Mounts as described above.

H. Flexible pipe connectors shall be incorporated in all piping connections to chillers, pumps and air handling units. Flexible pipe connectors shall be equal to Mason Industries, Inc. Type MFTNC, Neoprene-twin-sphere with floating flanges and control cables. Installation of the flexible connector and anchoring of the piping shall be in strict accordance with the manufacturer's directions.

I. Flexible connections shall be incorporated in the ductwork adjacent to all air-moving units. The connections shall be neoprene or canvas of approved construction.

2.4 ACCESS PANELS

A. Provide access panels not less than 24" x 24" for access to all concealed valves, unions, dampers, etc., where no other means of access is provided. Access panels shall be all steel construction with a 16 gauge ceiling frame and 16 gauge panel door. Doors shall be secured with concealed hinge and flush locks of either the cylinder type of screwdriver-operated type. Outside of door and frame shall be flush with finished wall or ceiling. Panels shall be painted with a rust-inhibitive primer at the factory. Panels shall be installed in openings provided under the construction sections of the specifications, and the work of the trades involved shall be coordinated as necessary. Access panels shall be so located and of sufficient size to permit service of components. Panels located in fire rated walls or ceilings shall be U.L. listed for rating equal to or greater than where they are installed.

PART 3 - EXECUTION

3.1 EXCAVATION AND BACKFILL FOR PIPE

A. Do all excavating and backfilling required for installation of underground work required by the mechanical work.

B. Excavating and backfilling shall comply with all applicable provisions of Section for Earthwork, including the provisions therein concerning classification of excavated materials. Any backfill in the area of the building shall conform to the requirements for engineered fill as specified in Section for Earthwork.

C. Unless otherwise shown or required, by the State Department of Health, provide separate trenches for sewer and water lines, respectively, with a minimum of 5 feet between lines and a minimum of 3 feet of

undisturbed earth between trenches. In locations, such as close to a building where separate trenches for sewers and water lines are not practical, lay the water pipe on a solid shelf at least 12 inches above the top of the sewer.

D. Sheeting, Bracing, Water Removal

1. Sheet and brace trenches, and remove water, as necessary to fully protect workmen and adjacent structures and permit proper installation of the work. Comply with local regulations or, in the absence thereof, with the provisions of the "Manual of Accident Prevention in Construction", of the AGC. Under no circumstances lay pipe or install appurtenances in water; keep the trench free from water until pipe joint material has hardened. The presence of ground water in the soil or the necessity of sheeting or bracing trenches shall not constitute a condition for which an increase may be made in the Contract Price.

2. Sheeting left in place shall be cut off not less than 2 ft. below finished grade. Sheeting shall not be removed until the trench is substantially backfilled.

E. Grading Trench Bottoms

Grade the bottom of trenches evenly to ensure uniform bearing for the full length of all pipes. Cut holes as necessary for joints and joint making. Excavate all the rock, cemented gravel, old masonry, or other material to at least 6" below the pipe at all points. Refill all cuts below grade with sand or fine gravel firmly compacted; the necessity of refill material shall not constitute a condition for which an increase may be made in the Contract Price.

F. Piping Inverts
All piping outside of building footprint shall have a minimum cover of 18" unless noted otherwise.

G. Bedding of Pipe

1. All pipe shall be installed on a minimum bedding of 6" of Class 1 embedment materials (1/4" to 1 1/2" graded stone).

2. Embedment material shall be placed in the trench to a sufficient height so that upon completion of compaction as required in the specifications that entire upper surface of the gravel shall be no lower than the bottom of the barrel of the pipe. Bell holes shall be made in the embedment so that the pipe shall be supported on its barrel portion only and the pipe laid to line and grade in the manner described in the specifications.

H. Special Supports

Should latent soil conditions, other than hard material as referred to above necessitate special supports for piping and appurtenances, including the removal of unsuitable material and refilling with gravel or other material, perform such work as directed by the Architect.

I. Backfilling

Notify architect and local inspecting authority before backfilling trenches. Tests and locations of pipe and appurtenances shall be recorded. Backfill by hand around pipe and for a depth of 12" above the pipe. Use Class 1 angular 1/4" to 1 1/2" graded stone and tamp firmly in layers not exceeding 6" in thickness, taking care not to disturb the pipe or injure the pipe coating. Compact to 95% density under building, sidewalks, and paved areas.

J. Tracer Wire

A insulated copper tracer wire or other approved conductor shall be installed adjacent to any underground nonmetallic piping. Access shall be provided to the tracer wire or the wire shall terminate above the ground

at each end of the nonmetallic piping. The tracer wire size shall not be less than 18 AWG and the insulation type shall be suitable for direct burial.

3.2 PIPING INSTALLATION

A. In general, install all piping as neatly as practicable as indicated and detailed on the drawings. Arrange and install piping straight, level, plumb, and as direct as possible. Form right angles and parallel lines with the structures. Keep pipes close to walls, partitions, ceilings, and slabs where possible. Where two or more pipes are located together, run parallel to each other and space at distances which will permit application of full insulation and access for servicing.

B. Unless noted otherwise, connect all apparatus and equipment in accordance with the manufacturer's standard details as approved. Provide necessary piping, such as vent, relief, etc., wherever equipment is provided with connections for such piping. Unions or flanged connection shall be placed where necessary to permit easy dismantling of piping and apparatus and in connections to all equipment between shutoffs and the equipment. Each control valve shall have union or flanged connection immediately adjacent or be flare connected. All piping and apparatus connections shall be so installed as to avoid interference with tube or electrode removal from hot-water boilers, air-handling units, and domestic water heater, etc., and to allow for removal of an item of equipment without disturbing other items of equipment. Ream all pipe ends after cutting. All blow-off piping shall be permanently installed to indirect wastes. All pipe size changes shall be made with pipe reducer fittings or, if applicable, with reducing fittings. Piping shall be carefully installed to provide for expansion and for proper alignment. Pipe lines shall be guided and pipe shall be supported in such a manner that it will not creep, sway, or buckle. Anchors and supports shall be provided wherever necessary to prevent misalignment. Wherever possible, long radius elbows shall be used and not short radius. Eccentric reducers shall be used wherever necessary or indicated; concentric reducers and reducing fittings shall not be used where air trapping may occur. All pipe fittings shall be factory fittings.

C. Joints:

1. Sweat joints in copper tubing shall be with approved alloys. Lead free solders and fluxes that contain not more than 0.2 percent lead (per the Safe Water Act Amendments of 1986, Public Law 99-339) shall be used when joining copper to copper. Silver solders (95 tin - 5 silver) shall be used when joining copper with bronze or steel, and when joining Type K copper to copper, and for any copper joint below floor slab. The filler metal shall conform to AWS A5.8.

2. Dielectric brass adapters, brass unions, or brass bushing shall be used wherever dissimilar metals subject to galvanic activity are joined together, such as equipment connections, tank connection, etc.

3. Piping installer shall use neoprene gasketed compression joints on cast iron pipe.

D. Nipples:

1. All steel pipe nipples shall be threaded steel nipples, galvanized or black to match pipe.

2. All nipples used in conjunction with copper pipe shall be brass.

E. Pipe Sleeves:

1. Fabricate from steel pipe having internal diameter not less than 1" larger than outside diameter of pipe. Length of sleeve shall extend full depth of construction pierced, and in the case of floor slabs, additionally extend 2" above top of slab.

2. Insert sleeves in forms before pour of floor & roof slabs, install sleeves as wall goes up for concrete block walls. Securely fasten sleeves to structure.

F. <u>Protection of Floor or Wall Penetrations by Piping:</u>

1. Provide ProSet Systems U.L. fire rated sleeve coupling Penetrators for each pipe penetration or fixture opening passing through fire rated floors, walls, partitions or floor ceiling assemblies. All Penetrators shall comply with ASTM E-814 or U.L. 1479 fire test standards.

2. Sleeve Penetrators shall have a built in anchor ring for waterproofing and anchoring into concrete pours or use the special fit Cored hole Penetrator for cored holes.

3. Copper and Steel piping shall have ProSeal Plugs on both sides of the penetrator to reduce noise and waterproof.

a. Copper and Steel insulated pipe - Use Systems "A".

b. PVC waste and vent piping - Use System "C".

4. All above systems to be installed in strict accordance with the manufacturer's instructions.

5. Alternate Firestopping Systems are acceptable if approved as "an approved substitute." However, any deviation from the above specification requires the Contractor to be responsible for determining the suitability of the proposed products and their intended use, and the Contractor shall assume all risks and liabilities whatsoever in connection therewith.

G. Valves: Install valves and hosecocks as shown on the drawings, and specifically in the cold water main entering the building, at runouts from mains to risers and or all branch lines feeding from mains on domestic cold water, and at entering and leaving sides of all equipment as necessary to isolate and service this equipment.

3.3 PROTECTION

A. Do not install any water piping over electrical switchgear. Provide galvanized sheet metal gutter, having 1-1/2" pipe drain to floor away from affected areas, for any water or drain piping having to cross the switchgear.

B. Electrical Ground: Notify electrical installer regarding location of any valves whose future removal for service will break the electrical grounding system.

3.4 CLEANING

A. Exercise care to keep all piping clear and free from foreign matter at all times.

B. After reaming, if cutting is required, clean each piece of all loose scale, dirt, etc.

C. Keep installed piping free from dirt and scale and protect open ends to prevent foreign matter entering. Use temporary plugs, caps, or other approved method of open and closure.

D. Defective, leaking, or otherwise unsatisfactory joints or material shall be remade or replaced. Peening, caulking, doping, etc., will not be permitted.

3.5 PAINTING OF MECHANICAL PIPING & METAL SURFACES

A. All finish will be performed under Division 9.

B. The equipment installer shall touch up all scratches, abrasions, etc., in either the prime or finish coats of all equipment and material furnished and installed by him. All rust and corrosion shall be removed from pipe, fittings, and other metal surfaces. All surfaces shall be left in a clean "factory-new" condition.

END OF SECTION

NOTIFICATION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INFORMING THE OWNER IN WRITING TWO WEEKS PRIOR TO THE START OF CONSTRUCTION AND PRIOR TO REQUESTING FINAL INSPECTION AND PAYMENT.
2. THE CONTRACTOR MUST GIVE ADEQUATE NOTICE TO ALL UTILITY OWNERS PRIOR TO EXCAVATION. THE CONTRACTOR SHALL NOTIFY EACH INDIVIDUAL UTILITY OWNER OF HIS PLAN OF OPERATION IN THE AREA OF THE UTILITIES. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL CONTACT THE UTILITY OWNERS AND REQUEST THEM TO PROPERLY LOCATE THEIR RESPECTIVE UTILITY ON THE GROUND. THE CONTRACTOR SHALL NOTIFY TENNESSEE ONE CALL SERVICE AT LEAST 3 WORKING DAYS PRIOR TO EXCAVATING. THE TENNESSEE ONE CALL SERVICE CAN BE CONTACTED BY CALLING 811 OR 1-800-351-1111.
3. THE CONTRACTOR SHALL MAINTAIN A LIST OF EMERGENCY CONTACTS WITH EACH AFFECTED UTILITY FOR CASES OF ACCIDENTAL UTILITY DAMAGE.
4. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR CONTACTING ALL AFFECTED UTILITIES PRIOR TO SUBMITTING A BID TO DETERMINE THE EXTENT TO WHICH UTILITY RELOCATIONS AND/OR ADJUSTMENTS WILL HAVE UPON THE SCHEDULE OF WORK FOR THE PROJECT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INFORMING THE UTILITY INSPECTION DIVISION IN WRITING THREE WEEKS PRIOR TO THE START OF UTILITY CONSTRUCTION, MAKING SERVICE CONNECTIONS, AND REQUESTING FINAL INSPECTION FOR APPROVAL BY THE UTILITY.
6. IF AN EXISTING UTILITY IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY INSPECTOR AND RECORD THE LOCATION OF THE INCIDENT ON THE AS-BUILT RECORD.
7. EXISTING UTILITY SERVICES SHALL BE MAINTAINED. WHERE SERVICE INTERRUPTION IS UNAVOIDABLE, COORDINATE WITH THE UTILITY OWNER AT LEAST 3 DAYS (72 HOURS) IN ADVANCE REGARDING THE DURATION OF THE INTERRUPTION AND THE PROPER RESTORATION OF SERVICE. CONNECTION TO EXISTING PUBLIC FACILITIES SHALL BE MADE ONLY UNDER THE SUPERVISION OF A REPRESENTATIVE OF THE UTILITY. LIMIT INTERRUPTIONS TO OCCUR AND BE COMPLETED ON MONDAY THRU THURSDAY, 9:00 AM TO 4:00 PM. NO INTERRUPTIONS SHALL OCCUR ON FRIDAYS, WEEKENDS, OR HOLIDAYS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION TO AFFECTED CUSTOMERS (CONTACT THE UTILITY FOR NOTIFICATION REQUIREMENTS). FOR SHUTDOWNS LONGER THAN 4 HOURS, CONTRACTOR SHALL SUBMIT A TEMPORARY PLAN TO KEEP ALL CUSTOMERS IN SERVICE. ALL COSTS ASSOCIATED WITH MAINTAINING SERVICE TO AFFECTED CUSTOMERS SHALL BE BORNE BY THE CONTRACTOR. THE CONTRACTOR SHALL HAVE ALL PERTINENT PARTS AND MATERIALS ON SITE PRIOR TO SHUTDOWN OF THE UTILITY SYSTEM. CONSTRUCTION EXCAVATION MUST BE PREPARED AND THE UTILITY EXPOSED PRIOR TO SHUTDOWN OF THE SYSTEM.

DEMOLITION NOTES

1. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND/OR PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES IN THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL OBTAIN THE NECESSARY PERMITS AND NOTIFY ALL AFFECTED UTILITY COMPANIES PRIOR TO THE DEMOLITION OF ANY EXISTING STRUCTURES. ALL EXISTING UTILITIES INDICATED TO BE ABANDONED SHALL BE CAPPED OFF OR REMOVED.
3. EXISTING CONDITIONS AS DEPICTED ON THE PLANS ARE GENERAL AND ILLUSTRATIVE IN NATURE, AND DO NOT INCLUDE MECHANICAL, ELECTRICAL, OR MISCELLANEOUS STRUCTURES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING ON THE WORK FOR THIS PROJECT. IF CONDITIONS ENCOUNTERED DURING CONSTRUCTION ARE SIGNIFICANTLY DIFFERENT THAN THOSE ANTICIPATED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
4. EXISTING ITEMS BOTH ABOVE AND BELOW GRADE SHALL BE REMOVED OR RELOCATED AS SPECIFIED ON THE PLANS, EXCEPT AS NOTED.
5. ANY OFF-SITE DEMOLITION SHALL BE PERFORMED BY LETTER OF PERMISSION ONLY.
6. ALL DEMOLITION WASTE AND CONSTRUCTION DEBRIS SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS.
7. ALL OFF-SITE DISPOSAL AREAS SHALL BE PERMITTED IN ACCORDANCE WITH LOCAL AND TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC) REQUIREMENTS.
8. WATER, SANITARY SEWER, STORM SEWER, GAS, POWER, AND TELECOMMUNICATION FACILITY REMOVAL SHALL BE COORDINATED WITH THE RESPECTIVE UTILITY.
9. THE CONTRACTOR SHALL MAINTAIN EXISTING UTILITY SERVICES DURING DEMOLITION AND CONSTRUCTION PHASES.

ASBESTOS DEMOLITION NOTES

1. THE CONTRACTOR SHALL PERFORM DEMOLITION OF STRUCTURES IN ACCORDANCE WITH OSHA REGULATIONS AND THE USEPA NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP).
2. TEN DAYS PRIOR TO DEMOLITION, THE CONTRACTOR SHALL PROVIDE NOTIFICATION TO THE NESHAP ADMINISTRATOR:

   TENNESSEE DEPARTMENT OF ENVIRONMENT & CONSERVATION
   DIVISION OF AIR POLLUTION CONTROL
   9TH FLOOR, L & C ANNEX
   401 CHURCH STREET
   NASHVILLE, TENNESSEE 37243 (615) 532-0572
3. THE CONTRACTOR SHALL SAMPLE AND ANALYZE MATERIALS DISCOVERED DURING DEMOLITION THAT ARE SUSPECTED TO CONTAIN ASBESTOS MATERIALS.
4. ANY ASBESTOS CONTAMINATED DEMOLITION DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

CLEARING & GRUBBING NOTES

1. THE CONTRACTOR SHALL STRIP TOPSOIL, VEGETATION, AND PAVEMENT AS NEEDED TO COMPLETE THE WORK AS SHOWN ON THE CONSTRUCTION PLANS. CLEAR AND GRUB REMAINING AREAS IN CONSTRUCTION LIMITS.
2. ALL WASTE AND CONSTRUCTION DEBRIS SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS.
3. ALL OFF-SITE BORROW OR DISPOSAL AREAS SHALL BE PERMITTED IN ACCORDANCE WITH LOCAL AND TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC) REQUIREMENTS.
4. UNLESS OTHERWISE INDICATED TO REMAIN, ALL EXISTING STRUCTURES, FENCING, TREES, ETC. WITHIN CONSTRUCTION AREA SHALL BE REMOVED & DISPOSED OF OFFSITE. BURNING ON SITE WILL NOT BE PERMITTED.

GENERAL LAYOUT NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXAMINING THE AREAS AND CONDITIONS UNDER WHICH THE PROJECT IS TO BE CONSTRUCTED AND NOTIFY THE ARCHITECT OF CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF THE WORK.
2. THE CONTRACTOR SHALL IDENTIFY REQUIRED LINES, LEVELS, AND DATUM PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL PROTECT BENCHMARKS, PROPERTY CORNERS, AND ALL OTHER SURVEY MARKERS FROM DAMAGE AND/OR DESTRUCTION.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LAYOUT ALL THE FACILITIES BEING CONSTRUCTED, RELOCATED, AND/OR ADJUSTED WITHIN THE CONTRACT.
5. ALL DIMENSIONS ARE REFERENCED TO THE FACE OF CURB UNLESS OTHERWISE INDICATED.
6. TYSINGER, HAMPTON AND PARTNERS, INC. WILL PROVIDE A DIGITAL FILE FOR USE IN SITE LAYOUT, IF REQUIRED.

GENERAL CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE GOVERNING AGENCY, UTILITY, AND THE OWNER, AS APPLICABLE.
2. THE CONTRACTOR SHALL COORDINATE THE RELOCATION AND/OR ADJUSTMENT OF EXISTING UTILITIES (E.G., WATER, SANITARY SEWER, STORM SEWER, POWER, TELECOMMUNICATION, GAS, ETC.) WITH THE RESPECTIVE UTILITY OWNER.
3. NOTHING IN THE GENERAL NOTES SHALL RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF MAINTAINING THE SAFETY AND CONVENIENCE OF THE GENERAL PUBLIC WITHIN THE PROPOSED CONSTRUCTION AREA.
4. ALL TRENCHING, PIPE-LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
5. ALL SLOPES NOT OTHERWISE INDICATED SHALL BE 2:1 OR FLATTER. SLOPES GREATER THAN 3:1 SHALL (AFTER TOPSOIL, SEEDING AND MULCHING) BE COVERED WITH CURLEX BLANKETS BY AMERICAN EXCELSIOR OR APPROVED EQUAL.
6. ALL DISTURBED AREAS NOT PAVED SHALL BE SEEDED, FERTILIZED, MULCHED, WATERED, AND MAINTAINED UNTIL AN ADEQUATE STAND OF VEGETATION IS OBTAINED. A MINIMUM OF 4" OF TOPSOIL SHALL BE PLACED IN ALL SUCH AREAS.
7. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
8. THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, AS APPLICABLE.
9. THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE ADA ACCESSIBILITY GUIDELINES, AS APPLICABLE.
10. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H-20) LOADING AND BE INSTALLED ACCORDINGLY.
11. SICP - SMOOTH INTERIOR CORRUGATED PLASTIC PIPES AND FITTINGS SHALL BE:

   A.D.S.-N12 MFRD. BY ADVANCED DRAINAGE SYSTEMS, INC.
   3300 RIVERSIDE DRIVE, COLUMBUS OHIO 43221
   (614) 457-3051

   "HI-Q SURE-LOK" MFRD. BY HANCOR, INC.
   901 OLIVE STREET FINDLAY, OHIO 95840
   1-800-FOR-PIPE

   LANE ENTERPRISES, INC.
   34 STROHM ROAD SHIPPENSBURG, PA 17257
   (717) 532-5959

   SICP SHALL BE INSTALLED PER MANUFACTURER'S GUIDELINE FOR HEAVY DUTY DRAINAGE APPLICATIONS. ALL FITTINGS SHALL BE PRE-MANUFACTURED FITTINGS AS PROVIDED BY THE ABOVE LISTED SUPPLIERS.

12. PROOF ROLLING WITH A FULLY LOADED TANDEM DUMP TRUCK SHALL BE PERFORMED AS FOLLOWS:
   a. IN AREAS TO RECEIVE FILL, PROOF ROLLING SHALL BE PERFORMED AFTER TOPSOIL AND ORGANIC MATERIAL HAS BEEN STRIPPED AND BEFORE FILLING OPERATIONS ARE INITIATED.
   b. IN CUT AREAS, PROOF ROLLING SHALL BE PERFORMED ON SUBGRADE AFTER FINISHED GRADES ARE OBTAINED.
   c. IN ALL AREAS PRIOR TO PLACEMENT OF STONE BASE MATERIALS. ANY SOFT AREAS SHALL BE SCARIFIED AND RECOMPACTED TO THE REQUIRED DENSITIES.
15. ALL STRUCTURAL FILL SHALL BE PLACED IN LIFTS OF NO MORE THAN 8 INCHES. STRUCTURAL FILL SHALL BE COMPACTED TO 98% MAXIMUM DRY DENSITY (ASTM D698) WITH A MOISTURE CONTENT WITHIN 2% OF OPTIMUM, OR AS DIRECTED BY A GEOTECHNICAL ENGINEERING FIRM.
16. ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND "THE AMERICANS WITH DISABILITIES ACT", AS APPLICABLE.
17. ALL STRIPING SHALL BE 4" WIDE WHITE TRAFFIC PAINT. PAINT SHALL BE NON-BLEEDING, QUICK DRYING, ALKYD PETROLEUM BASE PAINT SUITABLE FOR TRAFFIC-BEARING SURFACE AND SHALL MEET FS TTP-85E AND BE MIXED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS BEFORE APPLICATION.
18. UNLESS OTHERWISE INDICATED, ALL EXCAVATION SHALL BE UNCLASSIFIED.
19. IF TEMPORARY FENCING IS REQUIRED, IT SHALL BE SUPPLIED BY THE CONTRACTOR
20. STORM, SURFACE, NUISANCE, OR OTHER WATERS MAY BE ENCOUNTERED AT VARIOUS TIMES DURING CONSTRUCTION OF THE PROJECT. THE CONTRACTOR SHALL ASSUME ANY AND ALL RISKS AND LIABILITIES ARISING THEREFROM.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS SPECIFIED IN THE PERMITS FOR THIS PROJECT. ANY FINES ISSUED FOR NON-COMPLIANCE WITH THE PERMIT CONDITIONS SHALL BE PAID BY THE CONTRACTOR

STORMWATER QUALITY NOTES

1. THE APPROVED STORM WATER MANAGEMENT PLAN (SWMP) SHALL BE ADHERED TO DURING GRADING AND CONSTRUCTION ACTIVITIES. UNDER NO CIRCUMSTANCE IS THE OWNER OR OPERATOR OF LAND DEVELOPMENT ACTIVITIES ALLOWED TO DEVIATE FROM THE APPROVED SWMP WITHOUT PRIOR APPROVAL OF A PLAN AMENDMENT BY THE GOVERNING AUTHORITY.
2. THE APPROVED SWMP SHALL BE AMENDED IF THE PROPOSED SITE CONDITIONS CHANGE AFTER PLAN APPROVAL IS OBTAINED, OR IF IT IS DETERMINED BY THE GOVERNING AUTHORITY DURING THE COURSE OF GRADING OR CONSTRUCTION THAT THE APPROVED PLAN IS INADEQUATE.
3. BEFORE RUNOFF CAN BE ACCEPTED INTO A BMP, A DENSE AND VIGOROUS VEGETATIVE COVER SHALL BE ESTABLISHED OVER ALL PERVIOUS PORTIONS OF THE CONTRIBUTING DRAINAGE WATERSHED AREA. SEDIMENT-LADEN RUNOFF SHALL NOT BE ALLOWED TO REACH ANY STORMWATER QUALITY BMP AT ANY TIME. IF SEDIMENT-LADEN RUNOFF ENTERS A STRUCTURE, THE STRUCTURE SHALL BE CLEANED, REPAIRED AND/OR RECONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION PLANS.

UTILITY LAYOUT NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LAYOUT ALL THE UTILITIES BEING CONSTRUCTED AND/OR RELOCATED WITHIN THE CONTRACT.
2. LOCATION OF ALL UTILITIES AND UNDERGROUND STRUCTURES SHOWN ARE APPROXIMATE AND THOSE SHOWN ARE NOT NECESSARILY ALL OF THE EXISTING UTILITIES AND STRUCTURES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION AND EXISTENCE OF ALL UTILITIES AND UNDERGROUND STRUCTURES AND TO COORDINATE EXCAVATION REQUIRED AROUND THESE UTILITIES WITH THE RESPECTIVE OWNERS.
3. THE CONTRACTOR SHALL CONFIRM FIELD LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES, BOTH ABOVE AND BELOW GROUND, PRIOR TO THE BEGINNING OF WORK AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
4. ANY ADJUSTMENTS TO THE HORIZONTAL OR VERTICAL ALIGNMENTS REQUIRED TO AVOID EXISTING UTILITIES SHALL BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.
5. THE MINIMUM HORIZONTAL SEPARATION BETWEEN THE CLOSEST TWO POINTS OF A WATER LINE AND ANY SEWER LINE IS 10'. THE MINIMUM VERTICAL SEPARATION BETWEEN THE CLOSEST TWO POINTS OF A WATER AND SEWER LINE IS 18" WHEN THE MINIMUM HORIZONTAL SEPARATION OF 10' CANNOT BE ATTAINED. REFER TO THE PIPE SEPARATION DETAIL FOR ADDITIONAL CLEARANCE REQUIREMENTS.
6. THE HORIZONTAL AND VERTICAL BEND FITTINGS AND DEFLECTIONS SHOWN ON THE DRAWINGS ARE NOT NECESSARILY ALL OF THE BEND FITTINGS OR DEFLECTIONS REQUIRED FOR THE INSTALLATION OF THE UTILITIES.

UTILITY CONSTRUCTION NOTES

1. ALL MATERIALS, METHODS, AND/OR INTEGRAL MATERIALS OUTLINED IN THE UTILITY SPECIFICATIONS OR DRAWINGS NECESSARY TO PROVIDE A COMPLETE AND FUNCTIONAL INSTALLATION MUST BE INCLUDED IN THE CONTRACTOR'S BID.
2. THE CONTRACTOR SHALL HAVE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER THE PROPOSED UTILITY SYSTEM PRIOR TO INSTALLATION.
3. CONNECTION TO EXISTING UTILITIES SHALL BE MADE ONLY UNDER THE SUPERVISION OF A REPRESENTATIVE OF THE UTILITY.
4. THE CONTRACTOR SHALL PROVIDE SUPPORT AND PROTECTION OF EXISTING UTILITIES EXPOSED DURING EXCAVATION AS NEEDED TO MAINTAIN SERVICE AND THE INTEGRITY OF THE UTILITY.
5. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. IN THE EVENT THAT SPECIAL EQUIPMENT IS REQUIRED TO WORK OVER AND AROUND EXISTING UTILITIES, THE CONTRACTOR WILL BE REQUIRED TO FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FURNISHING SPECIAL EQUIPMENT WILL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL REPAIRS AND RELATED EXPENSES IF EXISTING UTILITIES ARE DAMAGED.
6. ALL UTILITY INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE CONTRACT, INCLUDING COORDINATION, TRENCHING, BACKFILL, COMPACTION, AND OVERALL CONSTRUCTION OPERATIONS.
7. ALL UTILITY EXCAVATION SHALL BE UNCLASSIFIED, UNLESS OTHERWISE INDICATED.
8. THE CONTRACTOR SHALL INSTALL AND MAINTAIN SAFETY FENCE AROUND ALL OPEN TRENCHES AND WORK AREAS TO PROTECT PREMISES FROM ENTRY BY UNAUTHORIZED PERSONS. LOCATION OF SAFETY FENCE SHALL BE COORDINATED WITH TRAFFIC CONTROL PLANS AS CONSTRUCTION PROCEEDS.
9. IF A UTILITY TRENCH MUST BE LEFT OPEN IN A ROADWAY OR DRIVE ISLE, IT SHALL BE COVERED WITH A HEAVY-DUTY STEEL PLATE (SUPPLIED BY CONTRACTOR), TEMPORARILY SECURED, AND PROPERLY SIGNED. TEMPORARY PAVEMENT SHALL BE SUPPLIED BY THE CONTRACTOR ON EACH SIDE OF PLATE, WHERE NECESSARY. THERE SHALL BE NO ADDITIONAL PAYMENT FOR TEMPORARY MEASURES.
10. BACKFILL FOR UTILITY LINES SHALL BE PERFORMED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. UNLESS OTHERWISE INDICATED, BACKFILL FOR UTILITY LINES UNDER PAVED AND GRAVEL AREAS SHALL BE COMPACTED CRUSHED STONE AND FLOWABLE FILL UNDER OPEN-CUT ROADWAYS.
11. WHEN UNSUITABLE SOIL IS ENCOUNTERED AT THE TRENCH BOTTOM, REMOVE IT TO A DEPTH REQUIRED TO ASSURE SUPPORT OF THE PIPELINE AND BACKFILL TO THE PROPER GRADE WITH COARSE AGGREGATE AASHTO M-43, SIZE NO. 2 OR 3.
12. SOME UTILITY FACILITIES MAY NEED TO BE ADJUSTED CONCURRENTLY WITH THE CONTRACTOR'S OPERATIONS, WHILE SOME WORK MAY BE REQUIRED AROUND UTILITY FACILITIES THAT WILL REMAIN IN PLACE. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACTOR WILL RECEIVE NO ADDITIONAL COMPENSATION FOR ANY DELAYS OR INCONVENIENCE CAUSED BY THE UTILITY ADJUSTMENTS.

PRIVATE UTILITIES

1. ALL PRIVATE WATER AND SEWER LINES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH APPLICABLE BUILDING/PLUMBING CODES, UNLESS OTHERWISE SPECIFIED.

WATER LINE NOTES

1. ALL WATER LINE PIPE AND FITTINGS SHALL BE LEAD FREE AS DEFINED IN THE SAFE DRINKING WATER ACT (SDWA) SECTION 1417.
2. THE CONTRACTOR SHALL PROVIDE A POSITIVE/NEGATIVE GRADIENT BETWEEN AIR VALVES TO PREVENT EXCESSIVE HIGH POINTS IN THE WATER LINE PROFILE. THE WATER LINE PROFILE MAY BE ADJUSTED BY THE CONTRACTOR IN THE FIELD BY USING BENDS BUT SHALL NOT RESULT IN ADDITIONAL HIGH POINTS IN THE PIPELINE OR REQUIRE ADDITIONAL AIR RELEASE VALVES, UNLESS APPROVED BY THE UTILITY OWNER PRIOR TO CONSTRUCTION.
3. THERE WILL BE NO CLASSIFICATION OF CUTS FOR WATER LINES.
4. UNLESS OTHERWISE SPECIFIED, PIPE AND FITTINGS FOR MAINS 6" IN DIAMETER AND LARGER SHALL MEET THE FOLLOWING STANDARDS (LATEST REVISION):

   DUCTILE IRON
   - PRESSURE CLASS 350
   - ANSI/AWWA C104/A21.4 - CEMENT-MORTAR LINING
   - ANSI/AWWA C105/A21.5 - POLYETHYLENE ENCASEMENT (WHERE SPECIFIED)
   - ANSI/AWWA C110/A21.10 - FITTINGS
   - ANSI/AWWA C111/A21.11 - RUBBER-GASKET JOINTS
   - ANSI/AWWA C115/A21.15 - FLANGED DUCTILE-IRON PIPE
   - ANSI/AWWA C116/A21.16 - EPOXY COATINGS (WHERE SPECIFIED)
   - ANSI/AWWA C150/A21.50 - THICKNESS
   - ANSI/AWWA C151/A21.51 - DUCTILE-IRON PIPE
   - ANSI/AWWA C153/A21.53 - COMPACT FITTINGS
   - ANSI/AWWA C600 --INSTALLATION
   - FURNISH IN STANDARD LAYING LENGTHS OF 20'.
   - PROVIDE A MINIMUM OF 1 MIL THICK BITUMINOUS COATING ON THE OUTSIDE SURFACE.
   - THE CLASS OR NOMINAL THICKNESS, NET WEIGHT WITHOUT LINING, AND CASTING PERIOD SHALL BE CLEARLY MARKED ON EACH LENGTH OF PIPE. ADDITIONALLY, THE MANUFACTURER'S MARK, COUNTRY WHERE CAST, YEAR IN WHICH THE PIPE WAS PRODUCED, AND THE LETTERS "DI" OR "DUCTILE" SHALL BE CAST OR STAMPED ON THE PIPE. PIPE SHALL BE FURNISHED COMPLETE WITH ALL NECESSARY ACCESSORIES.
5. ALL WATER LINE PIPE, FITTINGS, AND ACCESSORIES SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH AWWA C600, DISINFECTED IN ACCORDANCE WITH AWWA C651, AND PASS BACTERIOLOGICAL TESTING BEFORE BEING PLACED IN SERVICE AND PRIOR TO ACCEPTANCE. TESTING SHALL BE CONDUCTED ON PIPE LENGTHS OF LESS THAN 1,000'. WHERE THIS IS NOT POSSIBLE, TESTING SHALL BE CONDUCTED FROM ONE VALVE TO THE NEXT CLOSEST VALVE.
6. ALL WATER LINE FITTINGS (BENDS, TEES, VALVES, HYDRANTS, PLUGS, CAPS, ETC.) SHALL BE PROPERLY RESTRAINED TO RESIST THRUST FORCES IN ACCORDANCE WITH THE THRUST RESTRAINT DETAIL. UNLESS OTHERWISE INDICATED OR DIRECTED, THRUST RESTRAINT SHALL BE PROVIDED USING RESTRAINED JOINTS, RETAINER GLANDS, OR RESTRAINED GASKETS. JOINT RESTRAINT SHALL BE PROVIDED AT ALL PIPE JOINTS FALLING WITHIN THE RESTRAINED LENGTHS. RESTRAINING GASKETS SHALL BE INSTALLED AS PIPE IS LAID.
7. ALL PIPE AND FITTINGS IN CONTACT WITH CONCRETE SHALL BE WRAPPED IN PLASTIC, MINIMUM 6-MIL THICKNESS.
8. WATER SERVICE LINES: ALL WATER SERVICE LINES SMALLER THAN 2" IN DIAMETER SHALL BE SEAMLESS TYPE K COPPER PIPE MEETING ASTM B-88 MANUFACTURED IN THE USA, UNLESS OTHERWISE INDICATED. ALL WATER SERVICE LINES 2" THROUGH 3" IN DIAMETER SHALL BE PVC SDR 13.5 OR HDPE DR 7. ALL WATER SERVICE LINES CROSSING EXISTING ROADWAYS SHALL BE BORED.
9. ALL CONNECTIONS TO THE WATER MAIN 2" AND LARGER SHALL BE MADE WITH A TEE OR TAPPING SLEEVE AND GATE VALVE. ALL CONNECTIONS SMALLER THAN 2" SHALL BE MADE WITH A CORPORATION STOP.
10. THE CONTRACTOR SHALL RECONNECT ALL EXISTING WATER LINES AS INDICATED ON THE PLANS OR AS DIRECTED. RELOCATED WATER METERS SHALL BE INSTALLED AT THE PROPERTY LINE, PERMANENT EASEMENT LINE, OR AS DIRECTED BY THE UTILITY. THE CONTRACTOR SHALL FIELD VERIFY EXISTING WATER METER SIZES TO BE RELOCATED/ADJUSTED, AND REPLACE IN-KIND WHERE SPECIFIED.

SANITARY SEWER NOTES

1. ALL NEW DOWNSTREAM PIPES, MANHOLES, AND APPURTENANCES MUST BE TESTED AND ACCEPTABLE TO THE OWNER AND THE ENGINEER PRIOR TO RECEIVING SEWAGE FLOW.
2. SEWER DISCHARGE FROM EXISTING FACILITIES MUST BE MAINTAINED BY THE CONTRACTOR AT ALL TIMES DURING CONSTRUCTION. AT NO TIME SHALL SEWAGE BE DISCHARGED ONTO THE GROUND OR ANY TO ANY WATERCOURSE. TEMPORARY TIE-OVERS AND/OR PUMPING SHALL BE REQUIRED TO MAINTAIN SERVICE DURING CONSTRUCTION. ALL MATERIALS AND MEANS NECESSARY TO MAINTAIN SEWAGE FLOWS SHALL BE INCLUDED IN THE CONTRACT PRICE BID FOR OTHER ITEMS OF THE CONTRACT.
3. UNLESS OTHERWISE INDICATED, PIPE FOR GRAVITY SEWERS SHALL BE PVC. PIPE AND FITTINGS SHALL CONFORM TO ASTM D-3034 AND HAVE A STANDARD DIMENSION RATIO (SDR) OF 35 OR CONFORM TO ASTM F-679.
4. UNLESS OTHERWISE INDICATED, PIPE FOR PRESSURE SEWER LINES SHALL BE POLYVINYL CHLORIDE (PVC), ASTM D2241 SDR 21 OR AWWA C900 DR 18. POLYVINYL CHLORIDE (PVC) PIPE SHALL MEET THE FOLLOWING ASTM STANDARDS: D-1784 (PVC COMPOUND), D-2241 (PVC PIPE), D-3139 (JOINT), AND F-477 (GASKET).
5. WHERE INDICATED, DUCTILE IRON PIPE AND FITTINGS (PUSH-ON TYPE OR MECHANICAL JOINT) SHALL BE PRESSURE CLASS 350, MANUFACTURED IN ACCORDANCE WITH ANSI A21.5 (AWWA C150), ANSI A21.51 (AWWA C151), AND ANSI A21.10 (AWWA C110), LATEST REVISIONS. DUCTILE IRON FITTINGS SHALL MEET ANSI A21.11 (AWWA C111) AND ANSI A21.15 (AWWA C115). ALL DUCTILE IRON PIPE AND FITTINGS SHALL HAVE AN INTERIOR CERAMIC EPOXY LINING OF PROTECTO 401 IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
6. ALL PIPE AND FITTINGS IN CONTACT WITH CONCRETE SHALL BE WRAPPED IN PLASTIC, MINIMUM 6-MIL THICKNESS.

TEMPORARY UTILITY FACILITIES NOTES

1. THE CONTRACTOR MUST MAINTAIN ALL SERVICES DURING THE CONSTRUCTION. ANY COSTS ASSOCIATED WITH INSTALLATION OF REQUIRED TEMPORARY SERVICE LINES DUE TO THE CONSTRUCTION SEQUENCE OF WORK SHALL BE INCLUDED IN THE COST OF THE PERMANENT UTILITY ITEMS.
2. TEMPORARY TIE-OVERS MAY BE REQUIRED TO MAINTAIN SERVICE DURING CONSTRUCTION. ALL MATERIALS AND MEANS NECESSARY FOR A COMPLETE WORKING CONNECTION SHALL BE INCLUDED IN THE CONTRACT PRICE BID FOR OTHER ITEMS OF CONSTRUCTION.

CITY OF JOHNSON CITY WATER AND SEWER NOTES

1. ALL WATER AND SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE CITY OF JOHNSON CITY AND TDEC.
2. THE CONTRACTOR IS TO BE RESPONSIBLE FOR INFORMING THE CITY OF JOHNSON CITY WATER AND SEWER INSPECTION DIVISION IN WRITING TWO WEEKS PRIOR TO THE START OF CONSTRUCTION AND THREE WEEKS PRIOR TO WATER AND SEWER SERVICE CONNECTIONS TO THE CITY'S SYSTEM, CONFORMING TO THE REQUIREMENTS OF THE CITY'S INSPECTOR DURING CONSTRUCTION, AND REQUESTING FINAL INSPECTION AND APPROVAL FROM THE CITY.
3. ALL WATER AND SEWER PLANS MUST BE SUBMITTED TO AND APPROVED BY TDEC PRIOR TO CONSTRUCTION. A COPY OF THE APPROVAL LETTER MUST BE SUBMITTED TO THE JOHNSON CITY WATER AND SEWER ENGINEERING DEPARTMENT PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING THE ELEVATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
5. ALL EXCAVATION FOR TIE-INS AND TAPS AS WELL AS ALL BACKFILLING OPERATIONS WILL BE THE RESPONSIBILITY OF THE DEVELOPER.
6. BACKFILL FOR WATER AND SEWER LINES IN THE STREET SHALL BE COMPACTED CRUSHED STONE.
7. CONNECTION TO EXISTING CITY FACILITIES SHALL BE MADE ONLY UNDER THE SUPERVISION OF A REPRESENTATIVE OF THE CITY.
8. AS-BUILT PLANS MUST BE COMPLETED AND SHALL BE SUBMITTED ON PAPER AND IN DIGITAL FORM PRIOR TO ACCEPTANCE OF WATER AND SEWER LINES BY THE CITY.

EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION AND SEDIMENT CONTROLS AS SPECIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN AND THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
2. THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE TENNESSEE EROSION & SEDIMENT CONTROL HANDBOOK, AS APPLICABLE.
3. FOR DETAILS NOT PROVIDED, REFER TO THE LATEST EDITION OF THE TENNESSEE EROSION & SEDIMENT CONTROL HANDBOOK.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO THE START OF ALL CONSTRUCTION. EROSION AND SEDIMENT CONTROLS SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR IN ACCORDANCE WITH THE TENNESSEE DEPARTMENT OF CONSERVATION (TDEC) RULES AND REGULATIONS. ALL WORK NEAR OR AROUND WATERWAYS SHALL CONFORM TO THE TDEC WATER QUALITY CONTROL BOARD DIVISION OF WATER POLLUTION CONTROL RULES AND REGULATIONS. VIOLATIONS AND FINES LEVIED DUE TO CONTRACTOR NEGLIGENCE SHALL BE RECOVERED AT THE CONTRACTOR'S EXPENSE.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT EXPOSED EARTH FROM EROSION RESULTING FROM CONSTRUCTION ACTIVITIES AND TO CONTAIN SEDIMENT THAT MAY RESULT FROM THE WORK. PRIOR TO BEGINNING WORK, ADEQUATE MEASURES MUST BE IN PLACE TO TRAP ANY SEDIMENT THAT MAY TRAVEL OFF-SITE IN THE EVENT OF RAIN. DURING THE PROGRESSION OF THE WORK, EXPOSED EARTH AREAS SHALL BE STABILIZED AS SOON AS POSSIBLE TO PREVENT EROSION. AT NO TIME SHALL EXPOSED EARTH FROM THE WORK SITE FLOW OFF-SITE TO WATERS OF THE STATE.
6. SILT FENCE TO BE INSTALLED ON THE DOWNSTREAM SIDE OF ALL STOCKPILED SOIL.
7. ALL DISTURBED AREAS NOT INDICATED TO BE PAVED OR RIP-RAPPED SHALL BE TOPSOILED, SEEDED, FERTILIZED, MULCHED, WATERED, AND MAINTAINED UNTIL AN ADEQUATE STAND OF VEGETATION IS ESTABLISHED. A MINIMUM OF 4" OF TOPSOIL SHALL BE PLACED IN ALL AREAS TO BE VEGETATED.
8. RAIN WATER THAT COLLECTS IN THE UTILITY TRENCH SHALL BE PUMPED INTO A TEMPORARY DEWATERING STRUCTURE OR FILTER BAG.
9. TRENCHES SHALL BE BACKFILLED DAILY AS CONSTRUCTION PROCEEDS. BACKFILLED TRENCHES SHALL BE SEEDED AND MULCHED OR SODDED DAILY, IF POSSIBLE, BUT NO LATER THAN 7 DAYS AFTER TRENCHING. ANY TEMPORARY SPOIL PILE OF EXCAVATED EARTH SHALL BE LOCATED WITHIN THE RIGHT-OF-WAY OR EASEMENT, STORED IN AN UPLAND LOCATION, AND STABILIZED WITHIN 7 DAYS. IF TRENCHES ARE NOT BACKFILLED OVERNIGHT, APPROPRIATE EROSION CONTROL MEASURES WILL BE INSTALLED UNTIL SUCH TIME THE TRENCH IS BACKFILLED.

SPILLS AND NON-STORMWATER CONTINGENCIES

1. CONSTRUCTION VEHICLES SHALL CLEAN MUD FROM THEIR TIRES AND BODY ON-SITE SO THAT THE SEDIMENT WILL FLOW INTO SEDIMENT CONTROL DEVICES. ANY SEDIMENT THAT ENDS UP IN THE STREET OR OTHER PLACES OFF-SITE SHALL BE CLEANED UP WITH A SHOVEL AND BROOM OR OTHER MEANS BEFORE THE NEXT RAINFALL BUT SHALL NOT BE WASHED AWAY USING WATER. THE CLEANED UP SEDIMENT SHALL BE PLACED BACK ON-SITE OR TAKEN TO ANOTHER SITE WITH AN APPROVED AND FUNCTIONING SEDIMENT CONTROL PLAN.
2. VEHICLES AND EQUIPMENT SHALL BE FUELED ON-SITE NEAR THE CONSTRUCTION EXIT IN A DESIGNATED CONTAINMENT AREA. CLEAN UP ANY FUEL SPILL IMMEDIATELY. CONTAMINATED SOILS WILL BE PLACED ON HEAVY PLASTIC AND COVERED OR PLACED IN APPROVED CONTAINERS TO PREVENT CONTACT WITH STORMWATER. ALL FUEL TANKS SHALL BE STORED IN THE CONTAINMENT AREA. ALL OIL, OTHER VEHICLE FLUIDS, SOLVENTS, PAINT, ETC. SHALL BE STORED IN A CONSTRUCTION TRAILER OR OTHER APPROVED CONTAINER.
3. ABSORBENT MATERIAL (FOR LAND BASED SPILLS), BOOMS (FOR SPILLS INTO WATERWAYS), AND OTHER HAZARDOUS MATERIAL CLEANUP TOOLS AS NECESSARY SHALL BE AVAILABLE FOR IMMEDIATE USE IF AN ON-SITE SPILL OCCURS. IF A SPILL OF HAZARDOUS MATERIALS OCCURS, THE SPILL SHALL BE CONTAINED IMMEDIATELY AND THEN COMPLETELY CLEANED UP. IF THE SPILL HAS ENTERED A WATER SOURCE, SINKHOLE, STORM DRAIN, OR OTHER STORMWATER CONVEYANCE, THE LOCAL GOVERNMENT AUTHORITY SHALL BE CONTACTED IMMEDIATELY. ANY CONTAMINATED MATERIAL FROM THE CLEANUP SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL STATE LAWS.
4. READY-MIX CONCRETE TRUCKS SHALL WASH OUT THEIR EQUIPMENT IN A DESIGNATED WASH PIT. THIS WASH PIT IS TO TRAP THE CONCRETE AND ITS WASH. THE CONTRACTOR SHALL MAINTAIN THIS PIT(S) AS NECESSARY TO ALWAYS HAVE AT LEAST 50% VOLUME. ANY MATERIAL REMOVED FROM THE WASH PIT SHALL BE USED FOR FILL MATERIAL ON-SITE OR DISPOSED OF IN ACCORDANCE WITH ALL STATE AND FEDERAL REGULATIONS. WASH FROM THE CONCRETE TRUCKS AND ANY OVERFLOW FROM THE WASH PIT SHALL NOT BE ALLOWED TO DISCHARGE TO A SEDIMENT BASIN, TRAP, POND STORM DRAIN, DITCH, STREAM, OTHER STORMWATER CONVEYANCE, OR TO WATERS OF THE STATE INCLUDING BOTH SURFACE AND GROUNDWATER.
5. ALL HAZARDOUS MATERIALS SUCH AS EMPTY OR PARTIALLY EMPTY PAINT CANS, OIL CANS, FILTERS, CLEANING FLUIDS, ETC. SHALL BE DISPOSED OF BY TAKING THEM TO A PERMITTED HAZARDOUS MATERIAL DISPOSAL SITE IN ACCORDANCE WITH STATE LAWS.
6. THE WASHING OF PAINT TOOLS OR OTHER HAZARDOUS MATERIAL EQUIPMENT MUST BE PERFORMED AND DISPOSED OF IN ACCORDANCE WITH ALL STATE AND FEDERAL REGULATIONS. THE CLEANING RESIDUE FROM SUCH EQUIPMENT IS HAZARDOUS AND CANNOT BE DISCHARGED ONTO THE GROUND OR INTO A SEDIMENT BASIN, TRAP, POND, STORM DRAIN, DITCH, STREAM, OTHER STORMWATER CONVEYANCE, OR TO WATERS OF THE STATE INCLUDING BOTH SURFACE AND GROUNDWATER AND SHALL BE DISPOSED OF IN ACCORDANCE WITH STATE LAWS.
7. LITTER, CONSTRUCTION MATERIALS, CONSTRUCTION DEBRIS, CONSTRUCTION CHEMICALS, AND OTHER HAZARDOUS MATERIALS EXPOSED TO STORM WATER SHALL BE PICKED UP PRIOR TO ANTICIPATED STORM EVENTS OR BEFORE BEING CARRIED OFF OF THE SITE BY WIND (E.G., FORECASTED BY LOCAL WEATHER REPORTS), OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES. LITTER, CONSTRUCTION MATERIALS, CONSTRUCTION DEBRIS, CONSTRUCTION CHEMICALS, AND OTHER HAZARDOUS MATERIALS SHALL NOT BE ALLOWED TO ENTER A SEDIMENT BASIN, TRAP, POND, STORM DRAINS, DITCH, STREAM, OTHER STORMWATER CONVEYANCE, OR TO WATERS OF THE STATE. THIS CAN BE ACCOMPLISHED BY SCREENING OUTFALLS, DAILY PICKUP OR CLEANUP, OR OTHER METHODS.
8. AFTER THEIR USE, MATERIALS USED FOR EROSION PREVENTION AND SEDIMENT CONTROL SHOULD BE REMOVED OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES.
9. THE CONTRACTOR IS RESPONSIBLE FOR LITTER CONTROL AND CLEANUP.
10. SEDIMENT CONTROLS SHALL BE PROVIDED FOR ANY WATER DISTRIBUTION OR WASTE DISPOSAL SYSTEM ON-SITE INCLUDING SANITARY SEWER OR SEPTIC SYSTEMS.

CONSTRUCTION SEQUENCE

PHASE 1

1. THE CONTRACTOR SHALL ATTEND A PRECONSTRUCTION MEETING WITH THE CITY OF JOHNSON CITY'S STORMWATER MANAGEMENT STAFF. THE CONTRACTOR SHALL CONTACT DAVID ROCK AT (423) 975-2725 TO SCHEDULE THE MEETING.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A GRADING PERMIT AND ANY OTHER PERMITS REQUIRED PRIOR TO BEGINNING CONSTRUCTION.
3. THE CONTRACTOR SHALL INSTALL CONSTRUCTION EXIT, SILT FENCE AND INLET PROTECTION AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN PHASE 1.
4. THE CONTRACTOR SHALL INSTALL DETENTION BASIN AND THEN STORM LINE D1 AND D2. (THE CONTRACTOR CAN THEN REMOVE THE EXISTING 30-INCH CMP WHERE INDICATED.)
5. THE CONTRACTOR SHALL INSTALL STORM LINE D5.1 THROUGH D5.5. (THE CONTRACTOR CAN THEN REMOVE THE EXISTING 15-INCH RCP FROM BENEATH NEW ADDITION AS INDICATED.)
6. THE CONTRACTOR SHALL INSTALL STORM PIPE AS AN INITIAL STEP WHEN GRADING IS OCCUR.
7. THE CONTRACTOR SHALL INSTALL INLET PROTECTION ON ALL NEW STORM LINES AS THEY ARE CONSTRUCTED TO TRAP AND PREVENT THE TRANSPORT OF SEDIMENT.
8. SEEDING AND MULCH SHALL BE APPLIED TO DENUDED AREAS WHERE CONSTRUCTION ACTIVITIES WILL NOT OCCUR WITHIN THE NEXT 14 DAYS.
9. THE CONTRACTOR SHALL CONSTRUCT PROJECT FACILITIES AS DEPICTED ON THE EROSION AND SEDIMENT CONTROL PLAN PHASE 1. ADDITIONAL MEASURES SUCH AS INLET PROTECTION, OUTLET PROTECTION, SEEDING, SILT FENCE, TUBES AND WADDLES, ETC. SHALL BE INSTALLED AS NEEDED TO MINIMIZE EROSION AND PREVENT THE TRANSPORT OF SEDIMENT.

PHASE 2

1. SEEDING WITH MULCH SHALL BE APPLIED TO ANY REMAINING DISTURBED AREAS.
2. UPON SITE STABILIZATION, THE STORM SYSTEM (STORM PIPES AND STRUCTURES) SHALL BE FLUSHED WITH WATER AS NEEDED TO REMOVE ANY ACCUMULATION OF SILT OR MUD.
3. THE WATER QUALITY UNIT SHALL BE CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

ALL PHASES OF CONSTRUCTION

1. AT NO TIME SHALL THE CONTRACTOR SHALL THE CONTRACTOR PERFORM WATER OFF-SITE WITHOUT PROPERLY DOCUMENTED APPROVAL FROM THE LAND OWNER.
2. THE CONTRACTOR SHALL CLEAR AND GRUB AREAS WITHIN CONSTRUCTION LIMITS. CLEARING SHALL BE LIMITED TO ONLY THOSE AREAS WHERE WORK WILL PROCEED IMMEDIATELY.
3. THE CONTRACTOR SHALL ESTABLISH VEGETATION IN ACCORDANCE WITH THE SEEDING SCHEDULE IN AREAS WHERE WORK IS COMPLETE TO PREVENT EROSION.
4. RESEEDING OR SODDING ANY DENUDED AREA SHALL BE REQUIRED WHERE NO CONSTRUCTION ACTIVITY HAS OCCURRED WITHIN 14 DAYS. STEEP SLOPES (35% GRADE OR GREATER) SHALL BE TEMPORARILY STABILIZED NO LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED.
5. THE CONTRACTOR SHALL CHECK AND MAINTAIN ALL EROSION CONTROL MEASURES DAILY AND AFTER EACH RAINFALL. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED MEASURES.
6. ALL OFF-SITE OR STREET SEDIMENT DEPOSITS OCCURRING AS A RESULT OF CONSTRUCTION ACTIVITIES OR A STORM EVENT SHALL BE CLEANED UP AFTER EACH WORK DAY AND WITHIN NO LATER THAN 24 HOURS OF THE OCCURRENCE.
7. THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AFTER CONSTRUCTION IS COMPLETED AND A HEALTHY STAND OF VEGETATIVE COVER HAS STABILIZED ALL SLOPES.
8. THE CONTRACTOR SHALL PERFORM INSPECTIONS AS R EQUIRED BY TDEC AT LEAST TWICE A WEEK, 72 HOURS OR MORE APART. INSPECTION REPORT FORMS SHALL BE MAINTAINED ON SITE. INSPECTORS MUST HAVE COMPLETED THE "FUNDAMENTALS OF EROSION PREVENTION AND SEDIMENT CONTROL" COURSE OR AN EQUIVALENT COURSE.

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL LOCAL PROPERTY OWNERS & BUSINESSES.
2. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE TEMPORARY TRAFFIC CONTROL MEASURES TO INSURE SAFETY FOR MOTORISTS, RESIDENTS, BUSINESSES, ETC. AT ALL TIMES DURING CONSTRUCTION.

THE TOPOGRAPHIC DATA SHOWN ON THESE PLANS IS BASED ON A FIELD RUN SURVEY BY TYSINGER, HAMPTON & PARTNERS, INC DATED JULY 28, 2020 PROJECT NO. 1922107S. SOME UTILITIES SHOWN AS EXISTING ARE BASED ON DESIGN PLANS AND MAY VARY FROM THE LOCATION SHOWN. THE CONTRACTOR SHALL LOCATE UNDERGROUND UTILITIES AND NOTIFY THE ARCHITECT IF THERE ARE SIGNIFICANT CHANGES.

THE CONTOURS AND OTHER TOPOGRAPHIC DATA HAS BEEN PHOTOGRAPHICALLY ENLARGED, TRACED AND OTHERWISE TRANSFERRED FROM A COPY OF THE ABOVE REFERENCED MAP, AND MAY VARY SLIGHTLY FROM WHAT IS ACTUALLY PRESENT IN THE FIELD.

THE CONTRACTOR(S), OR ANYONE USING THESE DOCUMENTS IS ADVISED TO LAYOUT HIS WORK AND VERIFY THE ACTUAL FIELD CONDITIONS RELATIVE TO THE DESIGNS SHOWN ON THE DRAWINGS. ANY DISCREPANCIES ENCOUNTERED THAT WOULD AFFECT THE PROPER INSTALLATION OR CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER IN ORDER TO ALLOW FOR NECESSARY ADJUSTMENTS IN THE PLANS.

THE CONTRACTOR(S) SHALL LAYOUT IN THE FIELD ALL THE ELEMENTS OF THE IMPROVEMENTS, PRIOR TO AND WELL AHEAD OF CONSTRUCTION, TO INSURE THAT NO CONFLICTS EXIST BETWEEN ANY UNDERGROUND SERVICE UTILITIES OR DRAIN LINES, INCLUDING THEIR MINIMUM DEPTHS BELOW FINISHED SURFACES, THE SURFACE ELEVATIONS OF ALL MANHOLES AND CATCH BASINS RELATIVE TO FINISHED GRADES, AND THE PLANNED IMPROVEMENTS. ANY DISCREPANCIES ENCOUNTERED SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER IN ORDER TO ALLOW FOR NECESSARY ADJUSTMENTS IN THE PLANS.

THE CONTRACTOR(S) SHALL MAINTAIN ACCURATE AND LEGIBLE RECORDS OF ALL INSTALLATIONS, AND DELIVER THE SAME TO THE OWNER IN A FORM ADEQUATE TO READILY TRANSFER THE DATA DIRECTLY TO RECORD ("AS-BUILT") DRAWINGS AS REQUIRED BY THE REVIEWING AGENCIES. THE FORM AND ADEQUACY OF THESE RECORDS ARE SUBJECT TO THE APPROVAL OF RECIPIENT.

E & S LEGEND

SYMBOL		DESCRIPTION
	IP	INLET PROTECTION
	OP	OUTLET PROTECTION
	SF	SILT FENCE
	CE	CONSTRUCTION EXIT
CONCRETE WASHOUT	CW	CONCRETE WASHOUT
	PS	PERMANENT SEEDING
	FR	FILTER RING
		EXISTING FLOW LINE
		PROPOSED FLOW LINE
		DISTURBED AREA (3.1 AC±)

LEGEND

EXISTING	NEW	DESCRIPTION
1579	1579.00	CONTOUR
	1578.44	SPOT ELEVATION
		BENCHMARK
		PROPERTY LINES
		CURB/EDGE OF PAVEMENT
		STORM SEWER
		STORM MANHOLE
		CATCH BASIN/ CURB INLET
CO(E)		CLEANOUT (STORM/SANITARY)
8" SAN		SANITARY SEWER
		SANITARY MANHOLE
		WATER METER
		GATE VALVE
		FIRE HYDRANT
WL(E)	8" WL	WATER LINE
PP(E)		POWER POLE
LP(E)		LIGHT POLE
		GUY WIRE
OHE(E)		OVERHEAD ELECTRIC
NG(E)		NATURAL GAS
		FENCE
		CONCRETE AREAS
		ASPHALT PAVEMENT
		ASPHALT PAVEMENT

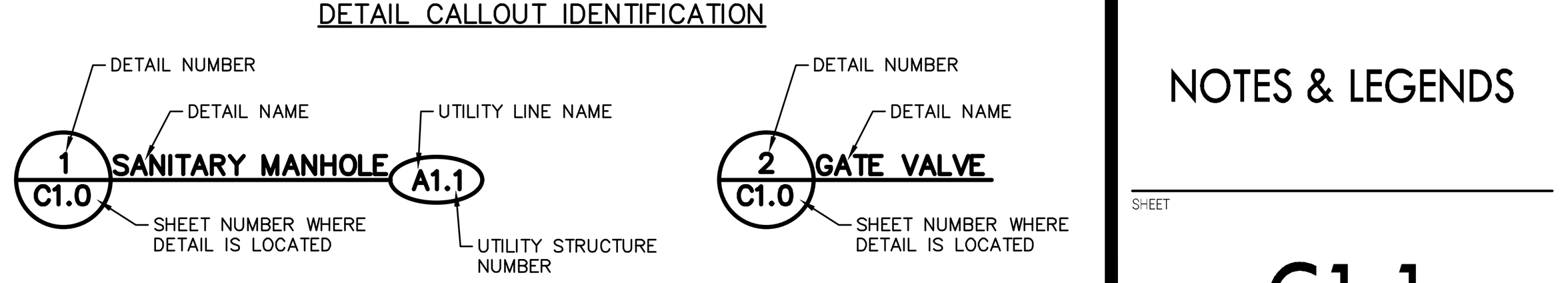
PAVEMENT MARKING ABBREVIATIONS

SWSL	–	SINGLE WHITE SOLID LINE
SYSL	–	SINGLE YELLOW SOLID LINE
YBL	–	YELLOW BROKEN LINE (20' GAP/10' LINE)
WBL	–	WHITE BROKEN LINE (20' GAP/10' LINE)
WDL	–	WHITE DOTTED LINE (4' GAP/2' LINE)
WSB	–	WHITE STOP BAR
DYSL	–	DOUBLE YELLOW SOLID LINE
XHATCH	–	CROSSHATCHING
TLUA	–	TURN LANE–USE ARROW
T&TLUA	–	THROUGH & TURN LANE–USE ARROW

OTHER ABBREVIATIONS

PVC	–	POLYVINYL CHLORIDE
DIP	–	DUCTILE IRON PIPE
CCFRPM	–	CENTRIFUGALLY CAST FIBERGLASS REINFORCED POLYMER MORTAR
RCP	–	REINFORCED CONCRETE PIPE
SICP	–	SMOOTH INTERIOR CORRUGATED PLASTIC PIPE

DETAIL CALLOUT IDENTIFICATION



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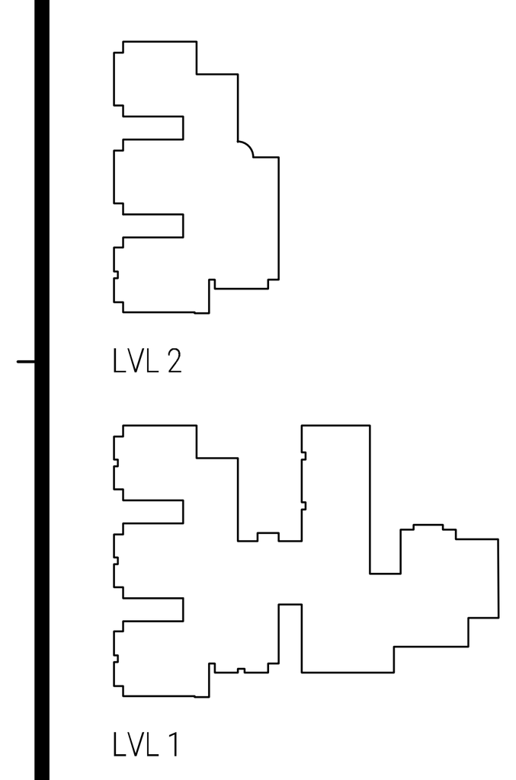
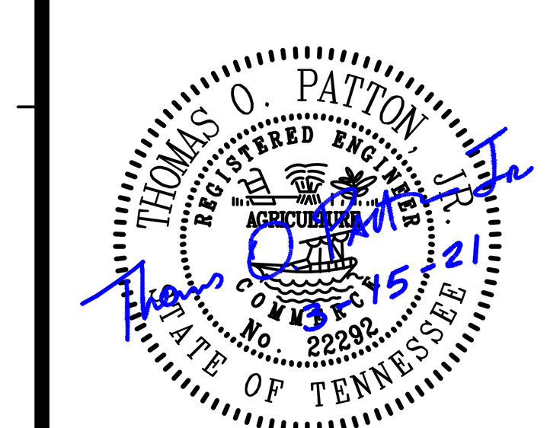


KEY PLAN



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REVISIONS

PROJECT NO. 019-030
ISSUE DATE MARCH 15, 2021
TITLE
NOTES & LEGENDS
SHEET
C1.1

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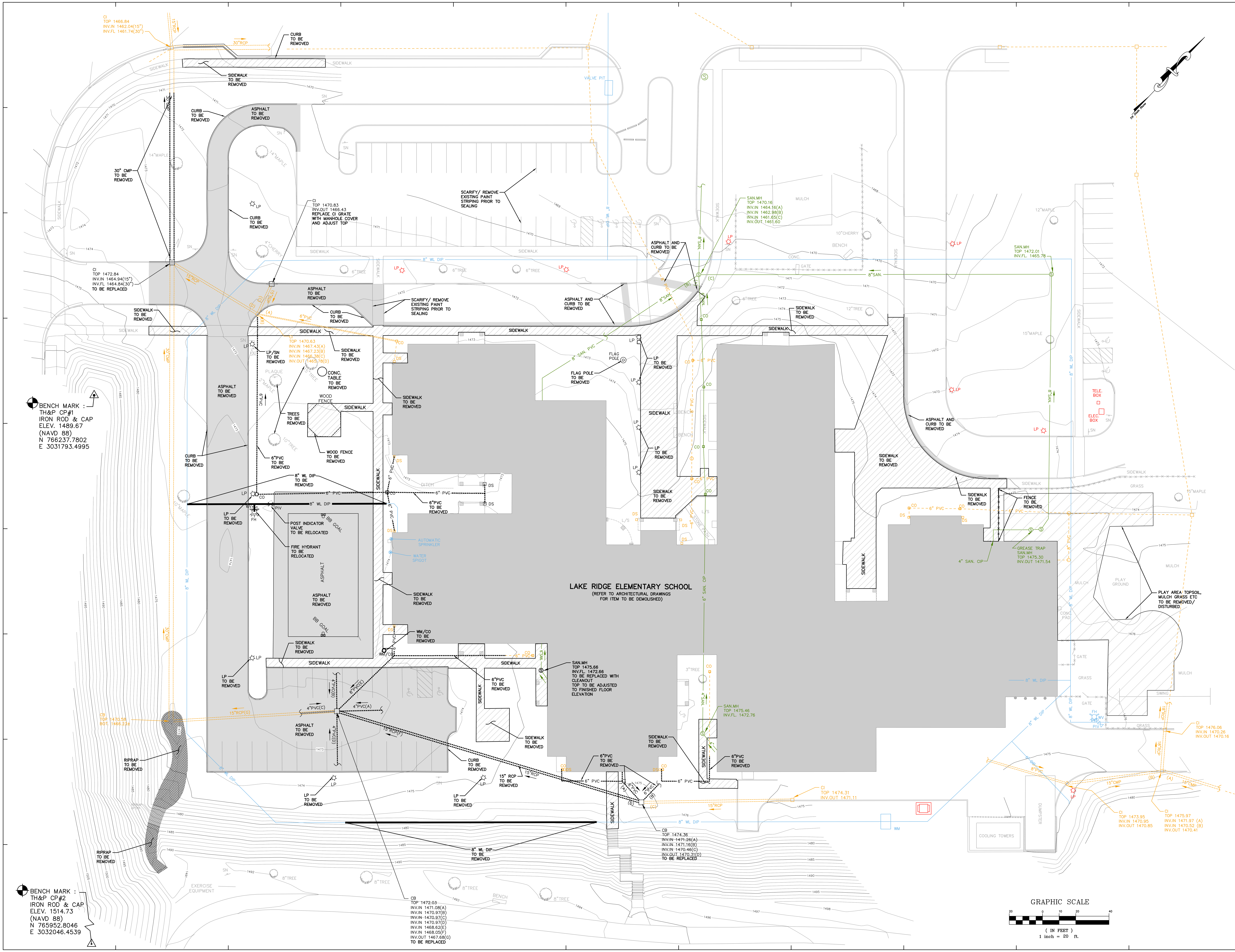
TH&P PROJECT # 1922107C



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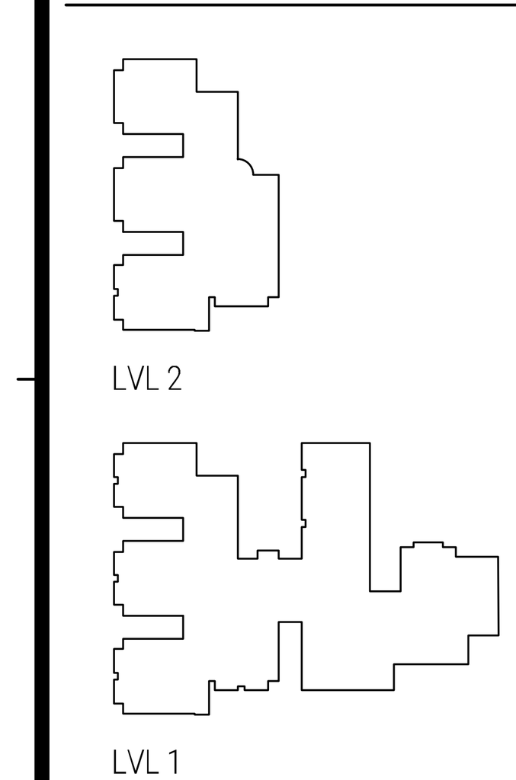

KEY PLAN

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PROJECT NO. 019-030

ISSUE DATE MARCH 15, 2021

TITLE
EXISTING CONDITION AND DEMOLITION PLAN

SHEET
C2.1

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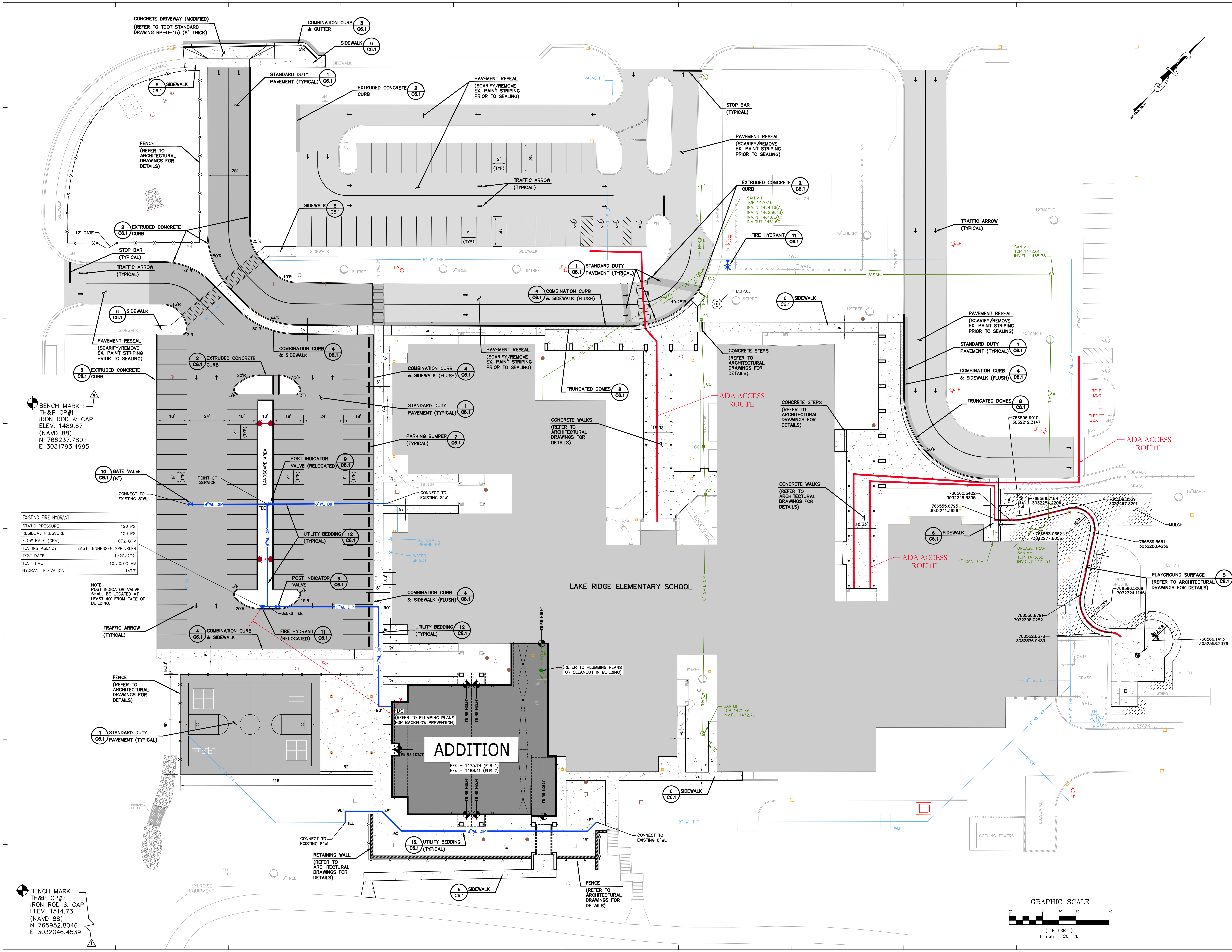
TH&P PROJECT #: 1922107C


CONCRETE DRIVEWAY (MODIFIED) (REFER TO TDOT STANDARD DRAWING RP-D-15) (8" THICK)
COMBINATION CURB & GUTTER
SIDEWALK
STANDARD DUTY PAVEMENT (TYPICAL)
EXTRUDED CONCRETE CURB
PAVEMENT RESEAL (SCARIFY/REMOVE EX. PAINT STRIPING PRIOR TO SEALING)
STOP BAR (TYPICAL)
FENCE (REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS)
TRAFFIC ARROW (TYPICAL)
FIRE HYDRANT
TRUNCATED DOMES
CONCRETE STEPS (REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS)
CONCRETE WALKS (REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS)
ADA ACCESS ROUTE
PARKING BUMPER (TYPICAL)
POST INDICATOR VALVE (RELOCATED)
GATE VALVE (8")
CONNECT TO EXISTING 8"WL
UTILITY BEDDING (TYPICAL)
LANDSCAPE AREA
FIRE HYDRANT (RELOCATED)
PLAYGROUND SURFACE (REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS)
LAKE RIDGE ELEMENTARY SCHOOL
ADDITION
FFE = 1475.74 (FLR 1)
FFE = 1488.41 (FLR 2)
(REFER TO PLUMBING PLANS FOR BACKFLOW PREVENTION)
(REFER TO PLUMBING PLANS FOR CLEANOUT IN BUILDING)
RETAINING WALL (REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS)
BENCH MARK : TH&P CP#1 IRON ROD & CAP ELEV. 1489.67 (NAVD 88) N 766237.7802 E 3031793.4995
BENCH MARK : TH&P CP#2 IRON ROD & CAP ELEV. 1514.73 (NAVD 88) N 765952.8046 E 3032046.4539
GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

EXISTING FIRE HYDRANT	
STATIC PRESSURE	120 PSI
RESIDUAL PRESSURE	100 PSI
FLOW RATE (GPM)	1032 GPM
TESTING AGENCY	EAST TENNESSEE SPRINKLER
TEST DATE	1/20/2021
TEST TIME	10:30:00 AM
HYDRANT ELEVATION	1473'

NOTE:
POST INDICATOR VALVE SHALL BE LOCATED AT LEAST 40' FROM FACE OF BUILDING.

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LVL 2
LVL 1
KEY PLAN

THOMAS O. PATTON, JR. REGISTERED ENGINEER AGRICULTURE COMMERCE No. 22292 STATE OF TENNESSEE 3-15-21

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REVISIONS

PROJECT NO. 019-030
ISSUE DATE MARCH 15, 2021

TITLE
LAYOUT AND UTILITY PLAN

SHEET
C3.1

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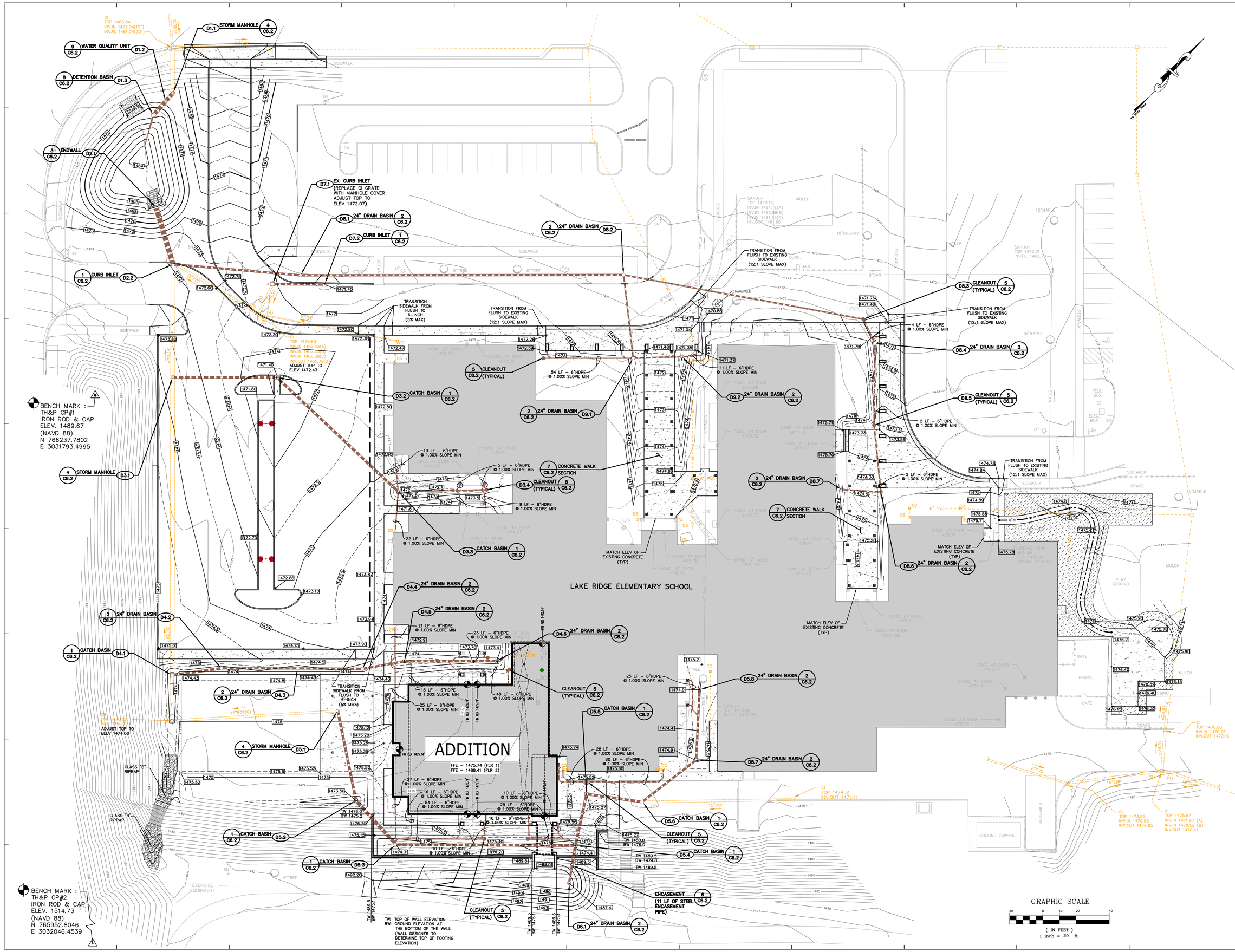

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LVL 2
LVL 1
KEY PLAN

THOMAS O. PATTON REGISTERED ENGINEER AGRICULTURAL & BIOLOGICAL STATE OF TENNESSEE

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PROJECT NO. 019-030
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TITLE
GRADING PLAN

SHEET
C4.1

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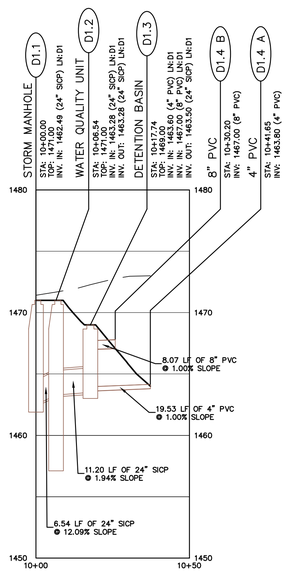
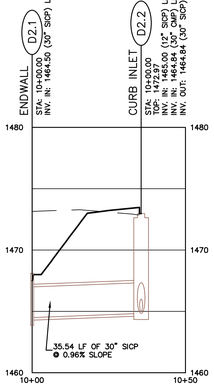
TH&P PROJECT # 19221CTC



STORM SEWER PROFILE LN:D1
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE = 1"=5'



STORM SEWER PROFILE LN:D2
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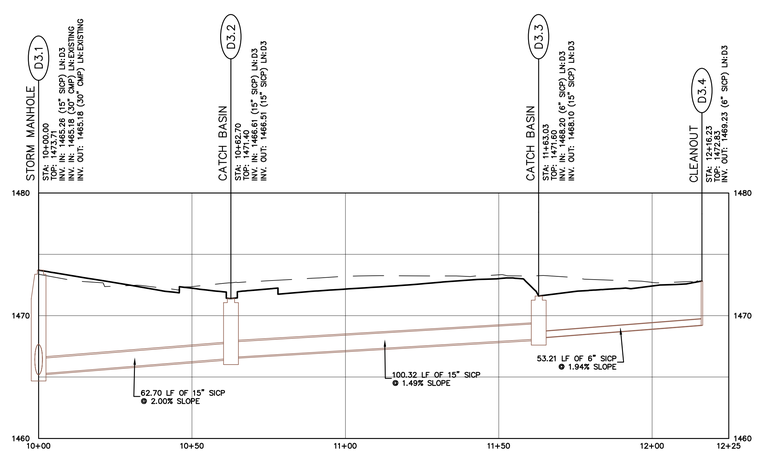
VERTICAL SCALE = 1"=5'



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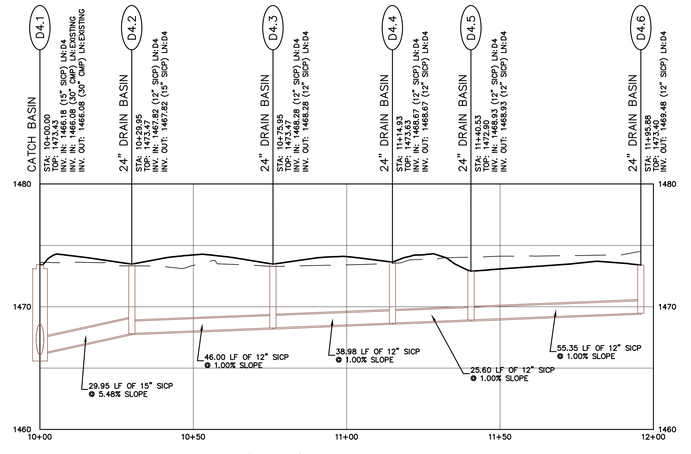
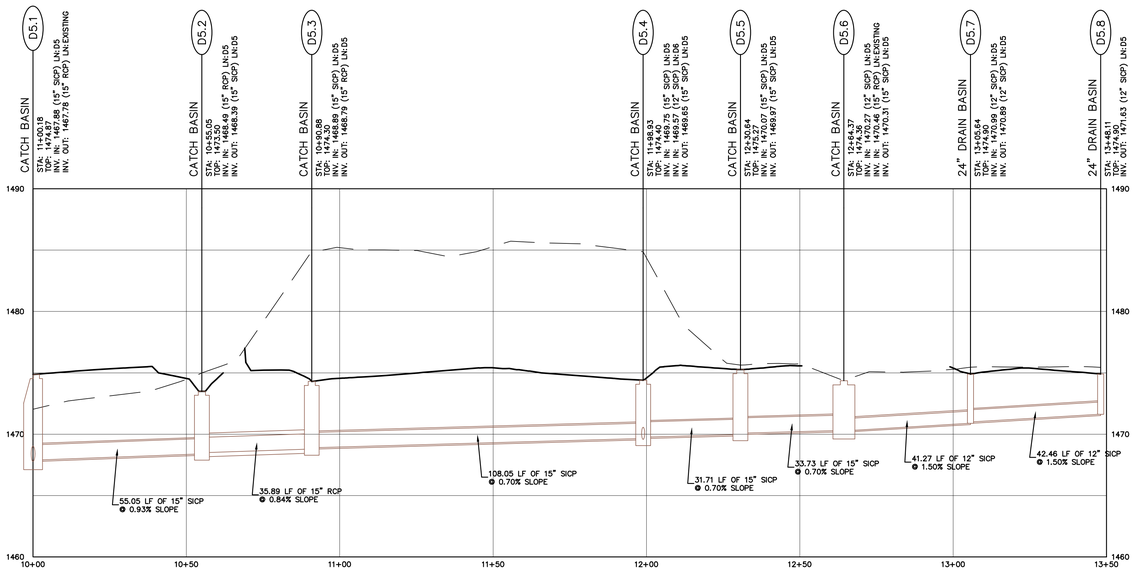
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE = 1"=5'



STORM SEWER PROFILE LN:D4
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE = 1"=5'

PROFILE LEGEND
EXISTING GROUND ----------
FINISHED GROUND ——————



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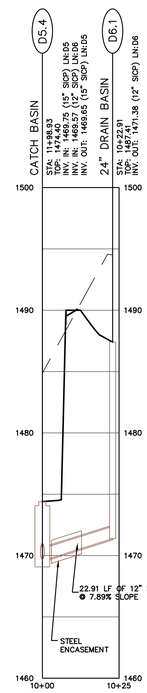
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE = 1"=5'



STORM SEWER PROFILE LN:D6
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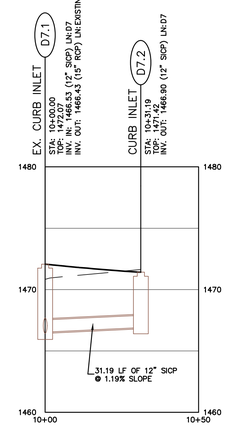
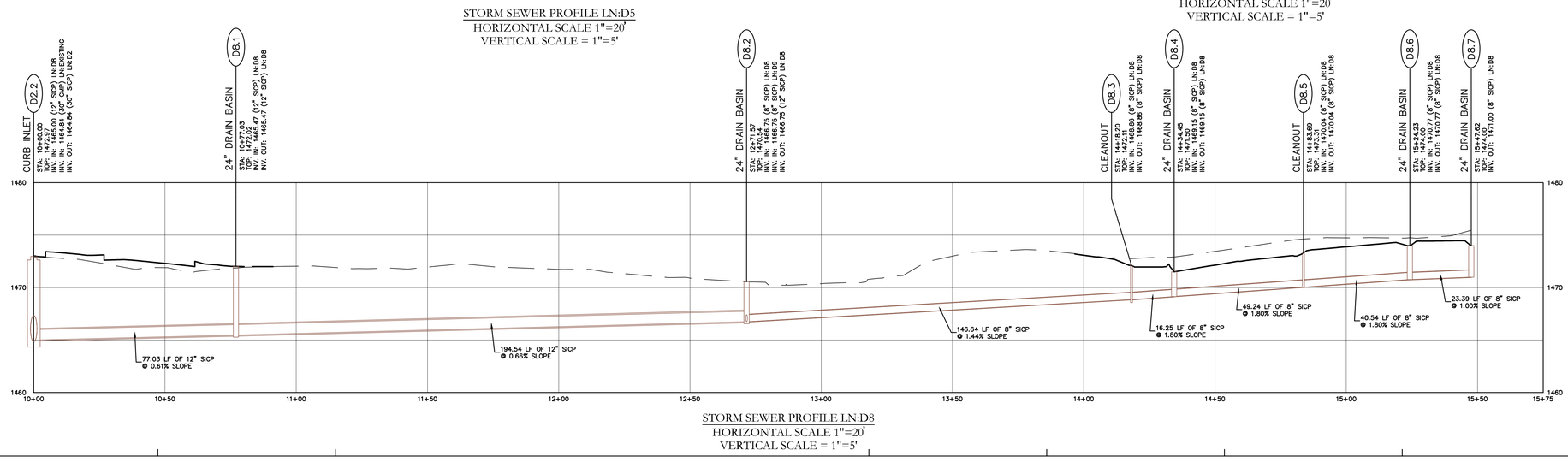
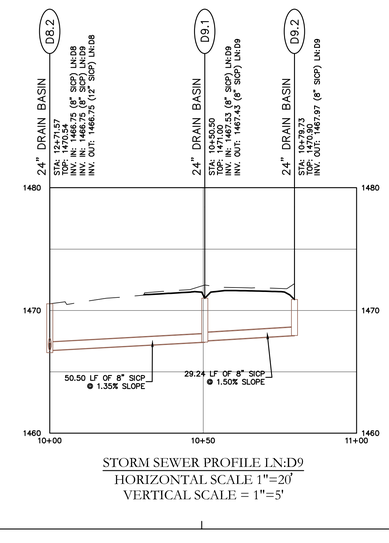
VERTICAL SCALE = 1"=5'



STORM SEWER PROFILE LN:D7
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE = 1"=5'



STORM SEWER PROFILE LN:D8
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE = 1"=5'



STORM SEWER PROFILE LN:D9
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE = 1"=5'

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INTERIOR RENOVATIONS & CLASSROOM ADDITION FOR:

LAKE RIDGE ELEMENTARY SCHOOL

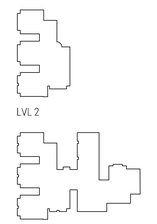
1001 LAKE RIDGE SQUARE
JOHNSON CITY, TENNESSEE 37601

CIVIL
TYSINGER, HAMPTON & PARTNERS, INC.
7 WORTH CIRCLE
JOHNSON CITY, TN 37601

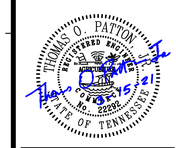
STRUCTURAL
SPODEN & WILSON CONSULTING
420 CLAY ST
KINGSPORT, TN 37660

FIRE PROTECTION
PLUMBING
MECHANICAL
MECHANICAL DESIGN SERVICES
P.O. BOX 10025
KNOXVILLE, TN 37919

ELECTRICAL
VREELAND ENGINEERS
3107 SUTHERLAND AVE
KNOXVILLE, TN 37919



KEY PLAN



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REVISIONS

PROJECT NO. 019-030
ISSUE DATE MARCH 15, 2021

TITLE
STORM SEWER PROFILES

SHEET
C4.2

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THEP PROJECT # 19221.07C

LN: D1
LN: D2
LN: D3
LN: D4
LN: D5
LN: D6
LN: D7
LN: D8
LN: D9
OUTFALL
DETENTION BASIN
LAKE RIDGE ELEMENTARY SCHOOL
ADDITION
BENCH MARK : TH&P CP#1
IRON ROD & CAP
ELEV. 1489.67
(NAVD 88)
N 766237.7802
E 3031793.4995
BENCH MARK : TH&P CP#2
IRON ROD & CAP
ELEV. 1514.73
(NAVD 88)
N 765952.8046
E 3032046.4539
GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

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P.O. BOX 10025
KNOXVILLE, TN 37919

ELECTRICAL
VREELAND ENGINEERS
3707 SUTHERLAND AVE
KNOXVILLE, TN 37919

LVL 2
LVL 1
KEY PLAN

THOMAS O. PATTON
REGISTERED LANDSCAPE ARCHITECT
No. 2226
STATE OF TENNESSEE

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REVISIONS

PROJECT NO 019-030
ISSUE DATE MARCH 15, 2021

TITLE
EROSION & SEDIMENT CONTROL PLAN PHASE 1

SHEET
C5.1

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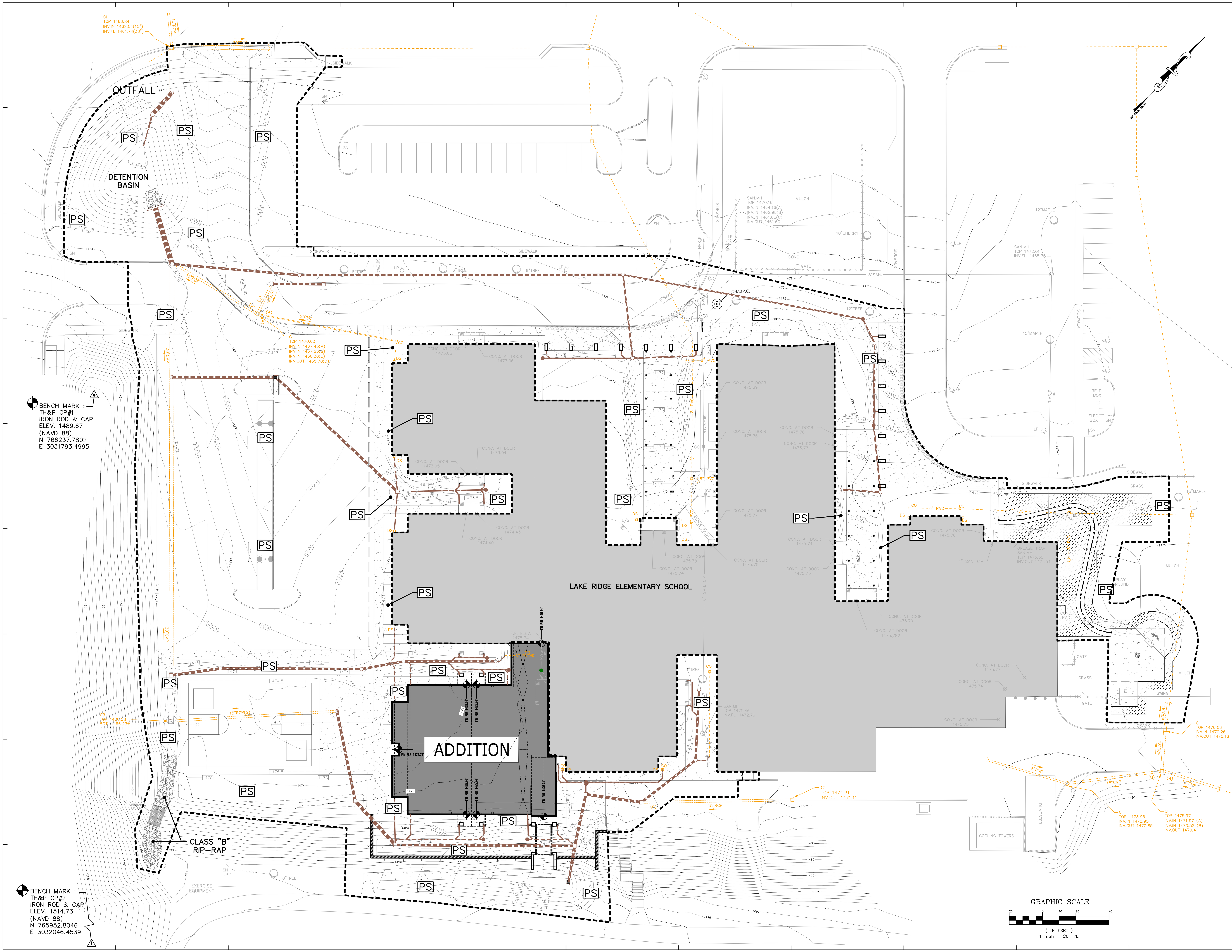
THAP PROJECT # 19021070



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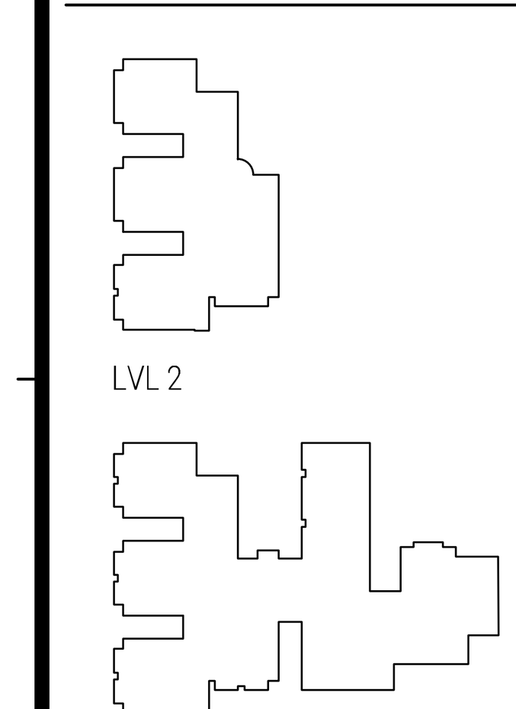
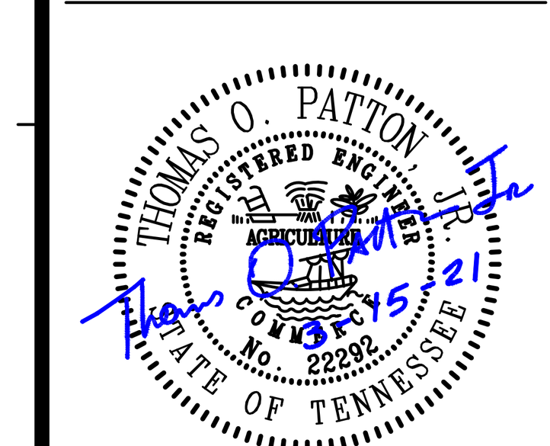
VREELAND ENGINEERS
3107 SUTHERLAND AVE
KNOXVILLE, TN 37919





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REVISIONS

PROJECT NO. 019-030

ISSUE DATE MARCH 15, 2021

TITLE

EROSION & SEDIMENT CONTROL PLAN PHASE 2

SHEET

C5.2

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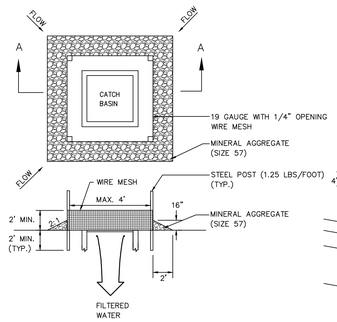
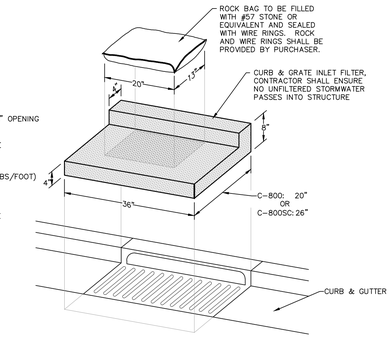
TH&P PROJECT #: 1922107C



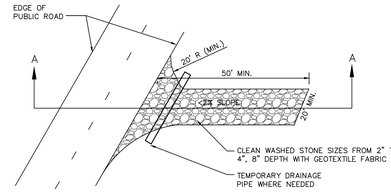
SECTION A–A

NOTES:

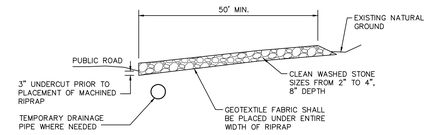
1. INLET PROTECTION SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
2. INLET PROTECTION SHALL BE AS MANUFACTURED BY SILT–SAVER INC. OR APPROVED EQUAL.



IP **INLET PROTECTION**
NTS

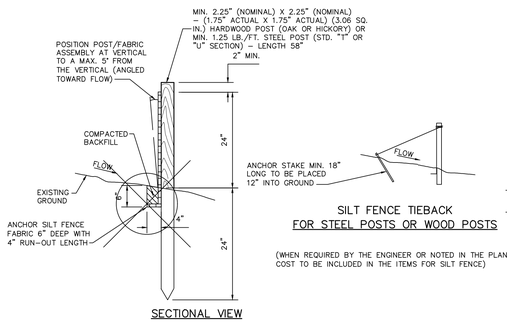


PLAN VIEW OF TEMPORARY CONSTRUCTION ROAD



SECTION A–A

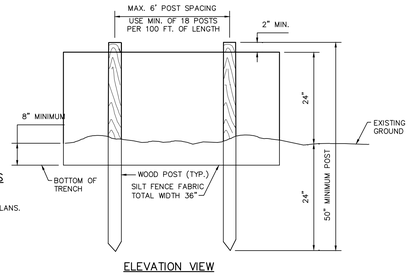
CE **CONSTRUCTION EXIT**
NTS



SECTIONAL VIEW

SILT FENCE TIEBACK
FOR STEEL POSTS OR WOOD POSTS

(WHEN REQUIRED BY THE ENGINEER OR NOTED IN THE PLANS. COST TO BE INCLUDED IN THE ITEMS FOR SILT FENCE)



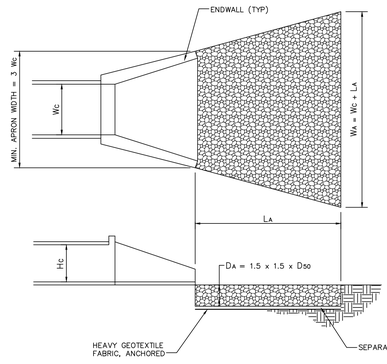
ELEVATION VIEW

SF **SILT FENCE**
NTS

SEEDING MIXES						
ZONE	PREFERRED			ALLOWABLE		
	BEST	MARGINAL	RATE/MIX (LB/AC PLS)	BEST	MARGINAL	RATE/MIX (LB/AC PLS)
>2500 FT ELEVATION; STEEP SLOPES	MAR 20 – APR 30	AUG 15 – AUG 30 MAR 1 – MAR 20 APR 20 – JUNE 15	15 BROWNTOP MILLET* (NURSE CROP) 5 PURPLETOP 10 LITTLE BLUESTEM 10 INDIAN GRASS 0.5 MONARDA (BERGAMOT) 4 MARYLAND SENNA	JULY 25 – AUG 15 MAR 20 – APR 30	JULY 15 – JULY 25 AUG 15 – AUG 30 MAR 1 – MAR 20 APR 20 – MAY 15	100 KY 31 FESCUE** 20 KOBE LESPEDZA** 10 KOREAN LESPEDZA** 5 REDTOP
<2500 FT ELEVATION; STEEP SLOPES	AUG 15 – SEPT 1 MAR 1 – APR 1	SEPT 1 – SEPT 15 APR 1 – JUNE 10		AUG 15 – SEPT 1 MAR 1 – APR 1	JULY 25 – AUG 15 SEPT 1 – SEPT 15 APR 1 – MAY 10	
>2500 FT ELEVATION; SHALLOW SOILS	MAR 20 – APR 20	AUG 15 – AUG 30 MAR 5 – MAR 20 APR 20 – JUNE 15	15 BROWNTOP MILLET* (NURSE CROP) 4 PURPLETOP 10 LITTLE BLUESTEM 10 BROOMSEDGE 2 PARTRIDGE PEA 2 BLACK–EYED SUSAN 0.5 MONARDA (BERGAMOT)	JULY 25 – AUG 15 MAR 20 – APR 20	JULY 15 – JULY 25 AUG 15 – AUG 30 MAR 5 – MAR 20 APR 20 – MAY 15	40 KY 31 FESCUE** 10 KOREAN LESPEDZA** 10 REDTOP 10 CROWN VETCH
<2500 FT ELEVATION; SHALLOW SOILS	AUG 15 – SEPT 1 MAR 1 – APR 1	SEPT 1 – SEPT 15 APR 1 – JUNE 10		AUG 15 – SEPT 1 MAR 1 – APR 1	JULY 25 – AUG15 SEPT 1 – SEPT 15 APR 1 – MAY 10	
>2500 FT ELEVATION; MODERATE SLOPES	MAR 20 – APR 20	AUG 15 – AUG 30 MAR 5 – MAR 20 APR 20 – JUNE 15	15 BROWNTOP MILLET* (NURSE CROP) 4 PURPLETOP 10 LITTLE BLUESTEM 10 INDIAN GRASS 2 BLACK–EYED SUSAN 0.5 MONARDA (BERGAMOT) 4 MARYLAND SENNA	JULY 25 – AUG 15 MAR 20 – APR 20	JULY 15 – JULY 25 AUG 15 – AUG 30 MAR 5 – MAR 20 APR 20 – MAY 15	60 KY 31 FESCUE** 15 KOREAN LESPEDZA** 15 KOBE LESPEDZA**
<2500 FT ELEVATION; MODERATE SLOPES	AUG 15 – SEPT 1 MAR 1 – APR 1	SEPT 1 – SEPT 15 APR 1 – JUNE 10		AUG 15 – SEPT 1 MAR 1 – APR 1	JULY 25 – AUG 15 SEPT 1 – SEPT 15 APR 1 – MAY 10	
>2500 FT ELEVATION; HIGH MAINTENANCE	MAR 20 – APR 20	AUG 15 – AUG 30 MAR 5 – MAR 20 APR 20 – JUNE 15	15 BROWNTOP MILLET* (NURSE CROP) 45 RED FESCUE* 45 HARD FESCUE* 25 CHEWING FESCUE*	JULY 25 – AUG15 MAR 20 – APR 20	JULY 15 – JULY 25 AUG 15 – AUG 30 MAR 5 – MAR 20 APR 20 – MAY 15	200 KY 31 FESCUE**
<2500 FT ELEVATION; HIGH MAINTENANCE	AUG 15 – SEPT 1 MAR 1 – APR 1	SEPT 1 – SEPT 15 APR 1 – JUNE 10		AUG 15 – SEPT 1 MAR 1 – APR 1	JULY 25 – AUG 15 SEPT 1 – SEPT 15 APR 1 – MAY 10	

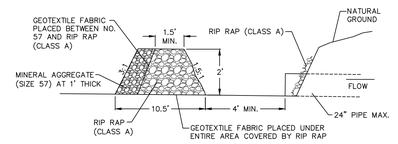
NOTE :
1. FOR SEED BED PREPARATION, MULCHING AND FERTILIZING REFER TO THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

PS **PERMANENT VEGETATION**
NTS



TAILWATER < 0.5 Hc AND ASSUMING FULL CULVERT FLOW (LOW TAILWATER CONDITIONS)

OP **OUTLET PROTECTION**
NTS



FR **FILTER RING**
NTS

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P.O. BOX 10025
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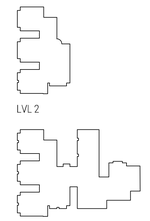
3707 SUTHERLAND AVE
KNOXVILLE, TN 37919



KEY PLAN

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REVISIONS

PROJECT NO. 019-030
ISSUE DATE MARCH 15, 2021
TITLE

EROSION & SEDIMENT CONTROL DETAILS

SHEET

C5.3

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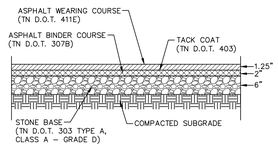
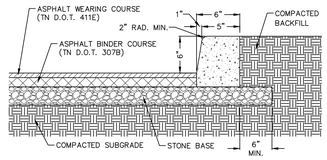
THEP PROJECT # 19221C7C



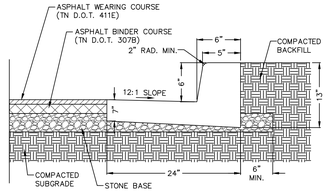
1 C6.1 **STANDARD DUTY PAVEMENT**
NTS



NOTES:

1. CONCRETE EXPANSION JOINT MATERIAL IS TO BE ¾" PREMOLDED FIBER.
2. EXPANSION JOINTS ARE TO BE PLACED AS FOLLOWS:
   A. AT TANGENT POINTS OF CIRCULAR CURBS
   B. BETWEEN CURBS AND ABUTTING RIGID OBJECTS
   C. AT OTHER PLACES WHERE STRESSES MAY DEVELOP
   D. SO AS TO LINE UP WITH PAVEMENT JOINTS WHERE THE ADJACENT PAVEMENT IS CONCRETE
   E. MAXIMUM SPACING IS TO BE 100 FEET
3. CONTRACTION JOINTS ARE TO BE SPACED AT 10 FEET.
4. SAW CUT JOINTS WITHIN 24 HOURS.

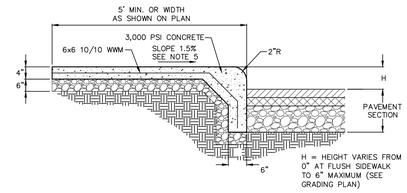
2 C6.1 **EXTRUDED CONCRETE CURB**
NTS



NOTES:

1. CONCRETE EXPANSION JOINT MATERIAL IS TO BE ¾" PREMOLDED FIBER.
2. EXPANSION JOINTS ARE TO BE PLACED AS FOLLOWS:
   A. AT TANGENT POINTS OF CIRCULAR CURBS
   B. BETWEEN CURBS AND ABUTTING RIGID OBJECTS
   C. AT OTHER PLACES WHERE STRESSES MAY DEVELOP
   D. SO AS TO LINE UP WITH PAVEMENT JOINTS WHERE THE ADJACENT PAVEMENT IS CONCRETE
   E. MAXIMUM SPACING IS TO BE 100 FEET
3. CONTRACTION JOINTS ARE TO BE SPACED AT 10 FEET.
4. SAW CUT JOINTS WITHIN 24 HOURS.

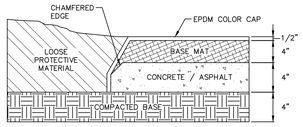
3 C6.1 **COMBINATION CURB & GUTTER**
NTS



NOTES:

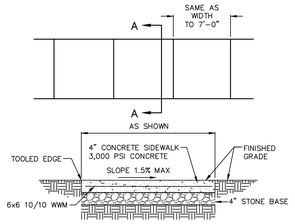
1. CONCRETE EXPANSION JOINT MATERIAL IS TO BE ¾" PREMOLDED FIBER.
2. EXPANSION JOINTS ARE TO BE PLACED AS FOLLOWS:
   A. AT TANGENT POINTS OF CIRCULAR CURBS
   B. BETWEEN CURBS AND ABUTTING RIGID OBJECTS
   C. AT OTHER PLACES WHERE STRESSES MAY DEVELOP
   D. SO AS TO LINE UP WITH PAVEMENT JOINTS WHERE THE ADJACENT PAVEMENT IS CONCRETE
   E. MAXIMUM SPACING IS TO BE 100 FEET
3. CONTRACTION JOINTS ARE TO BE SPACED AT 10 FEET.
4. SAW CUT JOINTS WITHIN 24 HOURS.
5. WHERE COMBINATION CURB & SIDEWALK IS FLUSH WITH TRUNCATED DOMES, REFER TO DETAIL 8/C6.1 – TRUNCATED DOMES.

4 C6.1 **COMBINATION CURB & SIDEWALK**
NTS



* VERY IMPORTANT TO BACK FILL OR USE LOOSE FILL UP TO TOP EDGE OF CAP

5 C6.1 **PLAYGROUND SURFACE**
NTS



SECTION A – A

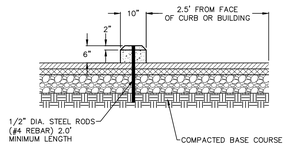
NOTES:

1. CONCRETE EXPANSION JOINT MATERIAL IS TO BE ¾" PREMOLDED FIBER.
2. EXPANSION JOINTS ARE TO BE PLACED AS FOLLOWS:
   A. AT TANGENT POINTS OF CIRCULAR CURBS
   B. BETWEEN CURBS AND ABUTTING RIGID OBJECTS
   C. AT OTHER PLACES WHERE STRESSES MAY DEVELOP
   D. SO AS TO LINE UP WITH PAVEMENT JOINTS WHERE THE ADJACENT PAVEMENT IS CONCRETE
   E. MAXIMUM SPACING IS TO BE 100 FEET
3. CONTRACTION JOINTS ARE TO BE SPACED AT 10 FEET.
4. SAW CUT JOINTS WITHIN 24 HOURS.

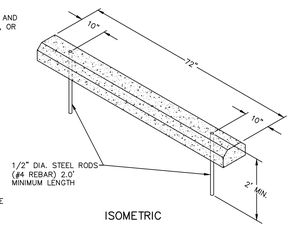
6 C6.1 **SIDEWALK**
NTS

NOTES:

1. PARKING BUMPER SHALL BE 5,000 PSI PRE-CAST CONCRETE,
2. STEEL RODS TO BE SLEEVED OR GREASED THRU CONCRETE CURBS TO PERMIT RELOCATION OF PARKING BUMPER.
3. PARKING BUMPER SHALL BE CENTERED IN PARKING STALL AND TYPICALLY PLACED 2.5' OFF OF FACE OF CURB, SIDEWALK, OR BUILDING FACE. SEE SITE PLAN FOR LOCATIONS.

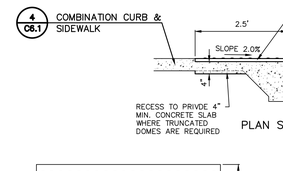


SIDE VIEW



ISOMETRIC

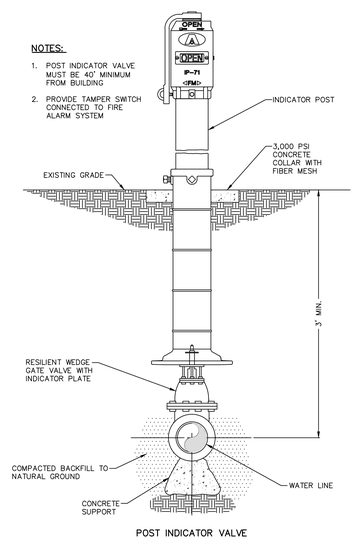
7 C6.1 **PARKING BUMPER**
NTS



NOTES:

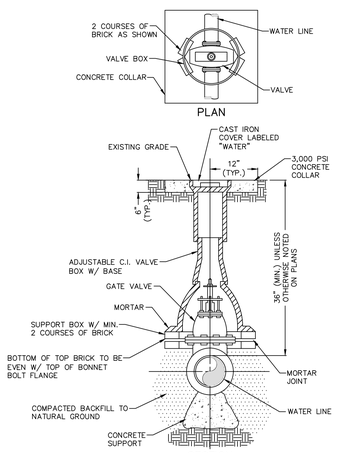
1. DETECTABLE WARNINGS SHALL MEET THE SPECIFICATIONS OF THE AMERICAN WITH DISABILITIES ACT (ADA).
2. DETECTABLE WARNINGS SHALL BE OF THE PAVER TYPE CAST-IN-PLACE AND SHALL CONFORM WITH MANUFACTURES SPECIFICATIONS. MANUFACTURED BY ADA SOLUTIONS, INC. (800) 372-0519 OR APPROVED EQUIVALENT.
3. PAVER COLOR SHALL BE YELLOW.
4. WIDTH OF DETECTABLE WARNING AREA SHALL BE A MINIMUM OF 4 FEET AND VARY WITH WIDTH OF RAMP.
5. LENGTH OF DETECTABLE WARNING AREA SHALL BE 2 FEET REGARDLESS OF SECTION WIDTH.
6. DETECTABLE WARNING AREA CAN BE SQUARE WHERE USED IN A CURB RADIUS.
7. DETECTABLE WARNING DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.

8 C6.1 **TRUNCATED DOMES**
NTS



POST INDICATOR VALVE

9 C6.1 **POST INDICATOR VALVE**
NTS

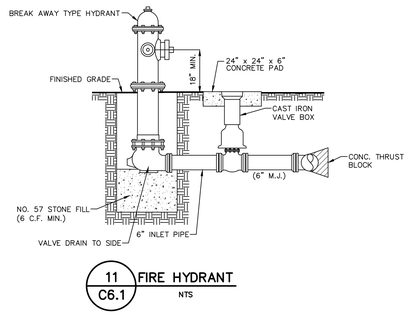


SECTION

10 C6.1 **GATE VALVE**
NTS

NOTE:

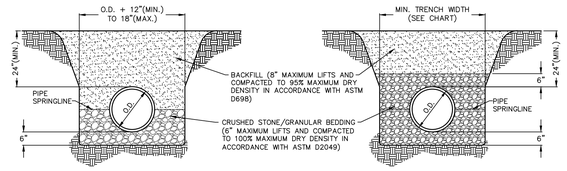
1. ALL JOINTS BETWEEN WATER MAIN AND HYDRANT SHALL BE MEGALUG, OR EQUIVALENT.



11 C6.1 **FIRE HYDRANT**
NTS

NOTES:

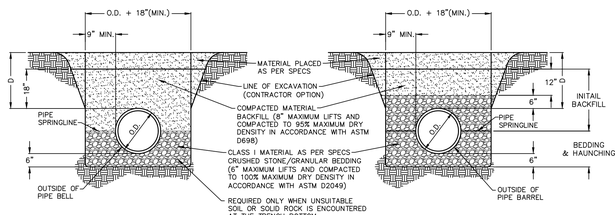
1. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
2. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. ALL TRENCH EXCAVATION SHALL BE PERFORMED IN ACCORDANCE REGULATORY AUTHORITIES HAVING JURISDICTION AND ALL APPLICABLE CODES AND ORDINANCES.
4. PIPE INSTALLED IN PAVED AREAS SHALL BE BACKFILLED TO SUBGRADE WITH GRANULAR BACKFILL MATERIAL.



STORM SEWER PIPE BEDDING (CMP & RCP)

STORM SEWER PIPE BEDDING (SICP)

SICP TRENCH WIDTH	
PIPE DIA.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"



WATER & SANITARY SEWER PIPE BEDDING (DUCTILE IRON)

WATER & SANITARY SEWER PIPE BEDDING (PVC)

D = COVER FOR WATER & SANITARY SEWER		
	R.O.W.	OPEN AREAS
WATER	30" MIN.	30" MIN.
SEWER	36" MIN.	30" MIN.

12 C6.1 **UTILITY BEDDING**
NTS

THOMAS WEEMS ARCHITECT
3203 HANOVER ROAD
JOHNSON CITY, TN 37604
phone: 423-952-2700
fax: 423-952-2702
www.thomasweemsarchitect.com

INTERIOR RENOVATIONS & CLASSROOM ADDITION FOR:

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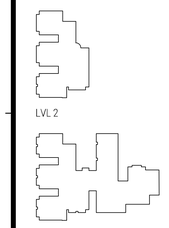
JOHNSON CITY, TENNESSEE 37601

CIVIL
TYSINGER, HAMPTON & PARTNERS, INC.
7 NORTH CIRCLE
JOHNSON CITY, TN 37601

STRUCTURAL
SPODEN & WILSON CONSULTING
451 CLAY ST
KINGSPORT, TN 37660

FIRE PROTECTION
PLUMBING
MECHANICAL
MECHANICAL DESIGN SERVICES
P.O. BOX 10025
KNOXVILLE, TN 37919

ELECTRICAL
VREELAND ENGINEERS
3707 SUTHERLAND AVE
KNOXVILLE, TN 37919



KEY PLAN

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REVISIONS

PROJECT NO 019-030
ISSUE DATE MARCH 15, 2021
TITLE

MISCELLANEOUS DETAILS

SHEET

C6.1

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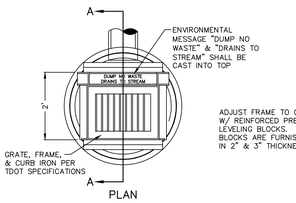
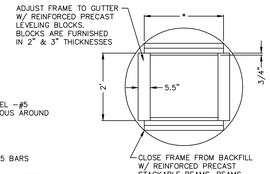
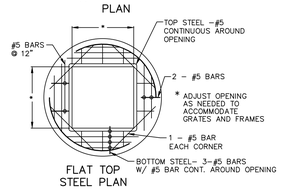
THAP PROJECT # 19021070



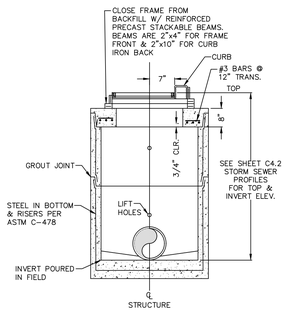
PLAN



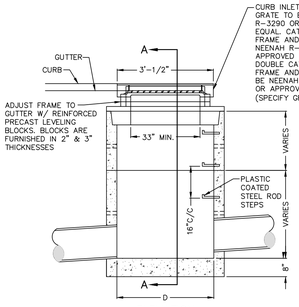
GRADE ADJUSTMENT PLAN



FLAT TOP STEEL PLAN



SECTION A–A



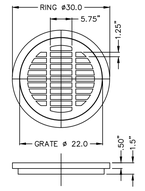
ELEVATION

NOTES:

1. DIMENSION D VARIES ACCORDING TO PIPE SIZES, FRAME SIZES AND CONFIGURATION, 48" DIA. MIN.
2. ALL BASES, RISERS & TOPS MANUFACTURED PER ASTM C–478 SPECIFICATIONS.
3. CONCRETE IN BASE AND RISERS TO BE 4,000 psi.
4. CONCRETE IN FLAT TOP TO BE 5,000 psi.
5. MANHOLE STEPS: PLASTIC COATED STEEL ROD STEPS @16" O.C. WHERE H EXCEEDS 4'.
6. FOR INFORMATION NOT PROVIDED, REFER TO TDOT ST'D D–CB–12PC.
7. PIPE OPENINGS SHALL BE PLACED AS REQUIRED BASED ON PROPOSED STORM SEWER LAYOUT ON GRADING PLAN.
8. ALL BASES, RISERS, AND TOPS MANUFACTURED PER ASTM C–478 SPECIFICATIONS.

1 C6.2 CURB INLET/CATCH BASIN NTS

* ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 359° FOR MAX. ANGLE BETWEEN ADAPTERS SEE SHEET #6 NYLOPLAST DETAIL – MINANGLE)



24" DUCTILE IRON GRATE STANDARD (H–20) RATED

GRATE INFORMATION:
MATERIAL: DUCTILE IRON

QUALITY: MATERIAL SHALL CONFORM TO ASTM A48 – CLASS 30B

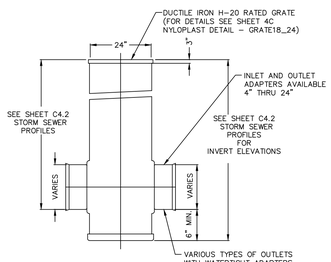
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT

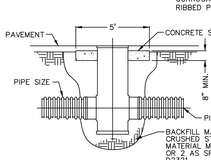
DRAIN AREA = 161.4 SQ. INCH

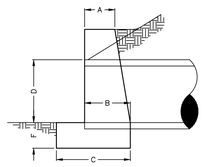
NOTE:

1. 24" DRAIN BASIN AND GRATE SHALL BE MANUFACTURED BY NYLOPLAST OR APPROVED EQUIVALENT FOR SIZE INDICATED ON DRAWINGS. DRAIN PIPE SHALL BE AS SPECIFIED ON THE DRAWINGS. FOR INFORMATION ON 24" DRAIN BASIN AND GRATE, CONTACT NYLOPLAST AMERICA INC.; 3130 VERONA AVE, BEFORD, GA 30518 PHONE :800–859–0328.

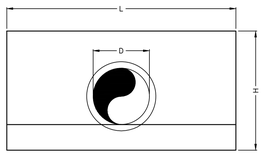
2 C6.2 24" DRAIN BASIN NTS







END ELEVATION



FRONT ELEVATION

ENDWALL FOR CIRCULAR PIPE						
DIAMETER OF PIPE CULVERT						
	12"	15"	18"	24"	30"	36"
A	0'–6"	0'–8"	0'–9"	0'–11"	1'–0"	1'–0"
B	0'–11"	1'–1"	1'–3"	1'–6"	1'–9"	2'–0"
C	1'–4"	1'–7"	1'–9"	2'–2"	2'–6"	2'–9"
D	1'–0"	1'–3"	1'–6"	2'–0"	2'–6"	3'–0"
F	0'–6"	0'–8"	0'–8"	0'–9"	0'–9"	0'–9"
H	2'–3"	2'–11"	3'–2"	3'–9"	4'–3"	4'–9"
L	4'–0"	5'–0"	6'–0"	8'–0"	10'–0"	12'–0"

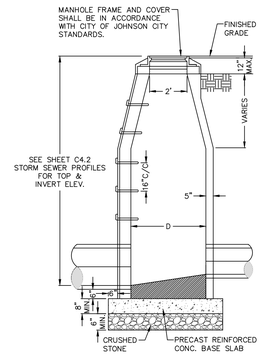
NOTES:

1. THIS STANDARD TO BE USED WITH STRAIGHT CROSSINGS AND ALL SKEWS (0° TO 45°)

3 C6.2 ENDWALL NTS

ENVIRONMENTAL MESSAGE "DUMP NO WASTE" & "DRAINS TO STREAM" SHALL BE CAST INTO TOP

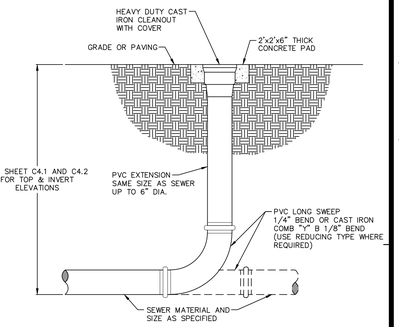
MANHOLE LID



NOTES:

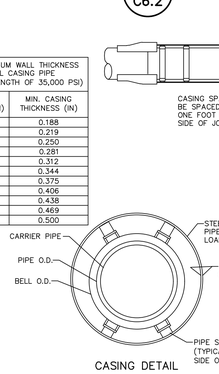
1. ALL BASES, RISERS & TOPS MANUFACTURED PER ASTM C–478 SPECIFICATIONS.
2. CONCRETE IN BASE AND RISERS TO BE 4000 psi.
3. MANHOLE STEPS: PLASTIC COATED STEEL ROD STEPS @ 16" O.C. WHERE H EXCEEDS 4'.
4. DIMENSION D VARIES ACCORDING TO PIPE SIZES AND CONFIGURATION, (48" DIA. MIN.)

4 C6.2 STORM MANHOLE NTS

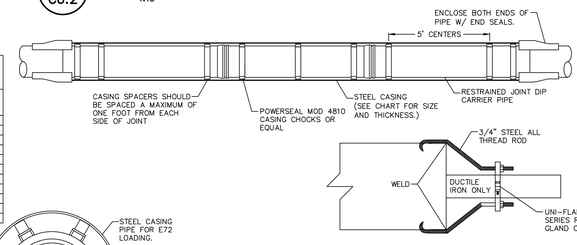


5 C6.2 CLEANOUT NTS

TABLE OF MINIMUM WALL THICKNESS FOR STEEL CASING PIPE (MIN. YIELD STRENGTH OF 35,000 PSI)	
NOMINAL STEEL CASING DIAM. (IN)	MIN. CASING THICKNESS (IN)
UNDER 14	0.188
14 & 16	0.219
18	0.250
20	0.281
22	0.312
24	0.344
26	0.375
28 & 30	0.406
32	0.438
34 & 36	0.469
38, 40 & 42	0.500



CASING DETAIL

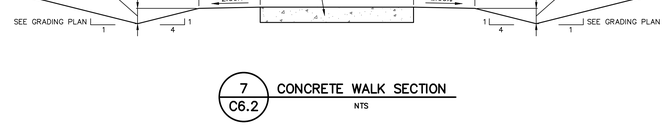


CASING RESTRAINT DETAIL

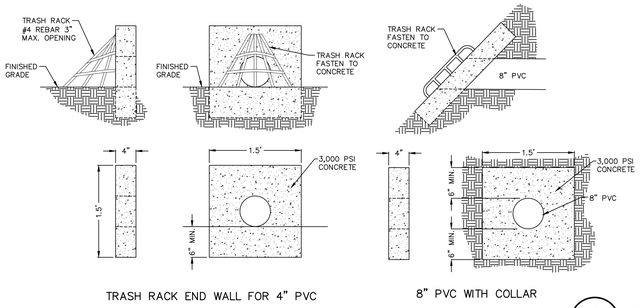
NOTES:

1. I.D. OF CASING SHALL BE AT LEAST 3 INCHES GREATER THAN THE LARGEST O.D. OF THE CARRIER PIPE FOR CARRIER PIPES LESS THAN 6 INCHES IN DIAMETER, AND AT LEAST 4 INCHES GREATER FOR CARRIER PIPES 6 INCHES AND LARGER IN DIAMETER.
2. PROVIDE 4' MINIMUM COVER UNDER ROADWAYS AND RAILROADS AND 3' MINIMUM COVER IN OPEN AREAS.
3. PROVIDE 20 LF CASING CENTERED AT UTILITY LINE CROSSING, WHERE INDICATED OR REQUIRED.

6 C6.2 ENCASEMENT NTS

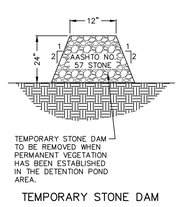


7 C6.2 CONCRETE WALK SECTION NTS

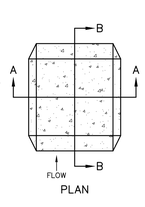


TRASH RACK END WALL FOR 4" PVC

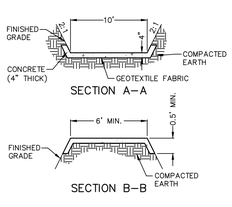
8" PVC WITH COLLAR



TEMPORARY STONE DAM



PLAN



SECTION A–A

SECTION B–B

SPILLWAY

8 C6.2 DETENTION BASIN NTS

Aqua-Swirl Polymer Coated Steel (PCS) Stormwater Treatment System

Unless other traffic barriers are present, bollards shall be placed around access riser(s) in non-traffic areas to prevent inadvertent loading by maintenance vehicles.

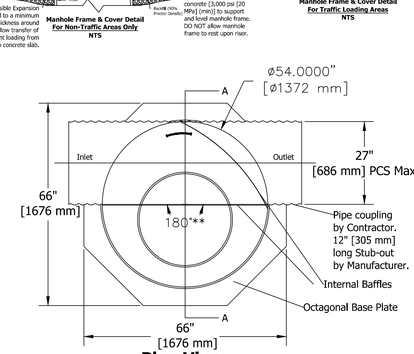
Wrap Compressible Expansion Joint Material to a minimum 1-inch [25 mm] thickness around top of riser to allow transfer of inadvertent loading from manhole cover to concrete slab.

Manhole Frame & Cover Detail For Non-Traffic Areas Only NTS

If traffic loading (HS-25) is required or anticipated, a 4-foot [1.22 m] diameter, 14-inch [356 mm] thick reinforced concrete pad must be placed over the Stormwater Treatment System Riser to support and level the manhole frame, as shown. The top of riser pipe must be wrapped with compressible expansion joint material to a minimum 1-inch [25 mm] thickness to allow transfer of wheel loads from manhole cover to concrete slab. Manhole cover shall bear on concrete slab and not on riser pipe. The concrete slab shall have a minimum strength of 3,000 psi [20 MPa] and be reinforced with #4 [13 mm] reinforcing steel as shown. Minimum cover over reinforcing steel shall be 1-inch [25 mm]. Top of manhole cover and concrete slab shall be level with finish grade.

Place small amount of concrete [3,000 psi [20 MPa] (min)] to support and level manhole frame. DO NOT allow manhole frame to rest upon riser.

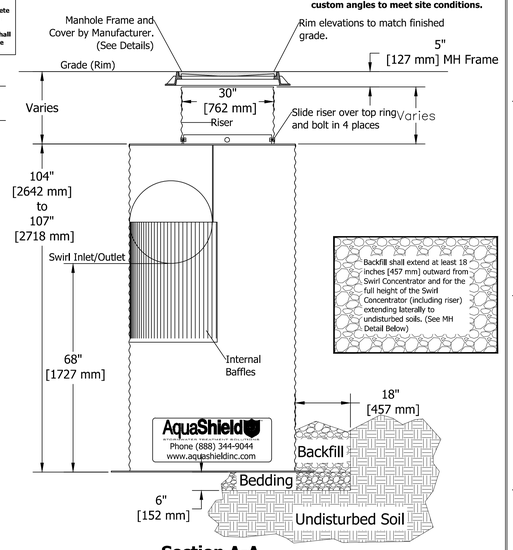
Manhole Frame & Cover Detail For Traffic Loading Areas NTS



Plan View

Note: As an alternative, 42-inch OD, HS-20/25 rated precast concrete rings may be substituted. 14-inch thickness must be maintained.

*** Please see accompanied Aqua-Swirl specification notes.**
*** See Site Plan for actual system orientation.**
**** Orientation may vary from 90°, 180°, or custom angles to meet site conditions.**



Section A-A

AquaShield	Document:	AS-4 PCS STD
	Drawn By:	JCW
	Scale:	1:20
	Date:	01/06/15
U.S. Patent No. 6524473 and other Patent Pending		

2733 Kansalta Drive, Suite 111, Chattanooga, TN 37343
Phone (888) 344-9044 Fax (423) 826-2112
www.aquashieldinc.com

Aqua-Swirl Concentrator Model AS-4 BYP PCS Standard Detail

9 C6.2 WATER QUALITY UNIT NTS

REFER TO C4.2 STORM SEWER PROFILES FOR TOP AND INVERT ELEVATIONS

THOMAS WEEMS ARCHITECT
3203 HANOVER ROAD
JOHNSON CITY, TN 37604
phone: 423-952-2700
fax: 423-952-2702
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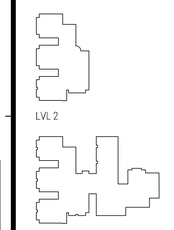
3707 SUTHERLAND AVE
KNOXVILLE, TN 37919



KEY PLAN

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REVISIONS

PROJECT NO	019-030
ISSUE DATE	MARCH 15, 2021
TITLE	MISCELLANEOUS DETAILS
SHEET	C6.2

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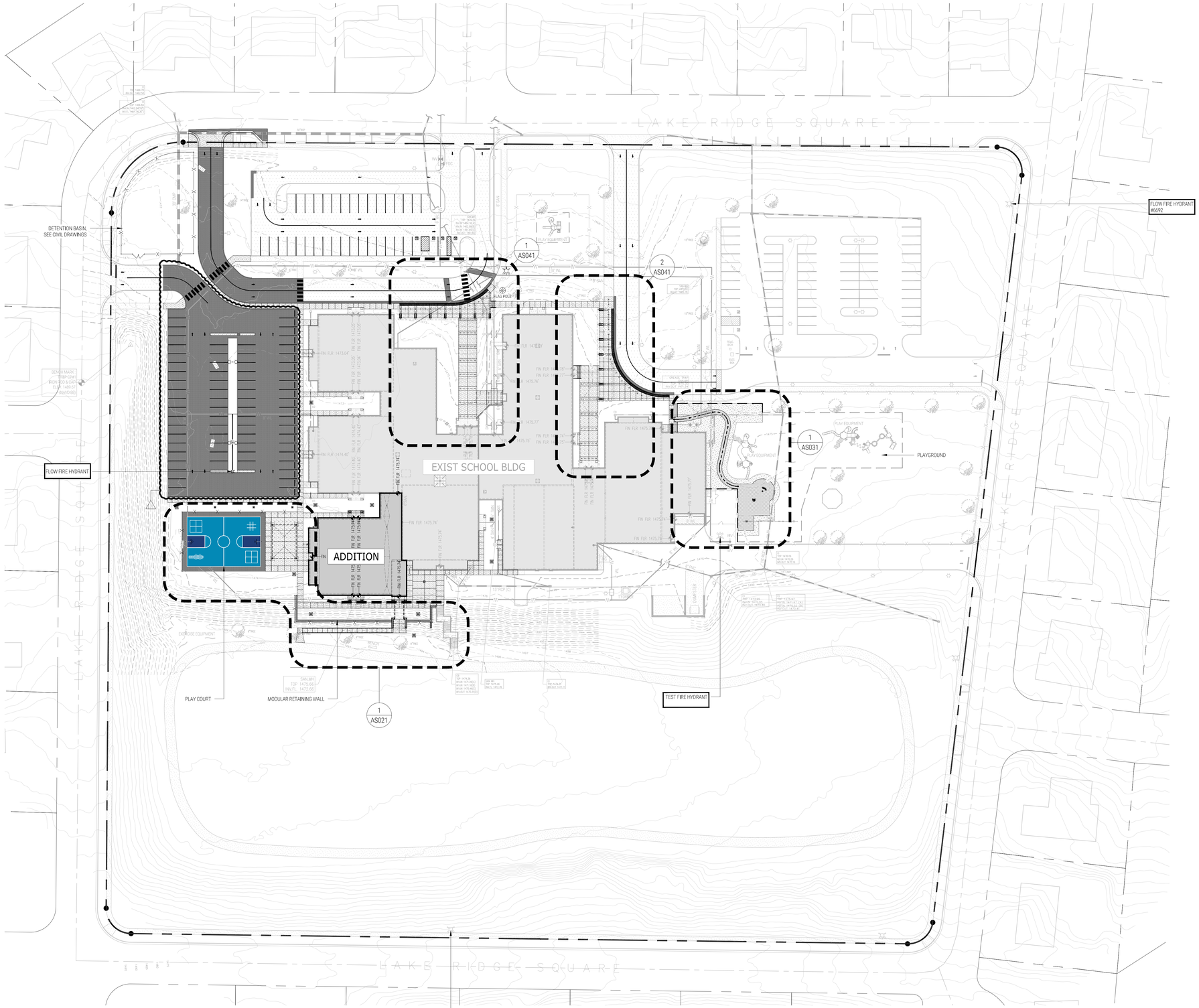
THWP PROJECT # Y021017C

REFER TO CIVIL DRAWINGS FOR FULL SITE PACKAGE



1 AS011 **ARCHITECTURAL SITE PLAN**
1" =40'-0" | FOR REFERENCE ONLY

PLAN NORTH
0 20 40 80'

THOMAS WEEMS ARCHITECT
3203 HANOVER ROAD
JOHNSON CITY, TN 37604
phone: 423-952-2700
fax: 423-952-2702
www.thomasweemsarchitect.com

INTERIOR RENOVATIONS & CLASSROOM ADDITION FOR:

LAKE RIDGE ELEMENTARY SCHOOL

1001 LAKE RIDGE SQUARE
JOHNSON CITY, TENNESSEE 37601

CIVIL
TYSINGER, HAMPTON & PARTNERS, INC.
7 WORTH CIRCLE
JOHNSON CITY, TN 37601

STRUCTURAL
SPODEN & WILSON CONSULTING
430 CLAY ST
KINGSPORT, TN 37660

FIRE PROTECTION
PLUMBING
MECHANICAL
MECHANICAL DESIGN SERVICES
P.O. BOX 10025
KNOXVILLE, TN 37919

ELECTRICAL
VREELAND ENGINEERS
3107 SUTHERLAND AVE
KNOXVILLE, TN 37919

THOMAS WEEMS REGISTERED ARCHITECT 7-12-21 STATE OF TENNESSEE

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REVISIONS

1.	ADDENDUM #01 REVISIONS	05/17/2021

PROJECT NO 019-030
ISSUE DATE MARCH 15, 2021
TITLE
ARCHITECTURAL SITE PLAN
SHEET
AS011

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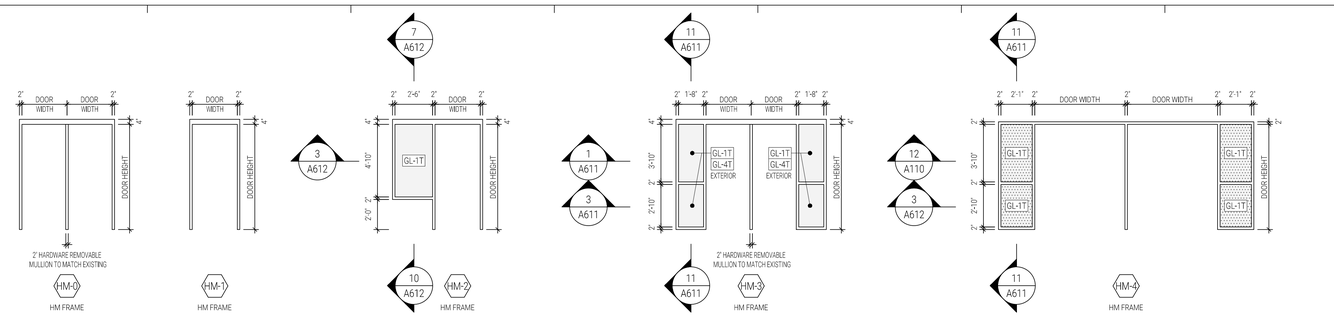
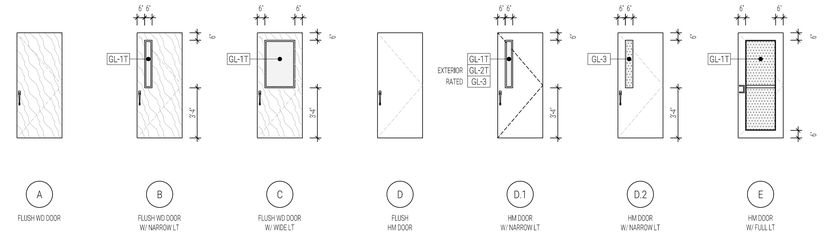


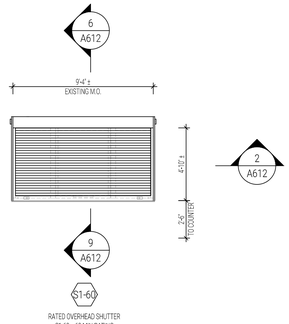
1 A601 FRAME TYPES

1/4"=1'-0"



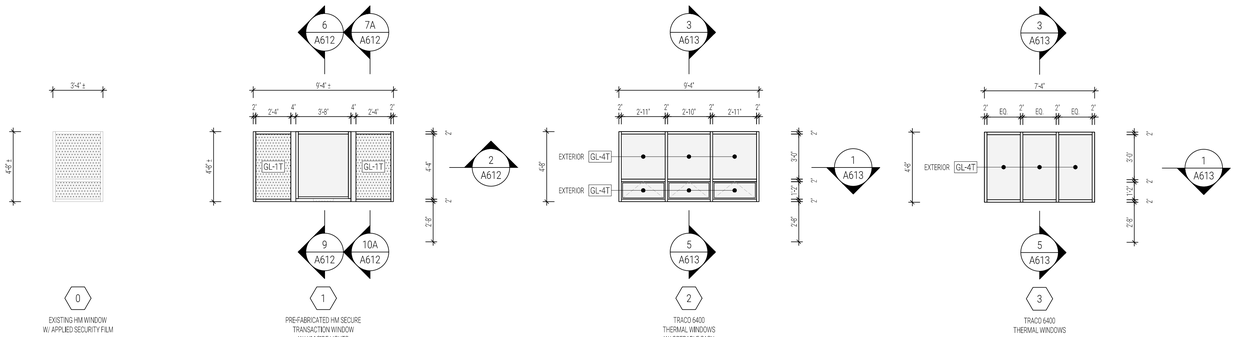
2 A601 DOOR TYPES

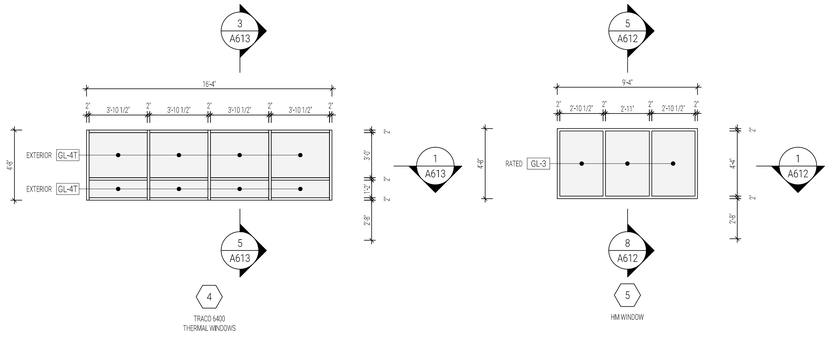
1/4"=1'-0"



3 A601 RATED OVERHEAD SHUTTER

1/4"=1'-0"





4 A601 WINDOW TYPES

1/4"=1'-0"

DOOR SCHEDULE

MARK	PANEL QUANTITY	PANEL HEIGHT	PANEL WIDTH	PANEL THICKNESS	PANEL MATERIAL	DOOR TYPE	FRAME MATERIAL	FRAME TYPE	HEAD DETAIL	SILL DETAIL	JAMB DETAIL	FIRE RATING	HARDWARE	NOTES	MARK
X100	1	ETR	3'-0"±	ETR	ETR	ETR	ETR	ETR	-	-	-	ETR	-	4	X100
X101	1	ETR	3'-0"±	ETR	ETR	ETR	ETR	ETR	-	3 / AS047	-	ETR	18		X101
X102	1	ETR	3'-0"±	ETR	ETR	ETR	ETR	ETR	-	3 / AS047	-	ETR	18		X102
X103	1	ETR	3'-0"±	ETR	ETR	ETR	ETR	ETR	-	-	-	ETR	-	4	X103
X104	1	ETR	3'-0"±	ETR	ETR	ETR	ETR	ETR	-	-	-	ETR	-	4	X104
X105	2	ETR	3'-0" ±	ETR	ETR	ETR	ETR	ETR	-	SIM TO 3 / AS047	-	ETR	18		X105
X106	1	ETR	3'-0"±	ETR	ETR	ETR	ETR	ETR	-	-	-	ETR	-	4	X106
X107	1	ETR	3'-0"±	ETR	ETR	ETR	ETR	ETR	-	-	-	ETR	-	4	X107
X200	1	ETR	3'-0"±	ETR	ETR	ETR	ETR	ETR	-	-	-	ETR	-	4	X200
102A	2	7'-0"	3'-0"	0'-1 3/4"	HM	E	HM	HM-4	7 / A611	11 / A611	3 / A611		16	3	102A
102B	2	7'-0"	3'-0"	0'-1 3/4"	HM	E	HM	HM-4	7 / A611	11 / A611	3 / A611		15	3	102B
103	1	7'-0"	3'-0"	0'-1 3/4"	HM	D.2	HM	HM-1	SIM. TO 8 / A611	-	SIM. TO 4 / A611	45 MIN	13	2, 3	103
190A	2	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-3	5 / A611	9 / A611	1 / A611		3	1	190A
190B	2	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-3	8 / A611	-	4 / A611		14		190B
190C	1	7'-0"±	3'-0"±	0'-1 3/4"±	HM	D.1	HM	HM-1	6 / A611	10 / A611	2 / A611	45 MIN	12	2	190C
191A	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	45 MIN	10	2	191A
191B	1	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-1	5 / A611	9 / A611	1 / A611		2	1	191B
191C	1	7'-0"	3'-0"	0'-1 3/4"	WD	C	HM	HM-2	8 / A611	-	4 / A611		6	4	191C
191D	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611		4		191D
192A	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	45 MIN	10	2	192A
192B	1	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-1	5 / A611	9 / A611	1 / A611		2	1	192B
192C	1	7'-0"	3'-0"	0'-1 3/4"	WD	C	HM	HM-2	8 / A611	-	4 / A611		6	4	192C
192D	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611		4		192D
193A	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	45 MIN	10	2	193A
193B	1	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-1	5 / A611	9 / A611	1 / A611		2	1	193B
193C	1	7'-0"	3'-0"	0'-1 3/4"	WD	C	HM	HM-2	8 / A611	-	4 / A611		6	4	193C
193D	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611		4		193D
194A	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	45 MIN	10	2	194A
194B	1	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-1	5 / A611	9 / A611	1 / A611		2	1	194B
194C	1	7'-0"	3'-0"	0'-1 3/4"	WD	C	HM	HM-2	8 / A611	-	4 / A611		6	4	194C
194D	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611		4		194D
195A	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	1 HOUR	11	2	195A
195B	1	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-1	5 / A611	9 / A611	1 / A611		2	1	195B
196A	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611	45 MIN	7	2	196A
196B	2	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-0	5 / A611	9 / A611	1 / A611		3	1	196B
197	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611	45 MIN	5	2	197
198	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611	45 MIN	9	2	198
250A	2	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-3	5 / A611	8 / A413	1 / A611		3	1	250A
250B	2	7'-0"	3'-0"	0'-1 3/4"	HM	D.1	HM	HM-3	8 / A611	-	4 / A611		14		250B
251A	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	45 MIN	10	2	251A
251C	1	7'-0"	3'-0"	0'-1 3/4"	WD	C	HM	HM-2	8 / A611	-	4 / A611		6	4	251C
251D	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611		4		251D
252A	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	45 MIN	10	2	252A
252C	1	7'-0"	3'-0"	0'-1 3/4"	WD	C	HM	HM-2	8 / A611	-	4 / A611		6	4	252C
252D	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611		4		252D
253A	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	45 MIN	10	2	253A
253C	1	7'-0"	3'-0"	0'-1 3/4"	WD	C	HM	HM-2	8 / A611	-	4 / A611		6	4	253C
253D	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611		4		253D
254A	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	45 MIN	10	2	254A
254C	1	7'-0"	3'-0"	0'-1 3/4"	WD	C	HM	HM-2	8 / A611	-	4 / A611		6	4	254C
254D	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611		4		254D
255	1	7'-0"	3'-0"	0'-1 3/4"	WD	B	HM	HM-1	8 / A611	-	4 / A611	1 HOUR	11	2	255
256	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611	45 MIN	7	2	256
257	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611	45 MIN	5	2	257
258	1	7'-0"	3'-0"	0'-1 3/4"	WD	A	HM	HM-1	8 / A611	-	4 / A611	45 MIN	9	2	258
500A	1	7'-0"	3'-0"	0'-1 3/4"	HM	D	HM	HM-1	8 / A611	-	4 / A611	1 HOUR	8		500A
500B	1	7'-0"	3'-0"	0'-1 3/4"	HM	D	HM	HM-1	4 / A411	8 / A411	1 / A611		1		500B

GENERAL NOTES - DOOR SCHEDULE

1	NOTED DIMENSIONS ARE DOOR CLEAN OPENING, EXCLUSIVE OF STOPS.
2	DOORS MAY BE UNDERCUT A MAXIMUM DIMENSION ALLOWED BY FIRE LABEL.
3	DIMENSIONS INDICATED AS FEET AND INCHES: 3'-0" = 3 FEET, 0 INCHES
4	ALL DOORS ARE 1-3/4" THICK UNLESS NOTED OTHERWISE.
5	ALL DOOR AND FRAME ASSEMBLIES ARE MINIMUM LABEL NOTED.
6	ALL EXISTING AND NEW HOLLOW METAL DOORS / FRAMES ARE TO BE FACTORY PRIMED AND FIELD PAINTED.
8	VISION PANELS IN NON-RATED DOORS TO BE INSTALLED IN METAL FRAMES. FRAMES TO BE PAINTED, REFERENCE FINISH SCHEDULE.
9	VISION PANELS IN RATED DOORS TO BE INSTALLED IN METAL FRAMES. FRAMES TO BE PAINTED, REFERENCE FINISH SCHEDULE.
10	INTERIOR AND EXTERIOR PASSAGE DOORS WITH LATCHING HARDWARE MUST BE EQUIPPED WITH OPERATING HARDWARE DEVICES THAT COMPLY WITH NCHD 4.3.9 (A) (1-4)
11	PROVIDE TEXTURED SURFACES ON DOOR HANDLES LEADING TO HAZARDOUS AREAS.
12	INSTALL VISION PANELS IN DOORS WITH BOTTOM EDGE NO HIGHER THAN 40" A.F.F.
13	RATED DOORS TO HAVE RATED FRAMES, HARDWARE, CLOSERS, AND OTHER FIRE-RATED ACCESSORIES.
14	HARDWARE SCHEDULE INCLUDED IN PROJECT MANUAL - SPECIFICATION SECTION 08 7100 DOOR HARDWARE
15	EXTERIOR HOLLOW METAL DOORS ARE TO BE INSULATED.
16	CONTRACTOR SHALL BE RESPONSIBLE FOR ENLISTING AN EXPERIENCED COMPANY IN THE PREPARATION OF FACILITY'S EXISTING DOOR(S) FOR UNDERCUTTING, AS SCHEDULED. WORK SHALL BE PERFORMED TO THE SATISFACTION OF THE ARCHITECT AND/OR OWNER. IF WORK IS FOUND TO BE UNSATISFACTORY, CONTRACTOR SHALL REPLACE DOOR(S) AS REQUIRED.

KEYED NOTES - DOOR SCHEDULE

1	PROVIDE GL-2T TINTED SOLAR GLASS AT ALL EXTERIOR EGRESS DOORS, U.N.O.
2	PROVIDE GL-3 FIRE-RATED GLASS AT ALL RATED DOORS, U.N.O.
3	PROVIDE ACCESS CONTROL HARDWARE AT DOORS IN LOBBY 102A, TYP.
4	UNDERCUT DOOR, COORDINATE WITH MECHANICAL DRAWINGS.

DOOR, WINDOW, AND FRAME LEGEND

AL	ALUMINUM FRAMED/GLAZED
ETR	EXISTING TO REMAIN
HM	HOLLOW METAL
LL	LEAD LINED
P LAM	PLASTIC LAMINATE FACED

GLAZING SCHEDULE

REFER TO SPECIFICATIONS

GLAZING TYPE	DESCRIPTION
GL-1T	1/4" THICK TEMPERED GLASS, CLEAR
GL-2T	1/4" THICK TEMPERED GLASS, SOLAR TINT
GL-3	FIRE-RATED GLASS
GL-4T	LOW-E, SOLAR TINT INSULATING GLASS, TEMPERED
	SECURITY FILM APPLIED TO GLASS

THOMAS WEEMS ARCHITECT
3203 HANOVER ROAD
JOHNSON CITY, TN 37604
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fax: 423-952-2702
www.thomasweemsarchitect.com

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THOMAS E. WEEMS REGISTERED ARCHITECT NUMBER 21705 STATE OF TENNESSEE 7-12-21

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REVISIONS

PROJECT NO. 019-030

ISSUE DATE MARCH 15, 2021

TITLE

DOOR SCHEDULE

SHEET

A601

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THOMAS WEEMS ARCHITECT

PRE-BID CONFERENCE AGENDA and MINUTES

ITB #6498 INTERIOR RENOVATIONS AND CLASSROOM ADDITION: LAKE RIDGE ELEMENTARY SCHOOL

1001 Lake Ridge Square

Johnson City, Tennessee 37601

DATE: Tuesday, May 11, 2020 at 3:30 PM Local Time.

LOCATION: Project site, Lake Ridge Elementary School, 1001 Lake Ridge Square, Johnson City, Tennessee 37601

Bids will be accepted from Bidders of Record only (those obtaining Bid Documents from Thomas Weems Architect).

A. INTRODUCTION OF PROJECT TEAM:

1. The Owner is: City of Johnson City Tennessee, Municipal and Safety Building, 601 East Main Street, Johnson City, Tennessee 37601.
   a. Owners Representative: Randy Trivette, Telephone: 423-434-5718.
2. The Project is: ITB #6498 Interior Renovations and Classroom Addition for Lake Ridge Elementary School, 1001 Lake Ridge Square, Johnson City, Tennessee 37601.
   a. Principal: Renee Woods, Telephone: 423-610-6030.
   b. Supervisor of Maintenance: Joe Barnes, Telephone: 423-791-0218.
3. The Architect is: Thomas Weems Architect, 3203 Hanover Road, Johnson City, Tennessee 37604.
   a. Architect: Thomas Weems AIA, Telephone: 423-952-2700 X1.
   b. Architect: Katie Hill, Telephone: 423-952-2700 X2. (Contact for *ALL* questions).
4. The Architect's Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:
   a. Civil Engineer: Tysinger Hampton and Partners, Inc., 7 Worth Circle, Johnson City, Tennessee 37601, Telephone: 423-282-2687.
   b. Structural Engineer: Spoden and Wilson Consulting Engineers, 430 Clay Street, Kingsport, Tennessee 37660, Telephone: 423-245-1811.
   c. Mechanical and Fire Protection Engineer: Mechanical Design Services, 310 Forest Park Boulevard, Knoxville, Tennessee 37919, Telephone: 865-617-3181.
   d. Electrical Engineer: Vreeland Engineers, Inc., 3107 Sutherland Avenue, Knoxville, Tennesee37919, Telephone: 865-637-4451.

B. ADVERTISEMENT FOR BIDS:

1. ITB #6498: Sealed bids for Johnson City Schools – Interior Renovations and Classroom Addition for Lake Ridge Elementary School, as described in the Contract Documents, will be received by the Johnson City, Purchasing Department, Debbie Dillon, Director, 209 Water Street (37601), P O Box 2150 (37605) Johnson City, Tennessee:

   UNTIL: Thursday, May 27, 2021 at 3:00 PM local time.

2. As a response to COVID -19 Public Health Emergency solicitations will be opened publicly via a web conference only. Public attendance not permitted. Information normally available in person can be obtained through other methods. Bids shall be hand carried or mailed to Johnson City Purchasing Department, 209 Water Street, Johnson City, Tennessee 37601. Bids shall *not* be submitted via email.

JOIN ZOOM MEETING: ITB# 6498 - LAKE RIDGE ELEMENTARY SCHOOL VIRTUAL BID OPENING

MEETING ID: 812 4483 9616

PASSCODE: 998735

a. If you do not have access to a webcam, or you have no audio with your system, you may call (646) 518-9805 to join.
b. Any issues accessing the zoom web meeting please call (423) 975-2715 for assistance.

3. A Pre-Bid Conference will be held at Lake Ridge Elementary School, 1001 Lake Ridge Square, Johnson City, Tennessee 37601:

   DATE: Tuesday, May 11, 2021 at 3:30 PM local time.

   c. Following a general review, Contractors may tour the project site.
   d. Note that social distancing and wearing of masks will be required at the Pre-Bid Conference and any Site Visit.

4. Submit questions in electronic format via Email: Thomas Weems Architect, 3203 Hanover Road, Johnson City, Tennessee 37604, Telephone: 423-952-2700. Attention: katie@thomasweemsarchitect.com until:

   DATE: Monday, May 24, 2021 at 12:00 PM local time.

5. Anticipated Start Date for Construction:

   DATE: June 2021.

6. All bidders must be licensed contractors as required by Contractor's Licensing Act 1994 (TCA Title 62, Chapter 6) and all requirements therein. The project requires a [5] % Bid Bond, specific insurance and [100] % Payment and Performance Bond. Contractors must comply with all Drug Free Requirements.

D. DOCUMENTS:

1. Bidders may obtain electronic copies of the bidding documents [pdf files] *at no cost* from the Office of the Architect:
   a. Thomas Weems Architect, 3203 Hanover Road, Johnson City, Tennessee 37604, Telephone: 423-952-2700. Email: tom@thomasweemsarchitect.com

2. Additional printed copies of the bidding documents, if required, may be purchased for a fee from:
   a. Knoxville Blueprint and Supply Company, Inc., 622 Leroy Ave NW, Knoxville Tennessee 37921, Telephone: 865-525-0463. Email: knoxblue.com

3. Bidding Documents may be examined at the following locations:
   a. Associated General Contractors Plan Room, 209 Neal Drive, Blountville, Tennessee 37617, Telephone: 423-323-7121. Email: planroom@tricitiestnagc.org
   b. Knoxville Builders Exchange, 300 Clark Street, Knoxville, Tennessee 37921, Telephone: 865-525-0443. Email: reporter@bxtn.org
   c. Fw Dodge McGraw Hill, 622 Leroy Avenue, Knoxville, Tennessee 37921, Telephone: 865-673-9042. Email: Dodge.Docs@construction.com

E. BIDDING PROCEDURES:

1. The project will be constructed under a Single Stipulated Sum Prime Contract: AIA A101-2017 Owner Contractor Agreement.

2. Bidders shall include all Labor, Materials, Equipment, Transportation, Construction Plant and Facilities necessary to complete Work in bid.

3. Observe Tennessee Public Law.
   a. Successful bidders will be required to comply with applicable Equal Employment Opportunity laws and regulations.
   b. Successful bidders will be required to furnish Performance bond and Labor and Material Payment Bond prior to beginning this work.
   c. Successful bidders must comply with applicable federal, state and local codes, including the Americans with Disabilities Act (ADA) Federal Register.

4. Contract Time: Substantial completion following receipt of the Owner's written notice to proceed:
   a. New Construction: Two level, [8] Classroom pod addition and site work. Work of this Phase shall commence June 2021 and be substantially complete and ready for occupancy by February 2022.
   b. Mechanical Upgrades: Install curbs and roof top HVAC units. Work of this Phase shall commence June 2021 and be substantially complete by August 1, 2021.
   c. Mechanical Upgrades: Interior mechanical work to connect new roof top HVAC and interior renovation work to provide above ceiling access. Work of this Phase shall commence February 1, 2022 and be complete and ready for occupancy by September 30, 2022.

5. Bid Forms: Submit Bid Form 00 4100.
   a. Fill in ALL Relevant Blanks – Handwritten or Typewritten.
   b. Fill in ALL amounts for Unit Prices.
   c. Include Owner's Contingency in Base Bid amount.
   d. Initial ALL Erasures/Changes.
   e. Acknowledge all Addenda.
   f. Sign/Seal and submit Bid Form.

6. Bid shall be accompanied by City of Johnson City 'Front End' documents and 00 2455 Compliance with Public Acts 587 and 844 and 00 2456 Tennessee Criminal History Background Check, Tennessee Code Annotated Section 49-5-413.
   a. Fill in ALL Relevant Blanks – Handwritten or Typewritten.
   b. Sign/Seal and submit with Bid Form.

7. Bid shall be accompanied by Bid Bond in the amount of five percent (5%) of Bid.

F. COVID-19 PROTOCOLS:

1. Contractor required COVID-19 protocols to be utilized by the Contractor throughout the course of this project. A copy of the "Tennessee Pledge – Construction Worksites" document is attached hereto and is available at:
   a. https://www.tn.gov/governor/covid-19/economic-recovery/construction-worksite-guidelines.html.

2. Contractor shall utilize the "Tennessee Pledge" guidelines for "Construction Worksites" as issued by the State of Tennessee. These safeguarding protocols are based on the recommendation of the CDC and OSHA and shall be in effect for the duration of this project unless otherwise instructed or modified.

3. All construction personnel will be required to wear a mask inside the existing school space during school operating hours.

4. Contractor shall maintain a log on site to screen all employees (GC and Sub-Contractors) reporting to work and visitors for COVID-19 symptoms as described on Page 1 of the Tennessee Pledge guidelines for Construction Worksites. Log shall contain the following information for all workers and visitors: date, name, time in/time out, company or affiliation, and a yes/no box to answer the following five questions:
   a. Have you been in close contact with a confirmed case of COVID-19?
   b. Are you experiencing a cough, shortness of breath or sore throat?
   c. Have you had a fever in the last 48 hours?
   d. Have you had new loss of taste or smell?
   e. Have you had vomiting or diarrhea in the last 24 hours?

G. CONTRACT REQUIREMENTS:

1. General Conditions: AIA-007 General Conditions of the Contract.

2. Supplementary Conditions:
   a. Article 7, Changes in the Work: Contractor's Fee for Changes in the Work:
      i. For the Contractor, for work performed by the Contractor's own forces: [15] % of the cost.
      ii. For the Contractor, for work performed by the Contractor's Subcontractor: [5] % of the amount due the Subcontractor.
      iii. For each Subcontractor, for work performed by that Subcontractor or Sub-subcontractor's own forces: [15] % of the cost.
      iv. For each Subcontractor, for work performed by the Subcontractor's Sub-subcontractor: [5] % of the cost.
   b. Article 8, Time:
      i. Liquidated damages: the sum of five hundred dollars and zero cents [$500.00] as fixed and agreed liquidated damages

for each calendar day of delay until the project is substantially complete.

c. Article 10, Protection of Persons and Property:
   i. General Contractor is responsible for design and implementation of safety programs.
   ii. Proper conduct of employees must be enforced.
   iii. Use of drones on site requires aviation liability insurance coverage and FCC operator's license.
   iv. Use of alcohol and tobacco on site is prohibited.
   v. Alcohol free workplace.
   vi. Gun free zone.

d. Article 11, Insurance and Bonds: General Contractor to Provide:
   i. General Contractor to provide insurance specified in Front End Document FE 1600.
   ii. Bid Security: In the amount of five percent (5%) of Bid.
   iii. Performance Bond and Payment Bond: In the amount of one hundred percent (100%) of the Contract Sum.

3. Existing Conditions:
   a. Owner will occupy Building for administrative, custodial and school functions.
      i. General Contractor must minimize disturbance of normal daily functions.
      ii. General Contractor to coordinate with Owner for use of space.
      iii. Do not block driveways.
      iv. Do not park on yards or athletic fields.
      v. General Contractor to coordinate use of parking lot and driveways with Owner.
      vi. Construction access and staging areas to be reviewed at Pre-Bid Conference.

4. Scope of Work:
   a. The Work of Project is defined by the Contract Documents and consists of the following: ITB 6498 Interior Renovations and Classroom Addition for Lake Ridge Elementary School. Work includes: Demolition, civil, general construction, structural, fire protection, mechanical and electrical work.

5. Preceding Work by the Owner:
   a. Not Applicable.

6. Concurrent Work by the Owner:
   a. Not Applicable.

7. Allowances:
   a. Allowance No. 1: Owner's Contingency Allowance: Include the sum of [$350,000.00] Three Hundred Fifty Thousand Dollars and Zero Cents for unforeseen conditions and related costs. This allowance includes material cost, receiving, handling, installation and Contractor overhead and profit.

   b. Allowance No. 2: Lump Sum Cash Allowance: Include the sum of [$25,000.00] Twenty Five Thousand Dollars and Zero Cents for testing and inspection services, including special inspections, as specified in Section 01 4523 – Testing and Inspection Services. This allowance includes material cost, receiving, handling, installation and Contractor overhead and profit.

   c. Allowance No. 3: Lump Sum Cash Allowance: Include the sum of [$2,500.00] Two Thousand Five Hundred Dollars and Zero Cents for gypsum cement underlayment as specified in Section 03 5413 – Gypsum Cement Underlayment. This allowance includes material cost, receiving, handling, installation and Contractor overhead and profit.

   d. Allowance No. 4: Lump Sum Cash Allowance: Include the sum of [$2,500.00] Two Thousand Five Hundred Dollars and Zero Cents for wall and ceiling access panels not shown on Drawings and as specified in Section 08 3110 – Wall and Ceiling Access Panels. This allowance includes material cost, receiving, handling, installation and Contractor overhead and profit.

   e. Allowance No. 5: Lump Sum Cash Allowance: Include the sum of [$60,000.00] Sixty Thousand Dollars and Zero Cents for removal and replacement of existing acoustical ceiling tile / grid, light fixtures, sprinklers, diffusers, grilles and devices not shown on Drawings but required for installation of new HVAC upgrades. This allowance includes material cost, receiving, handling, installation and Contractor overhead and profit. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 - Unit Prices.

f. Allowance No. 6: Lump Sum Cash Allowance: Include the sum of: [$100,000.00] One Hundred Thousand Dollars and Zero Cents for classroom furniture, fixtures and equipment. This allowance includes material cost, receiving, handling, installation and Contractor overhead and profit.

g. Allowance No. 7: Lump Sum Cash Allowance: Include the sum of: [$15,000.00] Fifteen Thousand Dollars and Zero Cents for IT equipment and devices not shown on Drawings. This allowance includes material cost, receiving, handling, installation and Contractor overhead and profit.

h. Allowance No. 8: Lump Sum Cash Allowance: Include the sum of: [$1,188,129.00] One Million One Hundred Eighty Eight Thousand One Hundred Twenty Nine Dollars and Zero Cents for purchase and delivery of Trane HVAC equipment as specified in Section 23 8114 Rooftop Dx Unit, Section 23 3616 Variable / Constant Volume Air Terminals, Section 23 8126 Ductless Split Unit, Gas Rooftop Units (RTU) Schedule On Drawing M001, Ductless Split Schedule Shown On Drawing M-001, Volume Box Schedule (VVB) Shown On Drawing M-002. This allowance also includes Trane controls equipment and labor as shown in HVAC Controls Drawings M401, M402, M403 and specified in Section 23 0923 Building Systems Controls. This allowance includes the material costs and freight from Trane but does not include receiving, handling, and Contractor mark-up and profit.

8. Unit Prices:
   a. Unit Price No. 1 – Acoustical Ceiling Removal and Replacement: Description: Removal and replacement of acoustical ceiling tile and grid not shown on Drawings but required to install specified HVAC upgrades and as specified in Section 09 5100 – Acoustical Ceilings. Does not include removal and replacement of light fixtures, sprinkler heads, diffusers, grilles or other devices included in Allowance No. 5. Unit of Measure: Square foot. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 01 2100 – Allowances.

9. Substitutions: Substitution Request Form 01 2500:
   a. Fill in ALL Relevant Blanks – Handwritten or Typewritten.
   b. Sign and submit prior to Bid Date.

10. Contract Modification Procedures:
    a. Architect's Supplemental Instructions: AIA Document G710 - Architect's Supplemental Instructions.
    b. Proposal Requests: AIA Document G709 - Proposal Request.
    c. Contractor Proposed Changes: Contractor's standard.
    d. Construction Change Directive: AIA Document G713 - Construction Change Directive.
    e. Change Order: AIA Document G701 - Change Order.

11. Request for Information: Request for Information Form 01 2613:
    a. Fill in ALL Relevant Blanks – Handwritten or Typewritten.
    b. Sign and submit.

12. Construction Progress Schedule:
    a. Submit initial Progress Schedule within [15] calendar days after receipt of Owner's written notice to proceed.
    b. Submit revised Progress Schedule with each Application for Payment.

13. Submittal Procedures:
    a. Submit proposed Products List within [15] calendar days after receipt of Owner's written notice to proceed.
    b. Submit submittals electronically.

14. Quality Assurance, Testing and Inspection:
    a. Construction Testing and Inspection Services: Included in specified Allowance.
    b. Quality Assurance Services: Included in specified Allowance.
    c. Special Testing Services: Provided by Owner.

15. Temporary Facilities:
    a. Temporary utilities provided by General Contractor.
    b. General Contractor to provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from construction activities.

THOMAS WEEMS ARCHITECT

H. QUESTIONS:

1. _____
2. _____
3. _____
4. _____
5. _____

I. NOTES:

1. _____
2. _____
3. _____
4. _____
5. _____

J. SITE TOUR:

1. _____
2. _____
3. _____
4. _____
5. _____

1. Site Tour to be conducted at end of Pre-Bid Conference.
2. Contact CoJC Facilities Director Randy Trivette (423-434-5718) to arrange additional site visits.

THOMAS WEEMS ARCHITECT

PRE-BID CONFERENCE SIGN IN SHEET

ITB #6498 INTERIOR RENOVATIONS AND CLASSROOM ADDITION: LAKE RIDGE ELEMENTARY SCHOOL

1001 Lake Ridge Square

Johnson City, Tennessee 37601

DATE: Tuesday, May 11, 2020 at 3:30 PM Local Time.

LOCATION: Project site, Lake Ridge Elementary School, 1001 Lake Ridge Square, Johnson City, Tennessee 37601

Bids will be accepted from Bidders of Record only (those obtaining Bid Documents from Thomas Weems Architect).

Company Name	BURWIL CONSTRUCTION				
Address	620 LOCUST ST.				
City	BRISTOL	State	TN	Zip	37620
Contact Name	STEVE JOHNSON				
Phone	423-968-4158	Fax	423-968-3199		
Email	SJOHNSON@BURWIL.COM				

Company Name	GRC Construction				
Address	130 Regional Park Dr				
City	Kingsport	State	TN	Zip	37660
Contact Name	Bob Edmisten				
Phone	349 7760	Fax			
Email	bob@grcinc.com				

Company Name	ARMSTRONG CONSTRUCTION Co. INC.				
Address	151 SHELBY ST.				
City	KINGSPORT	State	TN	Zip	37660
Contact Name	BEN McMURRAY				
Phone	423 246 6185	Fax	423 246 7608		
Email	BEN@ARMSTRONG-CONSTRUCTION.COM				

Company Name	JE Green Company				
Address	303 E. Market St.				
City	Johnson City	State	TN	Zip	37601
Contact Name	Jim Green				
Phone	423-926-5161	Fax	423-926-3572		
Email	jimgreen@jegreenco.com				

THOMAS WEEMS ARCHITECT

PRE-BID CONFERENCE SIGN IN SHEET

ITB #6498 INTERIOR RENOVATIONS AND CLASSROOM ADDITION: LAKE RIDGE ELEMENTARY SCHOOL

Company Name	J. E. GREEN CO.				
Address	303 E. MARKET ST.				
City	JOHNSON CITY,	State	TN	Zip	37601
Contact Name	TAYLOR GREEN				
Phone	423-926-5161	Fax			
Email	taylorgreen.jeg@gmail.com				
Company Name	JA Street & Associates				
Address	Birch St.				
City	Blountville, TN	State	TN	Zip	37620
Contact Name	Lawton Sizemore				
Phone	423-323-8017	Fax			
Email	lsizemore@jastreet.com				
Company Name	JA Street & Associates				
Address					
City		State		Zip	
Contact Name	Adam Killian				
Phone	423-267-0331	Fax			
Email	akillian@jastreet.com				
Company Name	~~BRIAN POE~~ J.A. Street				
Address	245 BIRCH				
City	BLOUNTVILLE TN	State	TN	Zip	37617
Contact Name	Brian Poe				
Phone	423 323 8017	Fax	423 323 1067		
Email	bpoe@jastreet.com				
Company Name	Acorn Electrical Specialist, Inc.				
Address	403 Rock Lane				
City	Piney Flats	State	TN	Zip	37686
Contact Name	Scott DePriest				
Phone	423-538-6007	Fax	423-538-5953		
Email	Scott@acornelectrical.com				

THOMAS WEEMS ARCHITECT

PRE-BID CONFERENCE SIGN IN SHEET

ITB #6498 INTERIOR RENOVATIONS AND CLASSROOM ADDITION: LAKE RIDGE ELEMENTARY SCHOOL

Company Name	JODY HOOD ~ MASSEY ELECTRIC				
Address	546 EASTERN STAR RD.				
City	KINGSPORT, TN.	State [redacted]	TN	Zip	37663

Contact Name					
Phone		Fax			
Email					

Company Name	Trane				
Address	10384 Wallace Alley St.				
City	kingsport	State [redacted]N	TN	Zip [redacted]	37620

Contact Name	Amy Goodyear				
Phone	717-497-8137	Fax			
Email	amelia.goodyear@trane.com				

Company Name	S.B. WHITE CO. INC.				
Address	P.O. Box 1734				
City	JOHNSON CITY,	State [redacted]	TN	Zip [redacted]	37605

Contact Name	DAVID McKINNEY				
Phone	423-926-8127	Fax	[redacted]		
Email	dmckinney@sbwhiteco.com				

Company Name	TRANE				
Address	10384 WALLACE ALLEY ST				
City	Kingsport	State TN		Zip	37605

Contact Name	JOHN WILLIAMS				
Phone	423-794-6334	Fax			
Email	JWILLIAMS48@TRANE.com				

Company Name	Creative Masonry				
Address	301 Bohannon Ave Greenville				
City		State		Zip	

Contact Name	Devon Jackson				
Phone	423 213 4173	Fax			
Email	cmiestimating@aol.com				

THOMAS WEEMS ARCHITECT

PRE-BID CONFERENCE SIGN IN SHEET

ITB #6498 INTERIOR RENOVATIONS AND CLASSROOM ADDITION: LAKE RIDGE ELEMENTARY SCHOOL

Company Name	Path Construction				
Address	125 E Algonquin Rd.				
City	Arlington Heights	State	IL	Zip	60005
Contact Name	Paul Stacey				
Phone	872-400-1803	Fax			
Email	pstacey@pathcc.com				
Company Name	H & M CONSTRUCTIONS				
Address	187 BEAVERVIEW RD				
City	Asheville	State	NC	Zip	28803
Contact Name	ERIC JONES				
Phone	828.776.9543	Fax			
Email	eJones@h-mconstructions.com				
Company Name	HVAC, Inc				
Address	801 Third St				
City	Bristol	State	TN	Zip	37620
Contact Name	Andy Savage				
Phone	423-989-5000	Fax			
Email	asavage@hvac-inc.com				
Company Name	PRESTON CONST. CO.				
Address	1503 NARROW LN				
City	JOHNSON CITY	State	TN	Zip	37604
Contact Name	RICHARD PRESTON				
Phone	423-926-0172	Fax	423.434-2457		
Email	richard@prestonconstructioncompany.com				
Company Name	City of Johnson City				
Address					
City		State		Zip	
Contact Name	Randy Trivette				
Phone	423-434-5718	Fax			
Email	rtrivette@johnsoncitytn.org				

THOMAS WEEMS ARCHITECT

PRE-BID CONFERENCE SIGN IN SHEET

ITB #6498 INTERIOR RENOVATIONS AND CLASSROOM ADDITION: LAKE RIDGE ELEMENTARY SCHOOL

Company Name	THOMAS WEEMS ARCHITECT				
Address	3203 HANOVER ROAD				
City	JOHNSON CITY	State	TN	Zip	37604
Contact Name	TOM WEEMS				
Phone	423-952-2700	Fax	—		
Email	tom@thomasweemsarchitect.com				
Company Name	THOMAS WEEMS ARCHITECT				
Address	3203 HANOVER ROAD				
City	JOHNSON CITY	State	TN	Zip	37604
Contact Name	KATIE HILL				
Phone	423-952-2700	Fax	—		
Email	katie@thomasweemsarchitect.com				
Company Name					
Address					
City		State		Zip	
Contact Name					
Phone		Fax			
Email					
Company Name					
Address					
City		State		Zip	
Contact Name					
Phone		Fax			
Email					
Company Name					
Address					
City		State		Zip	
Contact Name					
Phone		Fax			
Email					

STORM WATER MANAGEMENT PLAN

LAKE RIDGE ELEMENTARY SCHOOL ADDITION

Johnson City, Tennessee

4/21/2021

THOMAS WEEMS ARCHITECT

Prepared For:

Tom Weems Architect
3203 Hanover Road
Johnson City, TN 37604

TH&P: 1922107C

Tysinger, Hampton & Partners, Inc. | 7 Worth Circle | Johnson City, TN 37601
Phone: 423-282-2687 | Fax#1 423-854-4563 | Fax#2: 423-282-1621 | www.tysinger-engineering.com

Date and Signature Page

Design Report

Prepared For: Tom Weems Architect
3203 Hanover Road
Johnson City, TN 37604

This report is current as of 4/21/2021.

Thomas O. Patton, Jr., PE

Thomas O. Patton Jr

Revision Log

Revision Number	Date	Pages	Description
1	4/21/21	Appendix G	COJC Comments 4/9/21

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STORM WATER MANAGEMENT SYSTEM 2
Storm Water Conveyance 2
Storm Water Detention 2
Pre-Development 3
Post-Development 3
STORM WATER QUALITY 4
Maintenance of Water Quality Management Facilities 5

APPENDICES

Appendix A: Location Map

Appendix B: Drainage Maps

Appendix C: Hydrologic Analysis

Appendix D: Hydraulic Analysis

Appendix E: Water Quality Calculations

Appendix F: BMP Operations and Maintenance

Appendix G: Fire Truck Exhibit

PROJECT DESCRIPTION

Lake Ridge Elementary School is located on Lake Ridge Square in northern Johnson City, south of Boone Lake. An addition is proposed to be constructed on the southwestern side of the school that will consist of a new building, increased parking spaces, a new location for the ball court, new covered walkways to the main entrances, and a new playground structure. A location map of the project site is included in Appendix A.

Existing Site Conditions

The existing site of the school grounds consists of one continuous school building structure, three separate surface parking lots, a ball court, a playground area, and a grass field with a walking track. All storm water flows to the north into the existing storm water system and eventually discharges into Boone Lake. No detention basins or similar structures currently exist on site.

Proposed Site Improvements

The proposed improvements on the western side of the school include an addition to the main building structure, a revised parking lot layout to increase the amount of parking spaces, a new location for the ball court, and associated sidewalks and ancillary structures. Both of the main entrance ways on the northern side of the school will receive wider concrete walkways that will be covered by a canopy structure. The playground area to the east of the school will receive a new play structure system with a rubberized surface that will be impervious. Additional storm water sewers will accompany the improvements on the north and west sides of the building that will discharge to a new detention basin facility. Finally, a water quality device is being installed to meet water quality regulations. Refer to the civil construction drawings titled "*Lake Ridge Elementary School*" for a full representation of the proposed construction.

STORM WATER MANAGEMENT SYSTEM

Storm water management for the proposed addition consists of roof drains that will feed directly into the storm sewer system and the storm sewer system itself which will involve demolition of some existing lines and addition of new smooth interior corrugated plastic (SICP) lines. The system will flow to a proposed detention basin facility to manage storm water quantity. From the detention basin, storm water will flow back into the existing storm drainage system and on to Boone Lake. A brief discussion of the design of each of the proposed storm water measures follows.

Storm Water Conveyance

The proposed addition will use roof drains that will collect water from the proposed building addition and direct it to the existing storm sewer system via additional storm sewers that will consist of approximately 1,390 linear feet of new piping. For the improvements to the north and west of the school, new drain basins and catch basins will be installed to collect surface water and discharge it into the storm sewer system. All additional storm sewers will discharge to structure D2.2 in the northwestern corner of the school grounds which will discharge into the detention basin. From the detention basin, storm water will discharge into an existing storm sewer structure located on Lake Ridge Square just north of the detention basin, shown on the drainage maps in Appendix B. All storm water will eventually discharge to Boone Lake, which is approximately 2,500 feet north of the school.

See Appendix D for a summary of proposed storm sewer piping and associated calculations.

Storm Water Detention

A detention basin facility has been designed to control the increased runoff from the site improvements. The basin was designed to limit post-development peak discharge to pre-development rates for the 1-year 24-hour storm through the 100-year 24-hour storm. To accomplish this, the detention basin has a storage volume of approximately 12,000 cubic feet and an outlet structure with two orifices to control storm events as

water rises in the basin. The outlet structure is designed to be fitted with a typical storm grate over the principal spillway to filter large debris. Finally, a concrete-lined emergency spillway has been designed to safely discharge larger storm events.

Pre-development and post-development storm water calculations for the site have been completed using the software program PondPack V8i by Bentley.

Pre-Development

The pre-development scenario includes the existing drainage area for the school grounds calculated at the confluence point in the existing storm sewer system that occurs just north of the school property (see the drainage maps in Appendix B). For calculation purposes the drainage area has been split into two sub-areas, one that drains to where the detention basin is proposed and one that drains “offsite” which will bypass the proposed detention basin and drain to the same point of confluence in the existing storm drainage system.

Post-Development

The post-development scenario includes the building addition, parking lot redesign, ball court, new walkways, and the new play structure. Storm water runoff is increased in the post-development scenario due to the addition of impervious surfaces over existing pervious surfaces. Therefore, the detention basin is proposed to store the excess runoff and release it at peak flow rates that are less than the pre-development peak flow rates. Existing flow patterns will not be changed except for the covered walkway areas to the north of the school that will be collected and conveyed to the proposed detention basin. See the table below for a comparison of pre- and post-development peak flow rates.

Table 1 – Peak Flow Comparison

	Peak Flow (cfs)	
Storm Event	**Pre-Development**	**Post-Development**
1-year	13.67	9.54
2-year	16.55	12.34
5-year	29.48	26.11
10-year	42.41	42.18
25-year	50.37	49.23
100-year	66.99	65.26

Based on the results of this hydrologic analysis, the addition of the proposed improvements along with the proposed storm water infrastructure is not expected to increase storm water runoff from the site. Therefore, downstream properties are not expected to be impacted by the proposed construction. Calculations for the hydrologic analysis are included in Appendix C.

STORM WATER QUALITY

Water quality for the site has been managed according to the *Northeast Tennessee Water Quality BMP Manual, February 2008*. One Aqua-Swirl BMP treatment device manufactured by Aquashield will be utilized as the permanent storm water management measure to achieve the required 80% total suspended solids (TSS) pollutant removal for the site. According to the list of water quality devices accepted by the City of Johnson City, Aqua-Swirl Concentrator devices have been tested to remove 87.3% of TSS. Therefore, the proposed Aqua-Swirl Concentrator Model AS-4 unit will be adequate to remove the required amount of TSS from the new impervious surfaces. See the civil construction drawings entitled "*Lake Ridge Elementary School*", provided under separate cover, for a detail of the proposed Aqua-Swirl unit

Channel protection for the receiving stream has been considered by controlling the peak discharge from the 1-year storm. A 4-inch orifice at the base of the dry detention basin outlet structure is calculated to control peak discharge from the 1-year storm from the

entire site to 9.54 cubic feet per second (cfs) which is a 30% decrease from the pre-development peak discharge at the same point of outfall.

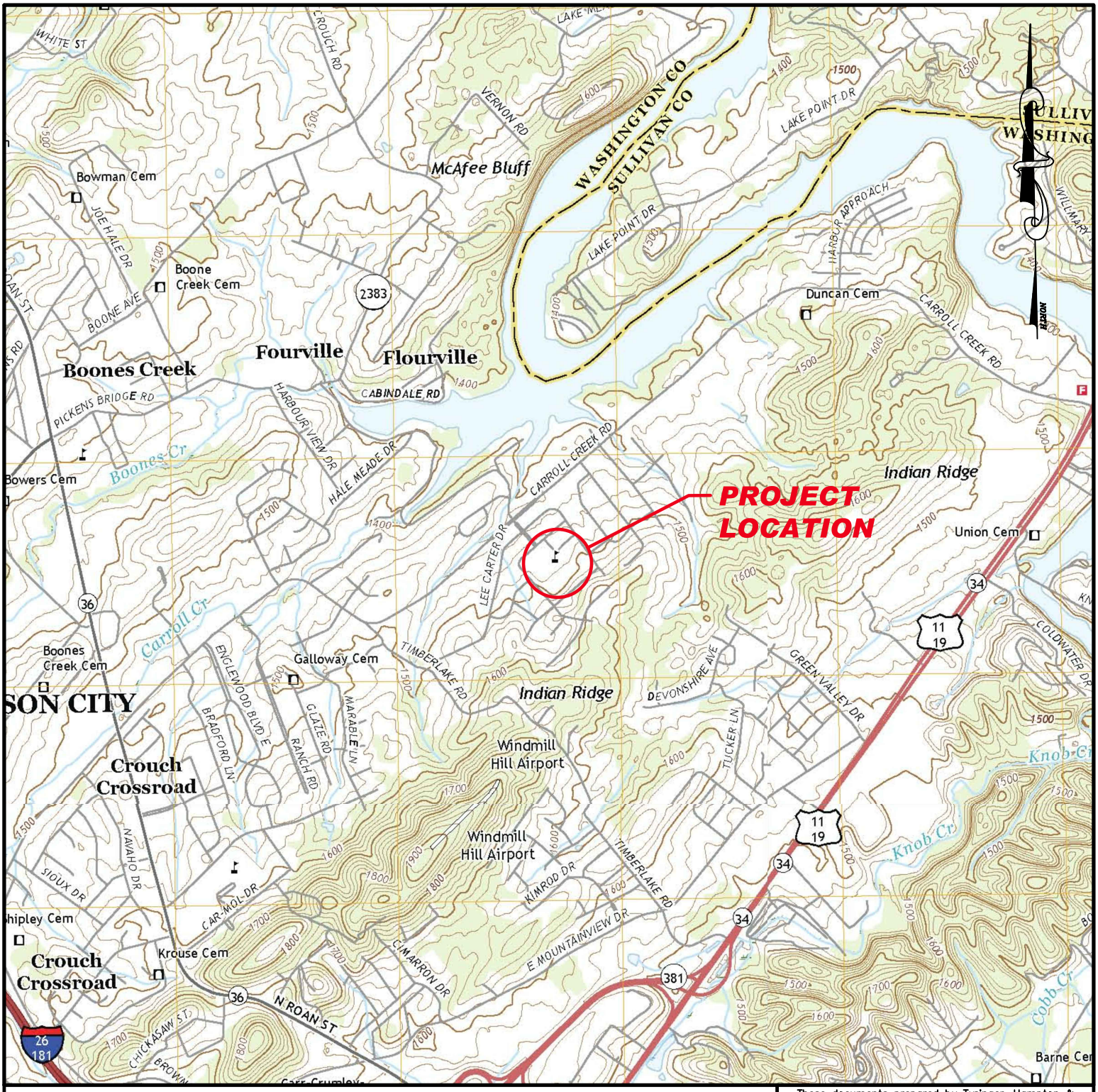
See Appendix E for water quality calculations.

Maintenance of Water Quality Management Facilities

Proper and regular maintenance of the storm water control measures is necessary in order for the facilities to function properly. A Maintenance Checklist has been prepared specific to the storm water control measures proposed for the Lake Ridge Elementary School site, and is included in Appendix F. The storm water control measures and relevant details are depicted on the civil construction drawings entitled "*Lake Ridge Elementary School*".

APPENDIX A

Location Map



PROJECT:	**LAKE RIDGE ELEMENTARY SCHOOL ADDITION**
MAP NAME:	**U.S.G.S. 7.5' QUADRANGLE BOONE DAM, TN**
LOCATION:	**JOHNSON CITY, TN** **N 36° 23' 4" W 82° 23' 12"**

These documents prepared by Tysinger, Hampton & Partners, Inc. (TH&P) are instruments of TH&P's service. Unless otherwise indicated, TH&P shall be deemed the author of drawings, specifications and other documents and will retain all common law, statutory and other reserved rights, in addition to the copyright. Documents prepared by TH&P are for use solely with respect to this project. These documents shall not be used, copied or retained without the specific written consent of TH&P. Any violations of the above rights of TH&P shall be prosecuted to the maximum possible extent within the law.

TH&P

Tysinger, Hampton & Partners, Inc.

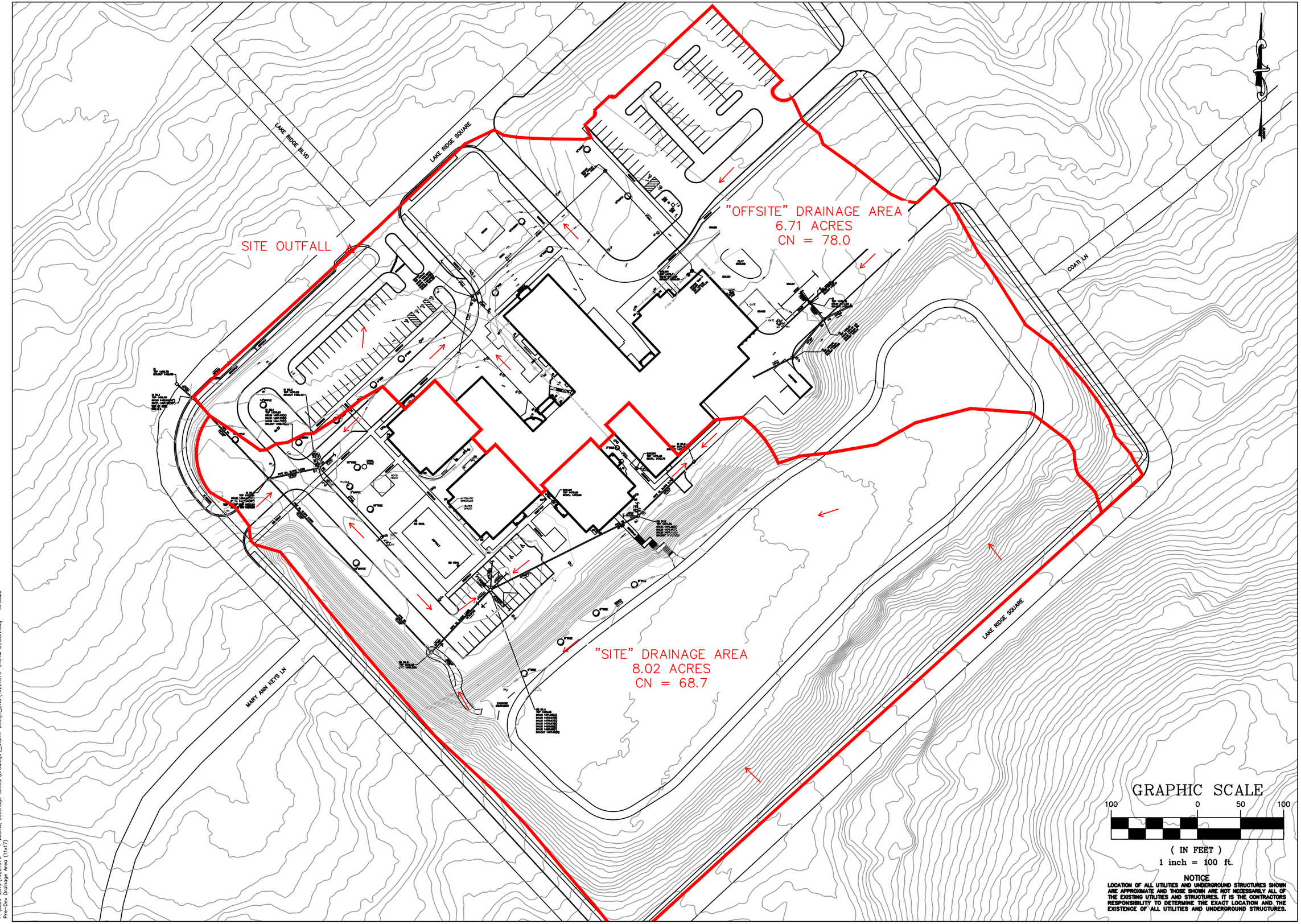
Civil Engineering · Surveying · Environmental Consulting

7 WORTH CIRCLE
JOHNSON CITY, TENNESSEE 37601
Phone:(423) 282-2687 · Fax: (423) 854-4563
Email: thp@tysinger-engineering.com
WWW.TYSINGER-ENGINEERING.COM

SCALE:	1"=2,000'
DATE:	02/26/21
DRAWN:	NCC
CADD FILE:	1922107C–QUAD MAP
PROJECT NO.	**1922107C**

APPENDIX B

Drainage Maps



GRAPHIC SCALE

100 0 50 100

(IN FEET)

1 inch = 100 ft.

NOTICE

LOCATION OF ALL UTILITIES AND UNDERGROUND STRUCTURES SHOWN ARE APPROXIMATE AND THOSE SHOWN ARE NOT NECESSARILY ALL OF THE EXISTING UTILITIES AND STRUCTURES. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION AND THE EXISTENCE OF ALL UTILITIES AND UNDERGROUND STRUCTURES.

REV.	DESCRIPTION	DATE	BY

GENERAL NOTES

TH&P

Tysinger, Hampton & Partners, Inc.

Civil Engineering · Surveying · Environmental Consulting

7 WORTH CIRCLE
JOHNSON CITY, TENNESSEE 37601
Phone:(423) 282-2687 · Fax: (423) 854-4563
Email: thp@tysinger-engineering.com
WWW.TYSINGER-ENGINEERING.COM

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ENGINEER'S APPROVAL:

PROJECT:
LAKE RIDGE ELEMENTARY SCHOOL ADDITION

PREPARED FOR:
THOMAS WEEMS ARCHITECT

LOCATION:
JOHNSON CITY, TN

DWG. TITLE:
PRE-DEVELOPMENT DRAINAGE AREA

ISSUE DATE :

CADD FILE: 1922107C-STORM DESIGN

SCALE: 1"=100'

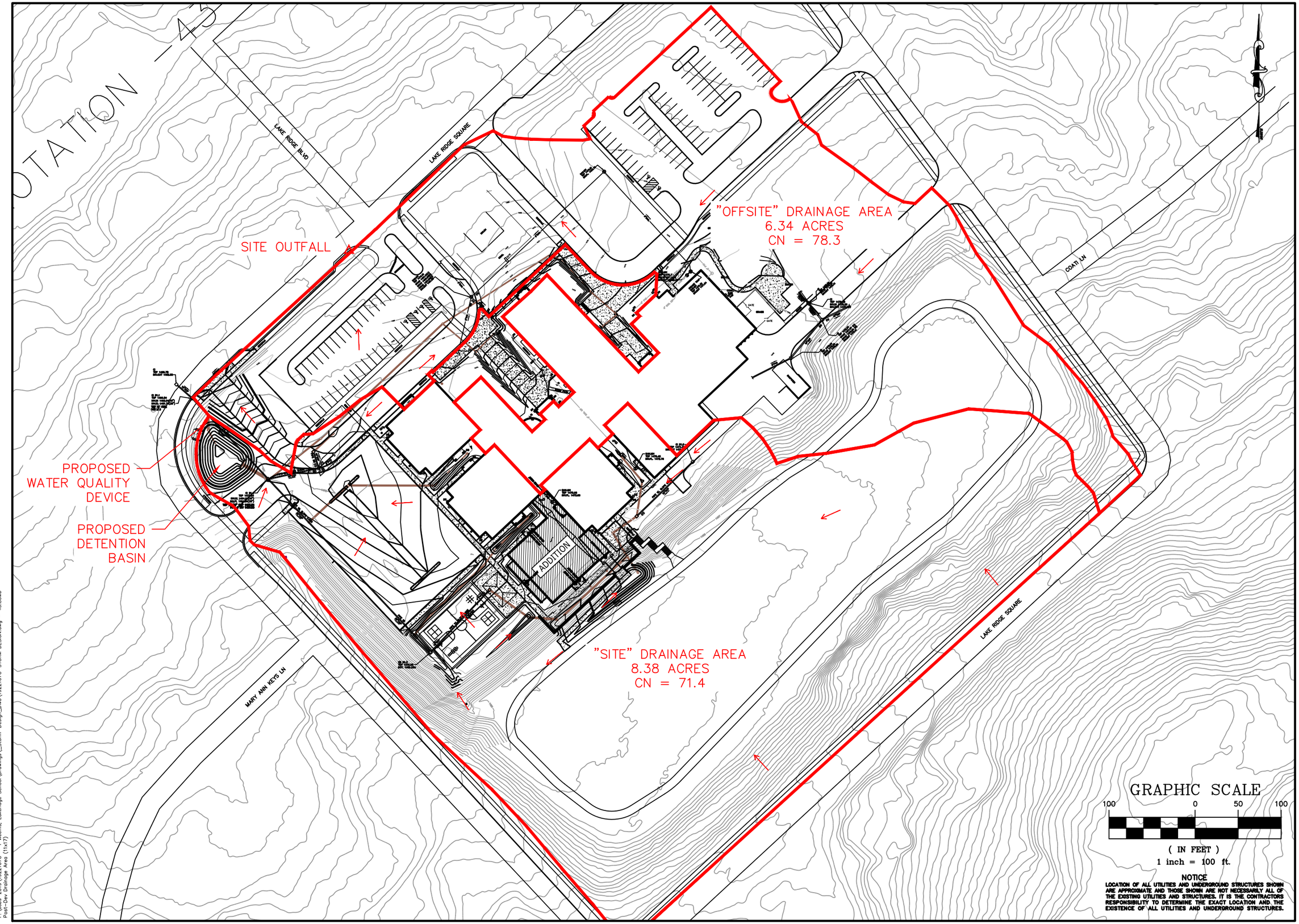
DRAWN: NCC

CHECK: TOP

DATE: 03/01/21

PROJECT NO.
1922107C

3/11/2021 3:10 PM - Nathan Cross
F:\Jobs-2019\1922107C - T Weems, Lakeridge School\Drawings_Storm-Design_DWG\1922107C-STORM DESIGN.dwg - 45.83Mb
Pre-Dev Drainage Area (11x17)



GRAPHIC SCALE

100 0 50 100

(IN FEET)

1 inch = 100 ft.

NOTICE

LOCATION OF ALL UTILITIES AND UNDERGROUND STRUCTURES SHOWN ARE APPROXIMATE AND THOSE SHOWN ARE NOT NECESSARILY ALL OF THE EXISTING UTILITIES AND STRUCTURES. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION AND THE EXISTENCE OF ALL UTILITIES AND UNDERGROUND STRUCTURES.

REV.	DESCRIPTION	DATE	BY

GENERAL NOTES

TH&P

Tysinger, Hampton & Partners, Inc.

Civil Engineering · Surveying · Environmental Consulting

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ENGINEER'S APPROVAL:

PROJECT:
LAKE RIDGE ELEMENTARY SCHOOL ADDITION

PREPARED FOR:
THOMAS WEEMS ARCHITECT

LOCATION:
JOHNSON CITY, TN

DWG. TITLE:
POST-DEVELOPMENT DRAINAGE AREA

ISSUE DATE :

CADD FILE: 1922107C-STORM DESIGN

SCALE: 1"=100'

DRAWN: NCC

CHECK: TOP

DATE: 03/01/21

PROJECT NO.
1922107C

3/11/2021 3:06 PM - Nathan Cross
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Post-Dev Drainage Area (11x17)

APPENDIX C

Hydrologic Analysis

Lake Ridge Elementary School Addition

Curve Number Calculations

TH&P Project No. 1922107C
Date: 3/1/2021

Site (Drains to Detention Basin)

Pre-Development

	Area (sq. ft.)	Area (ac)	Curve Number
Total Catchment Area	349377	**8.0206**	**68.679**
Pervious Area	276870.7	6.3561	61
Impervious Area	72506.3	1.6645	98

Post-Development

	Area (sq. ft.)	Area (ac)	Curve Number
Total Catchment Area	365226	**8.3844**	**71.359**
Pervious Area	262975	6.0371	61
Impervious Area	102251	2.3474	98

Offsite

Pre-Development

	Area (sq. ft.)	Area (ac)	Curve Number
Total Catchment Area	292126	**6.7063**	**77.997**
Pervious Area	157929	3.6256	61
Impervious Area	134197	3.0807	98

Post-Development

	Area (sq. ft.)	Area (ac)	Curve Number
Total Catchment Area	276277	**6.3424**	**78.264**
Pervious Area	147368	3.3831	61
Impervious Area	128909	2.9593	98

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1922107C-Lake Ridge Elementary School Addition

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
Site	Pre-Development 1	1	0.353	12.030	5.01
Site	Post-Development 1	1	0.444	12.030	6.66
Site	Pre-Development 2	2	0.431	12.030	6.36
Site	Post-Development 2	2	0.535	12.030	8.19
Site	Pre-Development 5	5	0.799	12.010	12.57
Site	Post-Development 5	5	0.952	12.010	15.23
Site	Pre-Development 10	10	1.182	12.010	19.02
Site	Post-Development 10	10	1.378	12.010	22.33
Site	Pre-Development 25	25	1.423	12.010	23.04
Site	Post-Development 25	25	1.644	12.010	26.71
Site	Pre-Development 100	100	1.940	12.010	31.53
Site	Post-Development 100	100	2.209	12.000	35.93
Offsite	Pre-Development 1	1	0.533	11.990	8.84
Offsite	Post-Development 1	1	0.512	11.990	8.50
Offsite	Pre-Development 2	2	0.623	11.990	10.39
Offsite	Post-Development 2	2	0.597	11.990	9.98
Offsite	Pre-Development 5	5	1.019	11.980	17.21
Offsite	Post-Development 5	5	0.974	11.980	16.45
Offsite	Pre-Development 10	10	1.407	11.970	23.79
Offsite	Post-Development 10	10	1.343	11.970	22.71
Offsite	Pre-Development 25	25	1.644	11.970	27.77
Offsite	Post-Development 25	25	1.568	11.970	26.49
Offsite	Pre-Development 100	100	2.139	11.960	35.98
Offsite	Post-Development 100	100	2.037	11.970	34.25

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
Site Outfall	Pre-Development 1	1	0.886	12.010	13.67
Site Outfall	Post-Development 1	1	0.956	12.000	9.54
Site Outfall	Pre-Development 2	2	1.054	12.010	16.55
Site Outfall	Post-Development 2	2	1.132	12.030	12.34
Site Outfall	Pre-Development 5	5	1.818	12.000	29.48
Site Outfall	Post-Development 5	5	1.926	12.050	26.11
Site Outfall	Pre-Development 10	10	2.588	11.990	42.41
Site Outfall	Post-Development 10	10	2.721	12.020	42.18
Site Outfall	Pre-Development 25	25	3.067	11.990	50.37
Site Outfall	Post-Development 25	25	3.212	12.010	49.23
Site Outfall	Pre-Development 100	100	4.078	11.980	66.99

1922107C-Lake Ridge Elementary School Addition

Subsection: Master Network Summary

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
Site Outfall	Post-Development 100	100	4.246	12.020	65.26

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Detention Basin (IN)	Post-Development 1	1	0.444	12.030	6.66	(N/A)	(N/A)
Detention Basin (OUT)	Post-Development 1	1	0.444	12.170	3.14	1,467.94	0.093
Detention Basin (IN)	Post-Development 2	2	0.535	12.030	8.19	(N/A)	(N/A)
Detention Basin (OUT)	Post-Development 2	2	0.535	12.170	3.87	1,468.41	0.115
Detention Basin (IN)	Post-Development 5	5	0.952	12.010	15.23	(N/A)	(N/A)
Detention Basin (OUT)	Post-Development 5	5	0.952	12.080	12.78	1,469.57	0.180
Detention Basin (IN)	Post-Development 10	10	1.378	12.010	22.33	(N/A)	(N/A)
Detention Basin (OUT)	Post-Development 10	10	1.378	12.050	21.13	1,469.93	0.204
Detention Basin (IN)	Post-Development 25	25	1.644	12.010	26.71	(N/A)	(N/A)
Detention Basin (OUT)	Post-Development 25	25	1.644	12.060	24.42	1,470.20	0.223
Detention Basin (IN)	Post-Development 100	100	2.209	12.000	35.93	(N/A)	(N/A)
Detention Basin (OUT)	Post-Development 100	100	2.209	12.040	33.97	1,470.79	0.269

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Label: Johnson City
Scenario: Pre-Development 1

Return Event: 1 years
Storm Event: TypeII 24hr: 1 (2.8 in)

Time-Depth Curve: TypeII 24hr: 1 (2.8 in)	
Label	TypeII 24hr: 1 (2.8 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	1 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.0
1.500	0.0	0.0	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.1
3.500	0.1	0.1	0.1	0.1	0.1
4.000	0.1	0.1	0.1	0.1	0.1
4.500	0.2	0.2	0.2	0.2	0.2
5.000	0.2	0.2	0.2	0.2	0.2
5.500	0.2	0.2	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.2	0.2
6.500	0.2	0.3	0.3	0.3	0.3
7.000	0.3	0.3	0.3	0.3	0.3
7.500	0.3	0.3	0.3	0.3	0.3
8.000	0.3	0.3	0.3	0.3	0.4
8.500	0.4	0.4	0.4	0.4	0.4
9.000	0.4	0.4	0.4	0.4	0.4
9.500	0.4	0.5	0.5	0.5	0.5
10.000	0.5	0.5	0.5	0.5	0.5
10.500	0.6	0.6	0.6	0.6	0.6
11.000	0.6	0.7	0.7	0.7	0.7
11.500	0.8	0.8	1.0	1.2	1.6
12.000	1.8	1.9	1.9	2.0	2.0
12.500	2.0	2.0	2.1	2.1	2.1
13.000	2.1	2.1	2.2	2.2	2.2
13.500	2.2	2.2	2.2	2.2	2.2
14.000	2.3	2.3	2.3	2.3	2.3
14.500	2.3	2.3	2.3	2.3	2.3
15.000	2.3	2.4	2.4	2.4	2.4
15.500	2.4	2.4	2.4	2.4	2.4
16.000	2.4	2.4	2.4	2.4	2.4

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Return Event: 1 years
Label: Johnson City
Storm Event: TypeII 24hr: 1 (2.8 in)
Scenario: Pre-Development 1

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	2.5	2.5	2.5	2.5	2.5
17.000	2.5	2.5	2.5	2.5	2.5
17.500	2.5	2.5	2.5	2.5	2.5
18.000	2.5	2.5	2.5	2.5	2.6
18.500	2.6	2.6	2.6	2.6	2.6
19.000	2.6	2.6	2.6	2.6	2.6
19.500	2.6	2.6	2.6	2.6	2.6
20.000	2.6	2.6	2.6	2.6	2.6
20.500	2.6	2.6	2.6	2.6	2.6
21.000	2.7	2.7	2.7	2.7	2.7
21.500	2.7	2.7	2.7	2.7	2.7
22.000	2.7	2.7	2.7	2.7	2.7
22.500	2.7	2.7	2.7	2.7	2.7
23.000	2.7	2.7	2.7	2.7	2.7
23.500	2.7	2.7	2.7	2.7	2.7
24.000	2.8	(N/A)	(N/A)	(N/A)	(N/A)

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Label: Johnson City
Scenario: Pre-Development 2

Return Event: 2 years
Storm Event: TypeII 24hr: 1 (3.0 in)

Time-Depth Curve: TypeII 24hr: 1 (3.0 in)	
Label	TypeII 24hr: 1 (3.0 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.0
1.500	0.0	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.1
3.500	0.1	0.1	0.1	0.1	0.1
4.000	0.1	0.1	0.2	0.2	0.2
4.500	0.2	0.2	0.2	0.2	0.2
5.000	0.2	0.2	0.2	0.2	0.2
5.500	0.2	0.2	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.3	0.3
6.500	0.3	0.3	0.3	0.3	0.3
7.000	0.3	0.3	0.3	0.3	0.3
7.500	0.3	0.3	0.3	0.3	0.4
8.000	0.4	0.4	0.4	0.4	0.4
8.500	0.4	0.4	0.4	0.4	0.4
9.000	0.4	0.4	0.5	0.5	0.5
9.500	0.5	0.5	0.5	0.5	0.5
10.000	0.5	0.6	0.6	0.6	0.6
10.500	0.6	0.6	0.6	0.7	0.7
11.000	0.7	0.7	0.7	0.8	0.8
11.500	0.8	0.9	1.1	1.3	1.7
12.000	2.0	2.0	2.1	2.1	2.2
12.500	2.2	2.2	2.2	2.3	2.3
13.000	2.3	2.3	2.3	2.4	2.4
13.500	2.4	2.4	2.4	2.4	2.4
14.000	2.4	2.5	2.5	2.5	2.5
14.500	2.5	2.5	2.5	2.5	2.5
15.000	2.5	2.6	2.6	2.6	2.6
15.500	2.6	2.6	2.6	2.6	2.6
16.000	2.6	2.6	2.6	2.6	2.6

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Return Event: 2 years
Label: Johnson City
Storm Event: TypeII 24hr: 1 (3.0 in)
Scenario: Pre-Development 2

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	2.7	2.7	2.7	2.7	2.7
17.000	2.7	2.7	2.7	2.7	2.7
17.500	2.7	2.7	2.7	2.7	2.7
18.000	2.7	2.7	2.8	2.8	2.8
18.500	2.8	2.8	2.8	2.8	2.8
19.000	2.8	2.8	2.8	2.8	2.8
19.500	2.8	2.8	2.8	2.8	2.8
20.000	2.8	2.8	2.8	2.8	2.9
20.500	2.9	2.9	2.9	2.9	2.9
21.000	2.9	2.9	2.9	2.9	2.9
21.500	2.9	2.9	2.9	2.9	2.9
22.000	2.9	2.9	2.9	2.9	2.9
22.500	2.9	2.9	2.9	2.9	2.9
23.000	2.9	2.9	3.0	3.0	3.0
23.500	3.0	3.0	3.0	3.0	3.0
24.000	3.0	(N/A)	(N/A)	(N/A)	(N/A)

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Label: Johnson City
Scenario: Pre-Development 5

Return Event: 5 years
Storm Event: TypeII 24hr: 1 (3.9 in)

Time-Depth Curve: TypeII 24hr: 1 (3.9 in)	
Label	TypeII 24hr: 1 (3.9 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	5 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.2	0.2	0.2	0.2	0.2
5.000	0.2	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.3
6.000	0.3	0.3	0.3	0.3	0.3
6.500	0.3	0.4	0.4	0.4	0.4
7.000	0.4	0.4	0.4	0.4	0.4
7.500	0.4	0.4	0.4	0.5	0.5
8.000	0.5	0.5	0.5	0.5	0.5
8.500	0.5	0.5	0.5	0.6	0.6
9.000	0.6	0.6	0.6	0.6	0.6
9.500	0.6	0.7	0.7	0.7	0.7
10.000	0.7	0.7	0.7	0.8	0.8
10.500	0.8	0.8	0.8	0.9	0.9
11.000	0.9	1.0	1.0	1.0	1.1
11.500	1.1	1.2	1.4	1.7	2.2
12.000	2.6	2.7	2.7	2.8	2.8
12.500	2.9	2.9	2.9	3.0	3.0
13.000	3.0	3.0	3.1	3.1	3.1
13.500	3.1	3.2	3.2	3.2	3.2
14.000	3.2	3.2	3.2	3.3	3.3
14.500	3.3	3.3	3.3	3.3	3.3
15.000	3.3	3.4	3.4	3.4	3.4
15.500	3.4	3.4	3.4	3.4	3.4
16.000	3.4	3.5	3.5	3.5	3.5

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Return Event: 5 years
Label: Johnson City
Storm Event: TypeII 24hr: 1 (3.9 in)
Scenario: Pre-Development 5

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	3.5	3.5	3.5	3.5	3.5
17.000	3.5	3.5	3.6	3.6	3.6
17.500	3.6	3.6	3.6	3.6	3.6
18.000	3.6	3.6	3.6	3.6	3.6
18.500	3.6	3.7	3.7	3.7	3.7
19.000	3.7	3.7	3.7	3.7	3.7
19.500	3.7	3.7	3.7	3.7	3.7
20.000	3.7	3.7	3.7	3.7	3.8
20.500	3.8	3.8	3.8	3.8	3.8
21.000	3.8	3.8	3.8	3.8	3.8
21.500	3.8	3.8	3.8	3.8	3.8
22.000	3.8	3.8	3.8	3.8	3.8
22.500	3.9	3.9	3.9	3.9	3.9
23.000	3.9	3.9	3.9	3.9	3.9
23.500	3.9	3.9	3.9	3.9	3.9
24.000	3.9	(N/A)	(N/A)	(N/A)	(N/A)

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Label: Johnson City
Scenario: Pre-Development 10

Return Event: 10 years
Storm Event: TypeII 24hr: 1 (4.8 in)

Time-Depth Curve: TypeII 24hr: 1 (4.8 in)	
Label	TypeII 24hr: 1 (4.8 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.2	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.3
4.500	0.3	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.4	0.4	0.4
6.000	0.4	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.5	0.5
7.000	0.5	0.5	0.5	0.5	0.5
7.500	0.5	0.5	0.5	0.6	0.6
8.000	0.6	0.6	0.6	0.6	0.6
8.500	0.6	0.6	0.7	0.7	0.7
9.000	0.7	0.7	0.7	0.7	0.8
9.500	0.8	0.8	0.8	0.8	0.8
10.000	0.9	0.9	0.9	0.9	0.9
10.500	1.0	1.0	1.0	1.1	1.1
11.000	1.1	1.2	1.2	1.2	1.3
11.500	1.3	1.5	1.7	2.1	2.7
12.000	3.2	3.3	3.3	3.4	3.5
12.500	3.5	3.5	3.6	3.6	3.7
13.000	3.7	3.7	3.7	3.8	3.8
13.500	3.8	3.8	3.9	3.9	3.9
14.000	3.9	3.9	3.9	4.0	4.0
14.500	4.0	4.0	4.0	4.0	4.1
15.000	4.1	4.1	4.1	4.1	4.1
15.500	4.1	4.2	4.2	4.2	4.2
16.000	4.2	4.2	4.2	4.2	4.2

Subsection: Time-Depth Curve
Label: Johnson City
Scenario: Pre-Development 10

Return Event: 10 years
Storm Event: TypeII 24hr: 1 (4.8 in)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	4.3	4.3	4.3	4.3	4.3
17.000	4.3	4.3	4.3	4.3	4.3
17.500	4.3	4.4	4.4	4.4	4.4
18.000	4.4	4.4	4.4	4.4	4.4
18.500	4.4	4.4	4.5	4.5	4.5
19.000	4.5	4.5	4.5	4.5	4.5
19.500	4.5	4.5	4.5	4.5	4.5
20.000	4.5	4.5	4.6	4.6	4.6
20.500	4.6	4.6	4.6	4.6	4.6
21.000	4.6	4.6	4.6	4.6	4.6
21.500	4.6	4.6	4.6	4.6	4.7
22.000	4.7	4.7	4.7	4.7	4.7
22.500	4.7	4.7	4.7	4.7	4.7
23.000	4.7	4.7	4.7	4.7	4.7
23.500	4.7	4.7	4.8	4.8	4.8
24.000	4.8	(N/A)	(N/A)	(N/A)	(N/A)

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Label: Johnson City
Scenario: Pre-Development 25

Return Event: 25 years
Storm Event: TypeII 24hr: 1 (5.3 in)

Time-Depth Curve: TypeII 24hr: 1 (5.3 in)	
Label	TypeII 24hr: 1 (5.3 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	25 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.3	0.3	0.3	0.3	0.3
4.500	0.3	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.4	0.4
5.500	0.4	0.4	0.4	0.4	0.4
6.000	0.4	0.4	0.4	0.5	0.5
6.500	0.5	0.5	0.5	0.5	0.5
7.000	0.5	0.5	0.5	0.6	0.6
7.500	0.6	0.6	0.6	0.6	0.6
8.000	0.6	0.6	0.7	0.7	0.7
8.500	0.7	0.7	0.7	0.7	0.8
9.000	0.8	0.8	0.8	0.8	0.8
9.500	0.9	0.9	0.9	0.9	0.9
10.000	1.0	1.0	1.0	1.0	1.0
10.500	1.1	1.1	1.1	1.2	1.2
11.000	1.2	1.3	1.3	1.4	1.4
11.500	1.5	1.6	1.9	2.3	3.0
12.000	3.5	3.6	3.7	3.8	3.8
12.500	3.9	3.9	4.0	4.0	4.0
13.000	4.1	4.1	4.1	4.2	4.2
13.500	4.2	4.2	4.3	4.3	4.3
14.000	4.3	4.3	4.4	4.4	4.4
14.500	4.4	4.4	4.4	4.5	4.5
15.000	4.5	4.5	4.5	4.5	4.6
15.500	4.6	4.6	4.6	4.6	4.6
16.000	4.6	4.6	4.7	4.7	4.7

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Label: Johnson City
Scenario: Pre-Development 25

Return Event: 25 years
Storm Event: TypeII 24hr: 1 (5.3 in)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	4.7	4.7	4.7	4.7	4.7
17.000	4.8	4.8	4.8	4.8	4.8
17.500	4.8	4.8	4.8	4.8	4.8
18.000	4.9	4.9	4.9	4.9	4.9
18.500	4.9	4.9	4.9	4.9	4.9
19.000	4.9	5.0	5.0	5.0	5.0
19.500	5.0	5.0	5.0	5.0	5.0
20.000	5.0	5.0	5.0	5.0	5.0
20.500	5.1	5.1	5.1	5.1	5.1
21.000	5.1	5.1	5.1	5.1	5.1
21.500	5.1	5.1	5.1	5.1	5.1
22.000	5.1	5.2	5.2	5.2	5.2
22.500	5.2	5.2	5.2	5.2	5.2
23.000	5.2	5.2	5.2	5.2	5.2
23.500	5.2	5.2	5.3	5.3	5.3
24.000	5.3	(N/A)	(N/A)	(N/A)	(N/A)

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Label: Johnson City
Scenario: Pre-Development 100

Return Event: 100 years
Storm Event: TypeII 24hr: 1 (6.3 in)

Time-Depth Curve: TypeII 24hr: 1 (6.3 in)	
Label	TypeII 24hr: 1 (6.3 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.2	0.2	0.2
2.500	0.2	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.3	0.3	0.3	0.3	0.3
4.000	0.3	0.3	0.3	0.3	0.3
4.500	0.3	0.4	0.4	0.4	0.4
5.000	0.4	0.4	0.4	0.4	0.4
5.500	0.4	0.5	0.5	0.5	0.5
6.000	0.5	0.5	0.5	0.5	0.5
6.500	0.6	0.6	0.6	0.6	0.6
7.000	0.6	0.6	0.6	0.7	0.7
7.500	0.7	0.7	0.7	0.7	0.7
8.000	0.8	0.8	0.8	0.8	0.8
8.500	0.8	0.8	0.9	0.9	0.9
9.000	0.9	0.9	1.0	1.0	1.0
9.500	1.0	1.0	1.1	1.1	1.1
10.000	1.1	1.2	1.2	1.2	1.2
10.500	1.3	1.3	1.4	1.4	1.4
11.000	1.5	1.5	1.6	1.6	1.7
11.500	1.8	1.9	2.2	2.7	3.6
12.000	4.2	4.3	4.4	4.5	4.6
12.500	4.6	4.7	4.7	4.8	4.8
13.000	4.8	4.9	4.9	5.0	5.0
13.500	5.0	5.0	5.1	5.1	5.1
14.000	5.1	5.2	5.2	5.2	5.2
14.500	5.3	5.3	5.3	5.3	5.3
15.000	5.4	5.4	5.4	5.4	5.4
15.500	5.4	5.5	5.5	5.5	5.5
16.000	5.5	5.5	5.6	5.6	5.6

1922107C-Lake Ridge Elementary School Addition

Subsection: Time-Depth Curve
Return Event: 100 years
Label: Johnson City
Storm Event: TypeII 24hr: 1 (6.3 in)
Scenario: Pre-Development 100

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	5.6	5.6	5.6	5.6	5.7
17.000	5.7	5.7	5.7	5.7	5.7
17.500	5.7	5.7	5.7	5.8	5.8
18.000	5.8	5.8	5.8	5.8	5.8
18.500	5.8	5.8	5.9	5.9	5.9
19.000	5.9	5.9	5.9	5.9	5.9
19.500	5.9	5.9	6.0	6.0	6.0
20.000	6.0	6.0	6.0	6.0	6.0
20.500	6.0	6.0	6.0	6.0	6.1
21.000	6.1	6.1	6.1	6.1	6.1
21.500	6.1	6.1	6.1	6.1	6.1
22.000	6.1	6.1	6.2	6.2	6.2
22.500	6.2	6.2	6.2	6.2	6.2
23.000	6.2	6.2	6.2	6.2	6.2
23.500	6.2	6.3	6.3	6.3	6.3
24.000	6.3	(N/A)	(N/A)	(N/A)	(N/A)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	119.50 ft
Manning's n	0.130
Slope	0.258 ft/ft
2 Year 24 Hour Depth	3.0 in
Average Velocity	0.53 ft/s
Segment Time of Concentration	0.063 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	224.50 ft
Is Paved?	False
Slope	0.054 ft/ft
Average Velocity	3.76 ft/s
Segment Time of Concentration	0.017 hours

Segment #3: Length and Velocity	
Hydraulic Length	945.70 ft
Velocity	4.00 ft/s
Segment Time of Concentration	0.066 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.145 hours

==== User Defined Length & Velocity

Tc =	(Lf / V) / 3600
Where:	Tc= Time of concentration, hours
	Lf= Flow length, feet
	V= Velocity, ft/sec

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface:
	V = 16.1345 * (Sf**0.5)
	Paved Surface:
	V = 20.3282 * (Sf**0.5)
	(Lf / V) / 3600
Where:	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	Tc= Time of concentration, hours
	Lf= Flow length, feet

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	119.50 ft
Manning's n	0.130
Slope	0.258 ft/ft
2 Year 24 Hour Depth	3.0 in
Average Velocity	0.53 ft/s
Segment Time of Concentration	0.063 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	224.50 ft
Is Paved?	False
Slope	0.054 ft/ft
Average Velocity	3.76 ft/s
Segment Time of Concentration	0.017 hours

Segment #3: Length and Velocity	
Hydraulic Length	945.70 ft
Velocity	4.00 ft/s
Segment Time of Concentration	0.066 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.145 hours

==== User Defined Length & Velocity

Tc =	(Lf / V) / 3600
Where:	Tc= Time of concentration, hours
	Lf= Flow length, feet
	V= Velocity, ft/sec

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface:
	V = 16.1345 * (Sf**0.5)
	Paved Surface:
	V = 20.3282 * (Sf**0.5)
	(Lf / V) / 3600
Where:	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	Tc= Time of concentration, hours
	Lf= Flow length, feet

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	114.50 ft
Manning's n	0.130
Slope	0.269 ft/ft
2 Year 24 Hour Depth	3.0 in
Average Velocity	0.53 ft/s
Segment Time of Concentration	0.059 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	751.50 ft
Is Paved?	False
Slope	0.021 ft/ft
Average Velocity	2.36 ft/s
Segment Time of Concentration	0.088 hours

Segment #3: TR-55 Channel Flow	
Flow Area	0.5 ft²
Hydraulic Length	95.80 ft
Manning's n	0.032
Slope	0.184 ft/ft
Wetted Perimeter	4.20 ft
Average Velocity	4.83 ft/s
Segment Time of Concentration	0.006 hours

Segment #4: Length and Velocity	
Hydraulic Length	275.50 ft
Velocity	4.20 ft/s
Segment Time of Concentration	0.018 hours

Segment #5: Length and Velocity	
Hydraulic Length	35.10 ft
Velocity	8.00 ft/s
Segment Time of Concentration	0.001 hours

Time of Concentration (Composite)

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.173 hours

==== User Defined Length & Velocity

Tc =	(Lf / V) / 3600
Where:	Tc= Time of concentration, hours Lf= Flow length, feet V= Velocity, ft/sec

==== SCS Channel Flow

Tc =	R = Qa / Wp V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n (Lf / V) / 3600
Where:	R= Hydraulic radius Aq= Flow area, square feet Wp= Wetted perimeter, feet V= Velocity, ft/sec Sf= Slope, ft/ft n= Manning's n Tc= Time of concentration, hours Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface: V = 16.1345 * (Sf**0.5) Paved Surface: V = 20.3282 * (Sf**0.5) (Lf / V) / 3600
Where:	V= Velocity, ft/sec Sf= Slope, ft/ft Tc= Time of concentration, hours Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours n= Manning's n Lf= Flow length, feet P= 2yr, 24hr Rain depth, inches Sf= Slope, %

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	114.50 ft
Manning's n	0.130
Slope	0.269 ft/ft
2 Year 24 Hour Depth	3.0 in
Average Velocity	0.53 ft/s
Segment Time of Concentration	0.059 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	751.50 ft
Is Paved?	False
Slope	0.021 ft/ft
Average Velocity	2.36 ft/s
Segment Time of Concentration	0.088 hours

Segment #3: TR-55 Channel Flow	
Flow Area	0.5 ft²
Hydraulic Length	95.80 ft
Manning's n	0.032
Slope	0.184 ft/ft
Wetted Perimeter	4.20 ft
Average Velocity	4.83 ft/s
Segment Time of Concentration	0.006 hours

Segment #4: Length and Velocity	
Hydraulic Length	275.50 ft
Velocity	4.20 ft/s
Segment Time of Concentration	0.018 hours

Segment #5: Length and Velocity	
Hydraulic Length	35.10 ft
Velocity	8.00 ft/s
Segment Time of Concentration	0.001 hours

Time of Concentration (Composite)

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.173 hours

==== User Defined Length & Velocity

Tc =	(Lf / V) / 3600
Where:	Tc= Time of concentration, hours
	Lf= Flow length, feet
	V= Velocity, ft/sec

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface:
	V = 16.1345 * (Sf**0.5)
	Paved Surface:
	V = 20.3282 * (Sf**0.5)
	(Lf / V) / 3600
Where:	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours
	n= Manning's n
	Lf= Flow length, feet
	P= 2yr, 24hr Rain depth, inches
	Sf= Slope, %

1922107C-Lake Ridge Elementary School Addition

Subsection: Elevation-Area Volume Curve
Return Event: 100 years
Label: Detention Basin
Storm Event: TypeII 24hr: 1 (6.3 in)
Scenario: Post-Development 100

Elevation (ft)	Planimeter (ft^2)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
1,463.80	0.0	0.000	0.000	0.000	0.000
1,464.00	0.0	0.002	0.004	0.000	0.000
1,465.00	0.0	0.017	0.025	0.008	0.008
1,466.00	0.0	0.024	0.061	0.020	0.029
1,467.00	0.0	0.033	0.086	0.029	0.058
1,468.00	0.0	0.044	0.115	0.038	0.096
1,469.00	0.0	0.056	0.150	0.050	0.146
1,470.00	0.0	0.070	0.189	0.063	0.209
1,471.00	0.0	0.085	0.233	0.078	0.286

Pond Volume Equations
*** Incremental volume computed by the Conic Method for Reservoir Volumes.**

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Requested Pond Water Surface Elevations	
Minimum (Headwater)	1,463.80 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	1,471.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 2	Forward	Culvert - 1	1,467.00	1,471.00
Inlet Box	Riser - 1	Forward	Culvert - 1	1,469.00	1,471.00
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	1,463.80	1,471.00
Culvert-Circular	Culvert - 1	Forward	TW	1,463.50	1,471.00
Irregular Weir	Weir - 1	Forward	TW	1,470.50	1,471.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Riser - 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	1,469.00 ft
Orifice Area	3.6 ft²
Orifice Coefficient	0.600
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	False

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	24.0 in
Length	10.80 ft
Length (Computed Barrel)	10.80 ft
Slope (Computed)	0.020 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.012
Kr	0.200
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	0.000
T2 ratio (HW/D)	1.187
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	1,463.50 ft	T1 Flow	15.55 ft³/s
T2 Elevation	1,465.87 ft	T2 Flow	17.77 ft³/s

Structure ID: Weir - 1
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	0.50
1.50	0.00
11.50	0.00
13.00	0.50

Lowest Elevation	1,470.50 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	1,463.80 ft
Orifice Diameter	4.0 in
Orifice Coefficient	0.900

Structure ID: Orifice - 2 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	1,467.00 ft
Orifice Diameter	8.0 in
Orifice Coefficient	0.900

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 1 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (2.8 in)
Scenario: Post-Development 1

Peak Discharge	3.14 ft³/s
Time to Peak	12.170 hours
Hydrograph Volume	0.444 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.590	0.00	0.00	0.00	0.00	0.01
11.640	0.01	0.02	0.02	0.04	0.05
11.690	0.07	0.09	0.11	0.14	0.20
11.740	0.25	0.31	0.33	0.36	0.39
11.790	0.42	0.44	0.47	0.50	0.53
11.840	0.56	0.58	0.61	0.64	0.67
11.890	0.70	0.73	0.77	0.80	0.84
11.940	0.87	0.90	0.94	0.98	1.00
11.990	1.03	1.06	1.07	1.13	1.22
12.040	1.36	1.56	1.77	2.03	2.61
12.090	2.80	2.89	2.97	3.03	3.08
12.140	3.11	3.13	3.14	3.14	3.14
12.190	3.13	3.11	3.09	3.07	3.04
12.240	3.00	2.97	2.93	2.89	2.86
12.290	2.82	2.78	2.74	2.66	2.50
12.340	2.36	2.24	2.13	2.03	1.95
12.390	1.92	1.90	1.87	1.84	1.82
12.440	1.79	1.77	1.74	1.72	1.69
12.490	1.67	1.65	1.62	1.60	1.58
12.540	1.55	1.53	1.51	1.49	1.47
12.590	1.45	1.43	1.41	1.40	1.38
12.640	1.36	1.35	1.33	1.32	1.31
12.690	1.30	1.28	1.27	1.26	1.25
12.740	1.24	1.23	1.22	1.21	1.20
12.790	1.19	1.18	1.17	1.16	1.15
12.840	1.14	1.14	1.14	1.13	1.13
12.890	1.13	1.12	1.12	1.11	1.11
12.940	1.11	1.10	1.10	1.10	1.09
12.990	1.09	1.08	1.08	1.08	1.07
13.040	1.07	1.07	1.07	1.07	1.07
13.090	1.07	1.07	1.07	1.07	1.07
13.140	1.06	1.06	1.05	1.05	1.05
13.190	1.04	1.04	1.04	1.04	1.04
13.240	1.03	1.03	1.03	1.03	1.03
13.290	1.03	1.03	1.03	1.02	1.02
13.340	1.01	1.01	1.01	1.00	1.00
13.390	1.00	1.00	0.99	0.99	0.99

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 1 years

Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (2.8 in)

Scenario: Post-Development 1

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
13.440	0.99	0.99	0.98	0.98	0.98
13.490	0.98	0.98	0.97	0.97	0.97
13.540	0.97	0.96	0.96	0.96	0.95
13.590	0.95	0.94	0.94	0.94	0.93
13.640	0.93	0.92	0.92	0.92	0.91
13.690	0.91	0.91	0.90	0.90	0.90
13.740	0.90	0.89	0.89	0.89	0.88
13.790	0.88	0.88	0.88	0.87	0.87
13.840	0.87	0.86	0.86	0.85	0.85
13.890	0.85	0.84	0.84	0.84	0.83
13.940	0.83	0.83	0.82	0.82	0.82
13.990	0.81	0.81	0.80	0.80	0.80
14.040	0.79	0.79	0.79	0.78	0.78
14.090	0.77	0.77	0.77	0.76	0.76
14.140	0.76	0.75	0.75	0.74	0.74
14.190	0.74	0.73	0.73	0.72	0.72
14.240	0.72	0.71	0.71	0.70	0.70
14.290	0.70	0.69	0.69	0.68	0.68
14.340	0.68	0.67	0.67	0.66	0.66
14.390	0.65	0.65	0.65	0.64	0.64
14.440	0.63	0.63	0.62	0.62	0.62
14.490	0.61	0.61	0.60	0.60	0.59
14.540	0.59	0.59	0.58	0.58	0.57
14.590	0.57	0.56	0.56	0.55	0.55
14.640	0.54	0.54	0.53	0.53	0.52
14.690	0.52	0.51	0.51	0.50	0.50
14.740	0.49	0.49	0.48	0.48	0.47
14.790	0.47	0.46	0.46	0.46	0.45
14.840	0.45	0.44	0.44	0.44	0.43
14.890	0.43	0.43	0.42	0.42	0.41
14.940	0.41	0.40	0.40	0.39	0.39
14.990	0.38	0.38	0.38	0.38	0.37
15.040	0.37	0.37	0.36	0.36	0.36
15.090	0.36	0.35	0.35	0.35	0.35
15.140	0.35	0.35	0.34	0.34	0.34
15.190	0.34	0.34	0.34	0.34	0.34
15.240	0.34	0.33	0.33	0.33	0.33
15.290	0.33	0.33	0.33	0.33	0.33
15.340	0.33	0.33	0.33	0.32	0.32
15.390	0.32	0.32	0.32	0.32	0.32
15.440	0.32	0.32	0.32	0.32	0.32
15.490	0.32	0.32	0.31	0.31	0.31

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 1 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (2.8 in)
Scenario: Post-Development 1

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.540	0.31	0.31	0.31	0.31	0.31
15.590	0.31	0.30	0.30	0.30	0.30
15.640	0.30	0.30	0.30	0.30	0.30
15.690	0.30	0.30	0.30	0.30	0.29
15.740	0.29	0.29	0.29	0.29	0.29
15.790	0.29	0.29	0.29	0.29	0.29
15.840	0.29	0.29	0.28	0.28	0.28
15.890	0.28	0.28	0.28	0.28	0.28
15.940	0.28	0.28	0.28	0.28	0.28
15.990	0.28	0.28	0.27	0.27	0.27
16.040	0.27	0.27	0.27	0.27	0.27
16.090	0.27	0.27	0.27	0.27	0.27
16.140	0.27	0.27	0.26	0.26	0.26
16.190	0.26	0.26	0.26	0.26	0.26
16.240	0.26	0.26	0.26	0.26	0.26
16.290	0.26	0.26	0.26	0.26	0.26
16.340	0.26	0.26	0.26	0.26	0.26
16.390	0.26	0.26	0.26	0.26	0.26
16.440	0.26	0.26	0.26	0.26	0.26
16.490	0.26	0.26	0.26	0.25	0.25
16.540	0.25	0.25	0.25	0.25	0.25
16.590	0.25	0.25	0.25	0.25	0.25
16.640	0.25	0.25	0.25	0.25	0.25
16.690	0.25	0.25	0.25	0.25	0.25
16.740	0.25	0.25	0.25	0.25	0.25
16.790	0.25	0.25	0.25	0.25	0.25
16.840	0.25	0.25	0.25	0.25	0.25
16.890	0.25	0.25	0.25	0.25	0.25
16.940	0.24	0.24	0.24	0.24	0.24
16.990	0.24	0.24	0.24	0.24	0.24
17.040	0.24	0.24	0.24	0.24	0.24
17.090	0.24	0.24	0.24	0.24	0.24
17.140	0.24	0.24	0.24	0.24	0.24
17.190	0.24	0.24	0.24	0.24	0.24
17.240	0.24	0.24	0.24	0.24	0.24
17.290	0.24	0.24	0.24	0.24	0.24
17.340	0.24	0.23	0.23	0.23	0.23
17.390	0.23	0.23	0.23	0.23	0.23
17.440	0.23	0.23	0.23	0.23	0.23
17.490	0.23	0.23	0.23	0.23	0.23
17.540	0.23	0.23	0.23	0.23	0.23
17.590	0.23	0.23	0.23	0.23	0.23

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 1 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (2.8 in)
Scenario: Post-Development 1

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.640	0.23	0.23	0.23	0.23	0.23
17.690	0.23	0.23	0.23	0.23	0.23
17.740	0.23	0.22	0.22	0.22	0.22
17.790	0.22	0.22	0.22	0.22	0.22
17.840	0.22	0.22	0.22	0.22	0.22
17.890	0.22	0.22	0.22	0.22	0.22
17.940	0.22	0.22	0.22	0.22	0.22
17.990	0.22	0.22	0.22	0.22	0.22
18.040	0.22	0.22	0.22	0.22	0.22
18.090	0.22	0.22	0.22	0.22	0.21
18.140	0.21	0.21	0.21	0.21	0.21
18.190	0.21	0.21	0.21	0.21	0.21
18.240	0.21	0.21	0.21	0.21	0.21
18.290	0.21	0.21	0.21	0.21	0.21
18.340	0.21	0.21	0.21	0.21	0.21
18.390	0.21	0.21	0.21	0.21	0.21
18.440	0.21	0.21	0.21	0.21	0.21
18.490	0.21	0.21	0.20	0.20	0.20
18.540	0.20	0.20	0.20	0.20	0.20
18.590	0.20	0.20	0.20	0.20	0.20
18.640	0.20	0.20	0.20	0.20	0.20
18.690	0.20	0.20	0.20	0.20	0.20
18.740	0.20	0.20	0.20	0.20	0.20
18.790	0.20	0.20	0.20	0.20	0.20
18.840	0.20	0.20	0.20	0.20	0.19
18.890	0.19	0.19	0.19	0.19	0.19
18.940	0.19	0.19	0.19	0.19	0.19
18.990	0.19	0.19	0.19	0.19	0.19
19.040	0.19	0.19	0.19	0.19	0.19
19.090	0.19	0.19	0.19	0.19	0.19
19.140	0.19	0.19	0.19	0.19	0.19
19.190	0.19	0.19	0.19	0.19	0.19
19.240	0.19	0.18	0.18	0.18	0.18
19.290	0.18	0.18	0.18	0.18	0.18
19.340	0.18	0.18	0.18	0.18	0.18
19.390	0.18	0.18	0.18	0.18	0.18
19.440	0.18	0.18	0.18	0.18	0.18
19.490	0.18	0.18	0.18	0.18	0.18
19.540	0.18	0.18	0.18	0.18	0.18
19.590	0.18	0.17	0.17	0.17	0.17
19.640	0.17	0.17	0.17	0.17	0.17
19.690	0.17	0.17	0.17	0.17	0.17

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 1 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (2.8 in)
Scenario: Post-Development 1

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.740	0.17	0.17	0.17	0.17	0.17
19.790	0.17	0.17	0.17	0.17	0.17
19.840	0.17	0.17	0.17	0.17	0.17
19.890	0.17	0.17	0.17	0.17	0.17
19.940	0.17	0.17	0.16	0.16	0.16
19.990	0.16	0.16	0.16	0.16	0.16
20.040	0.16	0.16	0.16	0.16	0.16
20.090	0.16	0.16	0.16	0.16	0.16
20.140	0.16	0.16	0.16	0.16	0.16
20.190	0.16	0.16	0.16	0.16	0.16
20.240	0.16	0.16	0.16	0.16	0.16
20.290	0.16	0.16	0.16	0.16	0.16
20.340	0.16	0.16	0.16	0.16	0.16
20.390	0.16	0.16	0.16	0.16	0.16
20.440	0.16	0.16	0.16	0.16	0.16
20.490	0.16	0.16	0.16	0.16	0.16
20.540	0.16	0.16	0.16	0.16	0.16
20.590	0.16	0.16	0.16	0.16	0.16
20.640	0.16	0.16	0.16	0.16	0.16
20.690	0.16	0.16	0.16	0.16	0.16
20.740	0.16	0.16	0.16	0.16	0.16
20.790	0.16	0.16	0.16	0.16	0.16
20.840	0.16	0.16	0.16	0.16	0.16
20.890	0.16	0.16	0.16	0.16	0.16
20.940	0.16	0.16	0.16	0.16	0.16
20.990	0.16	0.16	0.16	0.16	0.15
21.040	0.15	0.15	0.15	0.15	0.15
21.090	0.15	0.15	0.15	0.15	0.15
21.140	0.15	0.15	0.15	0.15	0.15
21.190	0.15	0.15	0.15	0.15	0.15
21.240	0.15	0.15	0.15	0.15	0.15
21.290	0.15	0.15	0.15	0.15	0.15
21.340	0.15	0.15	0.15	0.15	0.15
21.390	0.15	0.15	0.15	0.15	0.15
21.440	0.15	0.15	0.15	0.15	0.15
21.490	0.15	0.15	0.15	0.15	0.15
21.540	0.15	0.15	0.15	0.15	0.15
21.590	0.15	0.15	0.15	0.15	0.15
21.640	0.15	0.15	0.15	0.15	0.15
21.690	0.15	0.15	0.15	0.15	0.15
21.740	0.15	0.15	0.15	0.15	0.15
21.790	0.15	0.15	0.15	0.15	0.15

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 1 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (2.8 in)
Scenario: Post-Development 1

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.840	0.15	0.15	0.15	0.15	0.15
21.890	0.15	0.15	0.15	0.15	0.15
21.940	0.15	0.15	0.15	0.15	0.15
21.990	0.15	0.15	0.15	0.15	0.15
22.040	0.15	0.15	0.15	0.15	0.15
22.090	0.15	0.15	0.15	0.15	0.15
22.140	0.15	0.15	0.15	0.15	0.15
22.190	0.15	0.15	0.15	0.15	0.15
22.240	0.15	0.15	0.15	0.15	0.15
22.290	0.15	0.15	0.15	0.15	0.15
22.340	0.15	0.15	0.15	0.15	0.15
22.390	0.15	0.15	0.15	0.15	0.15
22.440	0.15	0.15	0.15	0.15	0.15
22.490	0.15	0.15	0.15	0.15	0.15
22.540	0.15	0.15	0.15	0.15	0.15
22.590	0.15	0.15	0.15	0.15	0.15
22.640	0.15	0.15	0.15	0.15	0.15
22.690	0.15	0.15	0.15	0.15	0.15
22.740	0.15	0.15	0.15	0.15	0.15
22.790	0.15	0.15	0.15	0.15	0.15
22.840	0.15	0.15	0.15	0.15	0.15
22.890	0.15	0.15	0.15	0.15	0.15
22.940	0.15	0.15	0.15	0.15	0.15
22.990	0.15	0.15	0.15	0.15	0.15
23.040	0.15	0.15	0.15	0.15	0.15
23.090	0.15	0.15	0.15	0.14	0.14
23.140	0.14	0.14	0.14	0.14	0.14
23.190	0.14	0.14	0.14	0.14	0.14
23.240	0.14	0.14	0.14	0.14	0.14
23.290	0.14	0.14	0.14	0.14	0.14
23.340	0.14	0.14	0.14	0.14	0.14
23.390	0.14	0.14	0.14	0.14	0.14
23.440	0.14	0.14	0.14	0.14	0.14
23.490	0.14	0.14	0.14	0.14	0.14
23.540	0.14	0.14	0.14	0.14	0.14
23.590	0.14	0.14	0.14	0.14	0.14
23.640	0.14	0.14	0.14	0.14	0.14
23.690	0.14	0.14	0.14	0.14	0.14
23.740	0.14	0.14	0.14	0.14	0.14
23.790	0.14	0.14	0.14	0.14	0.14
23.840	0.14	0.14	0.14	0.14	0.14
23.890	0.14	0.14	0.14	0.14	0.14

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 1 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (2.8 in)
Scenario: Post-Development 1

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
23.940	0.14	0.14	0.14	0.14	0.14
23.990	0.14	0.14	0.14	0.14	0.14
24.040	0.14	0.14	0.13	0.13	0.13
24.090	0.12	0.12	0.11	0.10	0.10
24.140	0.09	0.08	0.07	0.07	0.06
24.190	0.05	0.05	0.04	0.04	0.03
24.240	0.03	0.02	0.02	0.02	0.02
24.290	0.02	0.01	0.01	0.01	0.01
24.340	0.01	0.01	0.01	0.01	0.00
24.390	0.00	0.00	0.00	0.00	0.00
24.440	0.00	0.00	0.00	0.00	0.00
24.490	0.00	(N/A)	(N/A)	(N/A)	(N/A)

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.0 in)
Scenario: Post-Development 2

Peak Discharge	3.87 ft³/s
Time to Peak	12.170 hours
Hydrograph Volume	0.535 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.460	0.00	0.00	0.00	0.00	0.00
11.510	0.01	0.01	0.01	0.01	0.01
11.560	0.02	0.02	0.03	0.04	0.05
11.610	0.06	0.07	0.08	0.10	0.12
11.660	0.14	0.18	0.22	0.26	0.31
11.710	0.33	0.35	0.38	0.40	0.43
11.760	0.45	0.47	0.50	0.52	0.55
11.810	0.58	0.60	0.63	0.65	0.68
11.860	0.71	0.74	0.77	0.80	0.84
11.910	0.87	0.90	0.94	0.98	1.01
11.960	1.04	1.07	1.11	1.22	1.41
12.010	1.68	2.01	2.76	2.95	3.13
12.060	3.28	3.41	3.51	3.60	3.68
12.110	3.74	3.78	3.82	3.84	3.86
12.160	3.87	3.87	3.86	3.85	3.83
12.210	3.81	3.79	3.76	3.74	3.71
12.260	3.67	3.64	3.60	3.56	3.52
12.310	3.48	3.44	3.39	3.35	3.30
12.360	3.25	3.20	3.15	3.11	3.05
12.410	3.00	2.95	2.90	2.85	2.80
12.460	2.75	2.67	2.48	2.32	2.17
12.510	2.05	1.95	1.92	1.88	1.85
12.560	1.82	1.79	1.76	1.73	1.71
12.610	1.68	1.65	1.63	1.60	1.58
12.660	1.56	1.53	1.51	1.49	1.47
12.710	1.45	1.44	1.42	1.40	1.38
12.760	1.37	1.35	1.34	1.33	1.32
12.810	1.31	1.30	1.29	1.28	1.27
12.860	1.25	1.24	1.24	1.23	1.22
12.910	1.21	1.20	1.19	1.19	1.18
12.960	1.17	1.16	1.15	1.15	1.14
13.010	1.14	1.14	1.13	1.13	1.13
13.060	1.12	1.12	1.12	1.11	1.11
13.110	1.10	1.10	1.10	1.09	1.09
13.160	1.09	1.09	1.08	1.08	1.08
13.210	1.07	1.07	1.07	1.07	1.07
13.260	1.07	1.07	1.07	1.07	1.07

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.0 in)
Scenario: Post-Development 2

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
13.310	1.07	1.06	1.06	1.06	1.05
13.360	1.05	1.05	1.05	1.04	1.04
13.410	1.04	1.04	1.03	1.03	1.03
13.460	1.03	1.03	1.03	1.03	1.03
13.510	1.03	1.02	1.02	1.02	1.01
13.560	1.01	1.01	1.00	1.00	1.00
13.610	1.00	0.99	0.99	0.99	0.99
13.660	0.99	0.99	0.98	0.98	0.98
13.710	0.98	0.98	0.97	0.97	0.97
13.760	0.97	0.96	0.96	0.96	0.95
13.810	0.95	0.95	0.94	0.94	0.94
13.860	0.93	0.93	0.92	0.92	0.92
13.910	0.91	0.91	0.91	0.91	0.90
13.960	0.90	0.90	0.90	0.89	0.89
14.010	0.89	0.88	0.88	0.88	0.88
14.060	0.87	0.87	0.87	0.86	0.86
14.110	0.86	0.85	0.85	0.85	0.84
14.160	0.84	0.84	0.83	0.83	0.83
14.210	0.82	0.82	0.82	0.81	0.81
14.260	0.81	0.80	0.80	0.80	0.79
14.310	0.79	0.79	0.78	0.78	0.78
14.360	0.77	0.77	0.77	0.76	0.76
14.410	0.76	0.75	0.75	0.75	0.74
14.460	0.74	0.73	0.73	0.73	0.72
14.510	0.72	0.72	0.71	0.71	0.71
14.560	0.70	0.70	0.70	0.69	0.69
14.610	0.69	0.68	0.68	0.68	0.67
14.660	0.67	0.67	0.66	0.66	0.65
14.710	0.65	0.65	0.64	0.64	0.64
14.760	0.63	0.63	0.63	0.62	0.62
14.810	0.61	0.61	0.61	0.60	0.60
14.860	0.60	0.59	0.59	0.59	0.58
14.910	0.58	0.58	0.57	0.57	0.56
14.960	0.56	0.56	0.55	0.55	0.54
15.010	0.54	0.54	0.53	0.53	0.52
15.060	0.52	0.52	0.51	0.51	0.50
15.110	0.50	0.50	0.49	0.49	0.48
15.160	0.48	0.48	0.47	0.47	0.47
15.210	0.46	0.46	0.46	0.45	0.45
15.260	0.45	0.44	0.44	0.44	0.44
15.310	0.43	0.43	0.43	0.43	0.42
15.360	0.42	0.42	0.41	0.41	0.40

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.0 in)
Scenario: Post-Development 2

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.410	0.40	0.40	0.40	0.39	0.39
15.460	0.39	0.39	0.38	0.38	0.38
15.510	0.38	0.38	0.38	0.37	0.37
15.560	0.37	0.37	0.37	0.37	0.36
15.610	0.36	0.36	0.36	0.36	0.36
15.660	0.36	0.36	0.35	0.35	0.35
15.710	0.35	0.35	0.35	0.35	0.35
15.760	0.35	0.34	0.34	0.34	0.34
15.810	0.34	0.34	0.34	0.34	0.34
15.860	0.34	0.34	0.33	0.33	0.33
15.910	0.33	0.33	0.33	0.33	0.33
15.960	0.33	0.33	0.33	0.33	0.32
16.010	0.32	0.32	0.32	0.32	0.32
16.060	0.32	0.32	0.32	0.32	0.32
16.110	0.32	0.31	0.31	0.31	0.31
16.160	0.31	0.31	0.31	0.31	0.31
16.210	0.31	0.31	0.30	0.30	0.30
16.260	0.30	0.30	0.30	0.30	0.30
16.310	0.30	0.30	0.30	0.30	0.30
16.360	0.30	0.30	0.30	0.30	0.30
16.410	0.30	0.30	0.30	0.30	0.30
16.460	0.30	0.30	0.30	0.30	0.30
16.510	0.30	0.30	0.30	0.30	0.29
16.560	0.29	0.29	0.29	0.29	0.29
16.610	0.29	0.29	0.29	0.29	0.29
16.660	0.29	0.29	0.29	0.29	0.29
16.710	0.29	0.29	0.29	0.29	0.29
16.760	0.29	0.29	0.29	0.29	0.29
16.810	0.29	0.29	0.29	0.29	0.29
16.860	0.29	0.29	0.29	0.29	0.28
16.910	0.28	0.28	0.28	0.28	0.28
16.960	0.28	0.28	0.28	0.28	0.28
17.010	0.28	0.28	0.28	0.28	0.28
17.060	0.28	0.28	0.28	0.28	0.28
17.110	0.28	0.28	0.28	0.28	0.28
17.160	0.28	0.28	0.28	0.28	0.28
17.210	0.28	0.28	0.28	0.27	0.27
17.260	0.27	0.27	0.27	0.27	0.27
17.310	0.27	0.27	0.27	0.27	0.27
17.360	0.27	0.27	0.27	0.27	0.27
17.410	0.27	0.27	0.27	0.27	0.27
17.460	0.27	0.27	0.27	0.27	0.27

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.0 in)
Scenario: Post-Development 2

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.510	0.27	0.27	0.27	0.27	0.27
17.560	0.27	0.27	0.27	0.26	0.26
17.610	0.26	0.26	0.26	0.26	0.26
17.660	0.26	0.26	0.26	0.26	0.26
17.710	0.26	0.26	0.26	0.26	0.26
17.760	0.26	0.26	0.26	0.26	0.26
17.810	0.26	0.26	0.26	0.26	0.26
17.860	0.26	0.26	0.26	0.26	0.26
17.910	0.26	0.25	0.25	0.25	0.25
17.960	0.25	0.25	0.25	0.25	0.25
18.010	0.25	0.25	0.25	0.25	0.25
18.060	0.25	0.25	0.25	0.25	0.25
18.110	0.25	0.25	0.25	0.25	0.25
18.160	0.25	0.25	0.25	0.25	0.25
18.210	0.25	0.25	0.25	0.25	0.24
18.260	0.24	0.24	0.24	0.24	0.24
18.310	0.24	0.24	0.24	0.24	0.24
18.360	0.24	0.24	0.24	0.24	0.24
18.410	0.24	0.24	0.24	0.24	0.24
18.460	0.24	0.24	0.24	0.24	0.24
18.510	0.24	0.24	0.24	0.24	0.24
18.560	0.24	0.24	0.23	0.23	0.23
18.610	0.23	0.23	0.23	0.23	0.23
18.660	0.23	0.23	0.23	0.23	0.23
18.710	0.23	0.23	0.23	0.23	0.23
18.760	0.23	0.23	0.23	0.23	0.23
18.810	0.23	0.23	0.23	0.23	0.23
18.860	0.23	0.23	0.23	0.22	0.22
18.910	0.22	0.22	0.22	0.22	0.22
18.960	0.22	0.22	0.22	0.22	0.22
19.010	0.22	0.22	0.22	0.22	0.22
19.060	0.22	0.22	0.22	0.22	0.22
19.110	0.22	0.22	0.22	0.22	0.22
19.160	0.22	0.22	0.22	0.21	0.21
19.210	0.21	0.21	0.21	0.21	0.21
19.260	0.21	0.21	0.21	0.21	0.21
19.310	0.21	0.21	0.21	0.21	0.21
19.360	0.21	0.21	0.21	0.21	0.21
19.410	0.21	0.21	0.21	0.21	0.21
19.460	0.21	0.21	0.21	0.21	0.21
19.510	0.20	0.20	0.20	0.20	0.20
19.560	0.20	0.20	0.20	0.20	0.20

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.0 in)
Scenario: Post-Development 2

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.610	0.20	0.20	0.20	0.20	0.20
19.660	0.20	0.20	0.20	0.20	0.20
19.710	0.20	0.20	0.20	0.20	0.20
19.760	0.20	0.20	0.20	0.20	0.20
19.810	0.19	0.19	0.19	0.19	0.19
19.860	0.19	0.19	0.19	0.19	0.19
19.910	0.19	0.19	0.19	0.19	0.19
19.960	0.19	0.19	0.19	0.19	0.19
20.010	0.19	0.19	0.19	0.19	0.19
20.060	0.19	0.19	0.19	0.19	0.19
20.110	0.19	0.19	0.18	0.18	0.18
20.160	0.18	0.18	0.18	0.18	0.18
20.210	0.18	0.18	0.18	0.18	0.18
20.260	0.18	0.18	0.18	0.18	0.18
20.310	0.18	0.18	0.18	0.18	0.18
20.360	0.18	0.18	0.18	0.18	0.18
20.410	0.18	0.18	0.18	0.18	0.18
20.460	0.18	0.18	0.18	0.18	0.18
20.510	0.18	0.18	0.18	0.18	0.18
20.560	0.18	0.18	0.18	0.18	0.18
20.610	0.18	0.18	0.18	0.18	0.18
20.660	0.18	0.18	0.18	0.18	0.18
20.710	0.18	0.18	0.18	0.18	0.18
20.760	0.18	0.18	0.18	0.18	0.18
20.810	0.18	0.18	0.18	0.18	0.18
20.860	0.18	0.18	0.18	0.18	0.18
20.910	0.18	0.18	0.18	0.18	0.18
20.960	0.18	0.18	0.18	0.18	0.18
21.010	0.18	0.18	0.18	0.18	0.18
21.060	0.18	0.18	0.18	0.18	0.18
21.110	0.18	0.18	0.18	0.18	0.18
21.160	0.18	0.18	0.18	0.18	0.18
21.210	0.18	0.18	0.18	0.18	0.18
21.260	0.18	0.18	0.18	0.18	0.18
21.310	0.18	0.18	0.18	0.18	0.18
21.360	0.18	0.18	0.18	0.18	0.18
21.410	0.18	0.18	0.18	0.18	0.18
21.460	0.18	0.18	0.18	0.18	0.18
21.510	0.18	0.18	0.18	0.18	0.18
21.560	0.18	0.18	0.18	0.18	0.18
21.610	0.18	0.18	0.18	0.18	0.18
21.660	0.18	0.18	0.18	0.17	0.17

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.0 in)
Scenario: Post-Development 2

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.710	0.17	0.17	0.17	0.17	0.17
21.760	0.17	0.17	0.17	0.17	0.17
21.810	0.17	0.17	0.17	0.17	0.17
21.860	0.17	0.17	0.17	0.17	0.17
21.910	0.17	0.17	0.17	0.17	0.17
21.960	0.17	0.17	0.17	0.17	0.17
22.010	0.17	0.17	0.17	0.17	0.17
22.060	0.17	0.17	0.17	0.17	0.17
22.110	0.17	0.17	0.17	0.17	0.17
22.160	0.17	0.17	0.17	0.17	0.17
22.210	0.17	0.17	0.17	0.17	0.17
22.260	0.17	0.17	0.17	0.17	0.17
22.310	0.17	0.17	0.17	0.17	0.17
22.360	0.17	0.17	0.17	0.17	0.17
22.410	0.17	0.17	0.17	0.17	0.17
22.460	0.17	0.17	0.17	0.17	0.17
22.510	0.17	0.17	0.17	0.17	0.17
22.560	0.17	0.17	0.17	0.17	0.17
22.610	0.17	0.17	0.17	0.17	0.17
22.660	0.17	0.17	0.17	0.17	0.17
22.710	0.17	0.17	0.17	0.17	0.17
22.760	0.17	0.17	0.17	0.17	0.17
22.810	0.17	0.17	0.17	0.17	0.17
22.860	0.17	0.17	0.17	0.17	0.17
22.910	0.17	0.17	0.17	0.17	0.17
22.960	0.17	0.17	0.17	0.17	0.17
23.010	0.17	0.17	0.17	0.17	0.17
23.060	0.17	0.17	0.17	0.17	0.17
23.110	0.17	0.17	0.17	0.17	0.17
23.160	0.17	0.17	0.17	0.17	0.17
23.210	0.17	0.17	0.17	0.17	0.17
23.260	0.17	0.17	0.17	0.17	0.17
23.310	0.17	0.17	0.17	0.17	0.17
23.360	0.17	0.17	0.17	0.17	0.17
23.410	0.17	0.17	0.16	0.16	0.16
23.460	0.16	0.16	0.16	0.16	0.16
23.510	0.16	0.16	0.16	0.16	0.16
23.560	0.16	0.16	0.16	0.16	0.16
23.610	0.16	0.16	0.16	0.16	0.16
23.660	0.16	0.16	0.16	0.16	0.16
23.710	0.16	0.16	0.16	0.16	0.16
23.760	0.16	0.16	0.16	0.16	0.16

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.0 in)
Scenario: Post-Development 2

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
23.810	0.16	0.16	0.16	0.16	0.16
23.860	0.16	0.16	0.16	0.16	0.16
23.910	0.16	0.16	0.16	0.16	0.16
23.960	0.16	0.16	0.16	0.16	0.16
24.010	0.16	0.16	0.16	0.16	0.16
24.060	0.15	0.15	0.14	0.14	0.13
24.110	0.12	0.12	0.11	0.10	0.09
24.160	0.08	0.08	0.07	0.06	0.05
24.210	0.05	0.04	0.04	0.03	0.03
24.260	0.02	0.02	0.02	0.02	0.02
24.310	0.01	0.01	0.01	0.01	0.01
24.360	0.01	0.01	0.01	0.00	0.00
24.410	0.00	0.00	0.00	0.00	0.00
24.460	0.00	0.00	0.00	0.00	0.00

Peak Discharge	12.78 ft³/s
Time to Peak	12.080 hours
Hydrograph Volume	0.952 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.620	0.00	0.00	0.00	0.00	0.00
10.670	0.00	0.00	0.01	0.01	0.01
10.720	0.01	0.01	0.01	0.01	0.02
10.770	0.02	0.02	0.02	0.02	0.03
10.820	0.03	0.03	0.03	0.04	0.04
10.870	0.04	0.04	0.05	0.05	0.05
10.920	0.05	0.06	0.06	0.06	0.06
10.970	0.07	0.07	0.07	0.08	0.08
11.020	0.08	0.08	0.09	0.09	0.09
11.070	0.10	0.10	0.10	0.11	0.11
11.120	0.12	0.12	0.12	0.13	0.13
11.170	0.14	0.14	0.15	0.16	0.16
11.220	0.17	0.18	0.18	0.19	0.19
11.270	0.20	0.21	0.21	0.22	0.23
11.320	0.23	0.24	0.25	0.25	0.26
11.370	0.27	0.28	0.28	0.29	0.30
11.420	0.31	0.31	0.32	0.32	0.32
11.470	0.33	0.33	0.34	0.35	0.35
11.520	0.36	0.37	0.38	0.38	0.39
11.570	0.41	0.42	0.43	0.44	0.45
11.620	0.47	0.48	0.50	0.52	0.54
11.670	0.56	0.58	0.60	0.62	0.64
11.720	0.66	0.68	0.71	0.73	0.75
11.770	0.78	0.80	0.83	0.86	0.89
11.820	0.91	0.95	0.98	1.00	1.03
11.870	1.07	1.11	1.23	1.49	1.88
11.920	2.80	3.12	3.41	3.67	3.91
11.970	4.13	4.33	4.51	5.18	6.67
12.020	8.27	9.69	10.86	11.73	12.33
12.070	12.66	12.78	12.70	12.46	12.10
12.120	11.64	11.13	10.59	10.01	9.43
12.170	8.90	8.37	7.87	7.43	7.03
12.220	6.64	6.30	6.02	5.76	5.50
12.270	5.26	5.12	4.97	4.83	4.70
12.320	4.57	4.55	4.53	4.51	4.48
12.370	4.45	4.43	4.40	4.37	4.34
12.420	4.31	4.28	4.25	4.21	4.17

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.470	4.13	4.10	4.06	4.02	3.98
12.520	3.94	3.90	3.86	3.82	3.77
12.570	3.73	3.69	3.64	3.60	3.55
12.620	3.50	3.45	3.41	3.36	3.31
12.670	3.26	3.21	3.16	3.11	3.06
12.720	3.01	2.96	2.91	2.86	2.81
12.770	2.77	2.72	2.58	2.43	2.29
12.820	2.17	2.07	1.98	1.94	1.92
12.870	1.89	1.87	1.85	1.83	1.81
12.920	1.79	1.77	1.75	1.74	1.72
12.970	1.70	1.69	1.67	1.66	1.64
13.020	1.63	1.61	1.60	1.58	1.57
13.070	1.56	1.54	1.53	1.52	1.51
13.120	1.50	1.49	1.48	1.47	1.46
13.170	1.44	1.43	1.42	1.42	1.41
13.220	1.40	1.39	1.38	1.37	1.36
13.270	1.35	1.35	1.34	1.33	1.33
13.320	1.32	1.32	1.31	1.30	1.30
13.370	1.29	1.29	1.28	1.27	1.27
13.420	1.26	1.26	1.25	1.24	1.24
13.470	1.23	1.23	1.22	1.22	1.22
13.520	1.21	1.21	1.20	1.20	1.19
13.570	1.19	1.18	1.18	1.17	1.17
13.620	1.16	1.16	1.15	1.15	1.14
13.670	1.14	1.14	1.14	1.14	1.13
13.720	1.13	1.13	1.13	1.12	1.12
13.770	1.12	1.12	1.12	1.11	1.11
13.820	1.11	1.11	1.10	1.10	1.10
13.870	1.10	1.10	1.09	1.09	1.09
13.920	1.09	1.08	1.08	1.08	1.08
13.970	1.07	1.07	1.07	1.07	1.07
14.020	1.07	1.07	1.07	1.07	1.07
14.070	1.07	1.07	1.07	1.07	1.07
14.120	1.07	1.06	1.06	1.06	1.06
14.170	1.05	1.05	1.05	1.05	1.04
14.220	1.04	1.04	1.04	1.04	1.04
14.270	1.03	1.03	1.03	1.03	1.03
14.320	1.03	1.03	1.03	1.03	1.03
14.370	1.03	1.03	1.02	1.02	1.02
14.420	1.02	1.01	1.01	1.01	1.01
14.470	1.00	1.00	1.00	1.00	1.00
14.520	1.00	0.99	0.99	0.99	0.99

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 5 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.9 in)
Scenario: Post-Development 5

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.570	0.99	0.99	0.99	0.99	0.98
14.620	0.98	0.98	0.98	0.98	0.98
14.670	0.98	0.97	0.97	0.97	0.97
14.720	0.97	0.97	0.96	0.96	0.96
14.770	0.96	0.95	0.95	0.95	0.95
14.820	0.95	0.94	0.94	0.94	0.94
14.870	0.93	0.93	0.93	0.92	0.92
14.920	0.92	0.92	0.92	0.91	0.91
14.970	0.91	0.91	0.91	0.90	0.90
15.020	0.90	0.90	0.90	0.90	0.89
15.070	0.89	0.89	0.89	0.89	0.89
15.120	0.88	0.88	0.88	0.88	0.88
15.170	0.87	0.87	0.87	0.87	0.87
15.220	0.86	0.86	0.86	0.86	0.85
15.270	0.85	0.85	0.85	0.85	0.84
15.320	0.84	0.84	0.84	0.84	0.83
15.370	0.83	0.83	0.83	0.82	0.82
15.420	0.82	0.82	0.82	0.81	0.81
15.470	0.81	0.81	0.80	0.80	0.80
15.520	0.80	0.80	0.79	0.79	0.79
15.570	0.79	0.78	0.78	0.78	0.78
15.620	0.78	0.77	0.77	0.77	0.77
15.670	0.76	0.76	0.76	0.76	0.75
15.720	0.75	0.75	0.75	0.75	0.74
15.770	0.74	0.74	0.74	0.73	0.73
15.820	0.73	0.73	0.72	0.72	0.72
15.870	0.72	0.71	0.71	0.71	0.71
15.920	0.71	0.70	0.70	0.70	0.70
15.970	0.69	0.69	0.69	0.69	0.68
16.020	0.68	0.68	0.68	0.67	0.67
16.070	0.67	0.67	0.66	0.66	0.66
16.120	0.66	0.65	0.65	0.65	0.65
16.170	0.64	0.64	0.64	0.64	0.63
16.220	0.63	0.63	0.62	0.62	0.62
16.270	0.62	0.61	0.61	0.61	0.61
16.320	0.60	0.60	0.60	0.60	0.60
16.370	0.59	0.59	0.59	0.59	0.59
16.420	0.58	0.58	0.58	0.58	0.58
16.470	0.57	0.57	0.57	0.56	0.56
16.520	0.56	0.56	0.55	0.55	0.55
16.570	0.55	0.55	0.54	0.54	0.54
16.620	0.54	0.54	0.53	0.53	0.53

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.670	0.53	0.52	0.52	0.52	0.52
16.720	0.52	0.51	0.51	0.51	0.51
16.770	0.51	0.51	0.50	0.50	0.50
16.820	0.50	0.50	0.50	0.49	0.49
16.870	0.49	0.49	0.49	0.49	0.49
16.920	0.48	0.48	0.48	0.48	0.48
16.970	0.48	0.48	0.47	0.47	0.47
17.020	0.47	0.47	0.47	0.47	0.47
17.070	0.47	0.47	0.46	0.46	0.46
17.120	0.46	0.46	0.46	0.46	0.46
17.170	0.46	0.46	0.46	0.46	0.45
17.220	0.45	0.45	0.45	0.45	0.45
17.270	0.45	0.45	0.45	0.45	0.45
17.320	0.45	0.45	0.45	0.44	0.44
17.370	0.44	0.44	0.44	0.44	0.44
17.420	0.44	0.44	0.44	0.44	0.44
17.470	0.44	0.44	0.44	0.44	0.43
17.520	0.43	0.43	0.43	0.43	0.43
17.570	0.43	0.43	0.43	0.43	0.43
17.620	0.43	0.43	0.43	0.43	0.43
17.670	0.43	0.42	0.42	0.42	0.42
17.720	0.42	0.42	0.42	0.42	0.42
17.770	0.42	0.42	0.42	0.41	0.41
17.820	0.41	0.41	0.41	0.41	0.41
17.870	0.41	0.41	0.41	0.41	0.41
17.920	0.41	0.41	0.41	0.41	0.41
17.970	0.40	0.40	0.40	0.40	0.40
18.020	0.40	0.40	0.40	0.40	0.40
18.070	0.40	0.40	0.40	0.40	0.40
18.120	0.40	0.40	0.40	0.40	0.40
18.170	0.39	0.39	0.39	0.39	0.39
18.220	0.39	0.39	0.39	0.39	0.39
18.270	0.39	0.39	0.39	0.39	0.39
18.320	0.39	0.39	0.39	0.39	0.38
18.370	0.38	0.38	0.38	0.38	0.38
18.420	0.38	0.38	0.38	0.38	0.38
18.470	0.38	0.38	0.38	0.38	0.38
18.520	0.38	0.38	0.38	0.38	0.37
18.570	0.37	0.37	0.37	0.37	0.37
18.620	0.37	0.37	0.37	0.37	0.37
18.670	0.37	0.37	0.37	0.37	0.37
18.720	0.37	0.37	0.36	0.36	0.36

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 5 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.9 in)
Scenario: Post-Development 5

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.770	0.36	0.36	0.36	0.36	0.36
18.820	0.36	0.36	0.36	0.36	0.36
18.870	0.36	0.36	0.36	0.36	0.36
18.920	0.35	0.35	0.35	0.35	0.35
18.970	0.35	0.35	0.35	0.35	0.35
19.020	0.35	0.35	0.35	0.35	0.35
19.070	0.35	0.35	0.35	0.35	0.35
19.120	0.34	0.34	0.34	0.34	0.34
19.170	0.34	0.34	0.34	0.34	0.34
19.220	0.34	0.34	0.34	0.34	0.34
19.270	0.34	0.34	0.34	0.34	0.33
19.320	0.33	0.33	0.33	0.33	0.33
19.370	0.33	0.33	0.33	0.33	0.33
19.420	0.33	0.33	0.33	0.33	0.33
19.470	0.33	0.33	0.33	0.32	0.32
19.520	0.32	0.32	0.32	0.32	0.32
19.570	0.32	0.32	0.32	0.32	0.32
19.620	0.32	0.32	0.32	0.32	0.32
19.670	0.32	0.32	0.32	0.31	0.31
19.720	0.31	0.31	0.31	0.31	0.31
19.770	0.31	0.31	0.31	0.31	0.31
19.820	0.31	0.30	0.30	0.30	0.30
19.870	0.30	0.30	0.30	0.30	0.30
19.920	0.30	0.30	0.30	0.30	0.30
19.970	0.30	0.30	0.30	0.30	0.29
20.020	0.29	0.29	0.29	0.29	0.29
20.070	0.29	0.29	0.29	0.29	0.29
20.120	0.29	0.29	0.29	0.29	0.29
20.170	0.29	0.29	0.29	0.29	0.29
20.220	0.29	0.29	0.29	0.29	0.29
20.270	0.29	0.29	0.29	0.29	0.29
20.320	0.29	0.29	0.29	0.29	0.29
20.370	0.29	0.29	0.28	0.28	0.28
20.420	0.28	0.28	0.28	0.28	0.28
20.470	0.28	0.28	0.28	0.28	0.28
20.520	0.28	0.28	0.28	0.28	0.28
20.570	0.28	0.28	0.28	0.28	0.28
20.620	0.28	0.28	0.28	0.28	0.28
20.670	0.28	0.28	0.28	0.28	0.28
20.720	0.28	0.28	0.28	0.28	0.28
20.770	0.28	0.28	0.28	0.28	0.28
20.820	0.28	0.28	0.28	0.28	0.28

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 5 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.9 in)
Scenario: Post-Development 5

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.870	0.28	0.28	0.28	0.28	0.28
20.920	0.28	0.28	0.28	0.28	0.28
20.970	0.28	0.28	0.28	0.28	0.28
21.020	0.28	0.28	0.28	0.28	0.28
21.070	0.28	0.28	0.28	0.28	0.28
21.120	0.28	0.28	0.28	0.28	0.28
21.170	0.28	0.28	0.28	0.28	0.28
21.220	0.28	0.28	0.28	0.28	0.28
21.270	0.28	0.28	0.28	0.28	0.28
21.320	0.28	0.28	0.28	0.28	0.28
21.370	0.28	0.28	0.28	0.28	0.28
21.420	0.28	0.28	0.28	0.27	0.27
21.470	0.27	0.27	0.27	0.27	0.27
21.520	0.27	0.27	0.27	0.27	0.27
21.570	0.27	0.27	0.27	0.27	0.27
21.620	0.27	0.27	0.27	0.27	0.27
21.670	0.27	0.27	0.27	0.27	0.27
21.720	0.27	0.27	0.27	0.27	0.27
21.770	0.27	0.27	0.27	0.27	0.27
21.820	0.27	0.27	0.27	0.27	0.27
21.870	0.27	0.27	0.27	0.27	0.27
21.920	0.27	0.27	0.27	0.27	0.27
21.970	0.27	0.27	0.27	0.27	0.27
22.020	0.27	0.27	0.27	0.27	0.27
22.070	0.27	0.27	0.27	0.27	0.27
22.120	0.27	0.27	0.27	0.27	0.27
22.170	0.27	0.27	0.27	0.27	0.27
22.220	0.27	0.27	0.27	0.27	0.27
22.270	0.27	0.27	0.27	0.27	0.27
22.320	0.27	0.27	0.27	0.27	0.27
22.370	0.27	0.27	0.27	0.27	0.27
22.420	0.27	0.27	0.27	0.27	0.27
22.470	0.27	0.27	0.27	0.27	0.27
22.520	0.27	0.26	0.26	0.26	0.26
22.570	0.26	0.26	0.26	0.26	0.26
22.620	0.26	0.26	0.26	0.26	0.26
22.670	0.26	0.26	0.26	0.26	0.26
22.720	0.26	0.26	0.26	0.26	0.26
22.770	0.26	0.26	0.26	0.26	0.26
22.820	0.26	0.26	0.26	0.26	0.26
22.870	0.26	0.26	0.26	0.26	0.26
22.920	0.26	0.26	0.26	0.26	0.26

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 5 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (3.9 in)
Scenario: Post-Development 5

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.970	0.26	0.26	0.26	0.26	0.26
23.020	0.26	0.26	0.26	0.26	0.26
23.070	0.26	0.26	0.26	0.26	0.26
23.120	0.26	0.26	0.26	0.26	0.26
23.170	0.26	0.26	0.26	0.26	0.26
23.220	0.26	0.26	0.26	0.26	0.26
23.270	0.26	0.26	0.26	0.26	0.26
23.320	0.26	0.26	0.26	0.26	0.26
23.370	0.26	0.26	0.26	0.26	0.26
23.420	0.26	0.26	0.26	0.26	0.26
23.470	0.26	0.26	0.26	0.26	0.26
23.520	0.26	0.26	0.26	0.25	0.25
23.570	0.25	0.25	0.25	0.25	0.25
23.620	0.25	0.25	0.25	0.25	0.25
23.670	0.25	0.25	0.25	0.25	0.25
23.720	0.25	0.25	0.25	0.25	0.25
23.770	0.25	0.25	0.25	0.25	0.25
23.820	0.25	0.25	0.25	0.25	0.25
23.870	0.25	0.25	0.25	0.25	0.25
23.920	0.25	0.25	0.25	0.25	0.25
23.970	0.25	0.25	0.25	0.25	0.25
24.020	0.25	0.25	0.24	0.24	0.23
24.070	0.23	0.22	0.21	0.19	0.18
24.120	0.17	0.15	0.14	0.13	0.12
24.170	0.11	0.10	0.09	0.08	0.07
24.220	0.06	0.06	0.05	0.04	0.04
24.270	0.03	0.03	0.03	0.02	0.02
24.320	0.02	0.02	0.01	0.01	0.01
24.370	0.01	0.01	0.01	0.01	0.01
24.420	0.00	0.00	0.00	0.00	0.00
24.470	0.00	0.00	0.00	0.00	0.00
24.520	0.00	0.00	(N/A)	(N/A)	(N/A)

Peak Discharge	21.13 ft³/s
Time to Peak	12.050 hours
Hydrograph Volume	1.378 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.780	0.00	0.00	0.00	0.00	0.00
9.830	0.00	0.00	0.00	0.01	0.01
9.880	0.01	0.01	0.01	0.01	0.01
9.930	0.01	0.01	0.01	0.02	0.02
9.980	0.02	0.02	0.02	0.02	0.02
10.030	0.03	0.03	0.03	0.03	0.03
10.080	0.03	0.03	0.04	0.04	0.04
10.130	0.04	0.04	0.04	0.05	0.05
10.180	0.05	0.05	0.05	0.05	0.06
10.230	0.06	0.06	0.06	0.06	0.07
10.280	0.07	0.07	0.07	0.07	0.08
10.330	0.08	0.08	0.08	0.08	0.09
10.380	0.09	0.09	0.09	0.10	0.10
10.430	0.10	0.10	0.11	0.11	0.11
10.480	0.11	0.12	0.12	0.12	0.12
10.530	0.13	0.13	0.13	0.13	0.14
10.580	0.14	0.14	0.15	0.15	0.16
10.630	0.16	0.16	0.17	0.17	0.17
10.680	0.18	0.18	0.18	0.19	0.19
10.730	0.20	0.20	0.20	0.21	0.21
10.780	0.22	0.22	0.22	0.23	0.23
10.830	0.24	0.24	0.25	0.25	0.25
10.880	0.26	0.26	0.27	0.27	0.28
10.930	0.28	0.29	0.29	0.30	0.30
10.980	0.31	0.31	0.31	0.32	0.32
11.030	0.32	0.32	0.33	0.33	0.34
11.080	0.34	0.35	0.35	0.36	0.36
11.130	0.37	0.37	0.38	0.38	0.39
11.180	0.39	0.40	0.41	0.41	0.42
11.230	0.43	0.43	0.43	0.44	0.44
11.280	0.45	0.45	0.46	0.46	0.47
11.330	0.47	0.48	0.49	0.49	0.50
11.380	0.51	0.51	0.52	0.53	0.53
11.430	0.54	0.55	0.55	0.56	0.56
11.480	0.57	0.58	0.58	0.59	0.59
11.530	0.60	0.61	0.61	0.62	0.63
11.580	0.64	0.65	0.66	0.67	0.69

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (4.8 in)
Scenario: Post-Development 10

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.630	0.70	0.71	0.73	0.75	0.77
11.680	0.78	0.81	0.83	0.85	0.87
11.730	0.89	0.92	0.95	0.98	1.00
11.780	1.03	1.05	1.07	1.13	1.27
11.830	1.50	1.83	2.71	3.00	3.28
11.880	3.55	3.80	4.04	4.29	4.50
11.930	5.54	7.81	10.37	12.76	14.86
11.980	16.61	18.01	19.14	19.99	20.59
12.030	20.91	21.09	21.13	21.02	20.77
12.080	20.32	19.67	18.90	18.04	17.14
12.130	16.19	15.23	14.28	13.35	12.49
12.180	11.66	10.91	10.22	9.58	9.03
12.230	8.53	8.07	7.65	7.30	6.97
12.280	6.65	6.37	6.15	5.94	5.74
12.330	5.56	5.38	5.22	5.12	5.02
12.380	4.92	4.82	4.72	4.63	4.57
12.430	4.55	4.53	4.52	4.50	4.48
12.480	4.46	4.43	4.41	4.38	4.36
12.530	4.34	4.31	4.29	4.26	4.23
12.580	4.20	4.16	4.13	4.09	4.06
12.630	4.03	3.99	3.96	3.92	3.89
12.680	3.85	3.82	3.78	3.74	3.71
12.730	3.67	3.63	3.59	3.56	3.52
12.780	3.48	3.44	3.40	3.36	3.33
12.830	3.29	3.25	3.21	3.17	3.13
12.880	3.10	3.06	3.02	2.98	2.94
12.930	2.90	2.86	2.83	2.79	2.76
12.980	2.73	2.65	2.52	2.42	2.33
13.030	2.25	2.18	2.11	2.06	2.01
13.080	1.97	1.95	1.93	1.92	1.91
13.130	1.90	1.89	1.88	1.86	1.85
13.180	1.84	1.83	1.82	1.81	1.80
13.230	1.79	1.78	1.77	1.76	1.75
13.280	1.74	1.73	1.72	1.71	1.70
13.330	1.69	1.68	1.68	1.67	1.66
13.380	1.65	1.64	1.63	1.63	1.62
13.430	1.61	1.60	1.59	1.58	1.58
13.480	1.57	1.56	1.55	1.55	1.54
13.530	1.53	1.52	1.52	1.51	1.50
13.580	1.50	1.49	1.48	1.48	1.47
13.630	1.46	1.46	1.45	1.44	1.44
13.680	1.43	1.42	1.42	1.41	1.40

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
13.730	1.40	1.39	1.39	1.38	1.37
13.780	1.37	1.36	1.36	1.35	1.35
13.830	1.34	1.34	1.33	1.33	1.32
13.880	1.32	1.32	1.31	1.31	1.30
13.930	1.30	1.29	1.29	1.28	1.28
13.980	1.27	1.27	1.26	1.26	1.25
14.030	1.25	1.25	1.24	1.24	1.23
14.080	1.23	1.22	1.22	1.22	1.21
14.130	1.21	1.20	1.20	1.20	1.19
14.180	1.19	1.19	1.18	1.18	1.17
14.230	1.17	1.17	1.16	1.16	1.16
14.280	1.15	1.15	1.15	1.14	1.14
14.330	1.14	1.14	1.14	1.14	1.14
14.380	1.13	1.13	1.13	1.13	1.13
14.430	1.13	1.12	1.12	1.12	1.12
14.480	1.12	1.12	1.11	1.11	1.11
14.530	1.11	1.11	1.11	1.11	1.10
14.580	1.10	1.10	1.10	1.10	1.10
14.630	1.10	1.09	1.09	1.09	1.09
14.680	1.09	1.09	1.09	1.08	1.08
14.730	1.08	1.08	1.08	1.08	1.08
14.780	1.07	1.07	1.07	1.07	1.07
14.830	1.07	1.07	1.07	1.07	1.07
14.880	1.07	1.07	1.07	1.07	1.07
14.930	1.07	1.07	1.07	1.07	1.07
14.980	1.07	1.07	1.07	1.07	1.06
15.030	1.06	1.06	1.06	1.06	1.06
15.080	1.05	1.05	1.05	1.05	1.05
15.130	1.05	1.04	1.04	1.04	1.04
15.180	1.04	1.04	1.04	1.04	1.04
15.230	1.03	1.03	1.03	1.03	1.03
15.280	1.03	1.03	1.03	1.03	1.03
15.330	1.03	1.03	1.03	1.03	1.03
15.380	1.03	1.03	1.02	1.02	1.02
15.430	1.02	1.02	1.01	1.01	1.01
15.480	1.01	1.01	1.00	1.00	1.00
15.530	1.00	1.00	1.00	1.00	1.00
15.580	0.99	0.99	0.99	0.99	0.99
15.630	0.99	0.99	0.99	0.99	0.99
15.680	0.98	0.98	0.98	0.98	0.98
15.730	0.98	0.98	0.98	0.98	0.97
15.780	0.97	0.97	0.97	0.97	0.97

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (4.8 in)
Scenario: Post-Development 10

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.830	0.96	0.96	0.96	0.96	0.96
15.880	0.95	0.95	0.95	0.95	0.95
15.930	0.94	0.94	0.94	0.94	0.94
15.980	0.93	0.93	0.93	0.93	0.92
16.030	0.92	0.92	0.92	0.91	0.91
16.080	0.91	0.91	0.91	0.91	0.91
16.130	0.90	0.90	0.90	0.90	0.90
16.180	0.90	0.89	0.89	0.89	0.89
16.230	0.89	0.89	0.88	0.88	0.88
16.280	0.88	0.88	0.88	0.87	0.87
16.330	0.87	0.87	0.87	0.86	0.86
16.380	0.86	0.86	0.86	0.85	0.85
16.430	0.85	0.85	0.85	0.85	0.84
16.480	0.84	0.84	0.84	0.84	0.83
16.530	0.83	0.83	0.83	0.83	0.83
16.580	0.82	0.82	0.82	0.82	0.82
16.630	0.81	0.81	0.81	0.81	0.81
16.680	0.81	0.80	0.80	0.80	0.80
16.730	0.80	0.80	0.79	0.79	0.79
16.780	0.79	0.79	0.78	0.78	0.78
16.830	0.78	0.78	0.78	0.77	0.77
16.880	0.77	0.77	0.77	0.77	0.76
16.930	0.76	0.76	0.76	0.76	0.76
16.980	0.75	0.75	0.75	0.75	0.75
17.030	0.75	0.74	0.74	0.74	0.74
17.080	0.74	0.74	0.73	0.73	0.73
17.130	0.73	0.73	0.73	0.72	0.72
17.180	0.72	0.72	0.72	0.72	0.71
17.230	0.71	0.71	0.71	0.71	0.71
17.280	0.71	0.70	0.70	0.70	0.70
17.330	0.70	0.70	0.69	0.69	0.69
17.380	0.69	0.69	0.69	0.68	0.68
17.430	0.68	0.68	0.68	0.68	0.68
17.480	0.67	0.67	0.67	0.67	0.67
17.530	0.67	0.66	0.66	0.66	0.66
17.580	0.66	0.66	0.66	0.65	0.65
17.630	0.65	0.65	0.65	0.65	0.65
17.680	0.64	0.64	0.64	0.64	0.64
17.730	0.64	0.64	0.63	0.63	0.63
17.780	0.63	0.63	0.63	0.63	0.62
17.830	0.62	0.62	0.62	0.62	0.62
17.880	0.62	0.61	0.61	0.61	0.61

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (4.8 in)
Scenario: Post-Development 10

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.930	0.61	0.61	0.61	0.61	0.60
17.980	0.60	0.60	0.60	0.60	0.60
18.030	0.60	0.60	0.59	0.59	0.59
18.080	0.59	0.59	0.59	0.59	0.59
18.130	0.59	0.58	0.58	0.58	0.58
18.180	0.58	0.58	0.58	0.58	0.58
18.230	0.57	0.57	0.57	0.57	0.57
18.280	0.57	0.57	0.56	0.56	0.56
18.330	0.56	0.56	0.56	0.56	0.55
18.380	0.55	0.55	0.55	0.55	0.55
18.430	0.55	0.55	0.55	0.54	0.54
18.480	0.54	0.54	0.54	0.54	0.54
18.530	0.54	0.53	0.53	0.53	0.53
18.580	0.53	0.53	0.53	0.53	0.53
18.630	0.52	0.52	0.52	0.52	0.52
18.680	0.52	0.52	0.52	0.52	0.51
18.730	0.51	0.51	0.51	0.51	0.51
18.780	0.51	0.51	0.51	0.51	0.51
18.830	0.50	0.50	0.50	0.50	0.50
18.880	0.50	0.50	0.50	0.50	0.50
18.930	0.49	0.49	0.49	0.49	0.49
18.980	0.49	0.49	0.49	0.49	0.49
19.030	0.48	0.48	0.48	0.48	0.48
19.080	0.48	0.48	0.48	0.48	0.48
19.130	0.48	0.48	0.47	0.47	0.47
19.180	0.47	0.47	0.47	0.47	0.47
19.230	0.47	0.47	0.47	0.47	0.46
19.280	0.46	0.46	0.46	0.46	0.46
19.330	0.46	0.46	0.46	0.46	0.46
19.380	0.46	0.46	0.45	0.45	0.45
19.430	0.45	0.45	0.45	0.45	0.45
19.480	0.45	0.45	0.45	0.45	0.45
19.530	0.45	0.44	0.44	0.44	0.44
19.580	0.44	0.44	0.44	0.44	0.44
19.630	0.44	0.44	0.44	0.44	0.43
19.680	0.43	0.43	0.43	0.43	0.43
19.730	0.43	0.43	0.43	0.43	0.43
19.780	0.43	0.43	0.42	0.42	0.42
19.830	0.42	0.42	0.42	0.42	0.42
19.880	0.41	0.41	0.41	0.41	0.41
19.930	0.41	0.41	0.41	0.41	0.41
19.980	0.41	0.40	0.40	0.40	0.40

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (4.8 in)
Scenario: Post-Development 10

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.030	0.40	0.40	0.40	0.40	0.40
20.080	0.40	0.40	0.40	0.40	0.39
20.130	0.39	0.39	0.39	0.39	0.39
20.180	0.39	0.39	0.39	0.39	0.39
20.230	0.39	0.39	0.39	0.39	0.39
20.280	0.39	0.39	0.39	0.39	0.39
20.330	0.38	0.38	0.38	0.38	0.38
20.380	0.38	0.38	0.38	0.38	0.38
20.430	0.38	0.38	0.38	0.38	0.38
20.480	0.38	0.38	0.38	0.38	0.38
20.530	0.38	0.38	0.38	0.38	0.38
20.580	0.38	0.38	0.38	0.38	0.38
20.630	0.38	0.38	0.38	0.38	0.38
20.680	0.38	0.38	0.38	0.38	0.38
20.730	0.38	0.38	0.38	0.38	0.38
20.780	0.38	0.38	0.38	0.38	0.38
20.830	0.38	0.38	0.38	0.38	0.38
20.880	0.38	0.38	0.38	0.38	0.38
20.930	0.38	0.38	0.37	0.37	0.37
20.980	0.37	0.37	0.37	0.37	0.37
21.030	0.37	0.37	0.37	0.37	0.37
21.080	0.37	0.37	0.37	0.37	0.37
21.130	0.37	0.37	0.37	0.37	0.37
21.180	0.37	0.37	0.37	0.37	0.37
21.230	0.37	0.37	0.37	0.37	0.37
21.280	0.37	0.37	0.37	0.37	0.37
21.330	0.37	0.37	0.37	0.37	0.37
21.380	0.37	0.37	0.37	0.37	0.37
21.430	0.37	0.37	0.37	0.37	0.37
21.480	0.37	0.37	0.37	0.37	0.37
21.530	0.37	0.37	0.37	0.37	0.37
21.580	0.37	0.37	0.37	0.37	0.37
21.630	0.37	0.37	0.37	0.37	0.37
21.680	0.37	0.36	0.36	0.36	0.36
21.730	0.36	0.36	0.36	0.36	0.36
21.780	0.36	0.36	0.36	0.36	0.36
21.830	0.36	0.36	0.36	0.36	0.36
21.880	0.36	0.36	0.36	0.36	0.36
21.930	0.36	0.36	0.36	0.36	0.36
21.980	0.36	0.36	0.36	0.36	0.36
22.030	0.36	0.36	0.36	0.36	0.36
22.080	0.36	0.36	0.36	0.36	0.36

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (4.8 in)
Scenario: Post-Development 10

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.130	0.36	0.36	0.36	0.36	0.36
22.180	0.36	0.36	0.36	0.36	0.36
22.230	0.36	0.36	0.36	0.36	0.36
22.280	0.36	0.36	0.36	0.36	0.36
22.330	0.36	0.36	0.36	0.36	0.36
22.380	0.36	0.36	0.36	0.36	0.36
22.430	0.36	0.36	0.36	0.36	0.35
22.480	0.35	0.35	0.35	0.35	0.35
22.530	0.35	0.35	0.35	0.35	0.35
22.580	0.35	0.35	0.35	0.35	0.35
22.630	0.35	0.35	0.35	0.35	0.35
22.680	0.35	0.35	0.35	0.35	0.35
22.730	0.35	0.35	0.35	0.35	0.35
22.780	0.35	0.35	0.35	0.35	0.35
22.830	0.35	0.35	0.35	0.35	0.35
22.880	0.35	0.35	0.35	0.35	0.35
22.930	0.35	0.35	0.35	0.35	0.35
22.980	0.35	0.35	0.35	0.35	0.35
23.030	0.35	0.35	0.35	0.35	0.35
23.080	0.35	0.35	0.35	0.35	0.35
23.130	0.35	0.35	0.35	0.35	0.35
23.180	0.35	0.35	0.35	0.35	0.34
23.230	0.34	0.34	0.34	0.34	0.34
23.280	0.34	0.34	0.34	0.34	0.34
23.330	0.34	0.34	0.34	0.34	0.34
23.380	0.34	0.34	0.34	0.34	0.34
23.430	0.34	0.34	0.34	0.34	0.34
23.480	0.34	0.34	0.34	0.34	0.34
23.530	0.34	0.34	0.34	0.34	0.34
23.580	0.34	0.34	0.34	0.34	0.34
23.630	0.34	0.34	0.34	0.34	0.34
23.680	0.34	0.34	0.34	0.34	0.34
23.730	0.34	0.34	0.34	0.34	0.34
23.780	0.34	0.34	0.34	0.34	0.34
23.830	0.34	0.34	0.34	0.34	0.34
23.880	0.34	0.34	0.34	0.34	0.34
23.930	0.34	0.34	0.34	0.34	0.33
23.980	0.33	0.33	0.33	0.33	0.33
24.030	0.33	0.33	0.33	0.33	0.32
24.080	0.32	0.30	0.28	0.25	0.23
24.130	0.21	0.18	0.16	0.15	0.13
24.180	0.12	0.11	0.10	0.09	0.08

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years

Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (4.8 in)

Scenario: Post-Development 10

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
24.230	0.07	0.06	0.06	0.05	0.04
24.280	0.04	0.03	0.03	0.03	0.02
24.330	0.02	0.02	0.02	0.01	0.01
24.380	0.01	0.01	0.01	0.01	0.01
24.430	0.01	0.00	0.00	0.00	0.00
24.480	0.00	0.00	0.00	0.00	0.00
24.530	0.00	0.00	(N/A)	(N/A)	(N/A)

Peak Discharge	24.42 ft³/s
Time to Peak	12.060 hours
Hydrograph Volume	1.644 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.280	0.00	0.00	0.00	0.00	0.00
9.330	0.00	0.00	0.00	0.00	0.01
9.380	0.01	0.01	0.01	0.01	0.01
9.430	0.01	0.01	0.01	0.01	0.01
9.480	0.02	0.02	0.02	0.02	0.02
9.530	0.02	0.02	0.02	0.03	0.03
9.580	0.03	0.03	0.03	0.03	0.03
9.630	0.03	0.04	0.04	0.04	0.04
9.680	0.04	0.04	0.04	0.04	0.05
9.730	0.05	0.05	0.05	0.05	0.05
9.780	0.05	0.06	0.06	0.06	0.06
9.830	0.06	0.06	0.07	0.07	0.07
9.880	0.07	0.07	0.07	0.08	0.08
9.930	0.08	0.08	0.08	0.08	0.09
9.980	0.09	0.09	0.09	0.09	0.09
10.030	0.10	0.10	0.10	0.10	0.10
10.080	0.11	0.11	0.11	0.11	0.12
10.130	0.12	0.12	0.12	0.12	0.13
10.180	0.13	0.13	0.13	0.14	0.14
10.230	0.14	0.15	0.15	0.15	0.16
10.280	0.16	0.16	0.16	0.17	0.17
10.330	0.17	0.18	0.18	0.18	0.19
10.380	0.19	0.19	0.19	0.20	0.20
10.430	0.20	0.21	0.21	0.21	0.22
10.480	0.22	0.22	0.23	0.23	0.23
10.530	0.24	0.24	0.24	0.25	0.25
10.580	0.26	0.26	0.26	0.27	0.27
10.630	0.28	0.28	0.28	0.29	0.29
10.680	0.30	0.30	0.31	0.31	0.31
10.730	0.31	0.32	0.32	0.32	0.33
10.780	0.33	0.33	0.34	0.34	0.35
10.830	0.35	0.35	0.36	0.36	0.37
10.880	0.37	0.38	0.38	0.39	0.39
10.930	0.39	0.40	0.40	0.41	0.41
10.980	0.42	0.43	0.43	0.43	0.43
11.030	0.44	0.44	0.45	0.45	0.45
11.080	0.46	0.46	0.47	0.47	0.48

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 25 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (5.3 in)
Scenario: Post-Development 25

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.130	0.48	0.49	0.49	0.50	0.50
11.180	0.51	0.51	0.52	0.52	0.53
11.230	0.54	0.54	0.55	0.55	0.56
11.280	0.56	0.57	0.58	0.58	0.59
11.330	0.59	0.60	0.60	0.61	0.61
11.380	0.62	0.63	0.63	0.64	0.65
11.430	0.65	0.66	0.66	0.67	0.68
11.480	0.68	0.69	0.69	0.70	0.71
11.530	0.71	0.72	0.73	0.74	0.75
11.580	0.76	0.77	0.78	0.79	0.80
11.630	0.82	0.83	0.85	0.86	0.88
11.680	0.90	0.92	0.95	0.97	0.99
11.730	1.01	1.03	1.07	1.08	1.14
11.780	1.28	1.49	1.79	2.52	2.93
11.830	3.19	3.43	3.67	3.89	4.11
11.880	4.33	4.54	5.92	8.35	11.03
11.930	13.63	16.03	18.14	19.98	21.32
11.980	22.35	22.90	23.28	23.62	23.91
12.030	24.14	24.32	24.41	24.42	24.34
12.080	24.16	23.88	23.50	23.00	22.22
12.130	20.88	19.30	17.76	16.39	15.13
12.180	14.00	13.00	12.11	11.30	10.60
12.230	9.96	9.39	8.90	8.46	8.04
12.280	7.68	7.36	7.07	6.80	6.54
12.330	6.32	6.14	5.97	5.80	5.64
12.380	5.49	5.35	5.22	5.14	5.05
12.430	4.97	4.88	4.80	4.72	4.63
12.480	4.57	4.56	4.54	4.53	4.51
12.530	4.49	4.47	4.45	4.43	4.41
12.580	4.38	4.36	4.34	4.31	4.29
12.630	4.27	4.24	4.21	4.18	4.15
12.680	4.12	4.09	4.05	4.02	3.99
12.730	3.96	3.93	3.90	3.87	3.84
12.780	3.81	3.77	3.74	3.71	3.68
12.830	3.64	3.61	3.58	3.55	3.51
12.880	3.48	3.45	3.41	3.38	3.35
12.930	3.31	3.28	3.25	3.21	3.18
12.980	3.15	3.11	3.08	3.04	3.01
13.030	2.97	2.94	2.91	2.88	2.85
13.080	2.82	2.79	2.76	2.73	2.67
13.130	2.56	2.47	2.39	2.31	2.25
13.180	2.20	2.15	2.11	2.07	2.03

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 25 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (5.3 in)
Scenario: Post-Development 25

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
13.230	2.00	1.98	1.95	1.95	1.94
13.280	1.93	1.93	1.92	1.91	1.90
13.330	1.90	1.89	1.88	1.87	1.87
13.380	1.86	1.85	1.84	1.83	1.83
13.430	1.82	1.81	1.80	1.80	1.79
13.480	1.78	1.77	1.76	1.76	1.75
13.530	1.74	1.73	1.72	1.72	1.71
13.580	1.70	1.69	1.69	1.68	1.67
13.630	1.67	1.66	1.65	1.64	1.64
13.680	1.63	1.62	1.61	1.61	1.60
13.730	1.59	1.58	1.58	1.57	1.56
13.780	1.56	1.55	1.54	1.54	1.53
13.830	1.52	1.52	1.51	1.51	1.50
13.880	1.49	1.49	1.48	1.48	1.47
13.930	1.46	1.46	1.45	1.45	1.44
13.980	1.43	1.43	1.42	1.42	1.41
14.030	1.40	1.40	1.39	1.39	1.38
14.080	1.37	1.37	1.36	1.36	1.35
14.130	1.35	1.35	1.34	1.34	1.33
14.180	1.33	1.33	1.32	1.32	1.31
14.230	1.31	1.31	1.30	1.30	1.29
14.280	1.29	1.29	1.28	1.28	1.28
14.330	1.27	1.27	1.27	1.26	1.26
14.380	1.26	1.25	1.25	1.25	1.24
14.430	1.24	1.24	1.23	1.23	1.23
14.480	1.23	1.22	1.22	1.22	1.22
14.530	1.21	1.21	1.21	1.21	1.20
14.580	1.20	1.20	1.20	1.19	1.19
14.630	1.19	1.19	1.18	1.18	1.18
14.680	1.18	1.17	1.17	1.17	1.17
14.730	1.16	1.16	1.16	1.16	1.15
14.780	1.15	1.15	1.15	1.15	1.14
14.830	1.14	1.14	1.14	1.14	1.14
14.880	1.14	1.14	1.14	1.14	1.13
14.930	1.13	1.13	1.13	1.13	1.13
14.980	1.13	1.13	1.12	1.12	1.12
15.030	1.12	1.12	1.12	1.12	1.12
15.080	1.12	1.11	1.11	1.11	1.11
15.130	1.11	1.11	1.11	1.10	1.10
15.180	1.10	1.10	1.10	1.10	1.10
15.230	1.10	1.10	1.09	1.09	1.09
15.280	1.09	1.09	1.09	1.09	1.08

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 25 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (5.3 in)
Scenario: Post-Development 25

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.330	1.08	1.08	1.08	1.08	1.08
15.380	1.08	1.08	1.07	1.07	1.07
15.430	1.07	1.07	1.07	1.07	1.07
15.480	1.07	1.07	1.07	1.07	1.07
15.530	1.07	1.07	1.07	1.07	1.07
15.580	1.07	1.07	1.07	1.07	1.07
15.630	1.07	1.07	1.06	1.06	1.06
15.680	1.06	1.06	1.06	1.05	1.05
15.730	1.05	1.05	1.05	1.05	1.04
15.780	1.04	1.04	1.04	1.04	1.04
15.830	1.04	1.04	1.04	1.03	1.03
15.880	1.03	1.03	1.03	1.03	1.03
15.930	1.03	1.03	1.03	1.03	1.03
15.980	1.03	1.03	1.03	1.03	1.02
16.030	1.02	1.02	1.02	1.01	1.01
16.080	1.01	1.01	1.01	1.00	1.00
16.130	1.00	1.00	1.00	1.00	1.00
16.180	1.00	0.99	0.99	0.99	0.99
16.230	0.99	0.99	0.99	0.99	0.99
16.280	0.99	0.98	0.98	0.98	0.98
16.330	0.98	0.98	0.98	0.98	0.98
16.380	0.97	0.97	0.97	0.97	0.97
16.430	0.97	0.97	0.96	0.96	0.96
16.480	0.96	0.96	0.96	0.95	0.95
16.530	0.95	0.95	0.95	0.94	0.94
16.580	0.94	0.94	0.94	0.93	0.93
16.630	0.93	0.93	0.93	0.92	0.92
16.680	0.92	0.92	0.92	0.92	0.91
16.730	0.91	0.91	0.91	0.91	0.91
16.780	0.91	0.90	0.90	0.90	0.90
16.830	0.90	0.90	0.90	0.90	0.89
16.880	0.89	0.89	0.89	0.89	0.89
16.930	0.89	0.89	0.88	0.88	0.88
16.980	0.88	0.88	0.88	0.88	0.87
17.030	0.87	0.87	0.87	0.87	0.87
17.080	0.87	0.86	0.86	0.86	0.86
17.130	0.86	0.86	0.85	0.85	0.85
17.180	0.85	0.85	0.85	0.85	0.84
17.230	0.84	0.84	0.84	0.84	0.84
17.280	0.84	0.83	0.83	0.83	0.83
17.330	0.83	0.83	0.83	0.82	0.82
17.380	0.82	0.82	0.82	0.82	0.81

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 25 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (5.3 in)
Scenario: Post-Development 25

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.430	0.81	0.81	0.81	0.81	0.81
17.480	0.81	0.80	0.80	0.80	0.80
17.530	0.80	0.80	0.80	0.79	0.79
17.580	0.79	0.79	0.79	0.79	0.79
17.630	0.78	0.78	0.78	0.78	0.78
17.680	0.78	0.78	0.77	0.77	0.77
17.730	0.77	0.77	0.77	0.77	0.76
17.780	0.76	0.76	0.76	0.76	0.76
17.830	0.76	0.75	0.75	0.75	0.75
17.880	0.75	0.75	0.75	0.74	0.74
17.930	0.74	0.74	0.74	0.74	0.74
17.980	0.73	0.73	0.73	0.73	0.73
18.030	0.73	0.73	0.73	0.72	0.72
18.080	0.72	0.72	0.72	0.72	0.72
18.130	0.71	0.71	0.71	0.71	0.71
18.180	0.71	0.71	0.71	0.70	0.70
18.230	0.70	0.70	0.70	0.70	0.70
18.280	0.69	0.69	0.69	0.69	0.69
18.330	0.69	0.69	0.68	0.68	0.68
18.380	0.68	0.68	0.68	0.68	0.68
18.430	0.67	0.67	0.67	0.67	0.67
18.480	0.67	0.67	0.66	0.66	0.66
18.530	0.66	0.66	0.66	0.66	0.66
18.580	0.65	0.65	0.65	0.65	0.65
18.630	0.65	0.65	0.65	0.64	0.64
18.680	0.64	0.64	0.64	0.64	0.64
18.730	0.63	0.63	0.63	0.63	0.63
18.780	0.63	0.63	0.62	0.62	0.62
18.830	0.62	0.62	0.62	0.62	0.62
18.880	0.61	0.61	0.61	0.61	0.61
18.930	0.61	0.61	0.61	0.60	0.60
18.980	0.60	0.60	0.60	0.60	0.60
19.030	0.60	0.59	0.59	0.59	0.59
19.080	0.59	0.59	0.59	0.59	0.59
19.130	0.58	0.58	0.58	0.58	0.58
19.180	0.58	0.58	0.58	0.58	0.57
19.230	0.57	0.57	0.57	0.57	0.57
19.280	0.57	0.56	0.56	0.56	0.56
19.330	0.56	0.56	0.56	0.55	0.55
19.380	0.55	0.55	0.55	0.55	0.55
19.430	0.55	0.54	0.54	0.54	0.54
19.480	0.54	0.54	0.54	0.54	0.53

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 25 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (5.3 in)
Scenario: Post-Development 25

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.530	0.53	0.53	0.53	0.53	0.53
19.580	0.53	0.53	0.52	0.52	0.52
19.630	0.52	0.52	0.52	0.52	0.52
19.680	0.51	0.51	0.51	0.51	0.51
19.730	0.51	0.51	0.51	0.51	0.50
19.780	0.50	0.50	0.50	0.50	0.50
19.830	0.50	0.50	0.50	0.49	0.49
19.880	0.49	0.49	0.49	0.49	0.49
19.930	0.49	0.48	0.48	0.48	0.48
19.980	0.48	0.48	0.48	0.48	0.48
20.030	0.48	0.47	0.47	0.47	0.47
20.080	0.47	0.47	0.47	0.47	0.47
20.130	0.47	0.46	0.46	0.46	0.46
20.180	0.46	0.46	0.46	0.46	0.46
20.230	0.46	0.46	0.46	0.46	0.46
20.280	0.45	0.45	0.45	0.45	0.45
20.330	0.45	0.45	0.45	0.45	0.45
20.380	0.45	0.45	0.45	0.45	0.45
20.430	0.45	0.45	0.45	0.45	0.45
20.480	0.45	0.44	0.44	0.44	0.44
20.530	0.44	0.44	0.44	0.44	0.44
20.580	0.44	0.44	0.44	0.44	0.44
20.630	0.44	0.44	0.44	0.44	0.44
20.680	0.44	0.44	0.44	0.44	0.44
20.730	0.44	0.44	0.44	0.44	0.44
20.780	0.44	0.44	0.44	0.44	0.44
20.830	0.44	0.44	0.44	0.44	0.44
20.880	0.44	0.43	0.43	0.43	0.43
20.930	0.43	0.43	0.43	0.43	0.43
20.980	0.43	0.43	0.43	0.43	0.43
21.030	0.43	0.43	0.43	0.43	0.43
21.080	0.43	0.43	0.43	0.43	0.43
21.130	0.43	0.43	0.43	0.43	0.43
21.180	0.43	0.43	0.43	0.43	0.43
21.230	0.43	0.43	0.43	0.43	0.43
21.280	0.43	0.43	0.43	0.43	0.43
21.330	0.43	0.43	0.43	0.43	0.43
21.380	0.43	0.43	0.43	0.43	0.43
21.430	0.43	0.43	0.42	0.42	0.42
21.480	0.42	0.42	0.42	0.42	0.42
21.530	0.42	0.42	0.42	0.42	0.42
21.580	0.42	0.42	0.42	0.42	0.42

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 25 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (5.3 in)
Scenario: Post-Development 25

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.630	0.42	0.42	0.42	0.42	0.42
21.680	0.42	0.42	0.42	0.42	0.42
21.730	0.42	0.42	0.42	0.42	0.42
21.780	0.42	0.42	0.42	0.42	0.42
21.830	0.42	0.42	0.42	0.42	0.42
21.880	0.42	0.42	0.42	0.42	0.42
21.930	0.42	0.42	0.42	0.42	0.42
21.980	0.42	0.42	0.42	0.42	0.42
22.030	0.41	0.41	0.41	0.41	0.41
22.080	0.41	0.41	0.41	0.41	0.41
22.130	0.41	0.41	0.41	0.41	0.41
22.180	0.41	0.41	0.41	0.41	0.41
22.230	0.41	0.41	0.41	0.41	0.41
22.280	0.41	0.41	0.41	0.41	0.41
22.330	0.41	0.41	0.41	0.41	0.41
22.380	0.41	0.41	0.41	0.41	0.41
22.430	0.41	0.41	0.41	0.41	0.41
22.480	0.41	0.41	0.41	0.41	0.41
22.530	0.41	0.41	0.41	0.41	0.41
22.580	0.41	0.41	0.41	0.41	0.41
22.630	0.41	0.41	0.41	0.41	0.40
22.680	0.40	0.40	0.40	0.40	0.40
22.730	0.40	0.40	0.40	0.40	0.40
22.780	0.40	0.40	0.40	0.40	0.40
22.830	0.40	0.40	0.40	0.40	0.40
22.880	0.40	0.40	0.40	0.40	0.40
22.930	0.40	0.40	0.40	0.40	0.40
22.980	0.40	0.40	0.40	0.40	0.40
23.030	0.40	0.40	0.40	0.40	0.40
23.080	0.40	0.40	0.40	0.40	0.40
23.130	0.40	0.40	0.40	0.40	0.40
23.180	0.40	0.40	0.40	0.40	0.40
23.230	0.40	0.40	0.40	0.40	0.40
23.280	0.40	0.40	0.40	0.40	0.40
23.330	0.39	0.39	0.39	0.39	0.39
23.380	0.39	0.39	0.39	0.39	0.39
23.430	0.39	0.39	0.39	0.39	0.39
23.480	0.39	0.39	0.39	0.39	0.39
23.530	0.39	0.39	0.39	0.39	0.39
23.580	0.39	0.39	0.39	0.39	0.39
23.630	0.39	0.39	0.39	0.39	0.39
23.680	0.39	0.39	0.39	0.39	0.39

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 25 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (5.3 in)
Scenario: Post-Development 25

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
23.730	0.39	0.39	0.39	0.39	0.39
23.780	0.39	0.39	0.39	0.39	0.39
23.830	0.39	0.39	0.39	0.39	0.39
23.880	0.39	0.39	0.39	0.39	0.39
23.930	0.39	0.39	0.39	0.39	0.38
23.980	0.38	0.38	0.38	0.38	0.38
24.030	0.38	0.38	0.38	0.38	0.37
24.080	0.37	0.36	0.35	0.33	0.32
24.130	0.30	0.25	0.22	0.18	0.16
24.180	0.14	0.13	0.11	0.10	0.09
24.230	0.08	0.07	0.07	0.06	0.05
24.280	0.04	0.04	0.03	0.03	0.03
24.330	0.02	0.02	0.02	0.02	0.01
24.380	0.01	0.01	0.01	0.01	0.01
24.430	0.01	0.01	0.00	0.00	0.00
24.480	0.00	0.00	0.00	0.00	0.00
24.530	0.00	0.00	0.00	(N/A)	(N/A)

Peak Discharge	33.97 ft³/s
Time to Peak	12.040 hours
Hydrograph Volume	2.209 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.450	0.00	0.00	0.00	0.00	0.00
8.500	0.00	0.00	0.00	0.00	0.01
8.550	0.01	0.01	0.01	0.01	0.01
8.600	0.01	0.01	0.01	0.01	0.02
8.650	0.02	0.02	0.02	0.02	0.02
8.700	0.02	0.02	0.03	0.03	0.03
8.750	0.03	0.03	0.03	0.03	0.04
8.800	0.04	0.04	0.04	0.04	0.04
8.850	0.04	0.05	0.05	0.05	0.05
8.900	0.05	0.05	0.05	0.06	0.06
8.950	0.06	0.06	0.06	0.06	0.07
9.000	0.07	0.07	0.07	0.07	0.07
9.050	0.08	0.08	0.08	0.08	0.08
9.100	0.08	0.08	0.09	0.09	0.09
9.150	0.09	0.09	0.10	0.10	0.10
9.200	0.10	0.10	0.10	0.10	0.11
9.250	0.11	0.11	0.11	0.11	0.11
9.300	0.12	0.12	0.12	0.12	0.12
9.350	0.12	0.13	0.13	0.13	0.13
9.400	0.13	0.13	0.13	0.14	0.14
9.450	0.14	0.14	0.14	0.15	0.15
9.500	0.15	0.15	0.15	0.15	0.15
9.550	0.16	0.16	0.16	0.16	0.16
9.600	0.16	0.17	0.17	0.17	0.17
9.650	0.17	0.18	0.18	0.18	0.18
9.700	0.18	0.19	0.19	0.19	0.19
9.750	0.20	0.20	0.20	0.20	0.21
9.800	0.21	0.21	0.21	0.22	0.22
9.850	0.22	0.22	0.23	0.23	0.23
9.900	0.23	0.24	0.24	0.24	0.25
9.950	0.25	0.25	0.25	0.26	0.26
10.000	0.26	0.27	0.27	0.27	0.28
10.050	0.28	0.28	0.29	0.29	0.29
10.100	0.30	0.30	0.30	0.31	0.31
10.150	0.31	0.31	0.31	0.32	0.32
10.200	0.32	0.32	0.33	0.33	0.33
10.250	0.33	0.34	0.34	0.34	0.35

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (6.3 in)
Scenario: Post-Development 100

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.300	0.35	0.36	0.36	0.36	0.37
10.350	0.37	0.37	0.38	0.38	0.38
10.400	0.39	0.39	0.40	0.40	0.40
10.450	0.41	0.41	0.42	0.42	0.42
10.500	0.43	0.43	0.43	0.43	0.44
10.550	0.44	0.44	0.45	0.45	0.45
10.600	0.46	0.46	0.46	0.47	0.47
10.650	0.47	0.48	0.48	0.49	0.49
10.700	0.50	0.50	0.50	0.51	0.51
10.750	0.52	0.52	0.52	0.53	0.53
10.800	0.54	0.54	0.55	0.55	0.56
10.850	0.56	0.57	0.57	0.57	0.58
10.900	0.58	0.59	0.59	0.59	0.60
10.950	0.60	0.61	0.61	0.61	0.62
11.000	0.62	0.63	0.63	0.64	0.64
11.050	0.65	0.65	0.66	0.66	0.66
11.100	0.67	0.67	0.68	0.68	0.69
11.150	0.69	0.70	0.70	0.71	0.71
11.200	0.72	0.72	0.73	0.74	0.74
11.250	0.75	0.75	0.76	0.76	0.77
11.300	0.78	0.78	0.79	0.80	0.80
11.350	0.81	0.81	0.82	0.83	0.83
11.400	0.84	0.85	0.85	0.86	0.87
11.450	0.88	0.88	0.89	0.89	0.90
11.500	0.91	0.91	0.92	0.93	0.94
11.550	0.95	0.96	0.97	0.98	0.99
11.600	0.99	1.00	1.02	1.03	1.04
11.650	1.07	1.07	1.10	1.14	1.23
11.700	1.35	1.55	1.79	2.27	2.81
11.750	3.03	3.24	3.44	3.63	3.83
11.800	4.02	4.21	4.38	4.56	5.78
11.850	7.75	10.02	12.34	14.64	16.90
11.900	19.11	21.10	22.66	23.44	24.24
11.950	25.04	25.83	26.57	27.76	29.30
12.000	30.82	32.16	33.12	33.71	33.97
12.050	33.92	33.59	32.98	32.13	31.05
12.100	29.99	28.76	27.71	26.72	26.14
12.150	25.43	24.63	23.73	22.75	20.84
12.200	18.58	16.70	15.18	13.93	12.89
12.250	12.01	11.25	10.62	10.05	9.54
12.300	9.12	8.74	8.40	8.08	7.79
12.350	7.55	7.33	7.11	6.91	6.72

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (6.3 in)
Scenario: Post-Development 100

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.400	6.55	6.38	6.25	6.12	5.99
12.450	5.87	5.75	5.64	5.52	5.41
12.500	5.30	5.21	5.14	5.07	5.00
12.550	4.93	4.86	4.78	4.71	4.64
12.600	4.57	4.56	4.55	4.54	4.52
12.650	4.51	4.49	4.48	4.46	4.44
12.700	4.42	4.40	4.38	4.36	4.35
12.750	4.33	4.31	4.29	4.27	4.26
12.800	4.24	4.21	4.19	4.16	4.14
12.850	4.11	4.09	4.07	4.04	4.02
12.900	4.00	3.97	3.95	3.93	3.90
12.950	3.88	3.85	3.83	3.80	3.78
13.000	3.75	3.73	3.70	3.68	3.65
13.050	3.63	3.60	3.57	3.55	3.52
13.100	3.49	3.47	3.44	3.41	3.39
13.150	3.36	3.33	3.31	3.28	3.25
13.200	3.23	3.20	3.17	3.15	3.12
13.250	3.09	3.07	3.04	3.01	2.99
13.300	2.96	2.94	2.91	2.89	2.86
13.350	2.84	2.82	2.80	2.77	2.75
13.400	2.73	2.71	2.63	2.55	2.49
13.450	2.44	2.39	2.34	2.30	2.27
13.500	2.24	2.21	2.19	2.16	2.14
13.550	2.12	2.10	2.08	2.07	2.05
13.600	2.04	2.02	2.01	2.00	1.99
13.650	1.97	1.96	1.95	1.95	1.95
13.700	1.94	1.94	1.93	1.93	1.92
13.750	1.92	1.92	1.91	1.90	1.90
13.800	1.89	1.89	1.88	1.88	1.87
13.850	1.87	1.86	1.85	1.85	1.84
13.900	1.83	1.83	1.82	1.81	1.81
13.950	1.80	1.79	1.79	1.78	1.77
14.000	1.77	1.76	1.75	1.75	1.74
14.050	1.73	1.73	1.72	1.71	1.71
14.100	1.70	1.69	1.69	1.68	1.67
14.150	1.67	1.66	1.65	1.65	1.64
14.200	1.64	1.63	1.63	1.62	1.61
14.250	1.61	1.60	1.60	1.59	1.59
14.300	1.58	1.58	1.57	1.57	1.56
14.350	1.56	1.55	1.55	1.55	1.54
14.400	1.54	1.53	1.53	1.53	1.52
14.450	1.52	1.52	1.51	1.51	1.51

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (6.3 in)
Scenario: Post-Development 100

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.500	1.50	1.50	1.50	1.49	1.49
14.550	1.49	1.48	1.48	1.48	1.47
14.600	1.47	1.47	1.46	1.46	1.46
14.650	1.46	1.45	1.45	1.45	1.44
14.700	1.44	1.44	1.43	1.43	1.43
14.750	1.43	1.42	1.42	1.42	1.41
14.800	1.41	1.41	1.41	1.40	1.40
14.850	1.40	1.39	1.39	1.39	1.39
14.900	1.38	1.38	1.38	1.37	1.37
14.950	1.37	1.37	1.36	1.36	1.36
15.000	1.36	1.35	1.35	1.35	1.35
15.050	1.35	1.34	1.34	1.34	1.34
15.100	1.33	1.33	1.33	1.33	1.33
15.150	1.32	1.32	1.32	1.32	1.31
15.200	1.31	1.31	1.31	1.31	1.30
15.250	1.30	1.30	1.30	1.29	1.29
15.300	1.29	1.29	1.28	1.28	1.28
15.350	1.28	1.27	1.27	1.27	1.27
15.400	1.26	1.26	1.26	1.26	1.25
15.450	1.25	1.25	1.25	1.24	1.24
15.500	1.24	1.24	1.23	1.23	1.23
15.550	1.23	1.23	1.22	1.22	1.22
15.600	1.22	1.21	1.21	1.21	1.21
15.650	1.20	1.20	1.20	1.20	1.20
15.700	1.19	1.19	1.19	1.19	1.18
15.750	1.18	1.18	1.18	1.17	1.17
15.800	1.17	1.17	1.16	1.16	1.16
15.850	1.16	1.15	1.15	1.15	1.15
15.900	1.14	1.14	1.14	1.14	1.14
15.950	1.14	1.14	1.14	1.14	1.13
16.000	1.13	1.13	1.13	1.13	1.13
16.050	1.13	1.12	1.12	1.12	1.12
16.100	1.12	1.12	1.12	1.12	1.11
16.150	1.11	1.11	1.11	1.11	1.11
16.200	1.11	1.10	1.10	1.10	1.10
16.250	1.10	1.10	1.10	1.10	1.09
16.300	1.09	1.09	1.09	1.09	1.09
16.350	1.09	1.08	1.08	1.08	1.08
16.400	1.08	1.08	1.08	1.08	1.07
16.450	1.07	1.07	1.07	1.07	1.07
16.500	1.07	1.07	1.07	1.07	1.07
16.550	1.07	1.07	1.07	1.07	1.07

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (6.3 in)
Scenario: Post-Development 100

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.600	1.07	1.07	1.07	1.07	1.07
16.650	1.07	1.07	1.07	1.07	1.07
16.700	1.07	1.07	1.07	1.07	1.06
16.750	1.06	1.06	1.06	1.06	1.06
16.800	1.06	1.06	1.05	1.05	1.05
16.850	1.05	1.05	1.05	1.05	1.05
16.900	1.04	1.04	1.04	1.04	1.04
16.950	1.04	1.04	1.04	1.04	1.04
17.000	1.04	1.04	1.03	1.03	1.03
17.050	1.03	1.03	1.03	1.03	1.03
17.100	1.03	1.03	1.03	1.03	1.03
17.150	1.03	1.03	1.03	1.03	1.03
17.200	1.03	1.03	1.03	1.03	1.02
17.250	1.02	1.02	1.02	1.02	1.02
17.300	1.02	1.01	1.01	1.01	1.01
17.350	1.01	1.01	1.01	1.00	1.00
17.400	1.00	1.00	1.00	1.00	1.00
17.450	1.00	1.00	1.00	1.00	0.99
17.500	0.99	0.99	0.99	0.99	0.99
17.550	0.99	0.99	0.99	0.99	0.99
17.600	0.99	0.99	0.99	0.98	0.98
17.650	0.98	0.98	0.98	0.98	0.98
17.700	0.98	0.98	0.98	0.98	0.98
17.750	0.98	0.97	0.97	0.97	0.97
17.800	0.97	0.97	0.97	0.97	0.97
17.850	0.97	0.96	0.96	0.96	0.96
17.900	0.96	0.96	0.96	0.95	0.95
17.950	0.95	0.95	0.95	0.95	0.95
18.000	0.95	0.94	0.94	0.94	0.94
18.050	0.94	0.94	0.93	0.93	0.93
18.100	0.93	0.93	0.93	0.93	0.92
18.150	0.92	0.92	0.92	0.92	0.92
18.200	0.92	0.91	0.91	0.91	0.91
18.250	0.91	0.91	0.91	0.91	0.91
18.300	0.91	0.90	0.90	0.90	0.90
18.350	0.90	0.90	0.90	0.90	0.90
18.400	0.89	0.89	0.89	0.89	0.89
18.450	0.89	0.89	0.89	0.89	0.89
18.500	0.88	0.88	0.88	0.88	0.88
18.550	0.88	0.88	0.88	0.88	0.87
18.600	0.87	0.87	0.87	0.87	0.87
18.650	0.87	0.86	0.86	0.86	0.86

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.700	0.86	0.86	0.86	0.86	0.85
18.750	0.85	0.85	0.85	0.85	0.85
18.800	0.85	0.85	0.84	0.84	0.84
18.850	0.84	0.84	0.84	0.84	0.83
18.900	0.83	0.83	0.83	0.83	0.83
18.950	0.83	0.83	0.82	0.82	0.82
19.000	0.82	0.82	0.82	0.82	0.82
19.050	0.81	0.81	0.81	0.81	0.81
19.100	0.81	0.81	0.80	0.80	0.80
19.150	0.80	0.80	0.80	0.80	0.79
19.200	0.79	0.79	0.79	0.79	0.79
19.250	0.79	0.79	0.78	0.78	0.78
19.300	0.78	0.78	0.78	0.78	0.77
19.350	0.77	0.77	0.77	0.77	0.77
19.400	0.77	0.76	0.76	0.76	0.76
19.450	0.76	0.76	0.76	0.75	0.75
19.500	0.75	0.75	0.75	0.75	0.75
19.550	0.74	0.74	0.74	0.74	0.74
19.600	0.74	0.74	0.73	0.73	0.73
19.650	0.73	0.73	0.73	0.73	0.72
19.700	0.72	0.72	0.72	0.72	0.72
19.750	0.72	0.71	0.71	0.71	0.71
19.800	0.71	0.71	0.71	0.71	0.70
19.850	0.70	0.70	0.70	0.70	0.70
19.900	0.69	0.69	0.69	0.69	0.69
19.950	0.69	0.69	0.68	0.68	0.68
20.000	0.68	0.68	0.68	0.68	0.67
20.050	0.67	0.67	0.67	0.67	0.67
20.100	0.66	0.66	0.66	0.66	0.66
20.150	0.66	0.66	0.65	0.65	0.65
20.200	0.65	0.65	0.65	0.65	0.64
20.250	0.64	0.64	0.64	0.64	0.64
20.300	0.64	0.64	0.63	0.63	0.63
20.350	0.63	0.63	0.63	0.63	0.62
20.400	0.62	0.62	0.62	0.62	0.62
20.450	0.62	0.62	0.61	0.61	0.61
20.500	0.61	0.61	0.61	0.61	0.61
20.550	0.61	0.60	0.60	0.60	0.60
20.600	0.60	0.60	0.60	0.60	0.60
20.650	0.60	0.60	0.59	0.59	0.59
20.700	0.59	0.59	0.59	0.59	0.59
20.750	0.59	0.59	0.59	0.59	0.59

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.800	0.58	0.58	0.58	0.58	0.58
20.850	0.58	0.58	0.58	0.58	0.58
20.900	0.58	0.58	0.58	0.58	0.58
20.950	0.57	0.57	0.57	0.57	0.57
21.000	0.57	0.57	0.57	0.57	0.57
21.050	0.57	0.57	0.57	0.56	0.56
21.100	0.56	0.56	0.56	0.56	0.56
21.150	0.56	0.56	0.56	0.56	0.56
21.200	0.56	0.56	0.56	0.56	0.56
21.250	0.56	0.55	0.55	0.55	0.55
21.300	0.55	0.55	0.55	0.55	0.55
21.350	0.55	0.55	0.55	0.55	0.55
21.400	0.55	0.55	0.55	0.55	0.55
21.450	0.55	0.55	0.55	0.55	0.55
21.500	0.55	0.54	0.54	0.54	0.54
21.550	0.54	0.54	0.54	0.54	0.54
21.600	0.54	0.54	0.54	0.54	0.54
21.650	0.54	0.54	0.54	0.54	0.54
21.700	0.54	0.54	0.54	0.54	0.54
21.750	0.54	0.54	0.54	0.54	0.54
21.800	0.54	0.54	0.54	0.53	0.53
21.850	0.53	0.53	0.53	0.53	0.53
21.900	0.53	0.53	0.53	0.53	0.53
21.950	0.53	0.53	0.53	0.53	0.53
22.000	0.53	0.53	0.53	0.53	0.53
22.050	0.53	0.53	0.53	0.53	0.53
22.100	0.53	0.53	0.53	0.53	0.53
22.150	0.53	0.53	0.53	0.53	0.53
22.200	0.53	0.53	0.53	0.52	0.52
22.250	0.52	0.52	0.52	0.52	0.52
22.300	0.52	0.52	0.52	0.52	0.52
22.350	0.52	0.52	0.52	0.52	0.52
22.400	0.52	0.52	0.52	0.52	0.52
22.450	0.52	0.52	0.52	0.52	0.52
22.500	0.52	0.52	0.52	0.52	0.52
22.550	0.52	0.52	0.52	0.52	0.52
22.600	0.52	0.52	0.52	0.52	0.52
22.650	0.52	0.52	0.52	0.52	0.52
22.700	0.51	0.51	0.51	0.51	0.51
22.750	0.51	0.51	0.51	0.51	0.51
22.800	0.51	0.51	0.51	0.51	0.51
22.850	0.51	0.51	0.51	0.51	0.51

1922107C-Lake Ridge Elementary School Addition

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: Detention Basin (OUT) Storm Event: TypeII 24hr: 1 (6.3 in)
Scenario: Post-Development 100

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.010 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.900	0.51	0.51	0.51	0.51	0.51
22.950	0.51	0.51	0.51	0.51	0.51
23.000	0.51	0.51	0.51	0.51	0.51
23.050	0.51	0.51	0.51	0.51	0.51
23.100	0.51	0.51	0.51	0.51	0.51
23.150	0.51	0.51	0.51	0.51	0.51
23.200	0.50	0.50	0.50	0.50	0.50
23.250	0.50	0.50	0.50	0.50	0.50
23.300	0.50	0.50	0.50	0.50	0.50
23.350	0.50	0.50	0.50	0.50	0.50
23.400	0.50	0.50	0.50	0.50	0.50
23.450	0.50	0.50	0.50	0.50	0.50
23.500	0.50	0.50	0.50	0.50	0.50
23.550	0.50	0.50	0.50	0.50	0.50
23.600	0.50	0.50	0.50	0.50	0.50
23.650	0.49	0.49	0.49	0.49	0.49
23.700	0.49	0.49	0.49	0.49	0.49
23.750	0.49	0.49	0.49	0.49	0.49
23.800	0.49	0.49	0.49	0.49	0.49
23.850	0.49	0.49	0.49	0.49	0.49
23.900	0.49	0.49	0.49	0.49	0.49
23.950	0.49	0.49	0.49	0.49	0.49
24.000	0.49	0.49	0.49	0.49	0.49
24.050	0.48	0.48	0.48	0.47	0.47
24.100	0.46	0.46	0.45	0.44	0.43
24.150	0.42	0.40	0.38	0.35	0.33
24.200	0.28	0.21	0.16	0.13	0.11
24.250	0.10	0.09	0.08	0.07	0.06
24.300	0.05	0.04	0.04	0.03	0.03
24.350	0.02	0.02	0.02	0.02	0.01
24.400	0.01	0.01	0.01	0.01	0.01
24.450	0.01	0.01	0.00	0.00	0.00
24.500	0.00	0.00	0.00	0.00	0.00
24.550	0.00	0.00	(N/A)	(N/A)	(N/A)

1922107C-Lake Ridge Elementary School Addition

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APPENDIX D

Hydraulic Analysis

STORM SEWER TABULATION

LAKE RIDGE ELEMENTARY SCHOOL ADDITION

TH&P PROJECT NO. 1922107C

Line ID	Drainage Area (A)	Runoff Coeff. (C)	T_c	Intensity	Flow (Q)	Pipe Material	Manning's n	Line Slope	Fall	Calc'd Diameter	Design Diameter	Capacity Flow Full (Q_f)	Q/Q_f	V/V_f	Velocity	Line Length	Upstream Structure	Structure Top Elevation	Cover	M.H. Drop	Invert Elevations	
																					Upstream	Downstream
	acres		min.	in/hr	cfs			%	ft	in	in	cfs			ft/s	ft		ft msl	ft	ft	ft msl	ft msl
D9.1-D9.2	0.10	0.52	5	7.66	0.38	SICP	0.012	1.51%	0.44	5	8	1.607	0.24	0.7	3.22	29.2	D9.2	1470.90	2.14	2.93	1467.97	1467.53
D8.2-D9.1	0.08	0.71	5	7.66	0.80	SICP	0.012	1.50%	0.88	7	8	1.602	0.50	0.84	3.85	58.8	D9.1	1471.00	2.78	3.57	1467.43	1466.55
D8.6-D8.7	0.02	0.53	5	7.66	0.06	SICP	0.012	0.98%	0.23	3	8	1.298	0.05	0.44	1.64	23.4	D8.7	1474.00	2.19	2.98	1471.02	1470.79
D8.5-D8.6	0.04	0.53	5	7.66	0.24	SICP	0.012	1.80%	0.73	4	8	1.757	0.14	0.61	3.07	40.5	D8.6	1474.00	2.52	3.31	1470.69	1469.96
D8.4-D8.5	-	-	5	7.66	0.24	SICP	0.012	1.71%	0.84	4	8	1.710	0.14	0.61	2.99	49.2	D8.5	1473.31	2.56	3.35	1469.96	1469.12
D8.3-D8.4	0.06	0.51	5	7.66	0.48	SICP	0.012	1.03%	0.13	6	8	1.328	0.37	0.78	2.97	12.6	D8.4	1471.50	1.69	2.48	1469.02	1468.89
D8.2-D8.3	-	-	5	7.66	0.48	SICP	0.012	1.39%	2.14	6	8	1.545	0.32	0.75	3.32	153.7	D8.3	1472.46	2.78	3.57	1468.89	1466.75
D8.1-D8.2	-	-	5	7.66	1.28	SICP	0.012	0.66%	1.28	9	12	3.131	0.41	0.8	3.19	194.5	D8.2	1470.29	2.41	3.54	1466.75	1465.47
D2.2-D8.1	-	-	5	7.66	1.28	SICP	0.012	0.61%	0.47	9	12	3.015	0.43	0.81	3.11	77.0	D8.1	1472.24	5.64	6.77	1465.47	1465.00
D7.1-D7.2	0.11	0.69	5	7.66	0.61	SICP	0.012	1.19%	0.37	6	12	4.204	0.15	0.62	3.32	31.2	D7.2	1471.40	3.38	4.50	1466.90	1466.53
D2.2-D7.1 (Exist.)	0.07	0.9	5	7.66	1.12	RCP	0.015	2.04%	1.49	8	15	7.993	0.15	0.62	4.04	73.1	D7.1	1472.07	4.26	5.64	1466.43	1464.94
D1.6(X)-D5.5 (Exist.)	0.24	0.40	5	7.66	0.73	RCP	0.015	0.74%	0.65	8	15	4.814	0.16	0.63	2.47	87.9	D1.6(X)	1474.31	1.83	3.20	1471.11	1470.46
D5.7-D5.8	0.10	0.87	5	7.66	0.64	SICP	0.012	1.51%	0.64	6	12	4.739	0.14	0.61	3.68	42.5	D5.8	1474.90	2.14	3.27	1471.63	1470.99
D5.6-D5.7	0.13	0.54	5	7.66	1.20	SICP	0.012	1.50%	0.62	8	12	4.731	0.26	0.71	4.28	41.3	D5.7	1474.90	2.88	4.01	1470.89	1470.27
D5.5-D5.6	0.15	0.53	5	7.66	2.53	SICP	0.012	0.71%	0.24	11	15	5.903	0.43	0.81	3.90	33.7	D5.6	1474.36	2.67	4.05	1470.31	1470.07
D5.4-D5.5	0.12	0.88	5	7.66	3.36	SICP	0.012	0.69%	0.22	13	15	5.829	0.58	0.89	4.23	31.7	D5.5	1475.27	3.92	5.30	1469.97	1469.75
D5.4-D6.1	0.08	0.39	5	7.66	0.23	SICP	0.012	7.90%	1.81	3	12	10.849	0.03	0.36	4.97	22.9	D6.1	1487.41	14.91	16.03	1471.38	1469.57
D5.3-D5.4	0.06	0.41	5	7.66	3.76	SICP	0.012	0.70%	0.76	13	15	5.869	0.65	0.92	4.40	108.1	D5.4	1474.40	3.38	4.75	1469.65	1468.89
D5.2-D5.3	0.16	0.3	5	7.66	4.14	RCP	0.015	0.84%	0.30	14	15	5.119	0.81	0.99	4.13	35.9	D5.3	1474.30	4.13	5.51	1468.79	1468.49
D5.1-D5.2	0.20	0.41	5	7.66	4.77	SICP	0.012	0.93%	0.51	14	15	6.736	0.71	0.95	5.21	55.1	D5.2	1473.50	3.73	5.11	1468.39	1467.88
D1.3(X)-D5.1 (Exist.)	-	-	5	7.66	4.77	RCP	0.015	1.60%	1.55	13	15	7.081	0.68	0.93	5.37	96.9	D5.1	1474.87	5.71	7.09	1467.78	1466.23
D4.5-D4.6	0.19	0.88	5	7.66	1.29	SICP	0.012	0.99%	0.55	8	12	3.847	0.34	0.76	3.72	55.4	D4.6	1473.30	2.69	3.82	1469.48	1468.93
D4.4-D4.5	0.04	0.42	5	7.66	1.40	SICP	0.012	1.02%	0.26	9	12	3.890	0.36	0.77	3.81	25.6	D4.5	1473.30	3.24	4.37	1468.93	1468.67
D4.3-D4.4	0.05	0.87	5	7.66	1.73	SICP	0.012	1.00%	0.39	9	12	3.861	0.45	0.82	4.03	39.0	D4.4	1472.90	3.11	4.23	1468.67	1468.28
D4.2-D4.3	0.07	0.87	5	7.66	2.23	SICP	0.012	1.00%	0.46	10	12	3.860	0.58	0.89	4.37	46.0	D4.3	1473.90	4.50	5.62	1468.28	1467.82
D4.1-D4.2	0.25	0.87	5	7.66	3.90	SICP	0.012	5.48%	1.64	9	15	16.376	0.24	0.7	9.34	30.0	D4.2	1474.80	5.61	6.98	1467.82	1466.18
D4.1-D1.3(X) (Exist.)	5.26	0.30	10	6.35	14.80	CMP	0.017	0.60%	0.15	25	30	24.296	0.61	0.9	4.45	25.0	D1.3(X)	1470.58	1.72	4.35	1466.23	1466.08
D3.1-D4.1 (Exist.)	-	-	5	7.66	18.70	CMP	0.017	0.50%	0.90	29	30	22.179	0.85	1	4.52	180.4	D4.1	1470.58	1.88	4.50	1466.08	1465.18
D3.2-D3.3	0.19	0.87	5	7.66	1.27	SICP	0.012	1.49%	1.49	8	15	8.529	0.15	0.62	4.31	100.3	D3.3	1471.60	2.13	3.50	1468.10	1466.61
D3.1-D3.2	1.02	0.57	5	7.66	5.74	SICP	0.012	1.99%	1.25	13	15	9.881	0.59	0.89	7.17	62.7	D3.2	1471.40	3.52	4.89	1466.51	1465.26
D2.2-D3.1 (Exist.)	0.17	0.46	5	7.66	21.15	CMP	0.017	0.50%	0.34	30	30	22.212	0.96	1.03	4.66	67.4	D3.1	1473.71	5.91	8.53	1465.18	1464.84
D2.1-D2.2	0.07	0.90	5	7.66	24.07	SICP	0.012	0.96%	0.34	25	30	43.486	0.56	0.88	7.80	35.5	D2.2	1472.98	5.52	8.14	1464.84	1464.50
D1.2-D1.3	-	-	5	7.66	24.07	SICP	0.012	1.96%	0.22	22	24	34.348	0.71	0.95	10.39	11.2	D1.3	1471.00	5.38	7.50	1463.50	1463.28
D1.1-D1.2	-	-	5	7.66	24.07	SICP	0.012	12.08%	0.79	15	24	85.178	0.29	0.73	19.79	6.5	D1.2	1471.00	5.60	7.72	1463.28	1462.49

IDF File: Johnson City, Tennessee **25** year

Total Number of Lines: 34

Total Number of Proposed Lines: 29

Run Date: 03/10/21

APPENDIX E

Water Quality Calculations

WATER QUALITY CALCULATIONS

PROJECT: LAKE RIDGE ELEMENTARY SCHOOL ADDITION
PROJECT NO: 1922107C
DATE: 3/1/2021

1. COMPUTE RUNOFF COEFFICIENT

RV = 0.015 + 0.0092*(I)

WHERE:
I = PERCENT IMPERVIOUS AREA OF THE SITE
I = IA/A X 100%
IA = CUMULATIVE AREA OF ALL IMPERVIOUS SURFACES ON THE SITE (ACRES)
A = SITE AREA (ACRES)

AREA	A
IMPERVIOUS	2.35
PERVIOUS	6.04
TOTAL	**8.38**

IA = 2.35 ACRES
A = 8.38 ACRES
I = 28.00 %

RV = 0.27

2. COMPUTE WATER QUALITY RUNOF DEPTH

DWQ = 1.04*RV

DWQ = 0.28 INCHES

3. COMPUTE CURVE NUMBER

SCS CURVE NUMBER = CN

			CN
IMPERVIOUS =	2.35	ACRES	98
OPEN SPACE =	6.04	ACRES	61

WEIGHTED CN = 71

4. COMPUTE IA/P

INITIAL ABSTRACTION = IA

IA = 0.817 FROM TABLE 3-4
P = 1.04 INCHES (RAINFALL DEPTH FOR 85% STORM EVENT)
IA/P = 0.79

5. COMPUTE TIME OF CONCENTRATION

TIME OF CONCENTRATION = TC

TC = 10.4 MINUTES
TC = 0.17 HOURS

6. COMPUTE UNIT PEAK DISCHARGE

QU = 600 CSM/IN FROM FIGURE 3-2

WATER QUALITY CALCULATIONS

PROJECT: **LAKE RIDGE ELEMENTARY SCHOOL ADDITION**
PROJECT NO: **1922107C**
DATE: **3/1/2021**

7. COMPUTE WATER QUALITY VOLUME

WQV = [P*R*V*(A-N)]/12

WHERE:
WQV = WATER QUALITY VOLUME OF THE SITE (AC-FT)
P = RAINFALL DEPTH FOR THE 85% STORM EVENT (1.04 INCHES)
RV = RUNOFF COEFFICIENT
A = SITE AREA (ACRES)
N = NATURAL AREA PRESERVATION (ACRES)

P =	1.04	INCHES
RV =	0.27	
A =	8.38	ACRES
N =	0.00	ACRES
WQV =	**0.20**	**AC-FT**
	8,628	CF

8. COMPUTE WATER QUALITY PEAK DISCHARGE

QWQ = QU*A*DWQ

QWQ = WATER QUALITY PEAK DISCHARGE (CFS)
QU = UNIT PEAK DISCHARGE (CFS/MI2/INCH), FIGURE 3-2
A = DRAINAGE AREA (MI2)
DWQ = WATER QUALITY RUNOFF DEPTH (INCHES)

QWQ =	**2.23**	**CFS**

9. AQUA-SWIRL SIZING

WATER QUALITY TREATMENT FLOW =	2.23	CFS
AQUA-SWIRL MODEL =	**AS-4**	
TREATS =	3.2	CFS

APPENDIX F

BMP Operations and Maintenance

Aqua-Swirl®
Stormwater Treatment System

Inspection and Maintenance Manual

AquaShield™, Inc.
2733 Kanasita Drive
Suite 111
Chattanooga, TN 37343
Toll free (888) 344-9044
Phone: (423) 870-8888
Fax: (423) 826-2112
Email: info@aquashieldinc.com
www.aquashieldinc.com

November 2016

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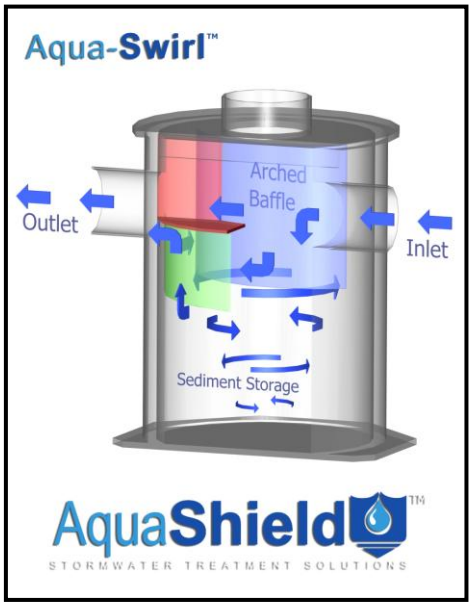
Aqua-Swirl® Stormwater Treatment System

The Aqua-Swirl® Stormwater Treatment System (Aqua-Swirl®) is a vortex-type hydrodynamic separator designed and supplied by AquaShield™, Inc. (AquaShield™). Aqua-Swirl® technology removes pollutants including suspended solids, debris, floatables and free-floating oil from stormwater runoff. Both treatment and storage are accomplished in the single swirl chamber without the use of multiple or hidden, blind access chambers.



Aqua-Swirl® Stormwater Treatment System

Floatable debris in the Aqua-Swirl®

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System Operation

The treatment operation begins when stormwater enters the Aqua-Swirl® through a tangential inlet pipe that produces a circular (or vortex) flow pattern that causes contaminates to settle to the base of the unit. Since stormwater flow is intermittent by nature, the Aqua-Swirl® retains water between storm events providing both dynamic and quiescent settling of solids. The dynamic settling occurs during each storm event while the quiescent settling takes place between successive storms. A combination of gravitational and hydrodynamic drag forces encourages the solids to drop out of the flow and migrate to the center of the chamber where velocities are the lowest.

The treated flow then exits the Aqua-Swirl® behind the arched outer baffle. The top of the baffle is sealed across the treatment channel, thereby eliminating floatable pollutants from escaping the system. A vent pipe is extended up the riser to expose the backside of the baffle to atmospheric conditions, preventing a siphon from forming at the bottom of the baffle.

Custom Applications

The Aqua-Swirl® system can be modified to fit a variety of purposes in the field, and the angles for inlet and outlet lines can be modified to fit most applications. The photo below demonstrates the flexibility of Aqua-Swirl® installations using a "twin" configuration in order to double the water quality treatment capacity. Two Aqua-Swirl® units were placed side by side in order to treat a high volume of water while occupying a small amount of space.

Custom designed AS-9 Twin Aqua-Swirl®

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Retrofit Applications

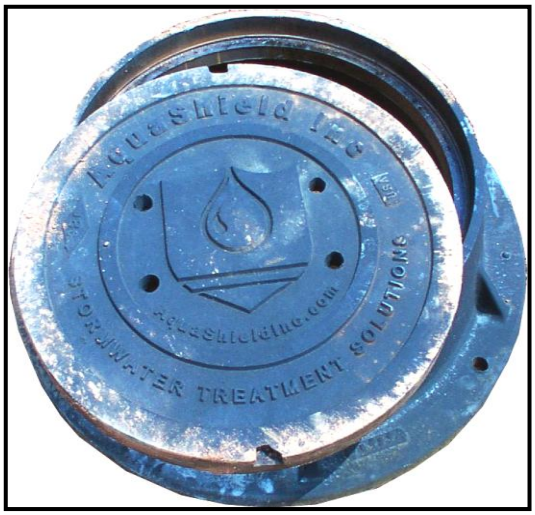
The Aqua-Swirl® system is designed so that it can easily be used for retrofit applications. With the invert of the inlet and outlet pipe at the same elevation, the Aqua-Swirl® can easily be connected directly to the existing storm conveyance drainage system. Furthermore, because of the lightweight nature and small footprint of the Aqua-Swirl®, existing infrastructure utilities (i.e., wires, poles, trees) would be unaffected by installation.

Aqua-Swirl® System Maintenance

The long term performance of any stormwater treatment structure, including manufactured or land based systems, depends on a consistent maintenance plan. Inspection and maintenance functions are simple and easy for the Aqua-Swirl® allowing all inspections to be performed from the surface.

It is important that a routine inspection and maintenance program be established for each unit based on: (a) the volume or load of the contaminants of concern, (b) the frequency of releases of contaminants at the facility or location, and (c) the nature of the area being drained.

In order to ensure that our systems are being maintained properly, AquaShield™ offers a maintenance solution to all of our customers. We will arrange to have maintenance performed.



Aqua-Swirl® manhole cover

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Inspection

The Aqua-Swirl® can be inspected from the surface, eliminating the need to enter the system to determine when cleanout should be performed. In most cases, AquaShield™ recommends a quarterly inspection for the first year of operation to develop an appropriate schedule of maintenance. Based on experience of the system's first year in operation, we recommend that the inspection schedule be revised to reflect the site-specific conditions encountered. Typically, the inspection schedule for subsequent years is reduced to semi-annual inspection.

Maintenance

The Aqua-Swirl® has been designed to minimize and simplify the inspection and maintenance process. The single chamber system can be inspected and maintained entirely from the surface thereby eliminating the need for confined space entry. Furthermore, the entire structure (specifically, the floor) is accessible for visual inspection from the surface. There are no areas of the structure that are blocked from visual inspection or periodic cleaning. Inspection of any free-floating oil and floatable debris can be directly observed and maintained through the manhole access provided directly over the swirl chamber.

Aqua-Swirl® Inspection Procedure

To inspect the Aqua-Swirl®, a hook is typically needed to remove the manhole cover. AquaShield™ provides a customized manhole cover with our distinctive logo to make it easy for maintenance crews to locate the system in the field. We also provide a permanent metal information plate affixed inside the access riser which provides our contact information, the Aqua-Swirl® model size, and serial number.

The only tools needed to inspect the Aqua-Swirl® system are a flashlight and a measuring device such as a stadia rod or pole. Given the easy and direct accessibility provided, floating oil and debris can be observed directly from the surface. Sediment depths can easily be determined by lowering a measuring device to the top of the sediment pile and to the surface of the water.

It should be noted that in order to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the *top* of the sediment pile. Keep in mind that the finer sediment at the top of the pile may offer less resistance to the measuring device than the larger particles which typically occur deeper within the sediment pile.

The Aqua-Swirl® design allows for the sediment to accumulate in a semi-conical fashion as illustrated below. That is, the depth to sediment as measured below the water surface may be less in the center of the swirl chamber; and likewise, may be greater at the edges of the swirl chamber.

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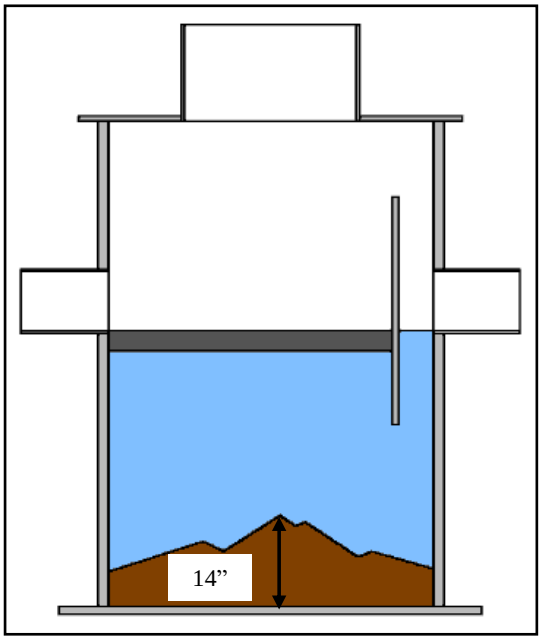
Sediment inspection using a stadia rod



Maximum recommended sediment depth prior to cleanout
is 14 inches for all Aqua-Swirl® models

Aqua-Swirl® Cleanout Procedure

Cleaning the Aqua-Swirl® is simple and quick. Free-floating oil and floatable debris can be observed and removed directly through the 30-inch service access riser provided. A vacuum truck is typically used to remove the accumulated sediment and debris. An advantage of the Aqua-Swirl® design is that the entire sediment storage area can be reached with a vacuum hose

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from the surface reaching all the sides. Since there are no multiple or limited (blind) access chambers in the Aqua-Swirl®, there are no restrictions to impede on-site maintenance tasks.

Disposal of Recovered Materials

AquaShield™ recommends that all maintenance activities be performed in accordance with appropriate health and safety practices for the tasks and equipment being used. AquaShield™ also recommends that all materials removed from the Aqua-Swirl® and any external structures (e.g, bypass features) be handled and disposed in full accordance with any applicable local and state requirements.

Vacuum (vactor) truck quickly cleans the single open access swirl chamber

Aqua-Swirl® Inspection and Maintenance Work Sheets on following pages

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Aqua-Swirl® Inspection and Maintenance Manual
Work Sheets

SITE and OWNER INFORMATION

Site Name: _____

Site Location: _____

Date: _____ Time: _____

Inspector Name: _____

Inspector Company: _____ Phone #: _____

Owner Name: _____

Owner Address: _____

Owner Phone #: _____ Emergency Phone #: _____

INSPECTIONS

I. Floatable Debris and Oil

1. Remove manhole lid to expose liquid surface of the Aqua-Swirl®.
2. Remove floatable debris with basket or net if any present.
3. If oil is present, measure its depth. Clean liquids from system if one half (½) inch or more oil is present.

   Note: Water in Aqua-Swirl® can appear black and similar to oil due to the dark body of the surrounding structure. Oil may appear darker than water in the system and is usually accompanied by oil stained debris (e.g. Styrofoam, etc.). The depth of oil can be measured with an oil/water interface probe, a stadia rod with water finding paste, a coliwasa, or collect a representative sample with a jar attached to a rod.

II. Sediment Accumulation

1. Lower measuring device (e.g. stadia rod) into swirl chamber through service access provided until top of sediment pile is reached.
2. Record distance to top of sediment pile from top of standing water: _____ inches.
3. Maximum recommended sediment depth prior to cleanout is 14 inches for all models. Consult system shop drawing for treatment chamber depth as measured from the inlet pipe invert to base of the unit.

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III. Diversion Structures (External Bypass Features)

If a diversion (external bypass) configuration is present, it should be inspected as follows:

1. Inspect weir or other bypass feature for structural decay or damage. Weirs are more susceptible to damage than off-set piping and should be checked to confirm that they are not crumbling (concrete or brick) or decaying (steel).
2. Inspect diversion structure and bypass piping for signs of structural damage or blockage from debris or sediment accumulation.
3. When feasible, measure elevations on diversion weir or piping to ensure it is consistent with site plan designs.
4. Inspect downstream (convergence) structure(s) for sign of blockage or structural failure as noted above.

CLEANING

Schedule cleaning with local vactor company or AquaShield™ to remove sediment, oil and other floatable pollutants. The captured material generally does not require special treatment or handling for disposal. Site-specific conditions or the presence of known contaminants may necessitate that appropriate actions be taken to clean and dispose of materials captured and retained by the Aqua-Swirl®. All cleaning activities should be performed in accordance with property health and safety procedures.

AquaShield™ always recommends that all materials removed from the Aqua-Swirl® during the maintenance process be handled and disposed in accordance with local and state environmental or other regulatory requirements.

MAINTENANCE SCHEDULE

I. During Construction

Inspect the Aqua-Swirl® every three (3) months and clean the system as needed. The Aqua-Swirl® should be inspected and cleaned at the end of construction regardless of whether it has reached its maintenance trigger.

II. First Year Post-Construction

Inspect the Aqua-Swirl® every three (3) months and clean the system as needed.

Inspect and clean the system once annually regardless of whether it has reached its sediment or floatable pollutant storage capacity.

III. Second and Subsequent Years Post-Construction

If the Aqua-Swirl® did not reach full sediment or floatable pollutant capacity in the First Year Post-Construction period, the system can be inspected and cleaned once annually.

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If the Aqua-Swirl® reached full sediment or floatable pollutant capacity in less than 12 months in the First Year Post-Construction period, the system should be inspected once every six (6) months and cleaned as needed. The Aqua-Swirl® should be cleaned annually regardless of whether it reaches its sediment or floatable pollutant capacity.

IV. Bypass Structures

Bypass structures should be inspected whenever the Aqua-Swirl® is inspected. Maintenance should be performed on bypass structures as needed.

MAINTENANCE COMPANY INFORMATION

Company Name: _____

Street Address: _____

City: _____ State/Prov.:_____ Zip/Postal Code: _____

Contact: _____ Title: _____

Office Phone: _____ Cell Phone: _____

ACTIVITY LOG

Date of Cleaning: _____ (Next inspection should be 3 months from this data for first year).

Time of Cleaning: Start: _____ End: _____

Date of Next Inspection: _____

Floatable debris present: Yes No

Notes: _____

_____

_____

Oil present: Yes No Oil depth (inches): _____

Measurement method and notes: _____

_____

_____

STRUCTURAL CONDITIONS and OBSERVATIONS

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Structural damage: Yes No Where: _____

Structural wear: Yes No Where: _____

Odors present: Yes No Describe: _____

Clogging: Yes No Describe: _____

Other Observations: _____

_____

_____

NOTES

Additional Comments and/or Actions To Be Taken	Time Frame

ATTACHMENTS

- Attach site plan showing Aqua-Swirl® location.
- Attach detail drawing showing Aqua-Swirl® dimensions and model number.
- If a diversion configuration is used, attach details showing basic design and elevations (where feasible).

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Aqua-Swirl®

TABULAR MAINTENANCE SCHEDULE

Date Construction Started: _____

Date Construction Ended: _____

During Construction

	Month											
Activity	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Inspect and Clean as needed			X			X			X			X
Inspect Bypass and maintain as needed			X			X			X			X
Clean System*												X*

* The Aqua-Swirl® should be cleaned **once a year** regardless of whether it has reached full pollutant storage capacity. In addition, the system should be cleaned at the **end of construction** regardless of whether it has reach full pollutant storage capacity.

First Year Post-Construction

	Month											
Activity	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Inspect and Clean as needed			X			X			X			X
Inspect Bypass and maintain as needed			X			X			X			X
Clean System*												X*

* The Aqua-Swirl® should be cleaned **once a year** regardless of whether it has reached full pollutant storage capacity.

Second and Subsequent Years Post-Construction

	Month											
Activity	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Inspect and Clean as needed												X*
Inspect Bypass, maintain as needed												X*
Clean System*												X*

* If the Aqua-Swirl® did **not** reach full sediment or floatable pollutant capacity in the First Year Post-Construction period, the system can be inspected and cleaned once annually.

If the Aqua-Swirl® **reached** full sediment or floatable pollutant capacity in less than 12 months in the First Year Post-Construction period, the system should be inspected once every six (6) months or more frequently if past history warrants, and cleaned as needed. The Aqua-Swirl® should be cleaned annually regardless of whether it reaches its full sediment or floatable pollutant capacity.

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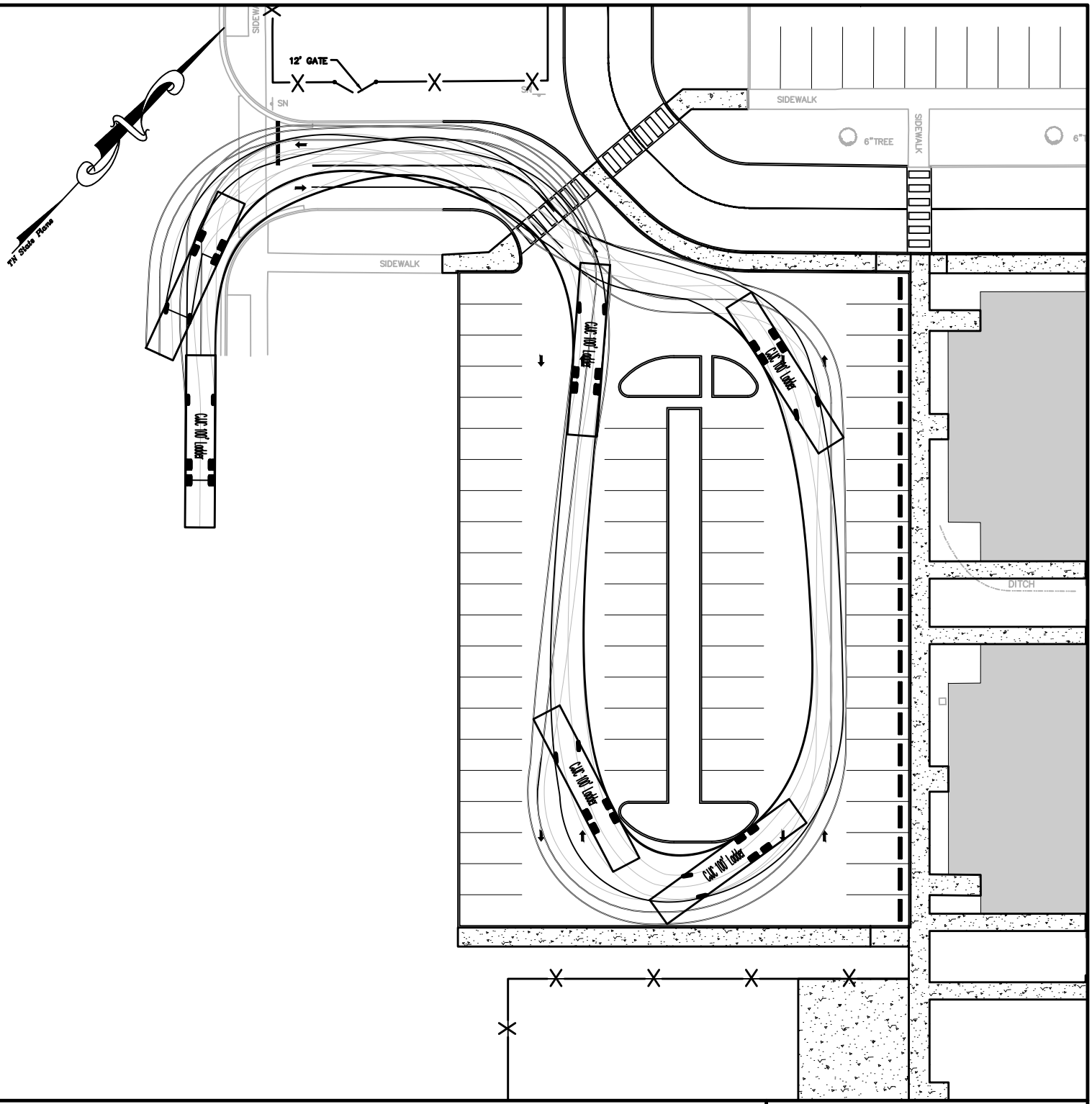
APPENDIX G

Fire Truck Exhibit



PROJECT: INTERIOR RENOVATIONS & CLASSROOM ADDITION FOR LAKEVIEW ELEMENTARY SCHOOL
FIRE TRUCK TURNING MOVEMENT EXHIBIT

PREPARED FOR: THOMAS WEEMS ARCHITECT

LOCATION: JOHNSON CITY, TENNESSEE

These documents prepared by Tysinger, Hampton & Partners, Inc. (TH&P) are instruments of TH&P's service. Unless otherwise indicated, TH&P shall be deemed the author of drawings, specifications and other documents and will retain all common law, statutory and other reserved rights, in addition to the copyright. Documents prepared by TH&P are for use solely with respect to this project. These documents shall not be used, copied or retained without the specific written consent of TH&P. Any violations of the above rights of TH&P shall be prosecuted to the maximum possible extent within the law.

Tysinger, Hampton & Partners, Inc.
Civil Engineering · Surveying · Environmental Consulting
7 WORTH CIRCLE
JOHNSON CITY, TENNESSEE 37601
Phone:(423) 282-2687 · Fax: (423) 854-4563
Email: thp@tysinger-engineering.com
WWW.TYSINGER-ENGINEERING.COM

SCALE: 1"=40'

DATE: 4/9/21

DRAWN: JES

CADD FILE: 1922107C Fire Truck Exhibit.DWG

PROJECT NO. **1922107C**

ELECTRICAL ADDENDUM
INTERIOR RENOVATIONS AND CLASSROOM ADDITION FOR
LAKE RIDGE ELEMENTARY SCHOOL
Johnson City, Tennessee
May 13, 2021

1. Refer to Electrical Drawings E101B, E101C, E101D, E103A, E201B, and E203A:

   The "Existing Ceiling Work Note" on each of these drawings shall be changed to read as follows:

   Due to HVAC system replacement throughout existing school, ceiling grids, ceiling tiles, etc. will have to be removed and reinstalled in order for new systems to be installed. As part of the ceiling removal/reinstallation work, electrical contract work will include removal and reinstallation of associated electrical/communications items including, but not limited to, lighting fixtures, exit signs, emergency lighting units, lighting control devices, occupancy sensors, security system motion detectors, CCTV cameras, network wireless access points (WAP), speakers, etc. Carefully coordinate all work with other trades and GC as required. Refer to architectural drawings for limits of ceiling grid and ceiling tile removal in the existing building as well as "ceiling new scope of work" notes on architectural drawings which outline contractor responsibilities to replace items if items are damaged during this process. Any additional ceiling work shown outside areas indicated on architectural drawings will be covered by allowance as noted on architectural drawings.

2. Refer to electrical drawings and project manual:

   As a clarification, attention is called to the fact that electrical drawings and project manual set forth the fire alarm scope of work to include a complete new fire alarm system for the new addition. In the existing building, existing fire alarm system devices, equipment, wiring, etc. shall remain in place and be maintained in operation unless noted otherwise on drawings. Exception to this is that new duct type smoke detectors will be provided in replacement HVAC units in the existing building where noted on drawings. Further, electrical drawings and project manual require that the new FACU being provided in the new addition is to be interfaced with the existing FACU which is to remain in the existing school such that an alarm condition at either new or existing FACU will activate an evacuation alarm on all new and existing audio/visual notification appliances throughout building.

VREELAND ENGINEERS, INC.

PTA Request for Payment

Date 9/6/19

Name Laura Linn Board Position _____

Address _____ Zip Code _____

Make Check Payable To Playground Equipment.com

Item(s) bought and purpose/line item:

SunShade Amount $9005.00

_____ Amount _____

_____ Amount _____

_____ Amount _____

_____ Amount _____

_____ Amount _____

Total Amount Due $ 9005.00

SALES TAX CANNOT BE REIMBURSED

For Treasurer's Use Only

Date Paid 9/6/19 Check Number 3164

Amount $9005.00 Account/Line Item Long Term Purchases

Approved By:

President _____ Date 9/6/19

Treasurer _____ Date 9/6/19

PlaygroundEquipment.com
1 Playground Drive
Greenfield, IN 46140
Phone: (800) 667-0097
Fax: (317) 855-9247

Ship Via: Freight
Request By: Morgan
Quote Out: 8/27/2019

Quote #716526

Visit:
PlaygroundEquipment.com
for more great deals

Bill To	Ship To:
Lake Ridge School PTA Laura Linn 1001 Lake Ridge Square Johnson City, TN 37601 USA lauramlinn@gmail.com Ph: (423) 737-7788 Fax:	JC Schools Maintenance Department Renee Wood 2735 E Oakland Ave Johnson City, TN 37601 USA Ph: (423) 737-7788

Product ID	Description	Weight	Qty	Price	Amount
RD243412IG	24' x 34' Rectangular Fabric Shade, 12' Entrance Height, In-Ground Mount, WITH Glide Elbow	1,931 lbs	1	$7,583.00	$7,583.00

QUOTE ONLY
VALID FOR 30 DAYS FROM DATE OF ISSUE

Subtotal:	$7,583.00
Shipping:	$1,422.00
Tax Rate:	0%
Sales Tax:	$0.00
Total Weight:	1,931 lbs
Installation:	
Total:	**$9,005.00**

Notes

Ships via Freight from GA by appointment for delivery.
Customer responsible for unloading shipment.

COLORS
Posts: Iced Coffee
Fabric: Forest Green

Please note, this quote does not include sealed engineered drawings. You will need to contact your local building commission to see if they require sealed engineered drawings in order to pull a permit. Your building commission may deny a permit to erect the shade thout the renderings. Please make sure you know if these are required before ordering. Please note, sealed engineered drawings may change the shade to a custom unit and may affect the price of the shade as the shade will then need to be designed to the specifications of the city/state you are located in. Shades are nonreturnable and nonrefundable.

DOCUMENT 01 2519

SUBSTITUTION REQUEST FORM

To: PATH CONSTRUCTION	Project Name: LAKE RIDGE ELEM SCHOOL
ATTN: DAVID NELSON PROJECT MANAGER	

Specified Item: DIV 8	Proposed Substitute: METAL PRODUCTS, INC.
HOLLOW METAL DOORS AND FRAMES	CORBIN, KY

1. The following are attached (Mark all that apply):

   ☐ Complete Description ☐ Catalog

   ☐ Laboratory Tests ☐ Specification Data

2. This substitution will have the following effects on dimensions, gauges, weights, etc.:

   NONE

3. This substitution will have the following effects on wiring, piping, ductwork, etc.:

   N/A

4. This substitution will have the following effects on other trades:

   NONE

5. This substitution will have the following effect on construction Schedules:

   NONE

6. The proposed substitute(s) differs from the specified product(s) in quality and performance as follows:

   QUALITY IS A+ STEEL DOOR INSTITURE MEMBER

7. Manufacturers guarantees for the substitute(s) and the specified product(s) are (check one):

   ☒ The Same. No Change. ☐ Different. Describe Below.

8. Information on the availability of maintenance services and replacement materials for proposed substitute(s) is provided on an attached sheet if applicable. This attachment is:

   ☒ Attached. ☐ Not Applicable.

9. Names, addresses, and phone numbers of fabricators and suppliers for proposed substitute(s) are provided on an attached sheet if applicable. This attachment is:

   ☒ Attached. ☐ Not Applicable.

10. If the cost substitution is accepted, it will result in:

[X] No Cost Impact.

[ ] Cost Increase $ _____

[ ] Cost Decrease $ _____

11. License fees or royalties are pending on the proposed substitution:

[X] No.

[ ] Yes. Describe Below.

12. The undersigned or the firm represented shall pay for additional studies, investigations, submittals, redesign, and analysis by the Designer necessitated by this substitution request.

Substitutions must be requested in accordance with applicable Contract requirements. After bidding, substitutions are to be submitted only by Contractor. Substitute products should not be ordered or installed without written acceptance.

Date: MAY 5, 2021

Submitted By: JERRY D. MCCLANAHAN

Signature: Jerry D. McClanahan

Firm Name: APPALACHIAN COMMERCIAL PRODUCTS, LLC

Address: 250 BIRCH STREET SUITE "B"
BLOUNTVILLE, TN 37617

Telephone: 423-323-2952

Designer's Review Comments:

[✓] Accepted.

[ ] Rejected.

[ ] Rejected – Received Too Late.

[ ] Rejected – Submittal Incomplete.

APPROVED
By Katie Hill at 5:04 pm, May 17, 2021

Additional Comments:

For The Designer:

Date:

Name:

Signature:

END OF SECTION

STEEL DOOR INSTITUTE
Standards As Tough As Steel.™

30200 Detroit Road, Cleveland, OH 44145
Phone: 440 899-0010 Fax: 440 892-1404
www.steeldoor.org

January 19, 2021

Mr. David McConnell
MPI
319 North Hills Road
Corbin, KY 40701

Dear David,

This letter acknowledges receipt of MPI's certification criteria as outlined by the SDI Technical Committee for 2021:

ASTM A1008-2016 Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
ASTM A653-2015e1 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ANSI/SDI A250.4-11 Test Procedure and Acceptance Criteria for — Physical Endurance for Steel Doors, Frames and Frame Anchors
ANSI/SDI A250.10-11 Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames

Upon review of the material provided, the Steel Door Institute has determined that MPI is in compliance with the certification requirements and is therefore approved to continue to utilize "SDI Certified" branding.

Thank you for your participation in SDI's 2021 Certification program.

Very truly yours,

J. J. Wherry
Managing Director

Ceco
Milan, TN

Curries
Mason City, IA

Deansteel
San Antonio, TX

DCI
Fontana, CA

HMX
Phoenix, AZ

Mesker
Huntsville, TN

MPI
Corbin, KY

Pioneer
Carlstadt, NJ

Premier
Monroe, LA

Republic
McKenzie, TN

SMP
Culver City, CA

Steelcraft
Cincinnati, OH

NAAMM

National Association of Architectural Metal Manufacturers

Architectural Metal Products Division
Expanded Metal Manufacturers Association Division
Hollow Metal Manufacturers Association Division
Metal Bar Grating Division

January 11, 2019

To Whom It May Concern:

This will confirm that ***The MPI Group LLC*** is a member in good standing of the Hollow Metal Manufacturers Association (HMMA) Division of NAAMM, the National Association of Architectural Metal Manufacturers and is entitled to all rights and privileges of membership.

As such, ***The MPI Group LLC*** endorses the technical product standards and specifications published by the HMMA Division.

Sincerely,

Jeff Church
Executive Vice President

800 Roosevelt Rd. • Bldg. C-312 • Glen Ellyn, IL 60137
630/942-6591 • FAX: 630/790-3095
E-Mail: info@naamm.org • http://www.naamm.org

MPI
CUSTOM STEEL DOORS & FRAMES

February 25, 2019

RE: ANSI 250.4 Physical Endurance Levels of Doors & Frames and ANSI 250.8 SDI Classifications

The MPI Group has successfully tested both of our door product lines to the ANSI 250.4 standards at Intertek Testing Labs and the results are as follows.

Polystyrene Doors (#3195456MID-002): tested a 18 gauge door to 1 million cycles, with 0.818" max deflection with 300lb load applied, and 0.044" permanent deflection after load released to successfully pass Performance Level A using a Level 2 (18 gauge door) with no restriction of Model seam.

Steel Stiffen Doors (#WHI-495-SP-0631): tested a 16 gauge door to 4 million cycles (3 million beyond the test standard). At the highest testing standard of 1 million cycle testing, max deflection of 0.210" with 300lb load applied and 0.010" permanent deflection after the load is removed to successfully pass Performance Level A using a Level 3 (16 gauge door) with no restriction of Model seam. As indicated above the testing continued after recording the 1 million cycle until they reached 4 million cycles and they documented max deflection of 0.354" with 300lb load applied and 0.011" permanent deflection after removing the load, due to the testing standard only coving to Performance Level A this part of the test didn't yield any additional performance levels and was for informational purposes only.

ANSI 250.8 Section 2.04 (not a testing standard)
Level 1 – 0.032" (20 gauge) Door
Level 2 – 0.042" (18 gauge) Door
Level 3 – 0.056" (16 gauge) Door
Level 4 – 0.067" (14 gauge) Door

ANSI 250.8 Section 2.04 (not a testing standard)
Model 1 – Open Seam Door Edge
Model 2 – Seamless Door Edge

ANSI 250.4 Section 5 (cycle testing), 6 (twist testing), & 7 (acceptance criteria)
Performance Level A – Max Deflection of 1 ¼" at 300lb load and 1 million cycles
Performance Level B – Max Deflection of 1 ¼" at 300lb load and 500 thousand cycles
Performance Level C – Max Deflection of 2 ½" at 300lb load and 250 thousand cycles
*Max 1/8 permanent deflection for any performance level once the load is removed (ANSI 250.4 Section 7.1.8)

Please contact us if additional information is needed.

Very truly yours,

Dan McConnell

David McConnell
Products and Services Manager

319 NORTH HILLS ROAD, CORBIN, KY 40701
(OFFICE) 606-523-0461 (FAX) 606-528-6959 METALPRODUCTSINC.COM
MADE RIGHT HERE

DOCUMENT 01 2519

SUBSTITUTION REQUEST FORM

To: Tom Weems	Project Name: Lake Ridge Elementary
Thomas Weems Architect 3203 Hanover Road Johnson City, TN 37604	1001 Lake Ridge Square Johnson City, TN 37601

Specified Item: Kawneer	Proposed Substitute: Quaker Windows
AA 6400 Fixed and Project-Out	M600 Fixed and Project-Out Windows

1. The following are attached (Mark all that apply):

   [ ] Complete Description
   [X] Catalog
   [X] Laboratory Tests
   [ ] Specification Data

2. This substitution will have the following effects on dimensions, gauges, weights, etc.:

   Quaker M600 is 3 1/4" deep, compared to 4" for Kawneer's AA 6400.

3. This substitution will have the following effects on wiring, piping, ductwork, etc.:

   N/A

4. This substitution will have the following effects on other trades:

   N/A

5. This substitution will have the following effect on construction Schedules:

   N/A

6. The proposed substitute(s) differs from the specified product(s) in quality and performance as follows:

   Window depth dimension only.

7. Manufacturers guarantees for the substitute(s) and the specified product(s) are (check one):

   [X] The Same. No Change.
   [ ] Different. Describe Below.

8. Information on the availability of maintenance services and replacement materials for proposed substitute(s) is provided on an attached sheet if applicable. This attachment is:

   [X] Attached.
   [ ] Not Applicable.

   KGI has access to replacement parts and can perform maintenance on proposed window.

9. Names, addresses, and phone numbers of fabricators and suppliers for proposed substitute(s) are provided on an attached sheet if applicable. This attachment is:

   [X] Attached.
   [ ] Not Applicable.

10. If the cost substitution is accepted, it will result in: X To be determined

☐ No Cost Impact. ☐ Cost Increase $ _____

☐ Cost Decrease $ _____

11. License fees or royalties are pending on the proposed substitution:

☒ No. ☐ Yes. Describe Below.

12. The undersigned or the firm represented shall pay for additional studies, investigations, submittals, redesign, and analysis by the Designer necessitated by this substitution request.

Substitutions must be requested in accordance with applicable Contract requirements. After bidding, substitutions are to be submitted only by Contractor. Substitute products should not be ordered or installed without written acceptance.

Date: 5/10/21

Submitted By: Neil Johnson

Signature:

Firm Name: Keller Glasco

Address: 2711 East Oakland Avenue
Johnson City, TN 37601

Telephone: 423-282-1210, extension 111

Designer's Review Comments:

☐ Accepted. ☒ Rejected.

☐ Rejected – Received Too Late.

☐ Rejected – Submittal Incomplete.

REVIEWED
By Katie Hill at 5:05 pm, May 17, 2021

Additional Comments:

Not an equal product.

For The Designer:

Date:

Name:

Signature:

END OF SECTION

DOCUMENT 01 2519

SUBSTITUTION REQUEST FORM

To: TOM WEEMS	Project Name: LAKE RIDGE ES
Specified Item: SEE ATTACHED RFS	Proposed Substitute: SEE ATTACHED RFS

1. The following are attached (Mark all that apply):
   - [x] Complete Description
   - [ ] Catalog
   - [ ] Laboratory Tests
   - [x] Specification Data
2. This substitution will have the following effects on dimensions, gauges, weights, etc.:
   NONE
3. This substitution will have the following effects on wiring, piping, ductwork, etc.:
   NONE
4. This substitution will have the following effects on other trades:
   NONE
5. This substitution will have the following effect on construction Schedules:
   NONE
6. The proposed substitute(s) differs from the specified product(s) in quality and performance as follows:
   SUBSTITUED PRODUCTS ARE EQUAL OR BETTER
7. Manufacturers guarantees for the substitute(s) and the specified product(s) are (check one):
   - [ ] The Same. No Change.
   - [ ] Different. Describe Below.

   SEE ATTACHED RFS + DATA PAGES
8. Information on the availability of maintenance services and replacement materials for proposed substitute(s) is provided on an attached sheet if applicable. This attachment is:
   - [ ] Attached.
   - [x] Not Applicable.
9. Names, addresses, and phone numbers of fabricators and suppliers for proposed substitute(s) are provided on an attached sheet if applicable. This attachment is:
   - [ ] Attached.
   - [x] Not Applicable.

10. If the cost substitution is accepted, it will result in:

☐ No Cost Impact. ☐ Cost Increase $ _____

☑ Cost Decrease $ TBD

11. License fees or royalties are pending on the proposed substitution:

☑ No. ☐ Yes. Describe Below.

12. The undersigned or the firm represented shall pay for additional studies, investigations, submittals, redesign, and analysis by the Designer necessitated by this substitution request.

Substitutions must be requested in accordance with applicable Contract requirements. After bidding, substitutions are to be submitted only by Contractor. Substitute products should not be ordered or installed without written acceptance.

Date: MAY 10, 2021

Submitted By: PAUL HOTOVEC

Signature: Paul J Hot

Firm Name: CERTAINTEED ARCHITECTURAL

Address: 20 MOORES ROAD
MALVERN, PA 19355

Telephone: 615-947-6502

Designer's Review Comments:

☑ Accepted. ☐ Rejected.

☐ Rejected – Received Too Late.

☐ Rejected – Submittal Incomplete.

APPROVED
By Katie Hill at 5:02 pm, May 17, 2021

Additional Comments:

For The Designer:

Date: _____

Name: _____

Signature: _____

END OF SECTION